

Back End Support System

Security

- Earlier every function and division had its own datamart which kept them in silos.
- Consolidating all these data marts into comprehensive data warehouses was clearly a step ahead in the integration of business.
- However, this lead to security threat from various hackers, criminals, spies, etc.
- Organization should secure its systems by pursuing rigorous international security standards.

Scalability

- We are all aware of various festive season discounts provided by all e commerce sites.
- The buying frenzy that erupts makes the site prone to crash.
- To avoid such contingency the site should be scalable and handle sudden spurt in visitors.
- The larger sites are more prone to crash with their huge content, use of innumerable multimedia graphical user interface.

Availability

- The site should be available 24x7 to avoid customer dissatisfaction.
- A dissatisfied customer will lead to immediate loss in sales and also future loss if the customer moves on to competitors' offers.
- The availability issue becomes more pertinent during the maintenance and repair stages which every company has to go through keeping in mind the regular updating and up gradation required.

Manageability

- The system should be in a position to manage the limited resources to help keep the show going on.
- The possibility of site crash during sudden increase in load or during times of repair and maintenance ought to be managed in the business interests.
- The concept of load balancing through redundant server, or graceful degradation comes handy in such management as will be discussed later in detail.

Interoperability

- The value chains created in e business have many stakeholders involved in the chain with their own systems and platforms.
- The e business system should work seamlessly in a flexible manner with all the constituents involved.
- The applications, operations, etc and especially the overall security mechanisms should be standard and interoperable to avoid any technical glitches.
- This maintains the efficiency of the overall business results.

Load Balancing

- Mechanism where many servers are being run for access to the same information.
- So, multiple redundant servers help provide scalability when website visits shoot up abnormally.
- This is required when companies offer festive season discounts for a limited period of time.
- Also, this technique comes quite handy during maintenance or repair as the extra servers keep the show going on.

Internet

- Internet is the network of millions of computers known as nodes which are spread out throughout the world.
- The End Node is the customer requesting for some service through its web browser in a computer and the host server which is providing that service through web or mail server.
- Intermediary Nodes are the computers called routers helping to route traffic from one end node to other.
- Every node has an IP address assigned with a domain name for convenience.
- Transmission between End nodes could happen through fibre optics cables or through wireless transmission like microwave or cellular phone communication.
- The most popular service provided by internet is access to world wide web.
- The web sites are documents created using HTML (hyper text markup language).

Packet Switching

- The digital messages travelling from one End node to other are sliced in discreet units.
- These packets take different communication routes and are assembled at the receiver end to reform the complete message.
- Each packet has source IP address, destination address, routing information, and error control information.
- Routers or intermediary nodes make use of routing algorithms to select the most efficient and best route for transmitting these messages.

Internet Protocol

- It is a set of rules and standards which govern the transmission of data on internet.
- It provides the addressing scheme through the IP addresses by which the packets reach from one End node to other touching the most efficient intermediary nodes in between.
- This protocol divides the network functionality into layers. The outermost application layers pertain to the client side functionality and the innermost physical layers pertain to the more technical aspects.
- Because of these layers even the least educated person finds it very easy to use the system which is very user friendly in application.

IP Address

- Each and every node on internet has a unique IP address.
- When we login on the internet our computers usually are assigned temporary IP address.
- Computers belonging to academic institutions or corporate have a dedicated IP address
- There are four set of numbers between zero to 255.
- The first three sets recognize the local area network and the last set recognizes the specific computer in the network.
- DNS or the Domain Name System automatically converts the domain names into their respective IP addresses.

IP Address(contd.)

- The web browser uses a uniform resource locator (URL) to identify its location on internet. It is governed by a protocol like HTTP.
- Internet Protocol Version 4 (IPv4) can address 4 Billion IP addresses.
- Internet Protocol Version 6 (Ipv6) is a next generation protocol which uses 128 bit addresses as compared to 32 bit using IPv4.

Other Internet Protocols

- Transfer Control Protocol (TCP): ensures that the packets being transferred from one end node to other are received in the same sequence.
- Hypertext Transfer Protocol (HTTP): utilizes the POST and GET method in the transmission of messages both from the client end and the host server end.
- File Transfer Protocol (FTP): one of the oldest and fastest method to transmit large files.
- Telenet: used to login remotely on another computer on the internet.
- Secured Socket Layer (SSL): used to secure communication on internet especially online payments through message encryption, digital signature, etc.

Utility Programs

- Packet Internet Groper (Ping): it is used to check the physical connection between two nodes. Also the response time and the speed of data transmission could also be ascertained through this utility program.
- Tracert: it is used to trace the path which a message has taken in its transmission from one node to other.
- Path Ping: it is a combination of both the above utility programs. It provides information about the path undertaken in the transmission of data and also the precise statistics of each node on the way.

Client and Server Programming

- Application programs which are to be downloaded on the client's computer are usually written in the Java language. The apps which we download on our smart phones are written in Java and help us accessing internet, shopping on e commerce sites, etc.
- Server side programming is usually more technical and helps when new functionality or new version needs to be added. This could be done without disturbing the client side programming.
- When the file has .jpg or .htm extension, the server sends it as it is to the client. However, when it has .php instruction the server sends it to the php engine which strips out the php instructions and then the remaining html content is sent back. So compatibility is the key in data transmission.