Project 2: Weather Radar App Scalability Testing

Work Distribution:

Team Member	Testing
Sanket Darwante: sdarwant	Full Stack Load Testing, Spike Testing, Autoscaling & Fault Tolerance Testing
Sumedh Salvi: sssalvi	Weather API Load Testing, Spike Testing, Report Documentation & Analysis
Richa Jha: ricjha	User API Testing, Spike Testing, Documentation Report & Analysis

GitHub Issues:

1. **Sanket Darwante**

   Kube Config: Angular UI:
   https://github.com/airavatacourses/SuperNova/issues/109
   Auto Scaling: Full Stack:
   https://github.com/airavatacourses/SuperNova/issues/121
   Scalability Test Plan: Full Stack :
   https://github.com/airavatacourses/SuperNova/issues/122
   Scalability Report: Full Stack:
   https://github.com/airavatacourses/SuperNova/issues/125
   Service File Cleanup:
   https://github.com/airavatacourses/SuperNova/issues/111

2. **Sumedh Salvi:**

   Kube config: weather api:
   https://github.com/airavatacourses/SuperNova/issues/114
   Kube Config: Weather Cache:
   https://github.com/airavatacourses/SuperNova/issues/119
   Scalability Test Plan: Weather Api:
   https://github.com/airavatacourses/SuperNova/issues/124

Scalability Report: WeatherApi:
https://github.com/airavatacourses/SuperNova/issues/126

3. **Richa Jha:**

   kube-config-userApi:
   https://github.com/airavatacourses/SuperNova/issues/116
   Kube-Config Gateway:
   https://github.com/airavatacourses/SuperNova/issues/120
   Scalability Test Plan: User Api:
   https://github.com/airavatacourses/SuperNova/issues/123
   Scalability Report: User Api:
   https://github.com/airavatacourses/SuperNova/issues/127

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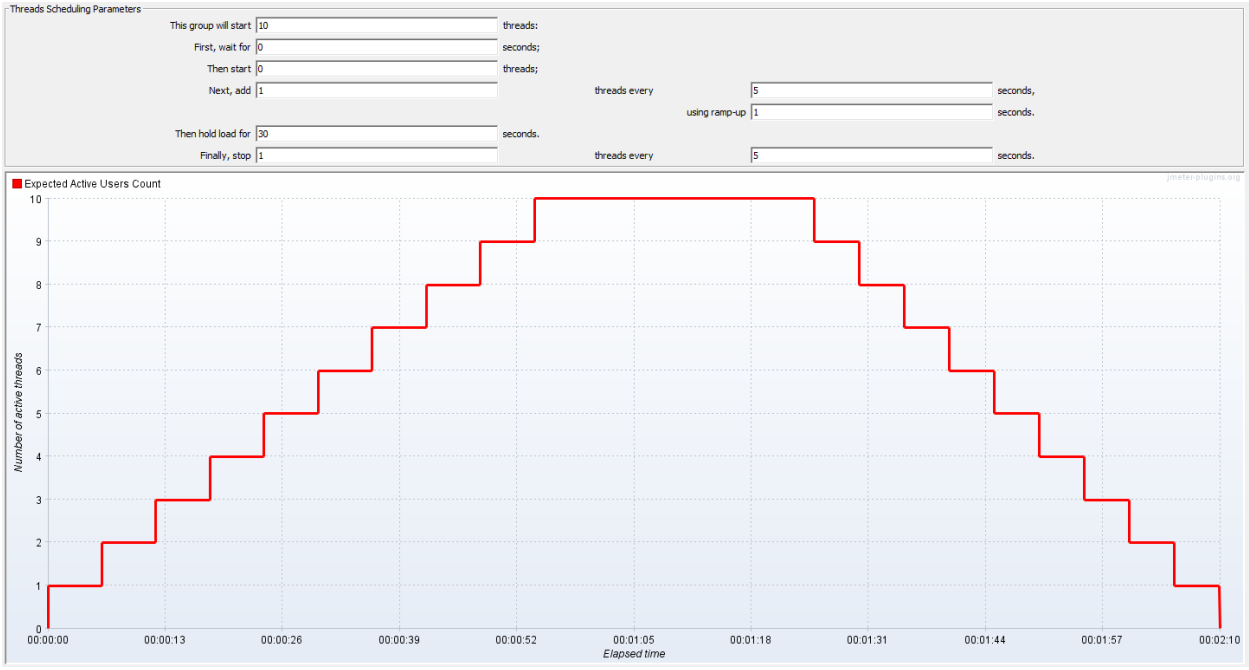
WEATHER API

Weather API Load Testing

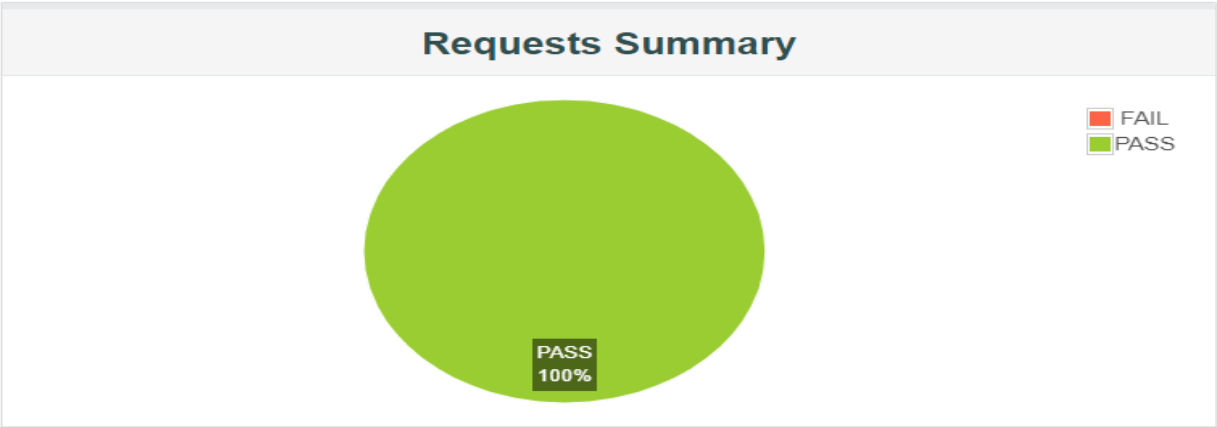
System Configuration:
Processor: Intel(R) Core(TM) i5-1035G1 CPU @ 1.00GHz 1.19 GHz
RAM: 12.0 GB

Testing Scenarios:

No. of Instance: 1
Test Plan: 10 Threads - 1 Instance



Test Report:

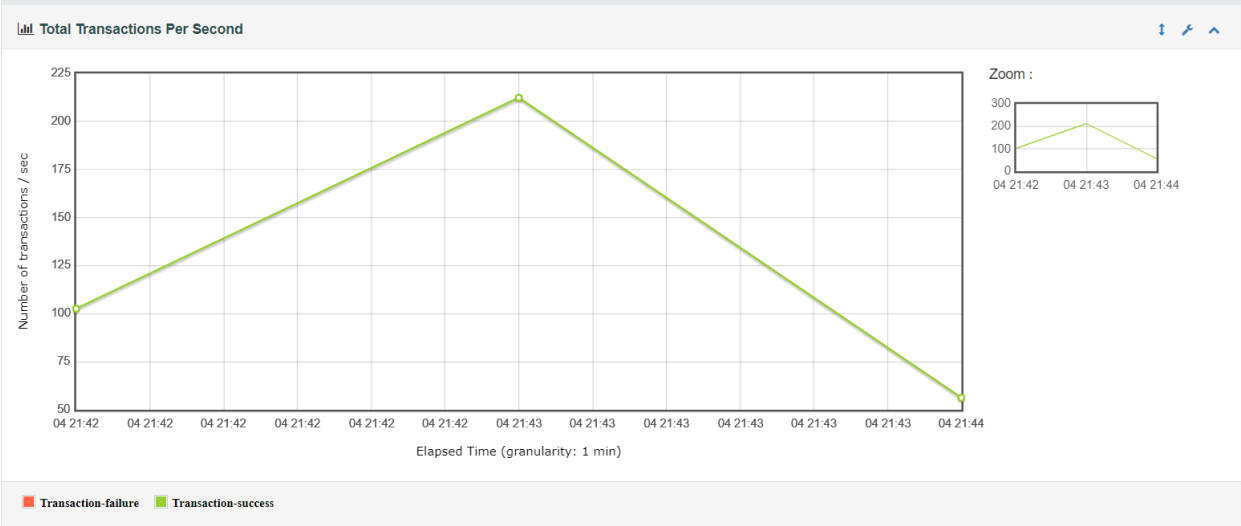


APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
1.000	**500 ms**	**1 sec 500 ms**	**Total**
1.000	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**22276**	**0**	**0.00%**	**30.74**	**7**	**131**	**33.00**	**45.00**	**49.00**	**59.00**	**177.07**	**19063.93**	**0.00**
GET_weatherApi/plot	22276	0	0.00%	30.74	7	131	33.00	45.00	49.00	59.00	177.07	19063.93	0.00



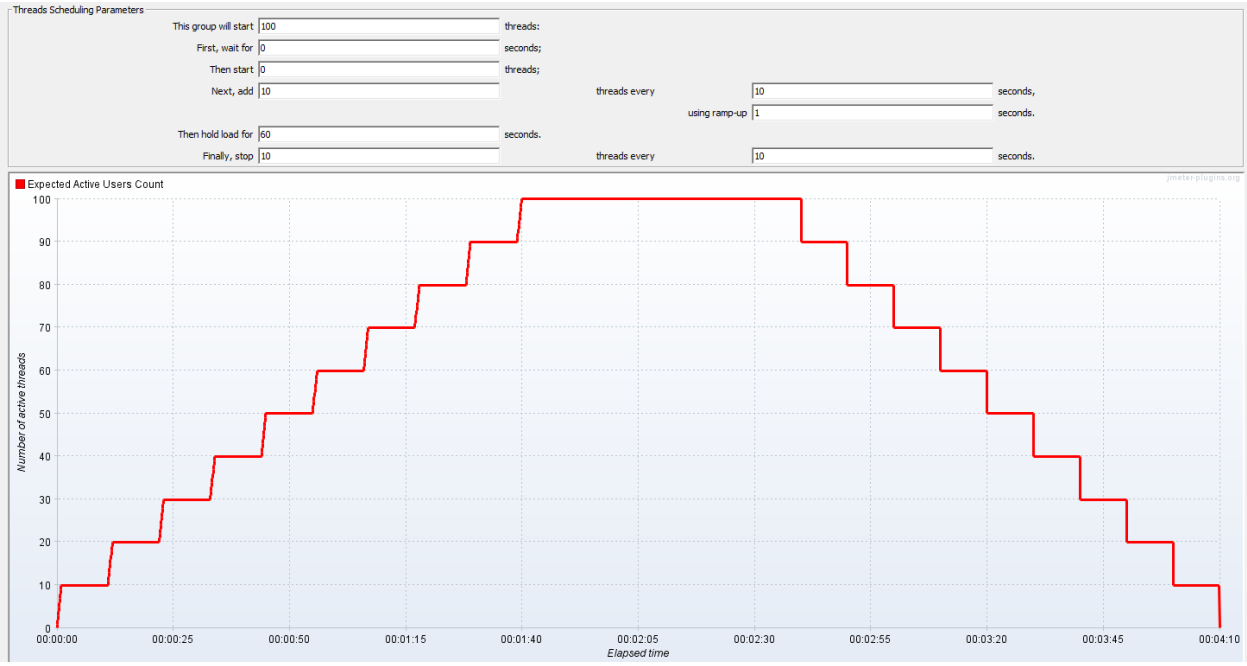
Resources used on zero load (0 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                    CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh   3m           157Mi
```

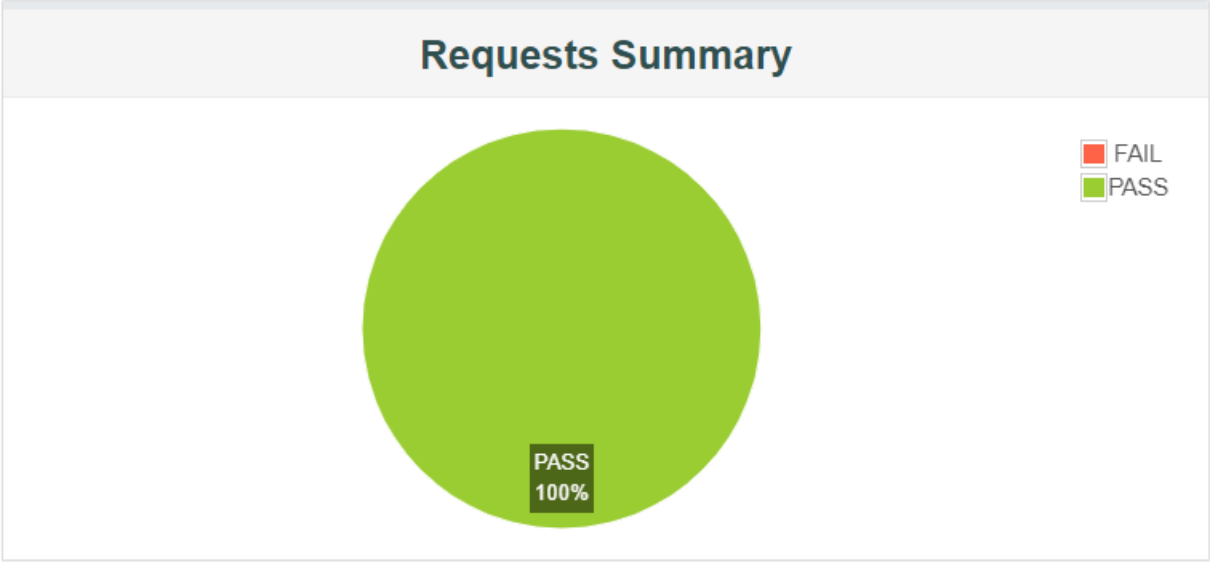
Resources used on maximum load (10 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                    CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh   1095m        2295Mi
```

Test Plan: 100 Threads - 1 Instance



Test Report:

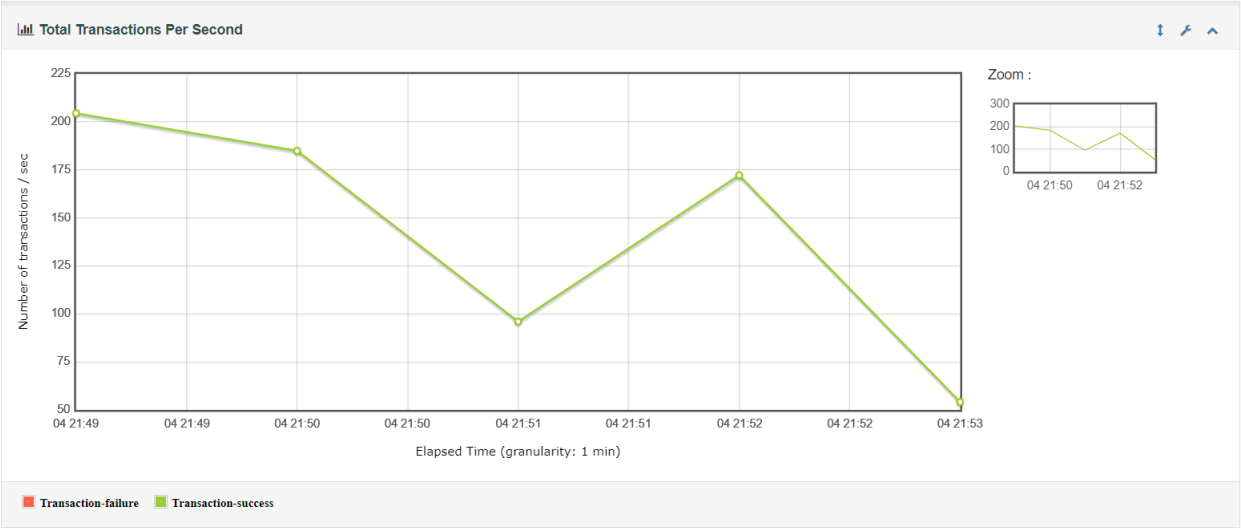


APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.875	**500 ms**	**1 sec 500 ms**	**Total**
0.875	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**42712**	**0**	**0.00%**	**362.74**	**11**	**2887**	**328.00**	**1105.00**	**1370.00**	**1955.95**	**170.85**	**18393.78**	**0.00**
GET_weatherApi/plot	42712	0	0.00%	362.74	11	2887	328.00	1105.00	1370.00	1955.95	170.85	18393.78	0.00



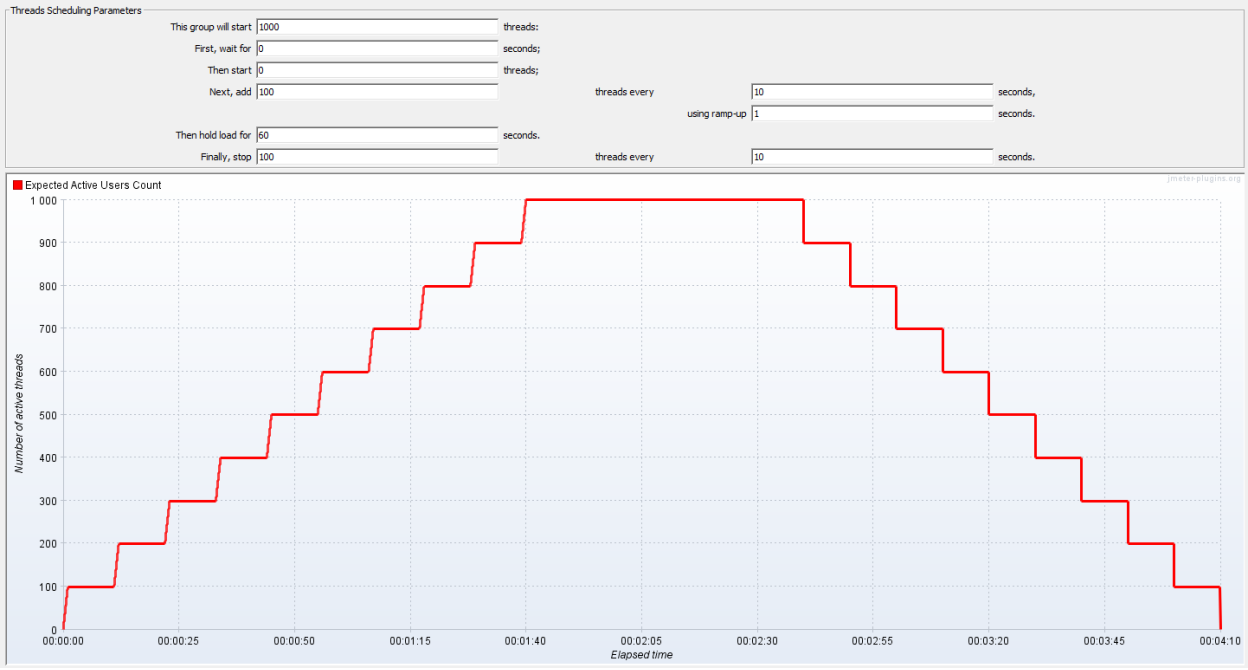
Resources used on zero load (0 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                    CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh   3m           1105Mi
```

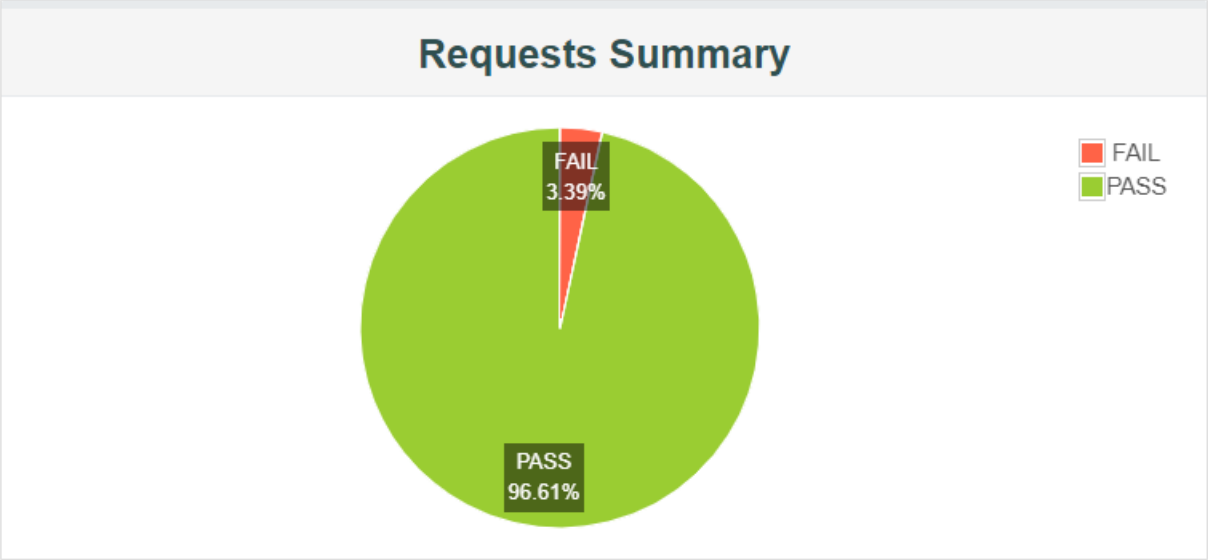
Resources used on maximum load (100 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                    CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh   1000m        1106Mi
```

Test Plan: 1000 Threads - 1 Instance



Test Report:



APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.159	**500 ms**	**1 sec 500 ms**	**Total**
0.159	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**41535**	**1410**	**3.39%**	**3806.02**	**87**	**28414**	**4719.00**	**10658.00**	**12339.80**	**23933.93**	**165.86**	**17261.24**	**0.00**
GET_weatherApi/plot	41535	1410	3.39%	3806.02	87	28414	4719.00	10658.00	12339.80	23933.93	165.86	17261.24	0.00

Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	**41535**	**1410**	**Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect**	**1410**								
GET_weatherApi/plot	41535	1410	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect	1410								

Resources used on zero load (0 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    3m           1109Mi
```

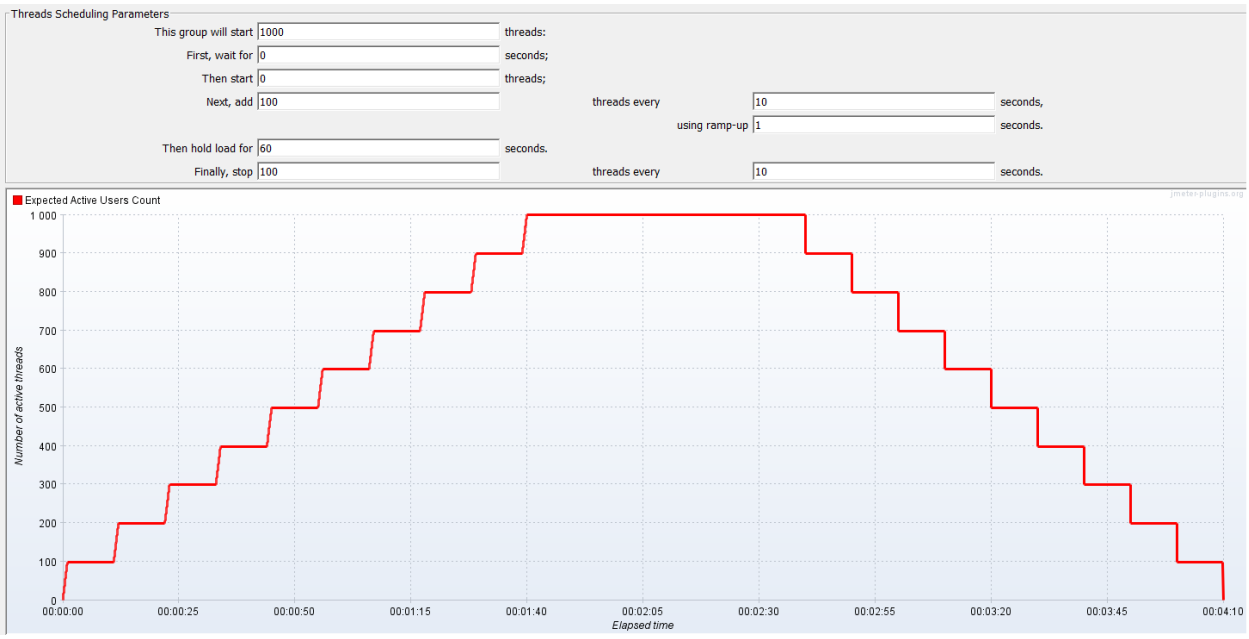
Resources used on maximum load (1000 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    1000m        1140Mi
```

Summary of 1 Instance:

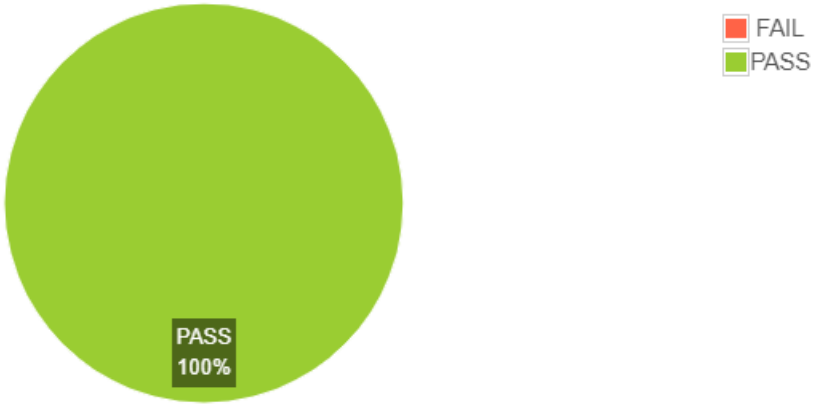
No. of Threads	No. of Instances	CPU(cores) on max load	Average CPU(cores) on max load	MEMORY(bytes) on max load	Average MEMORY(bytes) on max load	# Samples	Error %	Transactions/s
0	1	3m	3m	157Mi	157Mi	0	0.00000	0
10	1	1095m	1095m	2295Mi	2295Mi	22276	0.00000	177.07
100	1	1000m	1000m	1106Mi	1106Mi	42712	0.00000	170.85
1000	1	1000m	1000m	1140Mi	1140Mi	41535	3.39000	165.86

No. of Instance: 3
Test Plan: 1000 Threads - 3 Instance



Test Report:

Requests Summary

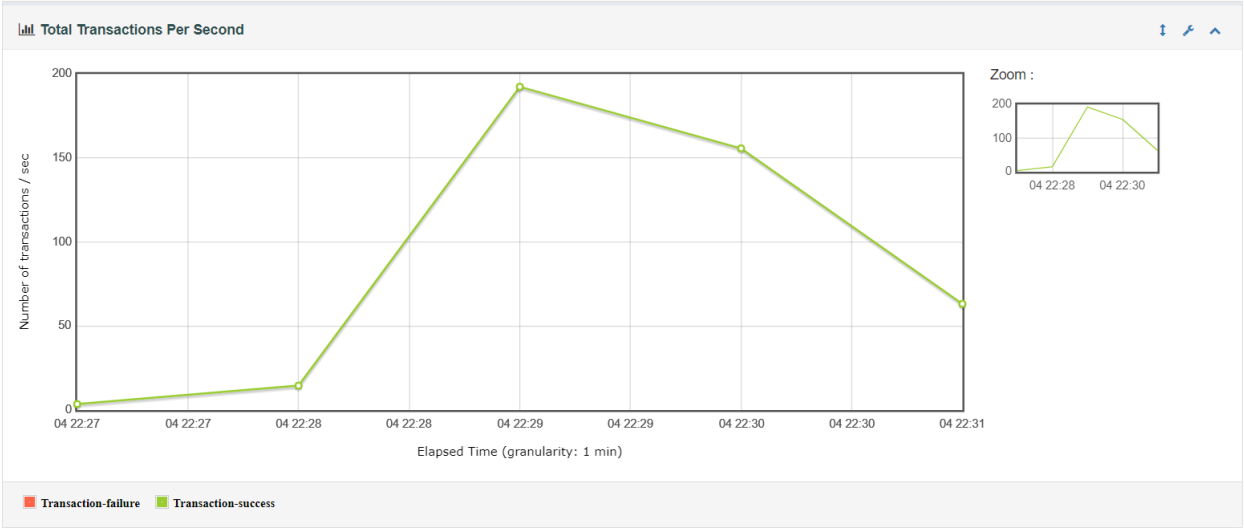


APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.054	**500 ms**	**1 sec 500 ms**	**Total**
0.054	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**25766**	**0**	**0.00%**	**6080.41**	**9**	**103525**	**4402.00**	**6038.00**	**6416.95**	**7172.99**	**102.95**	**11084.34**	**0.00**
GET_weatherApi/plot	25766	0	0.00%	6080.41	9	103525	4402.00	6038.00	6416.95	7172.99	102.95	11084.34	0.00



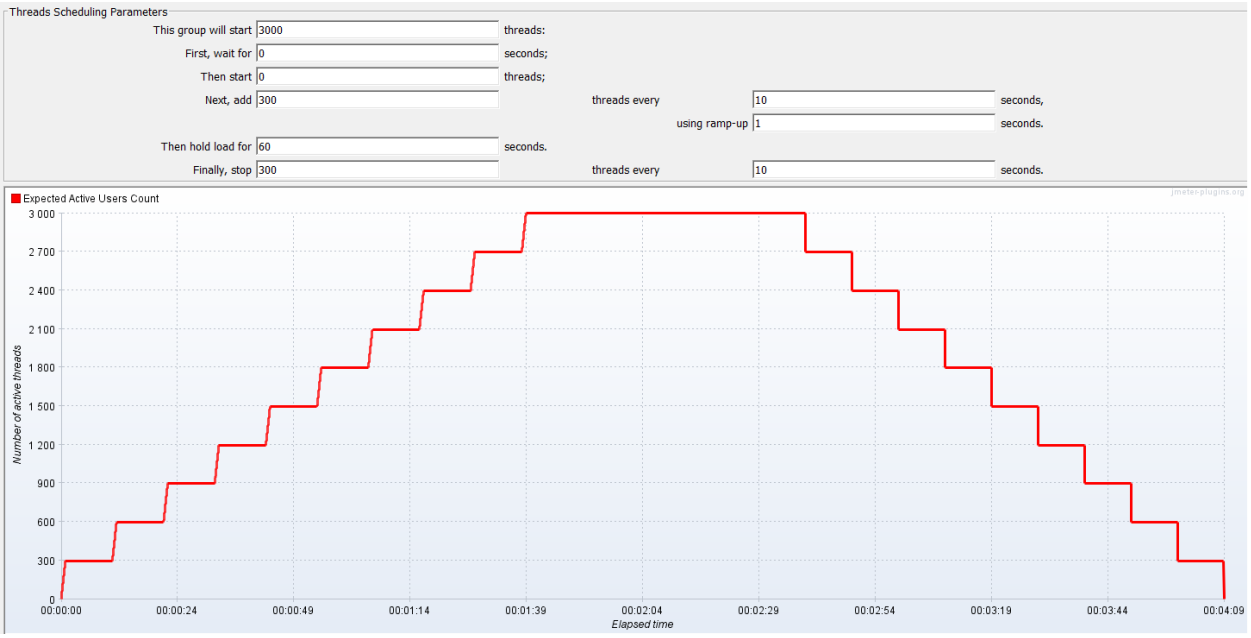
Resources used on zero load (0 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    3m           1190Mi
weather-radar-api-app-566f78b495-m59pv    3m           112Mi
weather-radar-api-app-566f78b495-s7jgs    3m           108Mi
```

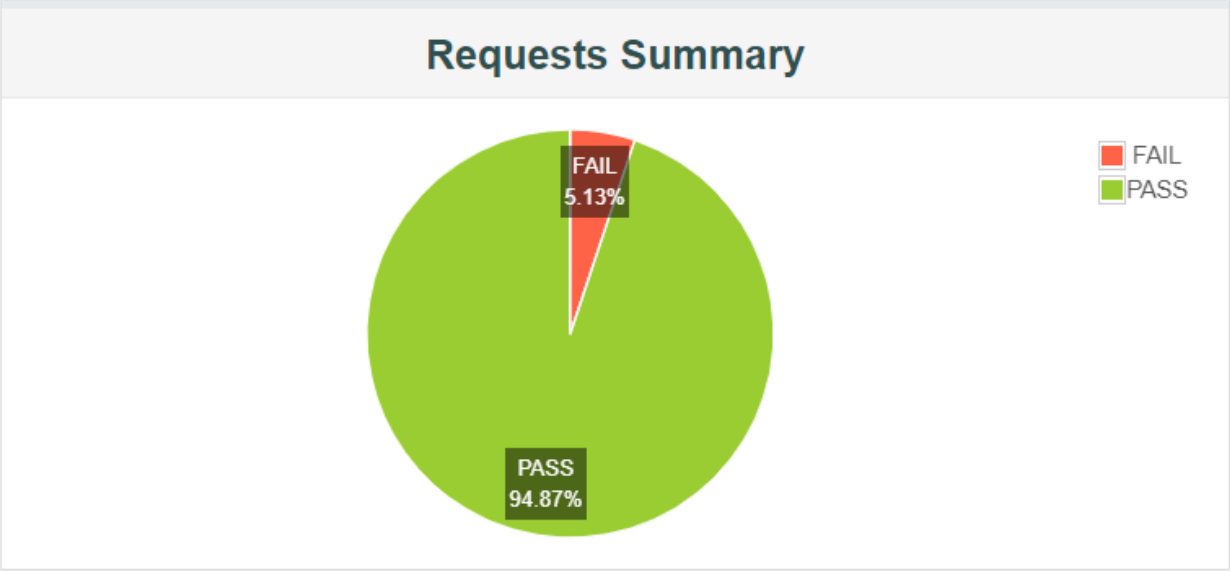
Resources used on maximum load (1000 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    858m         410Mi
weather-radar-api-app-566f78b495-m59pv    847m         853Mi
weather-radar-api-app-566f78b495-s7jgs    857m         952Mi
```

Test Plan: 3000 Threads - 3 Instance



Test Report:



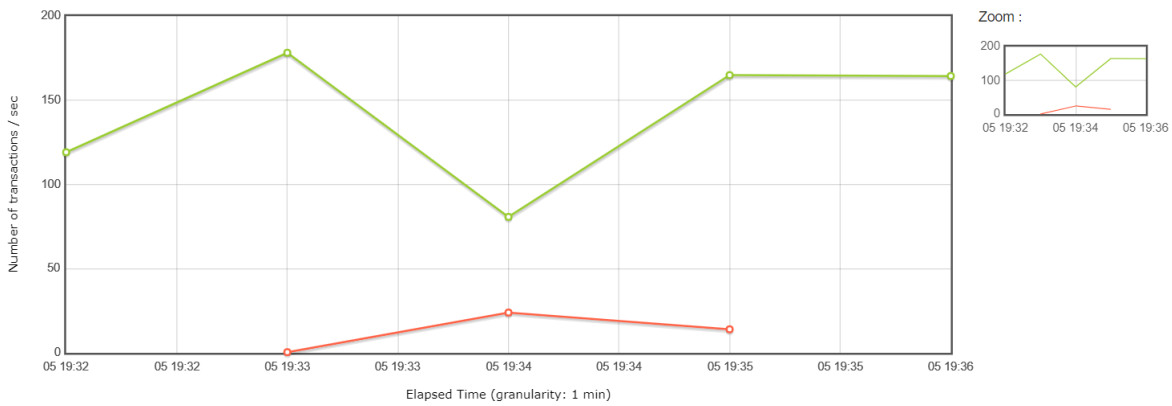
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.047	**500 ms**	**1 sec 500 ms**	**Total**
0.047	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**44755**	**2296**	**5.13%**	**10658.82**	**356**	**47239**	**8303.00**	**26808.80**	**29852.90**	**32528.92**	**178.51**	**18250.76**	**0.00**
GET_weatherApi/plot	44755	2296	5.13%	10658.82	356	47239	8303.00	26808.80	29852.90	32528.92	178.51	18250.76	0.00

Total Transactions Per Second



Transaction-failure Transaction-success

Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	**44755**	**2296**	**Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect**	**2296**								
GET_weatherApi/plot	44755	2296	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect	2296								

Resources used on zero load (0 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    4m           389Mi
weather-radar-api-app-566f78b495-m59pv    4m           865Mi
weather-radar-api-app-566f78b495-s7jgs    3m           957Mi
```

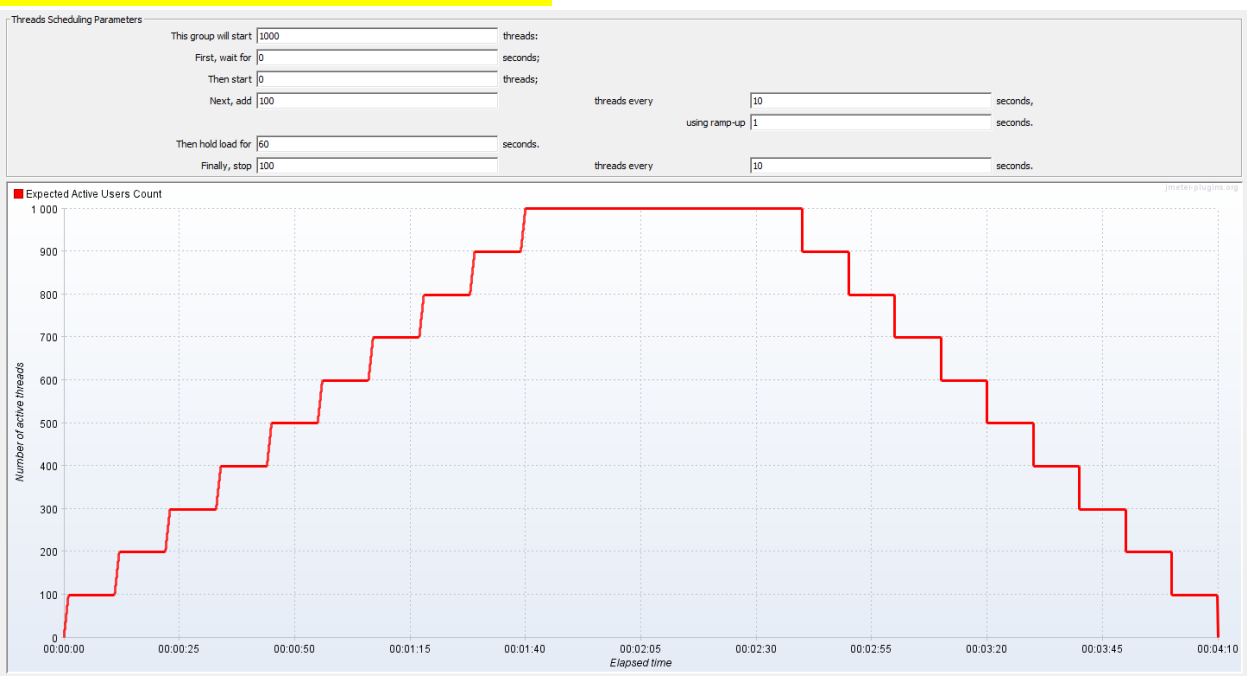
Resources used on maximum load (3000 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    850m         389Mi
weather-radar-api-app-566f78b495-m59pv    814m         865Mi
weather-radar-api-app-566f78b495-s7jgs    896m         957Mi
```

Summary of 3 Instance:

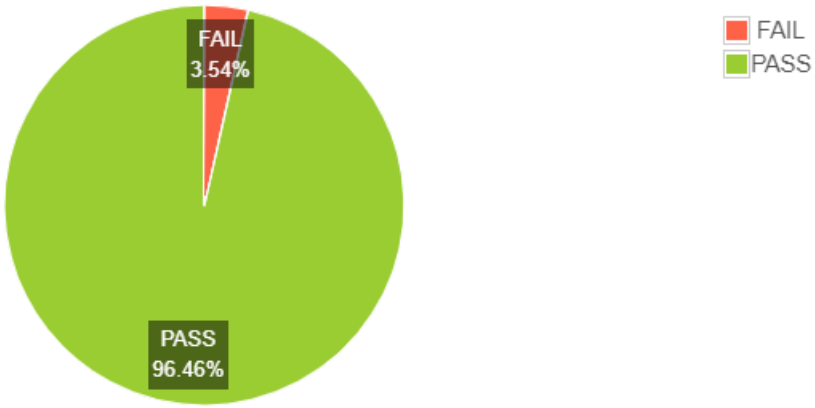
No. of Threads	No. of Instances	CPU(cores) on max load	Average CPU(cores) on max load	MEMORY(bytes) on max load	Average MEMORY(bytes) on max load	# Samples	Error %	Transactions/s
0	3	3m 3m 3m	3m	1190Mi 112Mi 108Mi	470Mi	0	0.00000	0
1000	3	858m 847m 857m	854m	410Mi 853Mi 952Mi	738.33Mi	25766	0.00000	102.95
3000	3	850m 814m 896m	853.33m	389Mi 865Mi 957Mi	737Mi	44755	5.13000	178.51

No. of Instance: 5
Test Plan: 1000 Threads - 5 Instance



Test Report:

Requests Summary

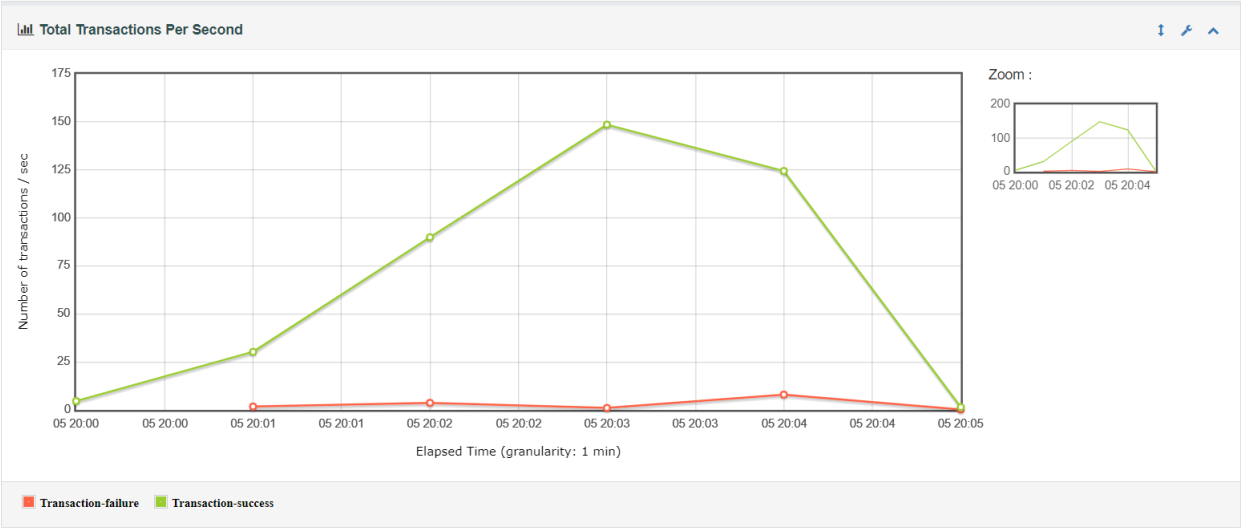


APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.251	**500 ms**	**1 sec 500 ms**	**Total**
0.251	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**24837**	**879**	**3.54%**	**6834.37**	**7**	**96324**	**2348.00**	**7064.40**	**36971.85**	**48793.20**	**79.23**	**8235.77**	**0.00**
GET_weatherApi/plot	24837	879	3.54%	6834.37	7	96324	2348.00	7064.40	36971.85	48793.20	79.23	8235.77	0.00



Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#E
Total	**24837**	**879**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server**	**549**	**Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect**	**330**						
GET_weatherApi/plot	24837	879	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	549	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect	330						

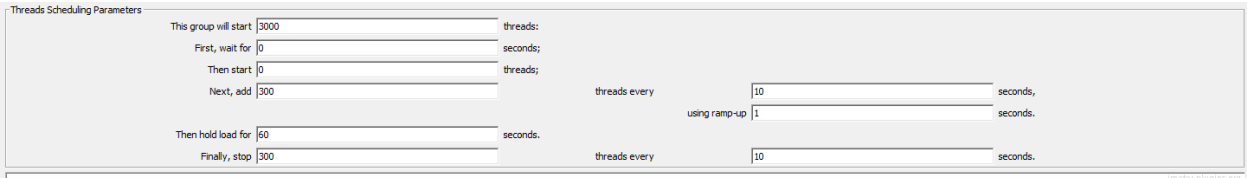
Resources used on zero load (0 Threads):

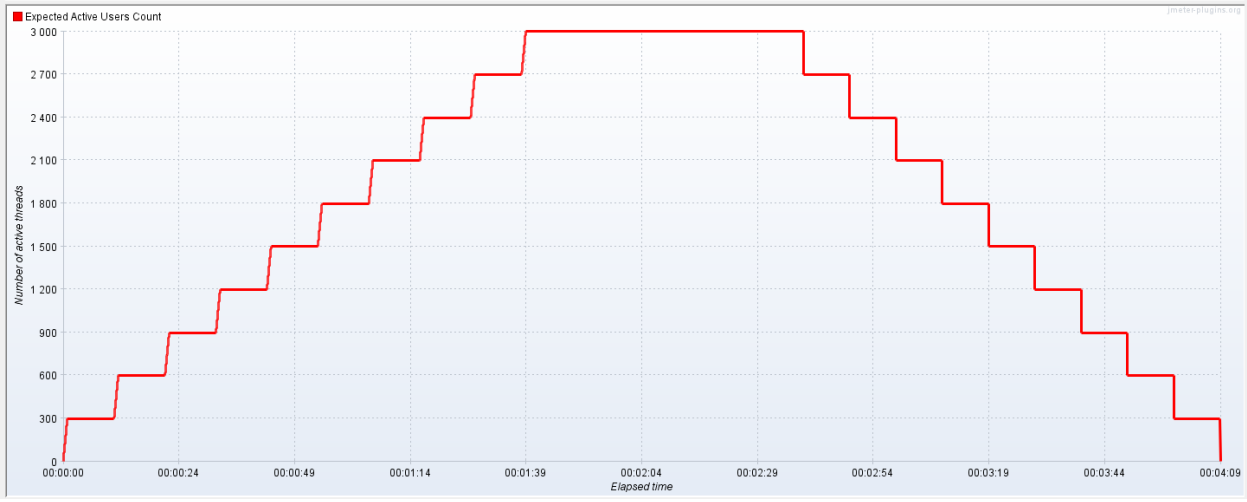
```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    4m           933Mi
weather-radar-api-app-566f78b495-hpfqm    4m           132Mi
weather-radar-api-app-566f78b495-m59pv    4m           908Mi
weather-radar-api-app-566f78b495-pt6hm    4m           152Mi
weather-radar-api-app-566f78b495-s7jgs    4m           423Mi
```

Resources used on maximum load (1000 Threads):

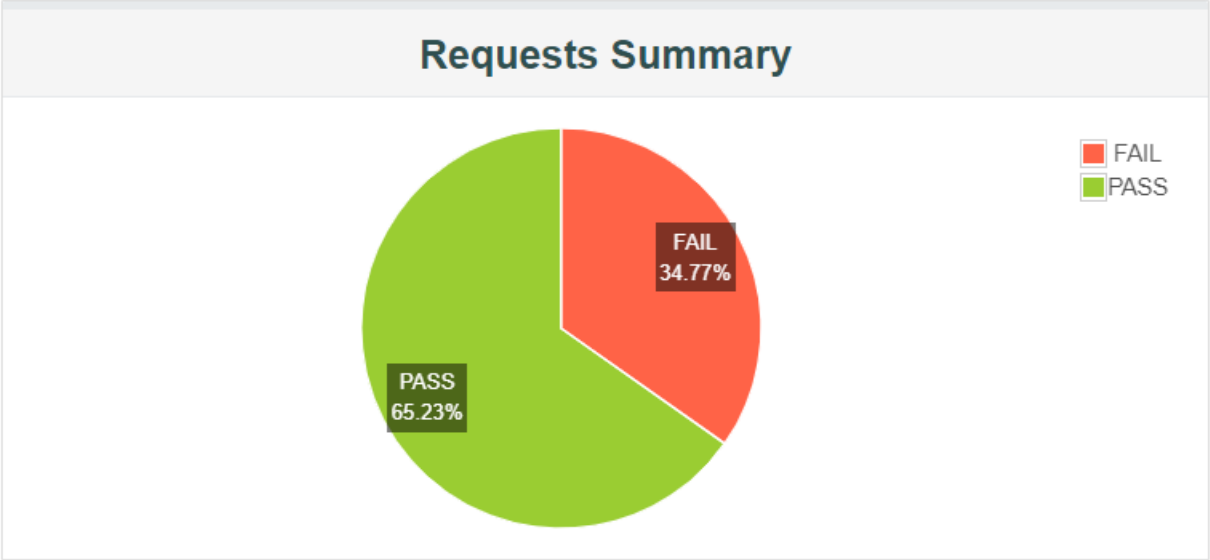
```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    281m         727Mi
weather-radar-api-app-566f78b495-hpfqm    374m         1076Mi
weather-radar-api-app-566f78b495-m59pv    307m         747Mi
weather-radar-api-app-566f78b495-pt6hm    220m         170Mi
weather-radar-api-app-566f78b495-s7jgs    330m         226Mi
```

Test Plan: 3000 Threads - 5 Instance





Test Report:



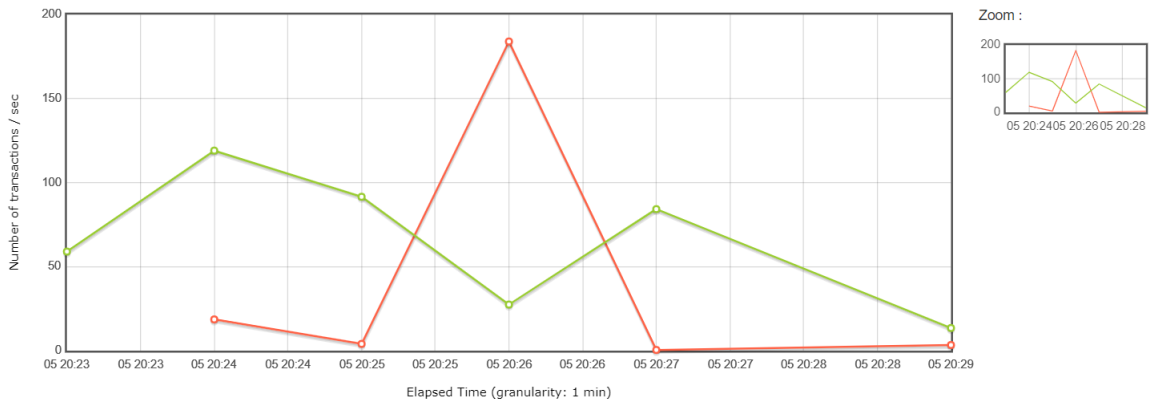
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.118	**500 ms**	**1 sec 500 ms**	**Total**
0.118	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**36306**	**12622**	**34.77%**	**15925.21**	**8**	**144224**	**7886.00**	**72357.00**	**113156.40**	**132974.72**	**106.31**	**7544.00**	**0.00**
GET_weatherApi/plot	36306	12622	34.77%	15925.21	8	144224	7886.00	72357.00	113156.40	132974.72	106.31	7544.00	0.00

Total Transactions Per Second



Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#E
Total	**36306**	**12622**	**Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect**	**12267**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server**	**355**						
GET_weatherApi/plot	36306	12622	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect	12267	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	355						

Resources used on zero load (0 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    4m           716Mi
weather-radar-api-app-566f78b495-hpfqm    4m           1065Mi
weather-radar-api-app-566f78b495-m59pv    4m           733Mi
weather-radar-api-app-566f78b495-pt6hm    4m           126Mi
weather-radar-api-app-566f78b495-s7jgs    4m           226Mi
```

Resources used on maximum load (3000 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    417m         697Mi
weather-radar-api-app-566f78b495-hpfqm    464m         1056Mi
weather-radar-api-app-566f78b495-m59pv    384m         718Mi
weather-radar-api-app-566f78b495-pt6hm    287m         168Mi
weather-radar-api-app-566f78b495-s7jgs    293m         231Mi
```

Summary of 5 Instance:

No. of Threads	No. of Instances	CPU(cores) on max load	Average CPU(cores) on max load	MEMORY(bytes) on max load	Average MEMORY(bytes) on max load	# Samples	Error %	Transactions/s
		4m		933Mi				
		4m		132Mi				
		4m		908Mi				
		4m		152Mi				
0	5	4m	4m	423Mi	509.6Mi	0	0.00000	0
		281m		727Mi				
		374m		1076Mi				
		307m		747Mi				
		220m		170Mi				
1000	5	330m	302.4m	226Mi	589.2Mi	24837	3.54000	79.23
		417m		697Mi				
		464m		1056Mi				
		384m		718Mi				
		287m		168Mi				
3000	5	293m	369m	231Mi	574Mi	36306	34.77000	106.31

Conclusive Summary

No. of Threads	No. of Instances	# Samples	Error %	Transactions/s
0	1	0	0	0
0	3	0	0	0
0	5	0	0	0
10	1	22276	0	177.07
100	1	42712	0	170.85
1000	1	41535	3.39	165.86
1000	3	25766	0	102.95
1000	5	24837	3.54	79.23
3000	1	36937	5.4	147.04
3000	3	44755	5.13	178.51
3000	5	36306	34.77	106.31

- We have done load testing on 1, 3 and 5 instances by gradually increasing the load (No. of threads)
- For single instance testing on 10 and 100 threads, we got 0% error on the system. However, when we increased No. of threads to 1000 and 3000 the error rate increased to 3.39% for 1000 threads and 5.4% for 3000 threads. The throughput for single instance is 150 transactions per second and above.
- To cope up with this error rate we have decided to increase the no. of instance from 1 to 3. For 1000 threads we found 0% error, so we increased the load to 3000 and got 5.13% error. The throughput for 3 instance is between 100 and 150 transactions per second.
- To mitigate this error, we decided to experiment with 5 instances by gradually increasing the load. For 1000 threads we got 3.54% error and for 3000 instances we got 34.77% error which was the highest among all load tests. There is significant decrease in the throughput ranges from 79 to 106 transactions per second for our testing scenarios.
- We found significant failure rates on 5 instances compared to the 3 and single instance, because CPU usage for the system went into bottleneck and shared by the 5 instances which results into more failure rate.
- Load testing works well on 3 instances for our testing system.

Weather API Spike Testing

System Configuration:
Processor: Intel(R) Core(TM) i5-1035G1 CPU @ 1.00GHz 1.19 GHz
RAM: 12.0 GB

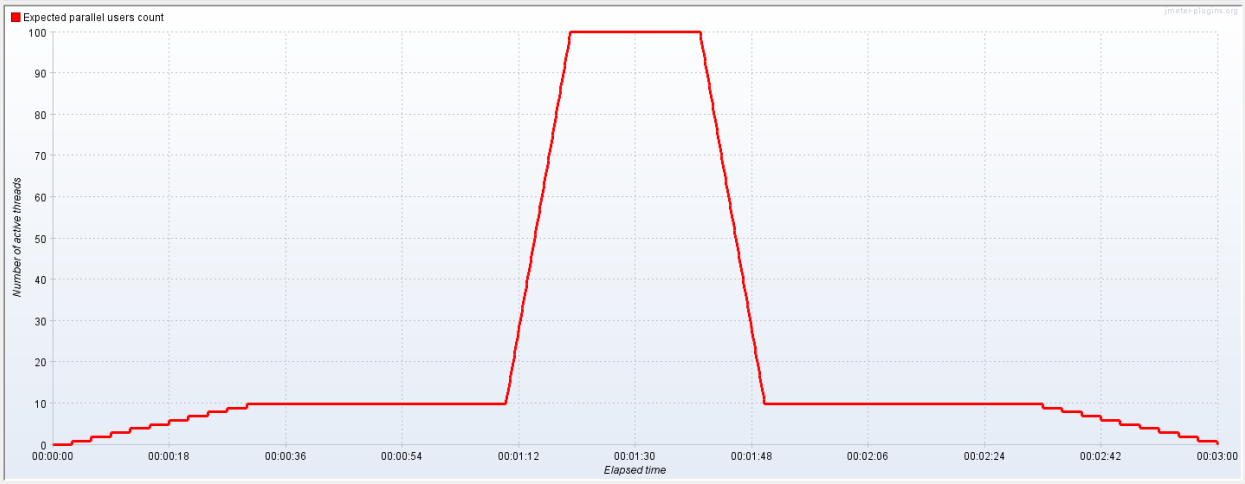
Testing Scenarios:

No. of Instance: 1
Test Plan: 10 Threads - 90 Spike - 1 Instance

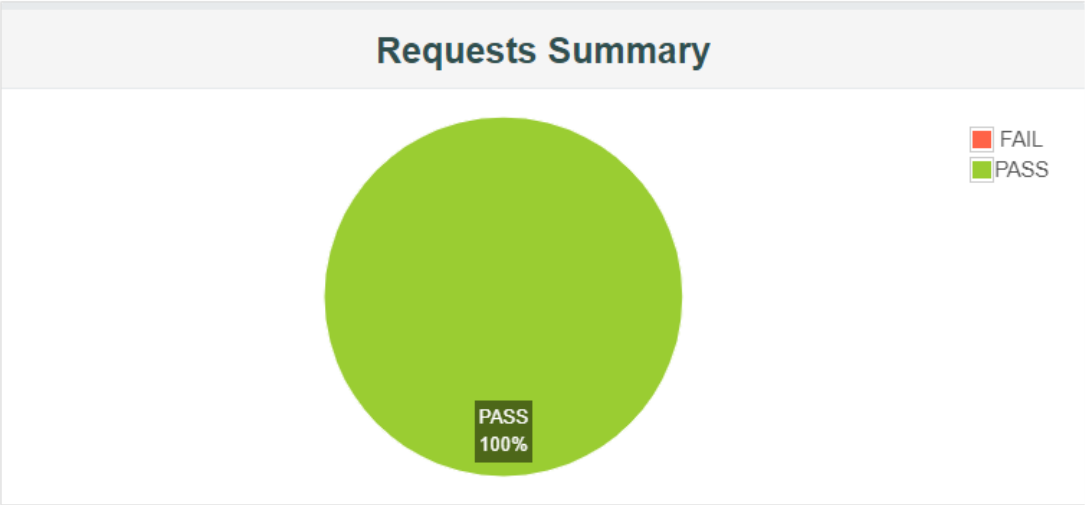
Threads Schedule

Start Threads Count	Initial Delay, sec	Startup Time, sec	Hold Load For, sec	Shutdown Time
10	0	30	120	30
90	70	10	20	10

Add Row | Copy Row | Delete Row



Test Report:

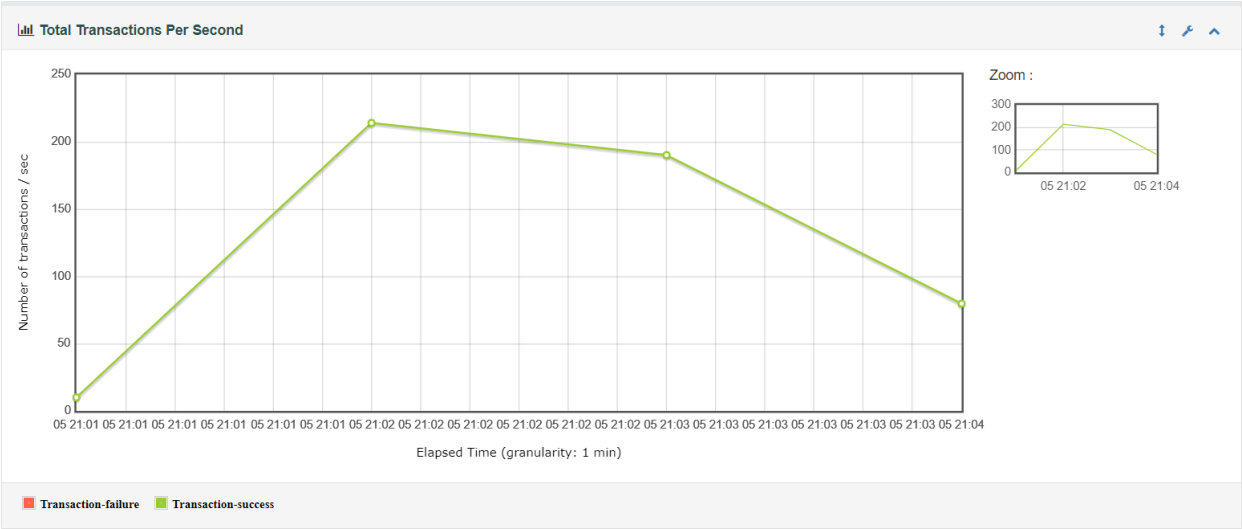


APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.955	**500 ms**	**1 sec 500 ms**	**Total**
0.955	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests				Executions				Response Times (ms)						Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**29638**	**0**	**0.00%**	**141.90**	**5**	**892**	**57.00**	**524.00**	**569.95**	**647.00**	**167.45**	**18028.24**	**0.00**
GET_weatherApi/plot	29638	0	0.00%	141.90	5	892	57.00	524.00	569.95	647.00	167.45	18028.24	0.00



Resources used on zero load (0 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                    CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh   3m           699Mi
```

Resources used on spike load (90 Threads):

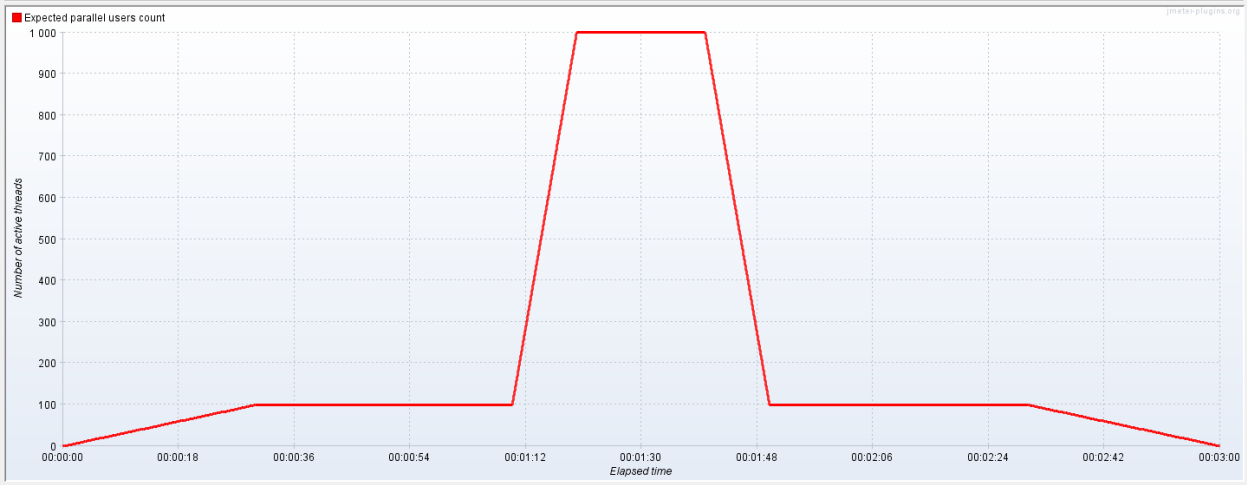
```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                    CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh   1000m        699Mi
```

Test Plan: 100 Threads - 900 Spike - 1 Instance

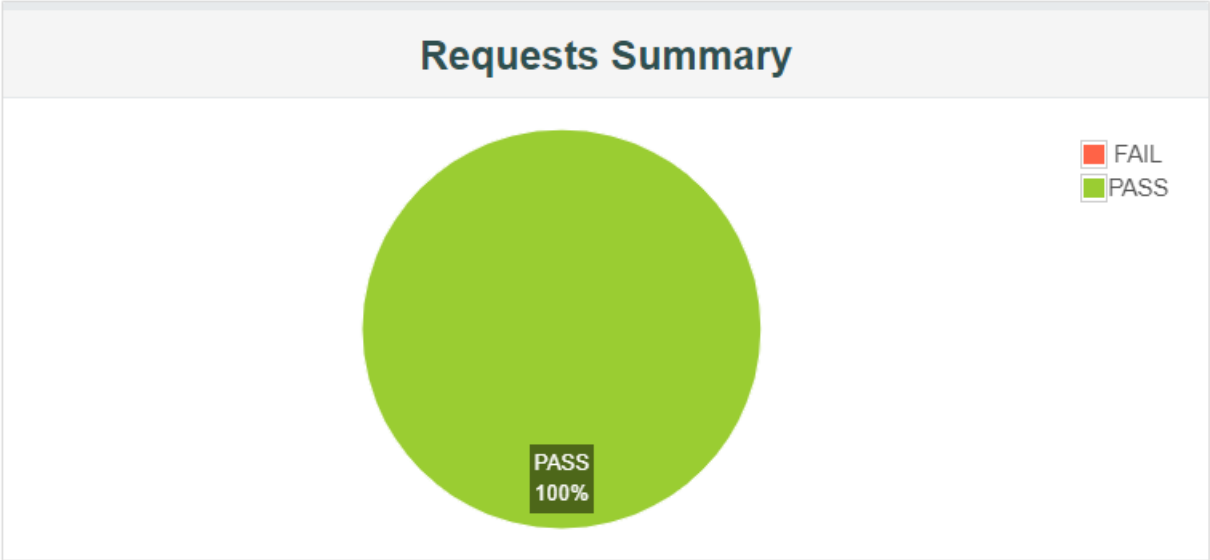
Threads Schedule

Start Threads Count	Initial Delay, sec	Startup Time, sec	Hold Load For, sec	Shutdown Time
100	0	30	120	30
900	70	10	20	10

Add Row | Copy Row | Delete Row



Test Report:

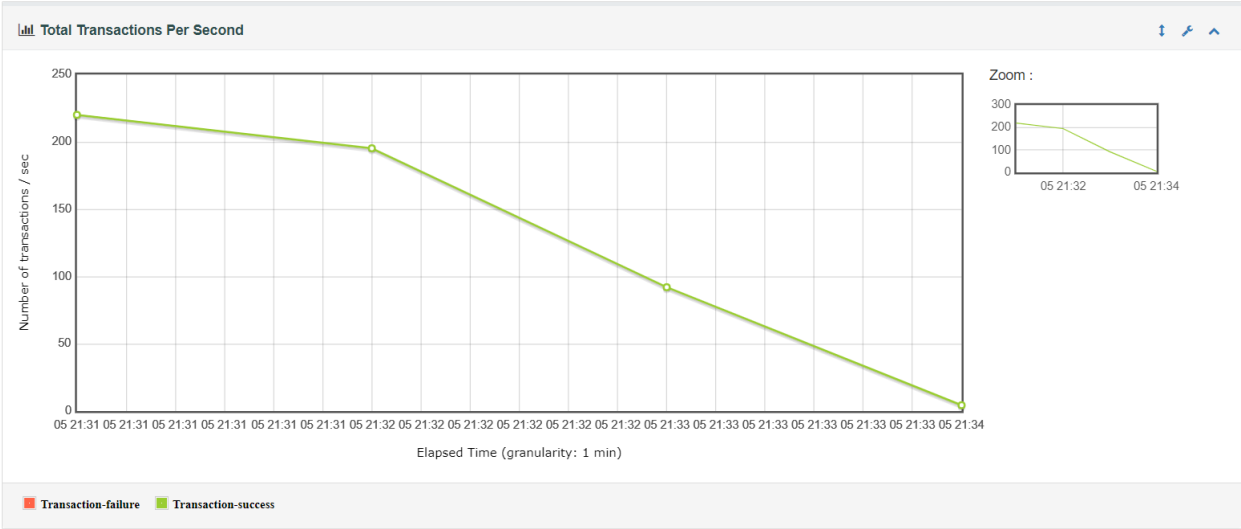


APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.652	**500 ms**	**1 sec 500 ms**	**Total**
0.652	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**30697**	**0**	**0.00%**	**1420.35**	**5**	**6941**	**906.00**	**5218.00**	**5474.95**	**5903.99**	**170.65**	**18372.72**	**0.00**
GET_weatherApi/plot	30697	0	0.00%	1420.35	5	6941	906.00	5218.00	5474.95	5903.99	170.65	18372.72	0.00



Resources used on zero load (0 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                    CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh   3m           537Mi
```

Resources used on spike load (900 Threads):

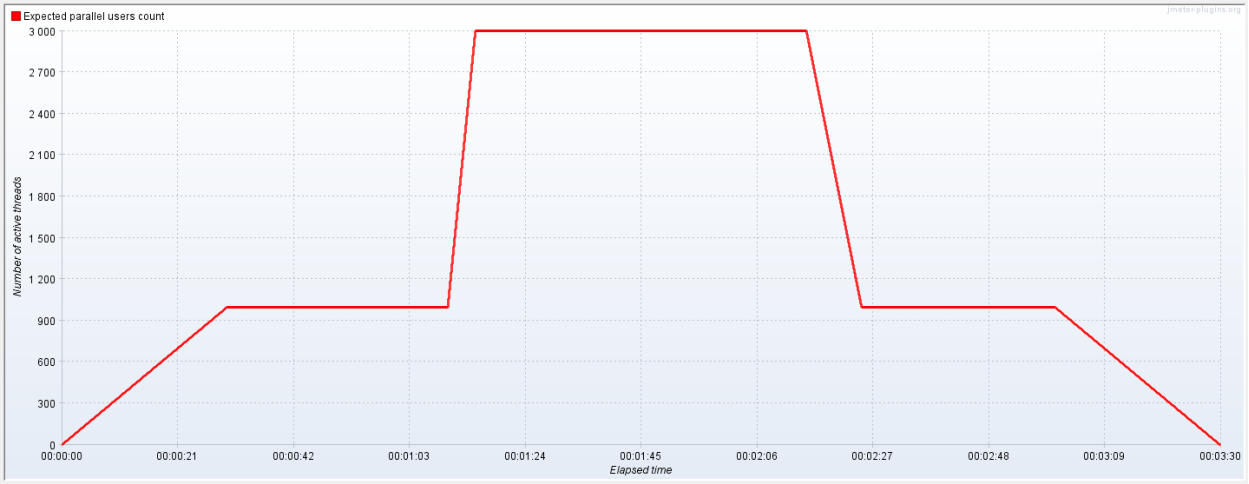
```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                    CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh   1000m        538Mi
```

Test Plan: 1000 Threads - 2000 Spike - 1 Instance

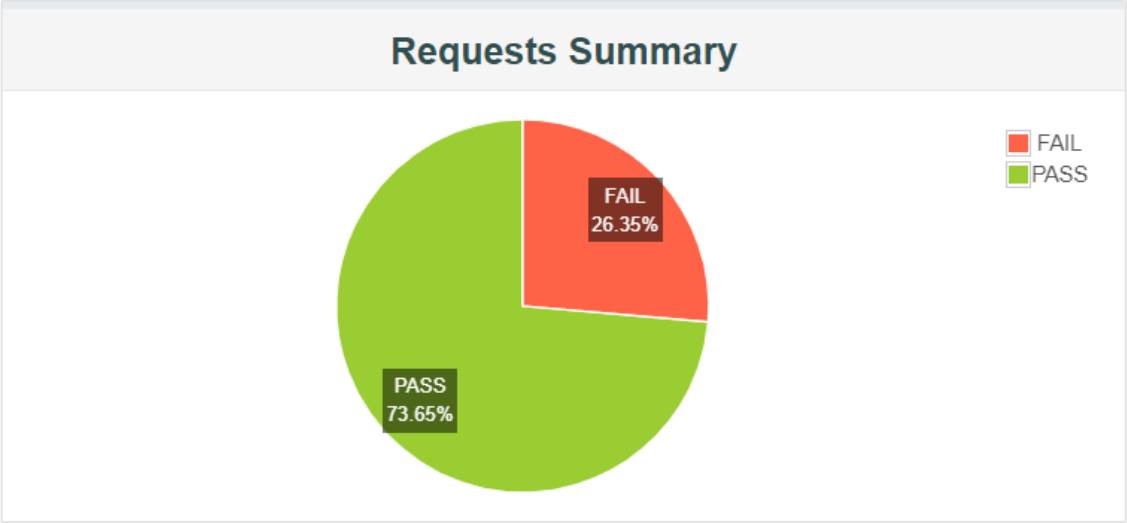
Threads Schedule

Start Threads Count	Initial Delay, sec	Startup Time, sec	Hold Load For, sec	Shutdown Time
1000	0	30	150	30
2000	70	5	60	10

Add Row | Copy Row | Delete Row



Test Report:

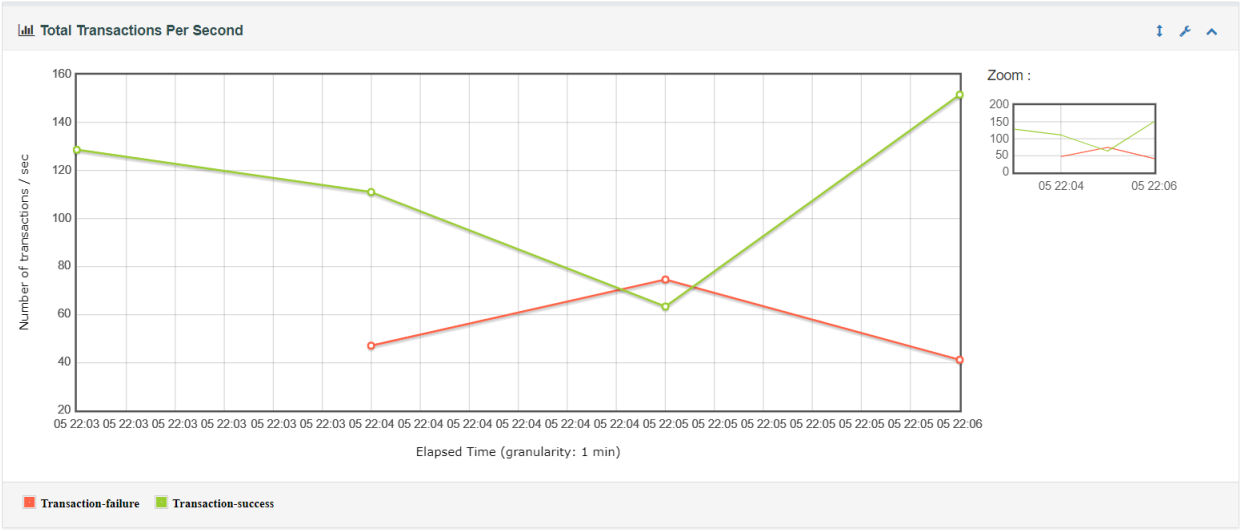


APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.071	**500 ms**	**1 sec 500 ms**	**Total**
0.071	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**37050**	**9761**	**26.35%**	**8839.82**	**11**	**82915**	**4836.00**	**49531.30**	**54813.90**	**77008.98**	**176.60**	**14093.34**	**0.00**
GET_weatherApi/plot	37050	9761	26.35%	8839.82	11	82915	4836.00	49531.30	54813.90	77008.98	176.60	14093.34	0.00



Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	**37050**	**9761**	**Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect**	**9761**								
GET_weatherApi/plot	37050	9761	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect	9761								

Resources used on zero load (0 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                    CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh   4m           677Mi
```

Resources used on spike load (2000 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                    CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh   998m         664Mi
```

Summary of 1 Instance:

No. of constant Level Threads	No. of Spike Threads	No. of Instances	Spike %	Spike Duration	CPU(cores) on spike load	Average CPU(cores) on spike load	MEMORY(bytes) on spike load	Average MEMORY(bytes) on spike load	# Samples	Error %	Transactions/s
10	90	1	900	20s	1000m	1000m	699Mi	699Mi	29638	0.00000	167.45
100	900	1	900	20s	1000m	1000m	538Mi	538Mi	30697	0.00000	170.65
1000	2000	1	200	60s	998m	998m	664Mi	664Mi	37050	26.35000	176.6

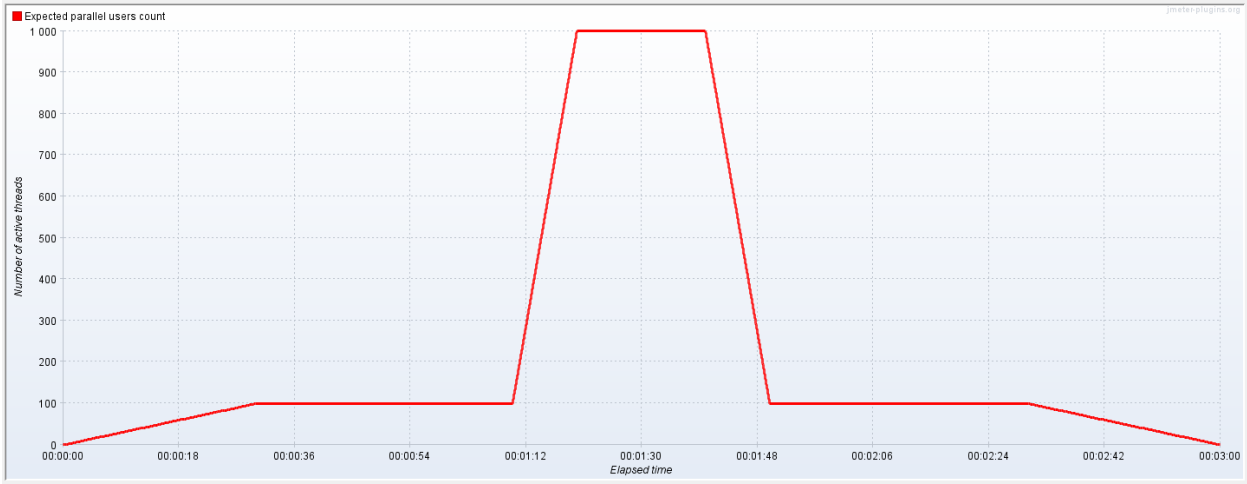
No. of Instance: 3

Test Plan: 100 Threads - 900 Spike - 3 Instance

Threads Schedule

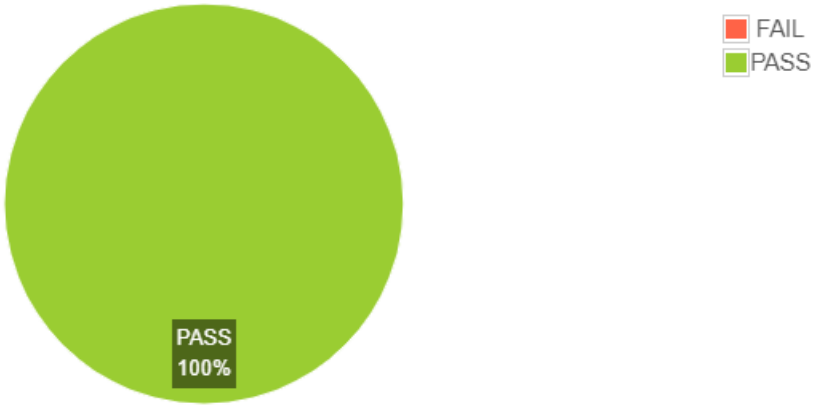
Start Threads Count	Initial Delay, sec	Startup Time, sec	Hold Load For, sec	Shutdown Time
100	0	30	120	30
900	70	10	20	10

Add Row | Copy Row | Delete Row



Test Report:

Requests Summary

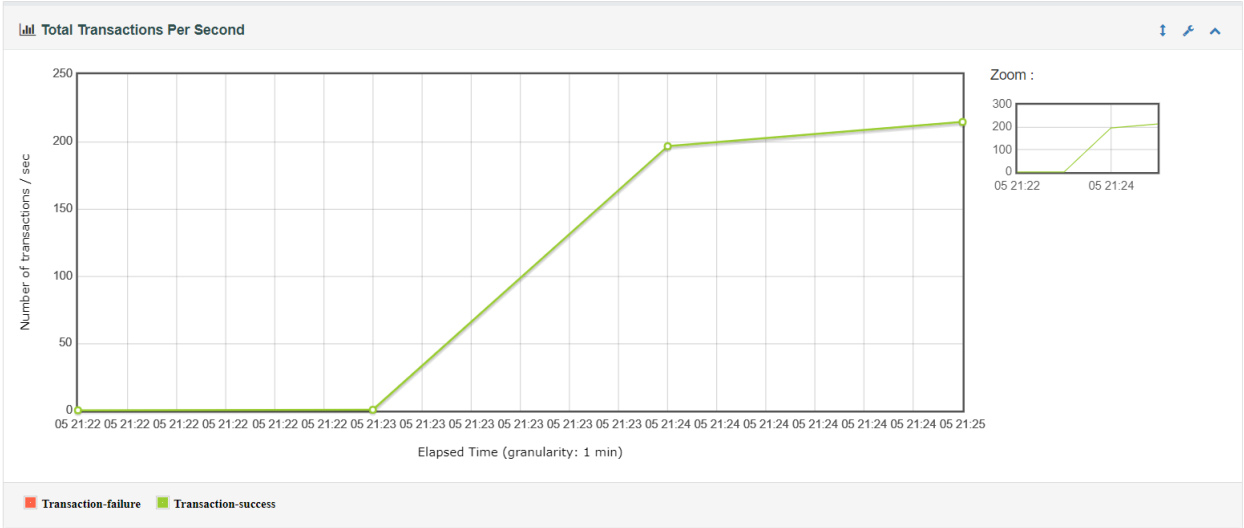


APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.710	**500 ms**	**1 sec 500 ms**	**Total**
0.710	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**24711**	**0**	**0.00%**	**1747.25**	**6**	**89226**	**355.00**	**1474.90**	**3063.85**	**5027.91**	**137.53**	**14806.29**	**0.00**
GET_weatherApi/plot	24711	0	0.00%	1747.25	6	89226	355.00	1474.90	3063.85	5027.91	137.53	14806.29	0.00



Resources used on zero load (0 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                    CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh   3m           699Mi
weather-radar-api-app-566f78b495-r57t7   3m           110Mi
weather-radar-api-app-566f78b495-xcz7x   3m           108Mi
```

Resources used on spike load (900 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                    CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh   915m         536Mi
weather-radar-api-app-566f78b495-r57t7   800m         880Mi
weather-radar-api-app-566f78b495-xcz7x   875m         877Mi
```

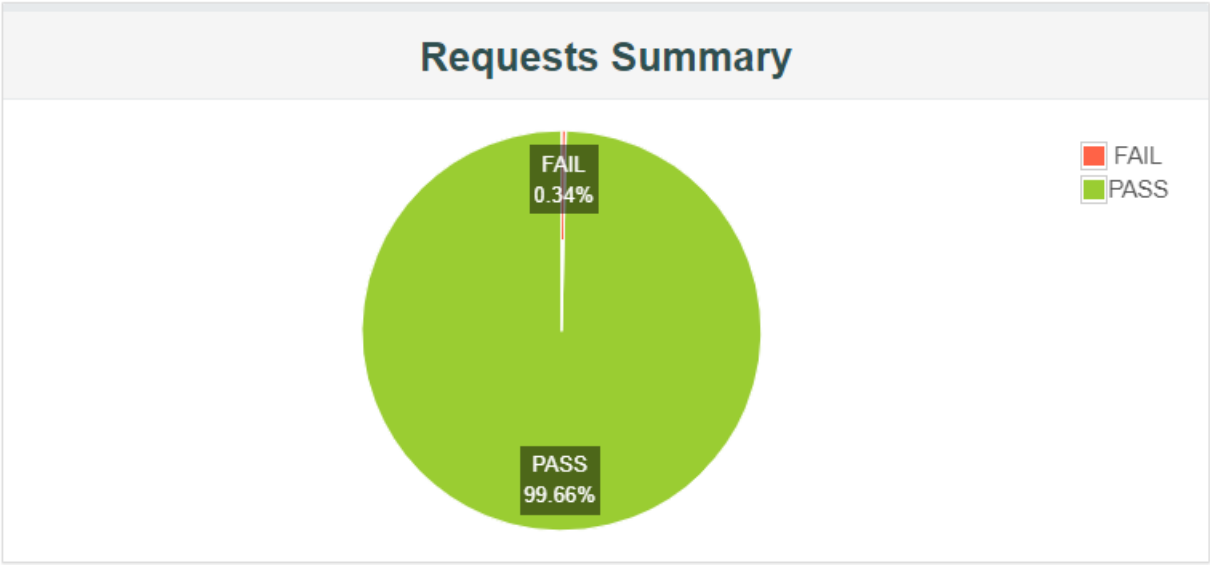
Test Plan: 1000 Threads - 2000 Spike - 3 Instance

Threads Schedule

Start Threads Count	Initial Delay, sec	Startup Time, sec	Hold Load For, sec	Shutdown Time
1000	0	30	150	30
2000	70	5	60	10

Add Row | Copy Row | Delete Row

Test Report:



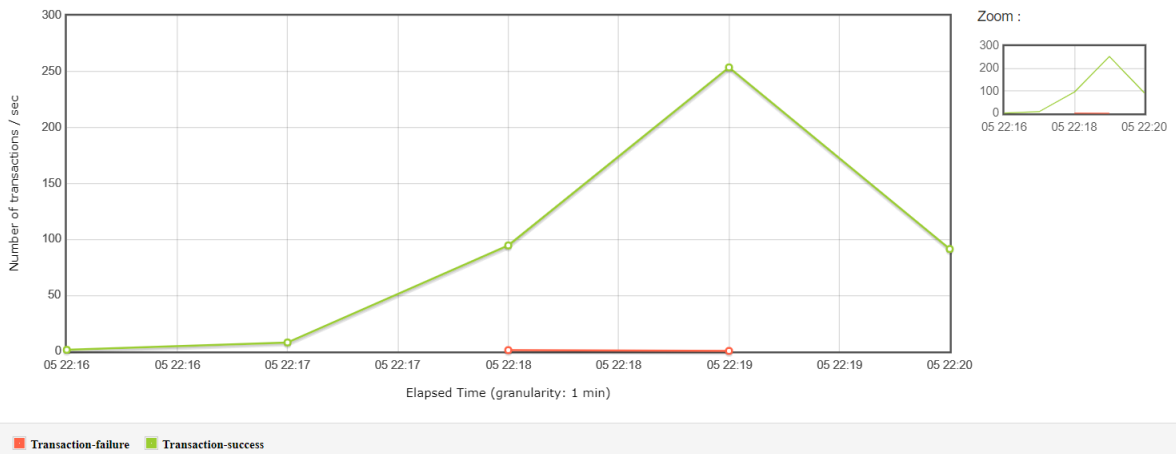
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.080	**500 ms**	**1 sec 500 ms**	**Total**
0.080	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**27055**	**91**	**0.34%**	**12132.30**	**8**	**111580**	**4714.50**	**14125.80**	**16051.00**	**19117.99**	**128.96**	**13838.22**	**0.00**
GET_weatherApi/plot	27055	91	0.34%	12132.30	8	111580	4714.50	14125.80	16051.00	19117.99	128.96	13838.22	0.00

Total Transactions Per Second



Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	**27055**	**91**	**Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect**	**91**								
GET_weatherApi/plot	27055	91	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect	91								

Resources used on zero load (0 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    4m           665Mi
weather-radar-api-app-566f78b495-frv9d    3m           132Mi
weather-radar-api-app-566f78b495-sphf9    4m           153Mi
```

Resources used on spike load (2000 Threads):

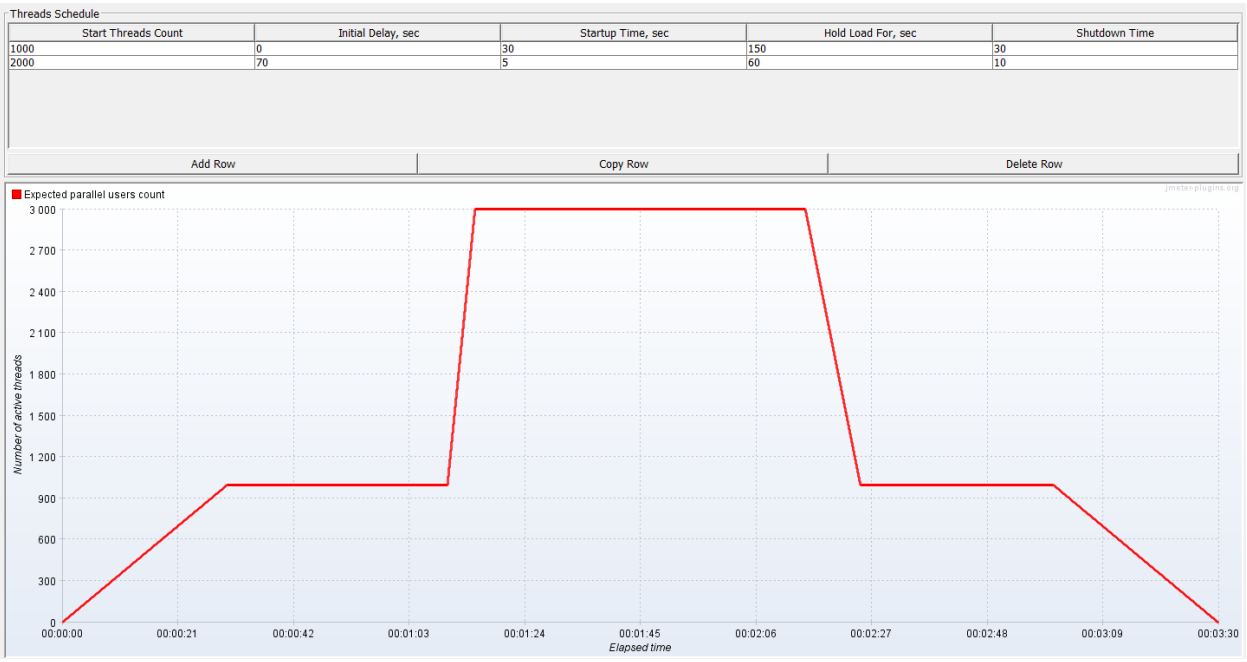
```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    655m         515Mi
weather-radar-api-app-566f78b495-frv9d    590m         890Mi
weather-radar-api-app-566f78b495-sphf9    632m         872Mi
```

Summary of 3 Instance:

No. of constant Level Threads	No. of Spike Threads	No. of Instances	Spike %	Spike Duration	CPU(cores) on spike load	Average CPU(cores) on spike load	MEMORY(bytes) on spike load	Average MEMORY(bytes) on spike load	# Samples	Error %	Transactions/s
100	900	3	900	20s	915m 800m 875m	863.33m	536Mi 880Mi 877Mi	764.33Mi	24711	0.00000	137.53
1000	2000	3	200	60s	655m 590m 632m	625.67m	515Mi 890Mi 872Mi	759Mi	27055	0.34000	128.96

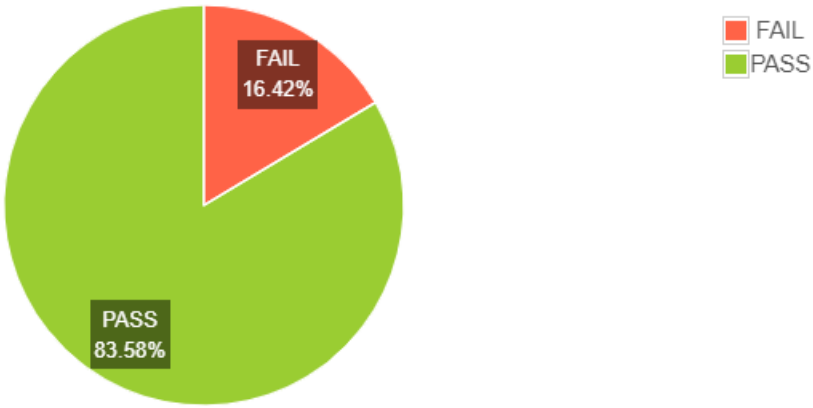
No. of Instance: 5

Test Plan: 1000 Threads - 2000 Spike - 5 Instance



Test Report:

Requests Summary

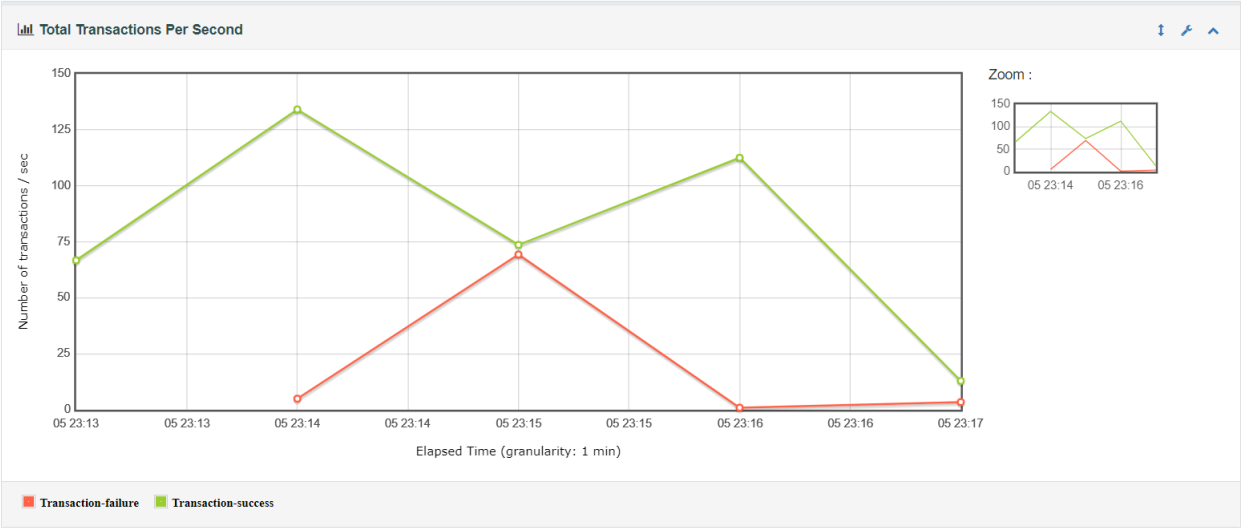


APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.168	**500 ms**	**1 sec 500 ms**	**Total**
0.168	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**28719**	**4717**	**16.42%**	**13390.18**	**7**	**96303**	**7486.00**	**56112.20**	**74415.45**	**90516.85**	**113.20**	**10229.82**	**0.00**
GET_weatherApi/plot	28719	4717	16.42%	13390.18	7	96303	7486.00	56112.20	74415.45	90516.85	113.20	10229.82	0.00



Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#E
Total	**28719**	**4717**	**Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect**	**4160**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server**	**557**						
GET_weatherApi/plot	28719	4717	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Connection refused: connect	4160	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	557						

Resources used on zero load (0 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    4m           342Mi
weather-radar-api-app-566f78b495-bp7t4    4m           142Mi
weather-radar-api-app-566f78b495-frv9d    4m           679Mi
weather-radar-api-app-566f78b495-kzdgs    4m           1090Mi
weather-radar-api-app-566f78b495-sphf9    4m           647Mi
```

Resources used on spike load (2000 Threads):

```
C:\Users\sumed\Desktop\ADS\Milestone-1\BackEndAPI\SuperNova>kubectl top pods
NAME                                      CPU(cores)   MEMORY(bytes)
weather-radar-api-app-566f78b495-2kkrh    503m         342Mi
weather-radar-api-app-566f78b495-bp7t4    619m         169Mi
weather-radar-api-app-566f78b495-frv9d    468m         676Mi
weather-radar-api-app-566f78b495-kzdgs    503m         1086Mi
weather-radar-api-app-566f78b495-sphf9    510m         643Mi
```

Summary of 5 Instance:

No. of constant Level Threads	No. of Spike Threads	No. of Instances	Spike %	Spike Duration	CPU(cores) on spike load	Average CPU(cores) on spike load	MEMORY(bytes) on spike load	Average MEMORY(bytes) on spike load	# Samples	Error %	Transactions/s
					503m 619m 468m 503m		342Mi 169Mi 676Mi 1086Mi				
1000	2000	5	200	60s	510m	520.6m	643Mi	583.2Mi	28719	16.42000	113.2

Conclusive Summary:

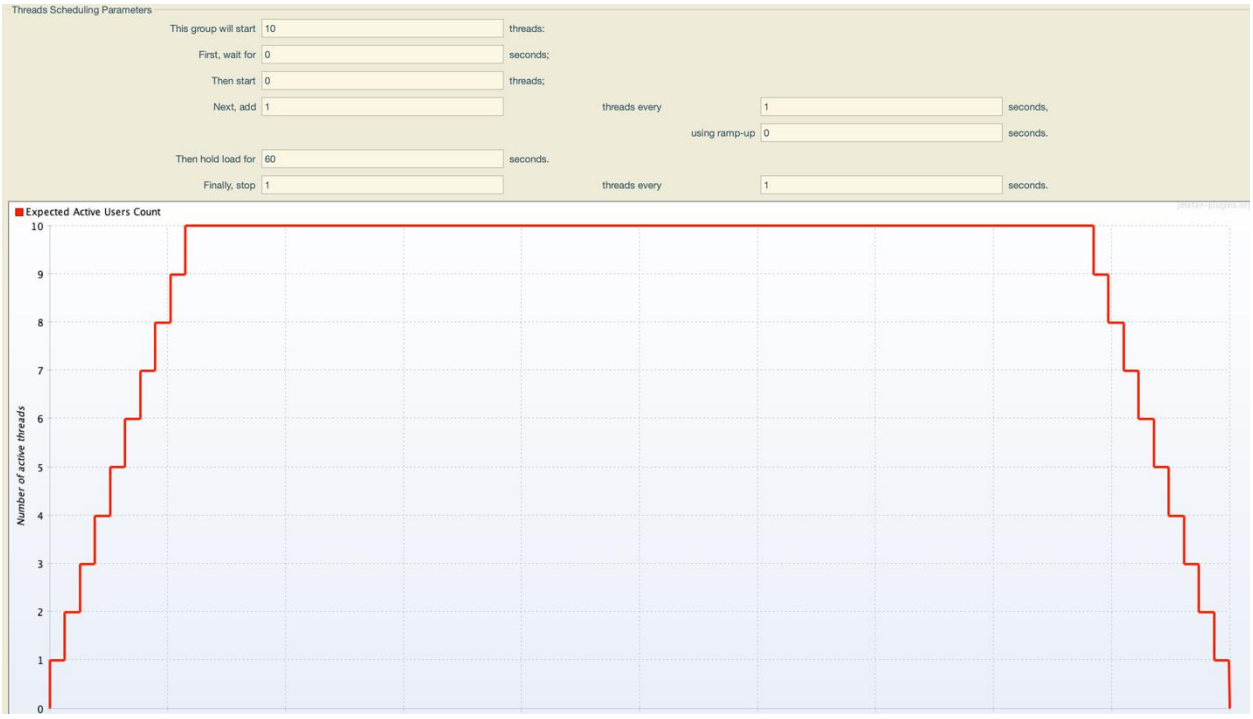
No. of constant Level Threads	No. of Spike Threads	No. of Instances	# Samples	Error %	Transactions/s
10	90	1	29638	0	167.45
100	900	1	30697	0	170.65
100	900	3	24711	0	137.53
1000	2000	1	37050	26.35	176.6
1000	2000	3	27055	0.34	128.96
1000	2000	5	28719	16.42	113.2

- We have done spike testing on 1, 3 and 5 instances by testing with different combinations of constant level threads and spike threads.
- For single instance testing on combination of 10 constant threads - 90 spike threads and 100 constant threads and 900 spike threads, we got 0% error on the system. However, when we increased No. of constant threads from 100 to 1000 and spike threads from 900 to 2000 the error rate increased to 26.35%. The throughput for single instance is 150 transactions per second and above.
- To cope up with this error rate we have decided to increase the no. of instance from 1 to 3. For 100 constant threads and 900 spike threads we found 0% error, so we increased the constant level load to 1000 and spike load to 2000 and got 0.34% error. The throughput for 3 instance is between 120 and 150 transactions per second.
- To mitigate this error, we decided to experiment with 5 instances by gradually increasing the constant and spike load. For 1000 constant level threads and 2000 spike threads, we got 16.42% error. The throughput 113.2 transactions per second for our testing scenario.
- We found significant failure rates on 5 instances compared to the 3 and single instance, because CPU usage for the system went into bottleneck and shared by the 5 instances which results into more failure rate.
- Spike testing works well on 3 instances for our testing system.

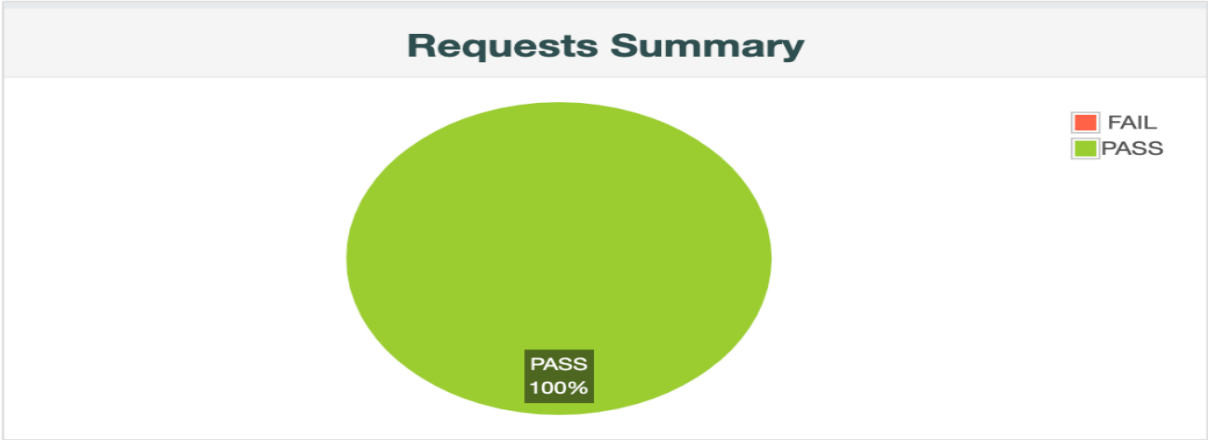
USER API

User API Load Testing

System Configuration:
Processor: Intel(R) Core(TM) i5-1035G1 CPU @ 1.00GHz 1.19 GHz
RAM: 12.0 GB
Testing Scenarios:
No. of Instance: 1
Test Plan: 10 Threads - 1 Instance



Test Report:

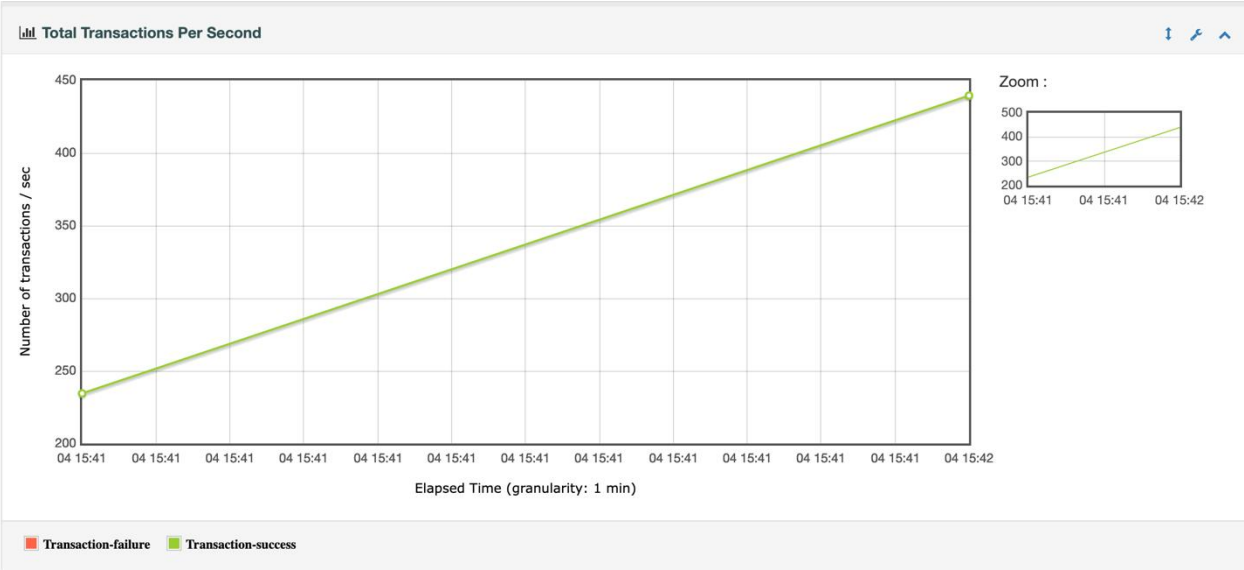


APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
1.000	500 ms	1 sec 500 ms	Total
1.000	500 ms	1 sec 500 ms	GET_weatherApi/plot

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**40437**	**0**	**0.00%**	**17.02**	**2**	**13375**	**9.00**	**19.00**	**24.00**	**48.00**	**517.58**	**113.47**	**0.00**
GET_SESSION_INFO	20220	0	0.00%	14.81	2	13372	6.00	12.00	15.00	25.99	260.08	56.64	0.00
POST_USER_SESSION_INFO	20217	0	0.00%	19.23	3	13375	12.00	22.00	27.00	44.00	258.83	57.12	0.00



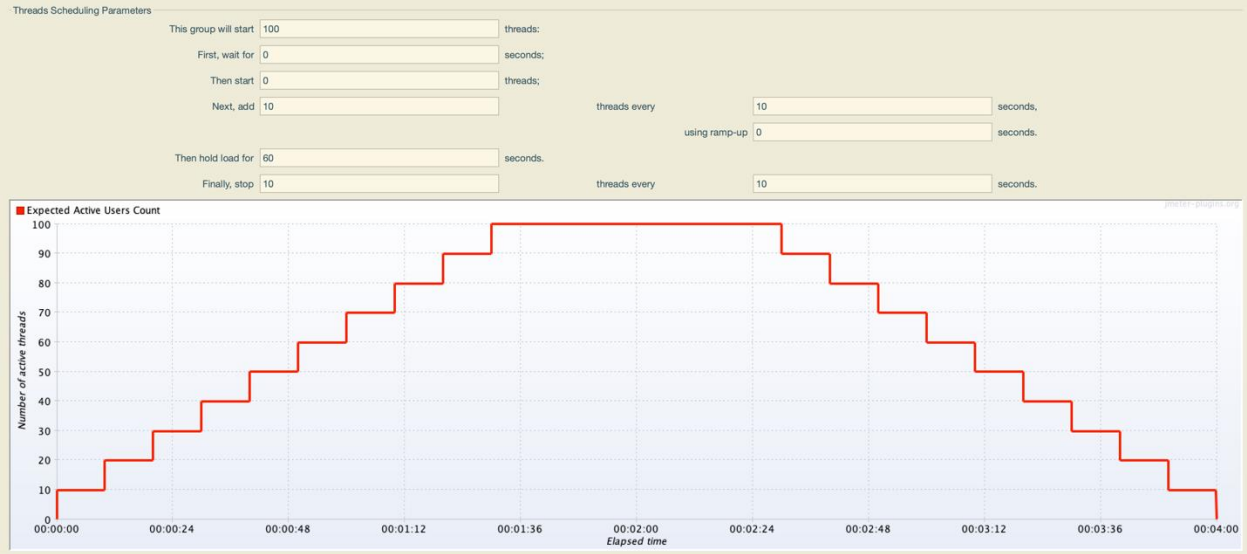
Resources used on zero load (0 Threads):

```
W0304 15:05:44.851821   45020 top_pod.go:140] Using json format to get metrics. Next release will swit
ch to protocol-buffers, switch early by passing --use-protocol-buffers flag
NAME                          CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h        2m           468Mi
user-api-app-76dfd58b4d-4fbb9 4m           302Mi
```

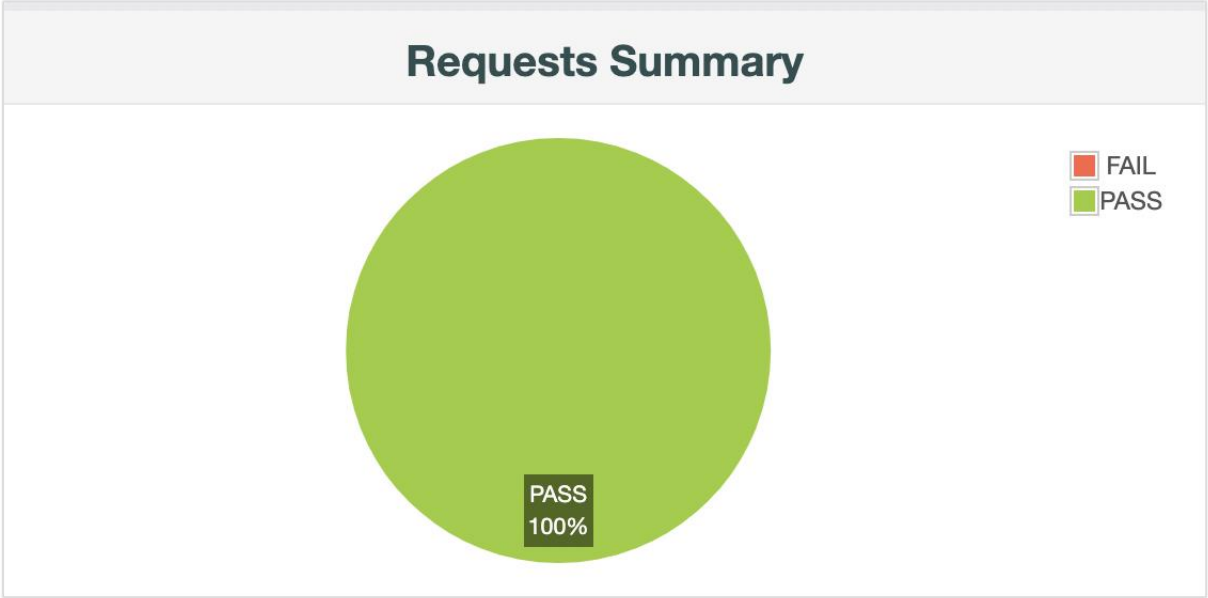
Resources used on maximum load (10 Threads):

```
W0304 15:42:16.983846   45306 top_pod.go:140] Using json format to get metrics. Next release will
 switch to protocol-buffers, switch early by passing --use-protocol-buffers flag
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              113m         481Mi
user-api-app-76dfd58b4d-4fbb9       590m         399Mi
```

Test Plan: 100 Threads - 1 Instance



Test Report:



APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.976	**500 ms**	**1 sec 500 ms**	**Total**
0.975	500 ms	1 sec 500 ms	GET_SESSION_INFO
0.976	500 ms	1 sec 500 ms	POST_USER_SESSION_INFO

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**120680**	**0**	**0.00%**	**124.02**	**2**	**13553**	**19.00**	**50.00**	**68.00**	**773.94**	**502.85**	**110.24**	**0.00**
GET_SESSION_INFO	60362	0	0.00%	120.93	2	13341	28.00	94.00	170.00	1015.96	251.52	54.78	0.00
POST_USER_SESSION_INFO	60318	0	0.00%	127.11	3	13553	38.00	111.00	195.00	1010.97	251.36	55.48	0.00

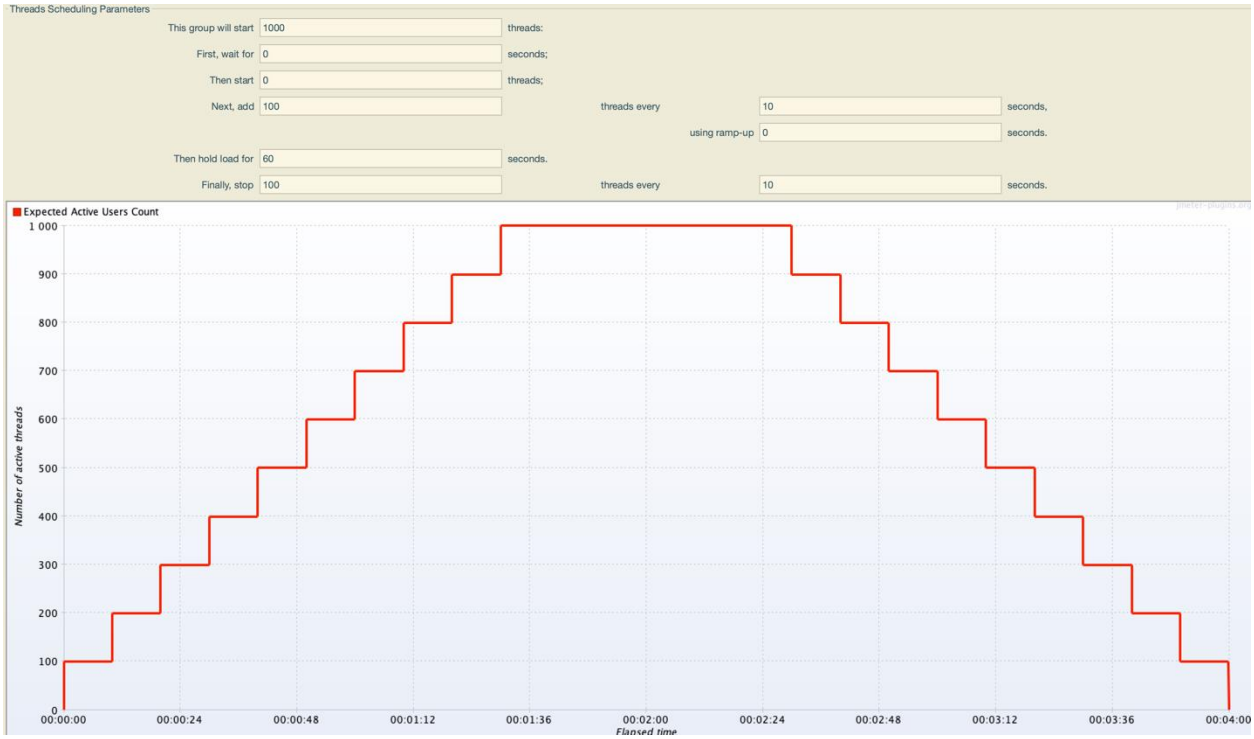
Resources used on zero load (0 Threads):

```
W0304 15:05:44.851821   45020 top_pod.go:140] Using json format to get metrics. Next release will switch to protocol-buffers, switch early by passing --use-protocol-buffers flag
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              2m           468Mi
user-api-app-76dfd58b4d-4fbb9       4m           302Mi
```

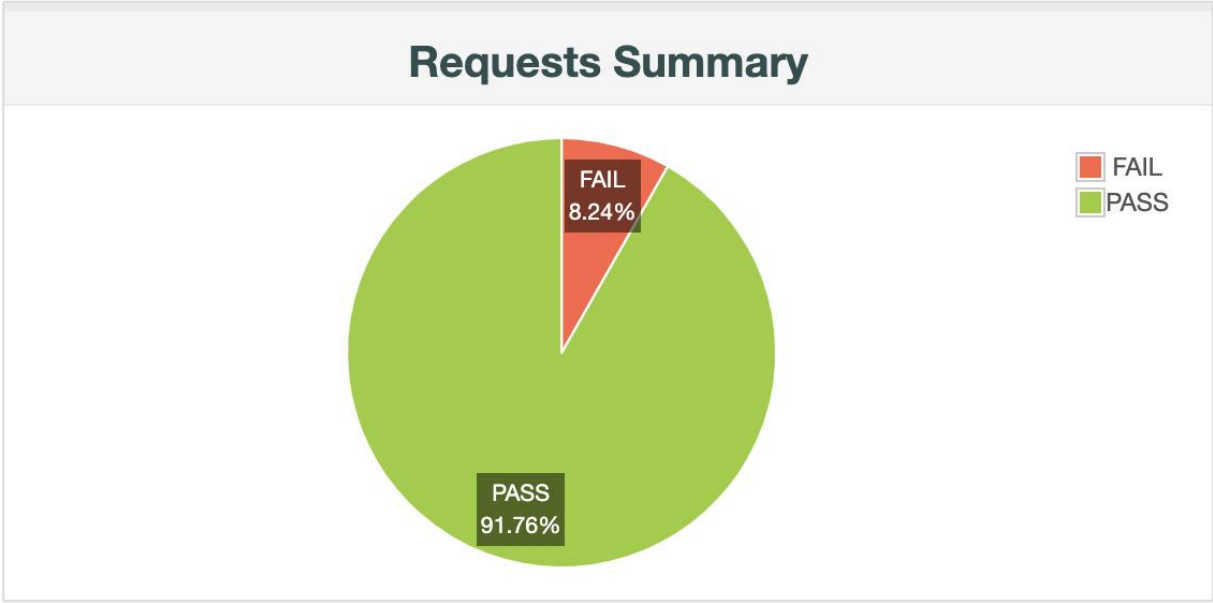
Resources used on Maximum load (100 Threads):

```
W0304 15:51:15.831600   45421 top_pod.go:140] Using json format to get metrics. Next release will
 switch to protocol-buffers, switch early by passing --use-protocol-buffers flag
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              205m         487Mi
user-api-app-76dfd58b4d-4fbb9       411m         412Mi
```

Test Plan: 1000 Threads - 1 Instance



Test Report :



APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.704	**500 ms**	**1 sec 500 ms**	**Total**
0.703	500 ms	1 sec 500 ms	POST_USER_SESSION_INFO
0.705	500 ms	1 sec 500 ms	GET_SESSION_INFO

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**100822**	**8308**	**8.24%**	**1541.03**	**1**	**29882**	**216.00**	**1216.00**	**6708.00**	**19673.99**	**409.85**	**188.02**	**0.00**
GET_SESSION_INFO	50668	4201	8.29%	1528.19	1	29882	333.00	1717.90	13103.00	20068.97	205.97	94.62	0.00
POST_USER_SESSION_INFO	50154	4107	8.19%	1554.00	1	29824	349.00	1724.00	13107.00	20093.85	204.36	93.62	0.00

Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error
Total	**100822**	**8308**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset**	**6770**	**Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out**	**746**	**Non HTTP response code: java.net.SocketExceptior HTTP response message Invalid argument**
GET_SESSION_INFO	50668	4201	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	3444	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	358	Non HTTP response code: java.net.SocketException/ HTTP response message: Invalid argument
POST_USER_SESSION_INFO	50154	4107	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	3326	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	388	Non HTTP response code: java.net.SocketException/ HTTP response message: Invalid argument

Resources used on zero load (0 Threads):

```
W0304 15:05:44.851821   45020 top_pod.go:140] Using json format to get metrics. Next release will swit
ch to protocol-buffers, switch early by passing --use-protocol-buffers flag
NAME                        CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h      2m           468Mi
user-api-app-76dfd58b4d-4fbb9   4m       302Mi
```

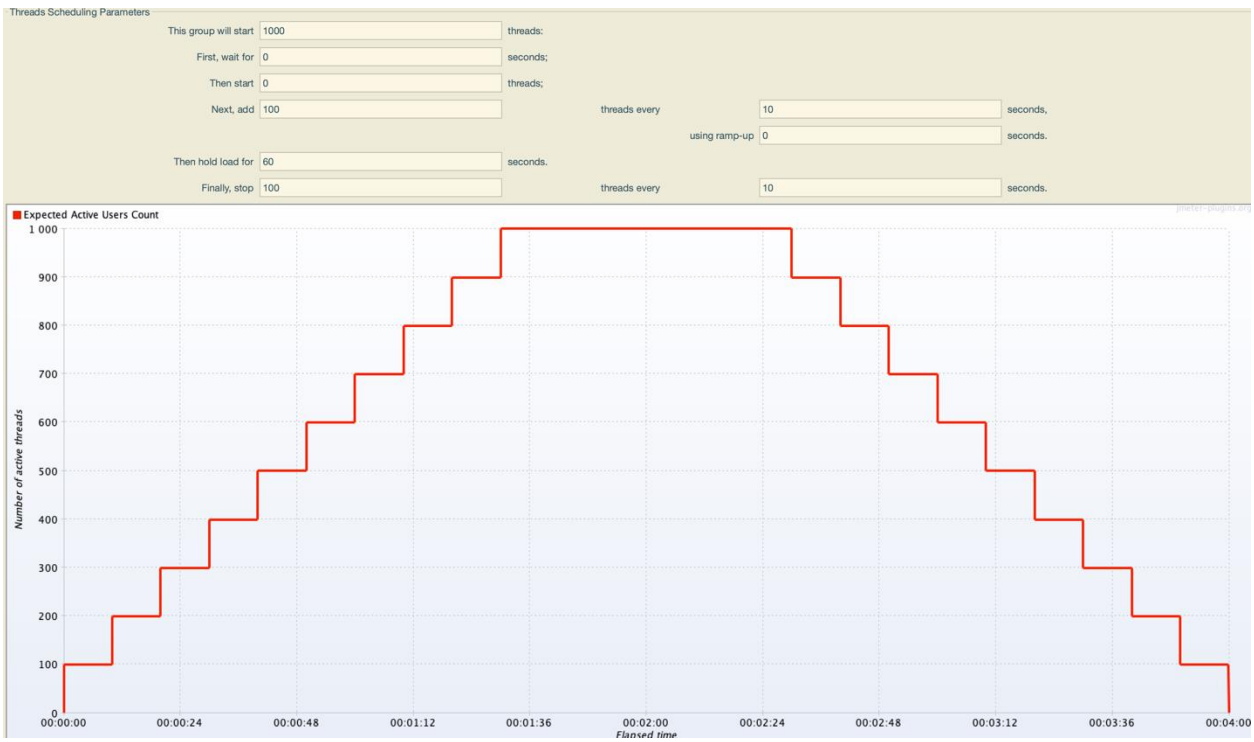
Resources used on maximum load (1000 Threads):

```
W0304 16:08:49.822254   45640 top_pod.go:140] Using json format to get metrics. Next release will
 switch to protocol-buffers, switch early by passing --use-protocol-buffers flag
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              295m         494Mi
user-api-app-76dfd58b4d-4fbb9       971m         439Mi
```

Summary of 1 Instance:

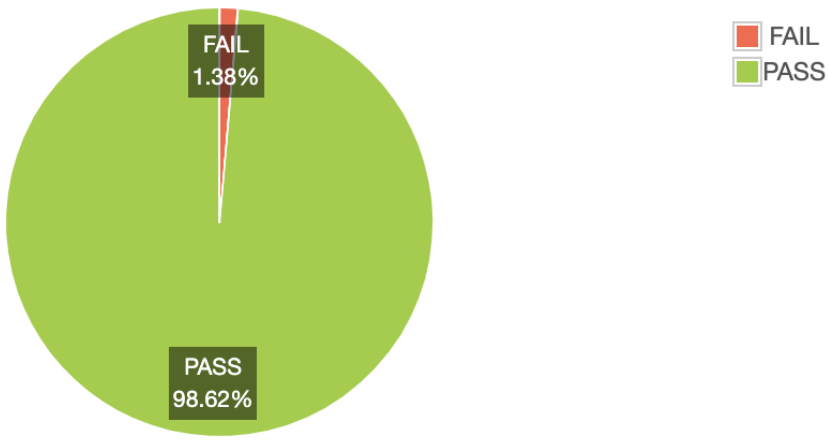
No. of Threads	No. of Instances	CPU(cores) on max load	Average CPU(cores) on max load	MEMORY(bytes) on max load	Average MEMORY(bytes) on max load	# Samples	Error %	Transactions/s
0	1	4m	4m	302Mi	302Mi	0	0.00000	0
10	1	590m	590m	399Mi	399Mi	40437	0.00000	517.58
100	1	411m	411m	412Mi	412Mi	120680	0.00000	502.85
1000	1	971m	971m	439Mi	439Mi	100822	8.24000	188.02

No. of Instance: 3
Test Plan: 1000 Threads - 3 Instance



Test Reports :

Requests Summary



APDEX (Application Performance Index)

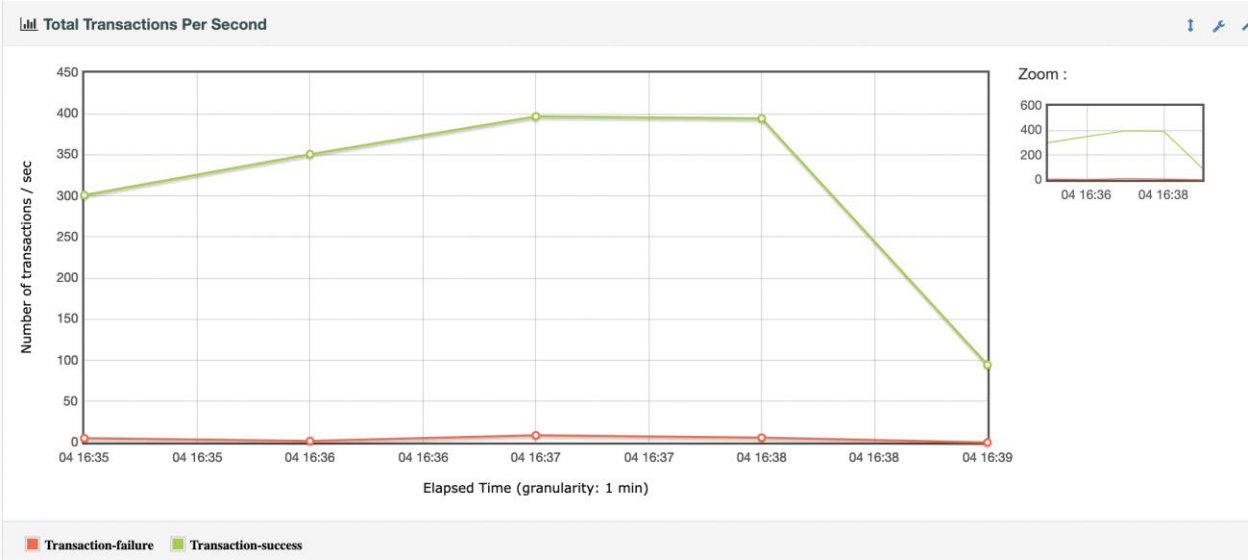
Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.680	**500 ms**	**1 sec 500 ms**	**Total**
0.673	500 ms	1 sec 500 ms	POST_USER_SESSION_INFO
0.687	500 ms	1 sec 500 ms	GET_SESSION_INFO

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**93562**	**1295**	**1.38%**	**1635.49**	**1**	**39345**	**187.00**	**1856.00**	**6708.00**	**13373.91**	**360.67**	**93.39**	**0.00**
GET_SESSION_INFO	47035	673	1.43%	1622.85	1	32791	211.00	6707.00	7349.90	19585.96	181.31	46.92	0.00
POST_USER_SESSION_INFO	46527	622	1.34%	1648.28	1	39345	287.00	6711.00	7572.90	19586.94	185.09	47.95	0.00

Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error
Total	**93562**	**1295**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset**	**1051**	**Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out**	**177**	**Non HTTP response code: java.net.SocketExceptio HTTP response message Invalid argument**
GET_SESSION_INFO	47035	673	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	547	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	96	Non HTTP response code: java.net.SocketException/ HTTP response message: Invalid argument
POST_USER_SESSION_INFO	46527	622	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	504	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	81	Non HTTP response code: java.net.SocketException/ HTTP response message: Invalid argument



Resources used on zero load (0 Threads):

```
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              3m           499Mi
user-api-app-76dfd58b4d-4fbb9       5m           438Mi
user-api-app-76dfd58b4d-plkl5       6m           235Mi
user-api-app-76dfd58b4d-qv529       6m           229Mi
```

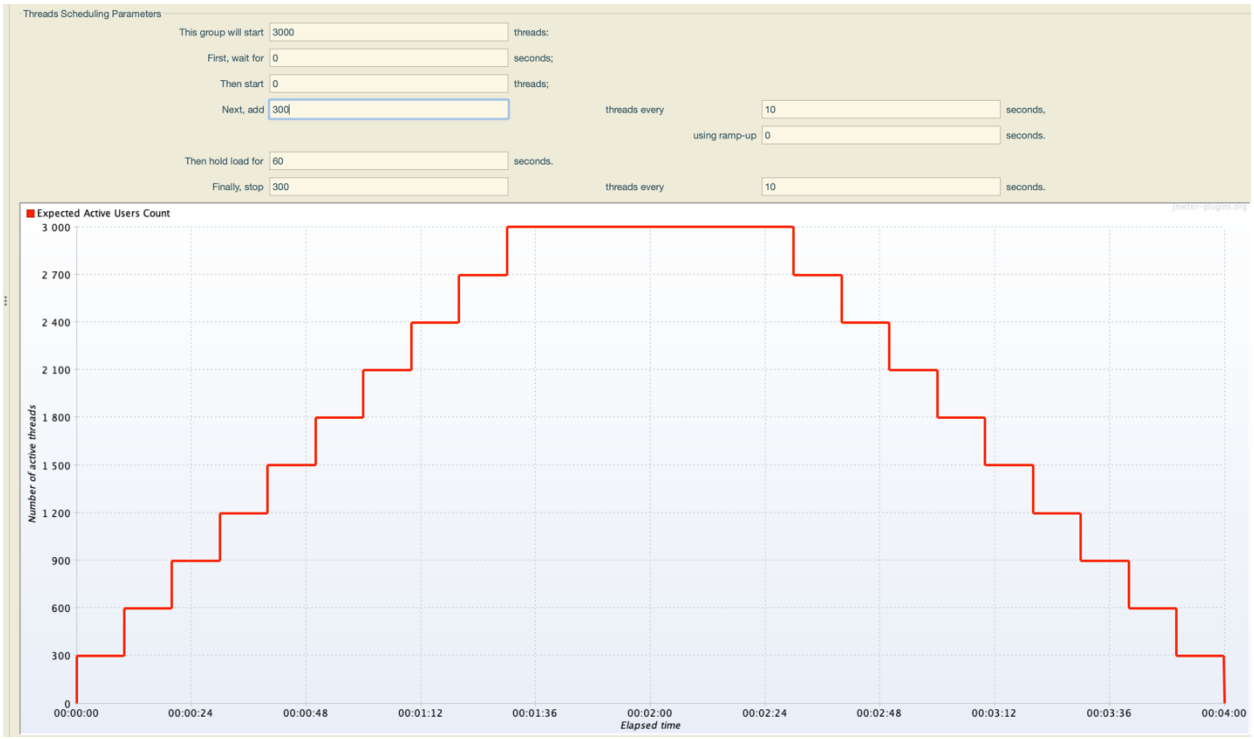
Resources used on maximum load (1000 Threads):

```
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              119m         502Mi
user-api-app-76dfd58b4d-4fbb9       551m         450Mi
user-api-app-76dfd58b4d-plkl5       610m         348Mi
user-api-app-76dfd58b4d-qv529       608m         335Mi
```

