Infrastructure Architecture and Design — Unit-3

Infrastructure Architecture :

a). Networking, internetworking and communication protocols
b) IT hardware, software
c). Middleware
d) Policies for infrastructure management

Infrastructure support requirements

* 24x7 availability
* available to handle vast online user
* Data security
* Disaster recovery
* Need skilled infrastructure team
* Carry out technical design to ensure smooth application deployment.

a) Networking, internetworking & communication protocols:

* Connectivity blw locations

DNS:
Each server, requires unique identity to be accessed over network
The unique identity is provided by IP address.

Load balancer:
Sites recieve high volume of request traffic require dividing the traffic and diverting to multiple identical servers.
Load balancer present in both Hardware & Software, helps in splitting traffic to ensure scalability of EA.

cluster:
It is a mechanism - helps ensure availability & performance of EA.

Firewall: Security of EA is of paramount importance.
Policies in firewall to allow/deny traffic to/from particular servers.
It allows HTTP/HTTPS traffic to pass through

DMZ (Demilitarized zone) also perimeter network, provides access to external facing services of EA to outside world. This adds an extra level security to private corporate networks.

IT Hardware & Software

core building block of Infrastructure architecture.

several elements → OS, Servers, Storage Mechanism, Communication mechanism, application platforms

OS → provides complete set of facilities to manage hardware & software resources.

Database servers: provides data related services such as efficient storage,
* search,
* retrieval data
* data integrity
* security and transport support.

Web servers:
Accepts HTTP / HTTPS request from browser and services them by interacting with other tiers.

Application servers:
core business logic of an application is hosted on an application server.

Virtualization: Mechanism to abstract IT infrastructure. It can be viewed as a design pattern in IT infrastructure landscape, implement at different levels like platform or system resource level.

Middleware:
software glue that binds together the software pieces of a distributed application.
Eg: Messaging, transaction management, security etc.

MOM - Message Oriented Middleware - based on client/server architecture used for reliable transport of message across geographically distributed systems. MOM persists messages that are in transit to ensure successful delivery despite any kind of network system failure. It provides translation and transformation, and routing message to destination through unicasting, broadcasting - mechanism.

* Exchange of messages in asynchronous fashion, which decouples the sender and the reciever.

RPC - Remote Procedure Call

Remote server in way identical to invocation of local procedures by completly hiding the details underlying network.

Policies for infrastructure management:

IT Infrastructure of organization governed by policies.

It practices codified as Industry standard framework

COBIT - Control Objectives for Information and related Technology

Information Technology Infrastructure Library. (ITIL)

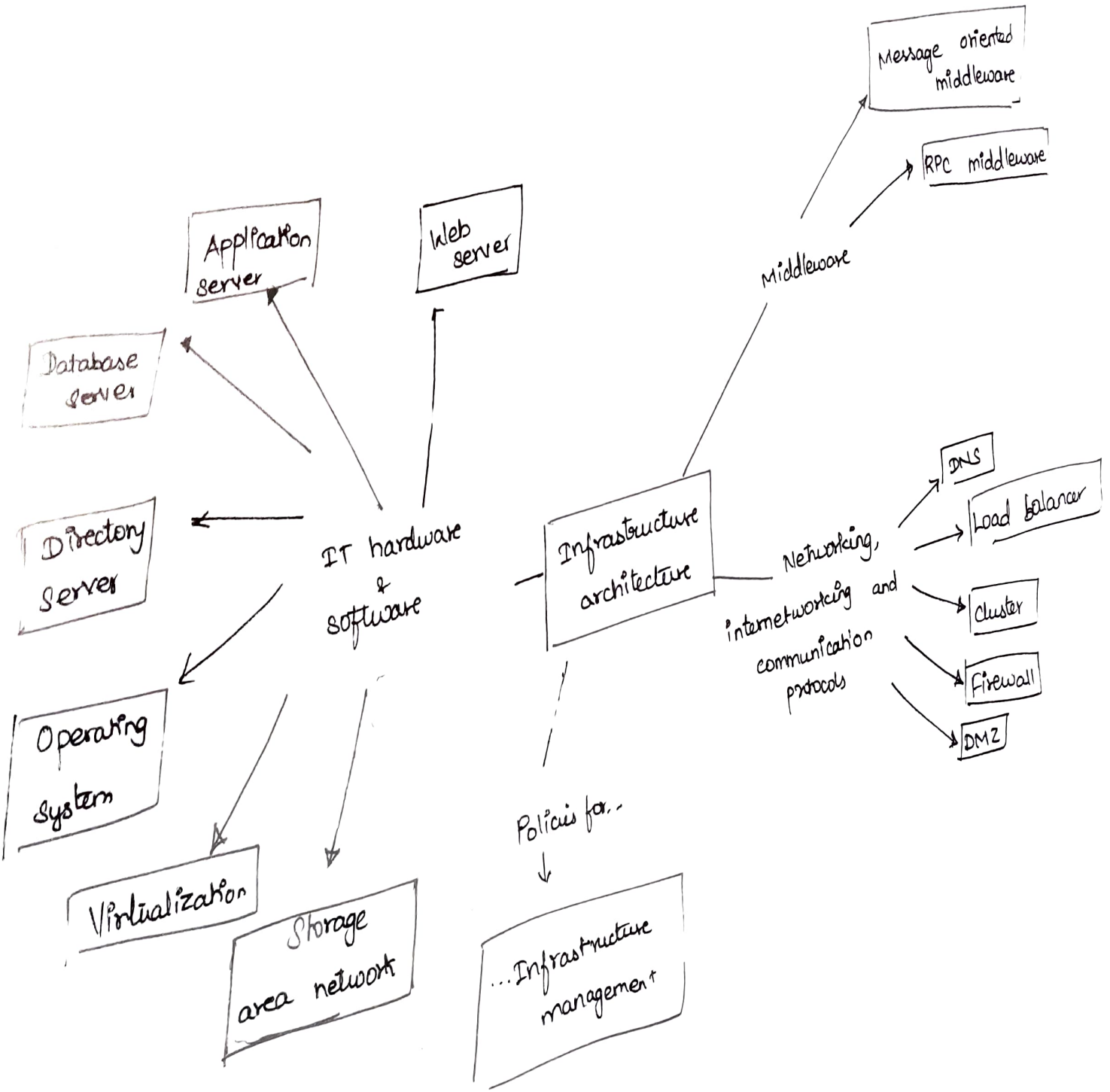
Best practices to manage IT infrastructure, developement & operations.

It defines procedures, guidelines, process for classification & version management, backup & restoration of data.

Several policies play vital role in

development
deployment
maintainence
and operation of EA.

* It also includes security management and user management.


Message oriented middleware
RPC middleware
Middleware
Application server
Web server
Database server
Directory Server
IT hardware & software
Infrastructure architecture
Networking, internetworking and communication protocols
DNS
Load balancer
Cluster
Firewall
DMZ
Operating System
Virtualization
Storage area network
Policies for...
...Infrastructure management