

willian Prado
05/02/2025

7.4 Disaster Recovery & high availability

High Availability

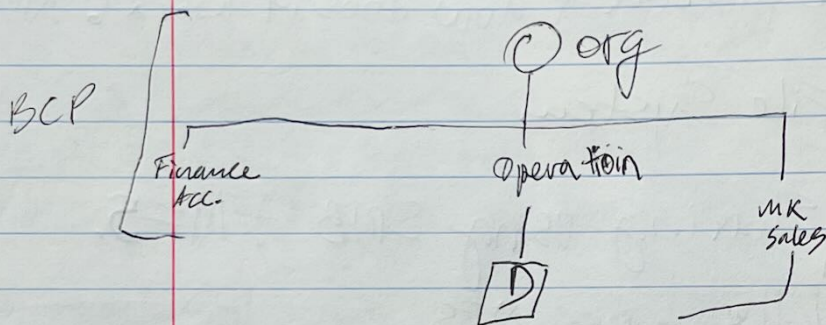
Business Continuity Plan (BCP)

Business Impact Analysis (BIA)

Disaster Recovery Plan (DRP)

Availability
Downtime
High Availability.

High Availability = system w/ no single point of failure.



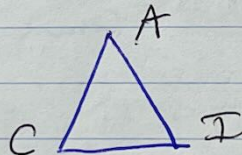
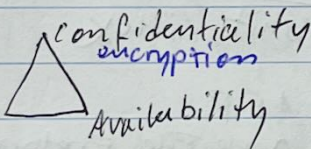
Difference between:

BCP

BIA

DRP

Integrity
No! Alteration
Modification
change



Youtube
telephoner

What does five nines means? 99.999% (5 Nines) availability.

get more nines?

1 Best equipment

2

3

Youtube:
Professor
messer

High Availability

- Fault tolerance

- Maintain uptime in the case of a failure
- fault tolerance adds complexity
- Single device fault tolerance
- Multiple device fault tolerance

Redundancy & Fault tolerance

- Redundant hardware components

RAID

Uninterruptible power supplies
clustering.

Building Fault tolerant networks.

High Availability

Load balancing

- Some servers are active
- others are on standby.

- Building HA Networks.

2 Firewalls

2 Router

2 Switch

1 load balancing

2 internet provider.

- NIC teaming Load Balancing/fail over (LBFO)

- Port Aggregation.

- multipathing.

BCP
BIA
DRP
Availability

59's
Fault Tolerance
Redundancy

RTO vs RPO

Sites Hot, warm
Cold, Cloud.

Multi-pathing

LACP/STP

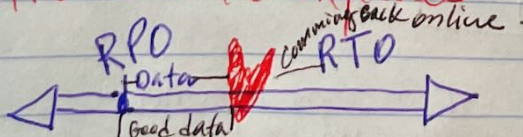
NIC Teaming



YouTube

RTO vs RPO: what's the difference

RPO & RTO Explained

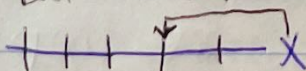


Data amount to lose?

Time to Recover

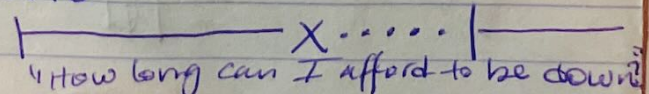
YTB-
Disaster
Recovery
Disaster

RPO



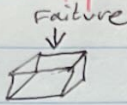
How much data
can I afford to lose?

RTO

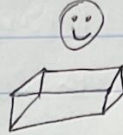


YouTube

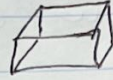
MTBF, MTTR, & MTTF



MTTR 1HR



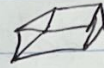
MTBF
Average



Expect certain amount



MTTF ailed
9 yrs
life cycle



can't repair

Site

Hot

Warm

Cold

YTB sunny classroom

Disaster Recovery Sites: hot, warm & cold

HVAC

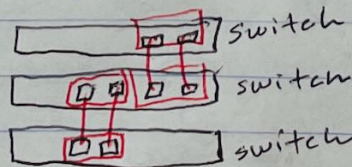
HVAC - heating, ventilation, air conditioning

Power management

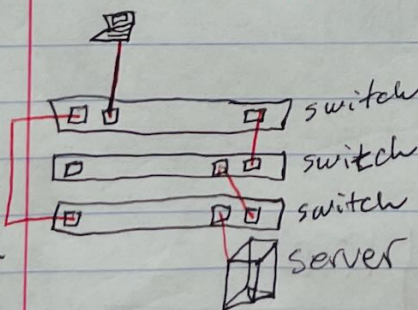
Fault tolerance & Redundancy - everything will be 2 or more.