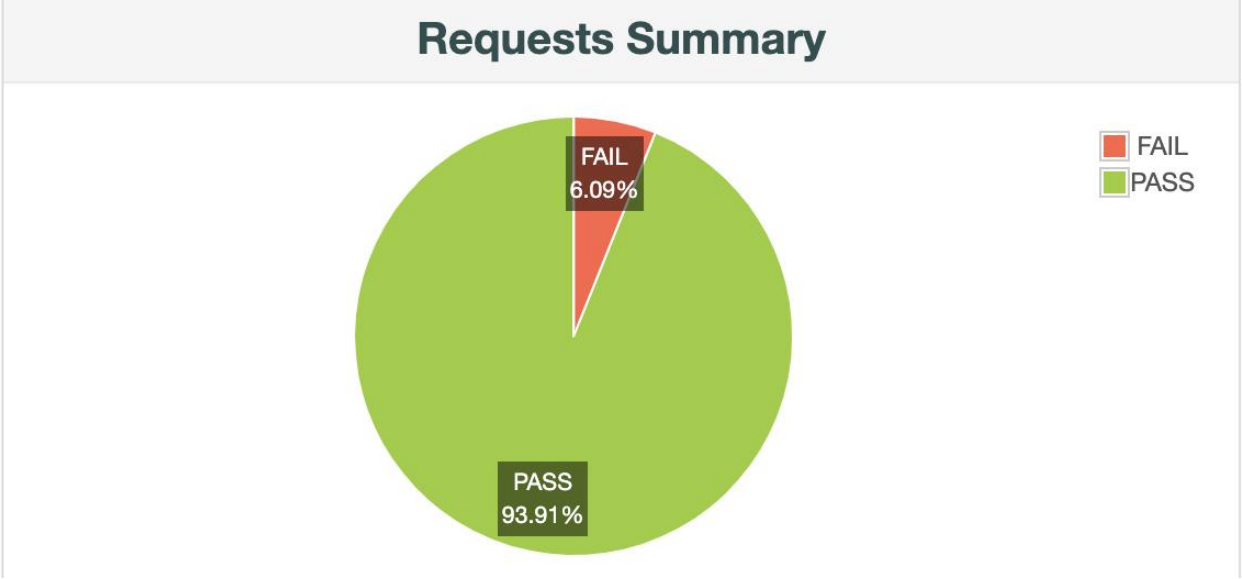
Summary of 3 Instance:

No. of Threads	No. of Instances	CPU(cores) on max load	Average CPU(cores) on max load	MEMORY(bytes) on max load	Average MEMORY(bytes) on max load	# Samples	Error %	Transactions/s
0	1	3m	3m	157Mi	157Mi	0	0	0
10	1	1095m	1095m	2295Mi	2295Mi	22276	0	177.07
100	1	1000m	1000m	1106Mi	1106Mi	42712	0	170.85
1000	1	1000m	1000m	1140Mi	1140Mi	41535	3.39	165.86

Test Plan: 3000 Threads - 3 Instance



Test Reports:



APDEX (Application Performance Index)

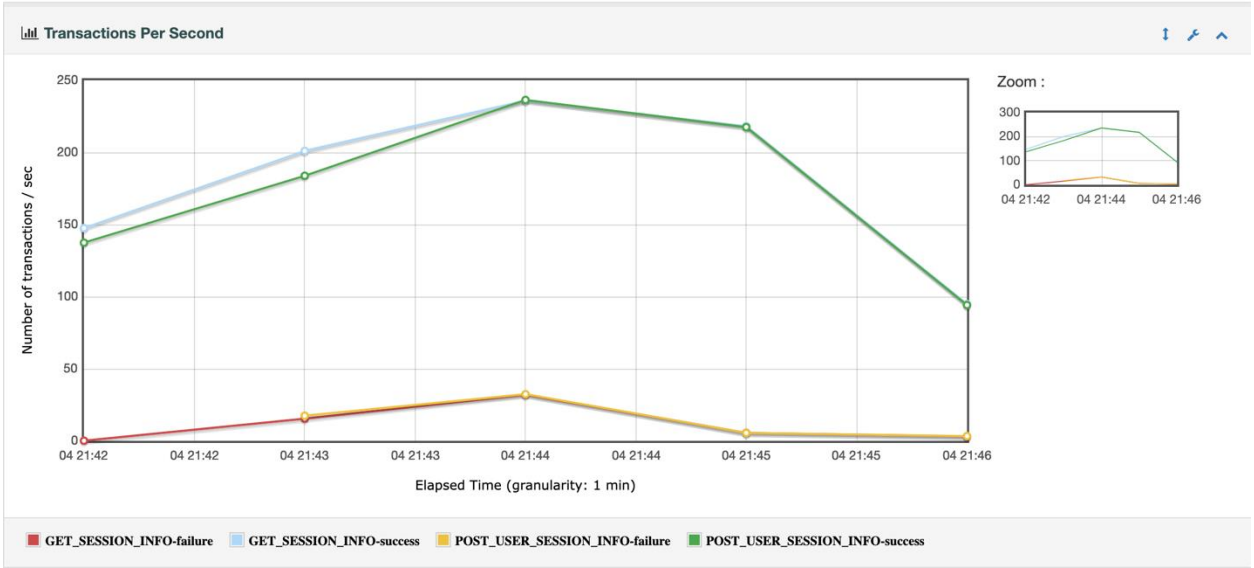
Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.551	**500 ms**	**1 sec 500 ms**	**Total**
0.541	500 ms	1 sec 500 ms	POST_USER_SESSION_INFO
0.561	500 ms	1 sec 500 ms	GET_SESSION_INFO

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**112900**	**6878**	**6.09%**	**4162.86**	**1**	**46246**	**142.00**	**13112.00**	**13845.90**	**25904.00**	**427.82**	**159.52**	**0.00**
GET_SESSION_INFO	57221	3364	5.88%	4108.58	1	45978	260.00	19590.00	20112.00	25907.00	216.83	79.31	0.00
POST_USER_SESSION_INFO	55679	3514	6.31%	4218.65	3	46246	348.00	19615.00	20134.00	25906.00	211.20	80.30	0.00

Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error
Total	**112900**	**6878**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset**	**3812**	**Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out**	**2790**	**Non HTTP response code: java.net.SocketExceptio HTTP response message: Invalid argument**
GET_SESSION_INFO	57221	3364	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	1830	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	1377	Non HTTP response code: java.net.SocketException/ HTTP response message: Invalid argument
POST_USER_SESSION_INFO	55679	3514	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	1982	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	1413	Non HTTP response code: java.net.SocketException/ HTTP response message: Invalid argument



Resources used on zero load (0 Threads):

```
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              3m           499Mi
user-api-app-76dfd58b4d-4fbb9       5m           438Mi
user-api-app-76dfd58b4d-plkl5       6m           235Mi
user-api-app-76dfd58b4d-qv529       6m           229Mi
```

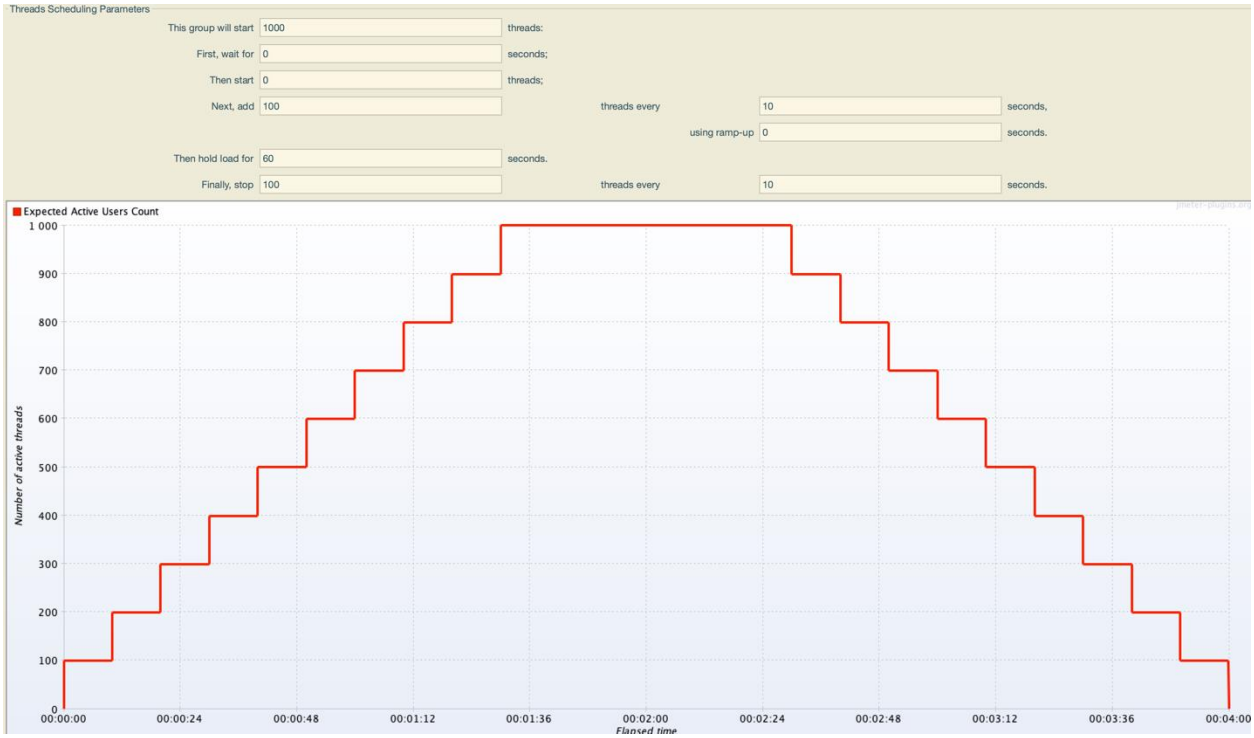
Resources used on maximum load (3000 Threads):

```
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              546m         499Mi
user-api-app-76dfd58b4d-4fbb9       497m         470Mi
user-api-app-76dfd58b4d-plkl5       492m         362Mi
user-api-app-76dfd58b4d-qv529       493m         347Mi
```

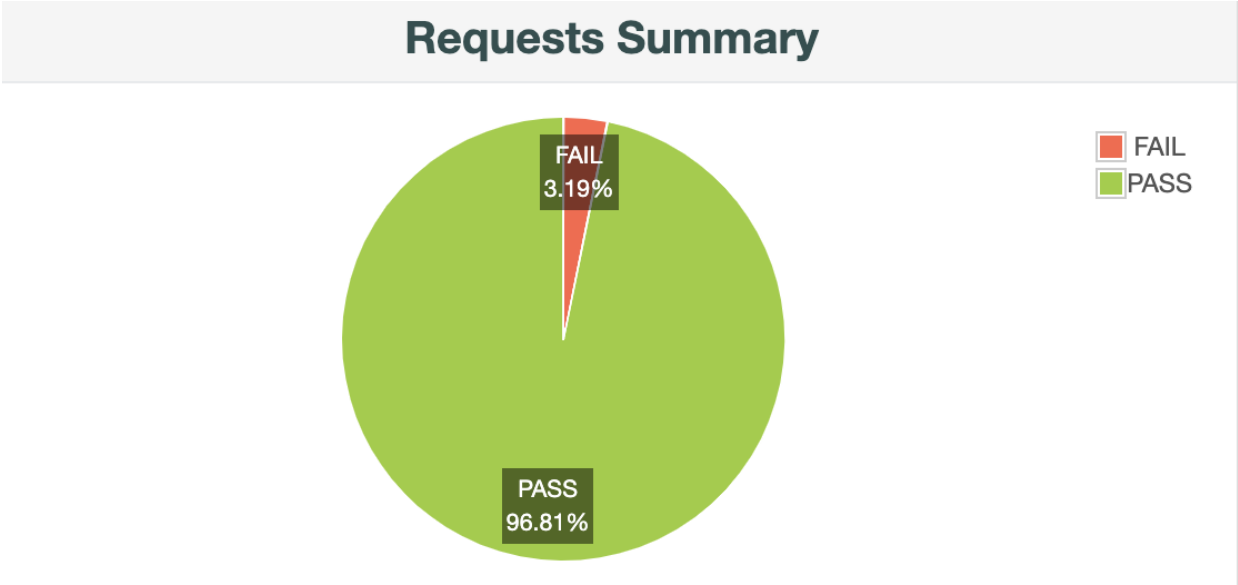
Summary of 3 Instance:

No. of Threads	No. of Instances	CPU(cores) on max load	Average CPU(cores) on max load	MEMORY(bytes) on max load	Average MEMORY(bytes) on max load	# Samples	Error %	Transactions/s
0	3	5m 6m 6m	5.6m	438Mi 235Mi 229Mi	300.6Mi	0	0.00000	0
1000	3	551m 610m 608m	589.6m	450Mi 348Mi 335Mi	377.6Mi	93562	1.38000	360.67
3000	3	497m 492m 493m	494m	470Mi 362Mi 347Mi	393Mi	112900	6.09000	427.82

Test Plan: 1000 Threads - 5 Instance



Test Report:



APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.645	**500 ms**	**1 sec 500 ms**	**Total**
0.632	500 ms	1 sec 500 ms	POST_USER_SESSION_INFO
0.657	500 ms	1 sec 500 ms	GET_SESSION_INFO

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**93293**	**2974**	**3.19%**	**1629.84**	**1**	**39463**	**214.00**	**1331.90**	**6707.00**	**13355.90**	**365.97**	**114.31**	**0.00**
GET_SESSION_INFO	46890	1569	3.35%	1588.07	1	39463	219.00	6713.00	7663.20	19592.00	184.91	58.40	0.00
POST_USER_SESSION_INFO	46403	1405	3.03%	1672.05	3	39174	342.00	6718.00	13107.00	19644.96	182.07	56.23	0.00

Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error
Total	**93293**	**2974**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset**	**2493**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset by peer**	**219**	**Non HTTP response code: java.net.ConnectExceptior HTTP response message: Operation timed out**
GET_SESSION_INFO	46890	1569	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	1321	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset by peer	115	Non HTTP response code: java.net.ConnectException/I HTTP response message: Operation timed out
POST_USER_SESSION_INFO	46403	1405	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	1172	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset by peer	104	Non HTTP response code: java.net.ConnectException/I HTTP response message: Operation timed out

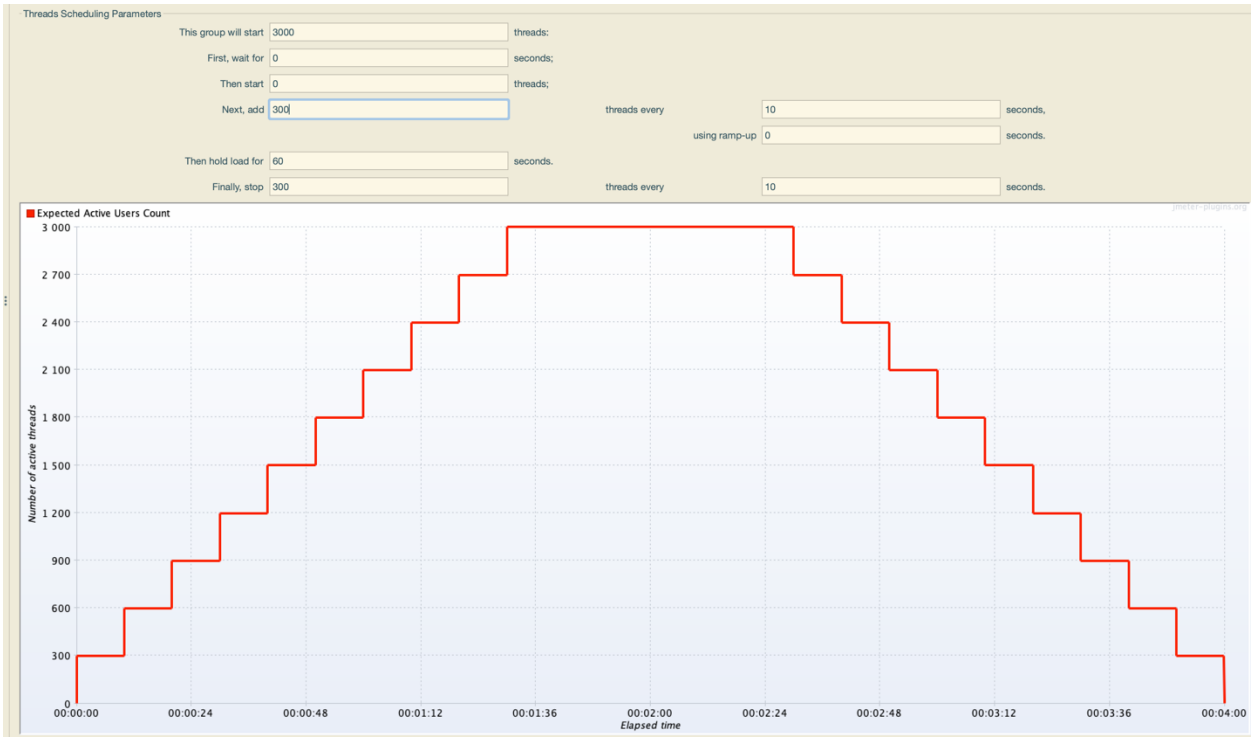
Resources used on zero load (0 Threads):

```
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              3m           503Mi
user-api-app-76dfd58b4d-26hkx       5m           233Mi
user-api-app-76dfd58b4d-4fbb9       5m           457Mi
user-api-app-76dfd58b4d-ld8pz       5m           227Mi
user-api-app-76dfd58b4d-plkl5       5m           349Mi
user-api-app-76dfd58b4d-qv529       5m           338Mi
```

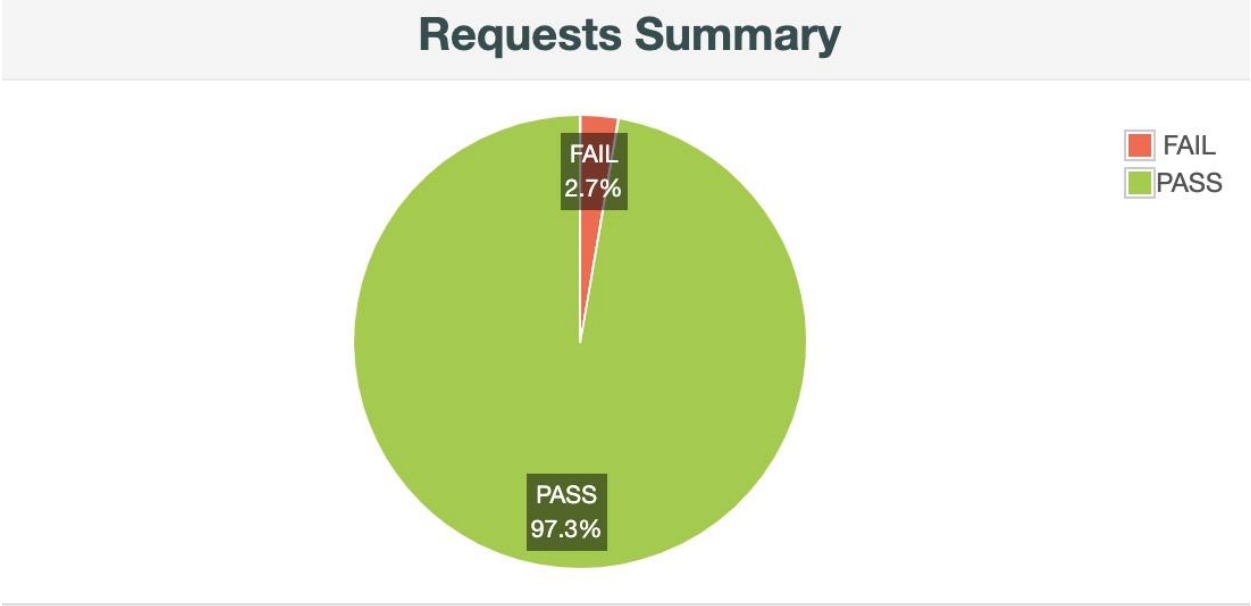
Resources used on maximum load (1000 Threads):

```
protocol-buffers, switch early by passing --use-protocol-buffers flag
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              415m         506Mi
user-api-app-76dfd58b4d-26hkx       486m         340Mi
user-api-app-76dfd58b4d-4fbb9       293m         465Mi
user-api-app-76dfd58b4d-ld8pz       547m         345Mi
user-api-app-76dfd58b4d-plkl5       279m         357Mi
user-api-app-76dfd58b4d-qv529       315m         345Mi
```

Test Plan: 3000 Threads - 5 Instance



Test Reports:



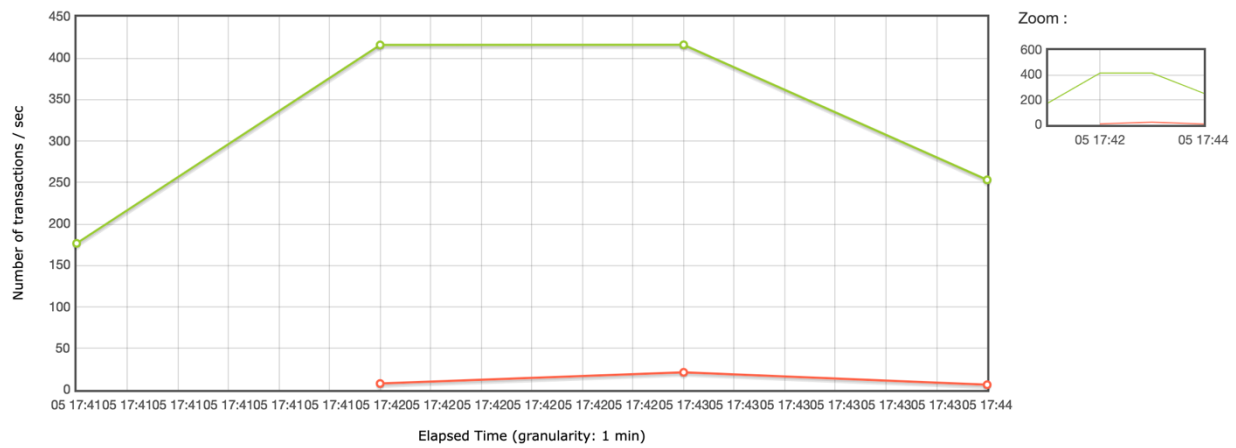
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.592	**500 ms**	**1 sec 500 ms**	**Total**
0.582	500 ms	1 sec 500 ms	POST_USER_SESSION_INFO
0.602	500 ms	1 sec 500 ms	GET_SESSION_INFO

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**77839**	**2104**	**2.70%**	**2936.90**	**2**	**46027**	**185.00**	**6753.00**	**13113.00**	**19985.53**	**395.45**	**113.47**	**0.00**
GET_SESSION_INFO	39636	1142	2.88%	2910.17	2	46027	263.00	13812.00	20098.95	25908.00	201.36	58.49	0.00
POST_USER_SESSION_INFO	38203	962	2.52%	2964.63	3	45681	359.00	13905.00	20050.95	25906.00	194.35	55.06	0.00

Total Transactions Per Second



Transaction-failure Transaction-success

Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error
Total	**77839**	**2104**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset**	**1148**	**Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out**	**871**	**Non HTTP response code: java.net.SocketExceptior HTTP response message Invalid argument**
GET_SESSION_INFO	39636	1142	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	628	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	468	Non HTTP response code: java.net.SocketException/ HTTP response message: Invalid argument
POST_USER_SESSION_INFO	38203	962	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	520	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	403	Non HTTP response code: java.net.SocketException/ HTTP response message: Invalid argument

Resources used on zero load (0 Threads):

```
NAME                                    CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h                  3m           503Mi
user-api-app-76dfd58b4d-26hkx           5m           233Mi
user-api-app-76dfd58b4d-4fbb9           5m           457Mi
user-api-app-76dfd58b4d-ld8pz           5m           227Mi
user-api-app-76dfd58b4d-plkl5           5m           349Mi
user-api-app-76dfd58b4d-qv529           5m           338Mi
```

Resources used on maximum load (3000 Threads):

```
W0305 16:53:08.111878   50773 top_pod.go:140] Using json format to get metrics. Next release will switch to
protocol-buffers, switch early by passing --use-protocol-buffers flag
NAME                                    CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h                  562m         506Mi
user-api-app-76dfd58b4d-26hkx           405m         362Mi
user-api-app-76dfd58b4d-4fbb9           224m         467Mi
user-api-app-76dfd58b4d-ld8pz           310m         357Mi
user-api-app-76dfd58b4d-plkl5           221m         360Mi
user-api-app-76dfd58b4d-qv529           285m         352Mi
```

Summary of 5 Instance

No. of Threads	No. of Instances	CPU(cores) on max load	Average CPU(cores) on max load	MEMORY(bytes) on max load	Average MEMORY(bytes) on max load	# Samples	Error %	Transactions/s
		5m		233Mi				
		5m		457Mi				
		5m		227Mi				
		5m		349Mi				
0	5	5m	5m	338Mi	320.8Mi	0	0.00000	0
		486m		340Mi				
		293m		465Mi				
		547m		345Mi				
		279m		357Mi				
1000	5	315m	384m	345Mi	370.4Mi	93293	3.19000	365.97
		405m		362Mi				
		224m		467Mi				
		310m		357Mi				
		221m		360Mi				
3000	5	285m	289m	352Mi	379.6Mi	111725	8.92000	430.87

Conclusive Summary

No. of Threads	No. of Instances	# Samples	Error %	Transactions/s
0	1	0	0	0
0	3	0	0	0
0	5	0	0	0
10	1	24762	0	172.07
100	1	40652	0	168.28
1000	1	40467	2.68	161.27
1000	3	26890	0	101.83
1000	5	22860	2.46	75.73
3000	1	38640	5.18	137.04
3000	3	43650	5.56	172.83
3000	5	35610	32.77	102.51

- We have tested user API on 1, 3 and 5 instances by gradually increasing the load from 10, 100, 1000 and 3000.
- We found that user api works well under 3 instances instead of 5 because the CPU resources went into bottleneck while performing the load testing.
- Throughput was between 100 to 172 transactions per second for 3 instances which was good compared to the testing on single and 5 instances.

User API Spike Testing

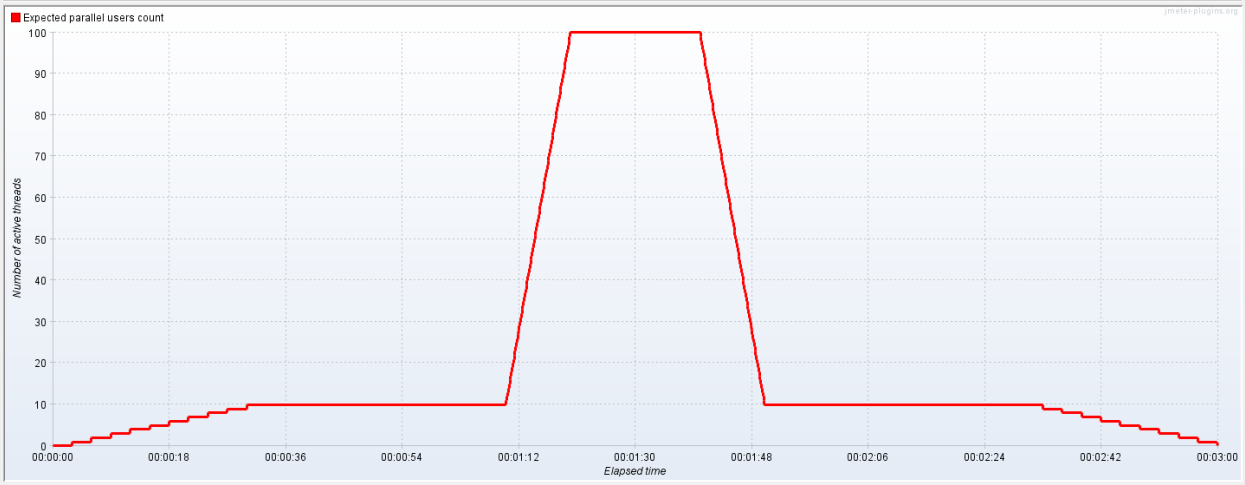
System Configuration:
Processor: Intel(R) Core(TM) i5-1035G1 CPU @ 1.00GHz 1.19 GHz
RAM: 12.0 GB

Testing Scenarios:
No. of Instance: 1
Test Plan: 10 Threads - 90 Spike - 1 Instance

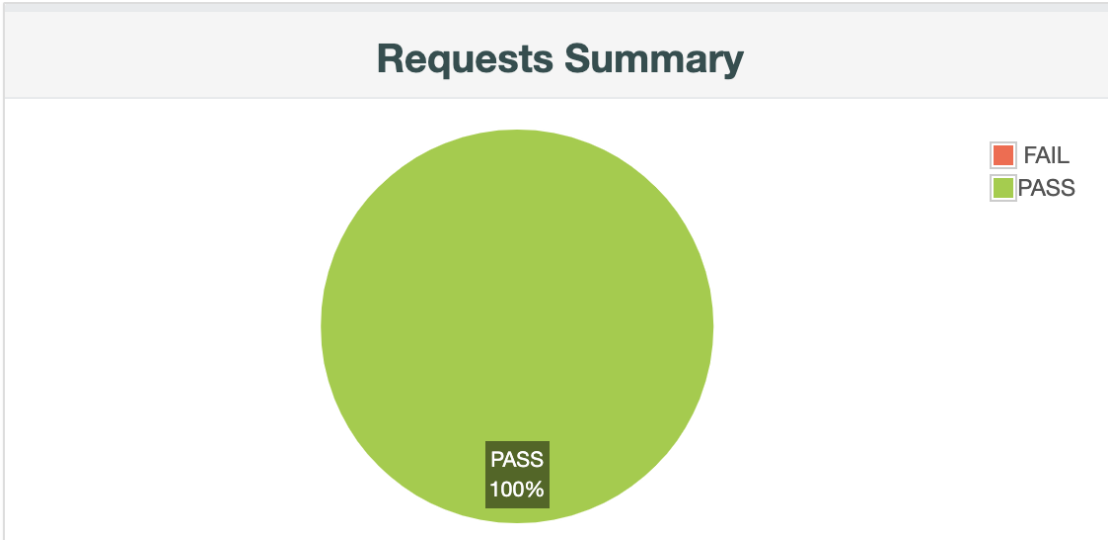
Threads Schedule

Start Threads Count	Initial Delay, sec	Startup Time, sec	Hold Load For, sec	Shutdown Time
10	0	30	120	30
90	70	10	20	10

Add Row | Copy Row | Delete Row



Test Results:



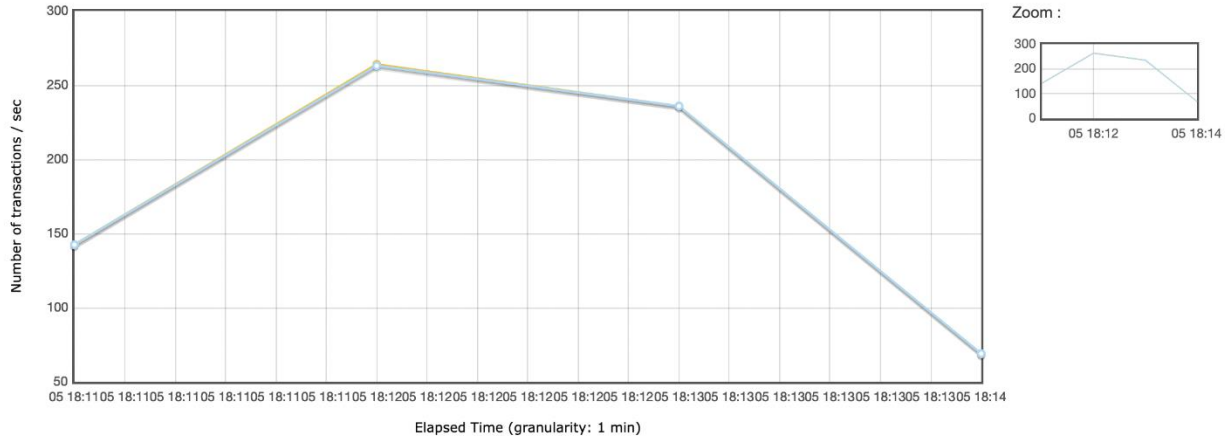
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.988	**500 ms**	**1 sec 500 ms**	**Total**
0.988	500 ms	1 sec 500 ms	POST_USER_SESSION_INFO
0.989	500 ms	1 sec 500 ms	GET_SESSION_INFO

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**85313**	**0**	**0.00%**	**53.07**	**2**	**6717**	**10.00**	**21.00**	**26.00**	**286.00**	**482.04**	**105.68**	**0.00**
GET_SESSION_INFO	42684	0	0.00%	48.97	2	6711	9.00	79.00	154.00	1112.00	241.17	52.52	0.00
POST_USER_SESSION_INFO	42629	0	0.00%	57.17	3	6717	15.00	91.00	168.95	1128.99	240.89	53.17	0.00

Transactions Per Second



Resources used on zero load (0 Threads):

```
W0304 15:05:44.851821   45020 top_pod.go:140] Using json format to get metrics. Next release will swit
ch to protocol-buffers, switch early by passing --use-protocol-buffers flag
NAME                          CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h        2m           468Mi
user-api-app-76dfd58b4d-4fbb9 4m           302Mi
```

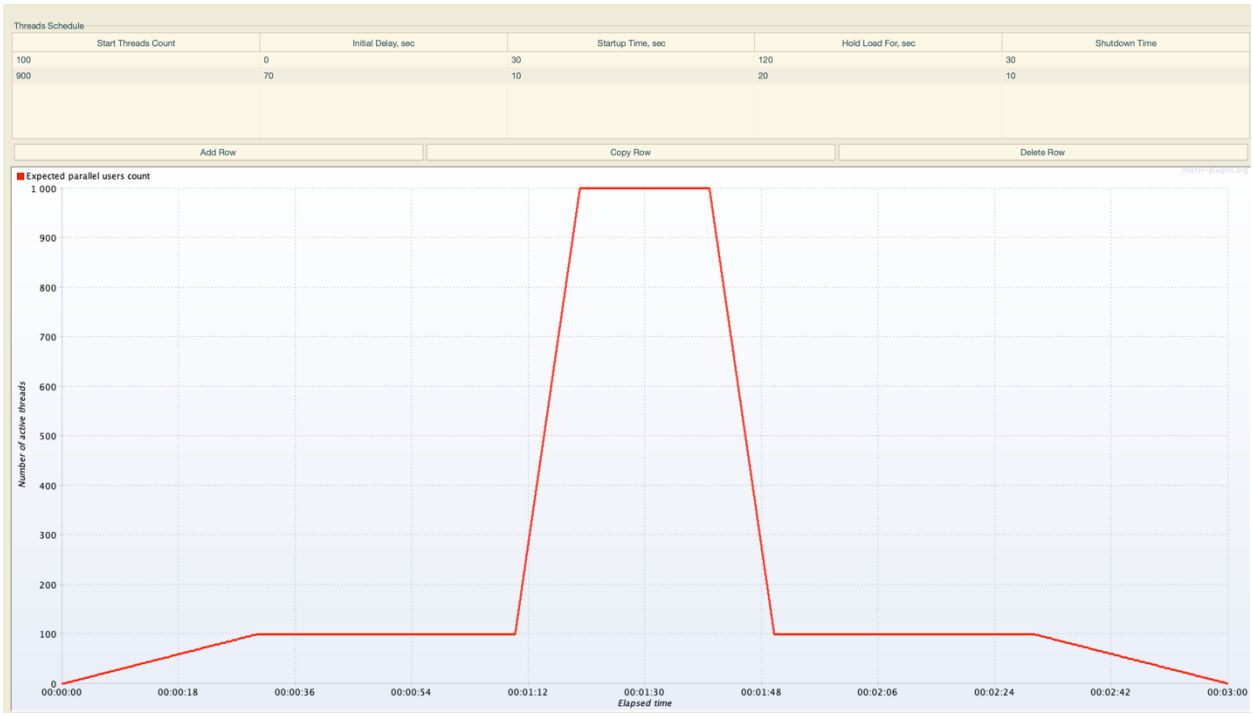
Resources used on spike load (90 Threads):

```
NAME                          CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h        423m         519Mi
user-api-app-76dfd58b4d-4fbb9 757m         458Mi
```

Summary

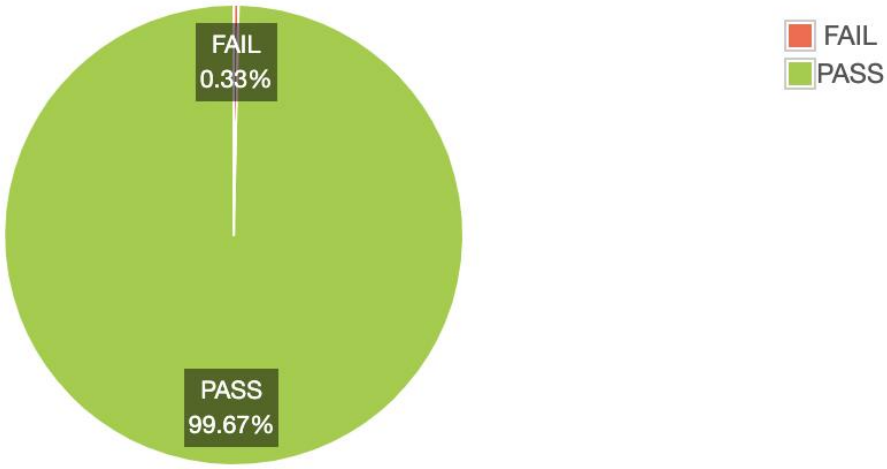
No. of constant Level Threads	No. of Spike Threads	No. of Instances	Spike %	Spike Duration	CPU(cores) on spike load	Average CPU(cores) on spike load	MEMORY(bytes) on spike load	Average MEMORY(bytes) on spike load	# Samples	Error %	Transactions/s
10	90	1	900	20s	1000m	1000m	699Mi	699Mi	29638	0	167.45
100	900	1	900	20s	1000m	1000m	538Mi	538Mi	30697	0	170.65
1000	2000	1	200	60s	998m	998m	664Mi	664Mi	37050	26.35	176.6

Test Plan: 100 Threads - 900 Spike - 3 Instance



Test Results :

Requests Summary



APDEX (Application Performance Index)

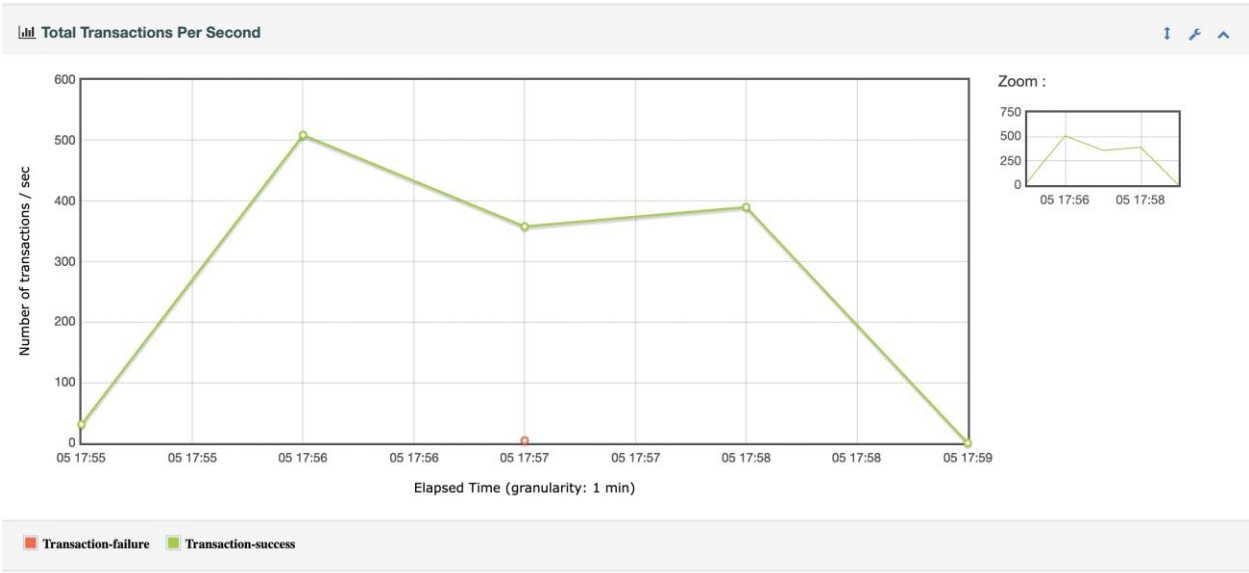
Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.882	**500 ms**	**1 sec 500 ms**	**Total**
0.880	500 ms	1 sec 500 ms	GET_SESSION_INFO
0.885	500 ms	1 sec 500 ms	POST_USER_SESSION_INFO

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**77541**	**255**	**0.33%**	**643.06**	**2**	**20055**	**34.00**	**127.00**	**261.95**	**3491.40**	**412.74**	**94.47**	**0.00**
GET_SESSION_INFO	39038	138	0.35%	636.75	2	20035	37.00	3845.00	6743.95	13110.99	209.41	47.78	0.00
POST_USER_SESSION_INFO	38503	117	0.30%	649.46	3	20055	65.00	3889.00	6786.00	13113.00	204.97	47.06	0.00

Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error
Total	**77541**	**255**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset**	**173**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Invalid argument**	**63**	**Non HTTP response code: java.net.SocketException/ HTTP response message: Connection reset by peer**
GET_SESSION_INFO	39038	138	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	85	Non HTTP response code: java.net.SocketException/Non HTTP response message: Invalid argument	36	Non HTTP response code: java.net.SocketException/N HTTP response message: Connection reset by peer
POST_USER_SESSION_INFO	38503	117	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	88	Non HTTP response code: java.net.SocketException/Non HTTP response message: Invalid argument	27	Non HTTP response code: java.net.SocketException/N HTTP response message: Connection reset by peer



Resources used on zero load (0 Threads):

```
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              3m           499Mi
user-api-app-76dfd58b4d-4fbb9       5m           438Mi
user-api-app-76dfd58b4d-plkl5       6m           235Mi
user-api-app-76dfd58b4d-qv529       6m           229Mi
```

Resources used on spike load (1000 Threads):

```
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              601m         514Mi
user-api-app-76dfd58b4d-4fbb9       308m         459Mi
user-api-app-76dfd58b4d-plkl5       394m         369Mi
user-api-app-76dfd58b4d-qv529       140m         360Mi
```

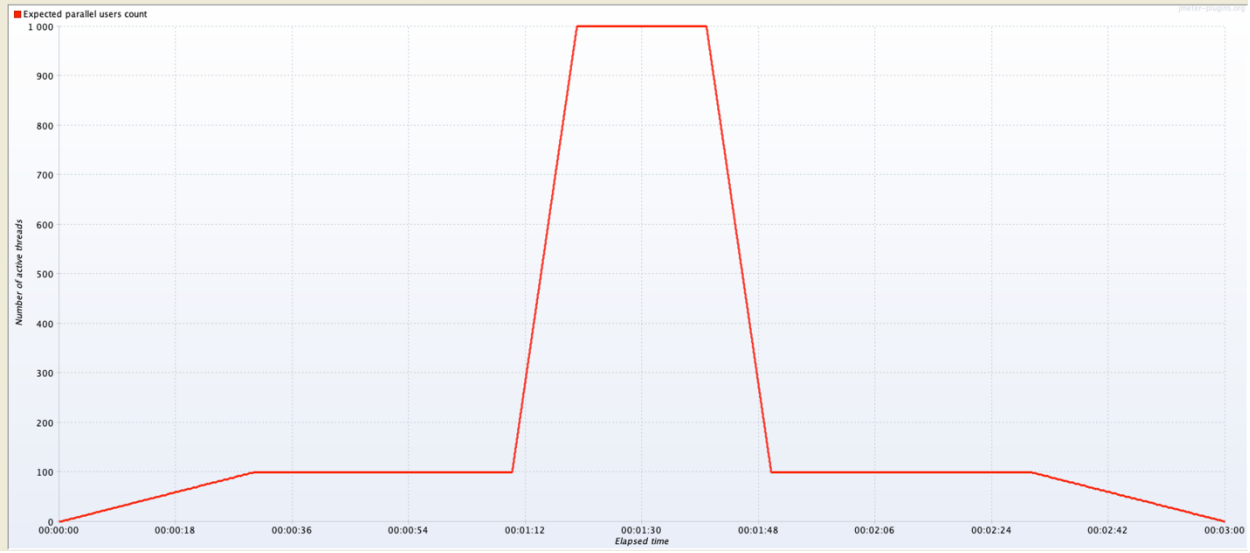
No. of Instance: 5

Test Plan: 100 Threads - 900 Spike - 5 Instance

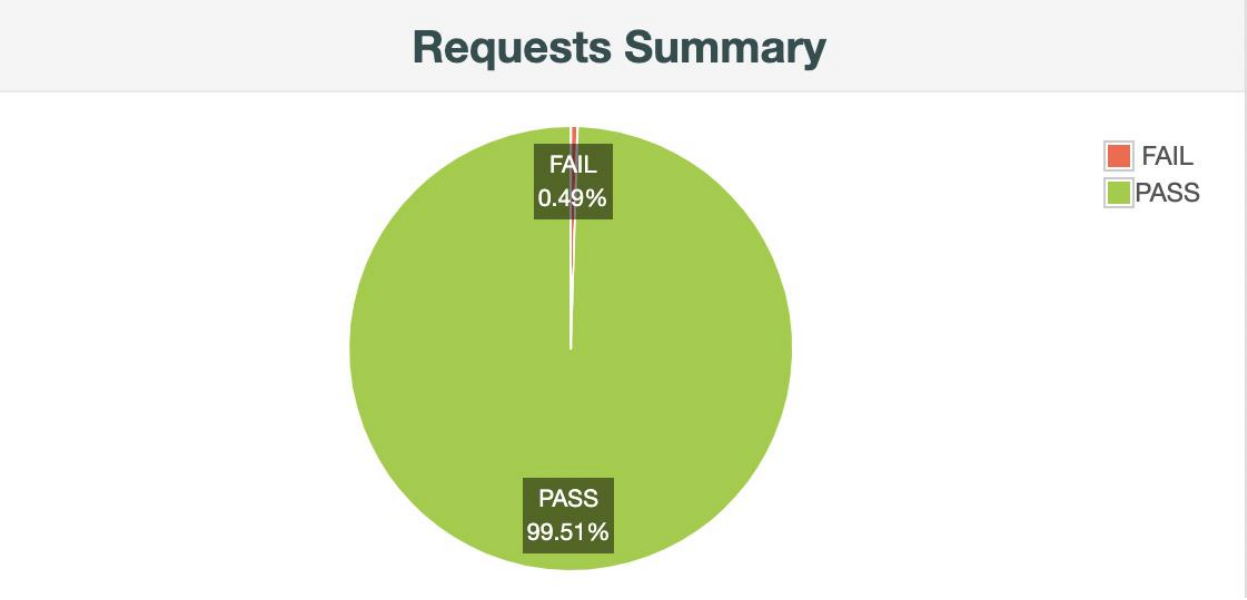
Threads Schedule

Start Threads Count	Initial Delay, sec	Startup Time, sec	Hold Load For, sec	Shutdown Time
100	0	30	120	30
900	70	10	20	10

Add Row | Copy Row | Delete Row



Test Results:



APDEX (Application Performance Index)

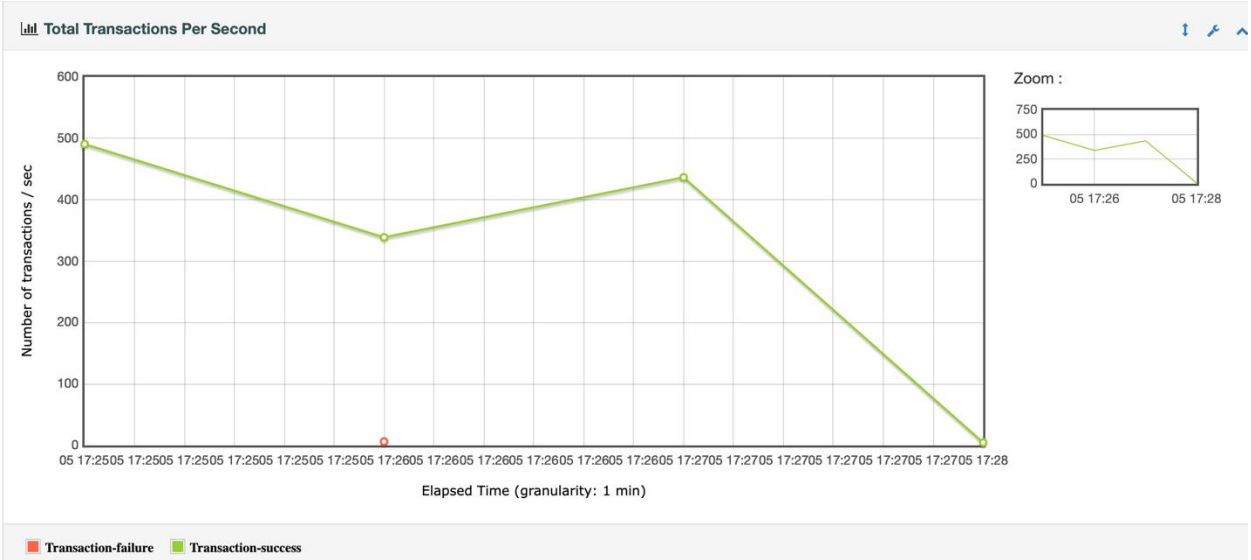
Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.888	**500 ms**	**1 sec 500 ms**	**Total**
0.888	500 ms	1 sec 500 ms	POST_USER_SESSION_INFO
0.889	500 ms	1 sec 500 ms	GET_SESSION_INFO

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**76637**	**376**	**0.49%**	**604.98**	**2**	**20140**	**53.00**	**234.00**	**400.00**	**1450.96**	**418.37**	**97.49**	**0.00**
GET_SESSION_INFO	38568	191	0.50%	587.41	2	20064	49.00	3717.90	6739.00	13105.00	210.55	48.64	0.00
POST_USER_SESSION_INFO	38069	185	0.49%	622.77	3	20140	97.00	3788.00	6797.00	13107.00	212.60	49.97	0.00

Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#
Total	**76637**	**376**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset**	**282**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Invalid argument**	**94**				
GET_SESSION_INFO	38568	191	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	122	Non HTTP response code: java.net.SocketException/Non HTTP response message: Invalid argument	69				
POST_USER_SESSION_INFO	38069	185	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	160	Non HTTP response code: java.net.SocketException/Non HTTP response message: Invalid argument	25				



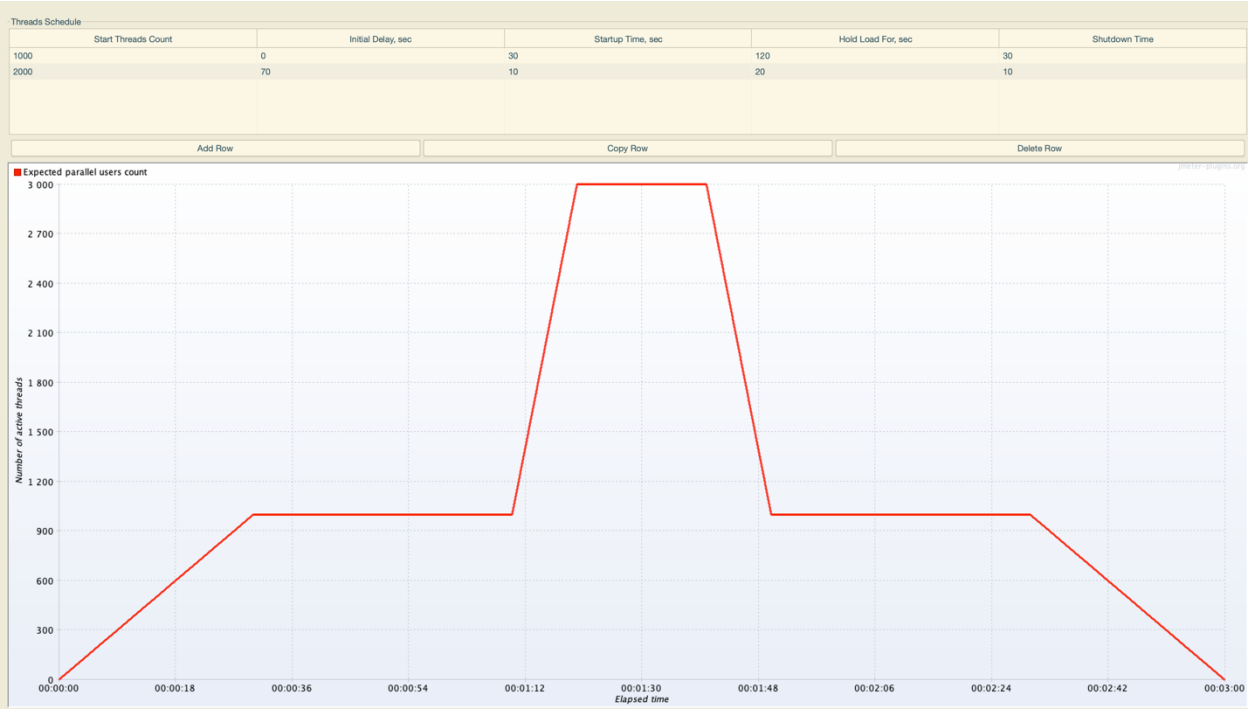
Resources used on zero load (0 Threads):

```
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              3m           503Mi
user-api-app-76dfd58b4d-26hkx       5m           233Mi
user-api-app-76dfd58b4d-4fbb9       5m           457Mi
user-api-app-76dfd58b4d-ld8pz       5m           227Mi
user-api-app-76dfd58b4d-plkl5       5m           349Mi
user-api-app-76dfd58b4d-qv529       5m           338Mi
```

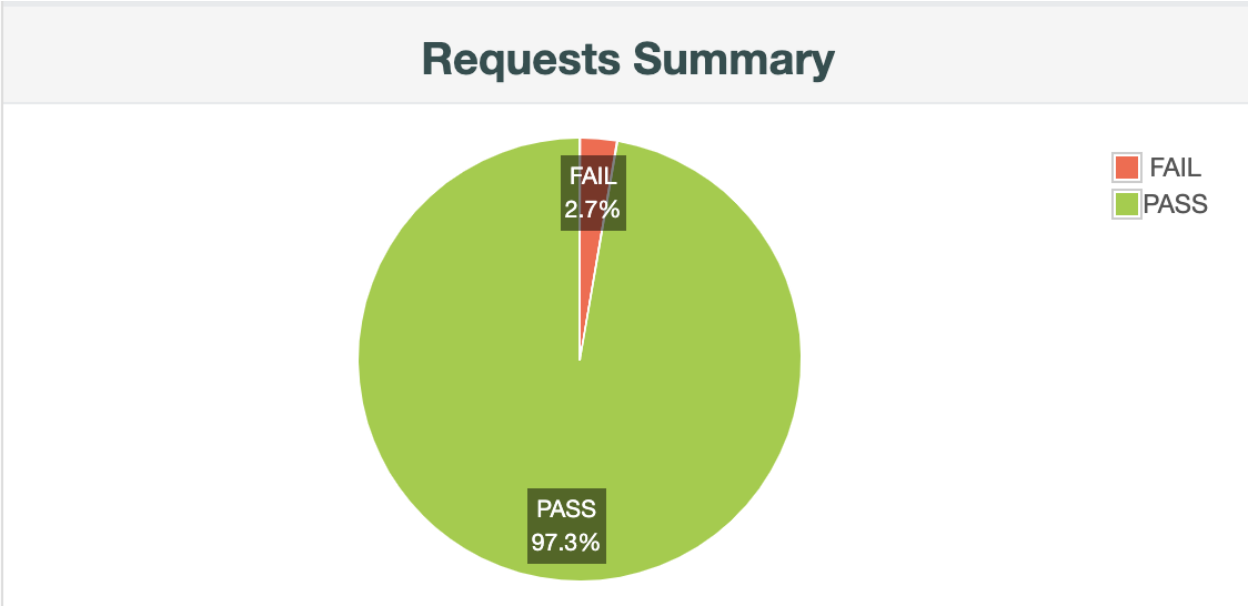
Resources used on spike load (1000 Threads):

```
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              593m         512Mi
user-api-app-76dfd58b4d-26hkx       301m         350Mi
user-api-app-76dfd58b4d-4fbb9       303m         461Mi
user-api-app-76dfd58b4d-ld8pz       336m         352Mi
user-api-app-76dfd58b4d-plkl5       303m         367Mi
user-api-app-76dfd58b4d-qv529       279m         355Mi
```

No. of Instance: 5
Test Plan: 1000 Threads - 2000 Spike - 5 Instance



Test Results:



APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.592	**500 ms**	**1 sec 500 ms**	**Total**
0.582	500 ms	1 sec 500 ms	POST_USER_SESSION_INFO
0.602	500 ms	1 sec 500 ms	GET_SESSION_INFO

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**77839**	**2104**	**2.70%**	**2936.90**	**2**	**46027**	**185.00**	**6753.00**	**13113.00**	**19985.53**	**395.45**	**113.47**	**0.00**
GET_SESSION_INFO	39636	1142	2.88%	2910.17	2	46027	263.00	13812.00	20098.95	25908.00	201.36	58.49	0.00
POST_USER_SESSION_INFO	38203	962	2.52%	2964.63	3	45681	359.00	13905.00	20050.95	25906.00	194.35	55.06	0.00

Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error
Total	**77839**	**2104**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset**	**1148**	**Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out**	**871**	**Non HTTP response code java.net.SocketExceptior HTTP response message Invalid argument**
GET_SESSION_INFO	39636	1142	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	628	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	468	Non HTTP response code: java.net.SocketException/ HTTP response message: Invalid argument
POST_USER_SESSION_INFO	38203	962	Non HTTP response code: java.net.SocketException/Non HTTP response message: Connection reset	520	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	403	Non HTTP response code: java.net.SocketException/ HTTP response message: Invalid argument

Resources used on zero load (0 Threads):

```
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              3m           503Mi
user-api-app-76dfd58b4d-26hkx       5m           233Mi
user-api-app-76dfd58b4d-4fbb9       5m           457Mi
user-api-app-76dfd58b4d-ld8pz       5m           227Mi
user-api-app-76dfd58b4d-plkl5       5m           349Mi
user-api-app-76dfd58b4d-qv529       5m           338Mi
```

Resources used on spike load (3000 Threads):

```
NAME                                CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h              464m         514Mi
user-api-app-76dfd58b4d-26hkx       257m         356Mi
user-api-app-76dfd58b4d-4fbb9       243m         465Mi
user-api-app-76dfd58b4d-ld8pz       277m         367Mi
user-api-app-76dfd58b4d-plkl5       260m         377Mi
user-api-app-76dfd58b4d-qv529       274m         368Mi
```

Summary of 5 Instance:

No. of constant Level Threads	No. of Spike Threads	No. of Instances	Spike %	Spike Duration	CPU(cores) on spike load	Average CPU(cores) on spike load	MEMORY(bytes) on spike load	Average MEMORY(bytes) on spike load	# Samples	Error %	Transactions/s
					503m		342Mi				
					619m		169Mi				
					468m		676Mi				
					503m		1086Mi				
1000	2000	5	200	60s	510m	520.6m	643Mi	583.2Mi	28719	16.42	113.2

Conclusive Summary

No. of constant Level Threads	No. of Spike Threads	No. of Instances	# Samples	Error %	Transactions/s
10	90	1	26389	0	162.43
100	900	1	31845	0	171.35
100	900	3	24789	0	135.54
1000	2000	1	36839	24.35	175.64
1000	2000	3	27037	0.44	127.92
1000	2000	5	28728	16.47	112.2

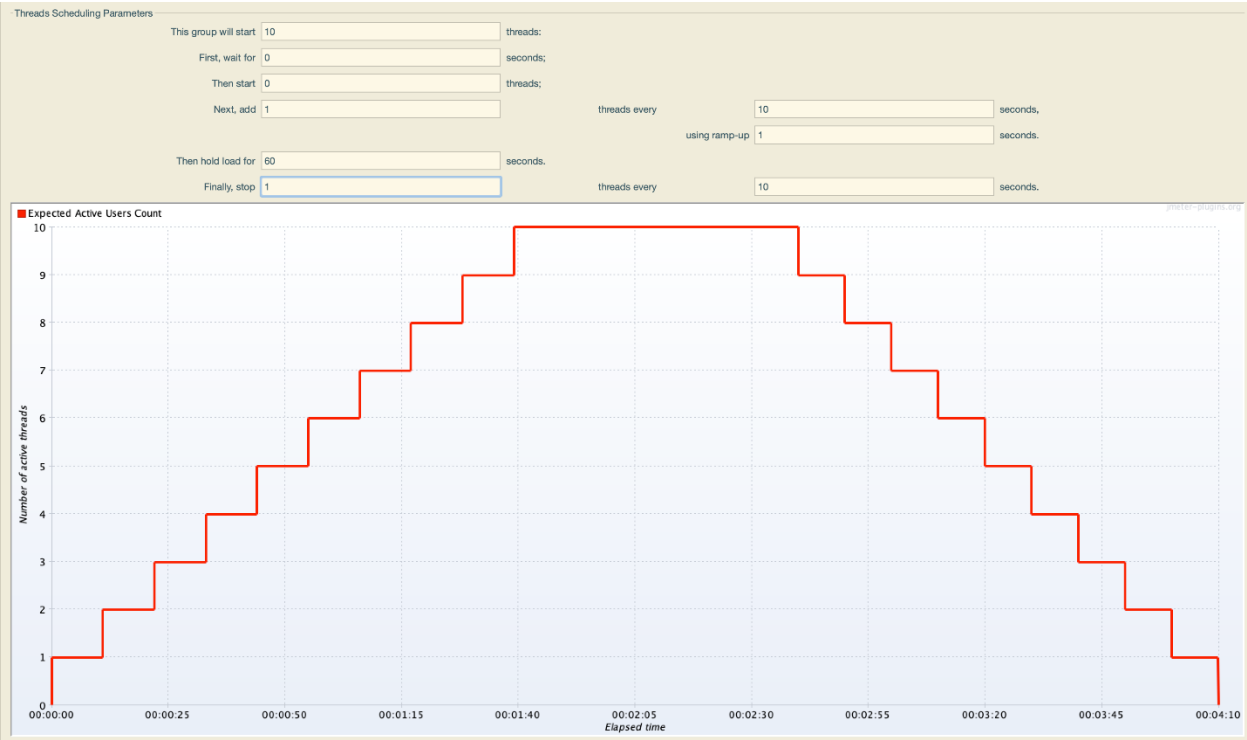
- Spike Testing performed well on the combination of 3 instance and 100 constant load – 900 spike load and 1000 constant load and 2000 spike load.
- Throughput was in the range of 127 to 135 transactions per second for 3 instance testing.
- For single instance testing we saw huge failure rate, so we tested on 3 and 5 instances out of which we have seen better results for 3 instances.

