

## Trunov Misha

### SUT:

- Authentication service
  - GET /api/auth/generate\_token
  - GET /api/auth/validate\_token/<string:token\_id>
- Product service
  - GET /api/products/get\_all
  - GET /api/products/get\_product/<string:product\_id>
- Cart service
  - GET /api/cart/get\_items
  - GET /api/cart/add\_item/<string:product\_id>
  - GET /api/cart/checkout

### Summary

#### Tests runned with different SUT configurations:

- regular system configuration
- slow system configuration
- fast system configuration

To make the services "slower/faster", we used:

- **SLOWDOWN\_SERVICE\_MS\_MAX** = parameter
- **SLOWDOWN\_SERVICE\_MS\_MIN** = parameter

#### Tests runned with next parameters:

users = 1000

during = 3600 sec (1 hour)

#### Operational profile:

Open Home Page - 1000 req  
View All products - 1400 req  
View Product Details - 1800 req  
Add Product to cart - 400 req  
View Cart - 240 req  
Checkout - 80 req

In regular system configuration with next parameters:

- SLOWDOWN\_SERVICE\_MS\_MAX = 50
- SLOWDOWN\_SERVICE\_MS\_MIN = 500

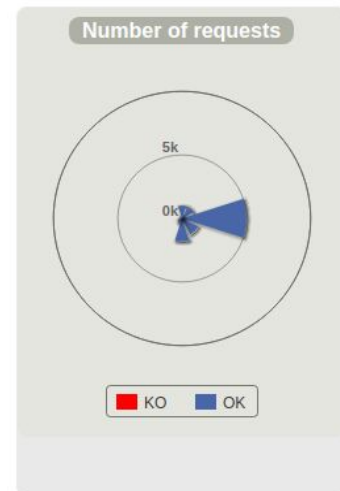
we can highlight two differences:

1. Add Product to Cart Request

- 59% of requests have  $t > 1200$  ms
- 36% of requests have  $800 \text{ ms} < t < 1200$  ms
- 5% of requests have  $t < 800$  ms

2. All other requests have

- 92% - 94% of requests have  $t < 800$  ms
- 6% - 8% of requests have  $800 \text{ ms} < t < 1200$  ms



STATISTICS														Expand all groups   Collapse all groups	
Requests ^	Executions				Response Time (ms)										
	Total ↕	OK ↕	KO ↕	% KO ↕	Req/s ↕	Min ↕	50th pct ↕	75th pct ↕	95th pct ↕	99th pct ↕	Max ↕	Mean ↕	Std Dev ↕		
Global Information	10920	10920	0	0%	3.034	52	469	627	872	1439	2050	497	257		
Generate token	1000	1000	0	0%	0.278	52	254	357	456	460	465	251	133		
Validate Token	1000	1000	0	0%	0.278	52	255	357	456	460	463	252	130		
Home Page Request	5000	5000	0	0%	1.389	106	516	661	821	913	944	518	184		
Get All ... Request	1400	1400	0	0%	0.389	111	527	667	833	919	949	526	184		
Get Prod... Request	1800	1800	0	0%	0.5	109	514	663	822	910	927	515	186		
Add Prod... Request	400	400	0	0%	0.111	525	1276	1476	1764	1948	2050	1272	293		
Get Item... Request	240	240	0	0%	0.067	162	519	660	810	868	919	521	168		
Checkout Request	80	80	0	0%	0.022	111	514	617	825	889	925	507	185		

In slow system configuration with next parameters:

- SLOWDOWN\_SERVICE\_MS\_MAX = 100
- SLOWDOWN\_SERVICE\_MS\_MIN = 1000

We can see the difference in the request time **Add Product to Cart**:

- 100%  $t > 1200$  ms

**Generate token Request:**

- 24%  $800 \text{ ms} < t < 1200 \text{ ms}$
- 76%  $t < 800 \text{ ms}$

**Validate Token Request:**

- 21%  $800 \text{ ms} < t < 1200 \text{ ms}$
- 79%  $t < 800 \text{ ms}$

**Home Page Request:**

- 40%  $800 \text{ ms} < t < 1200 \text{ ms}$
- 24%  $t < 800 \text{ ms}$
- 36%  $t > 1200 \text{ ms}$

**Get All Products Request:**

- 40%  $800 \text{ ms} < t < 1200 \text{ ms}$
- 23%  $t < 800 \text{ ms}$
- 37%  $t > 1200 \text{ ms}$

