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Data Center

rPDU	Rack Power Distribution Units
firefly	Software for MP 1000
demascus	Software for RM
cobra	Software for KVM (Keyboard, video, monitor), IPIQ
IPUHD	It is also type of KVM
HVAC	Heating ,Ventilation Air Conditioning
ATS	Automatic transfer switch
ISP	Internet Service Providers
ASP	Application Service Providers
MSP	Managed Service Providers

What is Data Center?

=>contain multiple rack , each rack contain multiple server,each server contain multiple hard disk, one cpu(multicore cpu).

Data should continuously up and running so required continuous eletricity. So if continuous electricty so increase the heats,

So to maintain tempature it required cooling system.

Does data center provide the computing?

Two type rack server i) RM-X ii) ACS / mp ?

Above is switch ? also it is normal switch OR layerd 3 switch

MP 1000 – have virtual machine & RM don't have virtual machine?

RM have switch but MP don't have switch

ADX

Mp 1000- firefly

Rm – demascus – Manages less server & it connected physically

KVM - cobra

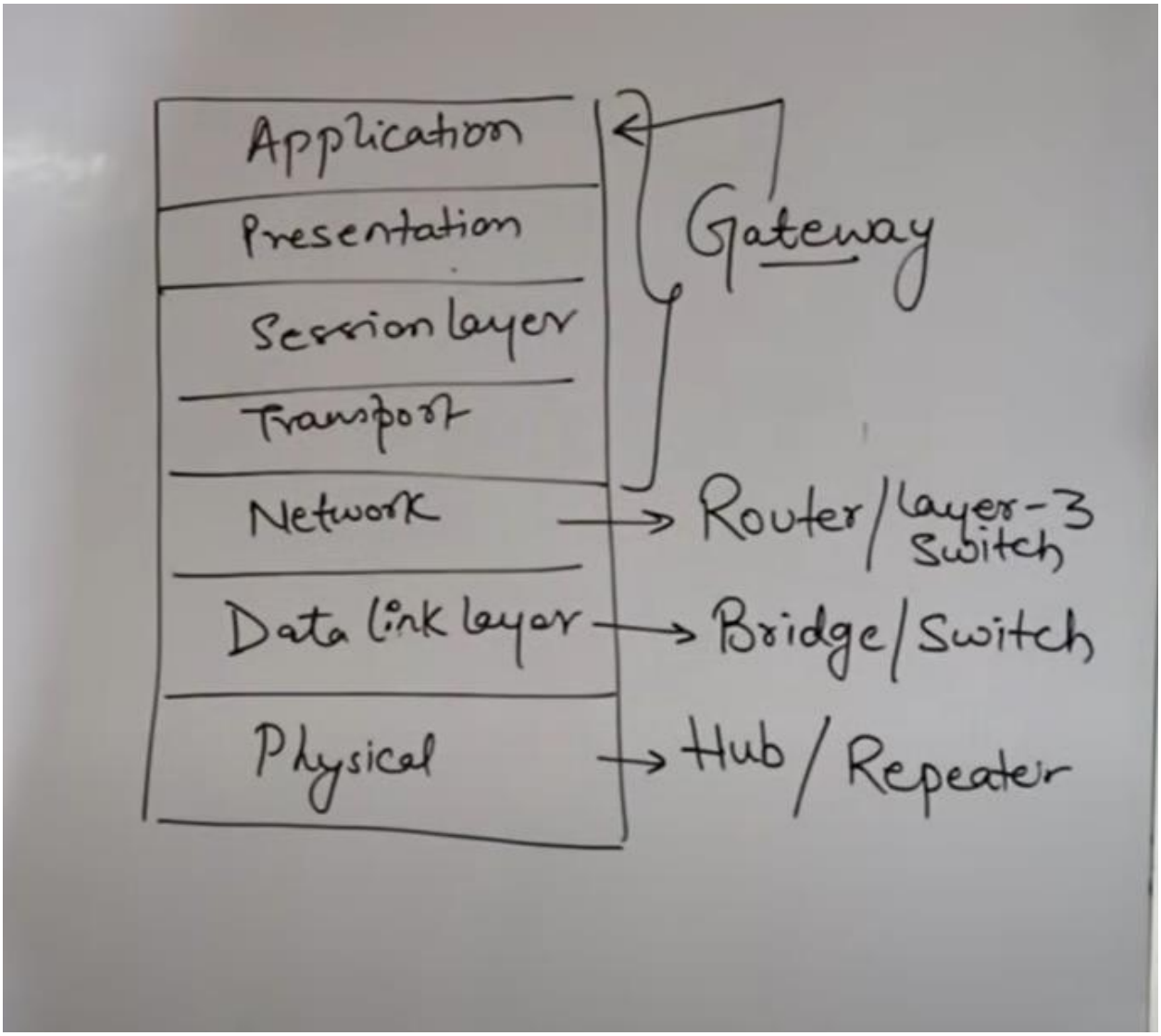
Manage mode RM

We can put multiple process In same container.

