

Oracle CPU analysis

Average CPU consumption of the Oracle servers from October, 2020.

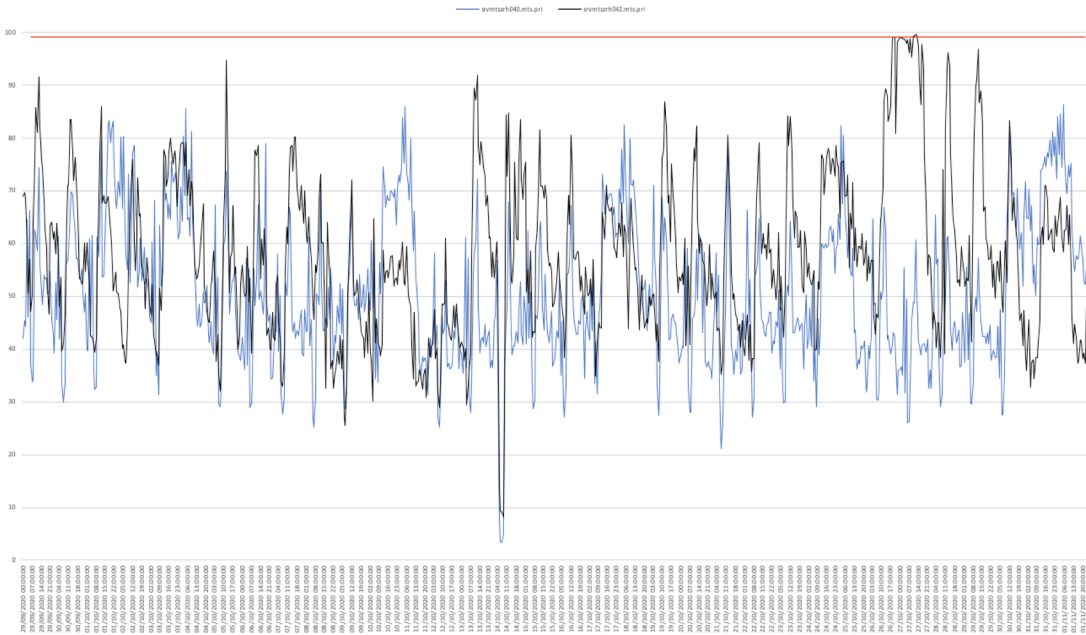
Current load is 30% lower than normal (estimated due COVID-19)

Files:

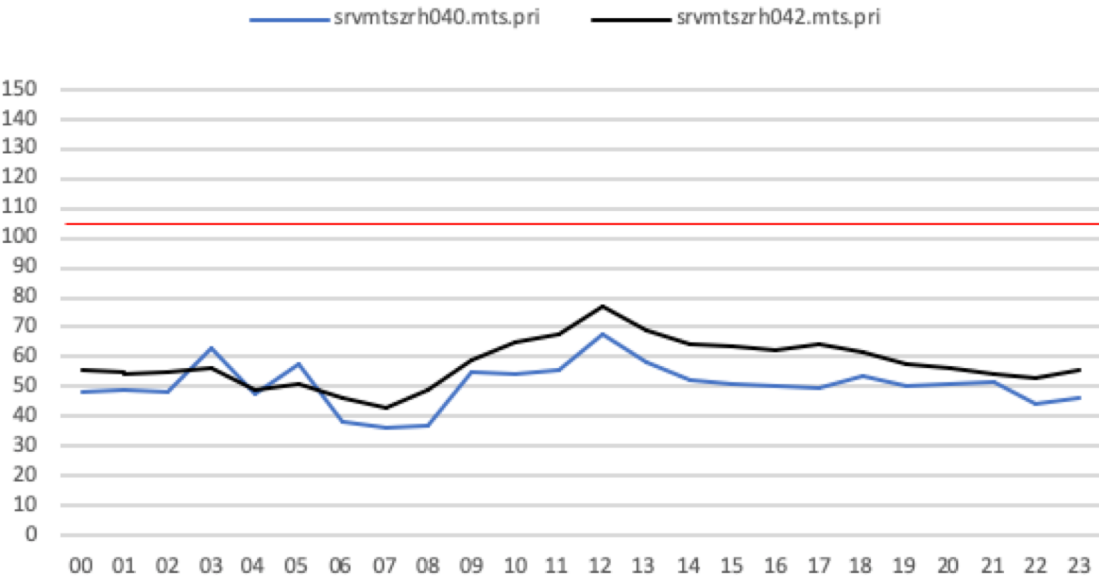
- [host_cpu_percent_per_day.xlsx](#)
- [service_name_cpu_percent_per_hour_october.xlsx](#)

CPU usage of each Oracle server (RACPROD-1 and RACPROD-2)

Average CPU usage per hour.



Average CPU usage from 00:00 to 24:00.



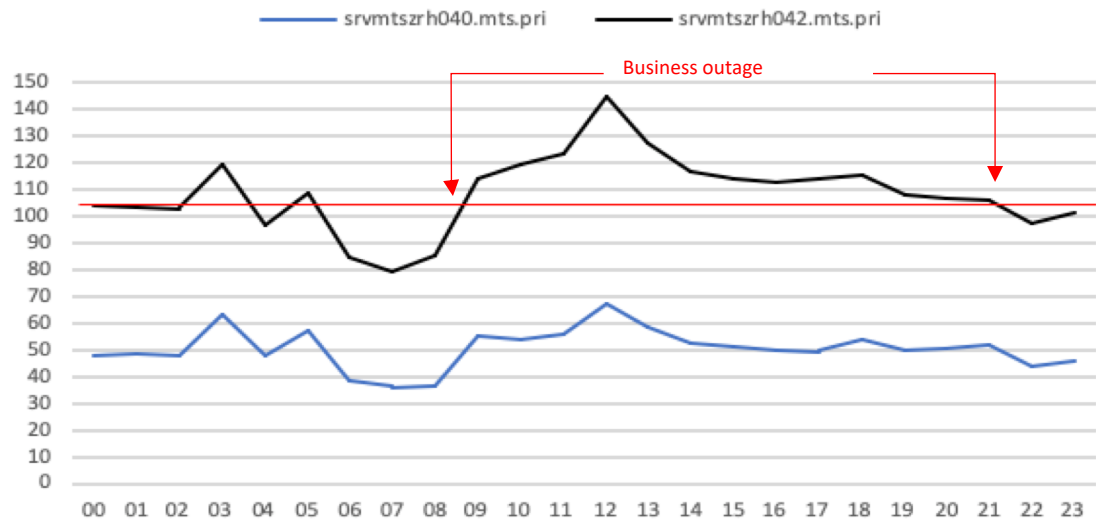
Currently the servers are not overloaded. In average, the CPU usage is between 50 and 80% in each server.

The CPU load average of both servers would be +85% of CPU usage in normal conditions.

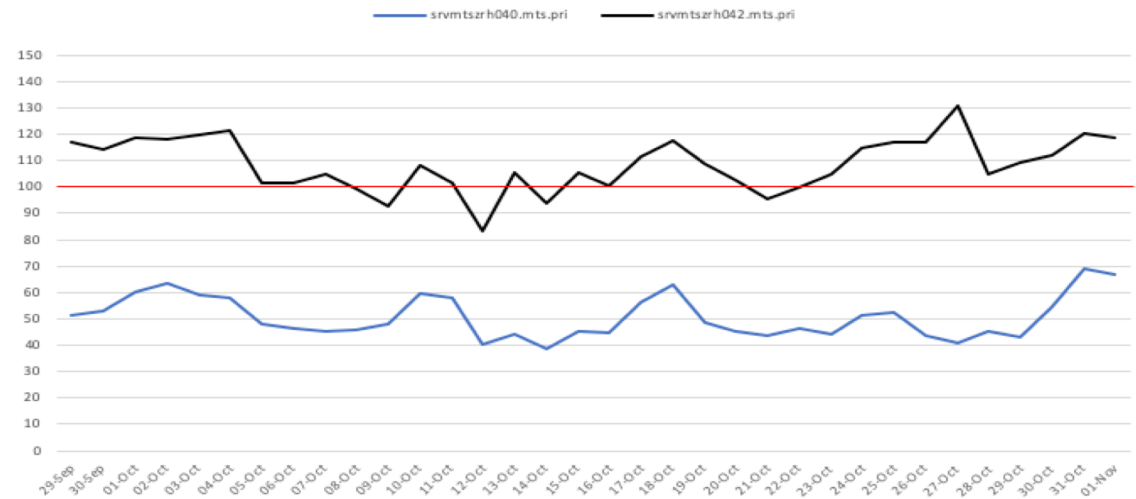
(We are estimating around 30% of less load than normally due COVID-19)

What if one server is down?

Average CPU usage from 00:00 to 24:00 (stacked line).



Average CPU usage per day.



It is not possible to handle the business workload during working hours with a single server.

This would happen every day. (It would not be punctual)

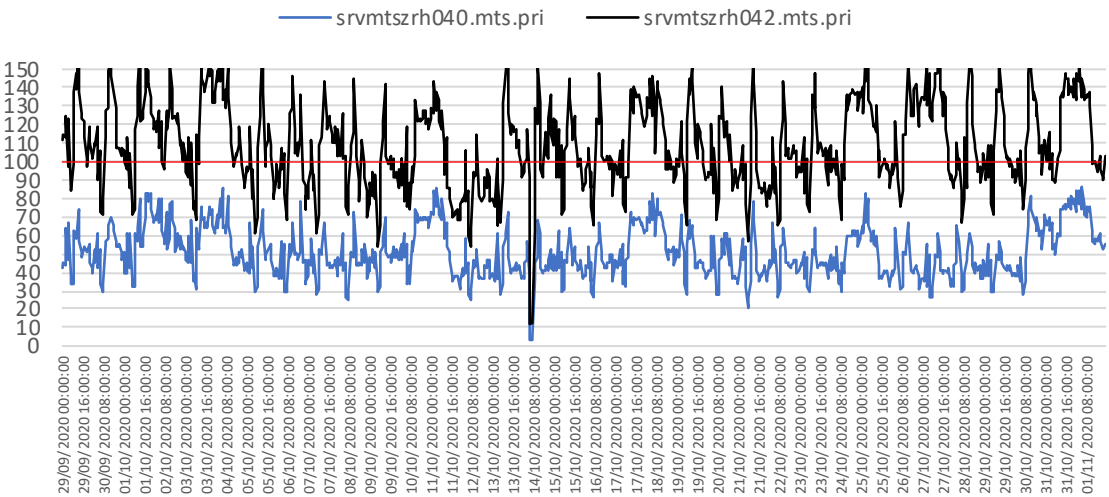
Server should have +50% of CPU each for handling a server failover with current load.

