Mindtree

Performance Test Report

For

Execution of

Kernel Send OTP and User OTP APIs – 250 users

Date: 21 Apr 2020

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Summary

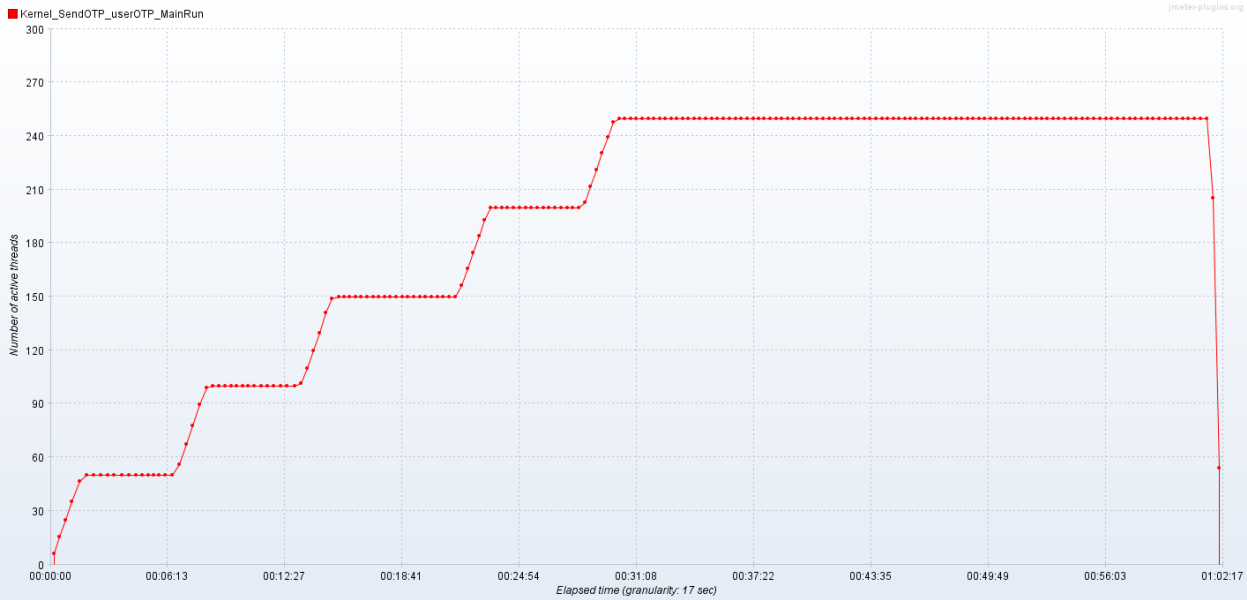
This report presents the observations and findings of the load test conducted for a load of 250 concurrent users for send OTP and User id OTP API's of kernel auth manager

The objective of this load test was to observe and record the behavior of the application when users are calling send OTP and User id OTP API's of kernel auth manager

Below are the scenario details:

Script/Report Name	Kernel Auth Manager (Send OTP and UserId OTP)
Run Date	21-Apr-2019
Period	10:39 to 10:41 AM (UTC)
Number of concurrent users	250
Ramp up	See in below ramp up pattern picture
Run Duration	01:02 min

Ramp up profile:



The transaction response times observed were as below:

Label	# Samples	Average (ms)	90% Line (ms)	Min (ms)	Max (ms)	Error %	Throughput (sec)
TR_kernel_prereg_sendotp	24107	28283	30022	302	30089	89.10%	6.45101
TR_kernel_prereg_userid_otp	2627	6889	14842	180	30022	0.50%	2.81999

Performance Test Execution Details

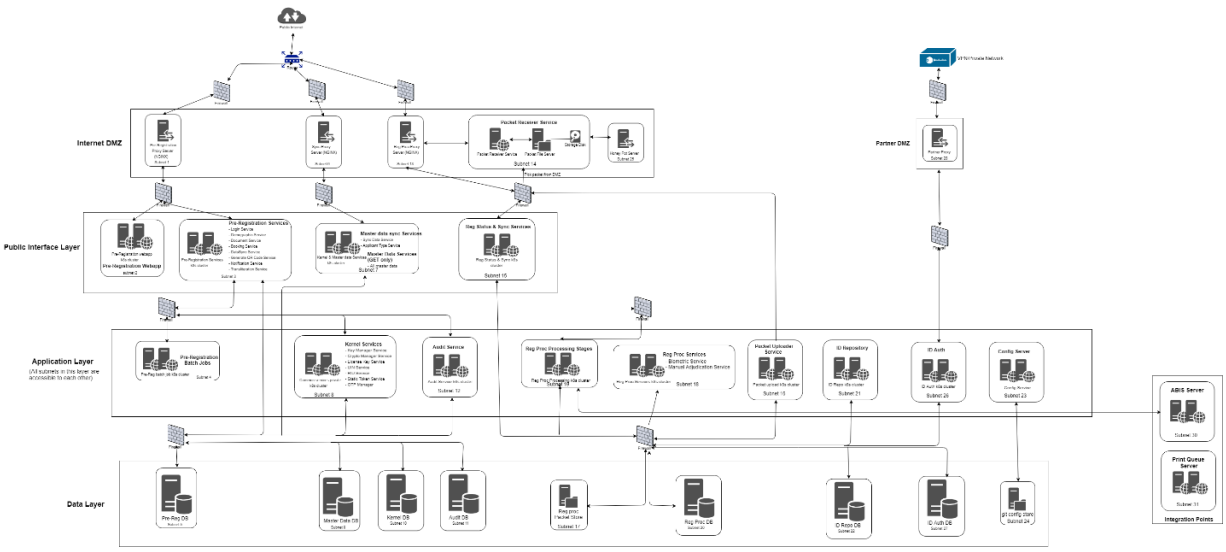
Both APIs transactions average response times were more than 3sec mentioned below:

1. TR_kernel_prereg_sendotp – 28.28 sec

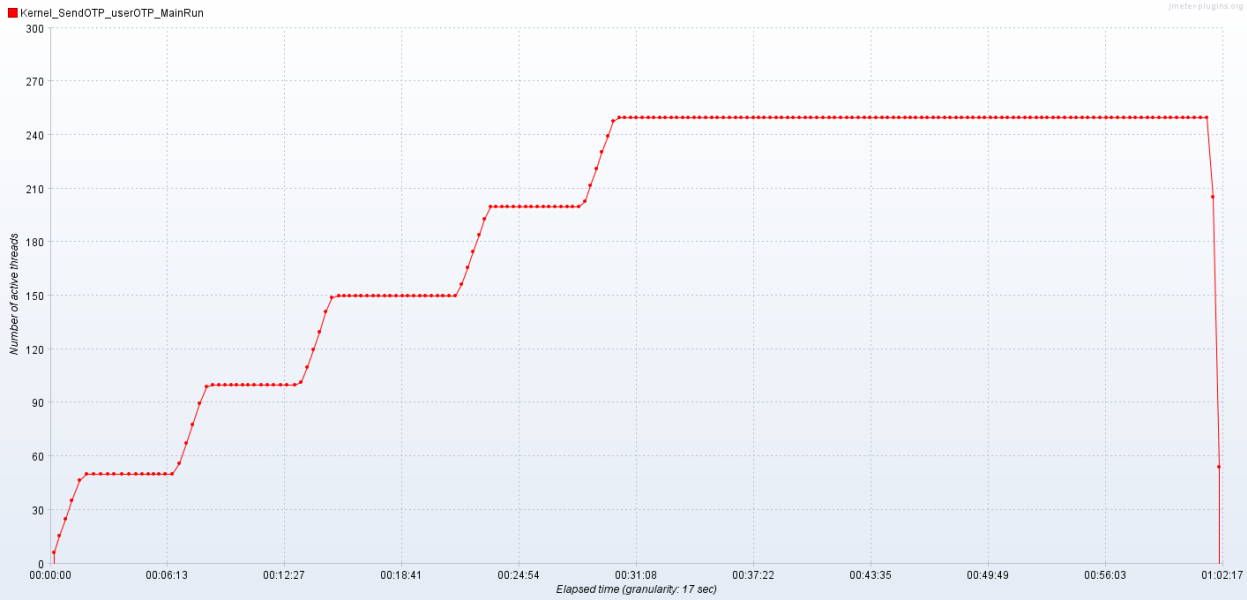
The error rate for below transactions are more than 1%:

Transactions	Error %
TR_kernel_prereg_sendotp	89.10%

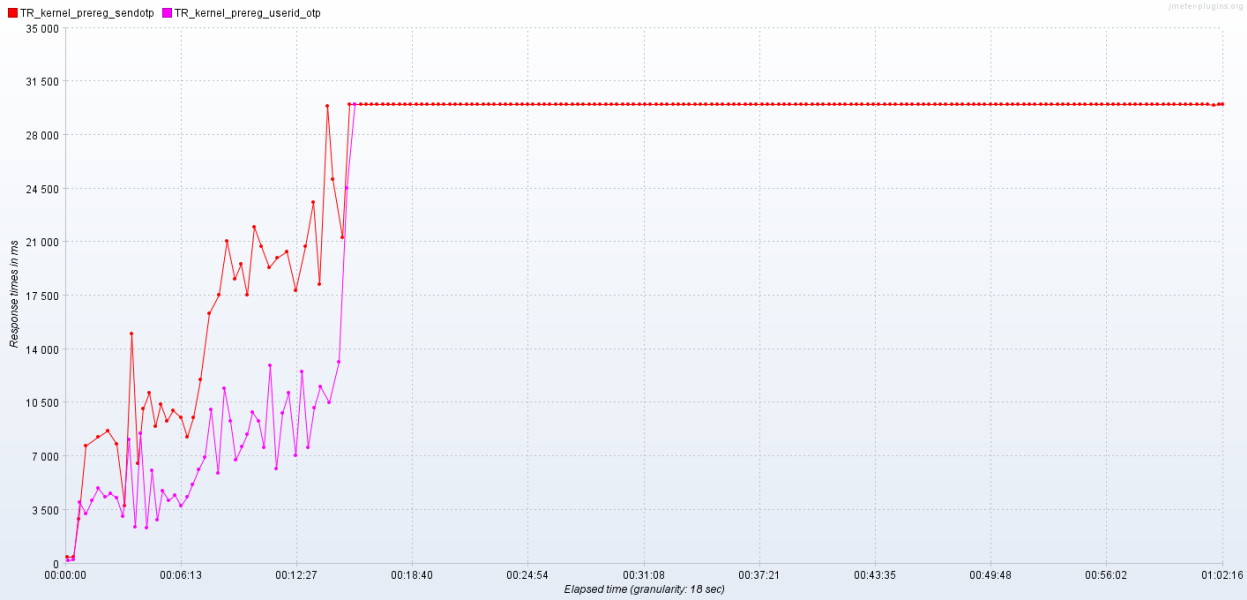
Test Environment : we are using scale-down version of below Architecture



Active threads over Time:

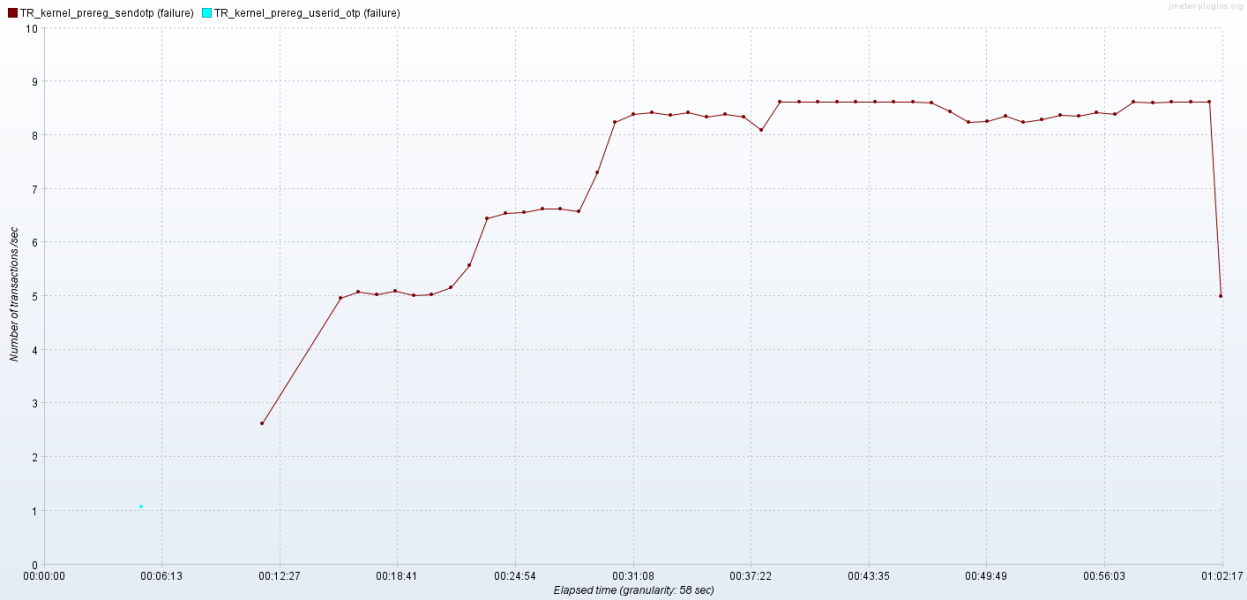


Response Time Graph

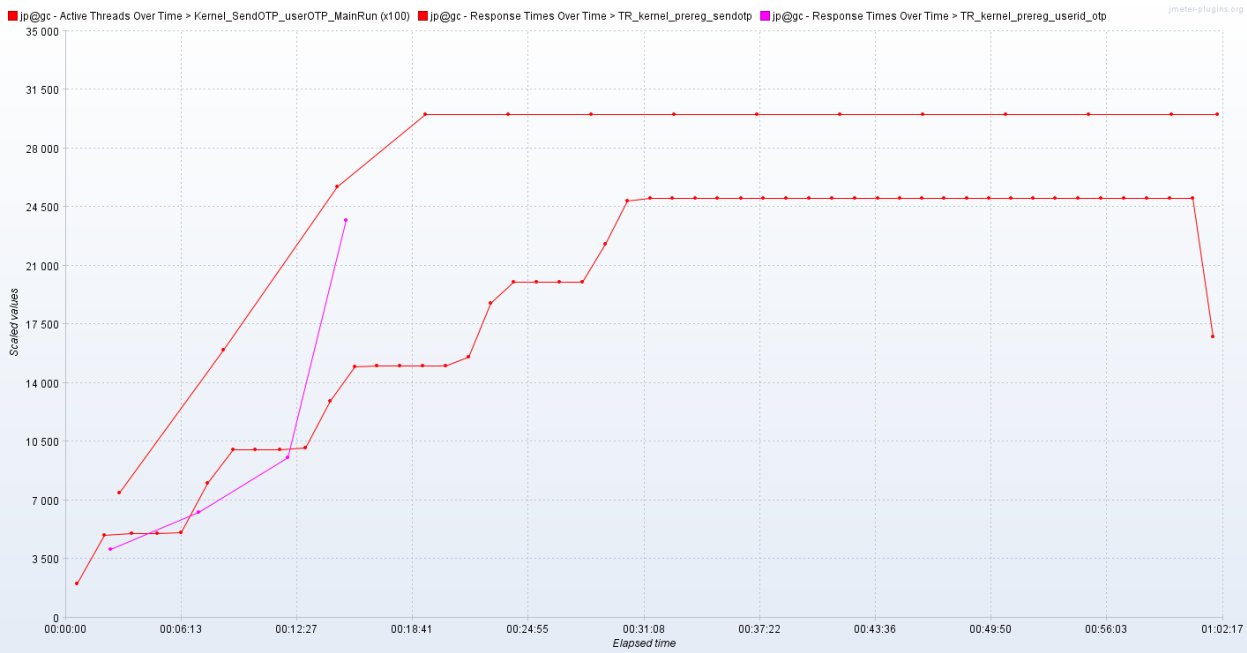


Transactions per second: (success)

Transactions per second: (failure)



Active threads vs response times over time:

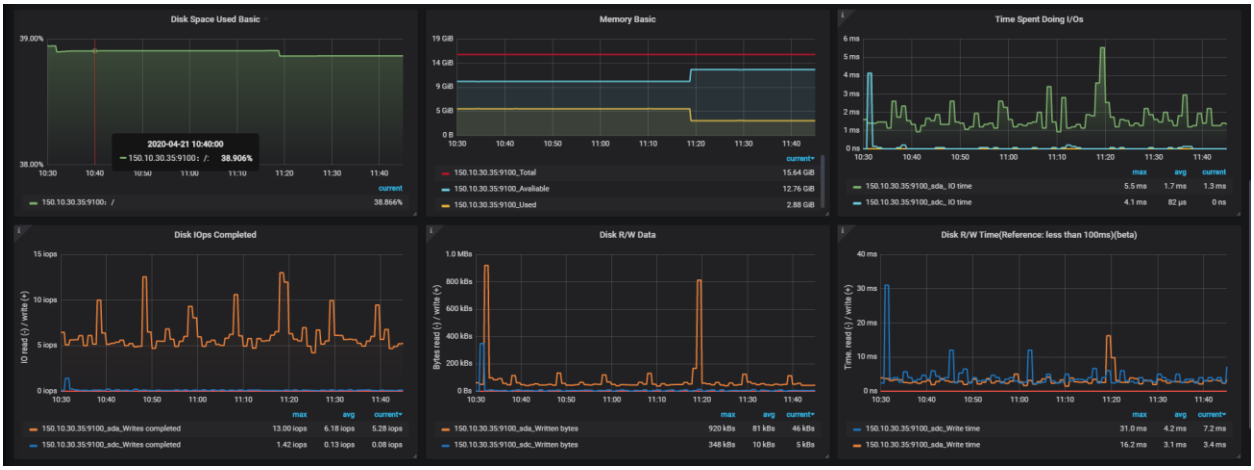


JMeter graph:

Kernel cluster node 0 monitoring:

Observations:

- Max Total CPU basic is 14.83% and Avg is 9.44%
- Max used memory is 2.88 Gib out of 15.64 Gib
- Max System load (1m) is 1.10 and avg is 0.40



Kernel cluster node 1 monitoring:

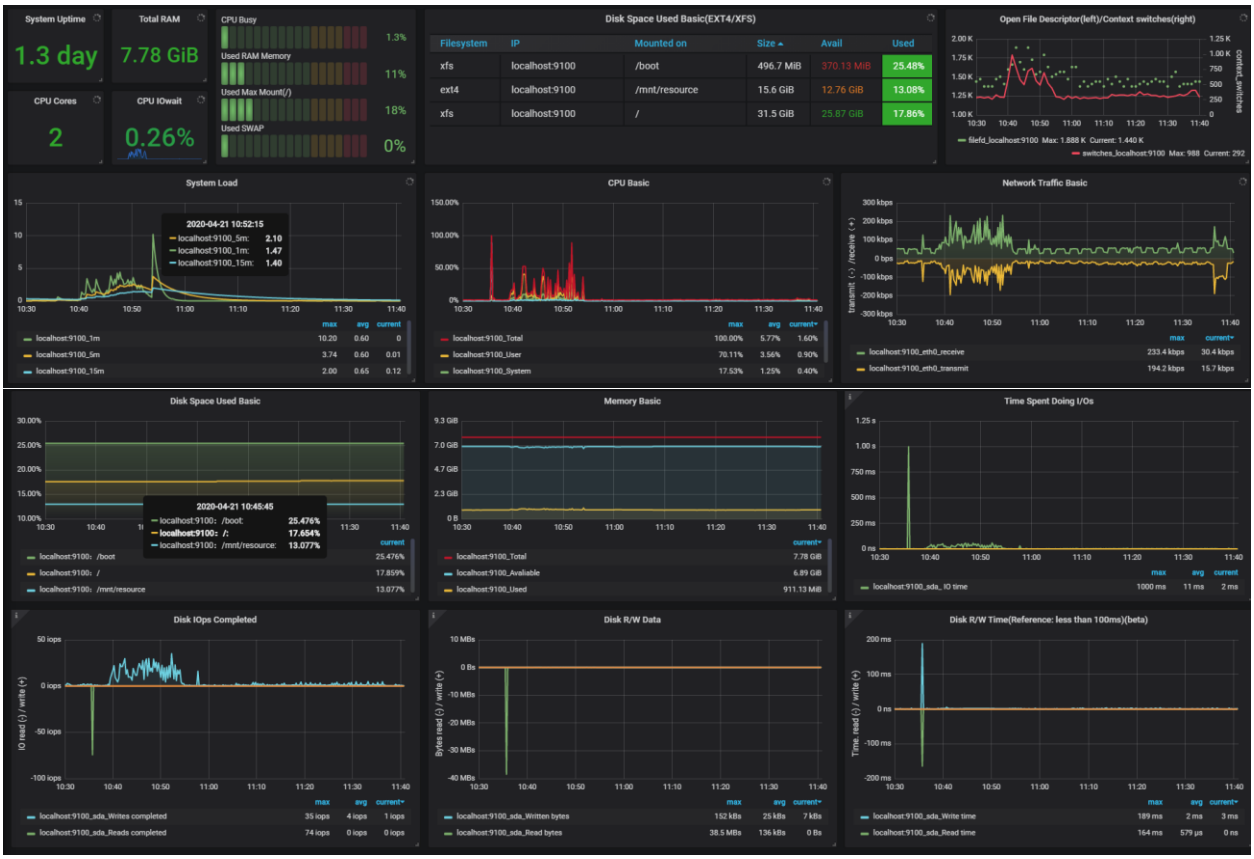
Observations:

- Max Total CPU basic is 33.84% and Avg is 12.18%
- Max used memory is 7.54 Gib out of 15.64 Gib
- Max System load (1m) is 2.480 and avg is 0.62

Kernel DB node monitoring: (2core vcpu ,7.78 gib)

Observations:

- Max Total CPU basic is 100% and Avg is 5.8%
- Max used memory is 912 Mib out of 7.78 Gib
- Max System load (1m) is 10.20 and avg is 0.60



KeyCloak node monitoring: (2 core vcpu ,3.84 Gib RAM)

Observations:

- Max Total CPU basic is 99.50% and Avg is 18.16%
- Max used memory is 1.79 Gib out of 3.84 Gib
- Max System load (1m) is 2.80 and avg is 0.43

