

Considerations for Benchmarking High Availability of NFV Infrastructure

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Definitions for High Availability Benchmarking Test

- Availability : $MTBF / (MTBF + MTTR)$
 - 4G comm.(ex: EPC) 99.9999%
- Failover
 - Failure -> Detection -> Isolation -> Recovery

MTBF : Mean Time Between Failure

MTTR : Mean Time To Recovery

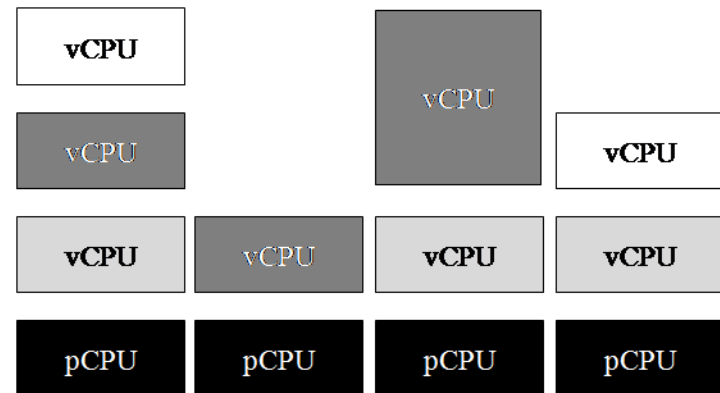
Configuration Parameters for Benchmarking Test

- Types of VNFs
 1. What kind of operations they do
 2. How many CPUs, MEMs, Storages they need
 3. What kind of traffic pattern they usually face
- The specification of the physical machine
 - ex) Network performance accelerator adoption
 - :DPDK, SR-IOV

Configuration Parameters for Benchmarking Test (Contd.)

- The mapping ratio of hardware resources to VMs

- vCPU:pCPU
- vMEM:pMEM
- vNICs



- Types of hypervisor & the limitations of their roles
- Cloud Design Pattern of NFVI

Configuration Parameters for Benchmarking Test (Contd.)

- The composition of network functions in VNFs
 - vPGW + vSGW
 - vPGW + vSGW + vMME

High Availability

Benchmarking Test Strategies

1. Single Point of Failure Check (Redundancy Check)

– Hardware

- Power supply
- CPU
- MEM
- Storage
- Network : NICs, ports, LAN cable...

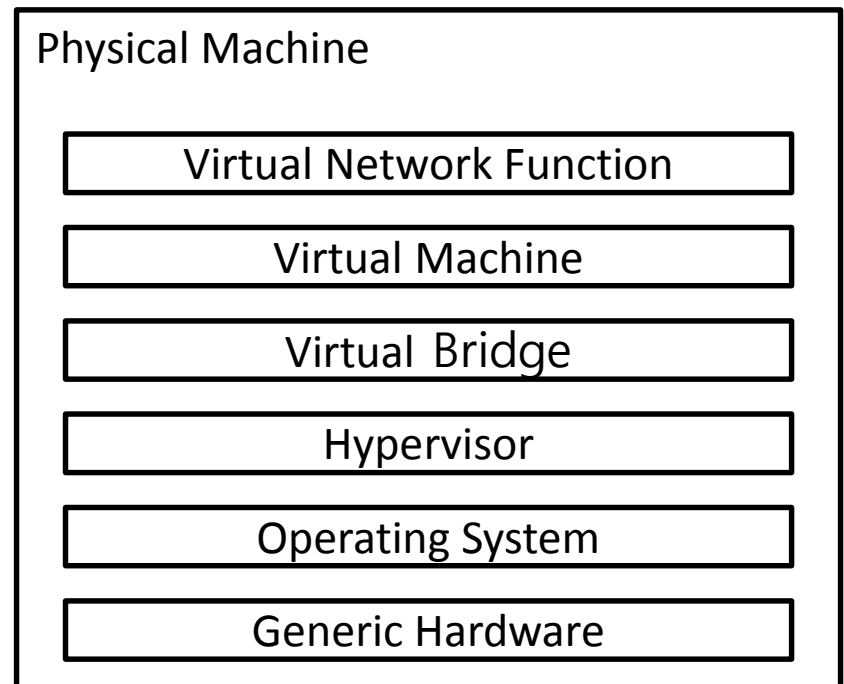
High Availability

Benchmarking Test Strategies

1. Single Point of Failure Check (Redundancy Check)

– Software

- VNFs
- VNFs path
- OvS
- vNICs
- VMs



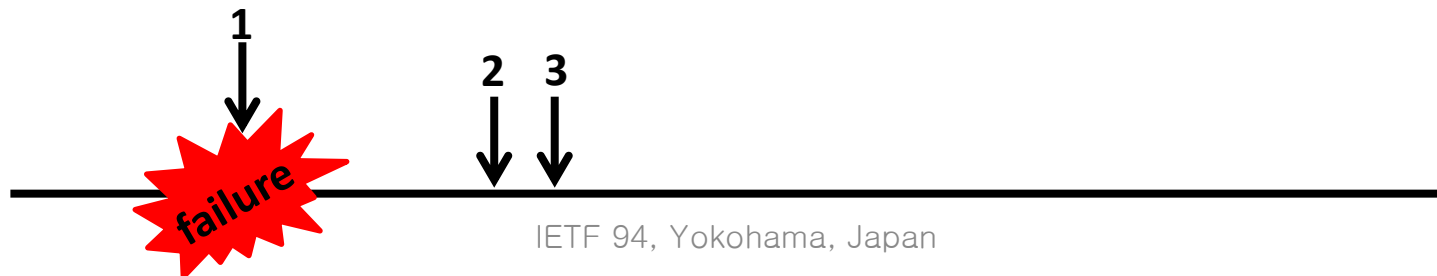
High Availability

Benchmarking Test Strategies

2. Failover Time Check

- Redundancy != High Availability
- Define the time when a failure happen
 - : The time starts when
 1. A failure actually happens
 2. A failure detected by manager or controller
 3. A failure event is alerted to the operator

➔ must be the 1 to measure failover time precisely.



Thank you