What would we need today without COVID? Both servers should have +100% of CPU

current max = 150%

+ Estimated covid = 30%

Max. estimations = 180%.



Who is using most of the Oracle CPU?

Total of seconds of CPU used by each service from 1/10/2020 to 31/10/2020

- Top 20 CPU consumers:

Service	CPU usage
ESB_AUTOPUBLISH	20,21%
ESB_B2B	15,34%
ESB_AUTOIMPORT	10,85%
ESB_EDF *	7,09%
ESB_AVAILABILITY	6,91%
SYS\$USERS	5,02%
ESB_B2G	4,73%
ESB_OTA	3,70%
ESB_SYNC	3,66%
ESB_SI	3,53%
ABC_Q	3,37%
TK2_ESB	2,66%
ESB_SI_PULL_BOOKING	2,66%
ESB_CACHE_PROVIDER	1,78%
SYS\$BACKGROUND	1,78%
ESB_SYNC_YIELD	1,10%
MAINTENANCE	0,89%
TRAVELKISS_JOBS	0,84%
TK2_SOLR	0,81%
RACPROD	0,76%

* This will go to abcQ

- 60% of CPU is mostly used by the Top 5 consumers

Conclusions

- ✓ The current Oracle servers will not be able to handle the MTS operations when business is back to normal after COVID-19.
- ✓ If we have a server outage today (still under the COVID-19 effect), we must stop some business services (notifications, publications, etc.) if we want B2B and TK2 users continue working.

Cost Example for some scenarios:

	Scenario A: The servers should have x2 CPU capacity. They could only handle the current workload without the COVID-19 effect.	Scenario B: The servers should have x3,3 CPU estimating a +15% of yearly load growth during next 4 years.
Licenses to purchase	+12 licenses	+28 licenses
Total licensing cost in 4 years CAPEX and OPEX	1M euros	2,3M euros

* Detailed cost calculations are available in the Annex

Annex – Oracle estimation cost for replacing the current servers

Calculations based on:

- The Oracle price list in Nov-2020.
- Applying a 50% of discount on the public price list (because we have got up to 60 to 70% of discount in past)
- Full HA in case of a server crash.

Scenario A

- **New Purchase cost: The servers should have x2 CPU capacity. They could only handle the current workload without the COVID-19 effect.**

Concept	year 1	year 2	year 3	year 4	Total
Servers (4YR)	12.500,00 €	12.500,00 €	12.500,00 €	12.500,00 €	50.000,00 €
Oracle licensing (3YR)	169.742,00 €	169.742,00 €	169.742,00 €		509.226,00 €
Oracle support (OPEX)	112.029,06 €	115.389,93 €	118.851,63 €	122.417,18 €	468.687,80 €
Total	294.271,06 €	297.631,93 €	301.093,63 €	134.917,18 €	1.027.913,80 €

- **Total adding to the new purchase the current yearly cost:**

Current yearly cost (OPEX) = 104.434,00€

	year 1	year 2	year 3	year 4	Total
Total	398.705,06 €	405.198,95 €	411.887,66 €	249.035,03 €	1.464.826,70 €

Oracle OPEX cost will end up with more than 250.000,00€ a year

Scenario B

- **New Purchase cost: Estimating a +15% of yearly load growth during next 4 years. The servers should have x3,3 CPU capacity.**

Concept	year 1	year 2	year 3	year 4	Total
Servers (4YR)	12.500,00 €	12.500,00 €	12.500,00 €	12.500,00 €	50.000,00 €
Oracle licensing (3YR)	396.064,67 €	396.064,67 €	396.064,67 €		1.188.194,00 €
Oracle support (OPEX)	261.401,14 €	269.243,17 €	277.320,47 €	285.640,08 €	1.093.604,87 €
Total	669.965,81 €	677.807,84 €	685.885,14 €	298.140,08 €	2.331.798,87 €

- **Total adding to the new purchase the current yearly cost:**

Current yearly cost (OPEX) = 104.434,00€

	year 1	year 2	year 3	year 4	Total
Total	774.399,81 €	785.374,86 €	796.679,17 €	412.257,94 €	2.768.711,77 €

Oracle OPEX cost will end up with almost 400.000,00€ a year