Glow Root Graphs:

kernel-auth-service | Web

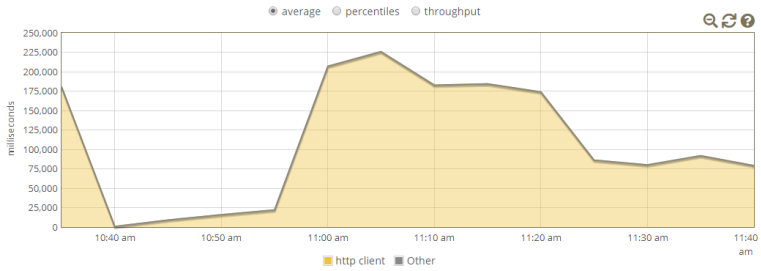
4/21/2020, 10:35 AM to 11:40 AM

By percent of total time

All Web Transactions	100.0 %
/v1/authmanager/authenticate/sendotp	91.0 %
/v1/authmanager/authorize/admin/validateToken	4.7 %
/v1/authmanager/authenticate/useridOTP	4.3 %
/v1/authmanager/**	0.0 %
/v1/authmanager/error	0.0 %

/v1/authmanager/authenticate/sendotp

Response time | Slow traces (5,081) | Queries | Service calls | Thread profile



Breakdown (Main Thread):	total (ms)	count	switch to tree view
http request	71,417.4	1.0	
http client	71,407.9	13.6	

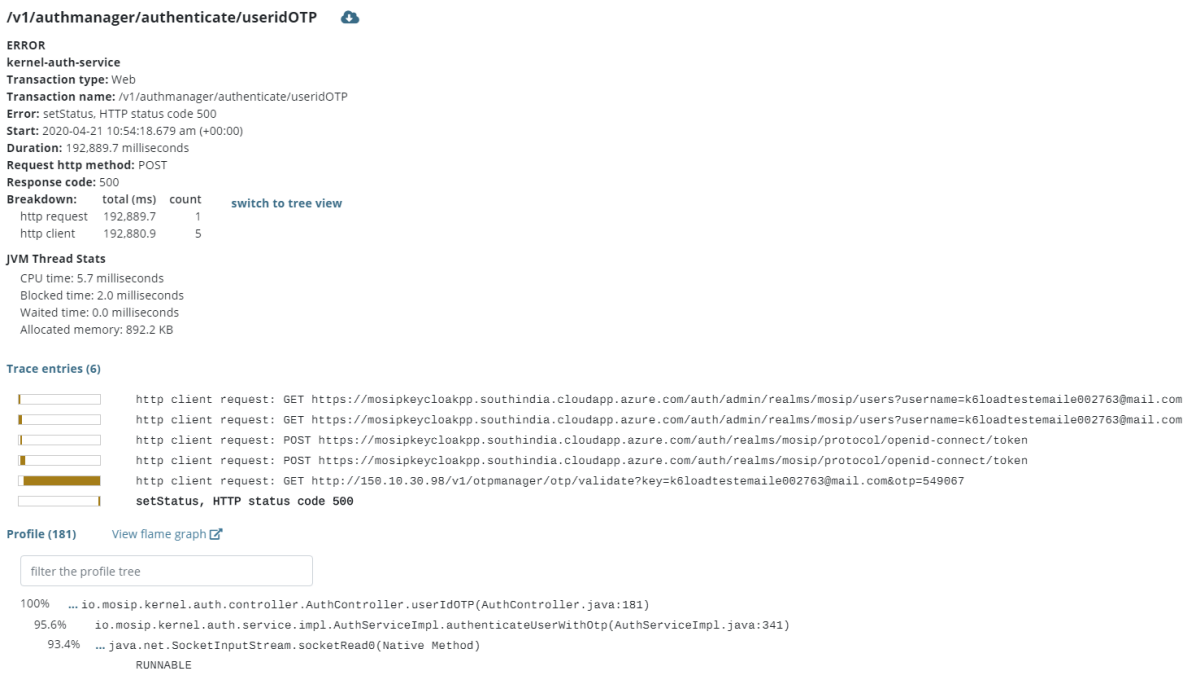
Breakdown (Auxiliary Thread):	total (ms)	count	switch to tree view
auxiliary thread	56.9	0.3	