Multipathing. meshing. LACP

YTB what's IEEE LACP?

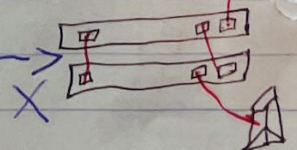


* STP
Spanning
Tree
Protocol



If it loops around it's a *broadcast storm... EX:

make loop

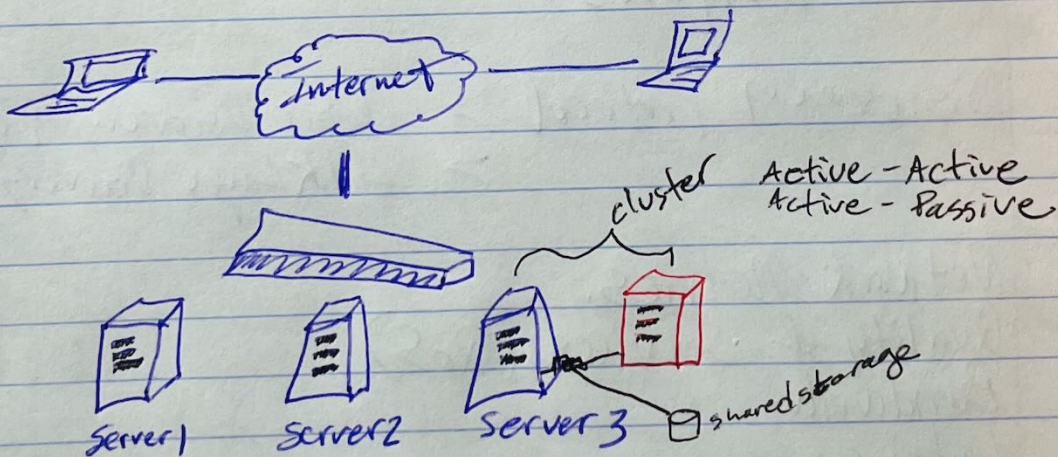
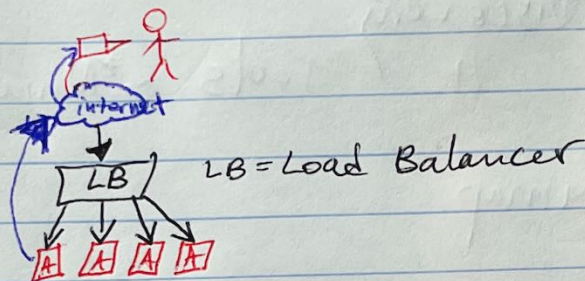


YTB → What is LACP?

YTB How to configure NIC Teaming in Windows Server 2016?

NIC Teaming \approx multiplaxter

YTB What is a load balancer? IBM Technology
load balancing → distribute traffic evenly!
to prevent congestion.



YTB Active-Active + Active ^{high} Passive Cluster.

8. Supporting Management Network.
Policies & Documentation

Importance of Doc. & Types of Doc.

Configuration Management.

Change Management

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Module 8.2-8.3

Physical Network Diagrams

- Distribution Frame
 - Port location diagram
 - Main Distribution Frames (MDF)
 - Intermediate Distribution Frames (IDF)
- Site Survey Report.

Baseline
Asset
Change Management
ent.
SNMP
- manager
MIB database
agent
- Request
Trap "Alert"

8.2 Host Discovery & Monitoring

Network Discovery

|| || Tools > Nmap

Nmap / zenmap
Netstat

Protocol Analyzers

Discovery Protocol > Cisco Discovery Protocol (CDP)
> Link Layer Discovery Protocol (LLDP)

Network Metrics.

