

Computing infrastructures

Formulario



2022

Luca gerin

# Dependability

Reliability

Unreliability

Availability

Unavailability

Mean Time To Failure

Mean Time Between Failures

Failure Rate

Series: where

Parallel:

Series:

Parallel: if without repair, otherwise use Availability definition

; if components all have the same MTTR:

Series:

Parallel:

out of redundancy (RooN):

Where is the total number of components and is the minimum number of components which must survive.

# Disk Time

Service Time:

Response Time:

where *BlockSize* and *TransferRate* have the same unit of measurement (multiply \*1024)

Service Time considering Data Locality:

# RAID

the number of available disks

the number of disks in a stripe of RAID 0 disks

the Mean Time To Repair of one single disk

RAID 0:

RAID 1:

RAID 1+0:

RAID 0+1:

Form of the formula to use to find a needed to ensure something

RAID 4:

RAID 5:

RAID 6:

# Performance

the length of time we observe the system

the number of request arrivals

the number of request completions

the amount of busy time of the resource ( )

the average number of jobs in the resource (queueing + being served)

the think time

the arrival rate

the throughput

the utilization

the mean service time per completed job

Utilization Law:

Little’s Law:

Response Time Law:

the visit count

Forced Flow Law:

the service demand

Utilization Law:

the residence time

the response time

General Response Time Law:

the total accumulated time in the system

**Open Model:**

**Closed Model:**

Population size determining if the light or the heavy-load optimistic bound is to be applied

Batch:

Terminal:

Transaction:

Batch:

Terminal:   
Transaction: