

10 minutes away from Performance

#nerdzaoPT

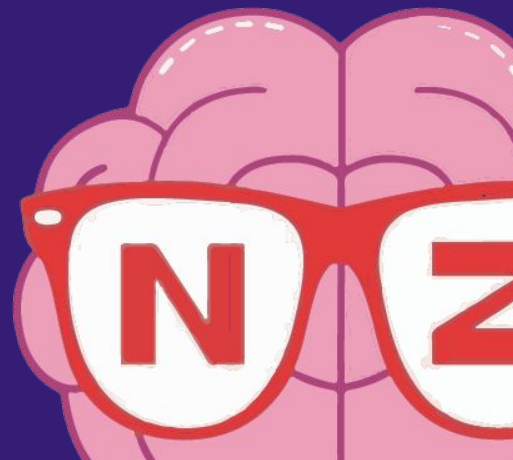
#DevOpsPorto

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Nerdzao Organizer





Bad things happen

- Software crashes
- Hardware fails
- System updates



You'll be tempted to

- Street Light
 - Google it
 - Try and Fail
- Random Change
 - Change a random parameter
- Blame
 - Life
 - God
 - A Dependency

ANTI-METHODOLOGIES



USE methodology

for every Resource

all physical server functional components

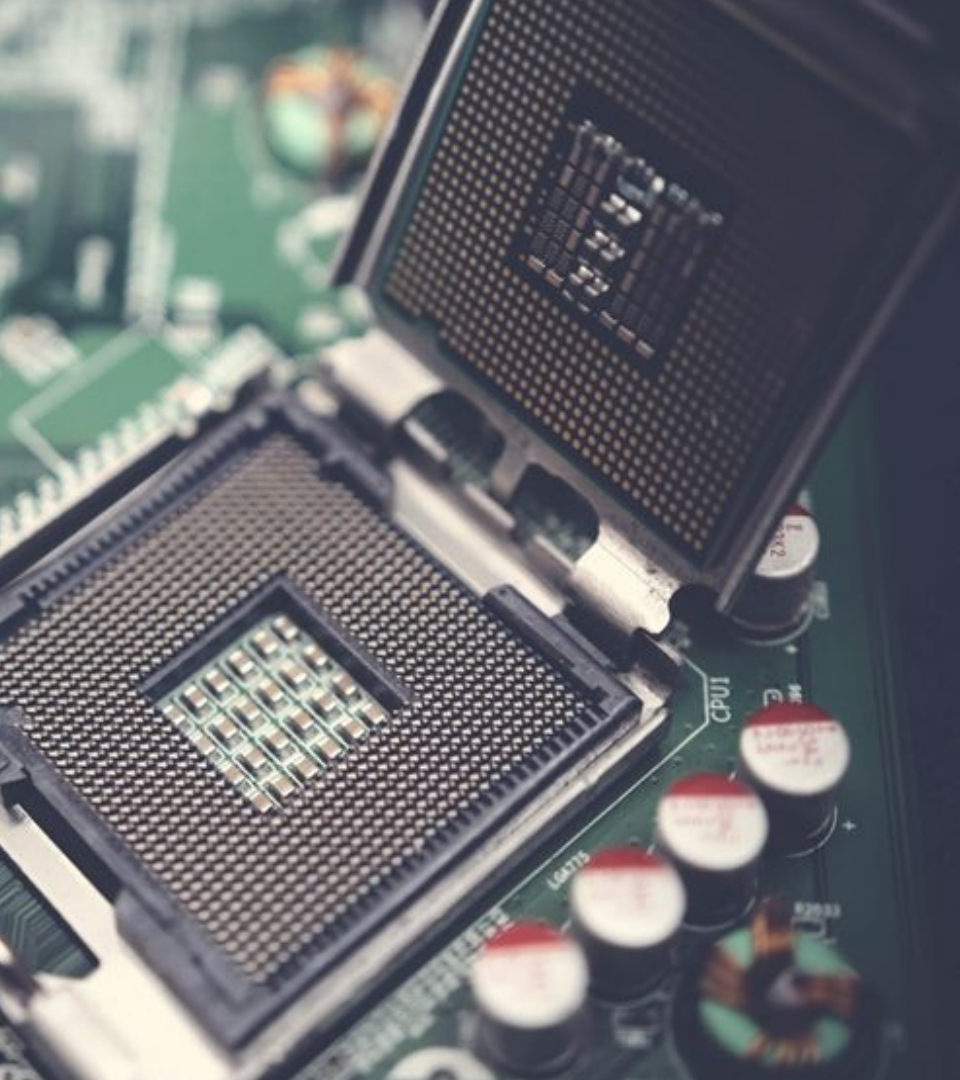
Utilization

the average time that the resource was busy servicing work

Saturation

the degree to which the resource has extra work which it can't service, often queued

Errors



USE - CPU

Utilization:

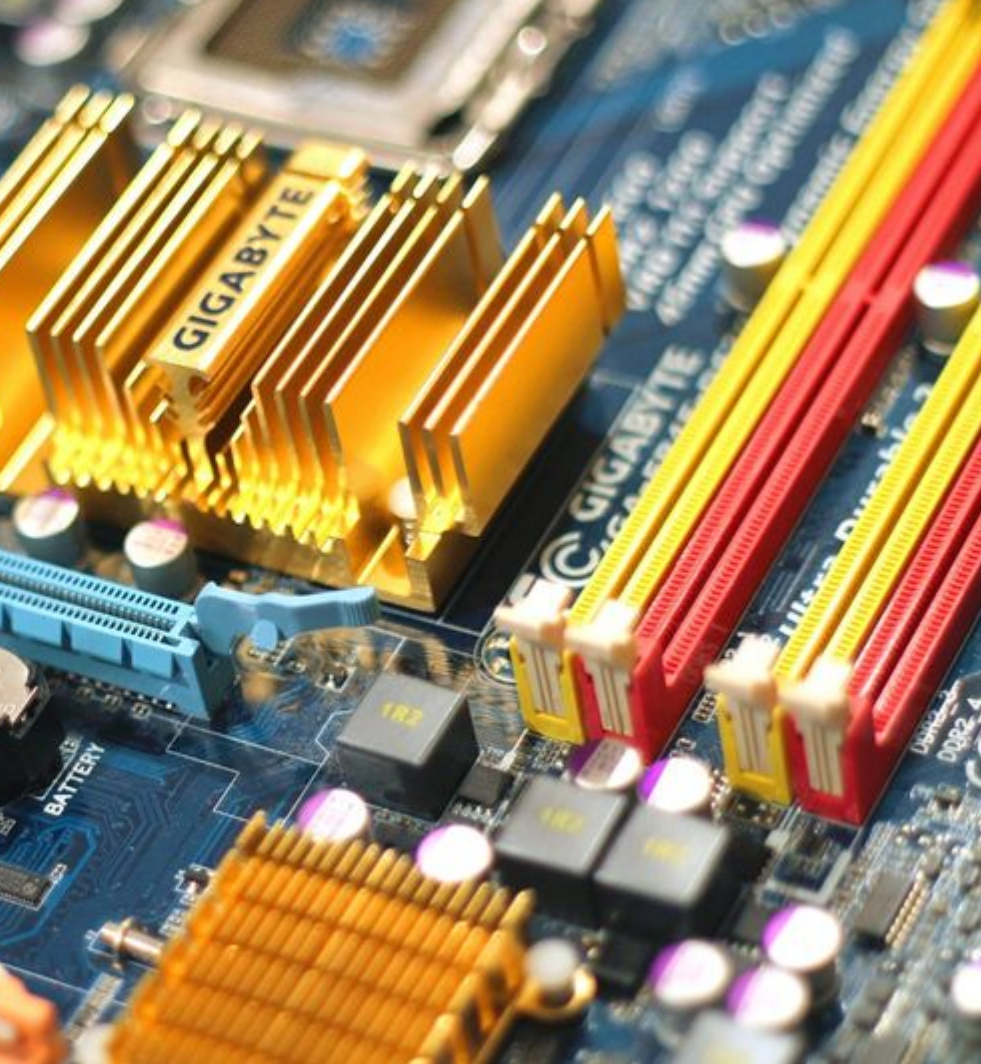
- CPU Utilization (User X Kernel Time)

Saturation:

- Wait queue - Load Average 1, 5, 10 Minutes
- Avg Runqueue time

Errors:

- Errors on CPU Usage
- Queue Length



USE - Memory

Utilization:

- RSS vs total memory
- MEMORY AVAILABLE

Saturation:

- Paging Time
- Garbage collection

Errors:

- Out Of Memory Killer
- GC Time



USE - IO

Utilization:

- Busy Time
- IOPS - IO operations per Second
- Random vs Sequential reads
- Read/Write ratio
- I/o size pattern

Saturation:

- IO Wait

Errors:

- IO Operations Errors
- Faulty disks
- unreliable file system table.



USE - Network

Utilization:

- Throughput
- Bandwidth

Saturation:

- LATENCY

Errors:

- Undelivered packets
- Wait Queue

Tools

Basic Check

\$ uptime # to see Load Averages

\$ dmesg | tail # Checking for error that can cause perf
issues

\$ vmstat 1 10 # key server statistics

\$ mpstat -P ALL 1: # break CPU statistics per CPU.

\$ pidstat 1 # small top that keep printing instead of
refreshing

\$ iostat -xz 1 # io stats

\$ free -m # memory usage

\$ sar -n DEV 1 # network throughput by interface

\$ sar -n TCP,ETCP 1 #summarized stats of TCP metrics

```
[09:39:39] PERF root@perf-we-vm-ls01 ~
$ sar -u -f /var/log/sysstat/sa27
Linux 3.19.0-51-generic (perf-we-vm-ls01)      04/27/2018      _x86_64_      (2 CPU)

09:31:14 AM      LINUX RESTART

09:35:40 AM      LINUX RESTART

09:36:01 AM      CPU      %user    %nice    %system  %iowait  %steal   %idle
09:38:01 AM      all       1.17     0.00     0.41     0.12     0.00    98.29
Average:         all       1.17     0.00     0.41     0.12     0.00    98.29
[09:39:42] PERF root@perf-we-vm-ls01 ~
$
```

Tools

SYSSTAT

- Collects and archive statistics
- I/O, CPU, Memory, VMemory, Processes, Network, etc
- Stored daily at /var/log/sysstat/saXX
- Available on almost every Linux distro

Thank you

USE

<http://www.brendangregg.com/usemethod.html>

<http://www.brendangregg.com/USEmethod/use-rosetta.html>

R Method

<http://carymillsap.blogspot.com/2009/11/why-we-made-metho-d-r.html>