FULL STACK

Full Stack Load Testing

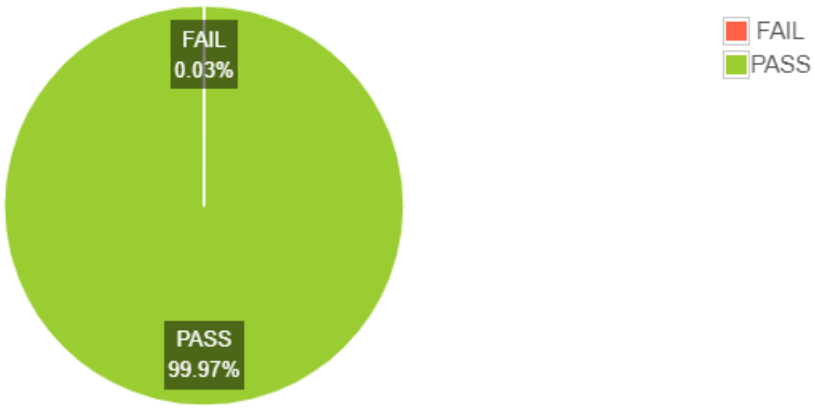
System Configuration:
Model: MacBook Pro (16-inch, 2019)
Processor: 2.6 GHz 6-Core Intel Core i7
Memory: 16 GB 2667 MHz DDR4
Graphics: AMD Radeon Pro 5300M 4 GB, Intel UHD Graphics 630 1536 MB

Testing Scenarios:
No. of Instance: 1
Test Plan: 10 Threads - 1 Instance



Test Report:

Requests Summary

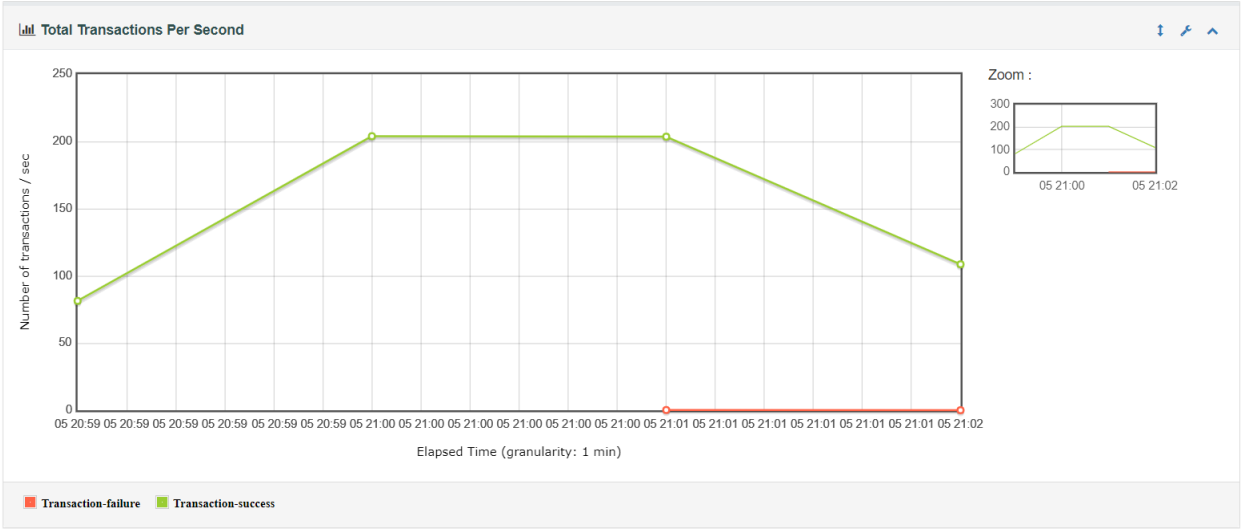


APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.987	**500 ms**	**1 sec 500 ms**	**Total**
0.801	500 ms	1 sec 500 ms	GET_UI_login
0.879	500 ms	1 sec 500 ms	GET_UI_login-8
0.993	500 ms	1 sec 500 ms	GET_UI_dashboard
0.995	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.999	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.999	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.999	500 ms	1 sec 500 ms	GET_UI_login-0
0.999	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.999	500 ms	1 sec 500 ms	GET_UI_dashboard-2
1.000	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
1.000	500 ms	1 sec 500 ms	GET_UI_login-7
1.000	500 ms	1 sec 500 ms	GET_UI_login-6
1.000	500 ms	1 sec 500 ms	GET_UI_login-9
1.000	500 ms	1 sec 500 ms	GET_UI_dashboard-9
1.000	500 ms	1 sec 500 ms	GET_UI_login-1
1.000	500 ms	1 sec 500 ms	GET_UI_dashboard-7
1.000	500 ms	1 sec 500 ms	GET_UI_login-3
1.000	500 ms	1 sec 500 ms	GET_UI_dashboard-6
1.000	500 ms	1 sec 500 ms	GET_UI_login-2
1.000	500 ms	1 sec 500 ms	GET_UI_dashboard-5
1.000	500 ms	1 sec 500 ms	GET_UI_login-5
1.000	500 ms	1 sec 500 ms	GET_UI_dashboard-4
1.000	500 ms	1 sec 500 ms	GET_UI_login-4
1.000	500 ms	1 sec 500 ms	GET_UI_dashboard-1
1.000	500 ms	1 sec 500 ms	GET_UI_dashboard-0
1.000	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	50th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	35858	12	0.03%	85.13	2	1499	57.00	177.00	350.95	709.99	179.27	73434.57	97.49
GET_GATEWAY_UserApi_sessionInfo	1376	0	0.00%	74.34	7	1129	58.50	119.30	145.00	217.23	6.94	505.82	3.40
GET_GATEWAY_WeatherApi_plot	1373	0	0.00%	25.41	6	133	22.00	45.00	57.00	86.52	6.94	512.08	3.30
GET_UI_dashboard	1377	0	0.00%	185.28	68	1156	126.00	307.40	374.10	538.66	6.93	213.54	0.00
GET_UI_dashboard-0	1377	0	0.00%	38.16	2	248	23.00	84.00	123.00	168.44	6.93	7.53	0.00
GET_UI_dashboard-1	1377	0	0.00%	38.68	3	1012	24.00	85.00	122.00	195.44	6.94	1.39	0.00
GET_UI_dashboard-2	1377	0	0.00%	88.82	62	1095	77.00	96.00	115.00	395.98	6.93	50.49	0.00
GET_UI_dashboard-3	1377	0	0.00%	87.64	60	1067	77.00	95.00	113.10	391.32	6.93	9.81	0.00
GET_UI_dashboard-4	1377	0	0.00%	39.46	2	1012	25.00	87.20	121.00	200.44	6.94	1.40	0.00
GET_UI_dashboard-5	1377	0	0.00%	39.21	3	1012	25.00	88.20	125.00	201.44	6.94	1.40	0.00
GET_UI_dashboard-6	1377	0	0.00%	40.08	3	1012	25.00	88.00	123.30	200.22	6.94	1.40	0.00
GET_UI_dashboard-7	1377	0	0.00%	44.43	3	639	28.00	105.00	138.10	208.10	6.94	1.40	0.00
GET_UI_dashboard-8	1377	0	0.00%	59.49	10	583	43.00	119.00	152.10	247.88	6.94	137.40	0.00
GET_UI_dashboard-9	1377	0	0.00%	55.38	3	323	43.00	110.20	142.00	197.22	6.94	1.40	0.00
GET_UI_login	1383	6	0.43%	454.92	95	1499	425.00	783.80	839.80	1014.52	6.91	35998.88	40.96
GET_UI_login-0	1383	0	0.00%	47.53	2	1023	32.00	110.80	141.00	201.16	6.92	7.51	4.03
GET_UI_login-1	1383	0	0.00%	44.94	2	1020	28.00	102.00	139.00	195.32	6.93	8.15	4.08
GET_UI_login-2	1383	0	0.00%	83.44	59	585	77.00	94.00	104.00	320.32	6.93	50.56	4.36
GET_UI_login-3	1383	0	0.00%	82.05	61	586	76.00	93.00	103.00	279.96	6.93	9.89	4.22
GET_UI_login-4	1383	0	0.00%	49.74	3	1023	35.00	111.00	142.80	203.48	6.93	543.38	4.07
GET_UI_login-5	1383	0	0.00%	44.90	2	1020	28.00	102.00	134.80	195.00	6.93	49.44	4.07
GET_UI_login-6	1383	0	0.00%	67.18	11	1031	56.00	128.20	160.00	214.16	6.93	2353.28	4.08
GET_UI_login-7	1383	0	0.00%	63.97	8	550	50.00	127.00	157.80	225.00	6.93	1473.88	4.06
GET_UI_login-8	1383	6	0.43%	366.67	86	1387	337.00	609.60	672.80	785.48	6.93	31055.02	4.04
GET_UI_login-9	1383	0	0.00%	67.94	4	542	56.00	130.00	160.00	224.32	6.94	534.44	4.05
POST_GATEWAY_UserApi_userQuery	1376	0	0.00%	28.30	5	1054	17.00	35.00	45.00	317.54	6.94	1.59	4.04
POST_GATEWAY_WeatherApi_queryStatus	1373	0	0.00%	11.87	2	106	10.00	21.60	27.00	46.00	6.94	3.44	4.98



Top 5 Errors by sampler

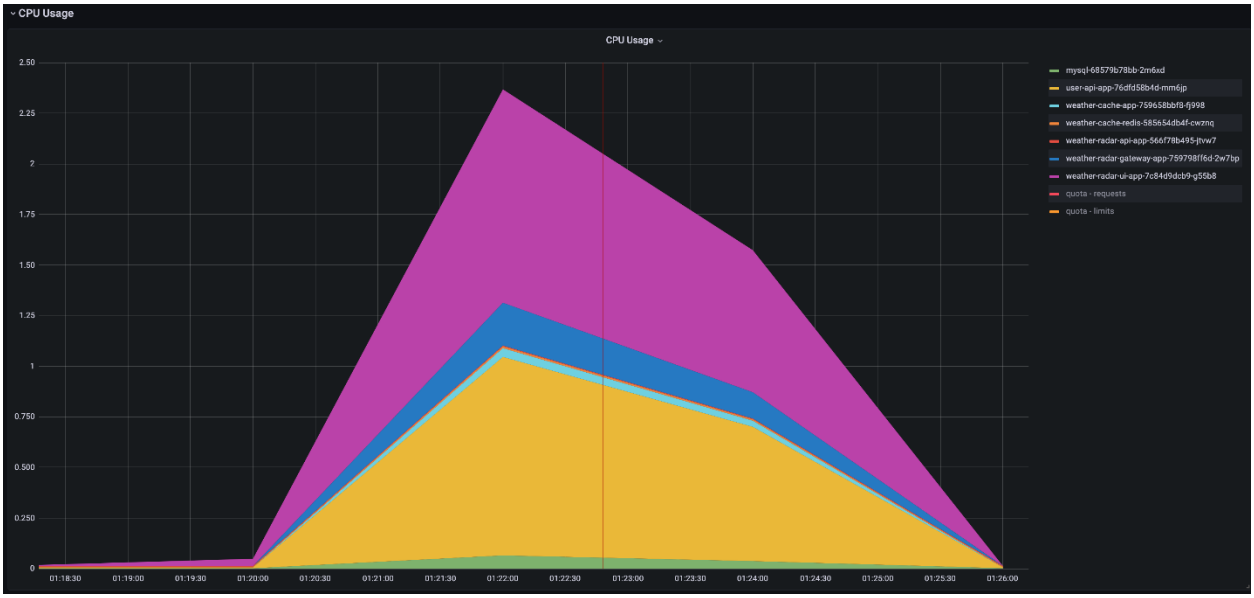
Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	**35858**	**12**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed**	**6**	**Assertion failed**	**6**						
GET_UI_login	1383	6	Assertion failed	6								
GET_UI_login-8	1383	6	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	6								

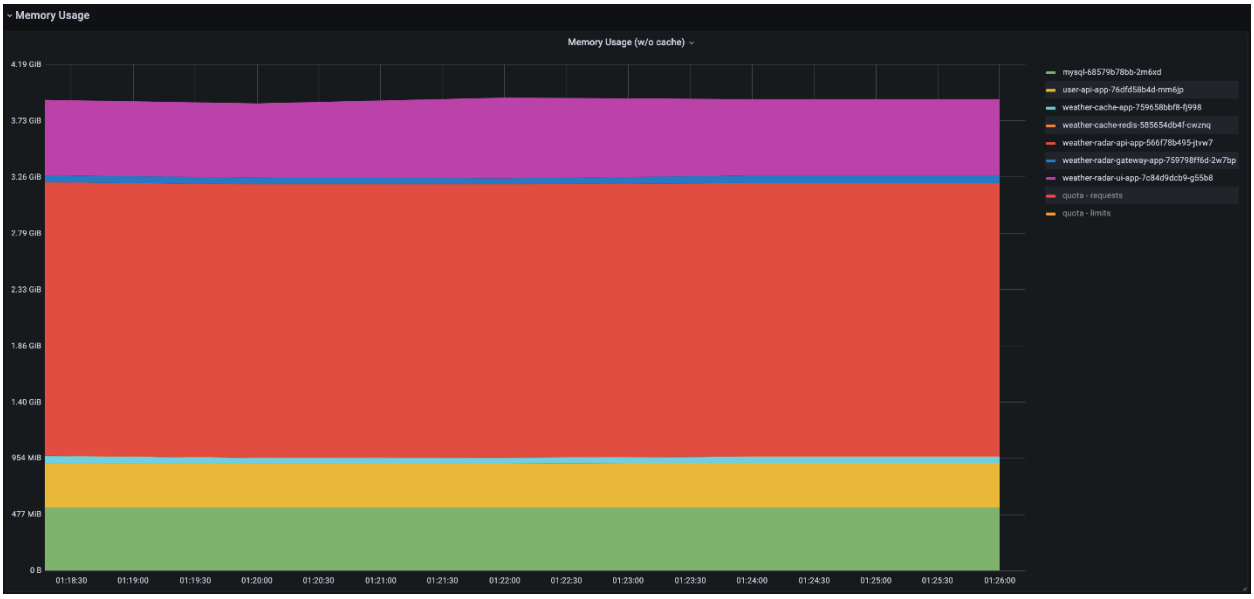
Resources used on zero load (0 Threads):

```
NAME                                    CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h                  3m           504Mi
user-api-app-76dfd58b4d-mqqzk           5m           451Mi
weather-cache-app-759658bbf8-ztcwk      0m           64Mi
weather-cache-redis-585654db4f-c4t67    4m           2Mi
weather-radar-api-app-566f78b495-xjd24  5m           2202Mi
weather-radar-gateway-app-759798ff6d-k7x6f  0m       42Mi
weather-radar-ui-app-7c84d9dcb9-ch6hs   1m           651Mi
```

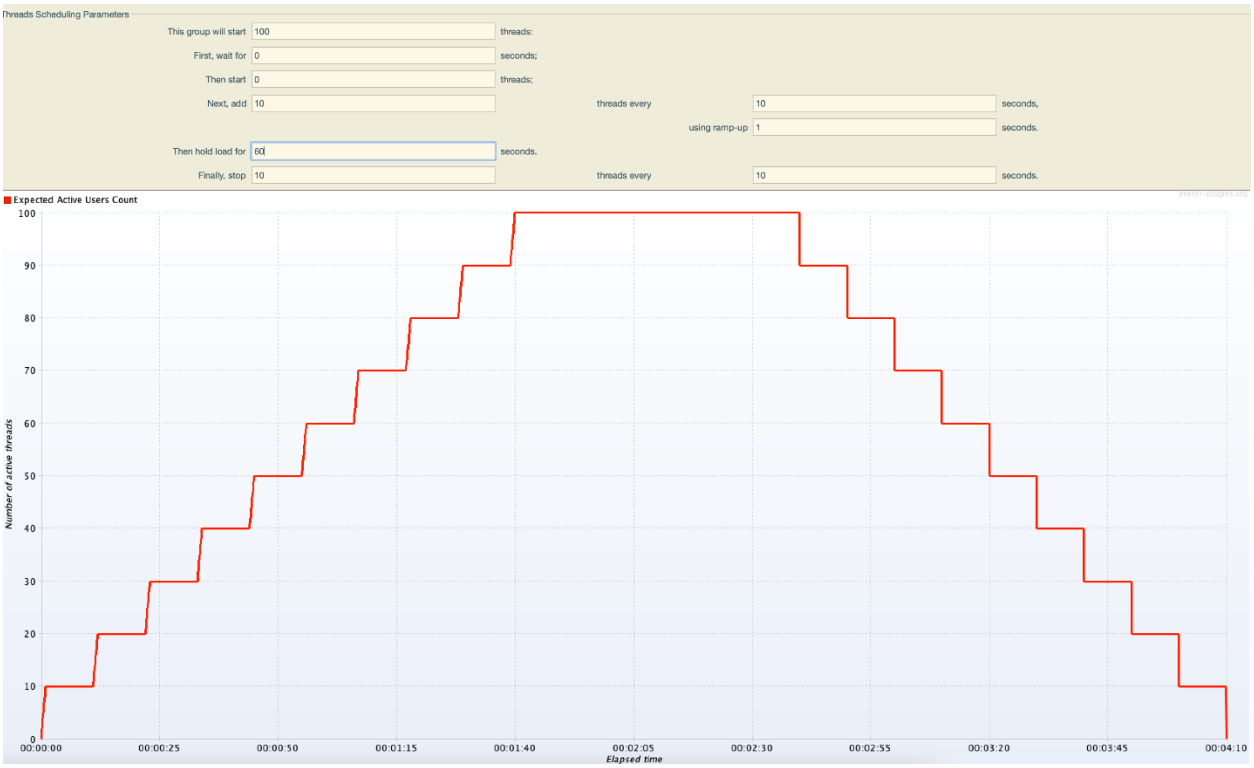
Resources used on maximum load (10 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-8kz5h	38m	505Mi
user-api-app-76dfd58b4d-mqqzk	247m	451Mi
weather-cache-app-759658bbf8-ztcwk	55m	46Mi
weather-cache-redis-585654db4f-c4t67	10m	2Mi
weather-radar-api-app-566f78b495-xjd24	5m	2202Mi
weather-radar-gateway-app-759798ff6d-k7x6f	126m	50Mi
weather-radar-ui-app-7c84d9dcb9-ch6hs	1247m	670Mi

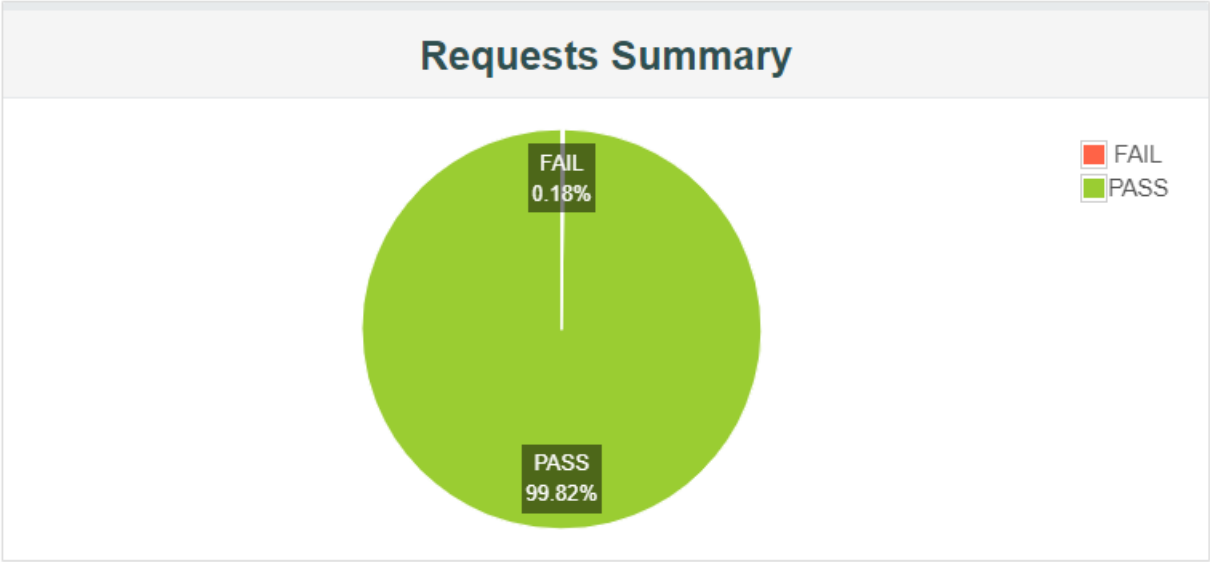




Test Plan: 100 Threads - 1 Instance



Test Report:



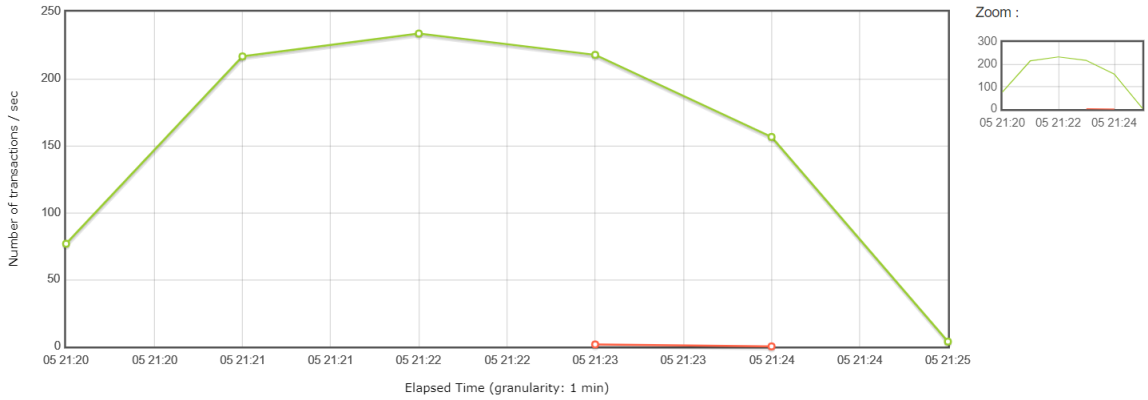
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.658	**500 ms**	**1 sec 500 ms**	**Total**
0.062	500 ms	1 sec 500 ms	GET_UI_login
0.091	500 ms	1 sec 500 ms	GET_UI_login-8
0.191	500 ms	1 sec 500 ms	GET_UI_dashboard
0.525	500 ms	1 sec 500 ms	GET_UI_login-9
0.531	500 ms	1 sec 500 ms	GET_UI_login-7
0.553	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.572	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.573	500 ms	1 sec 500 ms	GET_UI_login-6
0.586	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.599	500 ms	1 sec 500 ms	GET_UI_login-0
0.607	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.609	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.610	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.612	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.618	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.624	500 ms	1 sec 500 ms	GET_UI_login-4
0.644	500 ms	1 sec 500 ms	GET_UI_login-1
0.644	500 ms	1 sec 500 ms	GET_UI_login-5
0.960	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.989	500 ms	1 sec 500 ms	GET_UI_login-2
0.990	500 ms	1 sec 500 ms	GET_UI_dashboard-2
0.993	500 ms	1 sec 500 ms	GET_UI_login-3
0.993	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.999	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.999	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
1.000	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**54404**	**96**	**0.18%**	**930.30**	**3**	**11552**	**487.00**	**1780.00**	**3341.50**	**6003.98**	**189.24**	**78903.84**	**103.72**
GET_GATEWAY_UserApi_sessionInfo	2034	0	0.00%	259.56	13	860	246.50	467.00	543.25	662.30	7.13	770.30	3.50
GET_GATEWAY_WeatherApi_plot	2028	0	0.00%	102.42	7	1086	82.00	200.00	261.00	367.71	7.11	524.82	3.38
GET_UI_dashboard	2075	0	0.00%	2438.98	94	8047	2470.00	4088.00	4342.20	5764.64	7.24	621.51	0.00
GET_UI_dashboard-0	2075	0	0.00%	789.43	11	2200	749.00	1464.80	1611.60	1855.48	7.25	7.87	0.00
GET_UI_dashboard-1	2075	0	0.00%	787.01	12	2181	728.00	1525.00	1668.20	1944.88	7.25	1.45	0.00
GET_UI_dashboard-2	2075	0	0.00%	127.57	59	1081	89.00	208.00	411.00	601.84	7.25	52.84	0.00
GET_UI_dashboard-3	2075	0	0.00%	122.22	61	1133	88.00	172.00	381.40	551.08	7.25	10.27	0.00
GET_UI_dashboard-4	2075	0	0.00%	788.16	12	2184	728.00	1525.40	1668.00	1938.96	7.25	1.47	0.00
GET_UI_dashboard-5	2075	0	0.00%	790.02	13	2176	730.00	1530.00	1667.20	1948.72	7.25	1.46	0.00
GET_UI_dashboard-6	2075	0	0.00%	789.88	17	2185	732.00	1532.00	1670.00	1946.44	7.25	1.47	0.00
GET_UI_dashboard-7	2075	0	0.00%	857.41	16	2239	824.00	1570.00	1742.20	2043.48	7.26	5.92	0.00
GET_UI_dashboard-8	2075	0	0.00%	940.09	30	6233	867.00	1638.20	1850.20	4304.44	7.26	536.56	0.00
GET_UI_dashboard-9	2075	0	0.00%	835.73	16	2218	782.00	1558.40	1688.00	1980.24	7.26	3.35	0.00
GET_UI_login	2132	47	2.20%	4496.62	405	11552	4598.00	7234.40	7841.05	8803.40	7.43	38242.81	43.92
GET_UI_login-0	2132	0	0.00%	828.45	13	3454	780.50	1530.70	1694.00	1932.71	7.45	8.09	4.33
GET_UI_login-1	2132	0	0.00%	742.94	11	3890	710.00	1409.70	1574.00	1908.68	7.45	8.75	4.38
GET_UI_login-2	2132	0	0.00%	134.09	62	1895	91.00	223.70	421.35	746.01	7.45	54.33	4.69
GET_UI_login-3	2132	0	0.00%	125.32	62	1963	90.00	181.00	389.40	601.68	7.45	10.62	4.53
GET_UI_login-4	2132	0	0.00%	782.00	19	4016	740.00	1452.70	1610.70	2039.69	7.44	583.49	4.37
GET_UI_login-5	2132	0	0.00%	752.56	12	3962	708.00	1433.10	1602.35	2026.41	7.44	53.09	4.37
GET_UI_login-6	2132	0	0.00%	889.40	22	5235	866.00	1543.70	1717.75	2385.47	7.44	2527.05	4.38
GET_UI_login-7	2132	6	0.28%	988.51	39	6329	914.50	1723.70	2012.45	3386.16	7.44	1577.17	4.35
GET_UI_login-8	2132	36	1.69%	3513.68	120	10412	3554.50	5730.70	6284.50	7224.06	7.43	32876.62	4.28
GET_UI_login-9	2132	7	0.33%	994.62	31	6889	962.00	1714.00	1932.35	3200.67	7.44	571.63	4.33
POST_GATEWAY_UserApi_userQuery	2039	0	0.00%	80.57	5	578	65.00	161.00	196.00	274.20	7.14	1.74	4.15
POST_GATEWAY_WeatherApi_queryStatus	2026	0	0.00%	52.79	3	375	39.00	119.00	144.00	231.73	7.11	4.28	5.10

Total Transactions Per Second



Transaction-failure Transaction-success

Top 5 Errors by sampler

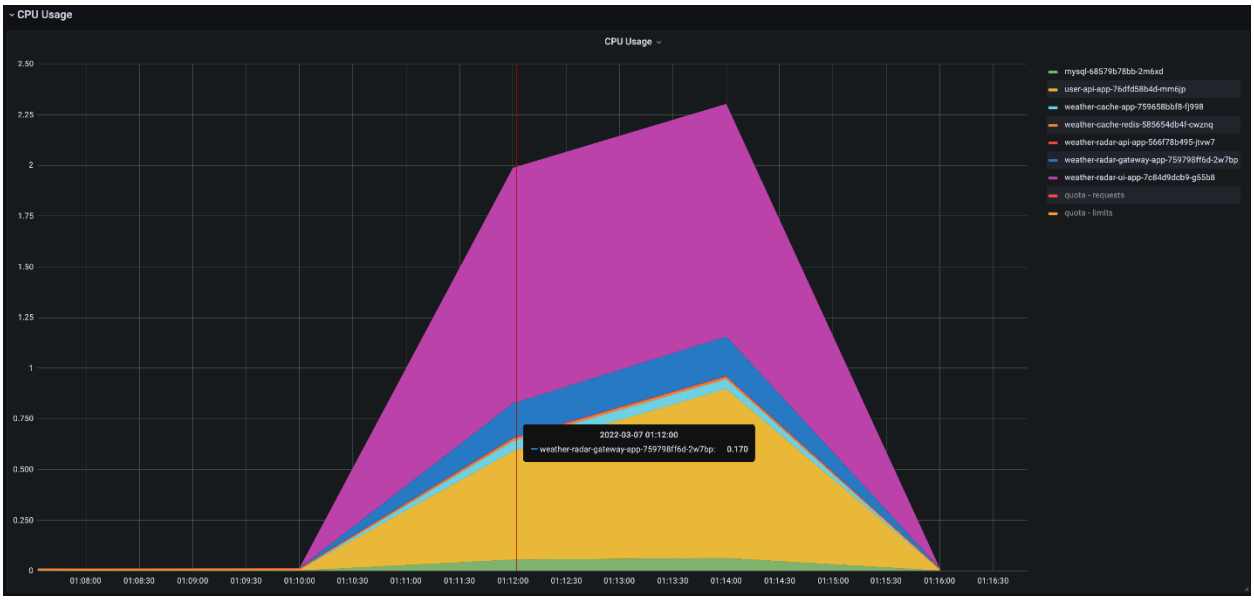
Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	**54404**	**96**	**Assertion failed**	**47**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed**	**29**	**Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down**	**20**				
GET_UI_login	2132	47	Assertion failed	47								
GET_UI_login-7	2132	6	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	4	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	2						
GET_UI_login-8	2132	36	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	27	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	9						
GET_UI_login-9	2132	7	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	7								

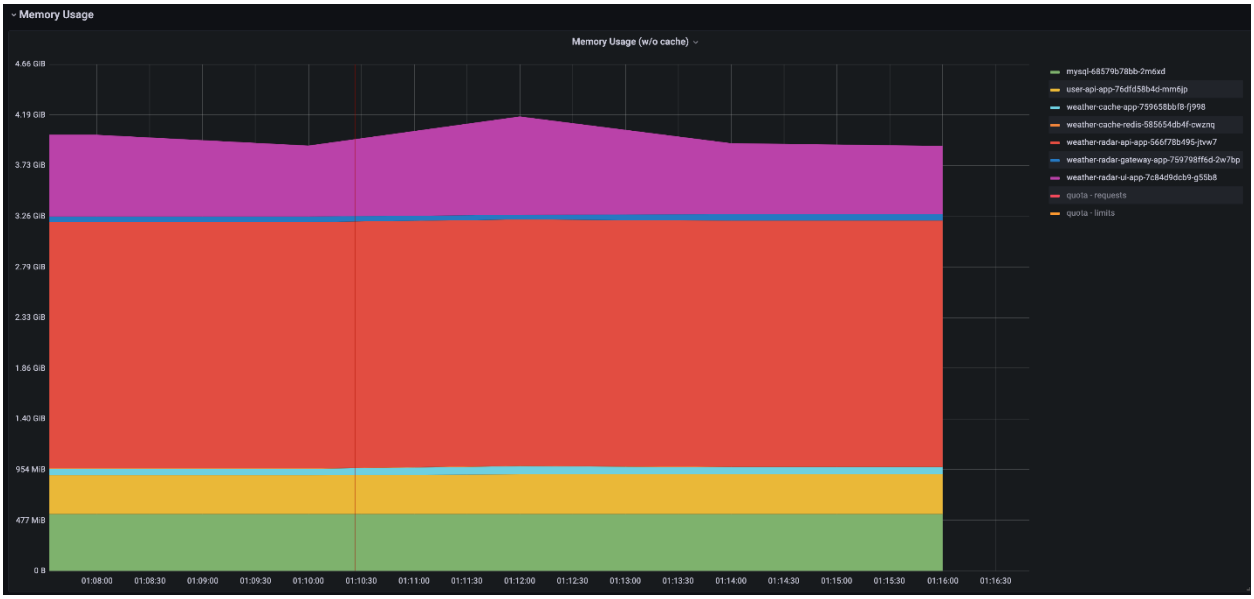
Resources used on zero load (0 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-8kz5h	3m	504Mi
user-api-app-76dfd58b4d-mqqzk	5m	451Mi
weather-cache-app-759658bbf8-ztcwk	0m	64Mi
weather-cache-redis-585654db4f-c4t67	4m	2Mi
weather-radar-api-app-566f78b495-xjd24	5m	2202Mi
weather-radar-gateway-app-759798ff6d-k7x6f	0m	42Mi
weather-radar-ui-app-7c84d9dcb9-ch6hs	1m	651Mi

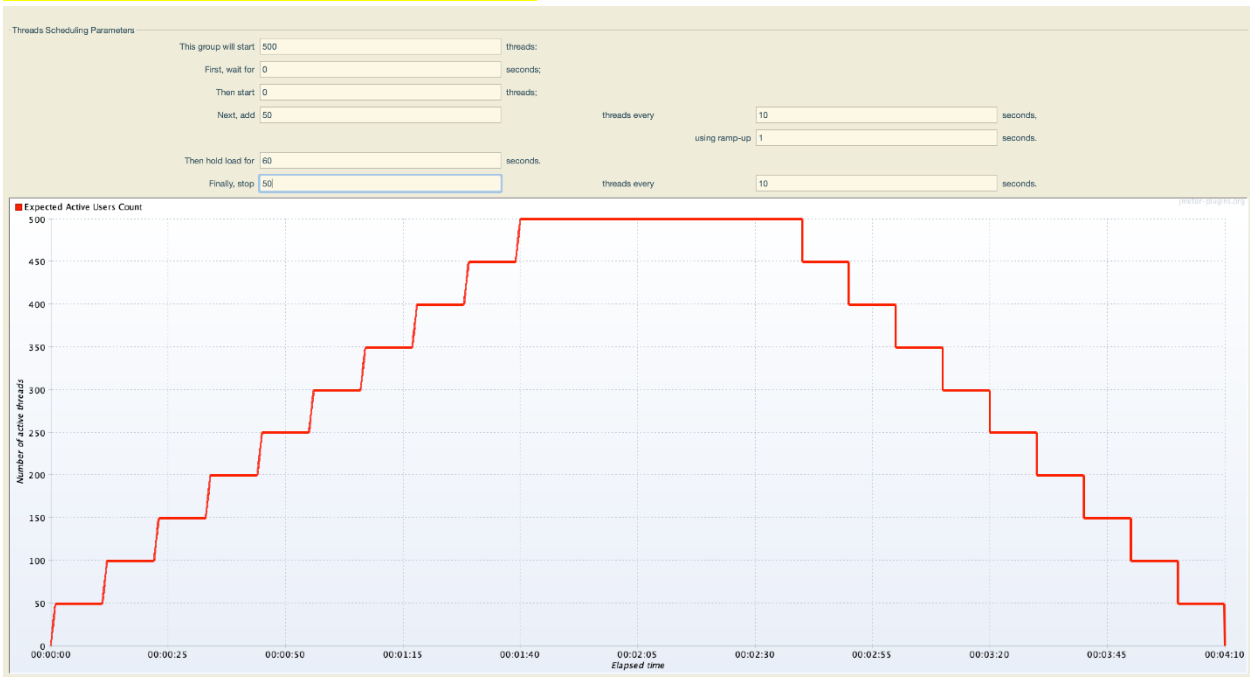
Resources used on maximum load (100 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-8kz5h	51m	505Mi
user-api-app-76dfd58b4d-mqqzk	457m	453Mi
weather-cache-app-759658bbf8-ztcwk	53m	44Mi
weather-cache-redis-585654db4f-c4t67	12m	2Mi
weather-radar-api-app-566f78b495-xjd24	5m	2202Mi
weather-radar-gateway-app-759798ff6d-k7x6f	153m	48Mi
weather-radar-ui-app-7c84d9dcb9-ch6hs	1215m	882Mi

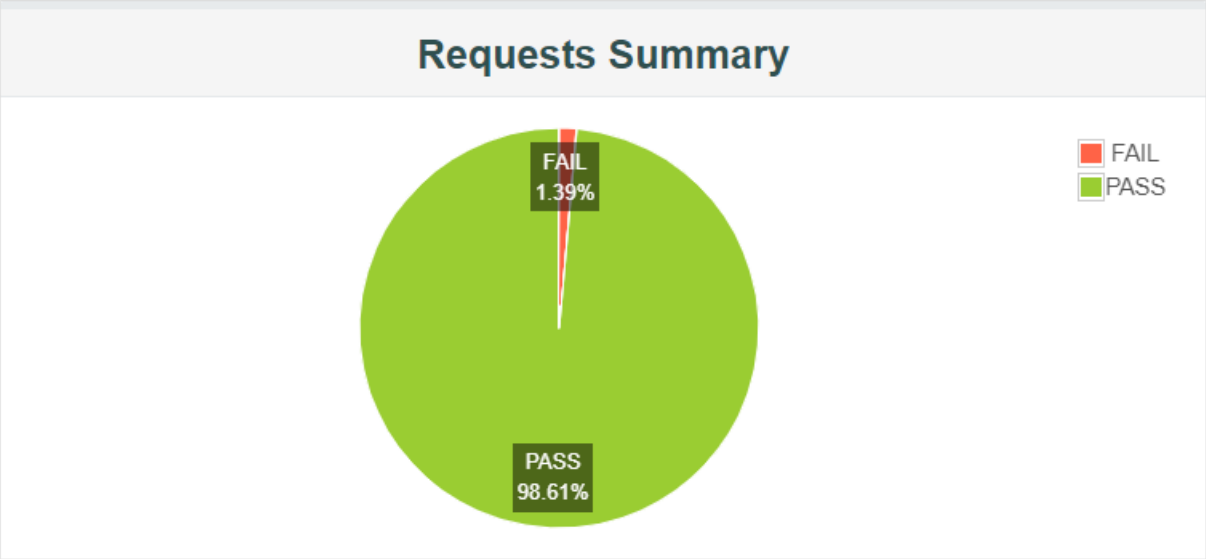




Test Plan: 500 Threads - 1 Instance



Test Report:



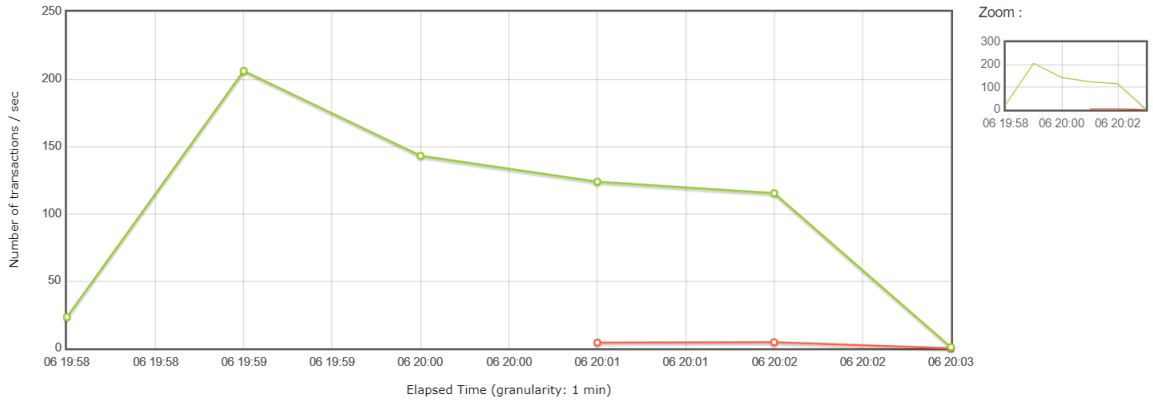
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.310	**500 ms**	**1 sec 500 ms**	**Total**
0.000	500 ms	1 sec 500 ms	GET_UI_login-8
0.000	500 ms	1 sec 500 ms	GET_UI_login
0.017	500 ms	1 sec 500 ms	GET_UI_dashboard
0.040	500 ms	1 sec 500 ms	GET_UI_login-7
0.042	500 ms	1 sec 500 ms	GET_UI_login-6
0.046	500 ms	1 sec 500 ms	GET_UI_login-9
0.080	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.083	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.084	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.089	500 ms	1 sec 500 ms	GET_UI_login-4
0.093	500 ms	1 sec 500 ms	GET_UI_login-5
0.095	500 ms	1 sec 500 ms	GET_UI_login-1
0.100	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.100	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.100	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.101	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.105	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.122	500 ms	1 sec 500 ms	GET_UI_login-0
0.761	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.857	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.932	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.949	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.949	500 ms	1 sec 500 ms	GET_UI_dashboard-2
0.951	500 ms	1 sec 500 ms	GET_UI_login-2
0.952	500 ms	1 sec 500 ms	GET_UI_login-3
0.961	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	37238	518	1.39%	7468.76	4	102416	8739.00	26093.50	37951.20	64137.47	147.26	65407.81	84.93
GET_GATEWAY_UserApi_sessionInfo	1150	0	0.00%	546.84	20	2531	399.00	1265.90	1583.45	1989.35	4.70	337.58	2.30
GET_GATEWAY_WeatherApi_plot	1138	0	0.00%	274.20	9	1917	206.00	566.40	745.80	1253.27	4.67	344.63	2.22
GET_UI_dashboard	1349	0	0.00%	20932.83	269	56837	20946.00	35484.00	37099.50	44131.50	5.45	2382.86	0.00
GET_UI_dashboard-0	1349	0	0.00%	6570.07	64	15201	6574.00	12491.00	13288.50	14278.00	5.47	5.93	0.00
GET_UI_dashboard-1	1349	0	0.00%	6803.56	65	16403	7002.00	12425.00	13165.00	15061.00	5.49	1.10	0.00
GET_UI_dashboard-2	1349	0	0.00%	214.99	63	1997	117.00	454.00	671.50	1455.50	5.49	40.01	0.00
GET_UI_dashboard-3	1349	0	0.00%	214.73	62	1968	114.00	456.00	677.00	1674.50	5.49	7.77	0.00
GET_UI_dashboard-4	1349	0	0.00%	6805.60	62	16412	7034.00	12399.00	13144.00	15029.50	5.49	1.11	0.00
GET_UI_dashboard-5	1349	0	0.00%	6814.80	65	16319	7034.00	12440.00	13185.00	15040.50	5.49	1.11	0.00
GET_UI_dashboard-6	1349	0	0.00%	6816.26	76	16402	7056.00	12414.00	13174.50	15022.50	5.49	1.11	0.00
GET_UI_dashboard-7	1349	0	0.00%	6886.75	84	16273	6947.00	12434.00	13209.50	14932.50	5.49	22.71	0.00
GET_UI_dashboard-8	1349	0	0.00%	8586.39	112	43861	8261.00	14933.00	24536.00	34610.50	5.49	2307.69	0.00
GET_UI_dashboard-9	1349	0	0.00%	6579.28	95	16284	6549.00	12115.00	13187.50	15465.00	5.49	8.93	0.00
GET_UI_login	1621	243	14.99%	33781.51	3005	102416	31534.00	62237.00	70248.90	87101.86	6.41	30041.58	37.36
GET_UI_login-0	1621	0	0.00%	5830.32	8	50263	4726.00	12102.00	13236.90	15484.12	6.47	7.03	3.77
GET_UI_login-1	1621	0	0.00%	5951.14	27	33617	4952.00	11952.60	12440.90	14359.46	6.47	7.61	3.80
GET_UI_login-2	1621	0	0.00%	215.79	61	1989	121.00	426.80	701.40	1775.26	6.47	47.22	4.08
GET_UI_login-3	1621	0	0.00%	213.26	59	1893	117.00	413.60	682.00	1763.72	6.47	9.23	3.94
GET_UI_login-4	1621	0	0.00%	6140.78	48	40343	5221.00	12073.80	12650.90	15588.56	6.47	507.15	3.80
GET_UI_login-5	1621	0	0.00%	6074.59	49	43792	5132.00	12028.80	12635.60	18370.38	6.47	46.16	3.80
GET_UI_login-6	1621	0	0.00%	6969.92	127	43768	6491.00	12591.80	13906.70	21259.72	6.47	2195.18	3.81
GET_UI_login-7	1621	36	2.22%	7021.51	182	49640	6059.00	12719.40	15817.50	24664.90	6.46	1342.01	3.70
GET_UI_login-8	1621	192	11.84%	27384.29	53	96091	24611.00	52116.20	60100.90	74481.94	6.42	25460.67	3.31
GET_UI_login-9	1621	47	2.90%	6775.92	164	58641	5963.00	12710.60	14201.00	25193.92	6.46	483.67	3.66
POST_GATEWAY_UserApi_userQuery	1154	0	0.00%	346.15	7	1986	265.00	751.00	957.50	1817.30	4.73	1.15	2.75
POST_GATEWAY_WeatherApi_queryStatus	1126	0	0.00%	174.62	4	1977	85.00	420.00	612.65	1104.82	4.63	3.55	3.33

Total Transactions Per Second



Transaction-failure Transaction-success

Top 5 Errors by sampler

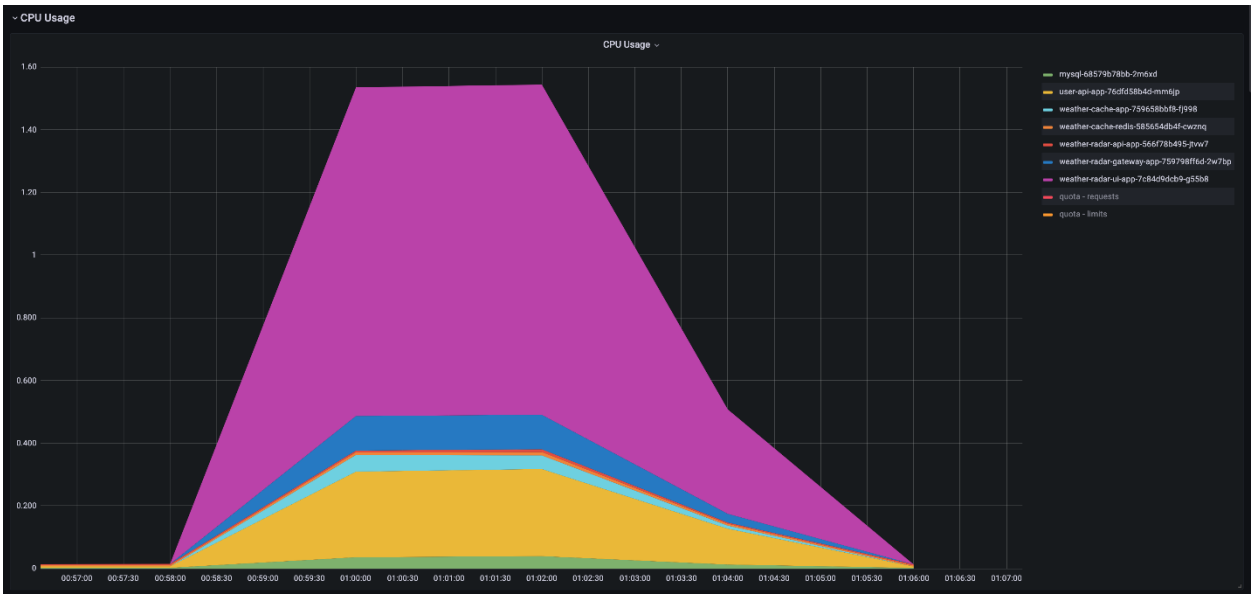
Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	37238	518	Assertion failed	243	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	162	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	111	Non HTTP response code: org.apache.http.impl.execchain.RequestAbortedException/Non HTTP response message: Request execution failed	2		
GET_UI_login	1621	243	Assertion failed	243								
GET_UI_login-7	1621	36	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	34	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	2						
GET_UI_login-8	1621	192	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	160	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	31	Non HTTP response code: org.apache.http.impl.execchain.RequestAbortedException/Non HTTP response message: Request execution failed	1				
GET_UI_login-9	1621	47	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	46	Non HTTP response code: org.apache.http.impl.execchain.RequestAbortedException/Non HTTP response message: Request execution failed	1						

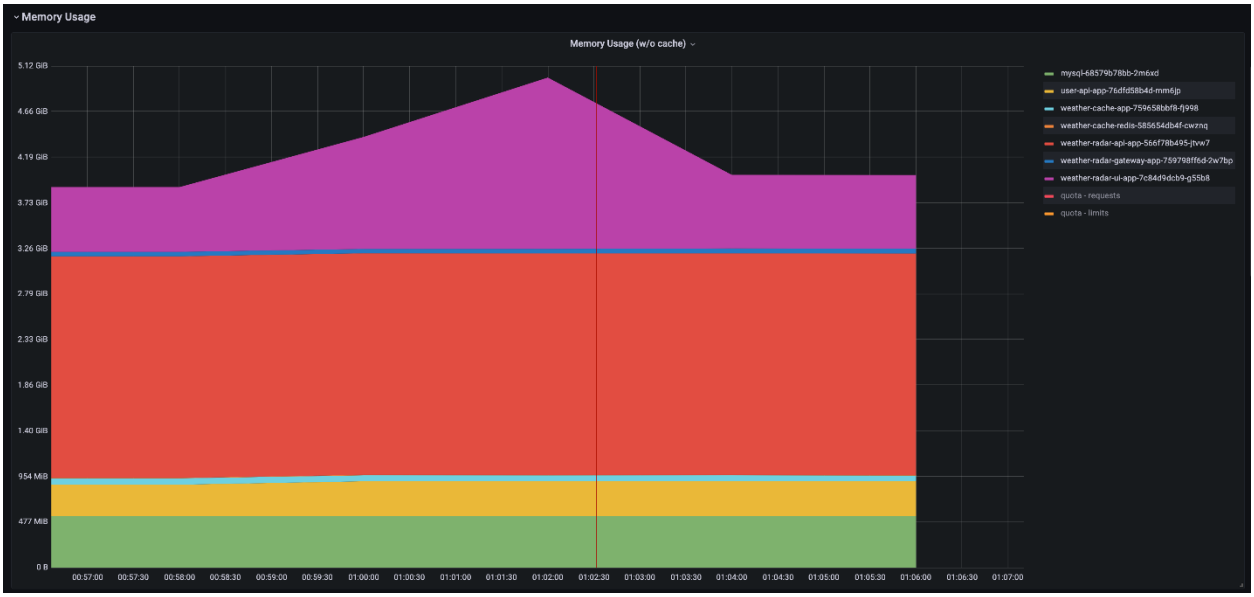
Resources used on zero load (0 Threads):

```
NAME                                    CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h                  3m           504Mi
user-api-app-76dfd58b4d-mqqzk           5m           451Mi
weather-cache-app-759658bbf8-ztcwk      0m           64Mi
weather-cache-redis-585654db4f-c4t67    4m           2Mi
weather-radar-api-app-566f78b495-xjd24  5m           2202Mi
weather-radar-gateway-app-759798ff6d-k7x6f  0m       42Mi
weather-radar-ui-app-7c84d9dcb9-ch6hs   1m           651Mi
```

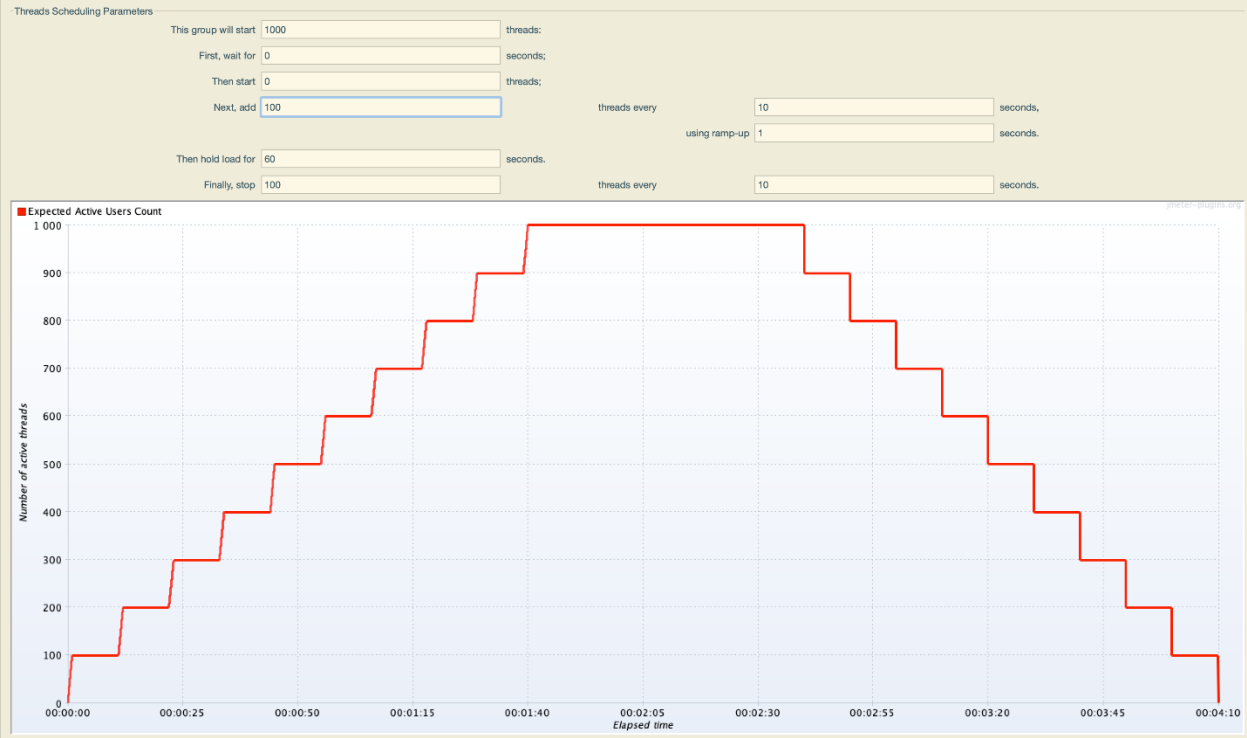
Resources used on maximum load (500 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	41m	535Mi
user-api-app-76dfd58b4d-mm6jp	284m	366Mi
weather-cache-app-759658bbf8-fj998	51m	58Mi
weather-cache-redis-585654db4f-cwznq	12m	4Mi
weather-radar-api-app-566f78b495-jtvw7	10m	2316Mi
weather-radar-gateway-app-759798ff6d-2w7bp	108m	52Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	1017m	1671Mi

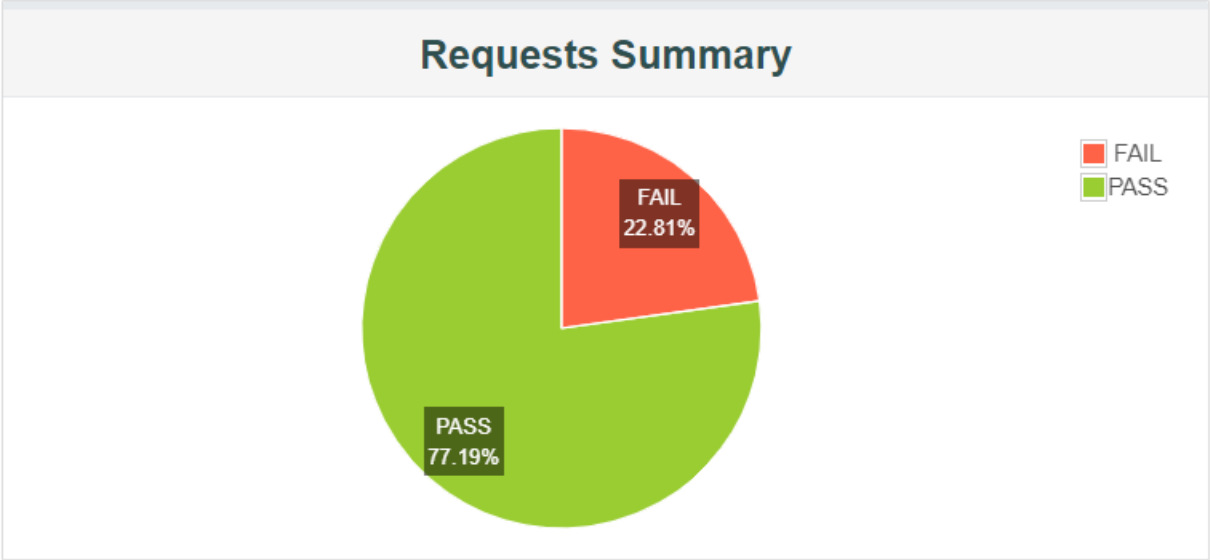




Test Plan: 1000 Threads - 1 Instance



Test Report:



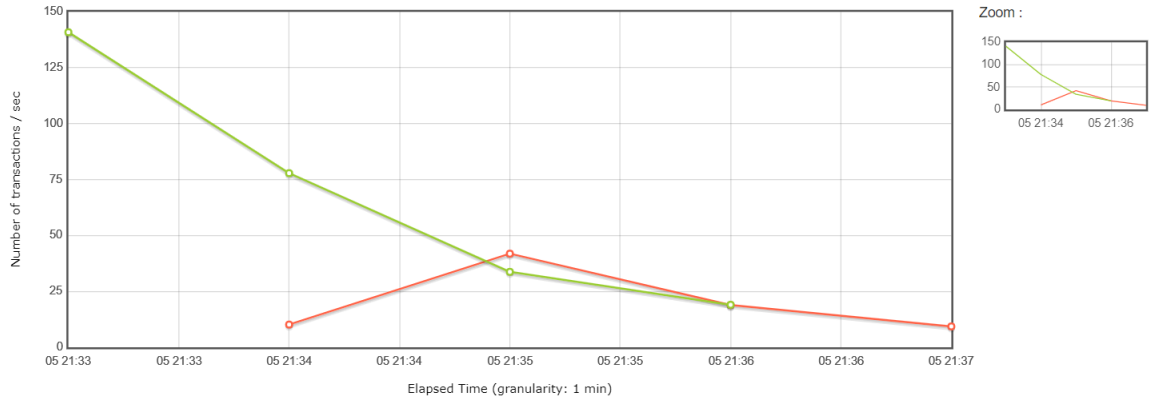
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.330	**500 ms**	**1 sec 500 ms**	**Total**
0.000	500 ms	1 sec 500 ms	GET_UI_login-8
0.000	500 ms	1 sec 500 ms	GET_UI_login
0.001	500 ms	1 sec 500 ms	GET_UI_dashboard
0.007	500 ms	1 sec 500 ms	GET_UI_login-9
0.010	500 ms	1 sec 500 ms	GET_UI_login-7
0.018	500 ms	1 sec 500 ms	GET_UI_login-6
0.023	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.023	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.023	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.024	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.024	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.024	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.026	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.026	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.040	500 ms	1 sec 500 ms	GET_UI_login-4
0.046	500 ms	1 sec 500 ms	GET_UI_login-5
0.056	500 ms	1 sec 500 ms	GET_UI_login-1
0.107	500 ms	1 sec 500 ms	GET_UI_login-0
0.779	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.892	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.915	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.923	500 ms	1 sec 500 ms	GET_UI_login-2
0.926	500 ms	1 sec 500 ms	GET_UI_login-3
0.980	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.984	500 ms	1 sec 500 ms	GET_UI_dashboard-2
0.998	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**21104**	**4814**	**22.81%**	**15861.74**	**2**	**168679**	**7577.00**	**51812.00**	**51994.90**	**93664.67**	**79.14**	**27786.09**	**43.30**
GET_GATEWAY_UserApi_sessionInfo	1203	0	0.00%	513.13	13	2065	390.00	1279.20	1421.40	1696.24	5.86	382.87	2.87
GET_GATEWAY_WeatherApi_plot	1202	0	0.00%	282.12	6	6652	217.00	639.70	758.70	963.64	5.86	432.43	2.79
GET_UI_dashboard	1692	1457	86.11%	27613.20	659	74412	25905.00	30024.60	59240.50	71056.98	6.47	28.79	0.00
GET_UI_dashboard-0	372	0	0.00%	8422.21	146	20357	4909.00	17421.40	18089.35	20230.86	4.43	4.81	0.00
GET_UI_dashboard-1	372	56	15.05%	11319.17	119	32691	8911.00	25908.00	25925.05	30087.63	3.49	1.65	0.00
GET_UI_dashboard-2	372	0	0.00%	143.22	68	1077	99.50	235.70	377.35	821.75	4.61	33.58	0.00
GET_UI_dashboard-3	372	0	0.00%	144.52	67	1119	98.00	233.10	393.20	836.94	4.61	6.52	0.00
GET_UI_dashboard-4	372	56	15.05%	11326.89	203	30354	8870.50	25908.00	25920.45	30000.72	3.49	1.66	0.00
GET_UI_dashboard-5	372	56	15.05%	11320.79	118	30578	8874.50	25908.70	25921.70	30022.16	3.49	1.66	0.00
GET_UI_dashboard-6	372	56	15.05%	11316.39	81	30163	8884.00	25908.00	25922.40	28594.53	3.49	1.66	0.00
GET_UI_dashboard-7	372	56	15.05%	11561.81	193	31343	8971.00	25908.70	25944.00	29903.94	3.49	1.66	0.00
GET_UI_dashboard-8	372	56	15.05%	11630.42	233	31887	9050.00	25909.70	25956.70	30394.00	3.49	1.66	0.00
GET_UI_dashboard-9	372	137	36.83%	13817.85	105	29653	9299.00	25922.40	27224.80	29005.55	2.83	2.46	0.00
GET_UI_login	2162	1592	73.64%	54122.58	4780	168679	51810.00	87965.40	118412.00	121850.94	8.11	13559.26	16.54
GET_UI_login-0	872	0	0.00%	8153.00	11	24140	8306.50	17147.00	17483.05	17887.89	10.24	11.12	5.96
GET_UI_login-1	872	159	18.23%	16548.41	121	70915	9491.50	51815.00	51824.00	55986.33	6.07	8.76	2.92
GET_UI_login-2	872	0	0.00%	251.35	63	1621	124.00	587.90	1184.05	1596.27	10.24	74.70	6.45
GET_UI_login-3	872	0	0.00%	248.57	60	1610	121.00	600.60	1173.35	1592.54	10.24	14.61	6.23
GET_UI_login-4	872	159	18.23%	16751.22	114	71078	9684.50	51815.00	51823.00	54522.97	6.37	411.43	3.06
GET_UI_login-5	872	158	18.12%	16602.56	123	69045	9559.50	51815.00	51821.35	52822.90	6.37	40.26	3.06
GET_UI_login-6	872	159	18.23%	17186.99	332	73851	10167.50	51816.00	51822.35	54195.04	5.90	1641.49	2.84
GET_UI_login-7	872	182	20.87%	19764.44	375	124675	10608.00	51821.00	57915.40	83673.37	4.18	704.61	1.94
GET_UI_login-8	872	182	20.87%	36117.95	3609	124641	39557.00	51846.10	62917.60	102986.72	4.18	14896.90	1.94
GET_UI_login-9	872	293	33.60%	24142.15	228	122150	15495.50	52134.20	54398.25	84567.05	3.72	193.62	1.44
POST_GATEWAY_UserApi_userQuery	1203	0	0.00%	229.80	4	4200	66.00	716.00	961.40	1178.80	5.86	1.42	3.41
POST_GATEWAY_WeatherApi_queryStatus	1202	0	0.00%	80.76	2	789	34.50	211.70	311.00	464.76	5.87	5.67	4.21

Total Transactions Per Second



Transaction-failure Transaction-success

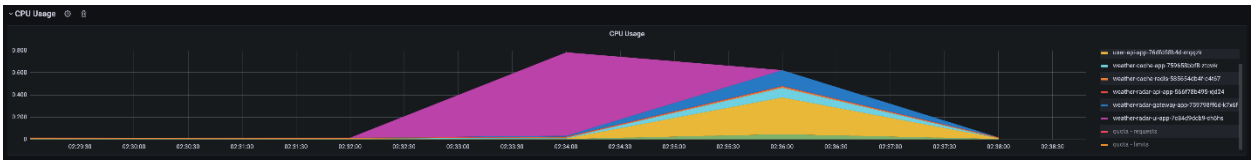
Top 5 Errors by sampler

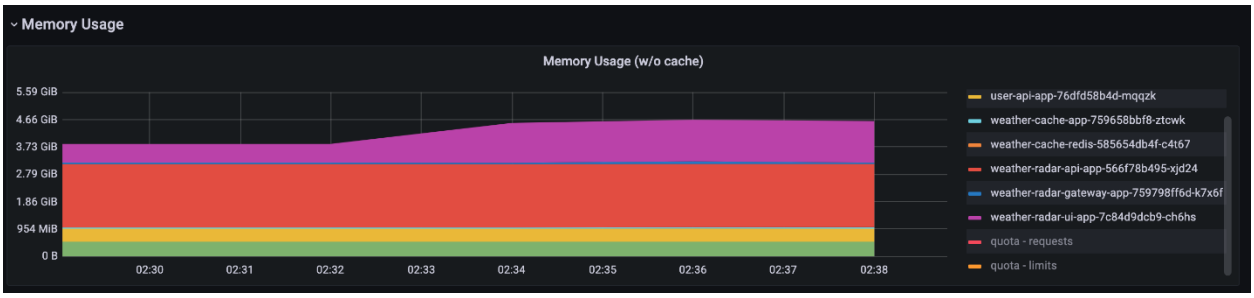
Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	21104	4814	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	2541	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	1793	Assertion failed	439	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	41		
GET_UI_dashboard	1692	1457	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	1320	Assertion failed	137						
GET_UI_dashboard-1	372	56	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	56								
GET_UI_dashboard-4	372	56	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	56								
GET_UI_dashboard-5	372	56	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	56								
GET_UI_dashboard-6	372	56	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	56								
GET_UI_dashboard-7	372	56	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	56								
GET_UI_dashboard-8	372	56	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	56								
GET_UI_dashboard-9	372	137	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	137								
GET_UI_login	2162	1592	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	1290	Assertion failed	302						
GET_UI_login-1	872	159	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	159								
GET_UI_login-4	872	159	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	159								
GET_UI_login-5	872	158	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	158								
GET_UI_login-6	872	159	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	159								
GET_UI_login-7	872	182	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	181	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	1						
GET_UI_login-8	872	182	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	181	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	1						
GET_UI_login-9	872	293	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	254	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	39						

Resources used on zero load (0 Threads):

```
NAME                                      CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-8kz5h                    3m           504Mi
user-api-app-76dfd58b4d-mqqzk             5m           451Mi
weather-cache-app-759658bbf8-ztcwk        0m           64Mi
weather-cache-redis-585654db4f-c4t67      4m           2Mi
weather-radar-api-app-566f78b495-xjd24    5m           2202Mi
weather-radar-gateway-app-759798ff6d-k7x6f 0m          42Mi
weather-radar-ui-app-7c84d9dcb9-ch6hs     1m           651Mi
```

Resources used on maximum load (1000 Threads):