Zinc – elastic search for DB

SQL Boiler

Each service one separate DB.



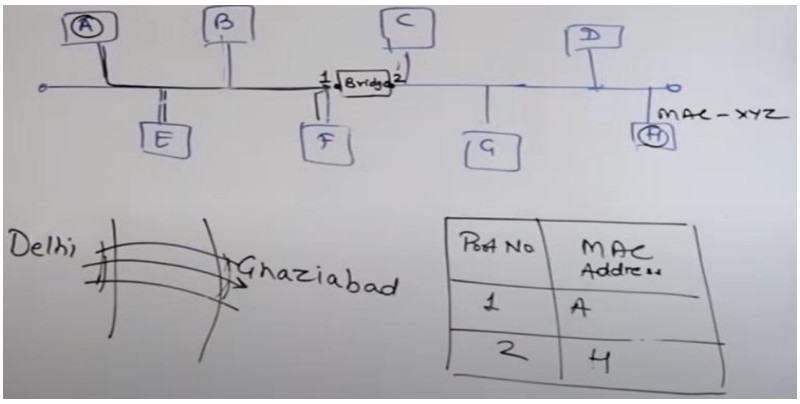
Hub –

1. connect on Physical device, it broadcast message to all but whose dest address mention in msg it received other computer reject the msg.
2. Not stored MAC address
3. It is half duplex means at time one can speak.
4. 2 types of Hub
   i)active – need electricity, act as repeater/ amplifies the single
   ii) passive – No need electricity
5.

Bridge

1. Not broadcast msg, it storied MAC address , So it send proper dest.
2. Bridge first broadcast then unicast . it is half duplex.

3. Bridge have only one common path to communicate
4. Bridge have some time collision



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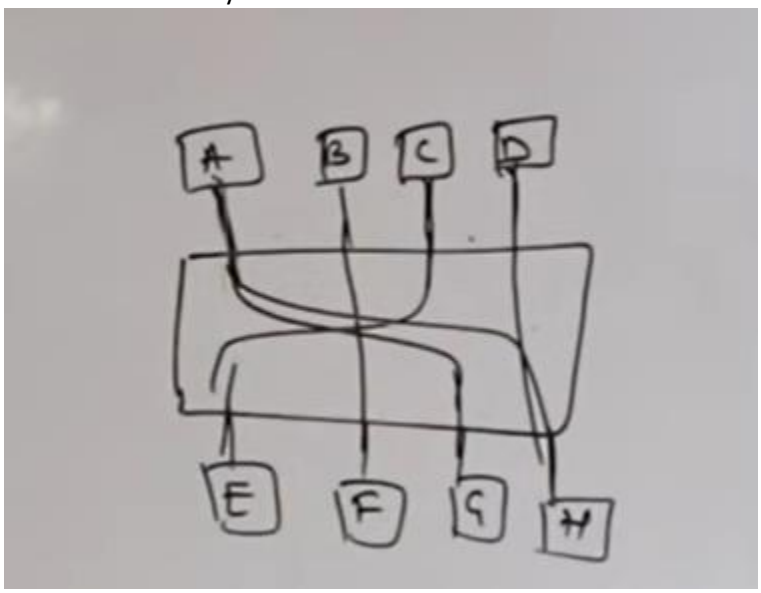
Switch

1. It is multiport bridge
2. Switch has unique path for each port.
3. So there is no collision between switch.
4. Switch has memory.



5.
6.

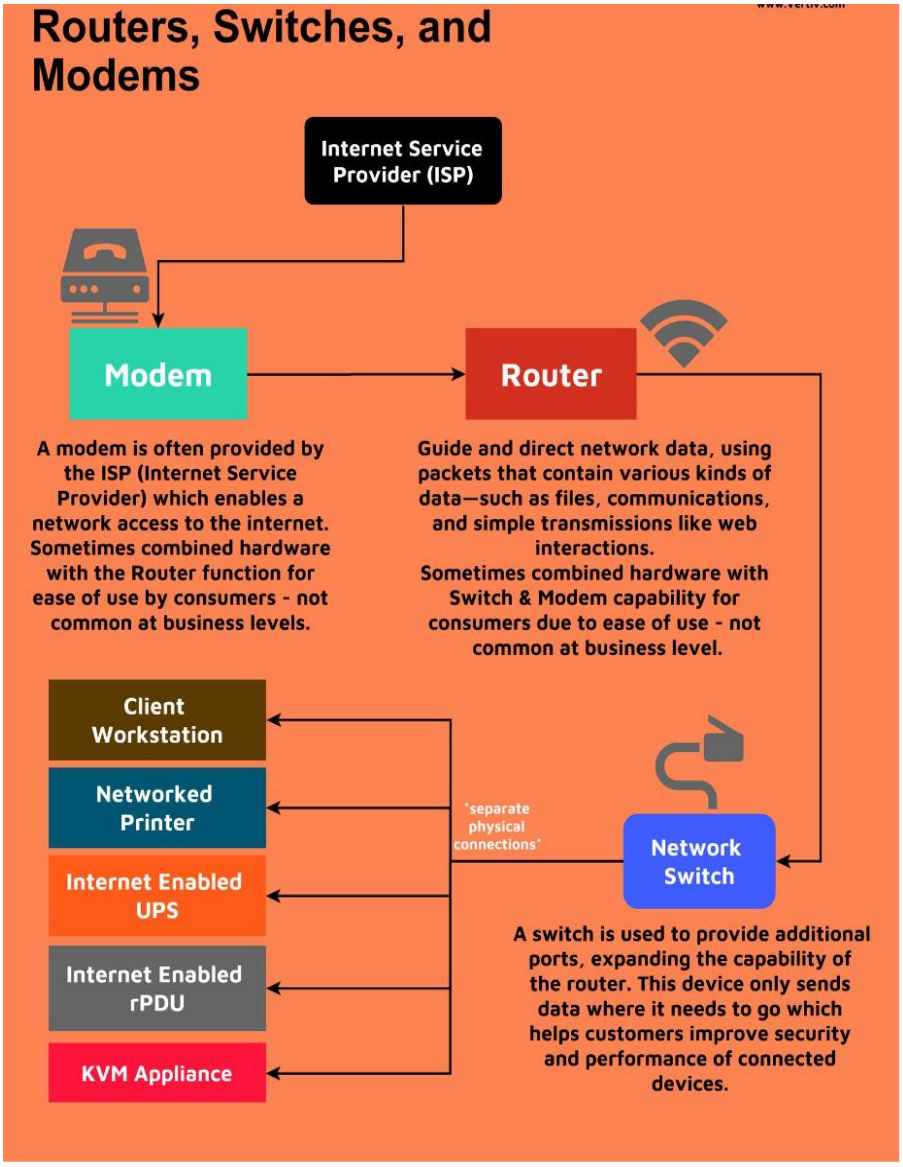
Data Center

Type of Data Centers

1. Enterprise Datacenter – has Own premises , Own hardware mean own infrastructure. For Single organization.
2. Manage hosting facility – It has separate space than our business premises , We have pay that service. Like rented.
3. Colacation & Boutique data Center
4. Cloud – off Premises , stored data on internet like AWS, Microsoft
5. Edge computing – reduce latency by creating setup near to population. This is small setup. Some times it call as Micro Data Center. This DataCenter connect to large OR multiple data center.
   It is looks like CDN .
   Ex. Healthcare, Govt, Education, retail. CDN is example of Edge
6.
7. Hyperscale data Center- This is large than Enterprise DC like AWS, facebook, it is called HDC.

Data Center Design

1. Load refer as power/Energy required to run/support business .
2. HA - Five 9's of availability" or 99.999% available.
3. Tier 4- for most robust & less prone failures, for High critiacal business
4. Tier 1 – small business

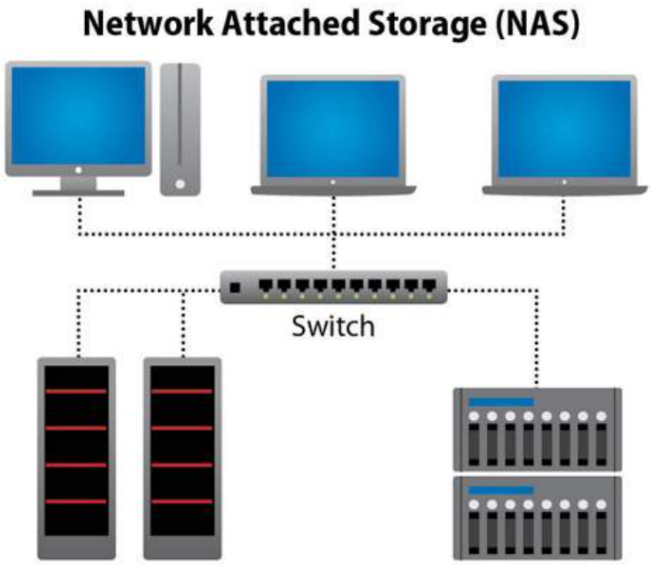

Routers, Switches, and Modems
Internet Service Provider (ISP)
Modem
Router
A modem is often provided by the ISP (Internet Service Provider) which enables a network access to the internet. Sometimes combined hardware with the Router function for ease of use by consumers - not common at business levels.
Guide and direct network data, using packets that contain various kinds of data—such as files, communications, and simple transmissions like web interactions.
Sometimes combined hardware with Switch & Modem capability for consumers due to ease of use - not common at business level.
Client Workstation
Networked Printer
Internet Enabled UPS
Internet Enabled rPDU
KVM Appliance
separate physical connections
Network Switch
A switch is used to provide additional ports, expanding the capability of the router. This device only sends data where it needs to go which helps customers improve security and performance of connected devices.

NAS

NETWORK ATTACHED STORAGE (NAS)	DIRECT ATTACHED STORAGE (DAS)	STORAGE AREA NETWORK (SAN)

NAS allows more than one computer to access it through a network, making it better for data sharing and collaboration. Its off-site storage capability also makes it better suited for backups and data protection.

The key difference between DAS and NAS is that DAS storage does not incorporate any network hardware to provide a facility capability to share storage resources independently of the host.

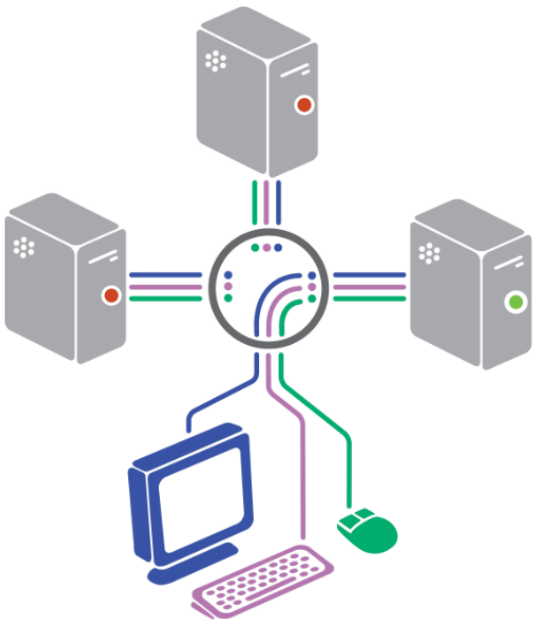


Serial Consoles and Gateways

Access IT equipment remotely without an IP connection to securely configure serial ports, perform upgrades, troubleshoot, and more. These types of devices help provide customers with peace of mind when performing network maintenance.

Secure, IP, and Desktop KVM Solutions

Keyboard, Video, Mouse switching solutions allow customers of any size to connect to multiple peripheral computer systems (servers or desktops as an example) and streamline controls of those devices through a single interface. Desktop solutions are available and common with IT/EDGE application where as remote KVM appliances are common in medium and large businesses with more disperse infrastructure.

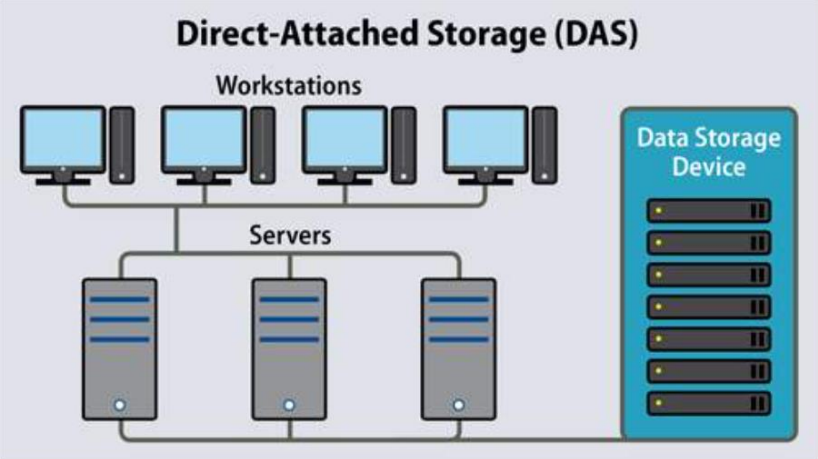


Diff Types of maintenance :

1. Preventive – Plan
2. Predictive – life of Hardware

NETWORK ATTACHED STORAGE (NAS) | DIRECT ATTACHED STORAGE (DAS) | STORAGE AREA NETWORK (SAN)

Direct-attached storage (DAS) is often in the immediate physical area and directly connected to the computing machine accessing it. DAS is typically considered faster than NAS due to lower latency in the type of host connection.



A Storage Area Network consists of interconnected hosts, switches, and storage devices that are connected using a variety of different protocols. Protocols are hardware languages used to communicate. Organizations use high-speed connection methods to move data over these networks for business purposes. SAN's can span a single rack or an entire room.