All Web Transactions	100.0 %
/v1/authmanager/authenticate/sendotp	91.0 %
/v1/authmanager/authorize/admin/validateToken	4.7 %
/v1/authmanager/authenticate/useridOTP	4.3 %
/v1/authmanager/**	0.0 %
/v1/authmanager/error	0.0 %

/v1/authmanager/authenticate/sendotp

Response time | Slow traces (5,081) | Queries | Service calls | Thread profile

	Total time (ms)	Total count	Avg time (ms)
POST http://150.10.30.98/v1/otpmanager/otp/generate	317,712,151.2	5,301	59,934.4
GET http://52.172.40.163/v1/masterdata/templates/eng/auth-otp-email-subject-template	15,080,119.7	2,822	5,343.8
POST https://mosipkeycloakpp.southindia.cloudapp.azure.com/auth/admin/realms/mosip/users/ed623d36-a061-490d-9444-99a49c3ec68b/role-mappings/realm	9,190.8	2	4,595.4
POST https://mosipkeycloakpp.southindia.cloudapp.azure.com/auth/admin/realms/mosip/users/a9398e8f-7e82-42da-881b-97e66cee150d/role-mappings/realm	8,894.7	2	4,447.4
POST https://mosipkeycloakpp.southindia.cloudapp.azure.com/auth/admin/realms/mosip/users/6967df49-0874-45c0-b4cc-89231ce5c0f8/role-mappings/realm	8,766.8	2	4,383.4



/v1/authmanager/authenticate/useridOTP

ERROR
kernel-auth-service
Transaction type: Web
Transaction name: /v1/authmanager/authenticate/useridOTP
Error: setStatus, HTTP status code 500
Start: 2020-04-21 10:54:18.679 am (+00:00)
Duration: 192,889.7 milliseconds
Request http method: POST
Response code: 500

Breakdown:	total (ms)	count
http request	192,889.7	1
http client	192,880.9	5

switch to tree view

JVM Thread Stats
CPU time: 5.7 milliseconds
Blocked time: 2.0 milliseconds
Waited time: 0.0 milliseconds
Allocated memory: 892.2 KB

Trace entries (6)

```
http client request: GET https://mosipkeycloakpp.southindia.cloudapp.azure.com/auth/admin/realms/mosip/users?username=k6loadtestemaile002763@mail.com
http client request: GET https://mosipkeycloakpp.southindia.cloudapp.azure.com/auth/admin/realms/mosip/users?username=k6loadtestemaile002763@mail.com
http client request: POST https://mosipkeycloakpp.southindia.cloudapp.azure.com/auth/realms/mosip/protocol/openid-connect/token
http client request: POST https://mosipkeycloakpp.southindia.cloudapp.azure.com/auth/realms/mosip/protocol/openid-connect/token
http client request: GET http://150.10.30.98/v1/otpmanager/otp/validate?key=k6loadtestemaile002763@mail.com&otp=549067
setStatus, HTTP status code 500
```

Profile (181) View flame graph

filter the profile tree

```
100%   ... io.mosip.kernel.auth.controller.AuthController.userIdOTP(AuthController.java:181)
 95.6%     io.mosip.kernel.auth.service.impl.AuthServiceImpl.authenticateUserWithOtp(AuthServiceImpl.java:341)
 93.4%   ... java.net.SocketInputStream.socketRead0(Native Method)
             RUNNABLE
```

Conclusion and Next Steps:

When concurrent users reached 100 , We started observed huge count of read time out errors for kernel send otp API calls and observed high CPU utilizations for Kernel DB and KeyCloak VM's

Raised defect https://mosip.atlassian.net/browse/MOSIP-818 and we will follow up issue with dev team and retest once issue is resolved