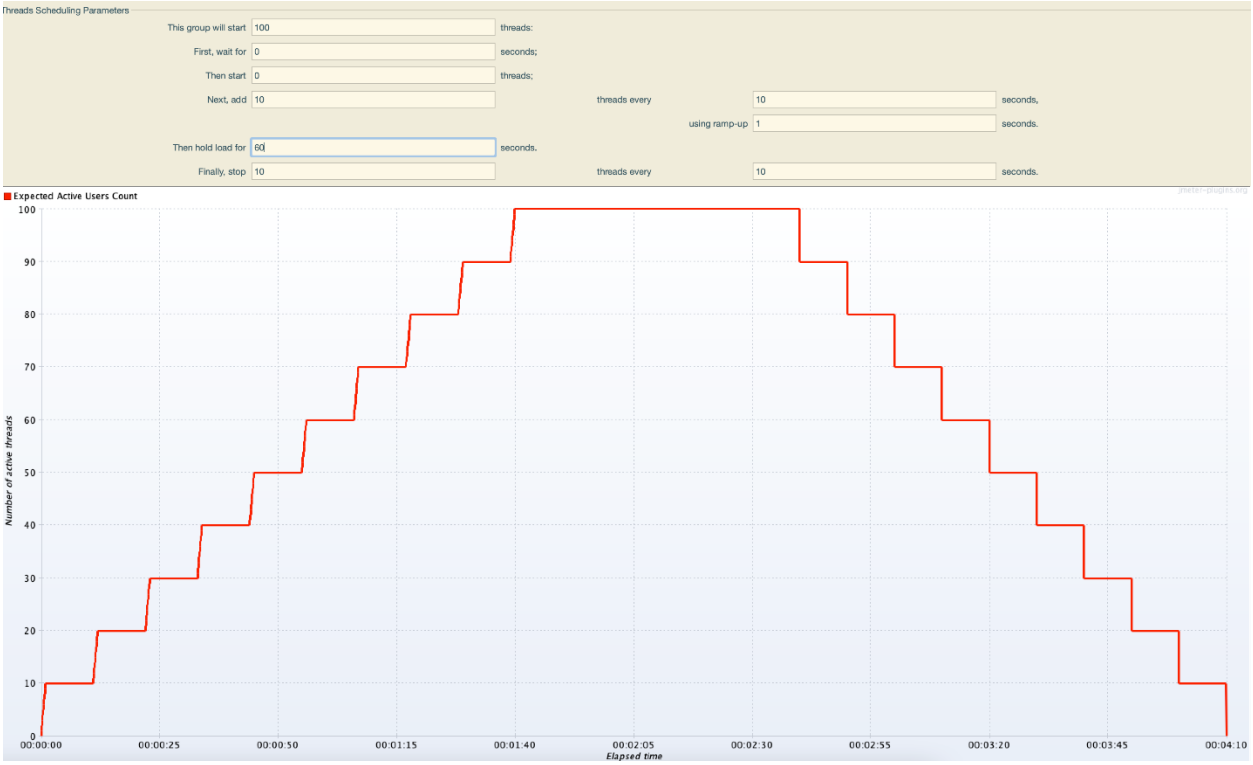




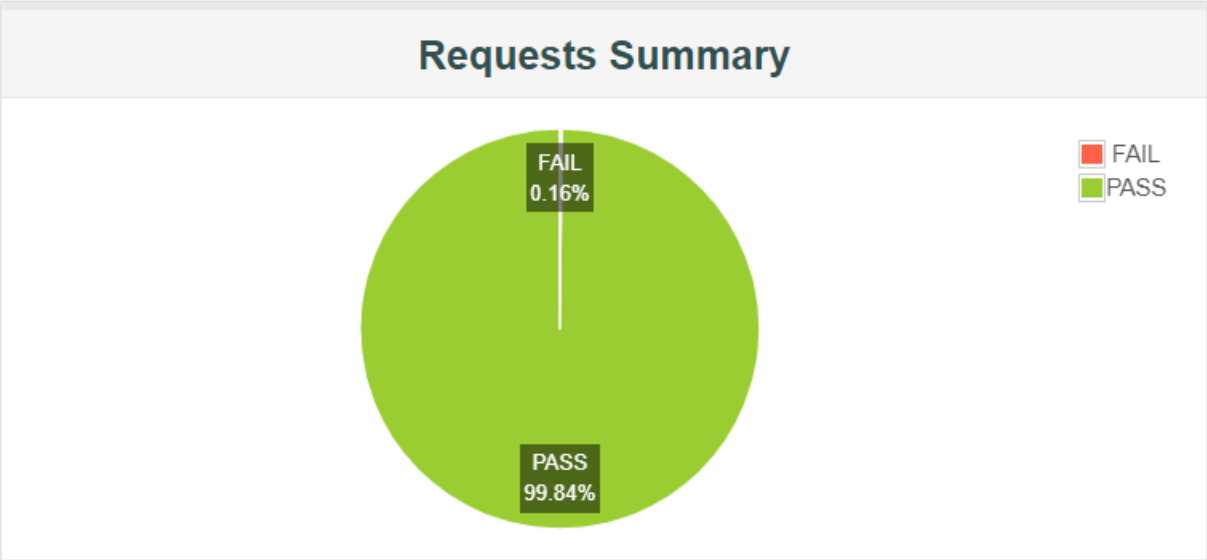
Summary of 1 Instance:

No. of Threads	No. of Instances	Service Name	CPU(cores) on max load	Average CPU(cores) on max load	MEMORY(bytes) on max load	Average MEMORY(bytes) on max load	# Samples	Error %	Transactions/s
0	1	mysql	3m	3m	504Mi	504Mi	0	0.00000	0
		user-api-app	5m	5m	451Mi	451Mi	0	0.00000	0
		weather-cache-app	0m	0m	64Mi	64Mi	0	0.00000	0
		weather-cache-redis	4m	4m	2Mi	2Mi	0	0.00000	0
		weather-radar-api-app	5m	5m	2202Mi	2202Mi	0	0.00000	0
		weather-radar-gateway-app	0m	0m	42Mi	42Mi	0	0.00000	0
		weather-radar-ui-app	1m	1m	651Mi	651Mi	0	0.00000	0
10	1	mysql	38m	38m	505Mi	505Mi	1376	0.00000	6.94
		user-api-app	247m	247m	451Mi	451Mi	1376	0.00000	6.94
		weather-cache-app	55m	55m	46Mi	46Mi	1373	0.00000	6.94
		weather-cache-redis	10m	10m	2Mi	2Mi	1373	0.00000	6.94
		weather-radar-api-app	5m	5m	2202Mi	2202Mi	1373	0.00000	6.94
		weather-radar-gateway-app	126m	126m	50Mi	50Mi	1374	0.00000	6.94
		weather-radar-ui-app	1247m	1247m	670Mi	670Mi	1380	0.00039	6.93
100	1	mysql	51m	51m	505Mi	505Mi	2037	0.00000	7.14
		user-api-app	457m	457m	453Mi	453Mi	2037	0.00000	7.14
		weather-cache-app	53m	53m	44Mi	44Mi	2027	0.00000	7.11
		weather-cache-redis	12m	12m	2Mi	2Mi	2027	0.00000	7.11
		weather-radar-api-app	5m	5m	2202Mi	2202Mi	2027	0.00000	7.11
		weather-radar-gateway-app	153m	153m	48Mi	48Mi	2031	0.00000	7.12
		weather-radar-ui-app	1215m	1215m	882Mi	882Mi	2104	0.00205	7.35
500	1	mysql	41m	41m	535Mi	535Mi	1152	0.00000	4.72
		user-api-app	284m	284m	366Mi	366Mi	1152	0.00000	4.72
		weather-cache-app	51m	51m	58Mi	58Mi	1132	0.00000	4.65
		weather-cache-redis	12m	12m	4Mi	4Mi	1132	0.00000	4.65
		weather-radar-api-app	10m	10m	2316Mi	2316Mi	1132	0.00000	4.65
		weather-radar-gateway-app	108m	108m	52Mi	52Mi	1140	0.00000	4.68
		weather-radar-ui-app	1017m	1017m	1671Mi	1671Mi	1485	0.01452	5.97
1000	1	mysql*	-	-	-	-	1203	0.00000	5.86
		user-api-app*	-	-	-	-	1203	0.00000	5.86
		weather-cache-app*	-	-	-	-	1202	0.00000	5.87
		weather-cache-redis*	-	-	-	-	1202	0.00000	5.87
		weather-radar-api-app*	-	-	-	-	1202	0.00000	5.87
		weather-radar-gateway-app*	-	-	-	-	1202	0.00000	5.86
		weather-radar-ui-app*	-	-	-	-	741	0.19774	5.43

No. of Instance: 3
Test Plan: 100 Threads - 3 Instance



Test Report:



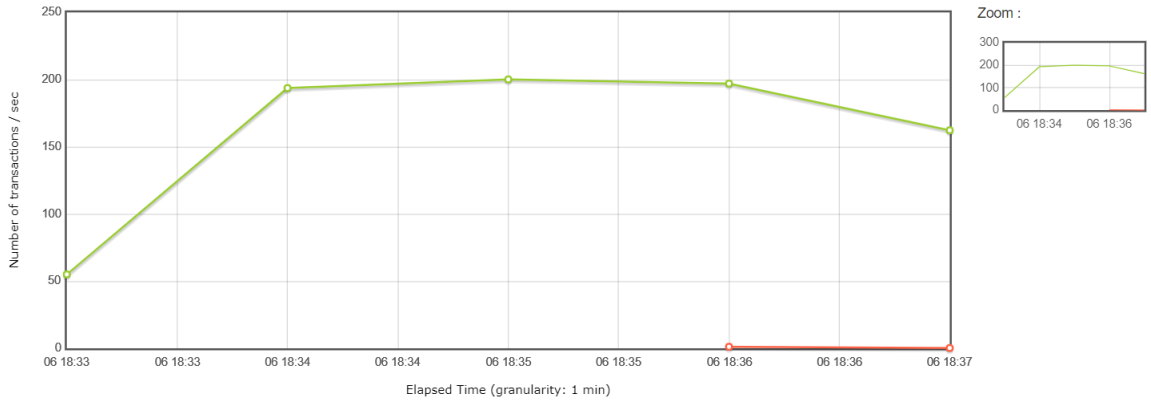
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.693	**500 ms**	**1 sec 500 ms**	**Total**
0.089	500 ms	1 sec 500 ms	GET_UI_login
0.159	500 ms	1 sec 500 ms	GET_UI_login-8
0.265	500 ms	1 sec 500 ms	GET_UI_dashboard
0.528	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.574	500 ms	1 sec 500 ms	GET_UI_login-6
0.590	500 ms	1 sec 500 ms	GET_UI_login-7
0.627	500 ms	1 sec 500 ms	GET_UI_login-9
0.661	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.665	500 ms	1 sec 500 ms	GET_UI_login-4
0.677	500 ms	1 sec 500 ms	GET_UI_login-0
0.679	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.680	500 ms	1 sec 500 ms	GET_UI_login-5
0.681	500 ms	1 sec 500 ms	GET_UI_login-1
0.685	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.689	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.703	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.703	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.710	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.717	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.989	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.995	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.996	500 ms	1 sec 500 ms	GET_UI_login-2
0.997	500 ms	1 sec 500 ms	GET_UI_login-3
0.999	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.999	500 ms	1 sec 500 ms	GET_UI_dashboard-2
1.000	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**48568**	**80**	**0.16%**	**928.97**	**1**	**18615**	**314.00**	**2137.90**	**3230.60**	**9037.82**	**194.20**	**82695.64**	**106.61**
GET_GATEWAY_UserApi_sessionInfo	1819	0	0.00%	940.69	140	3071	847.00	1633.00	1883.00	2347.20	7.32	2523.17	3.59
GET_GATEWAY_WeatherApi_plot	1807	0	0.00%	142.14	11	1181	98.00	287.00	388.20	820.64	7.29	538.00	3.47
GET_UI_dashboard	1849	0	0.00%	2064.81	75	12405	1966.00	3938.00	4571.50	5780.00	7.43	610.03	0.00
GET_UI_dashboard-0	1849	0	0.00%	684.65	4	3776	508.00	1625.00	2069.00	2520.00	7.43	8.07	0.00
GET_UI_dashboard-1	1849	0	0.00%	634.90	4	3479	431.00	1592.00	1954.00	2512.50	7.43	1.49	0.00
GET_UI_dashboard-2	1849	0	0.00%	102.33	62	1092	86.00	139.00	197.50	385.50	7.43	54.11	0.00
GET_UI_dashboard-3	1849	0	0.00%	102.21	61	1086	85.00	139.00	195.00	399.50	7.43	10.51	0.00
GET_UI_dashboard-4	1849	0	0.00%	651.58	4	3491	466.00	1599.00	1975.00	2537.00	7.43	1.50	0.00
GET_UI_dashboard-5	1849	0	0.00%	663.24	5	3488	458.00	1624.00	2063.00	2500.50	7.43	1.50	0.00
GET_UI_dashboard-6	1849	0	0.00%	647.16	5	3487	461.00	1551.00	1931.00	2460.00	7.43	1.50	0.00
GET_UI_dashboard-7	1849	0	0.00%	703.90	5	3599	522.00	1658.00	2002.50	2482.50	7.43	3.21	0.00
GET_UI_dashboard-8	1849	0	0.00%	809.97	16	11787	581.00	1796.00	2244.00	4558.00	7.43	526.08	0.00
GET_UI_dashboard-9	1849	0	0.00%	700.51	5	3356	475.00	1671.00	2061.00	2707.50	7.43	2.43	0.00
GET_UI_login	1907	39	2.05%	5031.98	247	18615	4268.00	9739.80	11338.60	14266.64	7.63	39224.24	45.10
GET_UI_login-0	1907	0	0.00%	715.09	3	3482	524.00	1700.40	2146.40	2955.44	7.64	8.29	4.44
GET_UI_login-1	1907	0	0.00%	698.42	4	3991	506.00	1652.20	2145.20	2949.68	7.64	8.99	4.49
GET_UI_login-2	1907	1	0.05%	105.88	1	1077	86.00	150.00	209.00	458.52	7.64	55.73	4.81
GET_UI_login-3	1907	0	0.00%	104.67	61	1076	85.00	149.00	207.00	451.00	7.64	10.90	4.65
GET_UI_login-4	1907	0	0.00%	733.67	7	4330	544.00	1737.00	2156.80	3007.36	7.64	598.88	4.48
GET_UI_login-5	1907	0	0.00%	699.53	3	5020	510.00	1691.40	2162.80	2979.12	7.64	54.49	4.48
GET_UI_login-6	1907	0	0.00%	946.84	14	5510	759.00	2126.40	2554.00	3431.64	7.64	2593.82	4.50
GET_UI_login-7	1907	2	0.10%	924.28	9	4523	709.00	2081.60	2656.00	3792.36	7.64	1622.24	4.47
GET_UI_login-8	1907	35	1.84%	4112.99	29	17613	3242.00	8498.80	9995.40	13157.80	7.64	33731.73	4.39
GET_UI_login-9	1907	3	0.16%	857.73	4	5048	591.00	1985.40	2459.20	3904.20	7.65	588.36	4.46
POST_GATEWAY_UserApi_userQuery	1819	0	0.00%	114.13	7	949	81.00	242.00	304.00	512.80	7.32	1.78	4.26
POST_GATEWAY_WeatherApi_queryStatus	1807	0	0.00%	61.51	4	426	39.00	145.00	191.80	304.84	7.29	3.67	5.24

Total Transactions Per Second



Transaction-failure Transaction-success

Top 5 Errors by sampler

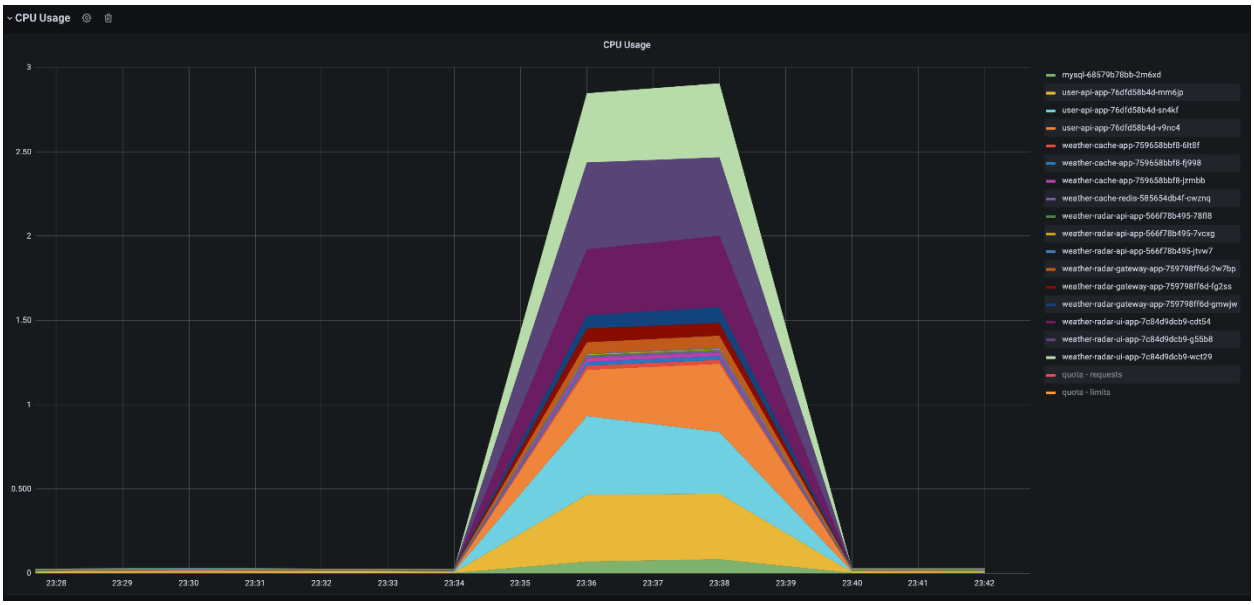
Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	48568	80	Assertion failed	39	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	31	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	8	Non HTTP response code: java.lang.NullPointerException/Non HTTP response message: Cannot read the array length because "addresses" is null	1	Non HTTP response code: org.apache.http.ConnectionClosedException/Non HTTP response message: Premature end of Content-Length delimited message body (expected: 4,608,258; received: 355,932)	1
GET_UI_login	1907	39	Assertion failed	39								
GET_UI_login-2	1907	1	Non HTTP response code: java.lang.NullPointerException/Non HTTP response message: Cannot read the array length because "addresses" is null	1								
GET_UI_login-7	1907	2	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	2								
GET_UI_login-8	1907	35	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	31	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	3	Non HTTP response code: org.apache.http.ConnectionClosedException/Non HTTP response message: Premature end of Content-Length delimited message body (expected: 4,608,258; received: 355,932)	1				
GET_UI_login-9	1907	3	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	3								

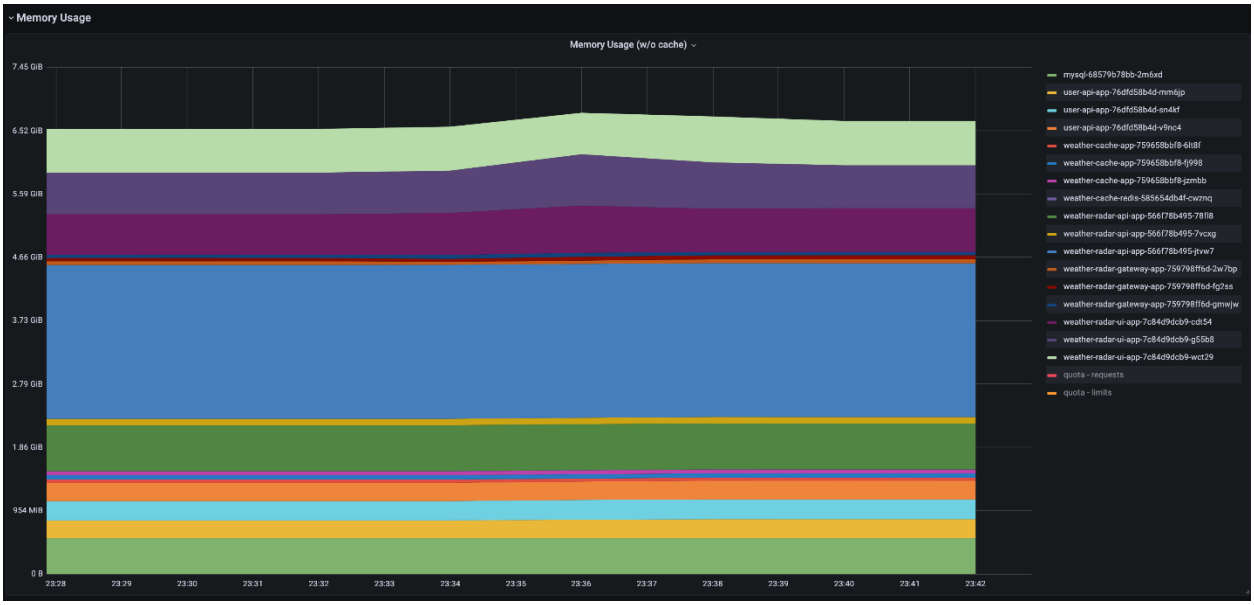
Resources used on zero load (0 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	2m	535Mi
user-api-app-76dfd58b4d-mm6jp	4m	268Mi
user-api-app-76dfd58b4d-sn4kf	4m	291Mi
user-api-app-76dfd58b4d-v9nc4	4m	274Mi
weather-cache-app-759658bbf8-6lt8f	0m	49Mi
weather-cache-app-759658bbf8-fj998	0m	64Mi
weather-cache-app-759658bbf8-jzmbb	0m	56Mi
weather-cache-redis-585654db4f-cwznq	4m	4Mi
weather-radar-api-app-566f78b495-78fl8	3m	691Mi
weather-radar-api-app-566f78b495-7vcxg	4m	95Mi
weather-radar-api-app-566f78b495-jtvw7	4m	2316Mi
weather-radar-gateway-app-759798ff6d-2w7bp	0m	55Mi
weather-radar-gateway-app-759798ff6d-fg2ss	0m	48Mi
weather-radar-gateway-app-759798ff6d-gmwjw	0m	50Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	1m	608Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	1m	626Mi
weather-radar-ui-app-7c84d9dcb9-wct29	1m	658Mi

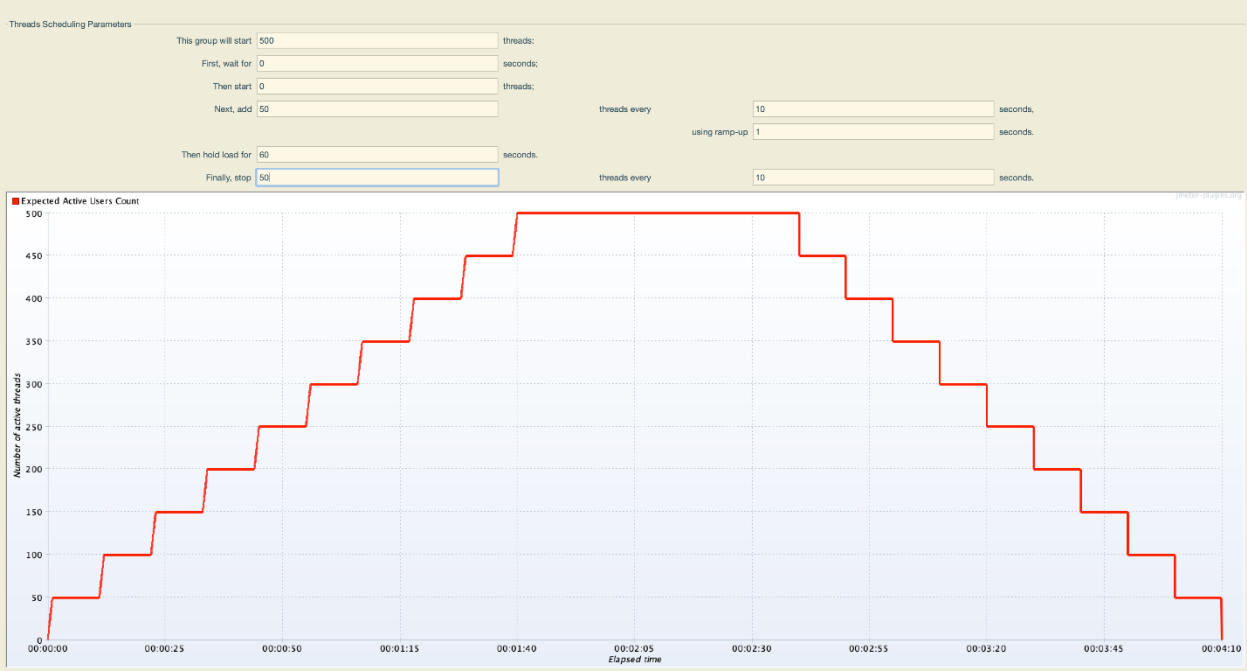
Resources used on maximum load (100 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	84m	535Mi
user-api-app-76dfd58b4d-mm6jp	328m	283Mi
user-api-app-76dfd58b4d-sn4kf	287m	299Mi
user-api-app-76dfd58b4d-v9nc4	474m	277Mi
weather-cache-app-759658bbf8-6lt8f	21m	44Mi
weather-cache-app-759658bbf8-fj998	21m	65Mi
weather-cache-app-759658bbf8-jzmbb	29m	55Mi
weather-cache-redis-585654db4f-cwznq	12m	4Mi
weather-radar-api-app-566f78b495-78fl8	6m	691Mi
weather-radar-api-app-566f78b495-7vcxg	6m	95Mi
weather-radar-api-app-566f78b495-jtvw7	6m	2316Mi
weather-radar-gateway-app-759798ff6d-2w7bp	57m	52Mi
weather-radar-gateway-app-759798ff6d-fg2ss	94m	42Mi
weather-radar-gateway-app-759798ff6d-gmwjw	65m	54Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	401m	738Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	459m	695Mi
weather-radar-ui-app-7c84d9dcb9-wct29	422m	774Mi

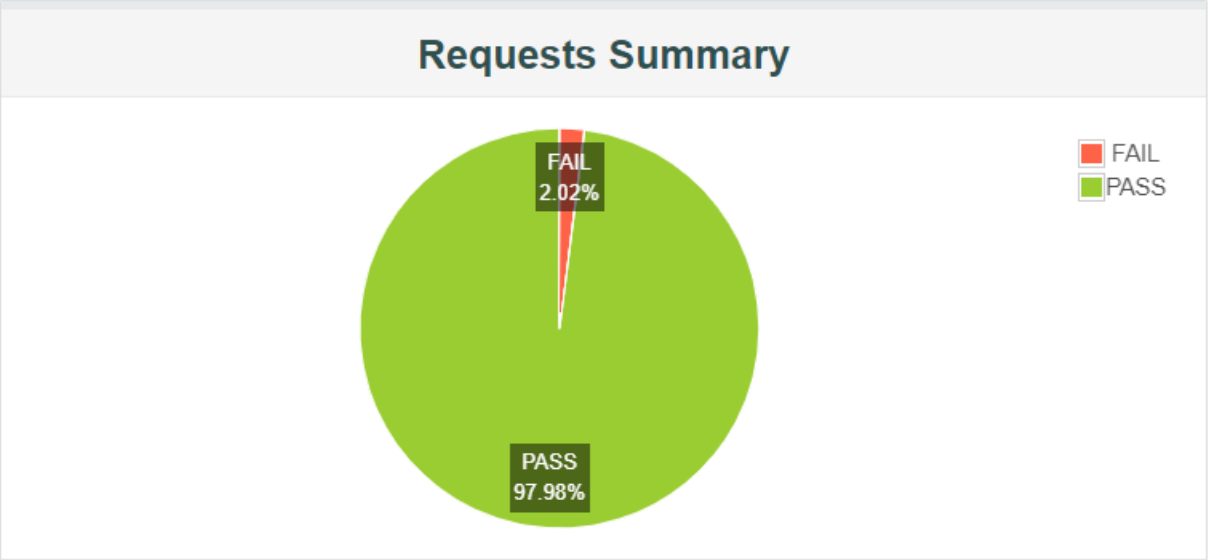

CPU Usage
CPU Usage
3
2.50
2
1.50
1
0.500
0
23:28
23:29
23:30
23:31
23:32
23:33
23:34
23:35
23:36
23:37
23:38
23:39
23:40
23:41
23:42
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-7vcxg
weather-radar-api-app-566f78b495-jtvw7
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-ui-app-7c84d9dcb9-cdt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits


Memory Usage
Memory Usage (w/o cache)
7.45 GiB
6.52 GiB
5.59 GiB
4.66 GiB
3.73 GiB
2.79 GiB
1.86 GiB
954 MiB
0 B
23:28
23:29
23:30
23:31
23:32
23:33
23:34
23:35
23:36
23:37
23:38
23:39
23:40
23:41
23:42
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-7vcxg
weather-radar-api-app-566f78b495-jtvw7
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-ui-app-7c84d9dcb9-cdt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits

Test Plan: 500 Threads - 3 Instance



Test Report:



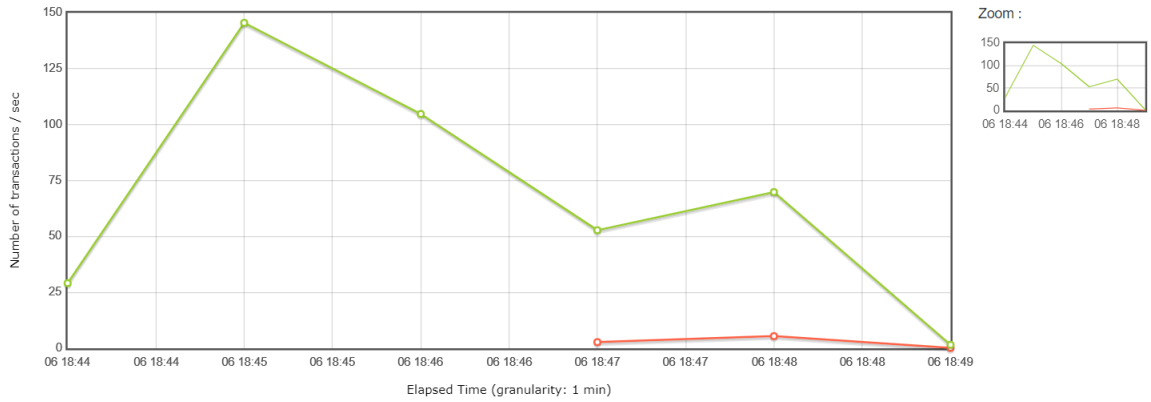
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.298	**500 ms**	**1 sec 500 ms**	**Total**
0.000	500 ms	1 sec 500 ms	GET_UI_login
0.004	500 ms	1 sec 500 ms	GET_UI_login-8
0.035	500 ms	1 sec 500 ms	GET_UI_dashboard
0.069	500 ms	1 sec 500 ms	GET_UI_login-6
0.091	500 ms	1 sec 500 ms	GET_UI_login-7
0.109	500 ms	1 sec 500 ms	GET_UI_login-9
0.110	500 ms	1 sec 500 ms	GET_UI_login-4
0.121	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.130	500 ms	1 sec 500 ms	GET_UI_login-5
0.131	500 ms	1 sec 500 ms	GET_UI_login-1
0.135	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.139	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.141	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.142	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.146	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.151	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.153	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.154	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.156	500 ms	1 sec 500 ms	GET_UI_login-0
0.773	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.818	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.907	500 ms	1 sec 500 ms	GET_UI_dashboard-2
0.910	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.922	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus
0.926	500 ms	1 sec 500 ms	GET_UI_login-3
0.928	500 ms	1 sec 500 ms	GET_UI_login-2

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**24720**	**500**	**2.02%**	**12077.72**	**5**	**171710**	**7083.00**	**33797.90**	**56697.25**	**114422.26**	**96.45**	**44310.09**	**58.01**
GET_GATEWAY_UserApi_sessionInfo	664	0	0.00%	2896.55	277	10006	2348.50	5759.50	7115.00	9102.75	2.72	1296.46	1.33
GET_GATEWAY_WeatherApi_plot	655	0	0.00%	506.37	12	5499	257.00	1022.80	2018.20	4360.72	2.69	198.70	1.28
GET_UI_dashboard	852	0	0.00%	30797.53	238	86970	27607.00	64780.30	70419.15	78544.77	3.37	1358.07	0.00
GET_UI_dashboard-0	852	0	0.00%	11012.27	27	38059	8043.00	27421.40	30580.40	35691.33	3.45	3.75	0.00
GET_UI_dashboard-1	852	0	0.00%	11245.73	33	38192	9192.50	27053.40	31167.50	37859.47	3.45	0.69	0.00
GET_UI_dashboard-2	852	0	0.00%	311.57	64	3390	112.50	711.40	1442.35	3062.17	3.47	25.25	0.00
GET_UI_dashboard-3	852	0	0.00%	304.70	63	3343	111.00	714.40	1448.60	3001.76	3.47	4.90	0.00
GET_UI_dashboard-4	852	0	0.00%	11181.14	32	38383	9057.50	27165.70	30870.40	35140.66	3.45	0.70	0.00
GET_UI_dashboard-5	852	0	0.00%	11131.44	19	38796	8990.00	27809.60	30777.45	37934.90	3.47	0.70	0.00
GET_UI_dashboard-6	852	0	0.00%	11034.37	13	38783	9297.50	26323.00	30705.30	37855.85	3.45	0.70	0.00
GET_UI_dashboard-7	852	0	0.00%	11260.24	14	37515	8951.00	27936.00	31418.50	36197.82	3.45	5.00	0.00
GET_UI_dashboard-8	852	0	0.00%	12771.47	84	68379	9780.00	30662.90	34912.60	57352.57	3.38	1323.67	0.00
GET_UI_dashboard-9	852	0	0.00%	10935.23	14	40126	9089.00	27203.00	31040.75	35525.73	3.46	1.63	0.00
GET_UI_login	1155	227	19.65%	52511.50	1723	171710	39493.00	115969.20	132405.60	150287.92	4.51	20100.05	26.08
GET_UI_login-0	1155	0	0.00%	8313.45	5	56021	5158.00	18871.80	24294.80	34816.92	4.59	4.99	2.67
GET_UI_login-1	1155	0	0.00%	9705.28	11	104996	6098.00	25445.60	31152.20	38722.28	4.59	5.40	2.70
GET_UI_login-2	1155	0	0.00%	256.90	64	4964	103.00	504.40	1327.80	2196.08	4.60	33.53	2.89
GET_UI_login-3	1155	0	0.00%	260.94	63	4883	100.00	523.00	1385.40	2309.36	4.60	6.56	2.80
GET_UI_login-4	1155	0	0.00%	10076.99	19	104512	6324.00	26026.00	31108.20	40907.80	4.59	359.79	2.69
GET_UI_login-5	1155	0	0.00%	9576.98	14	95138	5605.00	24769.00	30761.00	38951.16	4.59	32.76	2.70
GET_UI_login-6	1155	0	0.00%	10749.39	64	97956	6794.00	26278.40	32525.00	44774.84	4.59	1557.84	2.70
GET_UI_login-7	1155	41	3.55%	10897.50	28	99550	6627.00	27021.20	34809.60	53346.96	4.59	940.74	2.59
GET_UI_login-8	1155	194	16.80%	42519.11	110	164226	27875.00	103018.20	120832.60	138035.84	4.51	16888.00	2.20
GET_UI_login-9	1155	38	3.29%	11244.88	34	93557	6633.00	28661.00	34150.00	55395.52	4.59	342.68	2.59
POST_GATEWAY_UserApi_userQuery	669	0	0.00%	560.64	13	5045	298.00	1309.00	2076.50	3285.30	2.74	0.67	1.59
POST_GATEWAY_WeatherApi_queryStatus	655	0	0.00%	212.19	6	4683	68.00	600.80	779.80	2039.20	2.69	1.39	1.93

Total Transactions Per Second



Transaction-failure Transaction-success

Top 5 Errors by sampler

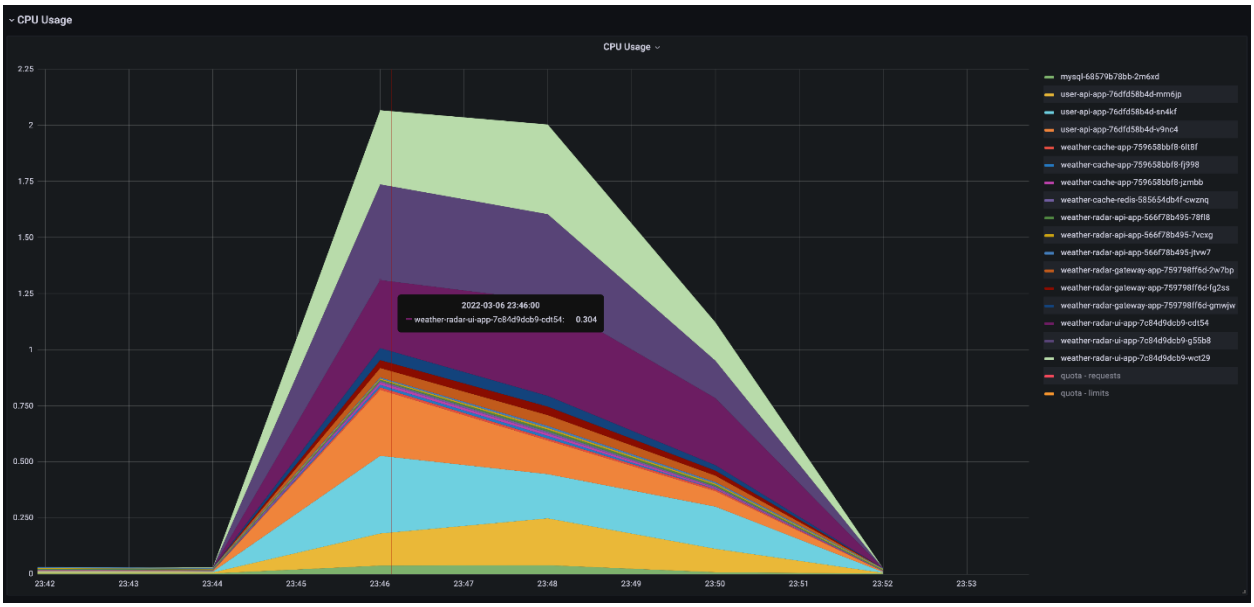
Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	24720	500	Assertion failed	227	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	169	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	96	Non HTTP response code: org.apache.http.impl.execchain.RequestAbortedException/Non HTTP response message: Request execution failed	8		
GET_UI_login	1155	227	Assertion failed	227								
GET_UI_login-7	1155	41	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	34	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	4	Non HTTP response code: org.apache.http.impl.execchain.RequestAbortedException/Non HTTP response message: Request execution failed	3				
GET_UI_login-8	1155	194	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	164	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	28	Non HTTP response code: org.apache.http.impl.execchain.RequestAbortedException/Non HTTP response message: Request execution failed	2				
GET_UI_login-9	1155	38	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	34	Non HTTP response code: org.apache.http.impl.execchain.RequestAbortedException/Non HTTP response message: Request execution failed	3	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	1				

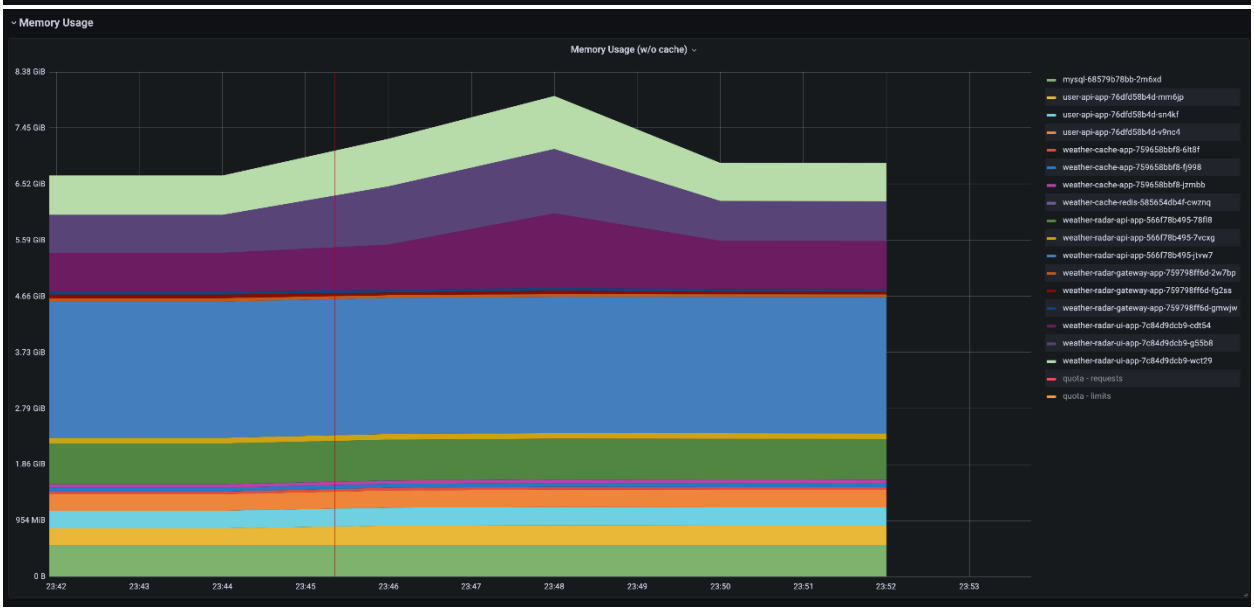
Resources used on zero load (0 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	2m	535Mi
user-api-app-76dfd58b4d-mm6jp	4m	268Mi
user-api-app-76dfd58b4d-sn4kf	4m	291Mi
user-api-app-76dfd58b4d-v9nc4	4m	274Mi
weather-cache-app-759658bbf8-6lt8f	0m	49Mi
weather-cache-app-759658bbf8-fj998	0m	64Mi
weather-cache-app-759658bbf8-jzmbb	0m	56Mi
weather-cache-redis-585654db4f-cwznq	4m	4Mi
weather-radar-api-app-566f78b495-78fl8	3m	691Mi
weather-radar-api-app-566f78b495-7vcxg	4m	95Mi
weather-radar-api-app-566f78b495-jtvw7	4m	2316Mi
weather-radar-gateway-app-759798ff6d-2w7bp	0m	55Mi
weather-radar-gateway-app-759798ff6d-fg2ss	0m	48Mi
weather-radar-gateway-app-759798ff6d-gmwjw	0m	50Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	1m	608Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	1m	626Mi
weather-radar-ui-app-7c84d9dcb9-wct29	1m	658Mi

Resources used on maximum load (500 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	50m	535Mi
user-api-app-76dfd58b4d-mm6jp	251m	329Mi
user-api-app-76dfd58b4d-sn4kf	247m	310Mi
user-api-app-76dfd58b4d-v9nc4	272m	293Mi
weather-cache-app-759658bbf8-6lt8f	11m	45Mi
weather-cache-app-759658bbf8-fj998	14m	65Mi
weather-cache-app-759658bbf8-jzmbb	15m	55Mi
weather-cache-redis-585654db4f-cwznq	10m	4Mi
weather-radar-api-app-566f78b495-78fl8	8m	691Mi
weather-radar-api-app-566f78b495-7vcxg	7m	95Mi
weather-radar-api-app-566f78b495-jtvw7	9m	2316Mi
weather-radar-gateway-app-759798ff6d-2w7bp	84m	56Mi
weather-radar-gateway-app-759798ff6d-fg2ss	63m	44Mi
weather-radar-gateway-app-759798ff6d-gmwjw	42m	49Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	525m	953Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	450m	998Mi
weather-radar-ui-app-7c84d9dcb9-wct29	556m	839Mi


CPU Usage
CPU Usage
2.25
2
1.75
1.50
1.25
1
0.750
0.500
0.250
0
23:42
23:43
23:44
23:45
23:46
23:47
23:48
23:49
23:50
23:51
23:52
23:53
2022-03-06 23:46:00
weather-radar-ui-app-7c84d9dcb9-cdt54: 0.304
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-7vcxg
weather-radar-api-app-566f78b495-jtvw7
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-ui-app-7c84d9dcb9-cdt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits

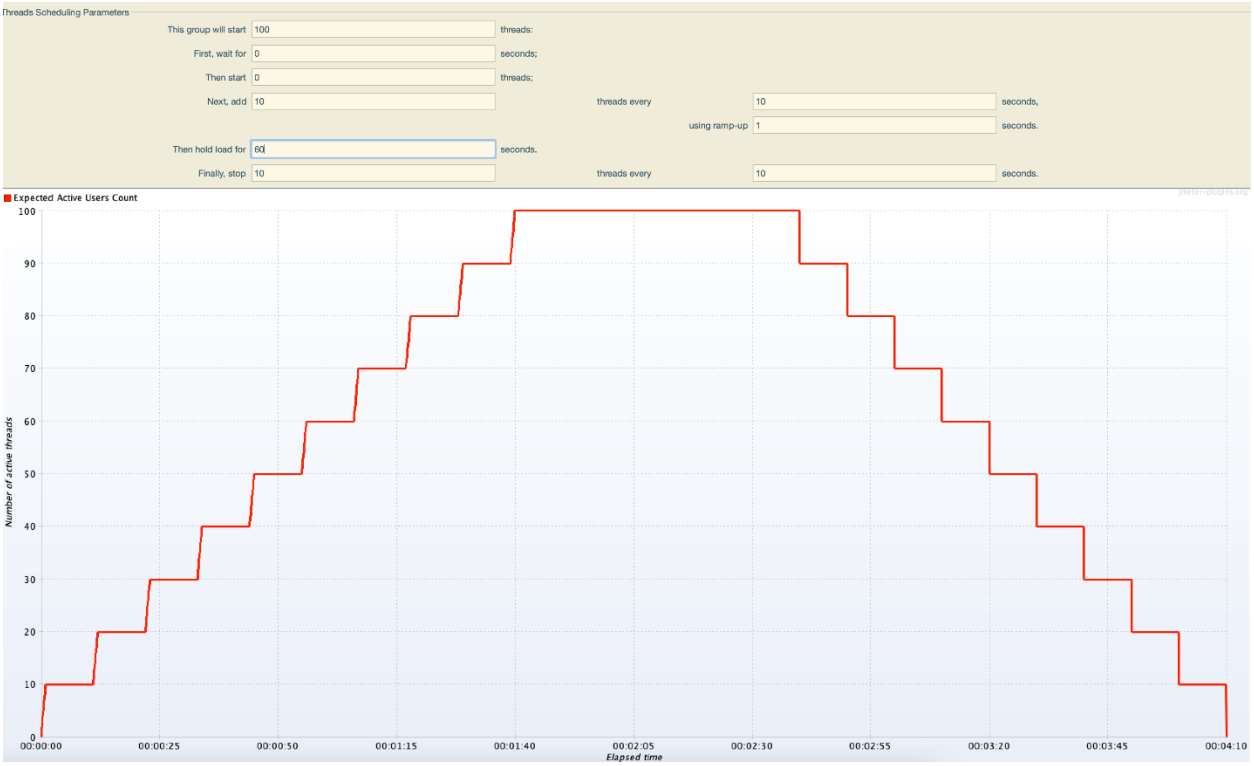

Memory Usage
Memory Usage (w/o cache)
8.38 GiB
7.45 GiB
6.52 GiB
5.59 GiB
4.66 GiB
3.73 GiB
2.79 GiB
1.86 GiB
954 MiB
0 B
23:42
23:43
23:44
23:45
23:46
23:47
23:48
23:49
23:50
23:51
23:52
23:53
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-7vcxg
weather-radar-api-app-566f78b495-jtvw7
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-ui-app-7c84d9dcb9-cdt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits

Summary of 3 Instance:

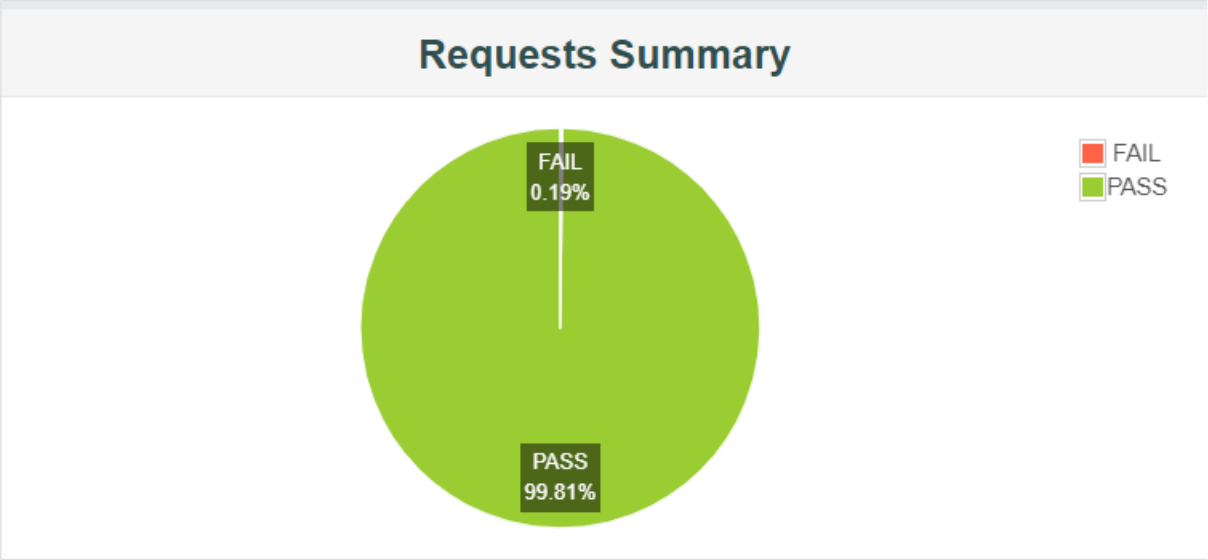
No. of Threads	No. of Instances	Service Name	CPU(cores) on max load	Average CPU(cores) on max load	MEMORY(bytes) on max load	Average MEMORY(bytes) on max load	# Samples	Error %	Transactions/s
		mysql	2m		535Mi				
		mysql	2m		535Mi				
		mysql	2m	2m	535Mi	535Mi	0	0.00000	0
		user-api-app	4m		268Mi				
		user-api-app	4m		291Mi				
		user-api-app	4m	4m	274Mi	277.67Mi	0	0.00000	0
		weather-cache-app	0m		49Mi				
		weather-cache-app	0m		64Mi				
		weather-cache-app	0m	0m	56Mi	56.33Mi	0	0.00000	0
		weather-cache-redis	4m		4Mi				
		weather-cache-redis	4m		4Mi				
0	3	weather-cache-redis	4m	4m	4Mi	4Mi	0	0.00000	0
		weather-radar-api-app	3m		691Mi				
		weather-radar-api-app	4m		95Mi				
		weather-radar-api-app	4m	3.67m	2316Mi	1034Mi	0	0.00000	0
		weather-radar-gateway-app	0m		55Mi				
		weather-radar-gateway-app	0m		48Mi				
		weather-radar-gateway-app	0m	0m	50Mi	51Mi	0	0.00000	0
		weather-radar-ui-app	1m		608Mi				
		weather-radar-ui-app	1m		626Mi				
		weather-radar-ui-app	1m	1m	658Mi	630.67Mi	0	0.00000	0
		mysql	84m		535Mi				
		mysql	84m		535Mi				
		mysql	84m	84m	535Mi	535Mi	1819	0.00000	7.32
		user-api-app	328m		283Mi				
		user-api-app	287m		299Mi				
		user-api-app	474m	363m	277Mi	286.33Mi	1819	0.00000	7.32
		weather-cache-app	21m		44Mi				
		weather-cache-app	21m		65Mi				
		weather-cache-app	29m	23.67m	55Mi	54.67Mi	1807	0.00000	7.29
		weather-cache-redis	12m		4Mi				
		weather-cache-redis	12m		4Mi				
100	3	weather-cache-redis	12m	12m	4Mi	4Mi	1807	0.00000	7.29
		weather-radar-api-app	6m		691Mi				
		weather-radar-api-app	6m		95Mi				
		weather-radar-api-app	6m	6m	2316Mi	1034Mi	1807	0.00000	7.29
		weather-radar-gateway-app	57m		52Mi				
		weather-radar-gateway-app	94m		42Mi				
		weather-radar-gateway-app	65m	72m	54Mi	49.33Mi	1812	0.00000	7
		weather-radar-ui-app	401m		738Mi				
		weather-radar-ui-app	459m		695Mi				
		weather-radar-ui-app	422m	427.33m	774Mi	735.67Mi	1878	0.00191	7.54
		mysql	50m		535Mi				
		mysql	50m		535Mi				
		mysql	50m	50m	535Mi	535Mi	666.5	0.00000	2.73
		user-api-app	251m		329Mi				
		user-api-app	247m		310Mi				
		user-api-app	272m	256.67m	293Mi	310.67Mi	666.5	0.00000	2.73
		weather-cache-app	11m		45Mi				
		weather-cache-app	14m		65Mi				
		weather-cache-app	15m	13.33m	55Mi	55Mi	655	0.00000	2.69
		weather-cache-redis	10m		4Mi				
		weather-cache-redis	10m		4Mi				
500	3	weather-cache-redis	10m	10m	4Mi	4Mi	655	0.00000	2.69
		weather-radar-api-app	8m		691Mi				
		weather-radar-api-app	7m		95Mi				
		weather-radar-api-app	9m	8m	2316Mi	1034Mi	655	0.00000	2.69
		weather-radar-gateway-app	84m		56Mi				
		weather-radar-gateway-app	63m		44Mi				
		weather-radar-gateway-app	42m	63m	49Mi	49.67Mi	659.6	0.00000	2.706
		weather-radar-ui-app	525m		953Mi				
		weather-radar-ui-app	450m		998Mi				
		weather-radar-ui-app	556m	510.33m	839Mi	930Mi	1003.5	0.01968	4.01

No. of Instance: 5

Test Plan: 100 Threads - 5 Instance



Test Report:



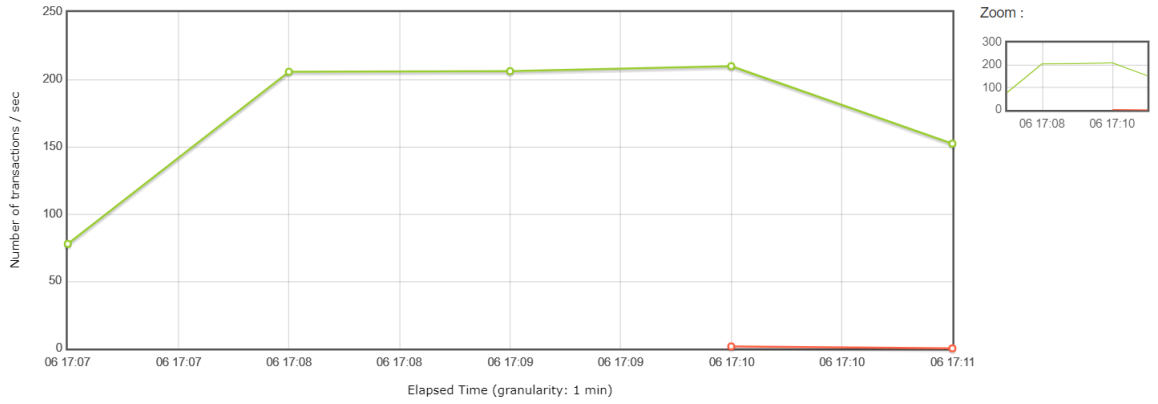
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.737	**500 ms**	**1 sec 500 ms**	**Total**
0.075	500 ms	1 sec 500 ms	GET_UI_login
0.132	500 ms	1 sec 500 ms	GET_UI_login-8
0.337	500 ms	1 sec 500 ms	GET_UI_dashboard
0.653	500 ms	1 sec 500 ms	GET_UI_login-6
0.672	500 ms	1 sec 500 ms	GET_UI_login-7
0.679	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.705	500 ms	1 sec 500 ms	GET_UI_login-9
0.712	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.735	500 ms	1 sec 500 ms	GET_UI_login-4
0.745	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.751	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.751	500 ms	1 sec 500 ms	GET_UI_login-5
0.752	500 ms	1 sec 500 ms	GET_UI_login-1
0.753	500 ms	1 sec 500 ms	GET_UI_login-0
0.755	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.762	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.763	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.767	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.772	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.983	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.986	500 ms	1 sec 500 ms	GET_UI_login-3
0.986	500 ms	1 sec 500 ms	GET_UI_login-2
0.987	500 ms	1 sec 500 ms	GET_UI_dashboard-2
0.988	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.992	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.998	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**51199**	**98**	**0.19%**	**861.45**	**1**	**25984**	**200.00**	**1818.90**	**2991.95**	**6475.99**	**204.65**	**85595.94**	**112.14**
GET_GATEWAY_UserApi_sessionInfo	1922	0	0.00%	673.00	96	2752	579.00	1205.70	1444.95	2125.70	7.73	1126.71	3.79
GET_GATEWAY_WeatherApi_plot	1908	0	0.00%	179.59	12	1286	148.00	328.10	428.55	817.37	7.70	567.97	3.66
GET_UI_dashboard	1952	0	0.00%	2064.22	89	10816	1696.50	4338.10	5089.40	6507.49	7.84	639.91	0.00
GET_UI_dashboard-0	1952	0	0.00%	627.04	4	5197	298.00	1725.50	2218.50	3368.22	7.85	8.52	0.00
GET_UI_dashboard-1	1952	0	0.00%	611.07	5	4097	286.50	1672.90	2397.50	3448.64	7.85	1.57	0.00
GET_UI_dashboard-2	1952	0	0.00%	112.66	61	2238	81.00	140.40	299.35	682.47	7.85	57.15	0.00
GET_UI_dashboard-3	1952	0	0.00%	111.42	60	1083	80.00	141.70	307.70	672.47	7.85	11.10	0.00
GET_UI_dashboard-4	1952	0	0.00%	613.10	4	5246	277.00	1690.40	2414.70	3479.10	7.84	1.58	0.00
GET_UI_dashboard-5	1952	0	0.00%	597.84	4	4196	272.00	1577.80	2367.45	3439.47	7.84	1.58	0.00
GET_UI_dashboard-6	1952	0	0.00%	609.77	7	5246	277.00	1620.20	2313.00	3436.29	7.84	1.59	0.00
GET_UI_dashboard-7	1952	0	0.00%	627.04	5	5128	316.00	1601.30	2280.15	3423.88	7.85	9.27	0.00
GET_UI_dashboard-8	1952	0	0.00%	757.37	15	9122	387.00	1918.70	2622.90	3915.22	7.85	544.61	0.00
GET_UI_dashboard-9	1952	0	0.00%	631.32	3	4889	302.50	1643.20	2348.50	3586.64	7.84	4.06	0.00
GET_UI_login	2006	47	2.34%	4726.65	305	25984	4166.00	8538.60	11309.30	17228.39	8.02	41316.93	47.40
GET_UI_login-0	2006	0	0.00%	625.94	3	5262	281.00	1757.00	2325.95	3702.37	8.03	8.72	4.67
GET_UI_login-1	2006	0	0.00%	640.65	4	5129	287.50	1759.00	2391.30	3633.67	8.03	9.44	4.72
GET_UI_login-2	2006	1	0.05%	113.40	1	1078	81.00	133.30	321.60	764.86	8.03	58.53	5.05
GET_UI_login-3	2006	0	0.00%	113.93	62	1088	80.00	135.30	328.95	796.72	8.03	11.45	4.88
GET_UI_login-4	2006	0	0.00%	679.19	8	5190	321.00	1852.30	2435.00	3751.32	8.03	629.06	4.71
GET_UI_login-5	2006	0	0.00%	633.83	5	5216	285.50	1787.00	2338.60	3616.02	8.03	57.24	4.71
GET_UI_login-6	2006	0	0.00%	838.02	14	5734	530.00	2052.40	2721.20	3712.00	8.03	2724.95	4.73
GET_UI_login-7	2006	10	0.50%	802.11	13	5071	474.00	2001.60	2703.00	3802.76	8.03	1697.07	4.68
GET_UI_login-8	2006	32	1.60%	3870.00	117	25019	3138.50	7523.00	9552.50	16215.04	8.02	35524.41	4.63
GET_UI_login-9	2006	8	0.40%	725.49	5	5205	379.00	1924.40	2503.45	3906.87	8.03	616.10	4.67
POST_GATEWAY_UserApi_userQuery	1924	0	0.00%	157.03	8	1205	131.00	281.00	359.75	586.50	7.75	1.88	4.51
POST_GATEWAY_WeatherApi_queryStatus	1907	0	0.00%	91.24	4	1150	71.00	180.20	223.60	335.92	7.70	3.85	5.53

Total Transactions Per Second



Transaction-failure Transaction-success

Top 5 Errors by sampler

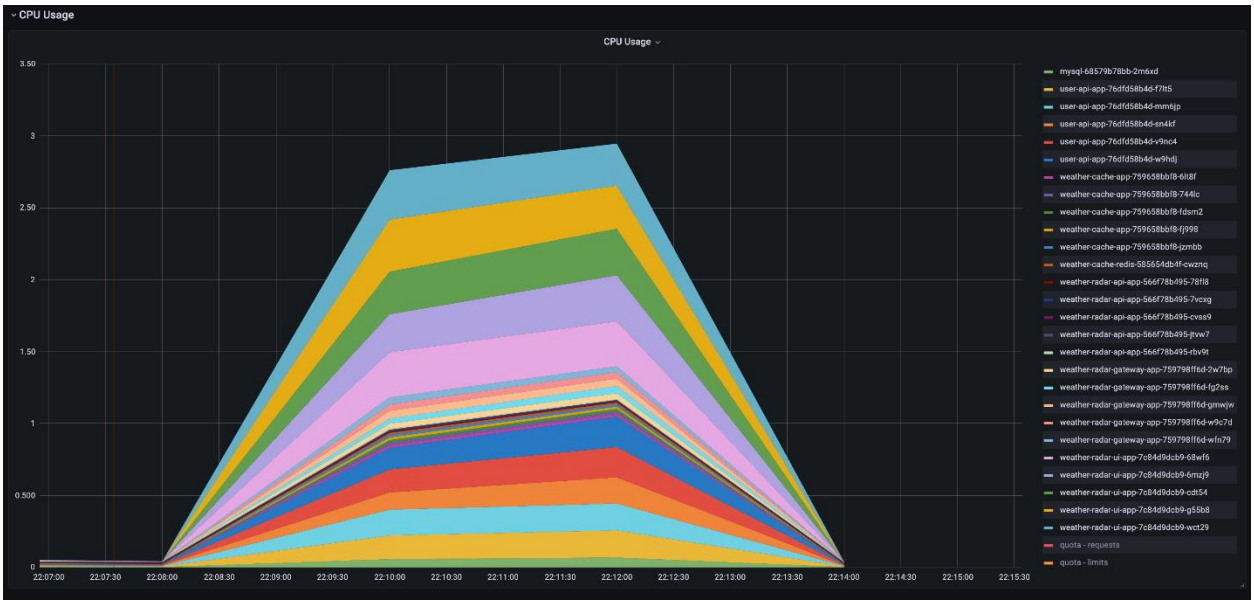
Sample	#samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	51199	98	Assertion failed	47	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	29	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	20	Non HTTP response code: java.lang.NullPointerException/Non HTTP response message: Cannot read the array length because "addresses" is null	1	Non HTTP response code: org.apache.http.impl.execchain.RequestAbortedException/Non HTTP response message: Request execution failed	1
GET_UI_login	2006	47	Assertion failed	47								
GET_UI_login-2	2006	1	Non HTTP response code: java.lang.NullPointerException/Non HTTP response message: Cannot read the array length because "addresses" is null	1								
GET_UI_login-7	2006	10	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	8	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	1	Non HTTP response code: org.apache.http.impl.execchain.RequestAbortedException/Non HTTP response message: Request execution failed	1				
GET_UI_login-8	2006	32	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	27	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	5						
GET_UI_login-9	2006	8	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	7	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	1						

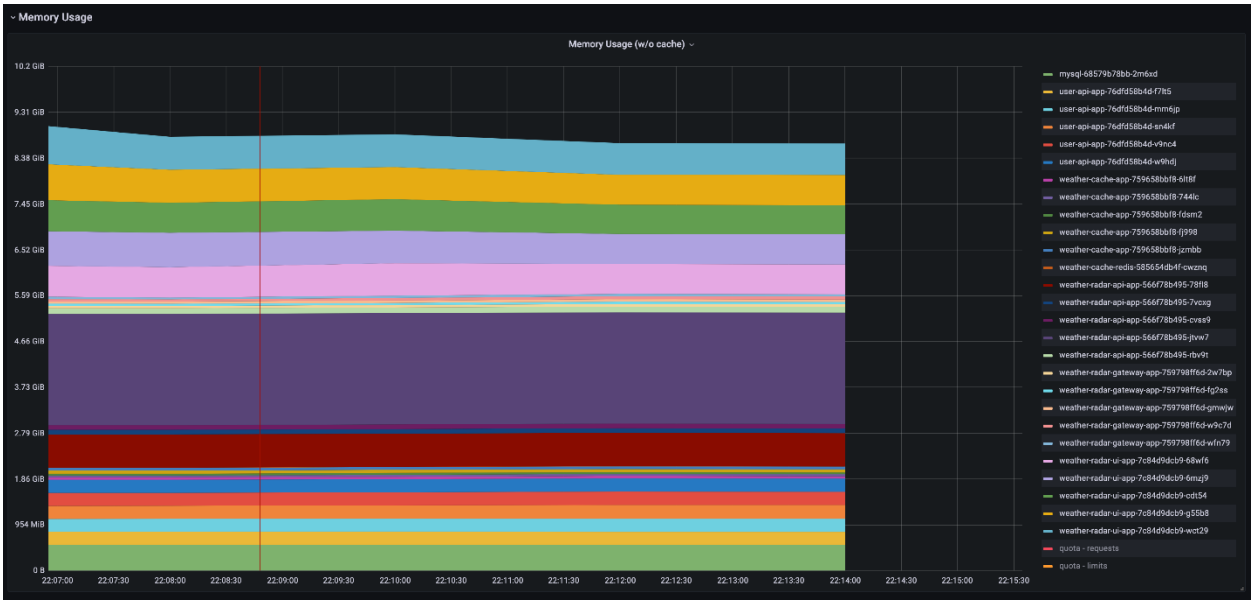
Resources used on zero load (0 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	2m	530Mi
user-api-app-76dfd58b4d-7ndv4	6m	251Mi
user-api-app-76dfd58b4d-7v876	3m	253Mi
user-api-app-76dfd58b4d-mm6jp	4m	254Mi
user-api-app-76dfd58b4d-sn4kf	4m	263Mi
user-api-app-76dfd58b4d-v9nc4	4m	265Mi
weather-cache-app-759658bbf8-6lt8f	0m	48Mi
weather-cache-app-759658bbf8-fj998	0m	64Mi
weather-cache-app-759658bbf8-jzmbb	0m	52Mi
weather-cache-app-759658bbf8-prbtt	0m	36Mi
weather-cache-app-759658bbf8-zdr7d	0m	36Mi
weather-cache-redis-585654db4f-cwznq	3m	2Mi
weather-radar-api-app-566f78b495-78fl8	3m	923Mi
weather-radar-api-app-566f78b495-8ccp6	4m	96Mi
weather-radar-api-app-566f78b495-jtvw7	3m	937Mi
weather-radar-api-app-566f78b495-p2mb6	4m	96Mi
weather-radar-api-app-566f78b495-rbv9t	5m	1310Mi
weather-radar-gateway-app-759798ff6d-2w7bp	0m	45Mi
weather-radar-gateway-app-759798ff6d-f2ptv	0m	39Mi
weather-radar-gateway-app-759798ff6d-fg2ss	0m	40Mi
weather-radar-gateway-app-759798ff6d-gmwjw	0m	41Mi
weather-radar-gateway-app-759798ff6d-wxtnq	0m	42Mi
weather-radar-ui-app-7c84d9dcb9-6ct55	1m	589Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	1m	833Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	1m	599Mi
weather-radar-ui-app-7c84d9dcb9-jv9pz	1m	586Mi
weather-radar-ui-app-7c84d9dcb9-wct29	1m	945Mi

Resources used on maximum load (100 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	63m	535Mi
user-api-app-76dfd58b4d-f7lt5	128m	275Mi
user-api-app-76dfd58b4d-mm6jp	163m	270Mi
user-api-app-76dfd58b4d-sn4kf	140m	275Mi
user-api-app-76dfd58b4d-v9nc4	130m	271Mi
user-api-app-76dfd58b4d-w9hdj	264m	277Mi
weather-cache-app-759658bbf8-6lt8f	22m	50Mi
weather-cache-app-759658bbf8-744lc	19m	39Mi
weather-cache-app-759658bbf8-fdsm2	20m	39Mi
weather-cache-app-759658bbf8-fj998	19m	64Mi
weather-cache-app-759658bbf8-jzmbb	19m	56Mi
weather-cache-redis-585654db4f-cwznq	14m	4Mi
weather-radar-api-app-566f78b495-78fl8	5m	691Mi
weather-radar-api-app-566f78b495-7vcxg	8m	95Mi
weather-radar-api-app-566f78b495-cvss9	6m	95Mi
weather-radar-api-app-566f78b495-jtvw7	6m	2316Mi
weather-radar-api-app-566f78b495-rbv9t	6m	117Mi
weather-radar-gateway-app-759798ff6d-2w7bp	58m	47Mi
weather-radar-gateway-app-759798ff6d-fg2ss	52m	42Mi
weather-radar-gateway-app-759798ff6d-gmwjw	56m	48Mi
weather-radar-gateway-app-759798ff6d-w9c7d	61m	51Mi
weather-radar-gateway-app-759798ff6d-wfn79	56m	51Mi
weather-radar-ui-app-7c84d9dcb9-68wf6	291m	699Mi
weather-radar-ui-app-7c84d9dcb9-6mzj9	327m	705Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	318m	708Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	342m	773Mi
weather-radar-ui-app-7c84d9dcb9-wct29	348m	645Mi


CPU Usage
CPU Usage
3.50
3
2.50
2
1.50
1
0.500
0
22:07:00
22:07:30
22:08:00
22:08:30
22:09:00
22:09:30
22:10:00
22:10:30
22:11:00
22:11:30
22:12:00
22:12:30
22:13:00
22:13:30
22:14:00
22:14:30
22:15:00
22:15:30
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-f7ht5
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
user-api-app-76dfd58b4d-w9hdj
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-744lc
weather-cache-app-759658bbf8-fdsm2
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-7vcxg
weather-radar-api-app-566f78b495-cvss9
weather-radar-api-app-566f78b495-jtvw7
weather-radar-api-app-566f78b495-rbv9t
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-gateway-app-759798ff6d-w9c7d
weather-radar-gateway-app-759798ff6d-wfn79
weather-radar-ui-app-7c84d9dcb9-68wf6
weather-radar-ui-app-7c84d9dcb9-6mzj9
weather-radar-ui-app-7c84d9dcb9-odt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits


Memory Usage
Memory Usage (w/o cache)
10.2 GiB
9.31 GiB
8.38 GiB
7.45 GiB
6.52 GiB
5.59 GiB
4.66 GiB
3.73 GiB
2.79 GiB
1.86 GiB
954 MiB
0 B
22:07:00
22:07:30
22:08:00
22:08:30
22:09:00
22:09:30
22:10:00
22:10:30
22:11:00
22:11:30
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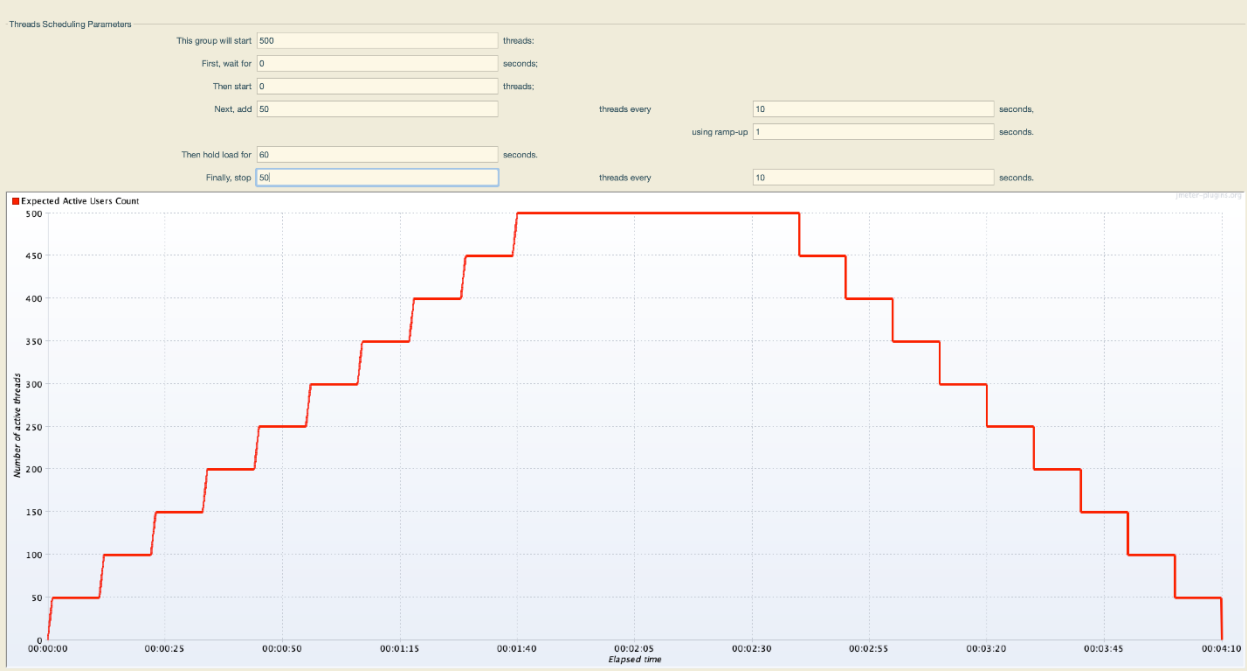
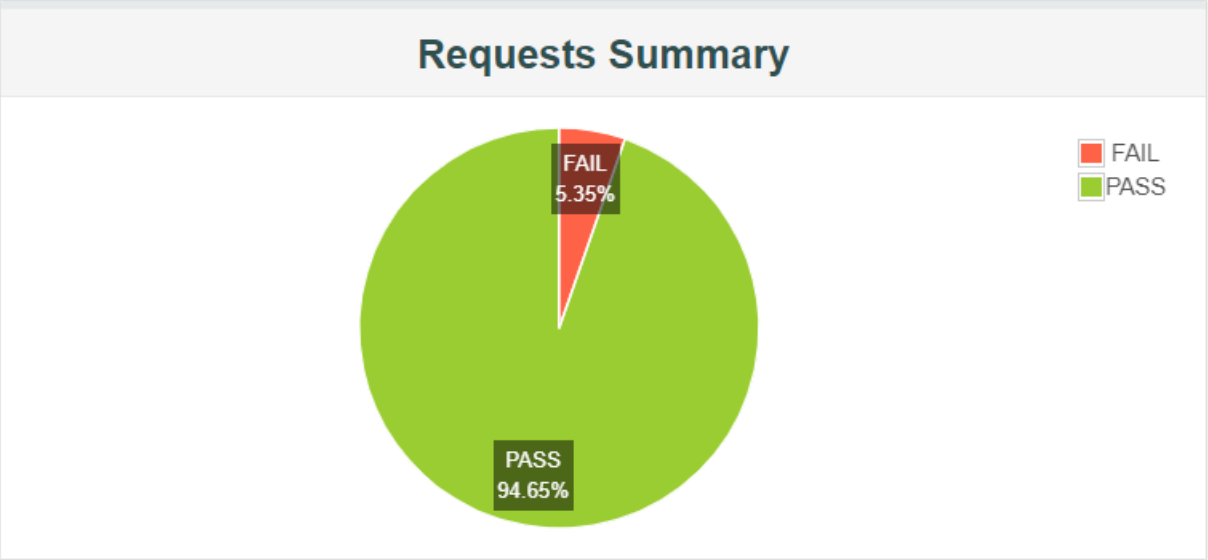
22:14:30
22:15:00
22:15:30
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-f7ht5
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
user-api-app-76dfd58b4d-w9hdj
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-744lc
weather-cache-app-759658bbf8-fdsm2
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-7vcxg
weather-radar-api-app-566f78b495-cvss9
weather-radar-api-app-566f78b495-jtvw7
weather-radar-api-app-566f78b495-rbv9t
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-gateway-app-759798ff6d-w9c7d
weather-radar-gateway-app-759798ff6d-wfn79
weather-radar-ui-app-7c84d9dcb9-68wf6
weather-radar-ui-app-7c84d9dcb9-6mzj9
weather-radar-ui-app-7c84d9dcb9-odt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits

Test Plan: 500 Threads - 5 Instance



Test Report:



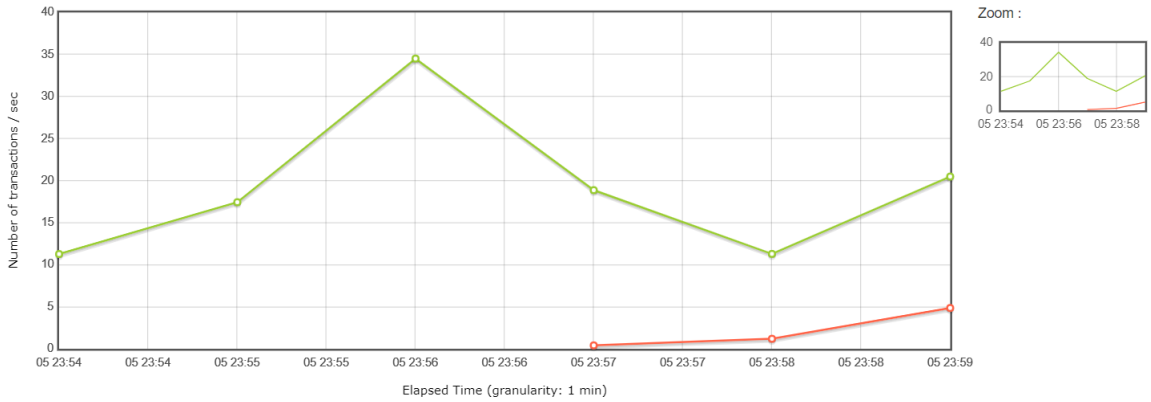
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.180	**500 ms**	**1 sec 500 ms**	**Total**
0.000	500 ms	1 sec 500 ms	GET_UI_dashboard
0.000	500 ms	1 sec 500 ms	GET_UI_login
0.003	500 ms	1 sec 500 ms	GET_UI_login-8
0.009	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.017	500 ms	1 sec 500 ms	GET_UI_login-6
0.018	500 ms	1 sec 500 ms	GET_UI_login-5
0.019	500 ms	1 sec 500 ms	GET_UI_login-9
0.022	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.022	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.022	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.026	500 ms	1 sec 500 ms	GET_UI_login-4
0.027	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.029	500 ms	1 sec 500 ms	GET_UI_login-7
0.029	500 ms	1 sec 500 ms	GET_UI_login-0
0.031	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.032	500 ms	1 sec 500 ms	GET_UI_login-1
0.036	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.063	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.279	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.338	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.636	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.750	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus
0.857	500 ms	1 sec 500 ms	GET_UI_login-2
0.858	500 ms	1 sec 500 ms	GET_UI_login-3
0.906	500 ms	1 sec 500 ms	GET_UI_dashboard-2
0.911	500 ms	1 sec 500 ms	GET_UI_dashboard-3

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**7217**	**386**	**5.35%**	**58163.21**	**21**	**311049**	**37664.00**	**163554.80**	**214629.10**	**270457.14**	**22.64**	**13267.46**	**19.24**
GET_GATEWAY_UserApi_sessionInfo	34	0	0.00%	3139.74	136	11383	2137.50	7054.00	10850.50	11383.00	0.28	0.61	0.14
GET_GATEWAY_WeatherApi_plot	33	0	0.00%	1351.70	38	6615	490.00	4952.40	6393.80	6615.00	0.29	21.60	0.14
GET_UI_dashboard	112	0	0.00%	129457.01	13045	223350	134073.50	191167.30	195997.30	221579.01	0.37	63.53	0.00
GET_UI_dashboard-0	112	0	0.00%	52282.54	450	142663	45471.50	108186.40	123462.65	141575.16	0.40	0.43	0.00
GET_UI_dashboard-1	112	0	0.00%	45751.50	234	136031	39458.50	99736.20	119811.45	135756.05	0.37	0.07	0.00
GET_UI_dashboard-2	112	0	0.00%	307.23	72	3506	179.50	605.40	990.85	3254.45	0.41	2.96	0.00
GET_UI_dashboard-3	112	0	0.00%	304.07	77	3504	178.00	607.20	982.80	3248.42	0.41	0.58	0.00
GET_UI_dashboard-4	112	0	0.00%	44971.96	231	141006	38241.50	93884.50	112663.95	140126.68	0.37	0.08	0.00
GET_UI_dashboard-5	112	0	0.00%	45588.48	317	141001	43495.50	92112.60	103764.40	139425.92	0.37	0.07	0.00
GET_UI_dashboard-6	112	0	0.00%	43770.93	125	144195	41801.00	87416.20	96955.40	140634.95	0.37	0.08	0.00
GET_UI_dashboard-7	112	0	0.00%	46520.71	237	128611	42963.50	94248.40	102120.55	128422.63	0.37	0.08	0.00
GET_UI_dashboard-8	112	0	0.00%	49690.54	180	142719	44566.50	101119.90	113031.40	141558.23	0.37	59.72	0.00
GET_UI_dashboard-9	112	0	0.00%	41193.71	163	131240	36050.00	92931.50	109512.75	130920.85	0.37	0.84	0.00
GET_UI_login	532	176	33.08%	193110.45	10650	311049	206350.00	269932.60	280070.20	304580.27	1.67	6568.64	9.50
GET_UI_login-0	532	0	0.00%	30071.61	153	162064	27842.50	57626.10	80950.55	108008.18	1.96	2.12	1.14
GET_UI_login-1	532	0	0.00%	46946.17	60	161818	45183.50	96996.80	107981.15	132996.66	1.80	2.12	1.06
GET_UI_login-2	532	0	0.00%	429.83	72	2828	199.00	1308.80	1487.05	2423.03	1.95	14.22	1.23
GET_UI_login-3	532	0	0.00%	423.52	74	2828	196.50	1298.20	1462.05	2432.77	1.95	2.78	1.19
GET_UI_login-4	532	0	0.00%	48031.18	62	163254	45169.50	95675.90	106483.10	134859.54	1.69	132.38	0.99
GET_UI_login-5	532	0	0.00%	46696.70	47	133645	45412.50	95736.20	106308.80	132114.69	1.69	12.02	0.99
GET_UI_login-6	532	0	0.00%	54762.50	168	176580	50307.50	109459.90	140624.25	176249.51	1.78	604.55	1.05
GET_UI_login-7	532	17	3.20%	51112.26	82	177836	46809.00	104844.50	122362.70	156580.37	1.80	371.39	1.02
GET_UI_login-8	532	151	28.38%	154057.30	786	307075	166315.50	247433.00	268814.70	287921.00	1.68	5420.67	0.71
GET_UI_login-9	532	42	7.89%	57391.87	43	149197	51721.50	117790.50	128994.35	142280.32	1.70	120.93	0.91
POST_GATEWAY_UserApi_userQuery	34	0	0.00%	6901.21	132	59421	1599.00	24592.00	37201.50	59421.00	0.24	0.06	0.14
POST_GATEWAY_WeatherApi_queryStatus	32	0	0.00%	693.47	21	3624	199.50	2294.70	3331.50	3624.00	0.36	0.17	0.26

Total Transactions Per Second



Transaction-failure Transaction-success

Top 5 Errors by sampler

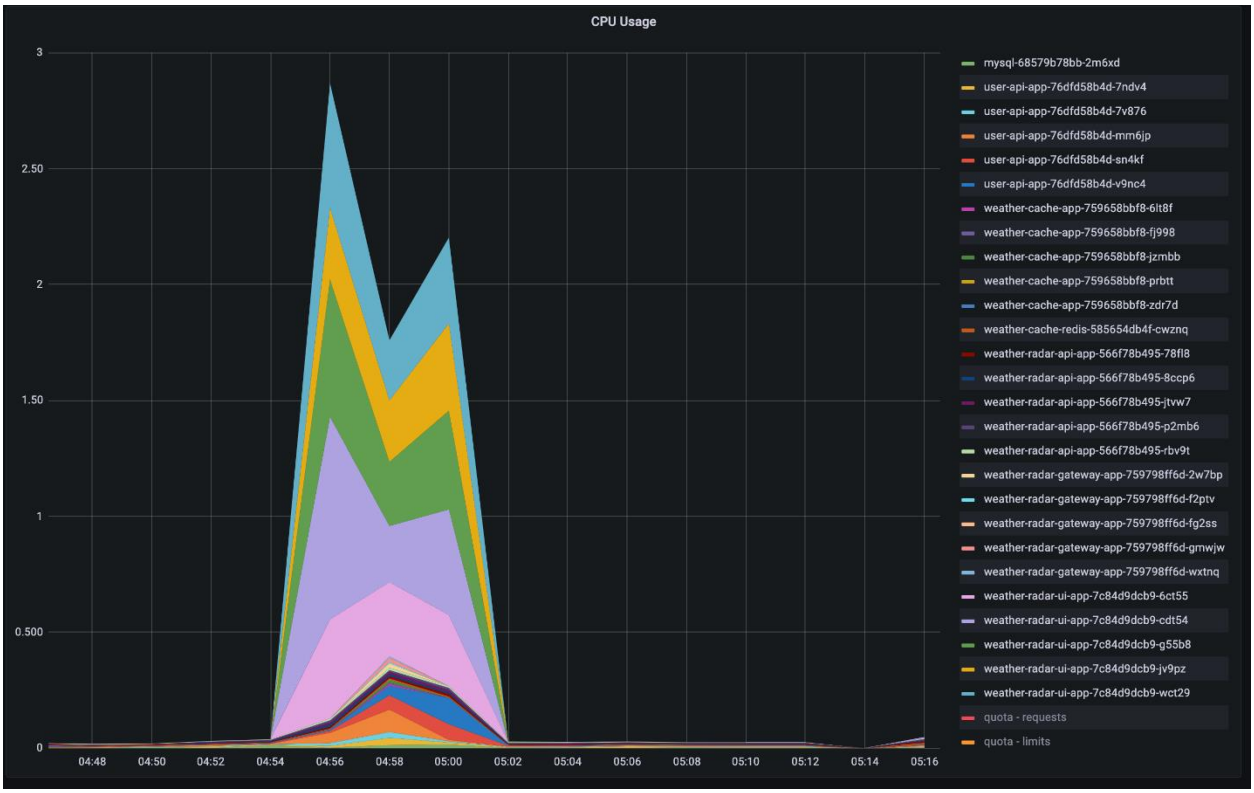
Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	**7217**	**386**	**Assertion failed**	**176**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed**	**149**	**Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down**	**61**				
GET_UI_login	532	176	Assertion failed	176								
GET_UI_login-7	532	17	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	15	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	2						
GET_UI_login-8	532	151	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	145	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	6						
GET_UI_login-9	532	42	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	40	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	2						

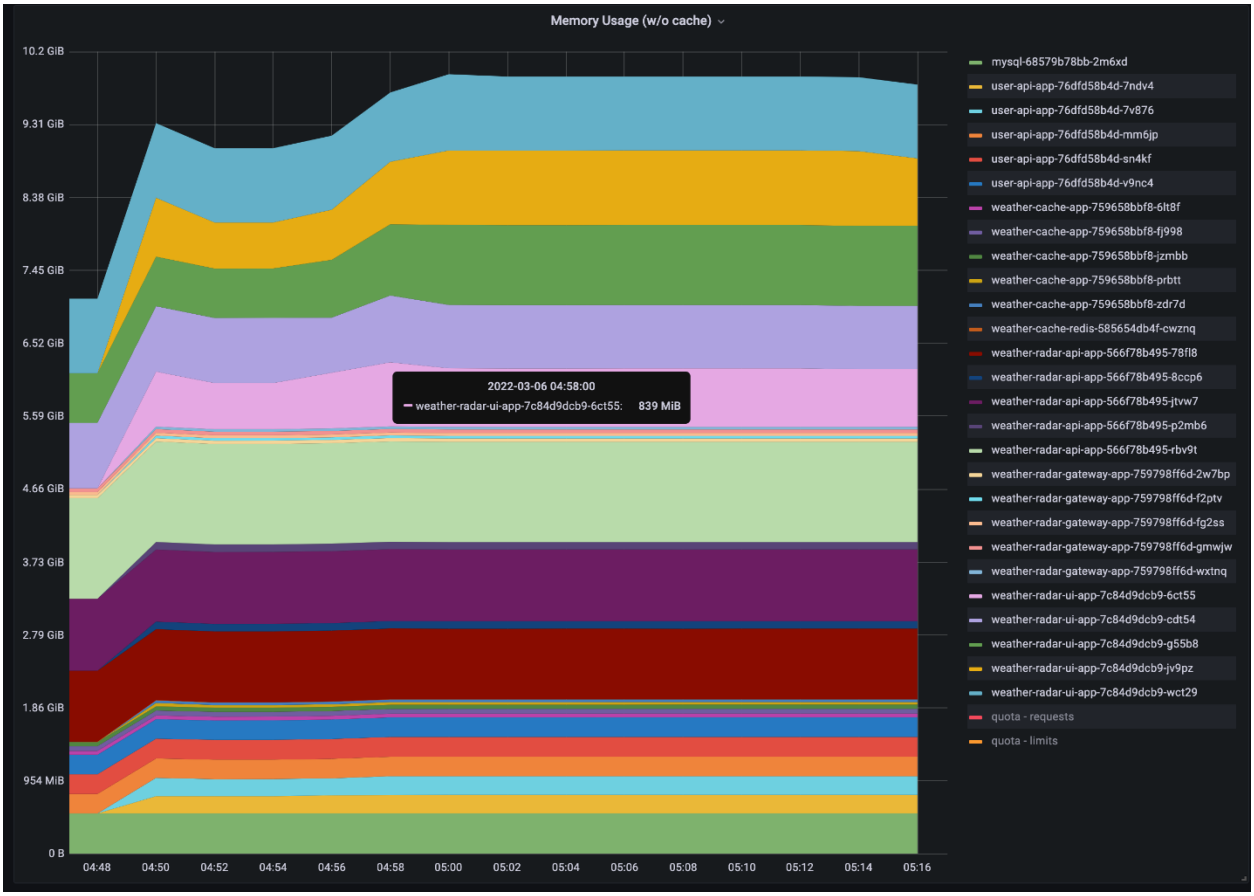
Resources used on zero load (0 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	2m	530Mi
user-api-app-76dfd58b4d-7ndv4	6m	251Mi
user-api-app-76dfd58b4d-7v876	3m	253Mi
user-api-app-76dfd58b4d-mm6jp	4m	254Mi
user-api-app-76dfd58b4d-sn4kf	4m	263Mi
user-api-app-76dfd58b4d-v9nc4	4m	265Mi
weather-cache-app-759658bbf8-6lt8f	0m	48Mi
weather-cache-app-759658bbf8-fj998	0m	64Mi
weather-cache-app-759658bbf8-jzmbb	0m	52Mi
weather-cache-app-759658bbf8-prbtt	0m	36Mi
weather-cache-app-759658bbf8-zdr7d	0m	36Mi
weather-cache-redis-585654db4f-cwznq	3m	2Mi
weather-radar-api-app-566f78b495-78fl8	3m	923Mi
weather-radar-api-app-566f78b495-8ccp6	4m	96Mi
weather-radar-api-app-566f78b495-jtvw7	3m	937Mi
weather-radar-api-app-566f78b495-p2mb6	4m	96Mi
weather-radar-api-app-566f78b495-rbv9t	5m	1310Mi
weather-radar-gateway-app-759798ff6d-2w7bp	0m	45Mi
weather-radar-gateway-app-759798ff6d-f2ptv	0m	39Mi
weather-radar-gateway-app-759798ff6d-fg2ss	0m	40Mi
weather-radar-gateway-app-759798ff6d-gmwjw	0m	41Mi
weather-radar-gateway-app-759798ff6d-wxtnq	0m	42Mi
weather-radar-ui-app-7c84d9dcb9-6ct55	1m	589Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	1m	833Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	1m	599Mi
weather-radar-ui-app-7c84d9dcb9-jv9pz	1m	586Mi
weather-radar-ui-app-7c84d9dcb9-wct29	1m	945Mi

Resources used on maximum load (500 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	31m	535Mi
user-api-app-76dfd58b4d-f7lt5	162m	271Mi
user-api-app-76dfd58b4d-mm6jp	112m	265Mi
user-api-app-76dfd58b4d-sn4kf	94m	271Mi
user-api-app-76dfd58b4d-v9nc4	62m	273Mi
user-api-app-76dfd58b4d-w9hdj	230m	267Mi
weather-cache-app-759658bbf8-6lt8f	26m	50Mi
weather-cache-app-759658bbf8-744lc	16m	35Mi
weather-cache-app-759658bbf8-fdsm2	23m	35Mi
weather-cache-app-759658bbf8-fj998	14m	65Mi
weather-cache-app-759658bbf8-jzmbb	16m	55Mi
weather-cache-redis-585654db4f-cwznq	13m	4Mi
weather-radar-api-app-566f78b495-78fl8	9m	691Mi
weather-radar-api-app-566f78b495-7vcxg	9m	95Mi
weather-radar-api-app-566f78b495-cvss9	9m	95Mi
weather-radar-api-app-566f78b495-jtvw7	9m	2316Mi
weather-radar-api-app-566f78b495-rbv9t	9m	117Mi
weather-radar-gateway-app-759798ff6d-2w7bp	77m	56Mi
weather-radar-gateway-app-759798ff6d-fg2ss	42m	55Mi
weather-radar-gateway-app-759798ff6d-gmwjw	122m	49Mi
weather-radar-gateway-app-759798ff6d-w9c7d	18m	54Mi
weather-radar-gateway-app-759798ff6d-wfn79	143m	57Mi
weather-radar-ui-app-7c84d9dcb9-68wf6	515m	648Mi
weather-radar-ui-app-7c84d9dcb9-6mzj9	349m	925Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	252m	720Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	340m	904Mi
weather-radar-ui-app-7c84d9dcb9-wct29	355m	1073Mi


CPU Usage
3
2.50
2
1.50
1
0.500
0
04:48
04:50
04:52
04:54
04:56
04:58
05:00
05:02
05:04
05:06
05:08
05:10
05:12
05:14
05:16
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-7ndv4
user-api-app-76dfd58b4d-7v876
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-app-759658bbf8-prbtt
weather-cache-app-759658bbf8-zdr7d
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-8ccp6
weather-radar-api-app-566f78b495-jtvw7
weather-radar-api-app-566f78b495-p2mb6
weather-radar-api-app-566f78b495-rbv9t
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-f2ptv
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-gateway-app-759798ff6d-wxtnq
weather-radar-ui-app-7c84d9dcb9-6ct55
weather-radar-ui-app-7c84d9dcb9-cdt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-jv9pz
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits


Memory Usage (w/o cache)
10.2 GiB
9.31 GiB
8.38 GiB
7.45 GiB
6.52 GiB
5.59 GiB
4.66 GiB
3.73 GiB
2.79 GiB
1.86 GiB
954 MiB
0 B
04:48
04:50
04:52
04:54
04:56
04:58
05:00
05:02
05:04
05:06
05:08
05:10
05:12
05:14
05:16
2022-03-06 04:58:00
weather-radar-ui-app-7c84d9dcb9-6ct55: 839 MiB
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-7ndv4
user-api-app-76dfd58b4d-7v876
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-app-759658bbf8-prbtt
weather-cache-app-759658bbf8-zdr7d
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-8ccp6
weather-radar-api-app-566f78b495-jtvw7
weather-radar-api-app-566f78b495-p2mb6
weather-radar-api-app-566f78b495-rbv9t
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-f2ptv
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-gateway-app-759798ff6d-wxtnq
weather-radar-ui-app-7c84d9dcb9-6ct55
weather-radar-ui-app-7c84d9dcb9-cdt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-jv9pz
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits

Summary of 5 Instance:

No. of Threads	No. of Instances	Service Name	CPU(cores) on max load	Average CPU(cores) on max load	MEMORY(bytes) on max load	Average MEMORY(bytes) on max load	# Samples	Error %	Transactions/s
		mysql	2m		530Mi				
		mysql	2m		530Mi				
		mysql	2m		530Mi				
		mysql	2m		530Mi				
		mysql	2m	2m	530Mi	530Mi	0	0.00000	0
		user-api-app	6m		251Mi				
		user-api-app	3m		253Mi				
		user-api-app	4m		254Mi				
		user-api-app	4m		263Mi				
		user-api-app	4m	4.2m	265Mi	257.2Mi	0	0.00000	0
		weather-cache-app	0m		48Mi				
		weather-cache-app	0m		64Mi				
		weather-cache-app	0m		52Mi				
		weather-cache-app	0m		36Mi				
		weather-cache-app	0m	0m	36Mi	47.2Mi	0	0.00000	0
		weather-cache-redis	3m		2Mi				
		weather-cache-redis	3m		2Mi				
		weather-cache-redis	3m		2Mi				
		weather-cache-redis	3m		2Mi				
0	5	weather-cache-redis	3m	3m	2Mi	2Mi	0	0.00000	0
		weather-radar-api-app	3m		923Mi				
		weather-radar-api-app	4m		96Mi				
		weather-radar-api-app	3m		937Mi				
		weather-radar-api-app	4m		96Mi				
		weather-radar-api-app	5m	3.8m	1310Mi	672.4Mi	0	0.00000	0
		weather-radar-gateway-app	0m		45Mi				
		weather-radar-gateway-app	0m		39Mi				
		weather-radar-gateway-app	0m		40Mi				
		weather-radar-gateway-app	0m		41Mi				
		weather-radar-gateway-app	0m	0m	42Mi	41.4Mi	0	0.00000	0
		weather-radar-ui-app	1m		589Mi				
		weather-radar-ui-app	1m		833Mi				
		weather-radar-ui-app	1m		599Mi				
		weather-radar-ui-app	1m		586Mi				
		weather-radar-ui-app	1m	1m	945Mi	710.4Mi	0	0.00000	0
		mysql	63m		535Mi				
		mysql	63m		535Mi				
		mysql	63m		535Mi				
		mysql	63m		535Mi				
		mysql	63m	63m	535Mi	535Mi	1923	0.00000	7.74
		user-api-app	128m		275Mi				
		user-api-app	163m		270Mi				
		user-api-app	140m		275Mi				
		user-api-app	130m		271Mi				
		user-api-app	264m	165m	277Mi	273.6Mi	1923	0.00000	7.74
		weather-cache-app	22m		50Mi				
		weather-cache-app	19m		39Mi				
		weather-cache-app	20m		39Mi				
		weather-cache-app	19m		64Mi				
		weather-cache-app	19m	19.8m	56Mi	49.6Mi	1907.5	0.00000	7.70
		weather-cache-redis	14m		4Mi				
		weather-cache-redis	14m		4Mi				
		weather-cache-redis	14m		4Mi				
		weather-cache-redis	14m		4Mi				
100	5	weather-cache-redis	14m	14m	4Mi	4Mi	1907.5	0.00000	7.70
		weather-radar-api-app	5m		691Mi				
		weather-radar-api-app	8m		95Mi				
		weather-radar-api-app	6m		95Mi				
		weather-radar-api-app	6m		2316Mi				
		weather-radar-api-app	6m	6.2m	117Mi	662.8Mi	1907.5	0.00000	7.70
		weather-radar-gateway-app	58m		47Mi				
		weather-radar-gateway-app	52m		42Mi				
		weather-radar-gateway-app	56m		48Mi				
		weather-radar-gateway-app	61m		51Mi				
		weather-radar-gateway-app	56m	56.6m	51Mi	47.8Mi	1914	0.00000	8
		weather-radar-ui-app	291m		699Mi				
		weather-radar-ui-app	327m		705Mi				
		weather-radar-ui-app	318m		708Mi				
		weather-radar-ui-app	342m		773Mi				
		weather-radar-ui-app	348m	325.2m	645Mi	706Mi	1979	0.00222	7.94
		mysql	31m		535Mi				
		mysql	31m		535Mi				
		mysql	31m		535Mi				
		mysql	31m		535Mi				
		mysql	31m	31m	535Mi	535Mi	34	0.00000	0.26
		user-api-app	162m		271Mi				
		user-api-app	112m		265Mi				
		user-api-app	94m		271Mi				
		user-api-app	62m		273Mi				
		user-api-app	230m	132m	267Mi	269.4Mi	34	0.00000	0.26
		weather-cache-app	26m		50Mi				
		weather-cache-app	16m		35Mi				
		weather-cache-app	23m		35Mi				
		weather-cache-app	14m		65Mi				
		weather-cache-app	16m	19m	55Mi	48Mi	32.5	0.00000	0.33
		weather-cache-redis	13m		4Mi				
		weather-cache-redis	13m		4Mi				
		weather-cache-redis	13m		4Mi				
		weather-cache-redis	13m		4Mi				
500	5	weather-cache-redis	13m	13m	4Mi	4Mi	32.5	0.00000	0.33
		weather-radar-api-app	9m		691Mi				
		weather-radar-api-app	9m		95Mi				
		weather-radar-api-app	9m		95Mi				
		weather-radar-api-app	9m		2316Mi				
		weather-radar-api-app	9m	9m	117Mi	662.8Mi	32.5	0.00000	0.33
		weather-radar-gateway-app	77m		56Mi				
		weather-radar-gateway-app	42m		55Mi				
		weather-radar-gateway-app	122m		49Mi				
		weather-radar-gateway-app	18m		54Mi				
		weather-radar-gateway-app	143m	80.4m	57Mi	54.2Mi	33.1	0.00000	0.299
		weather-radar-ui-app	515m		648Mi				
		weather-radar-ui-app	349m		925Mi				
		weather-radar-ui-app	252m		720Mi				
		weather-radar-ui-app	340m		904Mi				
		weather-radar-ui-app	355m	362.2m	1073Mi	854Mi	322	0.03298	1.08

Conclusive Summary:

No. of Threads	No. of Instances	# Samples	Error %	Transactions/s
0	1	0	0	0
0	3	0	0	0
0	5	0	0	0
10	1	35858	0.03	179.27
100	1	54404	0.18	189.24
100	3	48568	0.16	194.2
100	5	51199	0.19	204.65
500	1	37238	1.39	147.26
500	3	24720	2.02	96.45
500	5	7217	5.35	22.64
1000	1	21104	22.81	79.14

Load Testing Full Stack Conclusion:

1. Maximum throughput 204.65 transaction/seconds of the system can be achieved for 100 threads 5 instances.
2. The summary table above, it concludes that there is a significant increase in the error rate when instances for 500 threads change from 1 to 5 instances from 2.02 % to 5.35 %, because the load is distributed among 5 instances, but the local system resources become bottleneck.
3. Also, for 1000 threads 1 instance system goes above maximum limits and halts, so very low throughput of 79.14%
4. So, we can conclude that 3 instances of each service for spike testing is good distribution and allocation for this testing system for maximum performance.
5. Due to resource constraints on the local system, it was not possible to test multiple test-scenarios. We will be moving the testing to the Jetstream server which can help satisfy system congestion in the upcoming iteration.

Full Stack Spike Testing

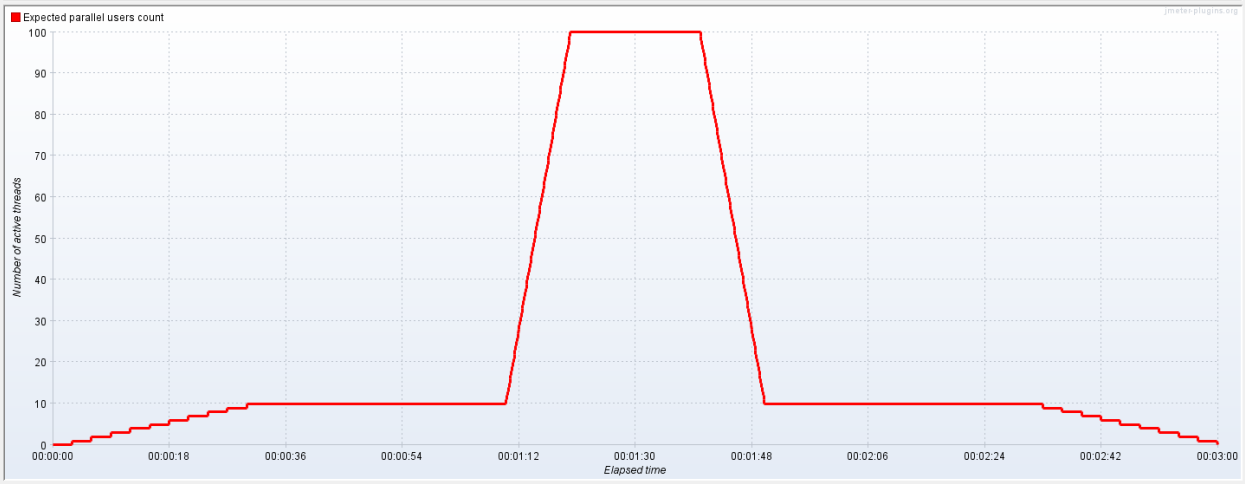
System Configuration:
Model: MacBook Pro (16-inch, 2019)
Processor: 2.6 GHz 6-Core Intel Core i7
Memory: 16 GB 2667 MHz DDR4
Graphics: AMD Radeon Pro 5300M 4 GB, Intel UHD Graphics 630 1536 MB

Testing Scenarios:
No. of Instance: 3
Test Plan: 10 Threads - 90 Spike - 3 Instance

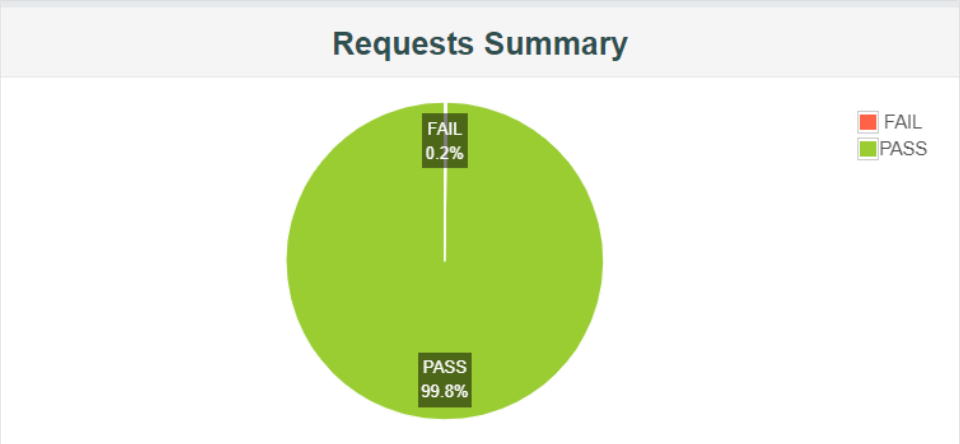
Threads Schedule

Start Threads Count	Initial Delay, sec	Startup Time, sec	Hold Load For, sec	Shutdown Time
10	0	30	120	30
90	70	10	20	10

Add Row | Copy Row | Delete Row



Test Report:



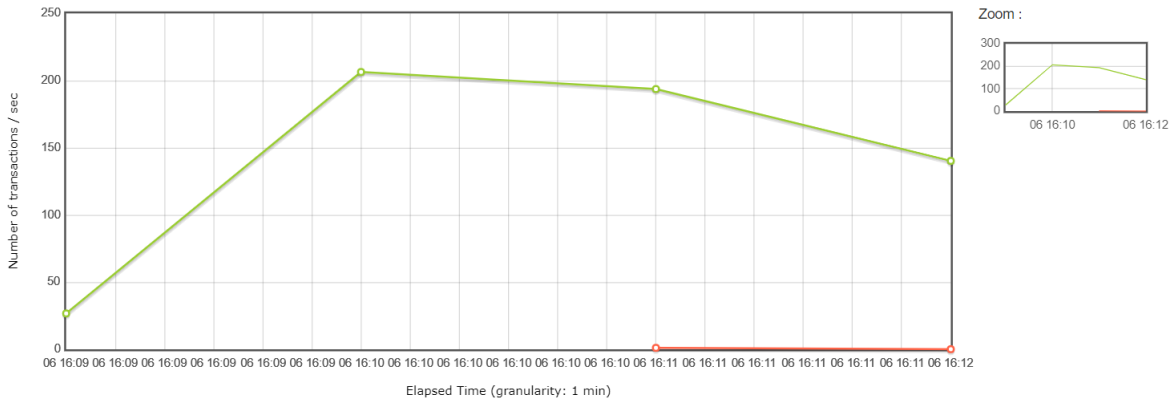
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.907	**500 ms**	**1 sec 500 ms**	**Total**
0.515	500 ms	1 sec 500 ms	GET_UI_login
0.582	500 ms	1 sec 500 ms	GET_UI_login-8
0.827	500 ms	1 sec 500 ms	GET_UI_dashboard
0.876	500 ms	1 sec 500 ms	GET_UI_login-7
0.877	500 ms	1 sec 500 ms	GET_UI_login-6
0.891	500 ms	1 sec 500 ms	GET_UI_login-9
0.913	500 ms	1 sec 500 ms	GET_UI_login-4
0.914	500 ms	1 sec 500 ms	GET_UI_login-0
0.917	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.922	500 ms	1 sec 500 ms	GET_UI_login-1
0.923	500 ms	1 sec 500 ms	GET_UI_login-5
0.924	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.929	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.932	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.932	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.933	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.934	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.935	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.975	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.994	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.994	500 ms	1 sec 500 ms	GET_UI_login-3
0.994	500 ms	1 sec 500 ms	GET_UI_login-2
0.994	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.994	500 ms	1 sec 500 ms	GET_UI_dashboard-2
0.997	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.999	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**34090**	**69**	**0.20%**	**363.41**	**2**	**16120**	**80.00**	**1074.90**	**1931.90**	**9150.88**	**192.58**	**80522.75**	**106.69**
GET_GATEWAY_UserApi_sessionInfo	1260	0	0.00%	179.41	11	2661	128.00	350.90	483.00	895.39	7.15	479.03	3.51
GET_GATEWAY_WeatherApi_plot	1258	0	0.00%	73.63	6	1438	46.00	151.10	254.10	428.51	7.14	527.19	3.40
GET_UI_dashboard	1285	0	0.00%	667.52	65	6872	188.00	2427.20	3833.60	5309.42	7.29	566.69	0.00
GET_UI_dashboard-0	1285	0	0.00%	199.39	2	3882	31.00	609.60	1266.90	2155.70	7.29	7.92	0.00
GET_UI_dashboard-1	1285	0	0.00%	185.48	3	3121	34.00	544.60	1124.70	2003.90	7.29	1.46	0.00
GET_UI_dashboard-2	1285	0	0.00%	99.02	58	1098	78.00	115.40	189.40	573.28	7.29	53.10	0.00
GET_UI_dashboard-3	1285	0	0.00%	97.12	57	1105	78.00	113.40	183.50	567.98	7.29	10.32	0.00
GET_UI_dashboard-4	1285	0	0.00%	186.32	3	3135	34.00	534.40	1135.10	1983.26	7.29	1.47	0.00
GET_UI_dashboard-5	1285	0	0.00%	191.55	3	3871	36.00	553.60	1125.20	2048.50	7.29	1.47	0.00
GET_UI_dashboard-6	1285	0	0.00%	193.34	4	3145	39.00	558.40	1177.80	1938.72	7.29	1.47	0.00
GET_UI_dashboard-7	1285	0	0.00%	201.76	3	3932	40.00	593.20	1127.30	2140.44	7.29	1.47	0.00
GET_UI_dashboard-8	1285	0	0.00%	283.83	11	6576	75.00	766.40	1293.50	4533.30	7.29	486.77	0.00
GET_UI_dashboard-9	1285	0	0.00%	212.00	2	3900	48.00	606.60	1230.50	2131.98	7.29	1.47	0.00
GET_UI_login	1356	34	2.51%	2265.35	110	16120	684.50	8936.70	10451.10	12813.87	7.66	39193.94	45.29
GET_UI_login-0	1356	0	0.00%	232.11	2	5217	38.00	700.80	1315.15	2410.19	7.67	8.32	4.46
GET_UI_login-1	1356	0	0.00%	224.62	3	10657	39.00	636.60	1282.10	2198.58	7.67	9.02	4.51
GET_UI_login-2	1356	0	0.00%	99.02	58	1142	77.50	120.30	203.15	555.05	7.67	55.94	4.83
GET_UI_login-3	1356	0	0.00%	98.48	60	1096	77.00	118.30	203.15	575.29	7.67	10.94	4.67
GET_UI_login-4	1356	0	0.00%	251.33	4	10903	52.00	756.30	1331.55	2478.01	7.67	601.22	4.50
GET_UI_login-5	1356	0	0.00%	223.50	3	8511	42.00	628.30	1269.45	2633.30	7.67	54.71	4.50
GET_UI_login-6	1356	0	0.00%	340.27	12	10773	84.00	1136.20	1508.30	2840.01	7.67	2603.71	4.52
GET_UI_login-7	1356	0	0.00%	357.34	7	9098	76.00	985.20	1575.60	4671.34	7.67	1630.50	4.50
GET_UI_login-8	1356	33	2.43%	1961.30	79	15728	579.00	7720.20	9088.45	11179.08	7.67	33669.89	4.38
GET_UI_login-9	1356	2	0.15%	350.55	4	11617	69.00	937.30	1624.00	5801.83	7.67	590.45	4.47
POST_GATEWAY_UserApi_userQuery	1265	0	0.00%	78.36	7	1244	46.00	175.40	292.50	531.04	7.18	1.75	4.18
POST_GATEWAY_WeatherApi_queryStatus	1256	0	0.00%	41.89	2	621	20.00	90.30	206.00	354.43	7.14	3.53	5.12

Total Transactions Per Second



Transaction-failure Transaction-success

Top 5 Errors by sampler

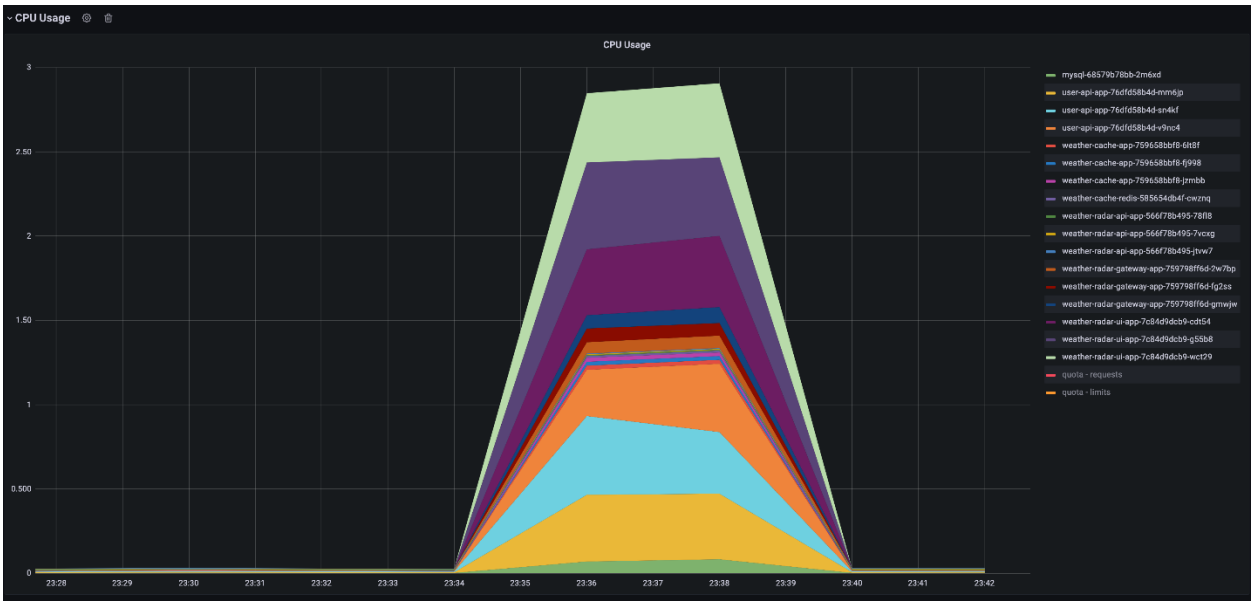
Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	**34090**	**69**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed**	**34**	**Assertion failed**	**34**	**Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down**	**1**				
GET_UI_login	1356	34	Assertion failed	34								
GET_UI_login-8	1356	33	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	32	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	1						
GET_UI_login-9	1356	2	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	2								

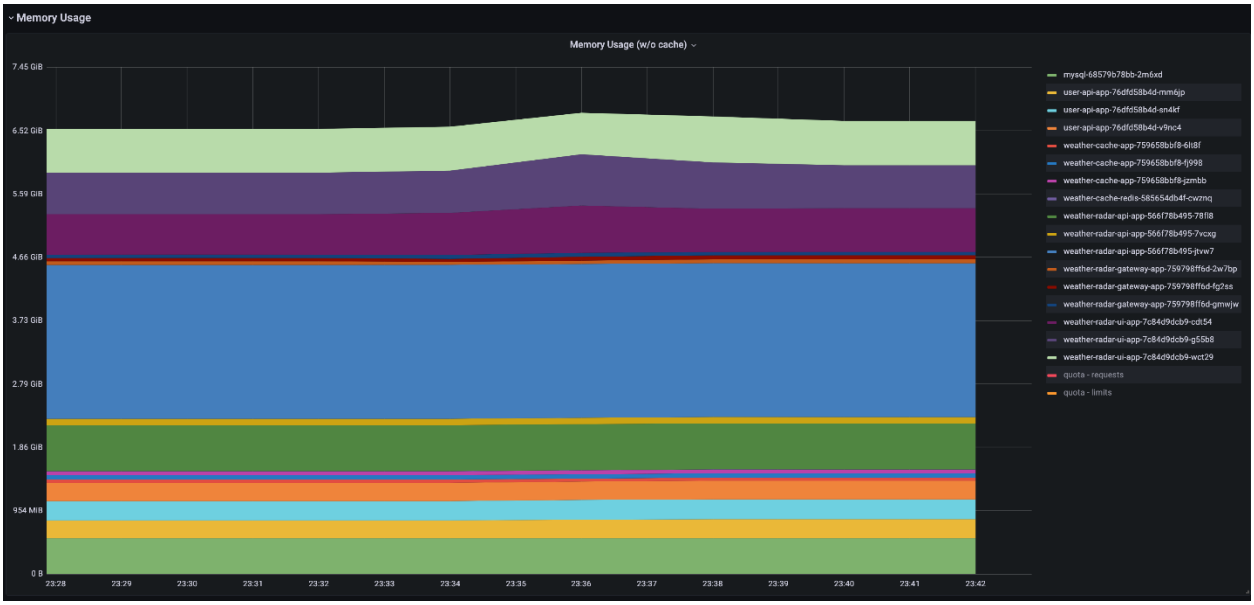
Resources used on zero load (0 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	2m	535Mi
user-api-app-76dfd58b4d-mm6jp	4m	268Mi
user-api-app-76dfd58b4d-sn4kf	4m	291Mi
user-api-app-76dfd58b4d-v9nc4	4m	274Mi
weather-cache-app-759658bbf8-6lt8f	0m	49Mi
weather-cache-app-759658bbf8-fj998	0m	64Mi
weather-cache-app-759658bbf8-jzmbb	0m	56Mi
weather-cache-redis-585654db4f-cwznq	4m	4Mi
weather-radar-api-app-566f78b495-78fl8	3m	691Mi
weather-radar-api-app-566f78b495-7vcxg	4m	95Mi
weather-radar-api-app-566f78b495-jtvw7	4m	2316Mi
weather-radar-gateway-app-759798ff6d-2w7bp	0m	55Mi
weather-radar-gateway-app-759798ff6d-fg2ss	0m	48Mi
weather-radar-gateway-app-759798ff6d-gmwjw	0m	50Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	1m	608Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	1m	626Mi
weather-radar-ui-app-7c84d9dcb9-wct29	1m	658Mi

Resources used on spike load (90 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	84m	535Mi
user-api-app-76dfd58b4d-mm6jp	328m	283Mi
user-api-app-76dfd58b4d-sn4kf	287m	299Mi
user-api-app-76dfd58b4d-v9nc4	474m	277Mi
weather-cache-app-759658bbf8-6lt8f	21m	44Mi
weather-cache-app-759658bbf8-fj998	21m	65Mi
weather-cache-app-759658bbf8-jzmbb	29m	55Mi
weather-cache-redis-585654db4f-cwznq	12m	4Mi
weather-radar-api-app-566f78b495-78fl8	6m	691Mi
weather-radar-api-app-566f78b495-7vcxg	6m	95Mi
weather-radar-api-app-566f78b495-jtvw7	6m	2316Mi
weather-radar-gateway-app-759798ff6d-2w7bp	57m	52Mi
weather-radar-gateway-app-759798ff6d-fg2ss	94m	42Mi
weather-radar-gateway-app-759798ff6d-gmwjw	65m	54Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	401m	738Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	459m	695Mi
weather-radar-ui-app-7c84d9dcb9-wct29	422m	774Mi


CPU Usage
CPU Usage
3
2.50
2
1.50
1
0.500
0
23:28
23:29
23:30
23:31
23:32
23:33
23:34
23:35
23:36
23:37
23:38
23:39
23:40
23:41
23:42
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-7vcxg
weather-radar-api-app-566f78b495-jtvw7
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-ui-app-7c84d9dcb9-cdt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits

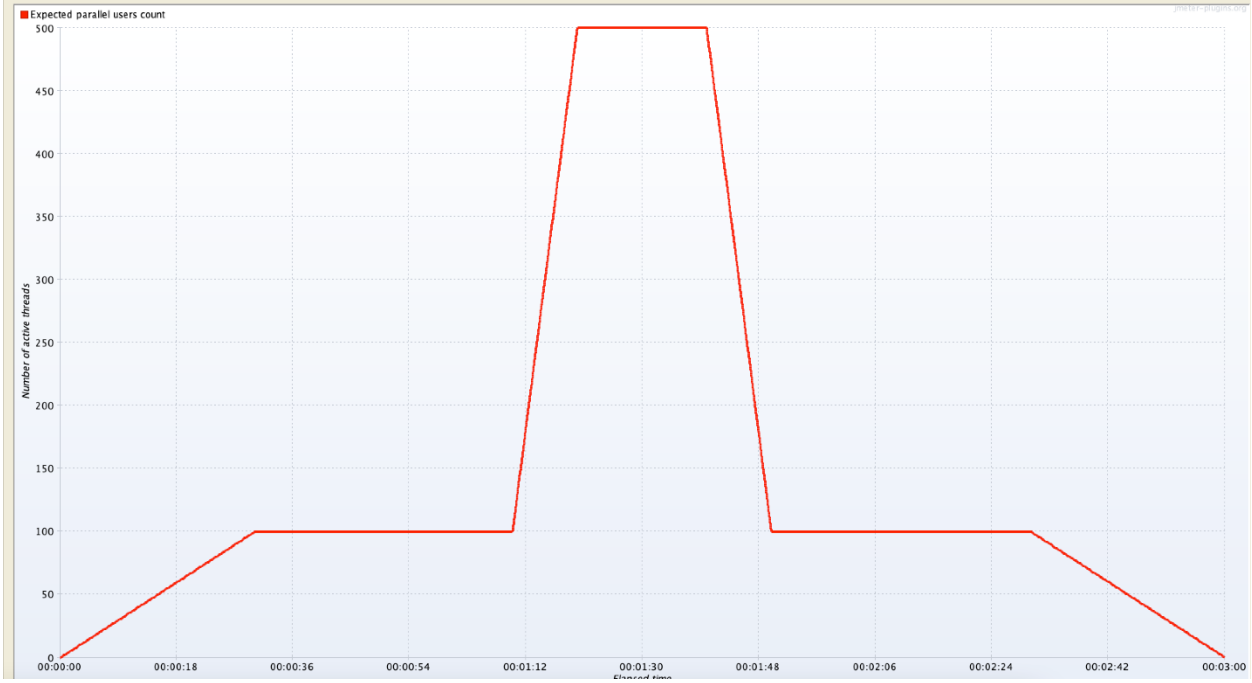

Memory Usage
Memory Usage (w/o cache)
7.45 GiB
6.52 GiB
5.59 GiB
4.66 GiB
3.73 GiB
2.79 GiB
1.86 GiB
954 MiB
0 B
23:28
23:29
23:30
23:31
23:32
23:33
23:34
23:35
23:36
23:37
23:38
23:39
23:40
23:41
23:42
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-7vcxg
weather-radar-api-app-566f78b495-jtvw7
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-ui-app-7c84d9dcb9-cdt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits

Test Plan: 100 Threads - 400 Spike - 3 Instance

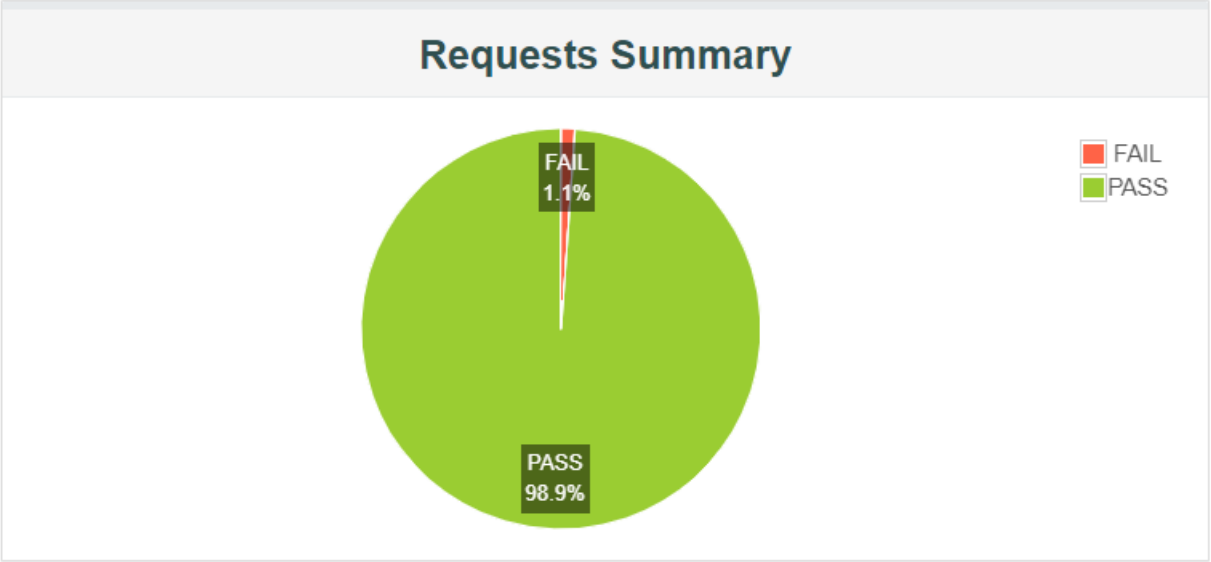
Threads Schedule

Start Threads Count	Initial Delay, sec	Startup Time, sec	Hold Load For, sec	Shutdown Time
100	0	30	120	30
400	70	10	20	10

Add Row | Copy Row | Delete Row



Test Report:



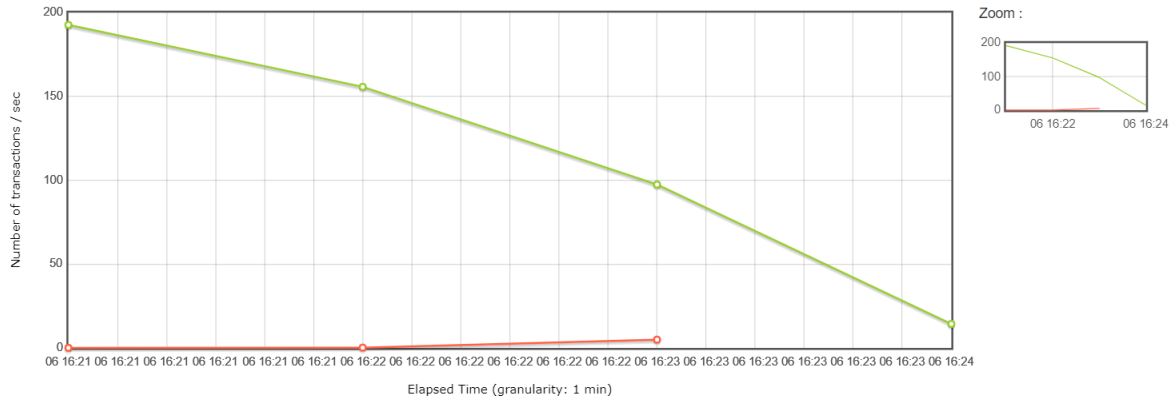
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.587	**500 ms**	**1 sec 500 ms**	**Total**
0.036	500 ms	1 sec 500 ms	GET_UI_login
0.048	500 ms	1 sec 500 ms	GET_UI_login-8
0.267	500 ms	1 sec 500 ms	GET_UI_dashboard
0.353	500 ms	1 sec 500 ms	GET_UI_login-7
0.354	500 ms	1 sec 500 ms	GET_UI_login-6
0.425	500 ms	1 sec 500 ms	GET_UI_login-9
0.462	500 ms	1 sec 500 ms	GET_UI_login-4
0.487	500 ms	1 sec 500 ms	GET_UI_login-5
0.502	500 ms	1 sec 500 ms	GET_UI_login-1
0.502	500 ms	1 sec 500 ms	GET_UI_login-0
0.601	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.609	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.656	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.656	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.660	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.662	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.665	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.665	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.667	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.917	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.919	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.929	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus
0.979	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.979	500 ms	1 sec 500 ms	GET_UI_dashboard-2
0.983	500 ms	1 sec 500 ms	GET_UI_login-3
0.983	500 ms	1 sec 500 ms	GET_UI_login-2

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**27920**	**308**	**1.10%**	**4097.82**	**1**	**81780**	**822.00**	**13159.60**	**27681.85**	**68508.72**	**155.46**	**73501.63**	**96.98**
GET_GATEWAY_UserApi_sessionInfo	843	0	0.00%	1066.35	55	12524	657.00	1991.00	3156.80	9624.68	4.72	845.19	2.31
GET_GATEWAY_WeatherApi_plot	832	0	0.00%	312.44	14	4522	189.00	699.90	1176.95	2375.40	4.67	344.82	2.22
GET_UI_dashboard	909	0	0.00%	4606.94	80	36529	1721.00	17579.00	24111.50	33835.00	5.09	1271.66	0.00
GET_UI_dashboard-0	909	0	0.00%	1401.77	4	18590	497.00	3218.00	7147.00	15580.70	5.09	5.53	0.00
GET_UI_dashboard-1	909	0	0.00%	1446.91	8	19745	481.00	2848.00	8768.00	15411.70	5.09	1.02	0.00
GET_UI_dashboard-2	909	0	0.00%	136.56	61	1937	83.00	264.00	431.50	794.70	5.09	37.06	0.00
GET_UI_dashboard-3	909	0	0.00%	136.35	60	2319	83.00	262.00	428.50	784.90	5.09	7.20	0.00
GET_UI_dashboard-4	909	0	0.00%	1405.10	6	19227	475.00	2821.00	8199.50	15381.40	5.09	1.03	0.00
GET_UI_dashboard-5	909	0	0.00%	1401.36	5	18837	481.00	2989.00	8482.50	15461.30	5.09	1.02	0.00
GET_UI_dashboard-6	909	0	0.00%	1426.15	6	19860	512.00	2804.00	8625.50	15620.00	5.09	1.03	0.00
GET_UI_dashboard-7	909	0	0.00%	1435.19	6	19740	497.00	2830.00	8061.50	15382.00	5.09	4.60	0.00
GET_UI_dashboard-8	909	0	0.00%	2157.86	18	34098	585.00	7296.00	10839.50	19177.10	5.09	1210.66	0.00
GET_UI_dashboard-9	909	0	0.00%	1455.89	7	19694	515.00	3431.00	8821.00	15628.10	5.09	3.18	0.00
GET_UI_login	1325	152	11.47%	25214.40	201	81780	9075.00	69206.20	72755.20	79372.86	7.38	34920.13	43.25
GET_UI_login-0	1325	0	0.00%	2063.47	4	30021	919.00	6691.20	8139.30	12844.36	7.39	8.03	4.30
GET_UI_login-1	1325	0	0.00%	3019.06	6	21102	943.00	10752.60	13625.90	15789.40	7.40	8.70	4.35
GET_UI_login-2	1325	0	0.00%	150.14	60	1305	93.00	293.40	407.60	802.00	7.39	53.93	4.66
GET_UI_login-3	1325	1	0.08%	149.39	1	1284	93.00	279.40	396.10	805.48	7.39	10.55	4.49
GET_UI_login-4	1325	0	0.00%	3365.22	7	31739	1060.00	11512.80	14247.80	17122.56	7.39	579.57	4.34
GET_UI_login-5	1325	0	0.00%	3178.78	6	25937	1034.00	11100.00	13953.70	17429.62	7.39	52.74	4.34
GET_UI_login-6	1325	0	0.00%	4269.17	20	38302	1386.00	13099.80	16923.40	23558.70	7.39	2510.23	4.35
GET_UI_login-7	1325	3	0.23%	4757.35	15	70299	1455.00	13979.60	18040.40	38554.90	7.39	1567.95	4.32
GET_UI_login-8	1325	146	11.02%	22816.23	15	79310	8020.00	63749.00	67451.30	74581.86	7.39	29586.09	3.85
GET_UI_login-9	1325	6	0.45%	4450.54	7	69228	1202.00	12205.40	16713.80	34101.28	7.39	567.28	4.30
POST_GATEWAY_UserApi_userQuery	846	0	0.00%	324.76	7	3469	184.00	598.90	1505.45	2959.16	4.74	1.15	2.76
POST_GATEWAY_WeatherApi_queryStatus	825	0	0.00%	261.50	5	3124	141.00	481.60	1236.20	2349.78	4.63	2.40	3.33

Total Transactions Per Second



Transaction-failure Transaction-success

Top 5 Errors by sampler

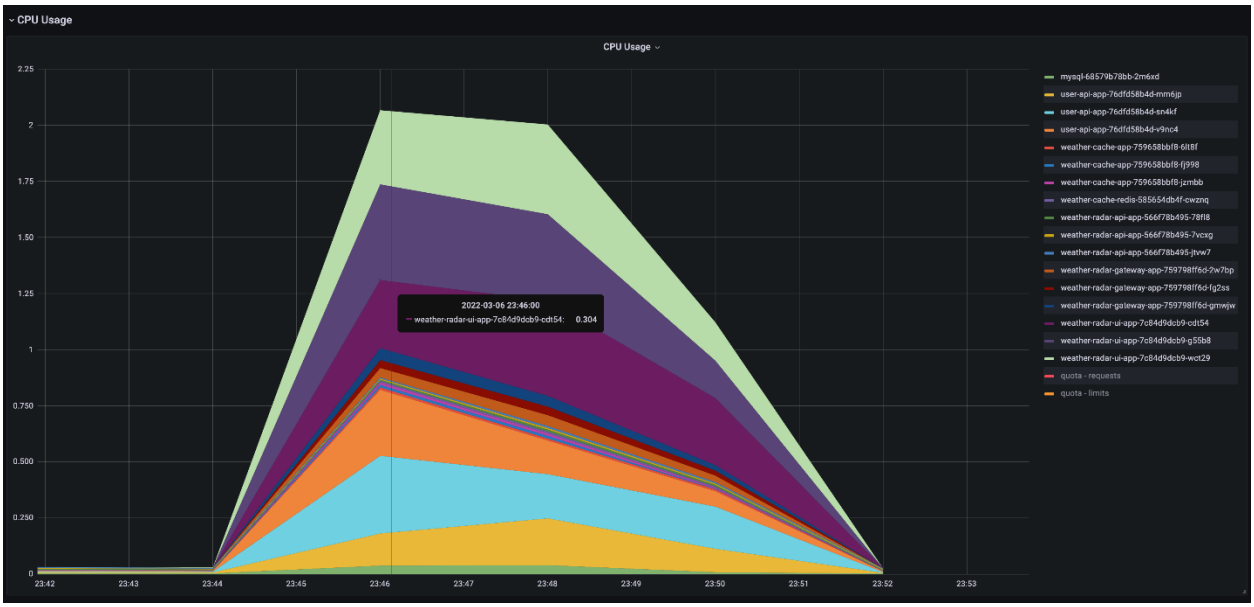
Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	**27920**	**308**	**Assertion failed**	**152**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed**	**144**	**Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down**	**11**	**Non HTTP response code: java.lang.NullPointerException/Non HTTP response message: Cannot read the array length because "addresses" is null**	**1**		
GET_UI_login	1325	152	Assertion failed	152								
GET_UI_login-3	1325	1	Non HTTP response code: java.lang.NullPointerException/Non HTTP response message: Cannot read the array length because "addresses" is null	1								
GET_UI_login-7	1325	3	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	2	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	1						
GET_UI_login-8	1325	146	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	143	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	3						
GET_UI_login-9	1325	6	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	6								

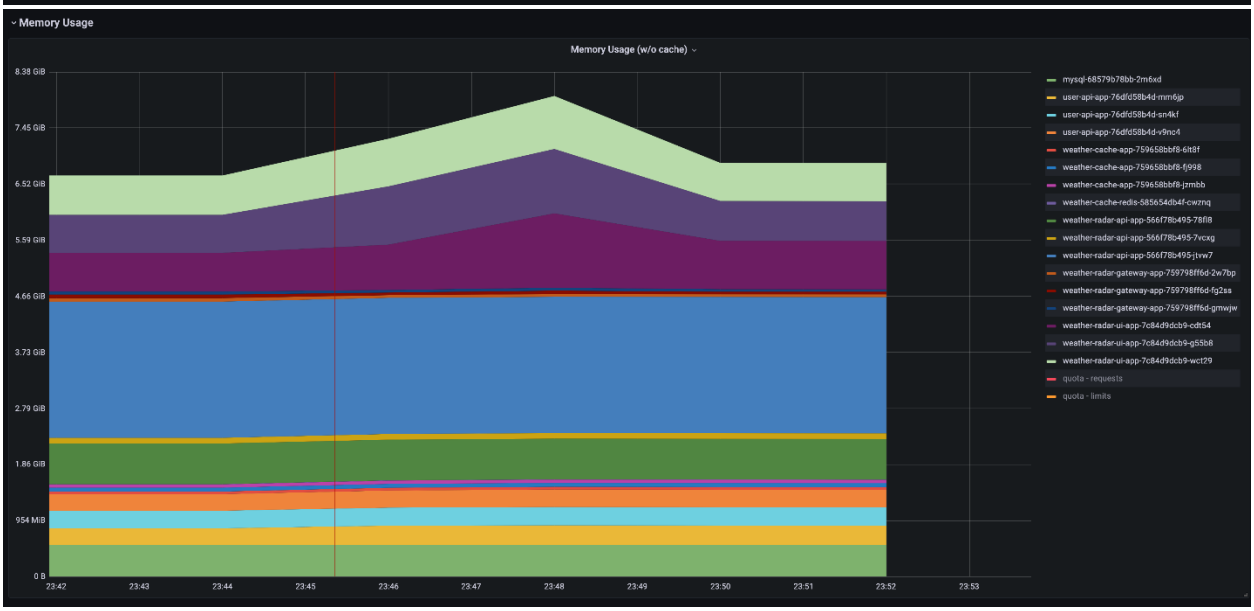
Resources used on zero load (0 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	2m	535Mi
user-api-app-76dfd58b4d-mm6jp	4m	268Mi
user-api-app-76dfd58b4d-sn4kf	4m	291Mi
user-api-app-76dfd58b4d-v9nc4	4m	274Mi
weather-cache-app-759658bbf8-6lt8f	0m	49Mi
weather-cache-app-759658bbf8-fj998	0m	64Mi
weather-cache-app-759658bbf8-jzmbb	0m	56Mi
weather-cache-redis-585654db4f-cwznq	4m	4Mi
weather-radar-api-app-566f78b495-78fl8	3m	691Mi
weather-radar-api-app-566f78b495-7vcxg	4m	95Mi
weather-radar-api-app-566f78b495-jtvw7	4m	2316Mi
weather-radar-gateway-app-759798ff6d-2w7bp	0m	55Mi
weather-radar-gateway-app-759798ff6d-fg2ss	0m	48Mi
weather-radar-gateway-app-759798ff6d-gmwjw	0m	50Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	1m	608Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	1m	626Mi
weather-radar-ui-app-7c84d9dcb9-wct29	1m	658Mi

Resources used on spike load (400 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	50m	535Mi
user-api-app-76dfd58b4d-mm6jp	251m	329Mi
user-api-app-76dfd58b4d-sn4kf	247m	310Mi
user-api-app-76dfd58b4d-v9nc4	272m	293Mi
weather-cache-app-759658bbf8-6lt8f	11m	45Mi
weather-cache-app-759658bbf8-fj998	14m	65Mi
weather-cache-app-759658bbf8-jzmbb	15m	55Mi
weather-cache-redis-585654db4f-cwznq	10m	4Mi
weather-radar-api-app-566f78b495-78fl8	8m	691Mi
weather-radar-api-app-566f78b495-7vcxg	7m	95Mi
weather-radar-api-app-566f78b495-jtvw7	9m	2316Mi
weather-radar-gateway-app-759798ff6d-2w7bp	84m	56Mi
weather-radar-gateway-app-759798ff6d-fg2ss	63m	44Mi
weather-radar-gateway-app-759798ff6d-gmwjw	42m	49Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	525m	953Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	450m	998Mi
weather-radar-ui-app-7c84d9dcb9-wct29	556m	839Mi


CPU Usage
CPU Usage
2.25
2
1.75
1.50
1.25
1
0.750
0.500
0.250
0
23:42
23:43
23:44
23:45
23:46
23:47
23:48
23:49
23:50
23:51
23:52
23:53
2022-03-06 23:46:00
weather-radar-ui-app-7c84d9dcb9-cdt54: 0.304
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-7vcxg
weather-radar-api-app-566f78b495-jtvw7
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-ui-app-7c84d9dcb9-cdt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits


Memory Usage
Memory Usage (w/o cache)
8.38 GiB
7.45 GiB
6.52 GiB
5.59 GiB
4.66 GiB
3.73 GiB
2.79 GiB
1.86 GiB
954 MiB
0 B
23:42
23:43
23:44
23:45
23:46
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user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-7vcxg
weather-radar-api-app-566f78b495-jtvw7
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-ui-app-7c84d9dcb9-cdt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits

Summary of 3 Instance:

No. of constant Level Threads	No. of Spike Threads	No. of Instances	Service Name	Spike %	Spike Duration	CPU(cores) on spike load	Average CPU(cores) on spike load	MEMORY(bytes) on spike load	Average MEMORY(bytes) on spike load	# Samples	Error %	Transactions/s
			mysql			84m		535Mi				
			mysql			84m		535Mi				
			mysql	900	20	84m	84m	535Mi	535Mi	1263	0.00000	7.17
			user-api-app			328m		283Mi				
			user-api-app			287m		299Mi				
			user-api-app	900	20	474m	363m	277Mi	286.33Mi	1263	0.00000	7.17
			weather-cache-app			21m		44Mi				
			weather-cache-app			21m		65Mi				
			weather-cache-app	900	20	29m	23.67m	55Mi	54.67Mi	1257	0.00000	7.14
			weather-cache-redis			12m		4Mi				
			weather-cache-redis			12m		4Mi				
10	90	3	weather-cache-redis	900	20	12m	12m	4Mi	4Mi	1257	0.00000	7.14
			weather-radar-api-app			6m		691Mi				
			weather-radar-api-app			6m		95Mi				
			weather-radar-api-app	900	20	6m	6m	2316Mi	1034Mi	1257	0.00000	7.14
			weather-radar-gateway-app			57m		52Mi				
			weather-radar-gateway-app			94m		42Mi				
			weather-radar-gateway-app	900	20	65m	72m	54Mi	49.33Mi	1259	0.00000	7
			weather-radar-ui-app			401m		738Mi				
			weather-radar-ui-app			459m		695Mi				
			weather-radar-ui-app	900	20	422m	427.33m	774Mi	735.67Mi	1321	0.00231	7.48
			mysql			50m		535Mi				
			mysql			50m		535Mi				
			mysql	400	20	50m	50m	535Mi	535Mi	844.5	0.00000	4.73
			user-api-app			251m		329Mi				
			user-api-app			247m		310Mi				
			user-api-app	400	20	272m	256.67m	293Mi	310.67Mi	844.5	0.00000	4.73
			weather-cache-app			11m		45Mi				
			weather-cache-app			14m		65Mi				
			weather-cache-app	400	20	15m	13.33m	55Mi	55Mi	828.5	0.00000	4.65
			weather-cache-redis			10m		4Mi				
			weather-cache-redis			10m		4Mi				
100	400	3	weather-cache-redis	400	20	10m	10m	4Mi	4Mi	828.5	0.00000	4.65
			weather-radar-api-app			8m		691Mi				
			weather-radar-api-app			7m		95Mi				
			weather-radar-api-app	400	20	9m	8m	2316Mi	1034Mi	828.5	0.00000	4.65
			weather-radar-gateway-app			84m		56Mi				
			weather-radar-gateway-app			63m		44Mi				
			weather-radar-gateway-app	400	20	42m	63m	49Mi	49.67Mi	834.9	0.00000	4.682
			weather-radar-ui-app			525m		953Mi				
			weather-radar-ui-app			450m		998Mi				
			weather-radar-ui-app	400	20	556m	510.33m	839Mi	930Mi	1117	0.01057	6.24

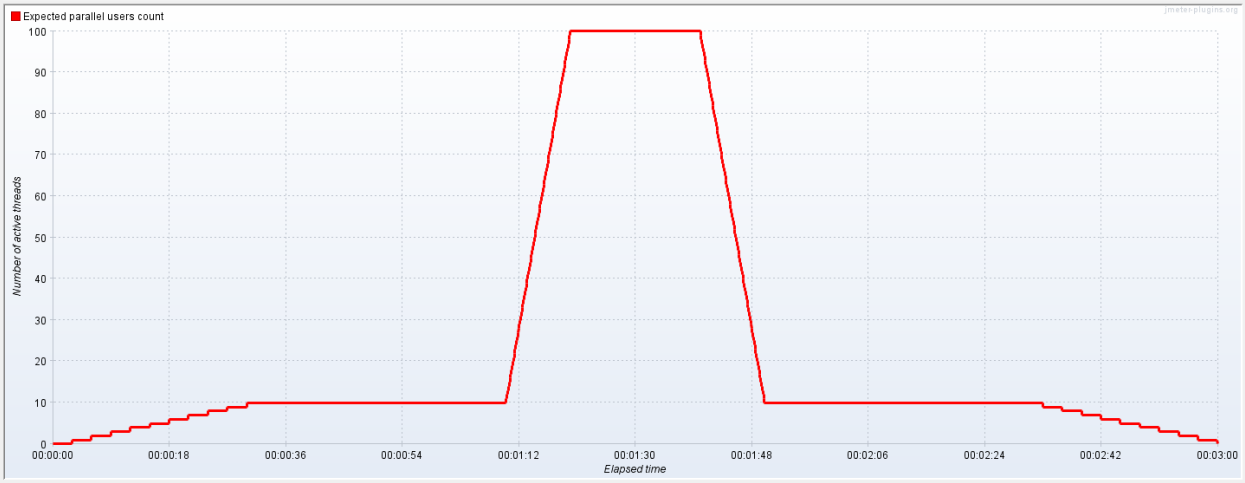
No. of Instance: 5

Test Plan: 10 Threads - 90 Spike - 5 Instance

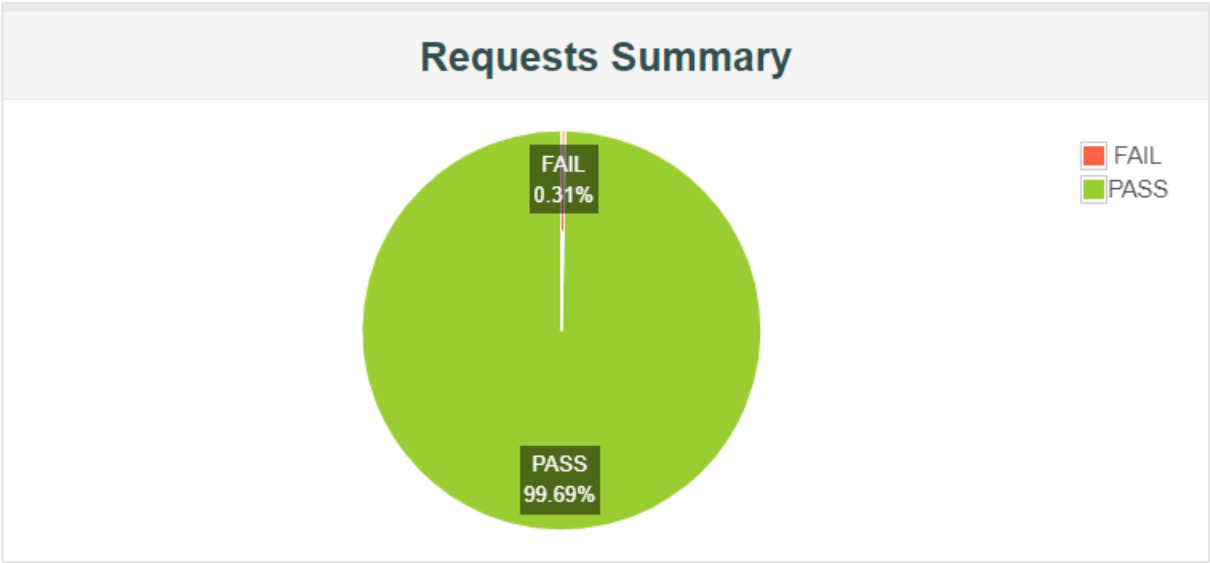
Threads Schedule

Start Threads Count	Initial Delay, sec	Startup Time, sec	Hold Load For, sec	Shutdown Time
10	0	30	120	30
90	70	10	20	10

Add Row | Copy Row | Delete Row



Test Report:



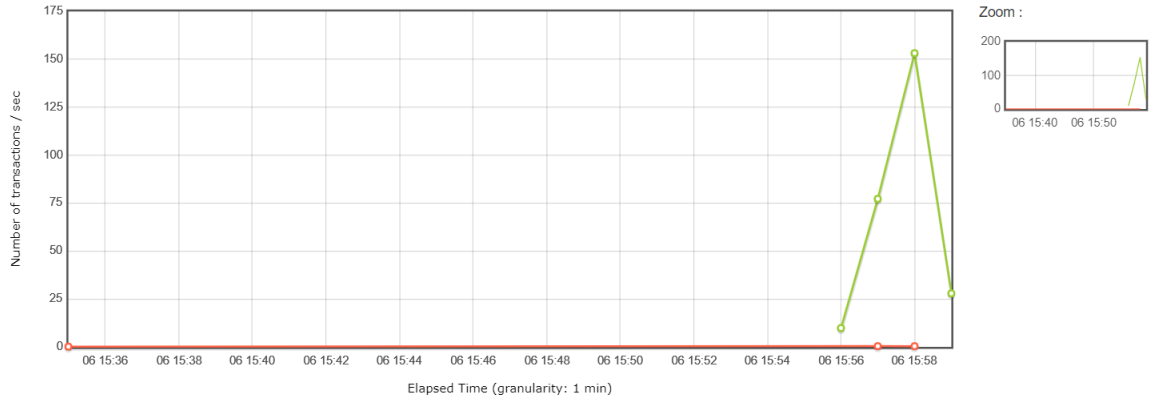
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.814	**500 ms**	**1 sec 500 ms**	**Total**
0.422	500 ms	1 sec 500 ms	GET_UI_login
0.520	500 ms	1 sec 500 ms	GET_UI_login-8
0.630	500 ms	1 sec 500 ms	GET_UI_dashboard
0.772	500 ms	1 sec 500 ms	GET_UI_login-6
0.772	500 ms	1 sec 500 ms	GET_UI_login-0
0.778	500 ms	1 sec 500 ms	GET_UI_login-1
0.779	500 ms	1 sec 500 ms	GET_UI_login-4
0.785	500 ms	1 sec 500 ms	GET_UI_login-7
0.790	500 ms	1 sec 500 ms	GET_UI_login-5
0.795	500 ms	1 sec 500 ms	GET_UI_login-9
0.827	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.834	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.835	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.835	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.839	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.844	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.855	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.860	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.906	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.909	500 ms	1 sec 500 ms	GET_UI_dashboard-2
0.912	500 ms	1 sec 500 ms	GET_UI_login-2
0.914	500 ms	1 sec 500 ms	GET_UI_login-3
0.914	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.962	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.978	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.997	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**16144**	**50**	**0.31%**	**887.04**	**2**	**51863**	**118.00**	**2430.00**	**4564.00**	**12539.90**	**10.76**	**4579.62**	**6.04**
GET_GATEWAY_UserApi_sessionInfo	571	0	0.00%	352.06	23	4221	245.00	713.00	1044.80	2184.76	3.27	100.84	1.60
GET_GATEWAY_WeatherApi_plot	563	0	0.00%	132.96	6	2210	63.00	332.00	464.20	956.52	3.23	238.08	1.53
GET_UI_dashboard	602	0	0.00%	1961.49	66	20603	411.00	6555.30	9291.60	14125.64	3.44	244.68	0.00
GET_UI_dashboard-0	602	0	0.00%	500.51	3	10048	38.00	1462.20	2825.25	8127.27	3.44	3.74	0.00
GET_UI_dashboard-1	602	0	0.00%	574.54	3	9888	40.50	2076.40	3320.90	7048.46	3.44	0.69	0.00
GET_UI_dashboard-2	602	0	0.00%	313.80	61	1495	231.50	703.30	881.70	1403.00	3.44	25.06	0.00
GET_UI_dashboard-3	602	0	0.00%	303.58	58	1577	220.00	637.70	850.25	1385.79	3.44	4.87	0.00
GET_UI_dashboard-4	602	0	0.00%	577.32	3	9645	41.50	2150.20	3580.35	7677.88	3.44	0.70	0.00
GET_UI_dashboard-5	602	0	0.00%	555.27	3	9636	36.00	2034.80	3410.85	7719.89	3.44	0.69	0.00
GET_UI_dashboard-6	602	0	0.00%	578.25	3	9540	46.00	2095.10	3362.65	6997.92	3.44	0.70	0.00
GET_UI_dashboard-7	602	0	0.00%	576.90	4	9173	40.50	2173.10	3520.75	6870.82	3.44	0.70	0.00
GET_UI_dashboard-8	602	0	0.00%	621.42	11	9658	92.00	2009.80	3711.05	7660.21	3.44	206.53	0.00
GET_UI_dashboard-9	602	0	0.00%	609.81	2	16563	45.00	2124.10	3913.30	7096.12	3.44	1.14	0.00
GET_UI_login	666	27	4.05%	4858.61	105	51863	856.00	15853.20	21166.90	51808.32	0.44	2241.52	2.59
GET_UI_login-0	659	0	0.00%	760.72	2	9049	48.00	2931.00	3966.00	6551.20	3.73	4.05	2.17
GET_UI_login-1	659	0	0.00%	773.35	3	10667	45.00	2907.00	4089.00	6994.80	3.73	4.39	2.19
GET_UI_login-2	659	0	0.00%	304.57	58	1796	217.00	661.00	831.00	1076.40	3.73	27.21	2.35
GET_UI_login-3	659	0	0.00%	301.74	57	1796	218.00	666.00	842.00	1052.20	3.73	5.32	2.27
GET_UI_login-4	659	0	0.00%	859.43	3	10234	58.00	3486.00	4734.00	7276.40	3.73	292.41	2.19
GET_UI_login-5	659	0	0.00%	768.04	3	11108	44.00	2854.00	4557.00	6992.60	3.73	26.61	2.19
GET_UI_login-6	659	0	0.00%	941.89	11	13684	101.00	3417.00	5171.00	9655.00	3.73	1266.41	2.20
GET_UI_login-7	659	3	0.46%	894.66	7	11816	84.00	3127.00	4893.00	9899.20	3.73	789.32	2.18
GET_UI_login-8	659	18	2.73%	3170.45	90	31288	669.00	11249.00	17198.00	26664.80	3.73	16326.44	2.13
GET_UI_login-9	659	2	0.30%	883.42	3	12184	69.00	3195.00	5550.00	8913.00	3.73	286.73	2.17
POST_GATEWAY_UserApi_userQuery	573	0	0.00%	178.11	7	4119	85.00	389.00	570.00	1688.94	3.28	0.80	1.91
POST_GATEWAY_WeatherApi_queryStatus	559	0	0.00%	42.41	2	712	24.00	90.00	151.00	346.60	3.21	1.57	2.30

Total Transactions Per Second



Top 5 Errors by sampler

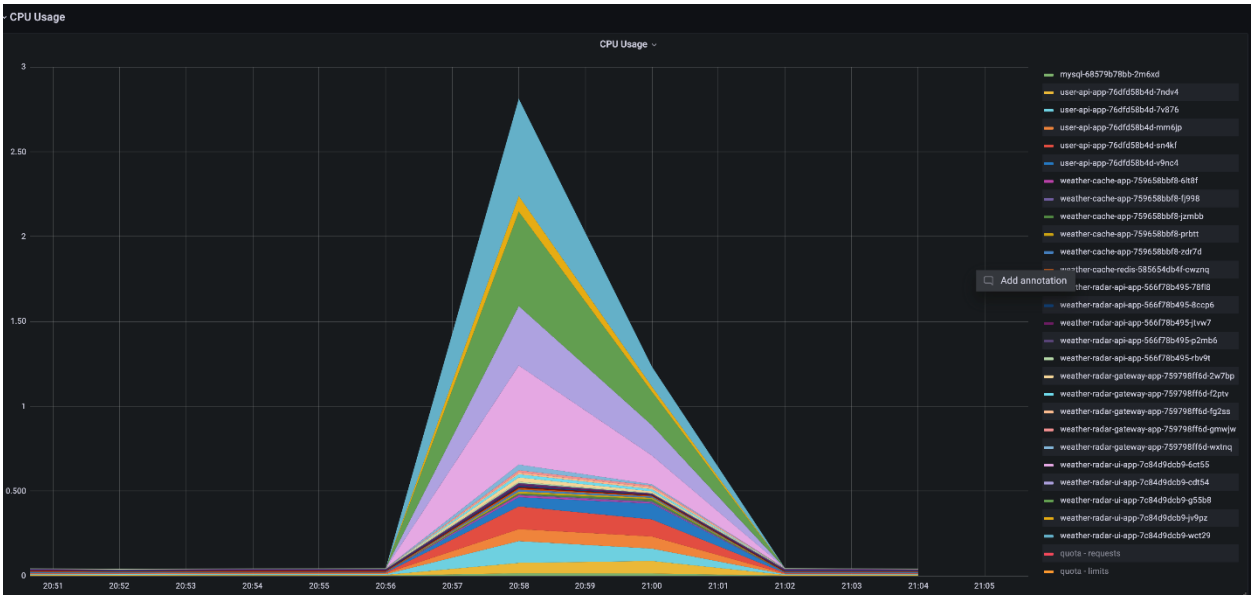
Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	**16144**	**50**	**Assertion failed**	**20**	**Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed**	**13**	**Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down**	**10**	**Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out**	**7**		
GET_UI_login	666	27	Assertion failed	20	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	7						
GET_UI_login-7	659	3	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	3								
GET_UI_login-8	659	18	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	13	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	5						
GET_UI_login-9	659	2	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	2								

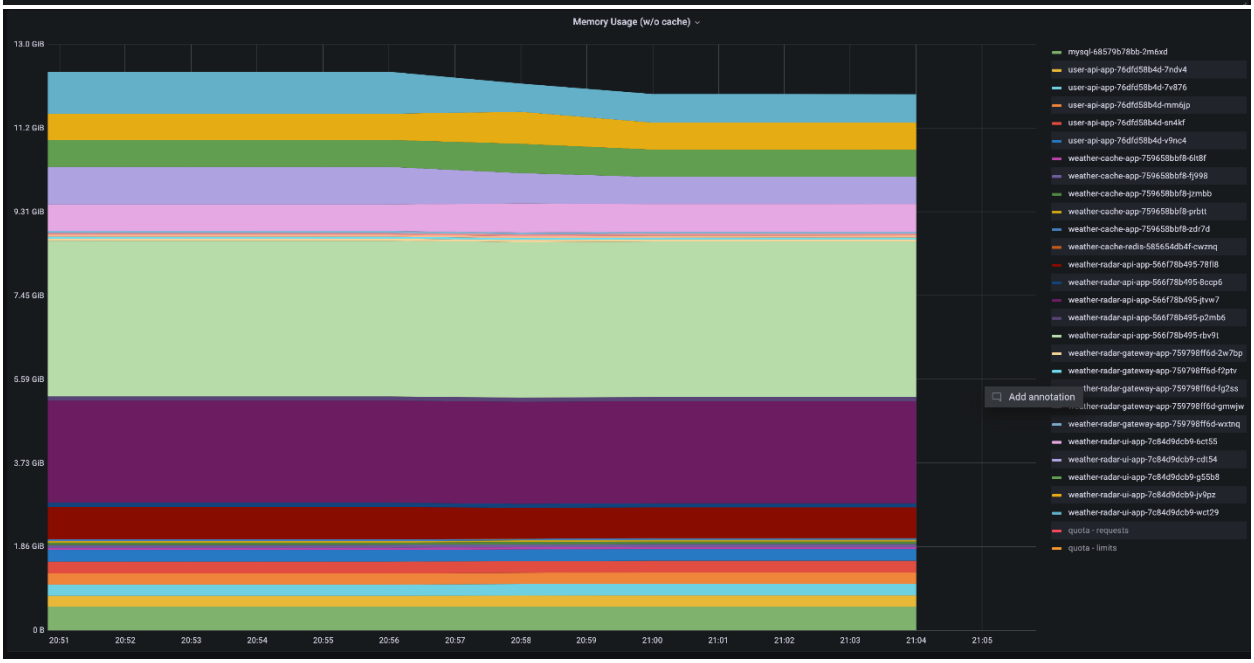
Resources used on zero load (0 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	2m	530Mi
user-api-app-76dfd58b4d-7ndv4	6m	251Mi
user-api-app-76dfd58b4d-7v876	3m	253Mi
user-api-app-76dfd58b4d-mm6jp	4m	254Mi
user-api-app-76dfd58b4d-sn4kf	4m	263Mi
user-api-app-76dfd58b4d-v9nc4	4m	265Mi
weather-cache-app-759658bbf8-6lt8f	0m	48Mi
weather-cache-app-759658bbf8-fj998	0m	64Mi
weather-cache-app-759658bbf8-jzmbb	0m	52Mi
weather-cache-app-759658bbf8-prbtt	0m	36Mi
weather-cache-app-759658bbf8-zdr7d	0m	36Mi
weather-cache-redis-585654db4f-cwznq	3m	2Mi
weather-radar-api-app-566f78b495-78fl8	3m	923Mi
weather-radar-api-app-566f78b495-8ccp6	4m	96Mi
weather-radar-api-app-566f78b495-jtvw7	3m	937Mi
weather-radar-api-app-566f78b495-p2mb6	4m	96Mi
weather-radar-api-app-566f78b495-rbv9t	5m	1310Mi
weather-radar-gateway-app-759798ff6d-2w7bp	0m	45Mi
weather-radar-gateway-app-759798ff6d-f2ptv	0m	39Mi
weather-radar-gateway-app-759798ff6d-fg2ss	0m	40Mi
weather-radar-gateway-app-759798ff6d-gmwjw	0m	41Mi
weather-radar-gateway-app-759798ff6d-wxtnq	0m	42Mi
weather-radar-ui-app-7c84d9dcb9-6ct55	1m	589Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	1m	833Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	1m	599Mi
weather-radar-ui-app-7c84d9dcb9-jv9pz	1m	586Mi
weather-radar-ui-app-7c84d9dcb9-wct29	1m	945Mi

Resources used on spike load (90 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	63m	535Mi
user-api-app-76dfd58b4d-f7lt5	128m	275Mi
user-api-app-76dfd58b4d-mm6jp	163m	270Mi
user-api-app-76dfd58b4d-sn4kf	140m	275Mi
user-api-app-76dfd58b4d-v9nc4	130m	271Mi
user-api-app-76dfd58b4d-w9hdj	264m	277Mi
weather-cache-app-759658bbf8-6lt8f	22m	50Mi
weather-cache-app-759658bbf8-744lc	19m	39Mi
weather-cache-app-759658bbf8-fdsm2	20m	39Mi
weather-cache-app-759658bbf8-fj998	19m	64Mi
weather-cache-app-759658bbf8-jzmbb	19m	56Mi
weather-cache-redis-585654db4f-cwznq	14m	4Mi
weather-radar-api-app-566f78b495-78fl8	5m	691Mi
weather-radar-api-app-566f78b495-7vcxg	8m	95Mi
weather-radar-api-app-566f78b495-cvss9	6m	95Mi
weather-radar-api-app-566f78b495-jtvw7	6m	2316Mi
weather-radar-api-app-566f78b495-rbv9t	6m	117Mi
weather-radar-gateway-app-759798ff6d-2w7bp	58m	47Mi
weather-radar-gateway-app-759798ff6d-fg2ss	52m	42Mi
weather-radar-gateway-app-759798ff6d-gmwjw	56m	48Mi
weather-radar-gateway-app-759798ff6d-w9c7d	61m	51Mi
weather-radar-gateway-app-759798ff6d-wfn79	56m	51Mi
weather-radar-ui-app-7c84d9dcb9-68wf6	291m	699Mi
weather-radar-ui-app-7c84d9dcb9-6mzj9	327m	705Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	318m	708Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	342m	773Mi
weather-radar-ui-app-7c84d9dcb9-wct29	348m	645Mi


CPU Usage
CPU Usage
3
2.50
2
1.50
1
0.500
0
20:51
20:52
20:53
20:54
20:55
20:56
20:57
20:58
20:59
21:00
21:01
21:02
21:03
21:04
21:05
Add annotation
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-7ndv4
user-api-app-76dfd58b4d-7v876
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-app-759658bbf8-prbtt
weather-cache-app-759658bbf8-zdr7d
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-8ccp6
weather-radar-api-app-566f78b495-jtvw7
weather-radar-api-app-566f78b495-p2mb6
weather-radar-api-app-566f78b495-rbv9t
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-f2ptv
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-gateway-app-759798ff6d-wxtnq
weather-radar-ui-app-7c84d9dcb9-6ct55
weather-radar-ui-app-7c84d9dcb9-cdl54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-jv9pz
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits

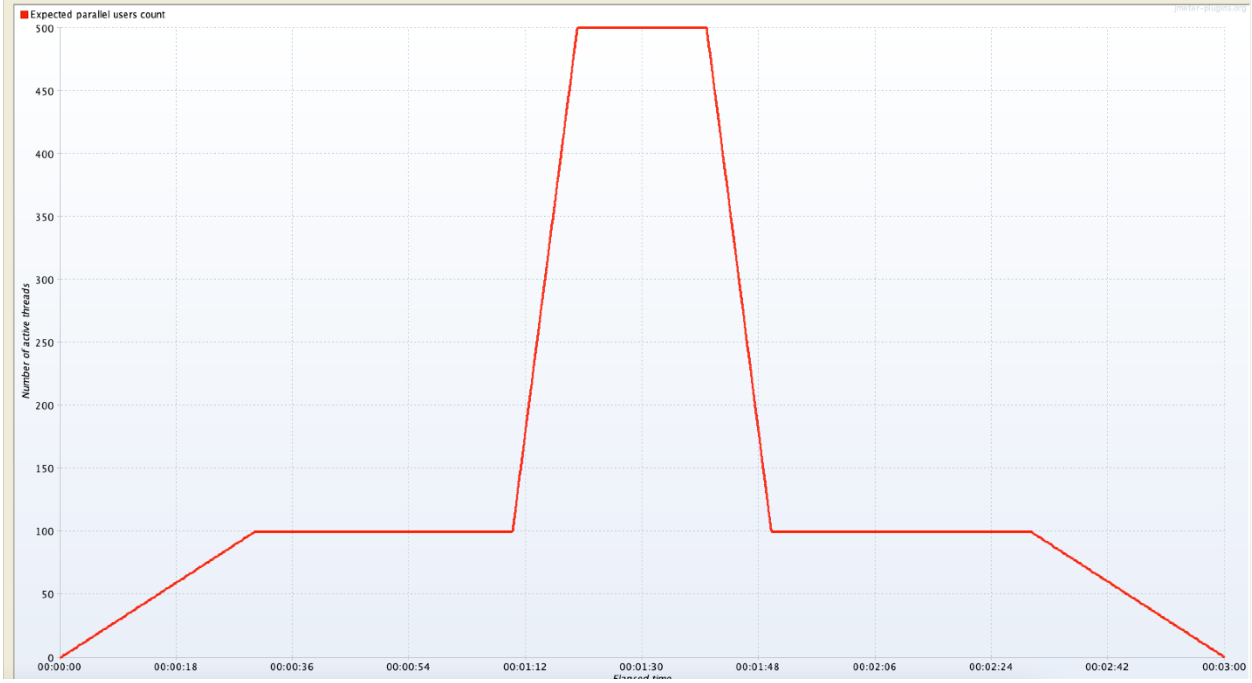

Memory Usage (w/o cache)
13.0 GiB
11.2 GiB
9.31 GiB
7.45 GiB
5.59 GiB
3.73 GiB
1.86 GiB
0 B
20:51
20:52
20:53
20:54
20:55
20:56
20:57
20:58
20:59
21:00
21:01
21:02
21:03
21:04
21:05
Add annotation
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-7ndv4
user-api-app-76dfd58b4d-7v876
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-app-759658bbf8-prbtt
weather-cache-app-759658bbf8-zdr7d
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-8ccp6
weather-radar-api-app-566f78b495-jtvw7
weather-radar-api-app-566f78b495-p2mb6
weather-radar-api-app-566f78b495-rbv9t
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-f2ptv
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-gateway-app-759798ff6d-wxtnq
weather-radar-ui-app-7c84d9dcb9-6ct55
weather-radar-ui-app-7c84d9dcb9-cdl54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-jv9pz
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits

Test Plan: 100 Threads - 400 Spike - 5 Instance

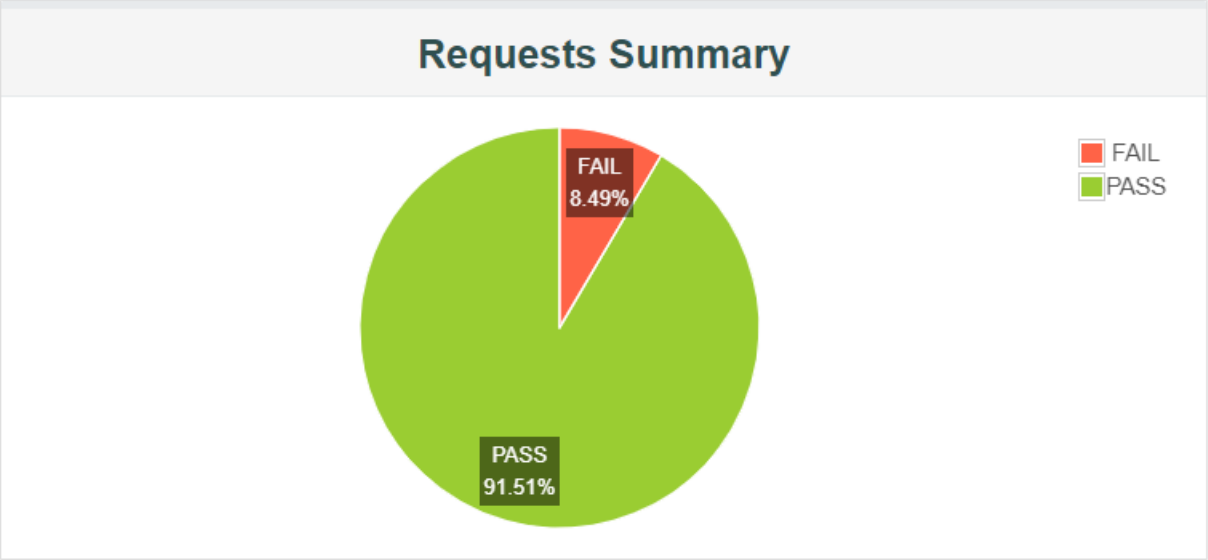
Threads Schedule

Start Threads Count	Initial Delay, sec	Startup Time, sec	Hold Load For, sec	Shutdown Time
100	0	30	120	30
400	70	10	20	10

Add Row | Copy Row | Delete Row



Test Report:



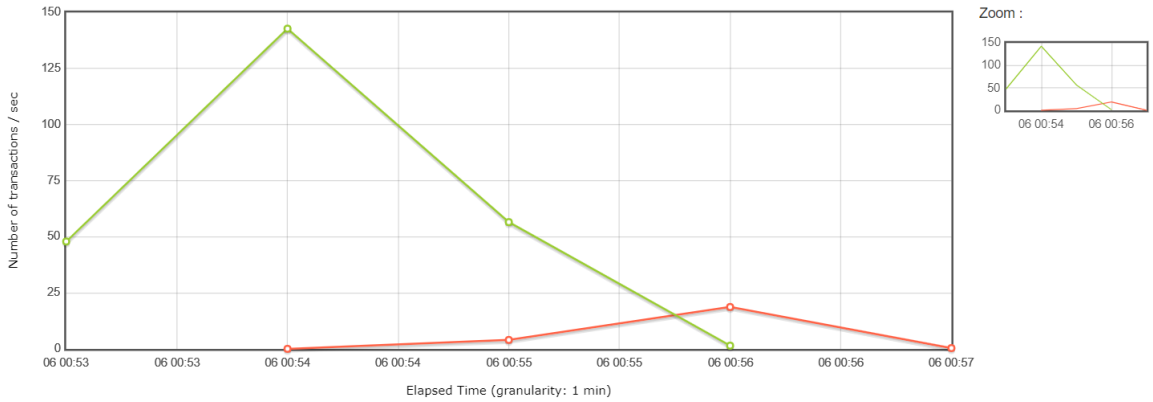
APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.451	**500 ms**	**1 sec 500 ms**	**Total**
0.026	500 ms	1 sec 500 ms	GET_UI_login
0.068	500 ms	1 sec 500 ms	GET_UI_dashboard
0.070	500 ms	1 sec 500 ms	GET_UI_login-8
0.214	500 ms	1 sec 500 ms	GET_UI_login-7
0.230	500 ms	1 sec 500 ms	GET_UI_login-6
0.249	500 ms	1 sec 500 ms	GET_UI_login-9
0.259	500 ms	1 sec 500 ms	GET_UI_login-4
0.268	500 ms	1 sec 500 ms	GET_UI_login-1
0.281	500 ms	1 sec 500 ms	GET_UI_login-5
0.303	500 ms	1 sec 500 ms	GET_UI_login-0
0.385	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.401	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.408	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.409	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.415	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.420	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.439	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.443	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.671	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.909	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.958	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.989	500 ms	1 sec 500 ms	GET_UI_dashboard-2
0.990	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.994	500 ms	1 sec 500 ms	GET_UI_login-3
0.994	500 ms	1 sec 500 ms	GET_UI_login-2
0.994	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**16306**	**1385**	**8.49%**	**9054.44**	**2**	**162016**	**1355.50**	**25914.00**	**51825.00**	**79379.53**	**68.50**	**33811.60**	**43.49**
GET_GATEWAY_UserApi_sessionInfo	462	0	0.00%	983.06	26	10414	492.50	2367.70	3371.25	9535.20	2.69	66.69	1.32
GET_GATEWAY_WeatherApi_plot	462	0	0.00%	234.75	7	4617	164.00	456.10	622.50	1320.69	2.69	198.73	1.28
GET_UI_dashboard	495	83	16.77%	11121.60	122	77862	5558.00	25921.80	46398.40	67174.04	2.71	54.07	0.00
GET_UI_dashboard-0	446	0	0.00%	2325.63	5	25966	1161.00	5122.80	10308.55	15500.21	3.88	4.22	0.00
GET_UI_dashboard-1	446	20	4.48%	3272.13	9	26251	1288.50	8550.50	15632.65	25939.95	3.17	0.89	0.00
GET_UI_dashboard-2	446	0	0.00%	141.06	71	1081	110.00	184.60	365.15	719.44	3.87	28.16	0.00
GET_UI_dashboard-3	446	0	0.00%	139.99	73	1081	107.00	189.30	358.95	810.26	3.87	5.47	0.00
GET_UI_dashboard-4	446	20	4.48%	3231.67	9	26281	1384.00	8574.90	12190.90	25931.95	3.17	0.90	0.00
GET_UI_dashboard-5	446	20	4.48%	3132.42	6	26261	1216.50	8243.40	12157.30	25947.00	3.17	0.89	0.00
GET_UI_dashboard-6	446	20	4.48%	3294.19	7	26275	1527.00	8259.10	16040.15	25936.60	3.17	0.90	0.00
GET_UI_dashboard-7	446	20	4.48%	3290.37	6	26309	1496.50	8158.30	14162.15	25964.46	3.16	0.89	0.00
GET_UI_dashboard-8	446	20	4.48%	3361.83	29	26263	1469.50	8793.40	13621.55	25943.43	3.16	32.76	0.00
GET_UI_dashboard-9	446	34	7.62%	3866.89	5	26458	1416.00	9864.80	25906.00	26275.65	2.67	0.91	0.00
GET_UI_login	870	333	38.28%	41278.68	196	162016	20689.00	84159.70	115980.45	118865.62	3.65	16768.31	19.63
GET_UI_login-0	869	0	0.00%	5372.10	3	17793	3085.00	12441.00	14283.50	16246.30	8.42	9.14	4.90
GET_UI_login-1	869	72	8.29%	10581.99	6	140962	4454.00	21213.00	51822.00	52212.00	3.71	4.81	2.00
GET_UI_login-2	869	0	0.00%	146.31	71	1065	116.00	234.00	333.50	576.10	8.41	61.38	5.30
GET_UI_login-3	869	0	0.00%	145.60	71	1063	115.00	249.00	347.50	576.90	8.41	12.00	5.12
GET_UI_login-4	869	73	8.40%	10872.58	9	108935	4654.00	21803.00	51824.00	52221.10	4.29	309.19	2.31
GET_UI_login-5	869	73	8.40%	10721.83	5	105707	4655.00	21079.00	51822.50	52228.90	4.36	29.47	2.35
GET_UI_login-6	869	73	8.40%	11720.02	20	144468	4900.00	28596.00	51823.00	55349.70	3.65	1136.46	1.97
GET_UI_login-7	869	87	10.01%	12064.19	11	104957	4861.00	28124.00	51907.00	89857.80	4.41	844.26	2.32
GET_UI_login-8	869	106	12.20%	24562.25	111	103905	16569.00	53401.00	61461.00	93360.80	4.43	17518.62	2.28
GET_UI_login-9	869	330	37.97%	21795.78	6	140847	4913.00	51824.00	52213.00	80350.30	3.65	178.02	1.32
POST_GATEWAY_UserApi_userQuery	462	0	0.00%	353.93	10	7356	216.50	634.40	914.85	2766.46	2.69	0.65	1.57
POST_GATEWAY_WeatherApi_queryStatus	405	1	0.25%	98.67	2	698	63.00	208.80	274.00	479.10	4.52	2.27	3.24

Total Transactions Per Second



Transaction-failure Transaction-success

Top 5 Errors by sampler

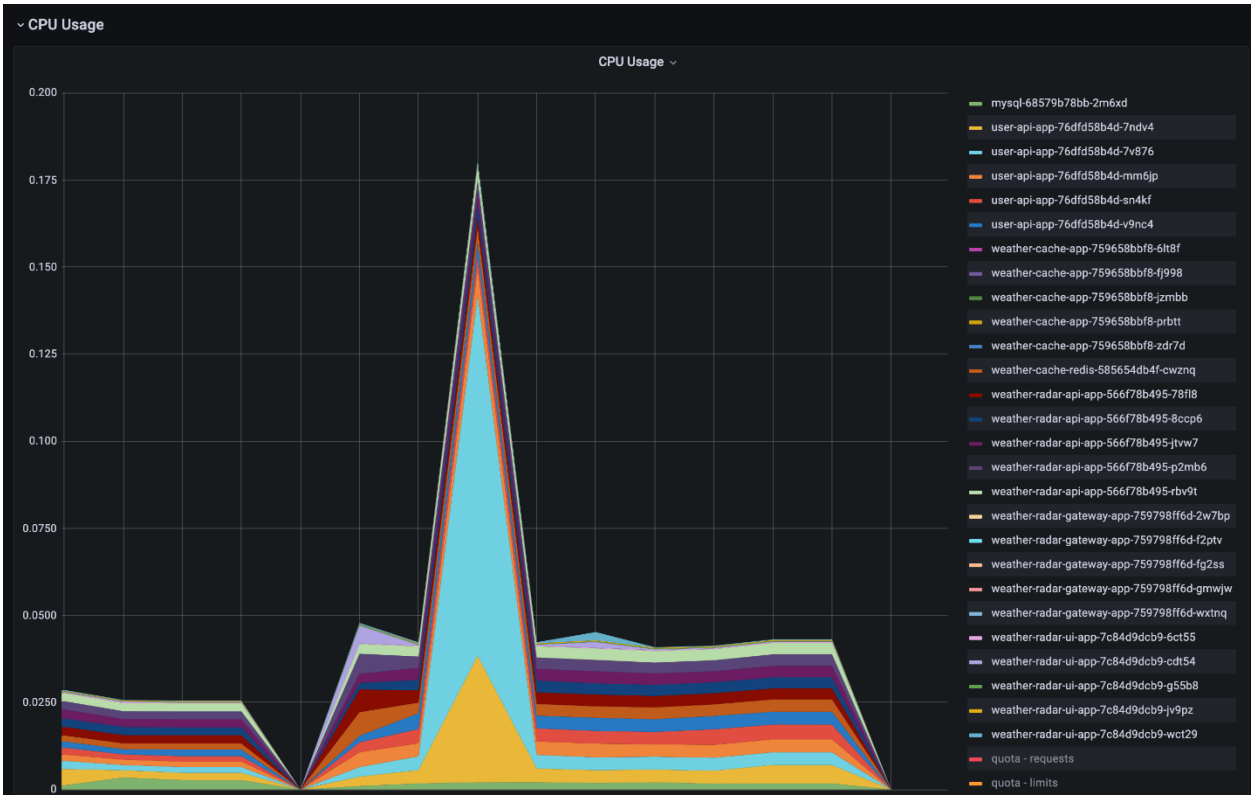
Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	16306	1385	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	685	Assertion failed	366	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	203	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	105	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	13
GET_UI_dashboard	495	83	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	49	Assertion failed	34						
GET_UI_dashboard-1	445	20	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	20								
GET_UI_dashboard-4	445	20	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	20								
GET_UI_dashboard-5	445	20	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	20								
GET_UI_dashboard-6	445	20	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	20								
GET_UI_dashboard-7	445	20	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	20								
GET_UI_dashboard-8	445	20	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	20								
GET_UI_dashboard-9	445	34	Non HTTP response code: java.net.ConnectException/Non HTTP response message: Operation timed out	34								
GET_UI_login	870	333	Assertion failed	332	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	1						
GET_UI_login-1	869	72	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	72								
GET_UI_login-4	869	73	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	73								
GET_UI_login-5	869	73	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	73								
GET_UI_login-6	869	73	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	73								
GET_UI_login-7	869	87	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	60	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	27						
GET_UI_login-8	869	105	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	65	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	26	Non HTTP response code: java.net.SocketException/Non HTTP response message: Socket closed	13	Non HTTP response code: org.apache.http.ConnectionClosedException/Non HTTP response message: Premature end of Content-Length delimited message body (expected: 4,608,258; received: 1,104,548)	1		
GET_UI_login-9	869	330	Non HTTP response code: org.apache.http.conn.HttpHostConnectException/Non HTTP response message: Connect to localhost:4200 [localhost/127.0.0.1, localhost/0:0:0:0:0:0:0:1] failed: Operation timed out	277	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	52	Non HTTP response code: java.io.InterruptedIOException/Non HTTP response message: Connection already shutdown	1				
POST_GATEWAY_WeatherApi_queryStatus	405	1	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4400 failed to respond	1								

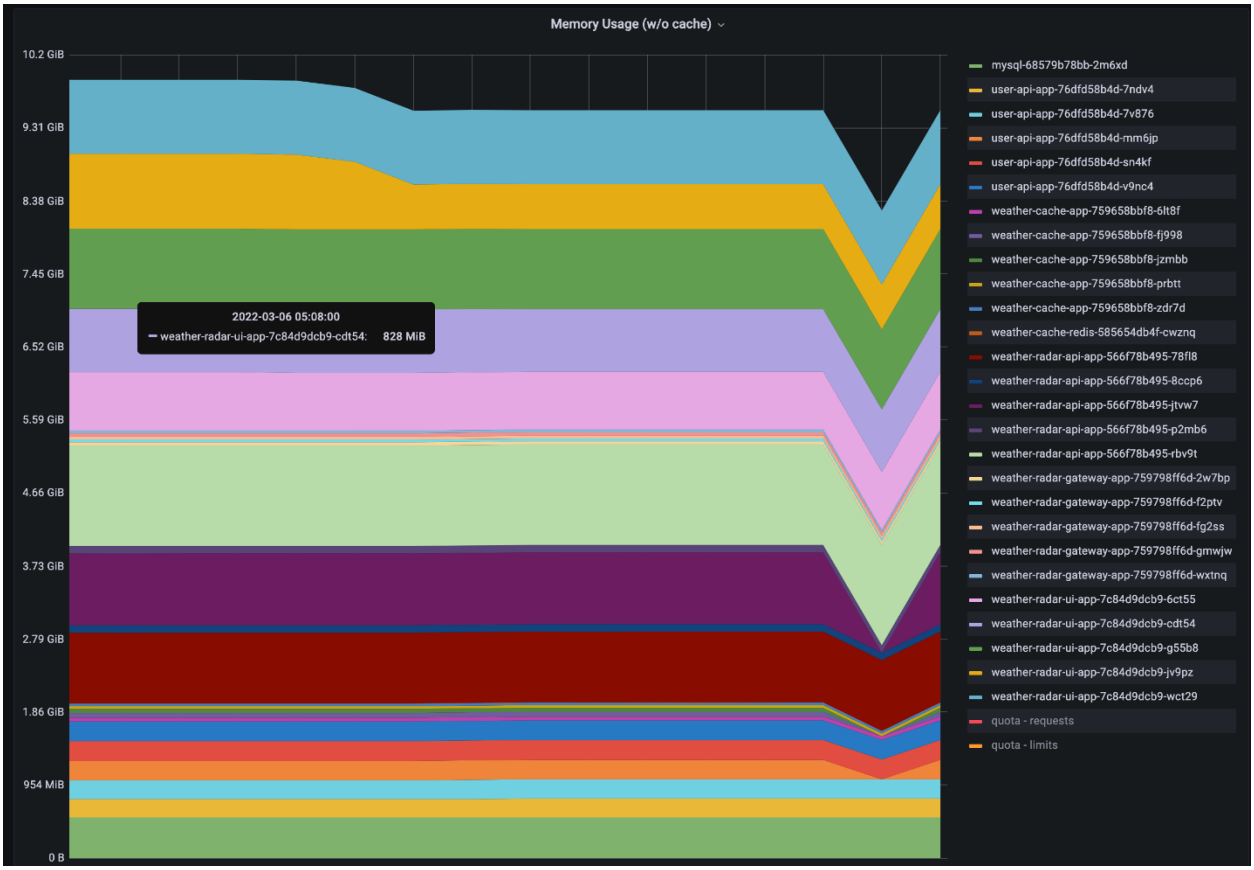
Resources used on zero load (0 Threads):

```
NAME                                        CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-2m6xd                      2m           530Mi
user-api-app-76dfd58b4d-7ndv4               6m           251Mi
user-api-app-76dfd58b4d-7v876               3m           253Mi
user-api-app-76dfd58b4d-mm6jp               4m           254Mi
user-api-app-76dfd58b4d-sn4kf               4m           263Mi
user-api-app-76dfd58b4d-v9nc4               4m           265Mi
weather-cache-app-759658bbf8-6lt8f          0m           48Mi
weather-cache-app-759658bbf8-fj998          0m           64Mi
weather-cache-app-759658bbf8-jzmbb          0m           52Mi
weather-cache-app-759658bbf8-prbtt          0m           36Mi
weather-cache-app-759658bbf8-zdr7d          0m           36Mi
weather-cache-redis-585654db4f-cwznq        3m           2Mi
weather-radar-api-app-566f78b495-78fl8      3m           923Mi
weather-radar-api-app-566f78b495-8ccp6      4m           96Mi
weather-radar-api-app-566f78b495-jtvw7      3m           937Mi
weather-radar-api-app-566f78b495-p2mb6      4m           96Mi
weather-radar-api-app-566f78b495-rbv9t      5m           1310Mi
weather-radar-gateway-app-759798ff6d-2w7bp  0m           45Mi
weather-radar-gateway-app-759798ff6d-f2ptv  0m           39Mi
weather-radar-gateway-app-759798ff6d-fg2ss  0m           40Mi
weather-radar-gateway-app-759798ff6d-gmwjw  0m           41Mi
weather-radar-gateway-app-759798ff6d-wxtnq  0m           42Mi
weather-radar-ui-app-7c84d9dcb9-6ct55       1m           589Mi
weather-radar-ui-app-7c84d9dcb9-cdt54       1m           833Mi
weather-radar-ui-app-7c84d9dcb9-g55b8       1m           599Mi
weather-radar-ui-app-7c84d9dcb9-jv9pz       1m           586Mi
weather-radar-ui-app-7c84d9dcb9-wct29       1m           945Mi
```

Resources used on spike load (400 Threads):

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	31m	535Mi
user-api-app-76dfd58b4d-f7lt5	162m	271Mi
user-api-app-76dfd58b4d-mm6jp	112m	265Mi
user-api-app-76dfd58b4d-sn4kf	94m	271Mi
user-api-app-76dfd58b4d-v9nc4	62m	273Mi
user-api-app-76dfd58b4d-w9hdj	230m	267Mi
weather-cache-app-759658bbf8-6lt8f	26m	50Mi
weather-cache-app-759658bbf8-744lc	16m	35Mi
weather-cache-app-759658bbf8-fdsm2	23m	35Mi
weather-cache-app-759658bbf8-fj998	14m	65Mi
weather-cache-app-759658bbf8-jzmbb	16m	55Mi
weather-cache-redis-585654db4f-cwznq	13m	4Mi
weather-radar-api-app-566f78b495-78fl8	9m	691Mi
weather-radar-api-app-566f78b495-7vcxg	9m	95Mi
weather-radar-api-app-566f78b495-cvss9	9m	95Mi
weather-radar-api-app-566f78b495-jtvw7	9m	2316Mi
weather-radar-api-app-566f78b495-rbv9t	9m	117Mi
weather-radar-gateway-app-759798ff6d-2w7bp	77m	56Mi
weather-radar-gateway-app-759798ff6d-fg2ss	42m	55Mi
weather-radar-gateway-app-759798ff6d-gmwjw	122m	49Mi
weather-radar-gateway-app-759798ff6d-w9c7d	18m	54Mi
weather-radar-gateway-app-759798ff6d-wfn79	143m	57Mi
weather-radar-ui-app-7c84d9dcb9-68wf6	515m	648Mi
weather-radar-ui-app-7c84d9dcb9-6mzj9	349m	925Mi
weather-radar-ui-app-7c84d9dcb9-cdt54	252m	720Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	340m	904Mi
weather-radar-ui-app-7c84d9dcb9-wct29	355m	1073Mi


CPU Usage
CPU Usage
0.200
0.175
0.150
0.125
0.100
0.0750
0.0500
0.0250
0
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-7ndv4
user-api-app-76dfd58b4d-7v876
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-app-759658bbf8-prbtt
weather-cache-app-759658bbf8-zdr7d
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-8ccp6
weather-radar-api-app-566f78b495-jtvw7
weather-radar-api-app-566f78b495-p2mb6
weather-radar-api-app-566f78b495-rbv9t
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-f2ptv
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-gateway-app-759798ff6d-wxtnq
weather-radar-ui-app-7c84d9dcb9-6ct55
weather-radar-ui-app-7c84d9dcb9-cdt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-jv9pz
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits


Memory Usage (w/o cache)
10.2 GiB
9.31 GiB
8.38 GiB
7.45 GiB
6.52 GiB
5.59 GiB
4.66 GiB
3.73 GiB
2.79 GiB
1.86 GiB
954 MiB
0 B
2022-03-06 05:08:00
weather-radar-ui-app-7c84d9dcb9-cdt54: 828 MiB
mysql-68579b78bb-2m6xd
user-api-app-76dfd58b4d-7ndv4
user-api-app-76dfd58b4d-7v876
user-api-app-76dfd58b4d-mm6jp
user-api-app-76dfd58b4d-sn4kf
user-api-app-76dfd58b4d-v9nc4
weather-cache-app-759658bbf8-6lt8f
weather-cache-app-759658bbf8-fj998
weather-cache-app-759658bbf8-jzmbb
weather-cache-app-759658bbf8-prbtt
weather-cache-app-759658bbf8-zdr7d
weather-cache-redis-585654db4f-cwznq
weather-radar-api-app-566f78b495-78fl8
weather-radar-api-app-566f78b495-8ccp6
weather-radar-api-app-566f78b495-jtvw7
weather-radar-api-app-566f78b495-p2mb6
weather-radar-api-app-566f78b495-rbv9t
weather-radar-gateway-app-759798ff6d-2w7bp
weather-radar-gateway-app-759798ff6d-f2ptv
weather-radar-gateway-app-759798ff6d-fg2ss
weather-radar-gateway-app-759798ff6d-gmwjw
weather-radar-gateway-app-759798ff6d-wxtnq
weather-radar-ui-app-7c84d9dcb9-6ct55
weather-radar-ui-app-7c84d9dcb9-cdt54
weather-radar-ui-app-7c84d9dcb9-g55b8
weather-radar-ui-app-7c84d9dcb9-jv9pz
weather-radar-ui-app-7c84d9dcb9-wct29
quota - requests
quota - limits

Summary of 5 Instance:

No. of constant Level Threads	No. of Spike Threads	No. of Instances	Service Name	Spike %	Spike Duration	CPU(cores) on spike load	Average CPU(cores) on spike load	MEMORY(bytes) on spike load	Average MEMORY(bytes) on spike load	# Samples	Error %	Transactions/s
			mysql			63m		535Mi				
			mysql			63m		535Mi				
			mysql			63m		535Mi				
			mysql			63m		535Mi				
			mysql	900	20	63m	63m	535Mi	535Mi	572	0.00000	3.28
			user-api-app			128m		275Mi				
			user-api-app			163m		270Mi				
			user-api-app			140m		275Mi				
			user-api-app			130m		271Mi				
			user-api-app	900	20	264m	165m	277Mi	273.6Mi	572	0.00000	3.28
			weather-cache-app			22m		50Mi				
			weather-cache-app			19m		39Mi				
			weather-cache-app			20m		39Mi				
			weather-cache-app			19m		64Mi				
			weather-cache-app	900	20	19m	19.8m	56Mi	49.6Mi	561	0.00000	3.22
			weather-cache-redis			14m		4Mi				
			weather-cache-redis			14m		4Mi				
			weather-cache-redis			14m		4Mi				
			weather-cache-redis			14m		4Mi				
10	90	5	weather-cache-redis	900	20	14m	14m	4Mi	4Mi	561	0.00000	3.22
			weather-radar-api-app			5m		691Mi				
			weather-radar-api-app			8m		95Mi				
			weather-radar-api-app			6m		95Mi				
			weather-radar-api-app			6m		2316Mi				
			weather-radar-api-app	900	20	6m	6.2m	117Mi	662.8Mi	561	0.00000	3.22
			weather-radar-gateway-app			58m		47Mi				
			weather-radar-gateway-app			52m		42Mi				
			weather-radar-gateway-app			56m		48Mi				
			weather-radar-gateway-app			61m		51Mi				
			weather-radar-gateway-app	900	20	56m	56.6m	51Mi	47.8Mi	565	0.00000	3
			weather-radar-ui-app			291m		699Mi				
			weather-radar-ui-app			327m		705Mi				
			weather-radar-ui-app			318m		708Mi				
			weather-radar-ui-app			342m		773Mi				
			weather-radar-ui-app	900	20	348m	325.2m	645Mi	706Mi	631	0.00343	3.44
			mysql			31m		535Mi				
			mysql			31m		535Mi				
			mysql			31m		535Mi				
			mysql			31m		535Mi				
			mysql	400	20	31m	31m	535Mi	535Mi	462	0.00000	2.69
			user-api-app			162m		271Mi				
			user-api-app			112m		265Mi				
			user-api-app			94m		271Mi				
			user-api-app			62m		273Mi				
			user-api-app	400	20	230m	132m	267Mi	269.4Mi	462	0.00000	2.69
			weather-cache-app			26m		50Mi				
			weather-cache-app			16m		35Mi				
			weather-cache-app			23m		35Mi				
			weather-cache-app			14m		65Mi				
			weather-cache-app	400	20	16m	19m	55Mi	48Mi	433.5	0.00125	3.61
			weather-cache-redis			13m		4Mi				
			weather-cache-redis			13m		4Mi				
			weather-cache-redis			13m		4Mi				
			weather-cache-redis			13m		4Mi				
100	400	5	weather-cache-redis	400	20	13m	13m	4Mi	4Mi	433.5	0.00125	3.61
			weather-radar-api-app			9m		691Mi				
			weather-radar-api-app			9m		95Mi				
			weather-radar-api-app			9m		95Mi				
			weather-radar-api-app			9m		2316Mi				
			weather-radar-api-app	400	20	9m	9m	117Mi	662.8Mi	433.5	0.00125	3.61
			weather-radar-gateway-app			77m		56Mi				
			weather-radar-gateway-app			42m		55Mi				
			weather-radar-gateway-app			122m		49Mi				
			weather-radar-gateway-app			18m		54Mi				
			weather-radar-gateway-app	400	20	143m	80.4m	57Mi	54.2Mi	444.9	0.00075	3.239
			weather-radar-ui-app			515m		648Mi				
			weather-radar-ui-app			349m		925Mi				
			weather-radar-ui-app			252m		720Mi				
			weather-radar-ui-app			340m		904Mi				
			weather-radar-ui-app	400	20	355m	362.2m	1073Mi	854Mi	659.7727	0.08328	4.25

Conclusive Summary:

No. of constant Level Threads	No. of Spike Threads	No. of Instances	# Samples	Error %	Transactions/s
10	90	3	34090	0.2	192.58
10	90	5	16144	0.31	10.76
100	400	3	27920	1.1	155.46
100	400	5	16306	8.49	68.5

Spike Testing Full Stack Conclusion:

1. Based on the summary table above, it concludes that there is a significant increase in the error rate when instances for 500 threads change from 1 to 5 instances, because the load is distributed among 5 instances, but the local system resources become bottleneck.

2. So, we can conclude that 3 instances of each service for spike testing is good distribution and allocation for this testing system for maximum performance.

3. Due to resource constraints on the local system, it was not possible to test multiple test-scenarios. We will be moving the testing to the Jetstream server which can help satisfy system congestion in the upcoming iteration.

Fault Tolerance Full Stack Testing

System Configuration:
Model: MacBook Pro (16-inch, 2019)
Processor: 2.6 GHz 6-Core Intel Core i7
Memory: 16 GB 2667 MHz DDR4
Graphics: AMD Radeon Pro 5300M 4 GB, Intel UHD Graphics 630 1536 MB

Testing Scenarios:
No. of Instance: 1
Test Plan: 100 Threads - 1 Instance

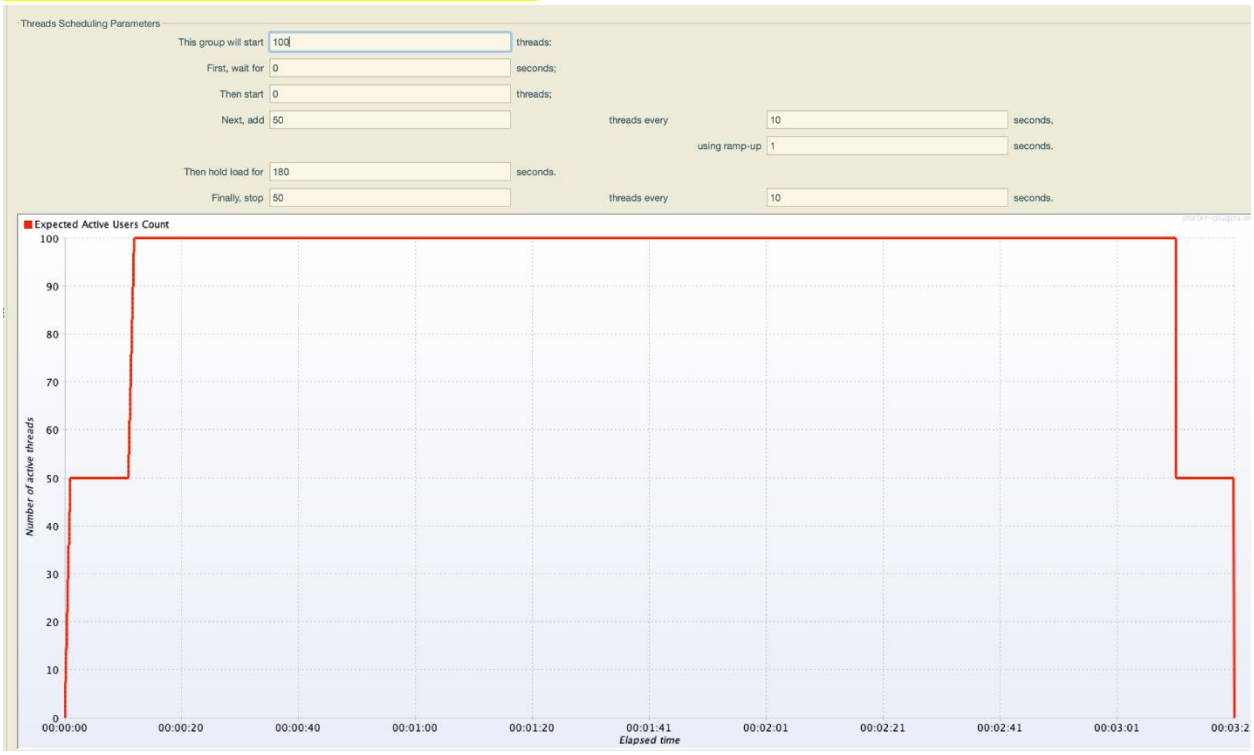


Fig. ft-1

Test Report:

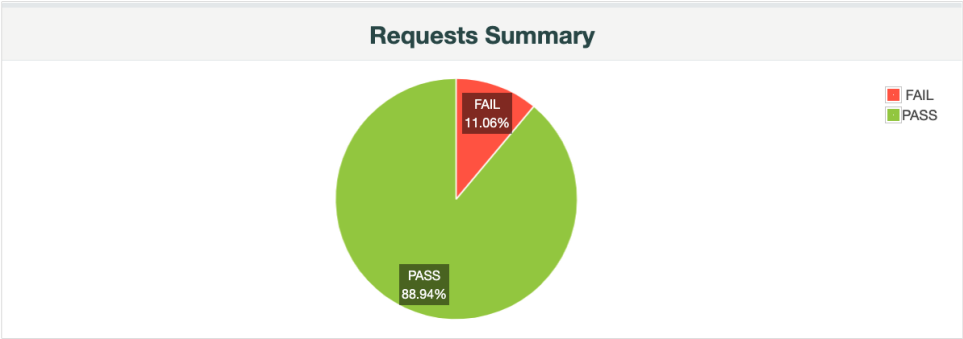


Fig. ft-2

APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.344	**500 ms**	**1 sec 500 ms**	**Total**
0.004	500 ms	1 sec 500 ms	GET_UI_login
0.020	500 ms	1 sec 500 ms	GET_UI_login-8
0.028	500 ms	1 sec 500 ms	GET_UI_dashboard
0.127	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.143	500 ms	1 sec 500 ms	GET_UI_login-9
0.159	500 ms	1 sec 500 ms	GET_UI_login-7
0.194	500 ms	1 sec 500 ms	GET_UI_login-6
0.208	500 ms	1 sec 500 ms	GET_UI_login-4
0.210	500 ms	1 sec 500 ms	GET_UI_login-5
0.215	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.217	500 ms	1 sec 500 ms	GET_UI_login-1
0.227	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.247	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.249	500 ms	1 sec 500 ms	GET_UI_login-0
0.265	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.265	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.267	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.268	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.289	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.471	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.533	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.639	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus
0.965	500 ms	1 sec 500 ms	GET_UI_login-2
0.967	500 ms	1 sec 500 ms	GET_UI_login-3
0.996	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.997	500 ms	1 sec 500 ms	GET_UI_dashboard-2

Fig. ft-3

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**29894**	**3305**	**11.06%**	**2197.30**	**1**	**83610**	**1632.00**	**5988.00**	**8196.35**	**22086.72**	**97.55**	**35091.62**	**49.69**
GET_UI_dashboard-9	968	0	0.00%	1814.98	55	33466	1711.50	3150.50	3657.40	5144.24	4.89	0.99	0.00
GET_UI_dashboard-8	968	0	0.00%	2003.35	105	33320	1866.50	3062.60	3460.40	5770.07	4.89	0.99	0.00
GET_UI_dashboard-7	968	0	0.00%	1961.12	59	33324	1825.00	3019.10	3442.00	5746.50	4.89	0.99	0.00
GET_UI_dashboard-6	968	0	0.00%	1819.59	46	33450	1694.00	2800.30	3174.00	4460.69	4.91	0.99	0.00
GET_UI_dashboard-5	968	0	0.00%	1824.01	55	33459	1685.50	2847.60	3176.75	4502.05	4.91	0.99	0.00
GET_UI_dashboard-4	968	0	0.00%	1823.22	30	33450	1680.00	2846.70	3174.00	4532.44	4.91	0.99	0.00
GET_UI_dashboard-3	968	0	0.00%	123.85	67	1227	102.50	170.00	242.00	420.55	4.91	6.95	0.00
GET_UI_dashboard-2	968	0	0.00%	126.14	67	949	104.00	172.10	259.55	426.41	4.91	35.75	0.00
GET_UI_dashboard-1	968	0	0.00%	1822.38	15	33452	1685.00	2805.00	3175.10	4566.30	4.91	0.98	0.00
GET_UI_dashboard-0	968	0	0.00%	1729.74	16	5366	1778.50	2967.60	3403.55	4720.55	4.91	5.33	0.00
GET_UI_login-7	1068	19	1.78%	2978.54	73	38945	2160.50	6071.60	8265.80	12566.58	4.67	974.82	2.69
GET_UI_login-6	1068	5	0.47%	2636.04	30	38064	2014.00	4786.80	6948.50	13271.34	4.67	1578.99	2.74
GET_UI_login-9	1068	48	4.49%	2446.01	53	33697	1956.50	3584.10	5507.20	11704.31	4.67	343.81	2.60
GET_UI_login-8	1068	98	9.18%	6407.64	429	41250	5332.00	9464.90	17174.70	35525.55	4.65	18989.47	2.47
GET_UI_login-1	1068	2	0.19%	2303.60	11	33475	1879.50	3693.50	5487.90	10553.93	4.67	5.50	2.74
GET_UI_login-0	1068	0	0.00%	2055.82	4	10458	1629.00	3469.10	5443.80	10329.24	4.85	5.27	2.82
GET_UI_login-3	1068	0	0.00%	182.81	67	1637	109.00	264.10	525.55	1598.31	4.84	6.91	2.95
GET_UI_login-2	1068	0	0.00%	186.32	66	1656	110.00	277.10	524.55	1606.00	4.85	35.37	3.05
GET_UI_login-5	1068	3	0.28%	2381.40	25	33475	1908.50	4230.30	5587.75	10640.31	4.68	33.29	2.74
GET_UI_login-4	1068	3	0.28%	2426.93	28	33806	1907.50	4229.30	5985.75	11881.31	4.68	365.81	2.74
POST_GATEWAY_WeatherApi_queryStatus	1522	24	1.58%	1541.59	2	28194	88.50	3852.00	10518.80	12678.65	6.08	16.67	4.29
GET_GATEWAY_WeatherApi_plot	1551	712	45.91%	673.41	3	76711	66.00	324.60	1102.40	7953.96	6.19	252.70	1.65
GET_GATEWAY_UserApi_sessionInfo	1606	860	53.55%	3216.55	4	75292	479.00	7441.00	13205.50	41550.02	5.33	1322.24	1.60
POST_GATEWAY_UserApi_userQuery	1613	227	14.07%	1398.52	1	83610	501.00	3229.80	4666.90	11100.00	6.37	3.14	3.18
GET_UI_dashboard	1621	653	40.28%	3238.44	4	39222	1876.00	7264.80	8005.30	10557.06	6.41	50.33	0.00
GET_UI_login	1621	651	40.16%	5811.18	4	42433	6136.00	10861.40	19155.30	22743.34	6.31	19984.92	24.24

Fig. ft-4

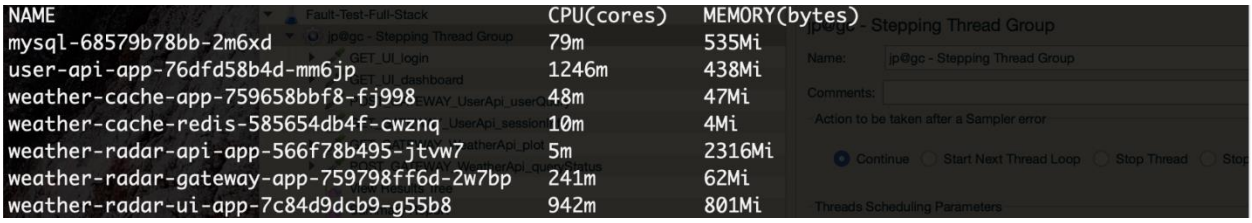
Fig. ft-5

Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	29894	3356	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	1307	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	664	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	653	404/Not Found	264	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4700 failed to respond	227
GET_GATEWAY_UserApi_sessionInfo	1606	863	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	624	404/Not Found	235	Non HTTP response code: org.apache.http.ConnectionClosedException/Non HTTP response message: Premature end of Content-Length delimited message body (expected: 575,610; received: 476,110)	1				
GET_GATEWAY_WeatherApi_plot	1591	712	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	683	404/Not Found	29						
GET_UI_dashboard	1621	653	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	653								
GET_UI_login	1621	651	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	553	Assertion failed	98						
GET_UI_login-1	1068	2	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	2								
GET_UI_login-4	1068	3	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	3								
GET_UI_login-5	1068	3	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	3								
GET_UI_login-6	1068	5	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	5								
GET_UI_login-7	1068	19	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	19								
GET_UI_login-8	1068	98	Non HTTP response code: org.apache.http.ConnectionClosedException/Non HTTP response message: Premature end of Content-Length delimited message body (expected: 6,608,258; received: 1,700,570)	28	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	21	Non HTTP response code: org.apache.http.ConnectionClosedException/Non HTTP response message: Premature end of Content-Length delimited message body (expected: 4,608,258; received: 2,322,316)	7	Non HTTP response code: org.apache.http.ConnectionClosedException/Non HTTP response message: Premature end of Content-Length delimited message body (expected: 4,608,258; received: 3,411,212)	7	Non HTTP response code: org.apache.http.ConnectionClosedException/Non HTTP response message: Premature end of Content-Length delimited message body (expected: 6,608,258; received: 2,190,459)	5
GET_UI_login-9	1068	48	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	48								
POST_GATEWAY_UserApi_userQuery	1613	227	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4700 failed to respond	227								
POST_GATEWAY_WeatherApi_queryStatus	1622	24	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4400 failed to respond	24								

Fig. ft-6

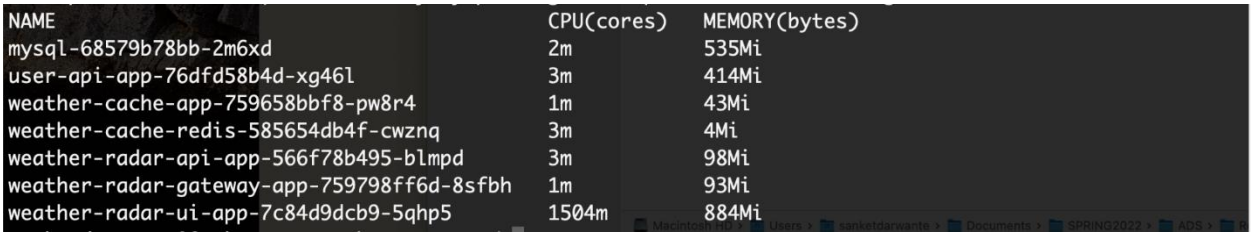
Resources Used on Zero Load(0 Threads):



NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	79m	535Mi
user-api-app-76dfd58b4d-mm6jp	1246m	438Mi
weather-cache-app-759658bbf8-fj998	48m	47Mi
weather-cache-redis-585654db4f-cwznq	10m	4Mi
weather-radar-api-app-566f78b495-jtvw7	5m	2316Mi
weather-radar-gateway-app-759798ff6d-2w7bp	241m	62Mi
weather-radar-ui-app-7c84d9dcb9-g55b8	942m	801Mi

Fig. ft-7

Resources Used on Zero Load(100 Threads) After Failure Recovery:



NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	2m	535Mi
user-api-app-76dfd58b4d-xg46l	3m	414Mi
weather-cache-app-759658bbf8-pw8r4	1m	43Mi
weather-cache-redis-585654db4f-cwznq	3m	4Mi
weather-radar-api-app-566f78b495-blmpd	3m	98Mi
weather-radar-gateway-app-759798ff6d-8sfbh	1m	93Mi
weather-radar-ui-app-7c84d9dcb9-5qhp5	1504m	884Mi

Fig. ft-8

Resource CPU Grafana Summary Graph:

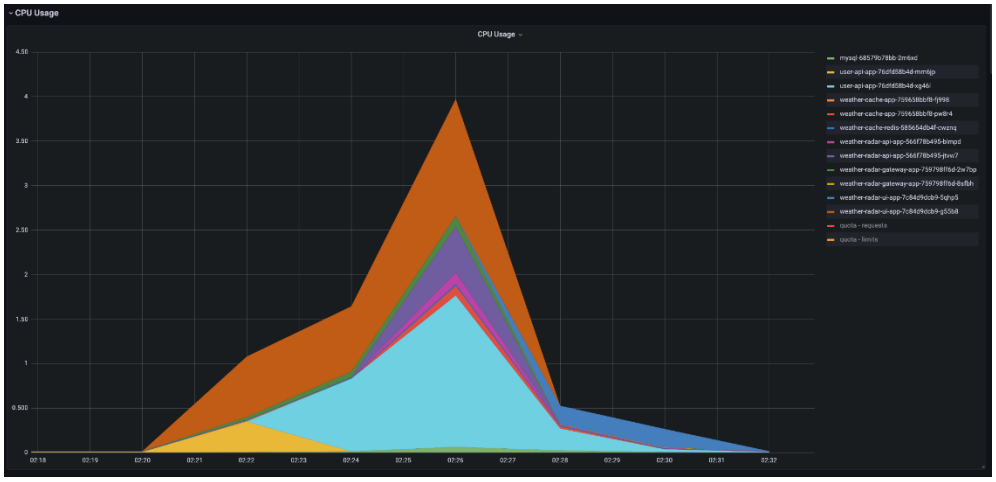


Fig. ft-9

Resource Memory Grafana Summary Graph:

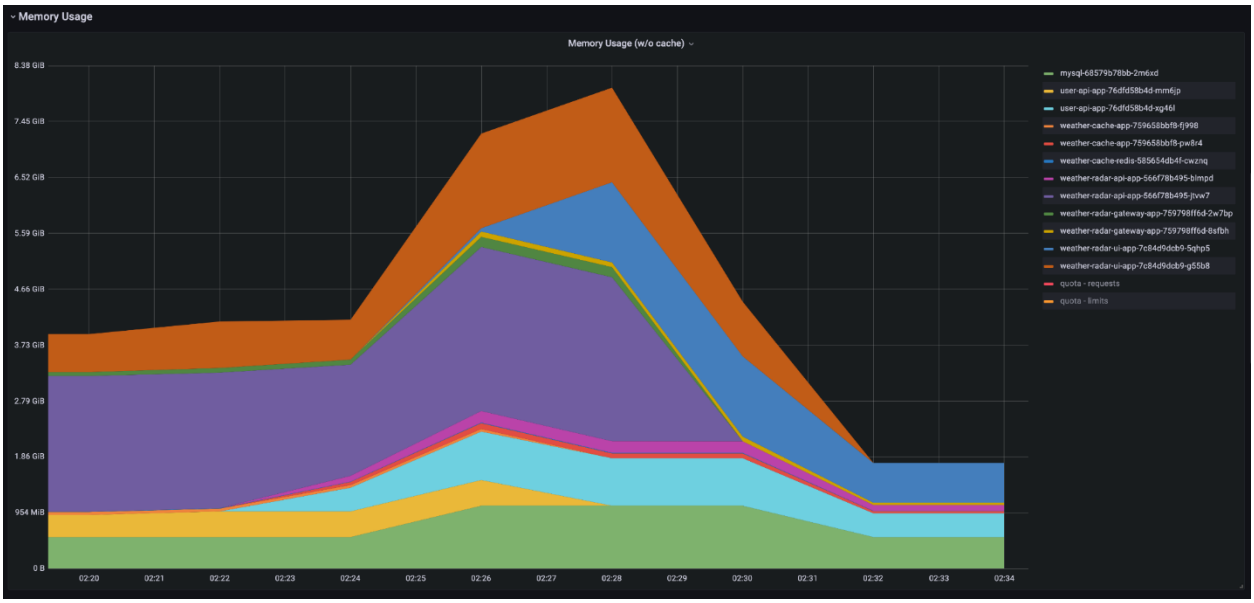


Fig. ft-10

Testing Scenarios:

No. of Instance: 3

Test Plan: 500 Threads - 3 Instance

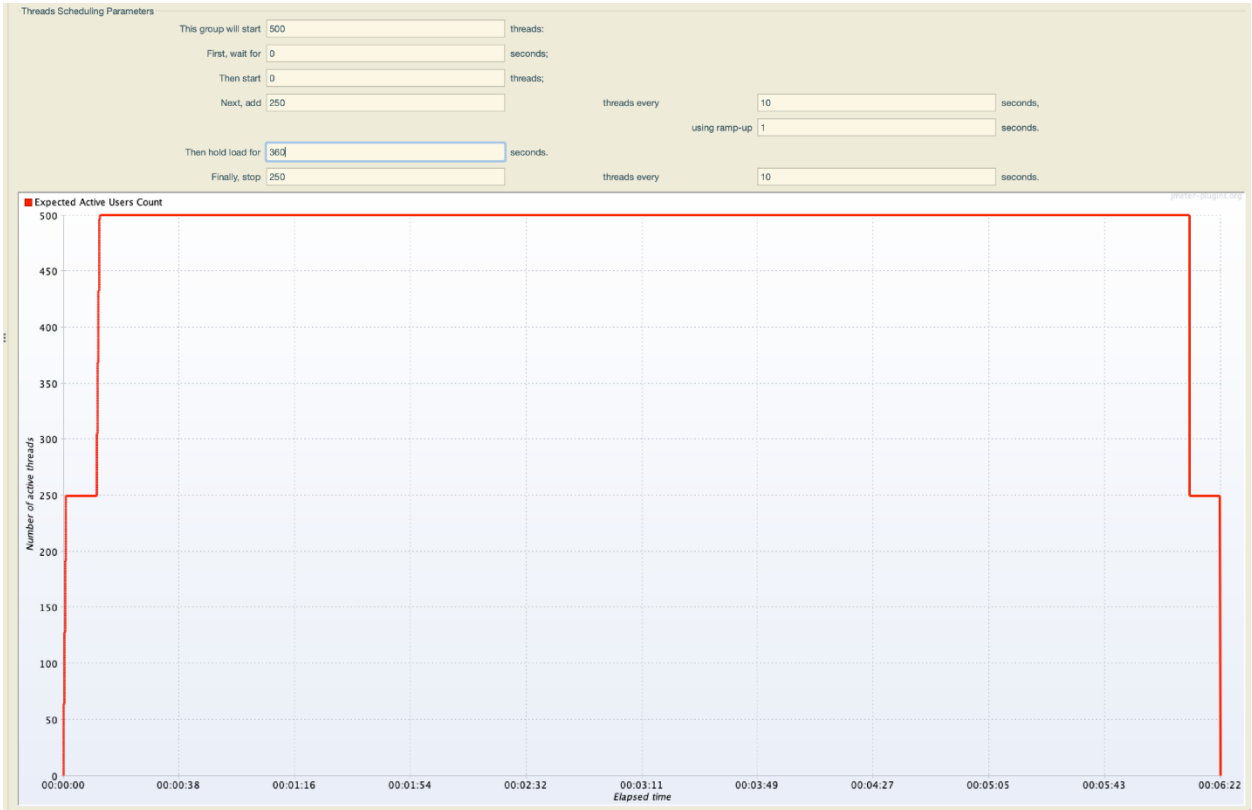


Fig. ft-11

Test Report:

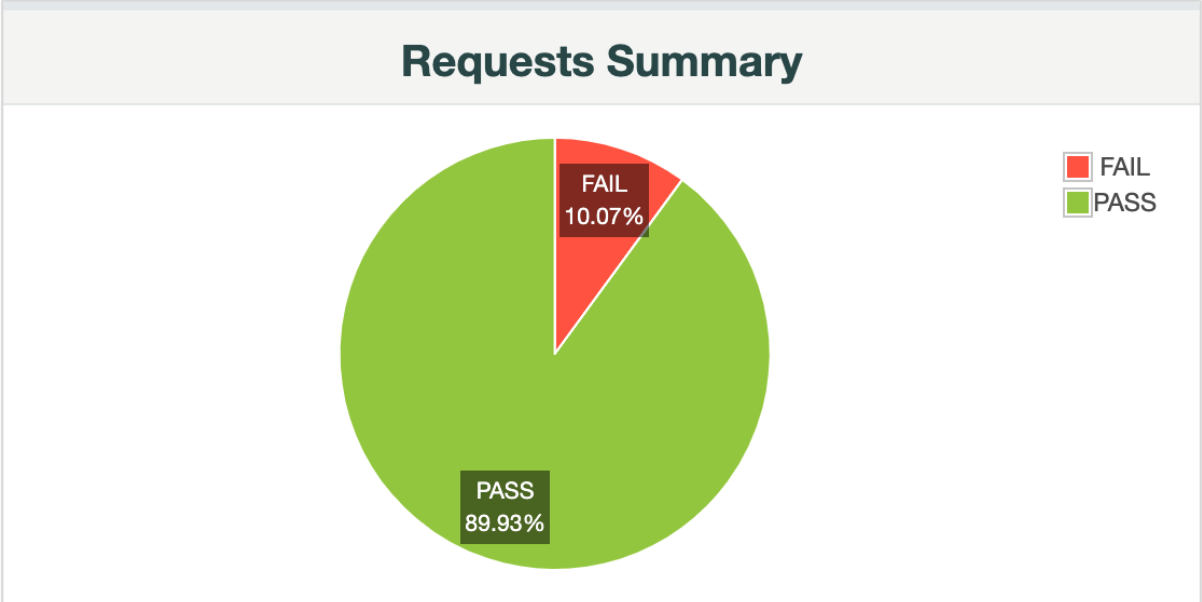


Fig. ft-12

APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.344	**500 ms**	**1 sec 500 ms**	**Total**
0.004	500 ms	1 sec 500 ms	GET_UI_login
0.020	500 ms	1 sec 500 ms	GET_UI_login-8
0.028	500 ms	1 sec 500 ms	GET_UI_dashboard
0.127	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.143	500 ms	1 sec 500 ms	GET_UI_login-9
0.159	500 ms	1 sec 500 ms	GET_UI_login-7
0.194	500 ms	1 sec 500 ms	GET_UI_login-6
0.208	500 ms	1 sec 500 ms	GET_UI_login-4
0.210	500 ms	1 sec 500 ms	GET_UI_login-5
0.215	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.217	500 ms	1 sec 500 ms	GET_UI_login-1
0.227	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.247	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.249	500 ms	1 sec 500 ms	GET_UI_login-0
0.265	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.265	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.267	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.268	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.289	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.471	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.533	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.639	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus
0.965	500 ms	1 sec 500 ms	GET_UI_login-2
0.967	500 ms	1 sec 500 ms	GET_UI_login-3
0.996	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.997	500 ms	1 sec 500 ms	GET_UI_dashboard-2

Fig. ft-13

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**29894**	**3305**	**11.06%**	**2197.30**	**1**	**83610**	**1632.00**	**5988.00**	**8196.35**	**22086.72**	**97.55**	**35091.62**	**49.69**
GET_UI_dashboard-9	968	0	0.00%	1814.98	55	33466	1711.50	3150.50	3657.40	5144.24	4.89	0.99	0.00
GET_UI_dashboard-8	968	0	0.00%	2003.35	105	33320	1866.50	3062.60	3460.40	5770.07	4.89	0.99	0.00
GET_UI_dashboard-7	968	0	0.00%	1961.12	59	33324	1825.00	3019.10	3442.00	5746.50	4.89	0.99	0.00
GET_UI_dashboard-6	968	0	0.00%	1819.59	46	33450	1694.00	2800.30	3174.00	4460.69	4.91	0.99	0.00
GET_UI_dashboard-5	968	0	0.00%	1824.01	55	33459	1685.50	2847.60	3176.75	4502.05	4.91	0.99	0.00
GET_UI_dashboard-4	968	0	0.00%	1823.22	30	33450	1680.00	2846.70	3174.00	4532.44	4.91	0.99	0.00
GET_UI_dashboard-3	968	0	0.00%	123.85	67	1227	102.50	170.00	242.00	420.55	4.91	6.95	0.00
GET_UI_dashboard-2	968	0	0.00%	126.14	67	949	104.00	172.10	259.55	426.41	4.91	35.75	0.00
GET_UI_dashboard-1	968	0	0.00%	1822.38	15	33452	1685.00	2805.00	3175.10	4566.30	4.91	0.98	0.00
GET_UI_dashboard-0	968	0	0.00%	1729.74	16	5366	1778.50	2967.60	3403.55	4720.55	4.91	5.33	0.00
GET_UI_login-7	1068	19	1.78%	2978.54	73	38945	2160.50	6071.60	8265.80	12566.58	4.67	974.82	2.69
GET_UI_login-6	1068	5	0.47%	2636.04	30	38064	2014.00	4786.80	6948.50	13271.34	4.67	1578.99	2.74
GET_UI_login-9	1068	48	4.49%	2446.01	53	33697	1956.50	3584.10	5507.20	11704.31	4.67	343.81	2.60
GET_UI_login-8	1068	98	9.18%	6407.64	429	41250	5332.00	9464.90	17174.70	35525.55	4.65	18989.47	2.47
GET_UI_login-1	1068	2	0.19%	2303.60	11	33475	1879.50	3693.50	5487.90	10553.93	4.67	5.50	2.74
GET_UI_login-0	1068	0	0.00%	2055.82	4	10458	1629.00	3469.10	5443.80	10329.24	4.85	5.27	2.82
GET_UI_login-3	1068	0	0.00%	182.81	67	1637	109.00	264.10	525.55	1598.31	4.84	6.91	2.95
GET_UI_login-2	1068	0	0.00%	186.32	66	1656	110.00	277.10	524.55	1606.00	4.85	35.37	3.05
GET_UI_login-5	1068	3	0.28%	2381.40	25	33475	1908.50	4230.30	5587.75	10640.31	4.68	33.29	2.74
GET_UI_login-4	1068	3	0.28%	2426.93	28	33806	1907.50	4229.30	5985.75	11881.31	4.68	365.81	2.74
POST_GATEWAY_WeatherApi_queryStatus	1522	24	1.58%	1541.59	2	28194	88.50	3852.00	10518.80	12678.65	6.08	16.67	4.29
GET_GATEWAY_WeatherApi_plot	1551	712	45.91%	673.41	3	76711	66.00	324.60	1102.40	7953.96	6.19	252.70	1.65
GET_GATEWAY_UserApi_sessionInfo	1606	860	53.55%	3216.55	4	75292	479.00	7441.00	13205.50	41550.02	5.33	1322.24	1.60
POST_GATEWAY_UserApi_userQuery	1613	227	14.07%	1398.52	1	83610	501.00	3229.80	4666.90	11100.00	6.37	3.14	3.18
GET_UI_dashboard	1621	653	40.28%	3238.44	4	39222	1876.00	7264.80	8005.30	10557.06	6.41	50.33	0.00
GET_UI_login	1621	651	40.16%	5811.18	4	42433	6136.00	10861.40	19155.30	22743.34	6.31	19984.92	24.24

Fig. ft-14

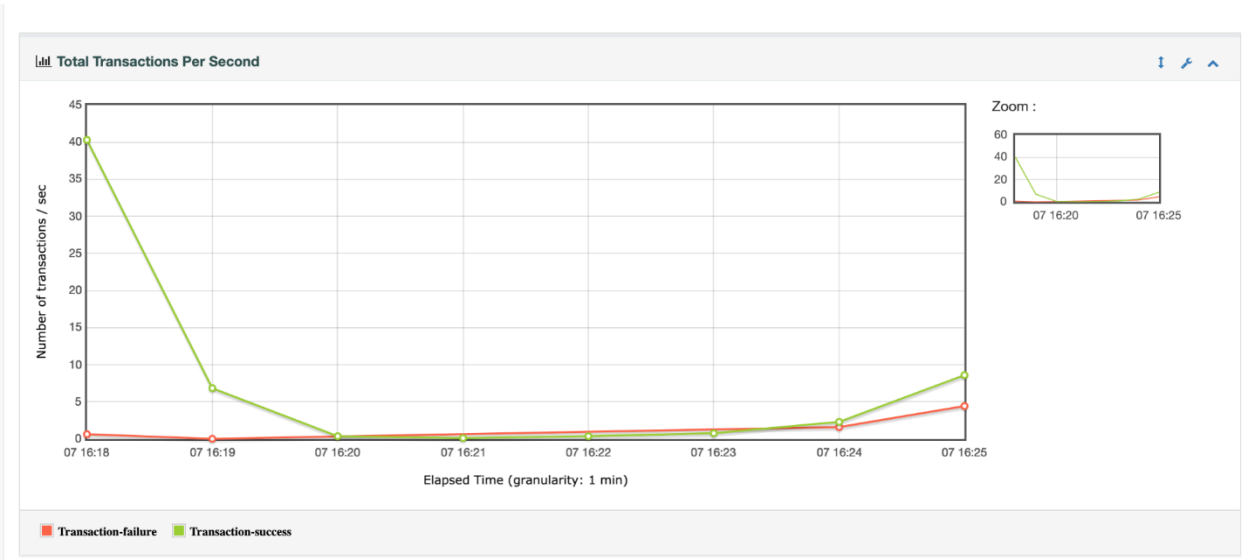


Fig. ft-15

Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	20894	3356	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	1307	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	664	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	653	404/Not Found	264	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4700 failed to respond	227
GET_GATEWAY_UserApi_sessionInfo	1606	863	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	624	404/Not Found	235	Non HTTP response code: org.apache.http.ConnectionClosedException/Non HTTP response message: Premature end of Content-Length delimited message body (expected: 570,610; received: 474,110)	1				
GET_GATEWAY_WeatherApi_plot	1591	712	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	683	404/Not Found	29						
GET_UI_dashboard	1621	653	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	653								
GET_UI_login	1621	651	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	553	Assertion failed	98						
GET_UI_login-1	1068	2	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	2								
GET_UI_login-4	1068	3	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	3								
GET_UI_login-5	1068	3	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	3								
GET_UI_login-6	1068	5	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	5								
GET_UI_login-7	1068	19	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	19								
GET_UI_login-8	1068	98	Non HTTP response code: org.apache.http.ConnectionClosedException/Non HTTP response message: Premature end of Content-Length delimited message body (expected: 6,608,258; received: 1,702,573)	28	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	21	Non HTTP response code: org.apache.http.ConnectionClosedException/Non HTTP response message: Premature end of Content-Length delimited message body (expected: 6,608,258; received: 3,322,314)	7	Non HTTP response code: org.apache.http.ConnectionClosedException/Non HTTP response message: Premature end of Content-Length delimited message body (expected: 4,608,258; received: 3,411,212)	7	Non HTTP response code: org.apache.http.ConnectionClosedException/Non HTTP response message: Premature end of Content-Length delimited message body (expected: 6,608,258; received: 2,290,455)	5
GET_UI_login-9	1068	48	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4300 failed to respond	48								
POST_GATEWAY_UserApi_userQuery	1613	227	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4700 failed to respond	227								
POST_GATEWAY_WeatherApi_queryStatus	1522	24	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4400 failed to respond	24								

Fig. ft-16

Resources Used on Zero Load(0 Threads):

```
NAME                                      CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-2m6xd                    2m           536Mi
user-api-app-76dfd58b4d-p8ss2             4m           265Mi
user-api-app-76dfd58b4d-xg46l             4m           420Mi
user-api-app-76dfd58b4d-zd8ml             5m           240Mi
weather-cache-app-759658bbf8-8rnrg        0m           34Mi
weather-cache-app-759658bbf8-r5jds        0m           35Mi
weather-cache-app-759658bbf8-sjstr        0m           34Mi
weather-cache-redis-585654db4f-cwznq      4m           5Mi
weather-radar-api-app-566f78b495-gznvd    4m           98Mi
weather-radar-api-app-566f78b495-hmw47    4m           2228Mi
weather-radar-api-app-566f78b495-pxptb    4m           98Mi
weather-radar-gateway-app-759798ff6d-ndlg2  0m         35Mi
weather-radar-gateway-app-759798ff6d-ptdsp  0m         39Mi
weather-radar-gateway-app-759798ff6d-v82w5  0m         38Mi
weather-radar-ui-app-7c84d9dcb9-5qhp5     1m           1201Mi
weather-radar-ui-app-7c84d9dcb9-l72lx     1m           1445Mi
weather-radar-ui-app-7c84d9dcb9-n2rn8     1m           1091Mi
```

Fig. ft-17

Resources Used on Zero Load(100 Threads) After Failure Recovery:

NAME	CPU(cores)	MEMORY(bytes)
mysql-68579b78bb-2m6xd	4m	536Mi
user-api-app-76dfd58b4d-bshh6	30m	61Mi
user-api-app-76dfd58b4d-p8ss2	8m	265Mi
user-api-app-76dfd58b4d-xg46l	534m	160Mi
user-api-app-76dfd58b4d-zd8ml	8m	240Mi
weather-cache-app-759658bbf8-8rnrg	0m	34Mi
weather-cache-app-759658bbf8-sjstr	0m	34Mi
weather-cache-app-759658bbf8-wzlrn	14m	12Mi
weather-cache-redis-585654db4f-cwznq	4m	5Mi
weather-radar-api-app-566f78b495-gznvd	3m	98Mi
weather-radar-api-app-566f78b495-hmw47	905m	1865Mi
weather-radar-api-app-566f78b495-pxptb	7m	98Mi
weather-radar-api-app-566f78b495-vnzzx	18m	14Mi
weather-radar-gateway-app-759798ff6d-ndlg2	0m	35Mi
weather-radar-gateway-app-759798ff6d-ptdsp	0m	0Mi
weather-radar-gateway-app-759798ff6d-v82w5	0m	38Mi
weather-radar-ui-app-7c84d9dcb9-5qhp5	124m	1172Mi
weather-radar-ui-app-7c84d9dcb9-l72lx	762m	876Mi
weather-radar-ui-app-7c84d9dcb9-n2rn8	9m	1084Mi

Fig. ft-18

Resource CPU Grafana Summary Graph:

Fig. ft-19

Resource Memory Grafana Summary Graph:

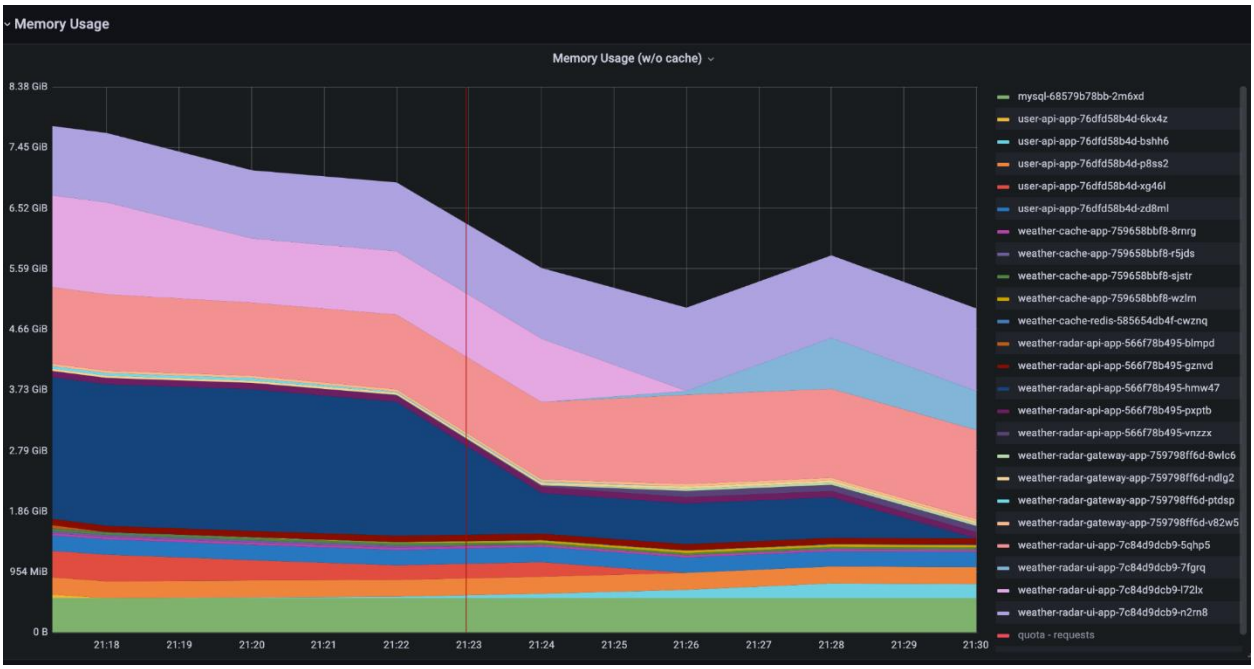


Fig. ft-20

Summary:

# Threads	# Instances	# Samples	Error %	Transactions/s
100	**1**	**29894**	**11.06**	**97.55**
500	**3**	**29894**	**10.07**	**120.5**

Table: ft-21

Conclusion:

1. Based on the summary table we could conclude that there is a **1% decrease** in error as we move from **1 instance to 3 instances** in failure recovery.
2. There is an increase in the number of transaction of approx. **23 transactions/second** as we move from **1 instance to 3 instances**.
3. From the **fig.9** the grafana CPU utilization graph it not clearly visible how pods recovery from failure state, since very less load on each instance, but by looking at **fig.19** it is seen clearly how the pods recover from failure as the color of the right plot changes from the left plot.

4. Due to resource constraints on the local system, it was not possible to test multiple test-scenarios. We will be moving the testing to Jetstream server which can help satisfying in system congestion in the upcoming iteration.

Auto Scale Full Stack Testing

System Configuration:
Model: MacBook Pro (16-inch, 2019)
Processor: 2.6 GHz 6-Core Intel Core i7
Memory: 16 GB 2667 MHz DDR4
Graphics: AMD Radeon Pro 5300M 4 GB, Intel UHD Graphics 630 1536 MB

Testing Scenarios:
No. of Instance: 1
Test Plan: 100 Threads - 1 Instance
Test Duration: 50 Mins

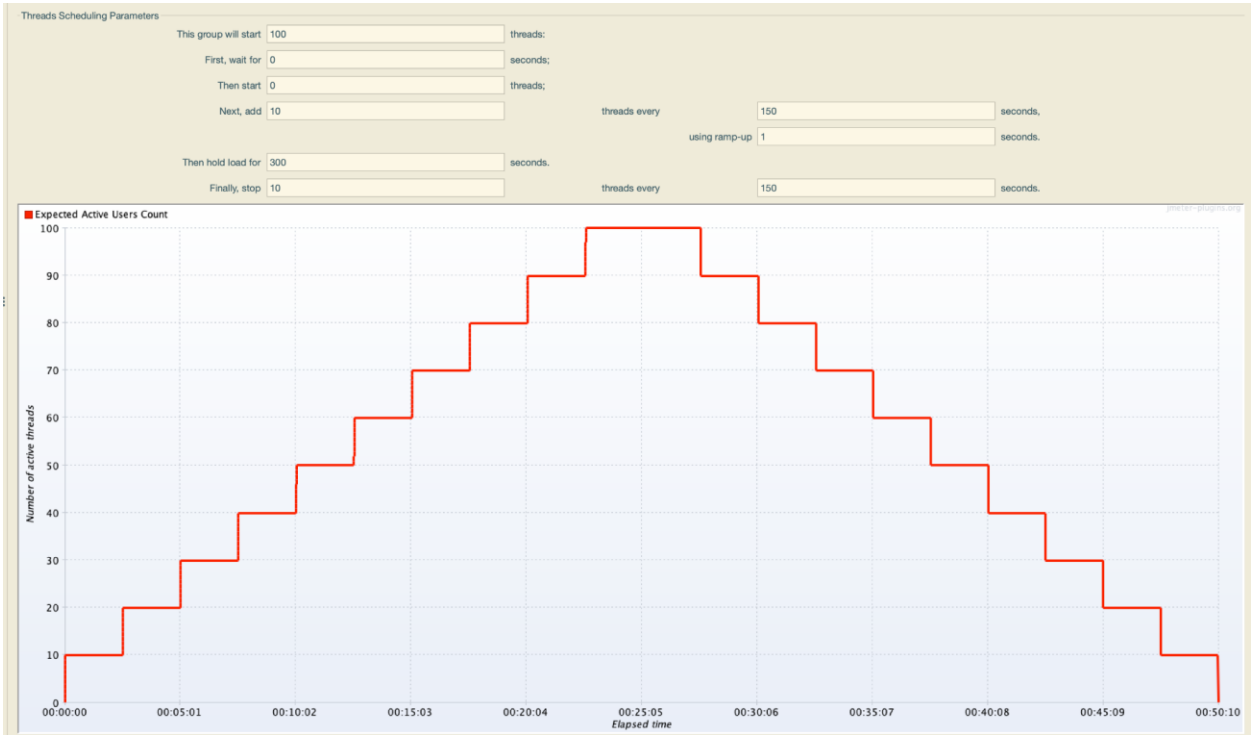


Fig.as-1

Test Report:

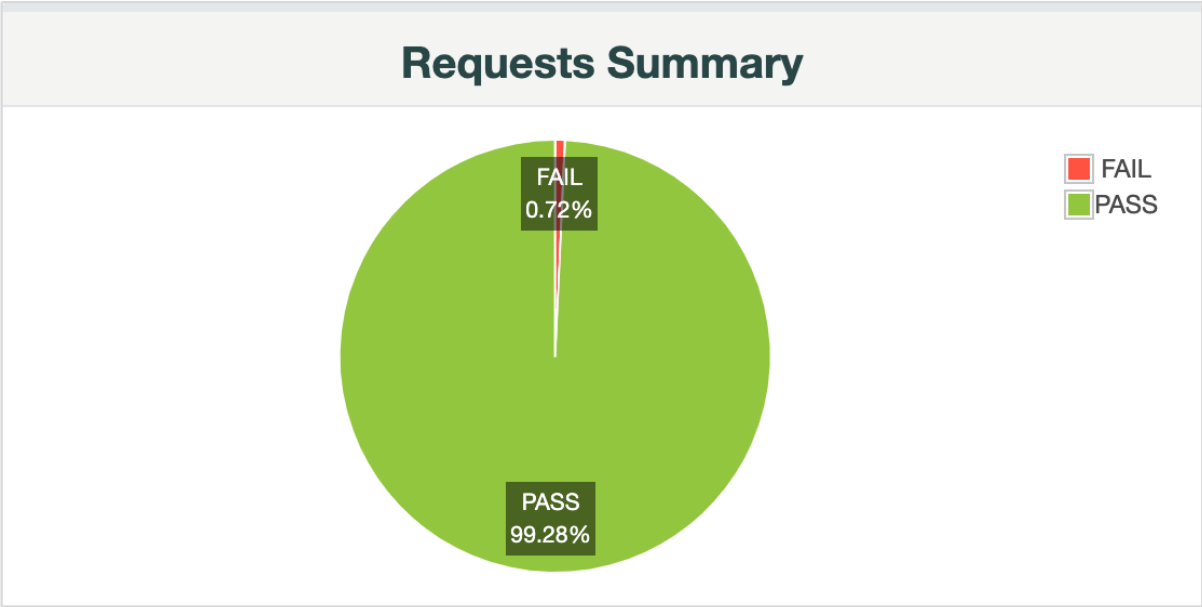


Fig.as-2

APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.758	**500 ms**	**1 sec 500 ms**	**Total**
0.195	500 ms	1 sec 500 ms	GET_GATEWAY_UserApi_sessionInfo
0.225	500 ms	1 sec 500 ms	GET_UI_login
0.392	500 ms	1 sec 500 ms	GET_UI_dashboard
0.539	500 ms	1 sec 500 ms	GET_UI_login-2
0.545	500 ms	1 sec 500 ms	GET_UI_login-3
0.604	500 ms	1 sec 500 ms	GET_UI_login-8
0.648	500 ms	1 sec 500 ms	GET_UI_dashboard-2
0.657	500 ms	1 sec 500 ms	GET_UI_dashboard-3
0.690	500 ms	1 sec 500 ms	POST_GATEWAY_UserApi_userQuery
0.860	500 ms	1 sec 500 ms	GET_UI_dashboard-8
0.871	500 ms	1 sec 500 ms	GET_UI_dashboard-9
0.872	500 ms	1 sec 500 ms	GET_UI_dashboard-7
0.879	500 ms	1 sec 500 ms	GET_UI_dashboard-1
0.880	500 ms	1 sec 500 ms	GET_UI_login-6
0.881	500 ms	1 sec 500 ms	GET_UI_dashboard-5
0.882	500 ms	1 sec 500 ms	GET_UI_login-7
0.882	500 ms	1 sec 500 ms	GET_UI_dashboard-6
0.884	500 ms	1 sec 500 ms	GET_UI_dashboard-4
0.887	500 ms	1 sec 500 ms	GET_UI_login-9
0.887	500 ms	1 sec 500 ms	GET_UI_login-0
0.890	500 ms	1 sec 500 ms	GET_UI_login-4
0.893	500 ms	1 sec 500 ms	GET_UI_dashboard-0
0.895	500 ms	1 sec 500 ms	GET_UI_login-5
0.898	500 ms	1 sec 500 ms	GET_UI_login-1
0.986	500 ms	1 sec 500 ms	GET_GATEWAY_WeatherApi_plot
0.996	500 ms	1 sec 500 ms	POST_GATEWAY_WeatherApi_queryStatus

Fig.as-3

Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**194930**	**1410**	**0.72%**	**998.43**	**1**	**79223**	**54.00**	**1116.90**	**2811.50**	**11370.94**	**64.76**	**27349.29**	**35.10**
GET_GATEWAY_UserApi_sessionInfo	7493	412	5.50%	5198.45	5	56264	3084.00	12911.20	17556.50	28677.38	2.49	880.60	1.22
GET_GATEWAY_WeatherApi_plot	7484	0	0.00%	106.67	8	2064	56.00	254.00	390.00	721.00	2.49	288.12	1.18
GET_UI_dashboard	7498	125	1.67%	2374.63	4	79223	1335.50	5329.30	8149.75	18320.92	2.49	61.70	0.00
GET_UI_dashboard-0	7475	0	0.00%	282.78	3	72808	58.00	852.40	1182.00	1974.96	2.49	2.70	0.00
GET_UI_dashboard-1	7475	25	0.33%	304.77	4	61556	70.00	929.40	1294.40	2009.48	2.49	0.53	0.00
GET_UI_dashboard-2	7475	8	0.11%	1579.66	62	38984	312.00	4517.80	6939.00	15566.72	2.49	18.10	0.00
GET_UI_dashboard-3	7475	10	0.13%	1444.63	62	39219	297.00	4166.60	6285.80	13424.40	2.49	3.52	0.00
GET_UI_dashboard-4	7475	18	0.24%	289.34	3	39004	69.00	912.00	1277.20	1993.44	2.49	1.17	0.00
GET_UI_dashboard-5	7475	23	0.31%	287.53	3	6384	67.00	919.00	1292.00	2008.20	2.49	0.57	0.00
GET_UI_dashboard-6	7475	27	0.36%	297.03	4	61556	73.00	903.00	1275.00	2001.44	2.49	2.67	0.00
GET_UI_dashboard-7	7475	13	0.17%	322.39	3	65406	79.00	991.20	1382.00	2156.96	2.49	2.21	0.00
GET_UI_dashboard-8	7475	16	0.21%	373.13	4	65565	124.00	1048.00	1455.60	2232.96	2.49	28.97	0.00
GET_UI_dashboard-9	7475	18	0.24%	357.48	3	65853	96.00	1019.00	1449.40	2242.68	2.49	1.26	0.00
GET_UI_login	7536	113	1.50%	3615.05	3	75416	2152.00	7064.40	10155.45	28540.20	2.50	13028.48	14.77
GET_UI_login-0	7519	0	0.00%	454.97	3	65817	32.00	873.00	1251.00	2155.40	2.50	2.71	1.45
GET_UI_login-1	7519	14	0.19%	323.53	4	65382	45.00	812.00	1152.00	2001.80	2.50	2.94	1.47
GET_UI_login-2	7519	15	0.20%	2110.86	63	58551	717.00	5766.00	8389.00	17530.20	2.50	18.21	1.57
GET_UI_login-3	7519	14	0.19%	2005.70	2	59097	688.00	5459.00	7996.00	15997.80	2.50	3.58	1.52
GET_UI_login-4	7519	24	0.32%	381.36	4	65837	59.00	843.00	1143.00	2021.60	2.50	195.22	1.46
GET_UI_login-5	7519	21	0.28%	361.69	3	65834	45.00	814.00	1157.00	1991.60	2.50	17.78	1.46
GET_UI_login-6	7519	16	0.21%	393.98	5	65438	94.00	903.00	1227.00	2102.80	2.50	846.37	1.47
GET_UI_login-7	7519	17	0.23%	419.72	5	67822	83.00	910.00	1261.00	2143.00	2.50	529.79	1.46
GET_UI_login-8	7519	15	0.20%	1152.46	5	71043	604.00	2294.00	2991.00	5842.20	2.50	11221.73	1.46
GET_UI_login-9	7519	24	0.32%	413.75	4	65535	88.00	877.00	1284.00	2218.00	2.50	191.95	1.45
POST_GATEWAY_UserApi_userQuery	7495	442	5.90%	1035.64	1	47685	363.00	1794.40	4556.80	14757.84	2.49	0.87	1.37
POST_GATEWAY_WeatherApi_queryStatus	7484	0	0.00%	50.03	3	2208	23.00	105.00	176.00	451.30	2.49	1.33	1.79

Fig.as-4

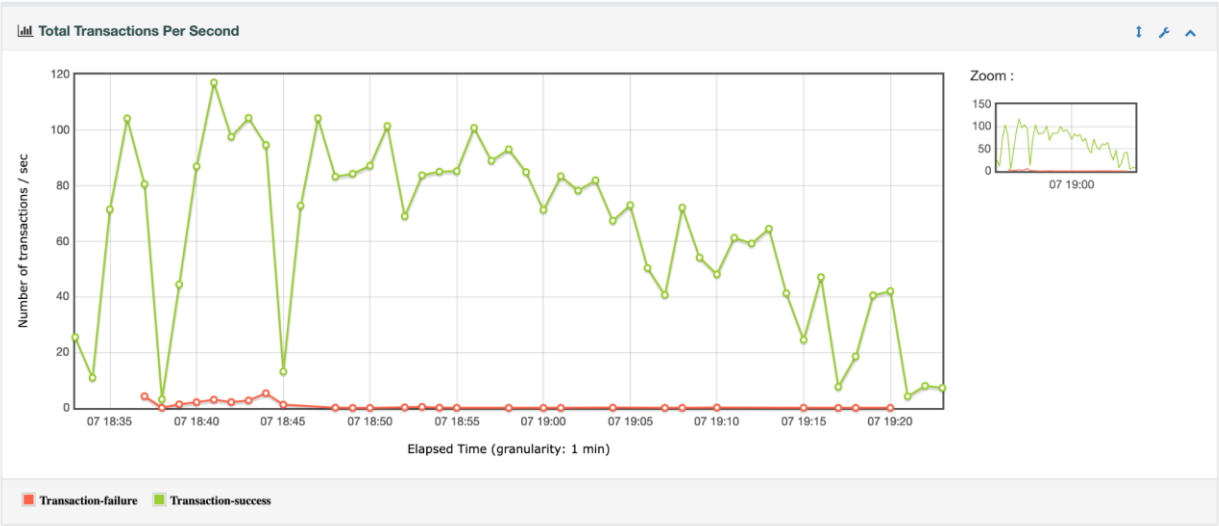


Fig.as-5

Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	194930	1410	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4700 failed to respond	440	404/Not Found	412	Assertion failed	198	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	163	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4200 failed to respond	147
GET_GATEWAY_UserApi_sessionInfo	7493	412	404/Not Found	412								
GET_UI_dashboard	7498	125	Assertion failed	102	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	23						
GET_UI_dashboard-1	7475	25	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	25								
GET_UI_dashboard-2	7475	8	Non HTTP response code: javax.net.ssl.SSLException/Non HTTP response message: Connection reset	8								
GET_UI_dashboard-3	7475	10	Non HTTP response code: javax.net.ssl.SSLException/Non HTTP response message: Connection reset	10								
GET_UI_dashboard-4	7475	18	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	18								
GET_UI_dashboard-5	7475	23	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	23								
GET_UI_dashboard-6	7475	27	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	27								
GET_UI_dashboard-7	7475	13	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	13								
GET_UI_dashboard-8	7475	16	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	16								
GET_UI_dashboard-9	7475	18	Non HTTP response code: java.net.SocketException/Non HTTP response message: Unexpected end of file from server	18								
GET_UI_login	7536	113	Assertion failed	96	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4200 failed to respond	17						
GET_UI_login-1	7519	14	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4200 failed to respond	14								
GET_UI_login-2	7519	15	Non HTTP response code: javax.net.ssl.SSLException/Non HTTP response message: Connection reset	13	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: fonts.googleapis.com:443 failed to respond	1	Non HTTP response code: javax.net.ssl.SSLHandshakeException/Non HTTP response message: Remote host terminated the handshake	1				
GET_UI_login-3	7519	14	Non HTTP response code: javax.net.ssl.SSLException/Non HTTP response message: Connection reset	13	Non HTTP response code: java.lang.NullPointerException/Non HTTP response message: Cannot read the array length because "addresses" is null	1						
GET_UI_login-4	7519	24	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4200 failed to respond	24								
GET_UI_login-5	7519	21	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4200 failed to respond	21								
GET_UI_login-6	7519	16	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4200 failed to respond	16								
GET_UI_login-7	7519	17	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4200 failed to respond	17								
GET_UI_login-8	7519	15	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4200 failed to respond	15								
GET_UI_login-9	7519	24	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4200 failed to respond	23	Non HTTP response code: java.lang.IllegalStateException/Non HTTP response message: Connection pool shut down	1						
POST_GATEWAY_UserApi_userQuery	7495	442	Non HTTP response code: org.apache.http.NoHttpResponseException/Non HTTP response message: localhost:4700 failed to respond	440	500	2						

Fig.as-6

Resources used on zero load (0 Threads):

```
NAME                                      CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-sqg6p                    3m           471Mi
user-api-app-6d8fbfc88f-rb4x6             6m           312Mi
weather-cache-app-f4f59575f-6hh6r         0m           34Mi
weather-cache-redis-585654db4f-68zqg      4m           3Mi
weather-radar-api-app-8f65f4ffb-nbgqq     5m           2226Mi
weather-radar-gateway-app-7b45fd7fbf-9kggg 0m          34Mi
weather-radar-ui-app-6c6cbfbb5d-9m9rh     1m           613Mi
weather-radar-ui-app-6c6cbfbb5d-pqz7v     160m         610Mi
```

Fig.as-7

Resources used on max scaling load (100 Threads):

```
NAME                                      CPU(cores)   MEMORY(bytes)
mysql-68579b78bb-sqg6p                    53m          474Mi
user-api-app-6d8fbfc88f-4bq92             232m         342Mi
user-api-app-6d8fbfc88f-kt94t             208m         288Mi
user-api-app-6d8fbfc88f-rb4x6             179m         330Mi
user-api-app-6d8fbfc88f-s59ww             250m         316Mi
user-api-app-6d8fbfc88f-tlrdl             249m         369Mi
weather-cache-app-f4f59575f-6hh6r         38m          45Mi
weather-cache-redis-585654db4f-68zqg      10m          4Mi
weather-radar-api-app-8f65f4ffb-nbgqq     10m          2226Mi
weather-radar-gateway-app-7b45fd7fbf-9kggg 202m        74Mi
weather-radar-ui-app-6c6cbfbb5d-9m9rh     301m         662Mi
weather-radar-ui-app-6c6cbfbb5d-hczld     339m         702Mi
weather-radar-ui-app-6c6cbfbb5d-w47k7     228m         685Mi
sanketdarwante@Sankets-MacBook-Pro ~ %
```

Fig. as-8

Resource CPU Grafana Summary Graph:

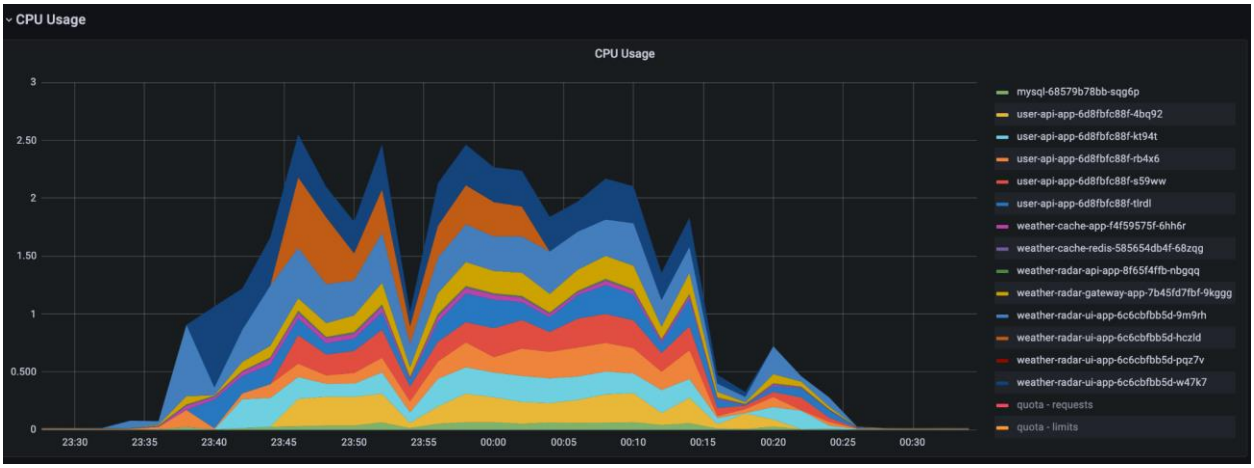


Fig. as-9

Resource Memory Grafana Summary Graph:

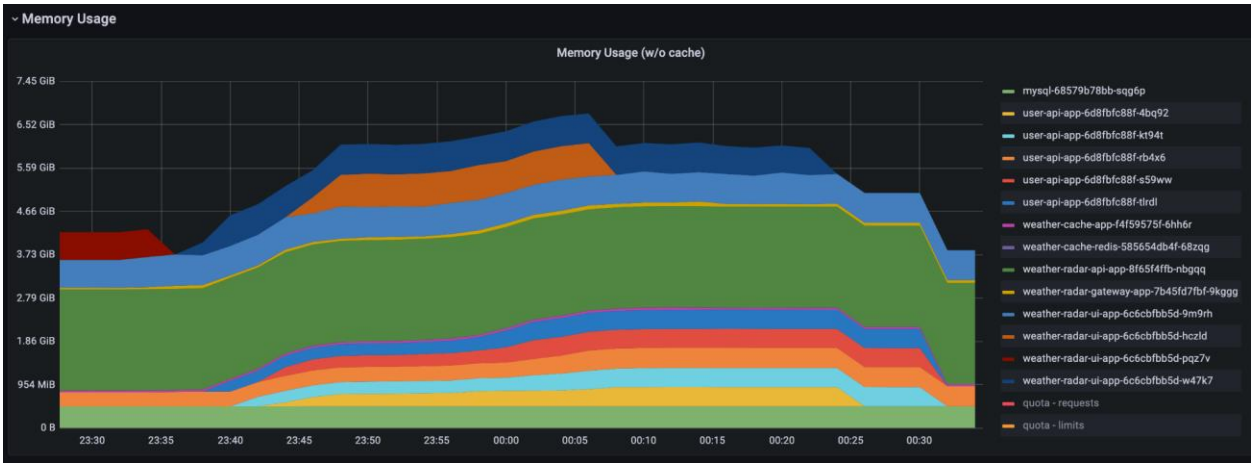


Fig. as-10

Horizontal Pod Autoscaling Logs Zero Load (0 Threads):

```
sanketdarwante@Sankets-MacBook-Pro YAML % kubectl -n weather-app1 get hpa
NAME                                   REFERENCE                                   TARGETS    MINPODS   MAXPODS   REPLICAS   AGE
user-api-app-autoscale                 Deployment/user-api-app                     1%/50%     1         5         1          59m
weather-cache-app-autoscale            Deployment/weather-cache-app                0%/70%     1         5         1          18m
weather-radar-gateway-app-autoscale    Deployment/weather-radar-gateway-app        0%/70%     1         3         1          7m33s
weather-radar-ui-app-autoscale         Deployment/weather-radar-ui-app             63%/70%    1         3         2          3m17s
```

Fig. as-11

Horizontal Pod Autoscaling Logs Peak Load (100 Threads):

```
weather-cache-app-autoscale          Deployment/weather-cache-app          20%/70%   1   5   1   45m
user-api-app-autoscale               Deployment/user-api-app               78%/50%   1   5   5   87m
weather-radar-gateway-app-autoscale  Deployment/weather-radar-gateway-app  24%/70%   1   3   1   35m
weather-radar-ui-app-autoscale       Deployment/weather-radar-ui-app       45%/70%   1   3   3   31m
```

Fig. as-12

Autoscaling Configuration:

Based on the previous load testing data on full stack applications, we calculated the average CPU consumption of all the services, and it is as follows:

Service	CPU Limit	Target CPU Utilization %	Min Replicas	Max Replicas
User API	250m	70	1	5
Weather Cache	250m	70	1	5
Weather API	500m	50	1	3
API Gateway	700m	70	1	3
Weather UI	700m	70	1	3

Table: as-13

Conclusion:

1. We were successfully able to test services autoscaling of our application under increasing load, with the help of Kubernetes inbuilt horizontal pod autoscaling feature.
2. As the auto scaling test plan, we increase 10 thread each 300 second up to maximum 100 threads. We have taken 150 seconds as step-up time since Kubernetes hpa calculation takes place every 300 sec, so it gets enough time to recalculate utilization and scale up.
3. Also, slow ramp up gives Kubernetes hpa to create the new pod and shift load to new instance and it also helps in the cool down phase to slowly decrease the instance as the load goes down.
4. The test result also shows very low error **0.72 %** for a sample of **194930** requests and a throughput of **64.76 transactions/second**
5. System mostly fails due to **Connection reset** or **Connection pool shut down**.
6. From **fig.as-11** and **fig.as-13**, it can be seen that:

   a. UserApi scaled from 1 instance to 5 instances
   b. WeatherUI service scaled from 1 to 2 to 3 instances eventually.
7. From the grafana system utilization graph from **fig.as-9** and **fig.as-10,** it is clear that color change in the graph shows how the instances scaled up and scaled down based on load.
8. Deployment scaling logs could be found here for reference:https://docs.google.com/document/d/e/2PACX-1vTww8J7eB5CZIbZFmy5zo17B5An6bmvtaI6onGkIrslFGlvOl8nMC5w2Vmpmas_3xzR_lUONadedILY/pub
9. Due to resource constraints on the local system, it was not possible to test multiple test-scenarios. We will be moving the testing to the Jetstream server which can help satisfy system congestion in the upcoming iteration.