Quality of Services (QoS)

Bandwidth

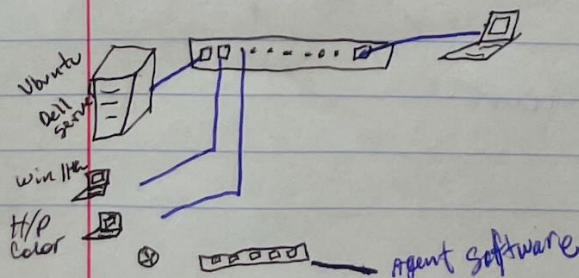
Latency

Jitter

measurement tool > ping, pathing & mtr

8.3 SNMP - Simple Network Management Protocol

YTB. How does SNMP work? Monitor & manage devices remotely.



MIB = management Info Base

MIB records you need for this device "Printer example"

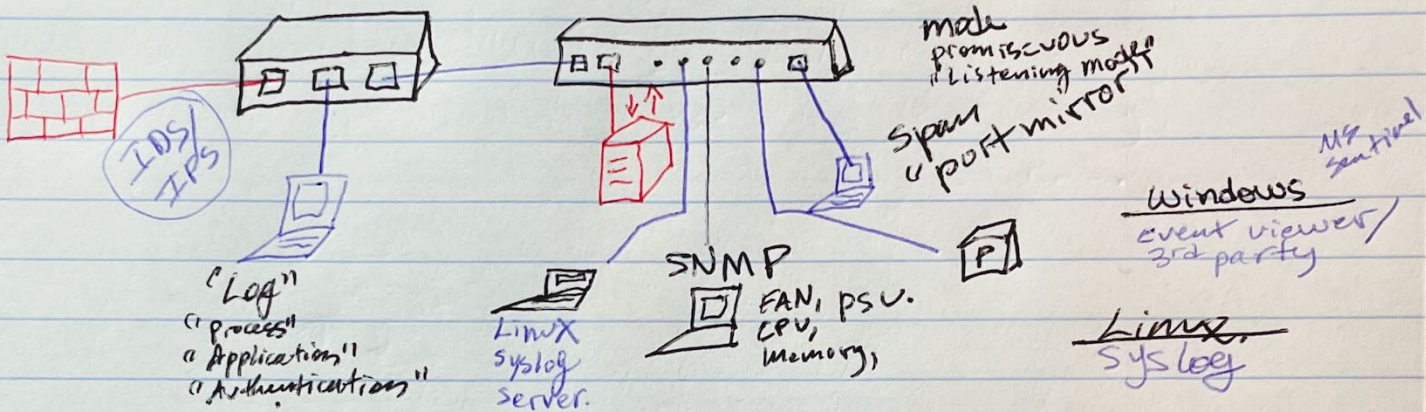
Print
CPU
SSD - Fan

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Module 8.4

TRAP is a type of "alert."

8.4 Event Management.

YTD Event viewer + windows logs. | Linux = syslog.



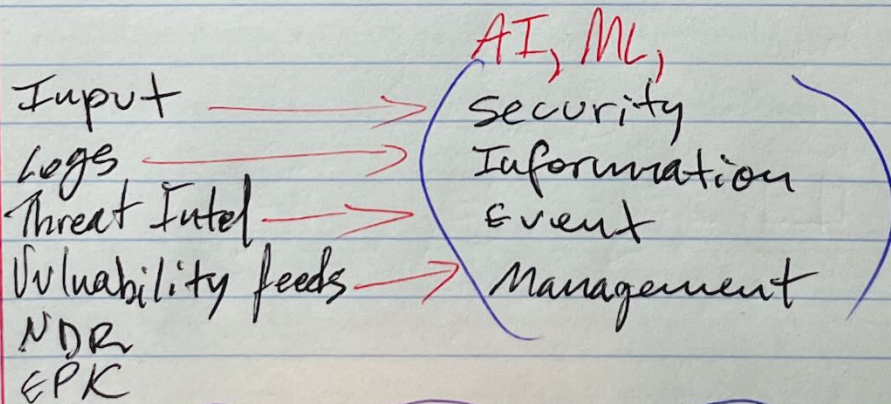
YTD. What's syslog? Easy to understand

YTD What's SIEM? IBM Technologies

Blind Spot
Vulnerability
Burnout
Siloed Tools
1,000's Alerts

output

High-Fidelity
~~Alerts~~



- Artificial Intelligence
- Machine Learning