**Get Product by ID Request:**

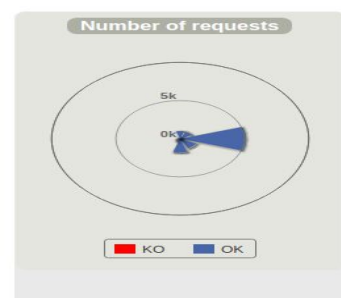
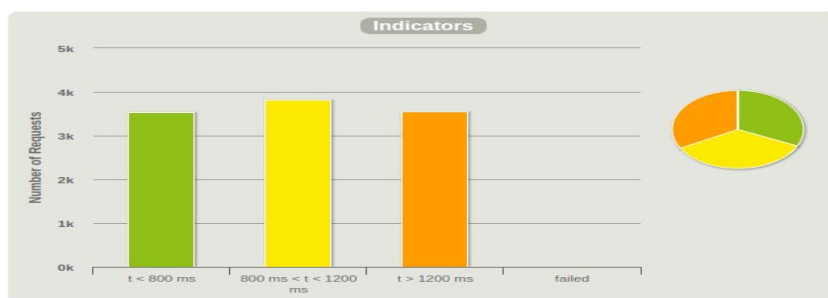
- 40%  $800 \text{ ms} < t < 1200 \text{ ms}$
- 22%  $t < 800 \text{ ms}$
- 38%  $t > 1200 \text{ ms}$

**Get Items from Cart Request:**

- 38%  $800 \text{ ms} < t < 1200 \text{ ms}$
- 24%  $t < 800 \text{ ms}$
- 38%  $t > 1200 \text{ ms}$

**Checkout Request:**

- 34%  $800 \text{ ms} < t < 1200 \text{ ms}$
- 19%  $t < 800 \text{ ms}$
- 48%  $t > 1200 \text{ ms}$



STATISTICS														Expand all groups   Collapse all groups	
Requests ^	Executions				Response Time (ms)										
	Total ^	OK ^	KO ^	% KO ^	Req/s ^	Min ^	50th pct ^	75th pct ^	95th pct ^	99th pct ^	Max ^	Mean ^	Std Dev ^		
Global Information	10920	10920	0	0%	3.03	102	973	1317	1775	3040	4243	1034	525		
Generate token	1000	1000	0	0%	0.277	102	554	758	956	958	964	530	268		
Validate Token	1000	1000	0	0%	0.277	102	543	756	954	957	960	532	258		
Home Page Request	5000	5000	0	0%	1.387	206	1069	1321	1693	1821	1929	1071	368		
Get All ... Request	1400	1400	0	0%	0.388	230	1079	1332	1684	1833	1931	1083	364		
Get Prod... Request	1800	1800	0	0%	0.499	216	1072	1320	1670	1820	1920	1079	355		
Add Prod... Request	400	400	0	0%	0.111	1093	2690	3085	3677	3947	4243	2680	583		
Get Item... Request	240	240	0	0%	0.067	264	1069	1322	1718	1819	1821	1072	367		
Checkout Request	80	80	0	0%	0.022	317	1119	1370	1723	1832	1872	1146	353		

In fast system configuration with next parameters:

- SLOWDOWN\_SERVICE\_MS\_MAX = 5
- SLOWDOWN\_SERVICE\_MS\_MIN = 50

We can see all requests are consistently fast:

- 100%  $t < 800$  ms



▶ STATISTICS						Expand all groups   Collapse all groups							
Requests ^	🔄 Executions					🕒 Response Time (ms)							
	Total ↕	OK ↕	KO ↕	% KO ↕	Req/s ↕	Min ↕	50th pct ↕	75th pct ↕	95th pct ↕	99th pct ↕	Max ↕	Mean ↕	Std Dev ↕
Global Information	10920	10920	0	0%	3.037	6	22	27	44	64	103	23	11
Generate token	1000	1000	0	0%	0.278	6	10	11	14	18	33	10	2
Validate Token	1000	1000	0	0%	0.278	6	10	11	15	19	25	10	3
Home Page Request	5000	5000	0	0%	1.39	14	24	27	37	48	88	24	7
Get All ... Request	1400	1400	0	0%	0.389	17	30	36	51	60	88	31	10
Get Prod... Request	1800	1800	0	0%	0.501	14	21	26	34	41	96	23	6
Add Prod... Request	400	400	0	0%	0.111	37	51	64	78	86	103	55	12
Get Item... Request	240	240	0	0%	0.067	14	20	26	32	38	40	22	6
Checkout Request	80	80	0	0%	0.022	15	23	26	32	39	45	23	6

According to the results of three different reports, we can see that we can improve the performance of the system to a stable speed for all requests:

- 100%  $t < 800$  ms