

Hures company case study essay sample

[Technology](#), [Computer](#)



What is mainframe computer and dumb terminal?

Mainframe computer is the form of computing in which a single centralized computer performs the processing for multiple computers (crfonline. org).

Dumb terminal is a display monitor that has no processing capabilities attached to mainframe computer. Dumb terminal is simply an output device that accepts data from mainframe computer (webopedia. com). Here, as Hures Company implemented its first information system in 1987 purchasing mainframe computer that served dumb terminals we can easily anticipate that the system has embedded database system which cannot run in individual process. As the system runs only in one computer it is 1-tier architecture.

Fig: Mainframe and dumb terminals.

In 1999 to cope with changes in both business and Information System environment and also to accommodate Y2K demands, the Hures Company ported applications to client/server system which contributed large to efficiency and profit. What is client/server application?

Client/server application is a piece of software in client and makes requests to a remote server via network. Client/server application is written in high-level visual programming languages where user interfaces and most of the business logics reside in client application. One of the examples of client/server applications is database application that makes database queries to a remote central database server. This type of application grew in popularity many years ago as personal computers became common alternative to older mainframe computers (compnetworking. about. com).

Fig: Client/server application system

Current situation:

The company continued to grow rapidly ever since but has noticed that the network has problems such as difficulty in scaling the servers to respond to the increased load in the distributed environment and a continual requirement for increasingly powerful desktop machines. 1. Do you think the problems faced by Hures, both past and present, are unique? Why or why not? The problem faced by Hures, both past and present, are unique in term of price, space and operation because mainframe system requires intense resources consumption, intense human attention and intense occupying space in comparison to client/server application system. Moreover, the mainframe system is not reliable if too many users are logged on or if the network is out as the terminals have no its own computational power. But in client/server system, terminals are intelligent. However, the problems are not unique in term of scalability, meeting future demands, interoperability, and maintainability. In mainframe time, the system is not scalable in distributed environment because of embedded system and dumb terminals. In client/server application system as well, the system is not scalable as interfaces and most of the business logics are resided in client application.

The company could expand the system in both situation, but it costs lot in upgrading all the clients and upgrading the server side with respect to clients. In Hures Company, both mainframe and client/server systems are not flexible enough to meet future demands. The case study implies the growing business trend in the company but the systems are not well designed to cater future demands. The company cannot adjust the system

as per the way the business expands. The both system cannot tackle the changes brought about by change in internal and external environment. Maintainability is very hard in both embedded mainframe system and client/server application system. Whole the system need to be reviewed in order to modify to correct faults, improve performance, or adapt to changed environment. As there is no middleware in both the mainframe and client-server system, there is no expectation of interoperability.

2. Suggest alternative architectures that could be used to overcome the problems faced by Hures' current Client/Server technology. The alternative architecture suggested to Hures Company to overcome all problems is three-tier architecture. Three-tier client/server architecture

Three-tier architecture is the component-oriented approach of architectural deployment style that describes the separation of functionality into layers. Each segment is a tier and is located in different physical computer. In this architecture, the software is divided into 3 different tiers: presentation tier, logic tier and data tier. Each tier is developed and maintained independently. There is very low interdependency between layers because only layer immediate to other can access its public components.

Fig: Three-tier client/server architecture (Wikipedia. com)

Presentation tier: Presentation tier provides application's user interface to users. It involves Graphical User Interface in smart client interaction while web based technology in browser-based technology. It is also called as client. Logic layer: This layer encapsulates business logic (business rules,

data validation), data access logic etc. It controls the functionality of application by detailed processing. It is also known as middle layer. Business logic resides sometimes both in client side and server side and sometimes in either client side or server side. But middleware like MOM and OOM help in conversation between client and server. Data layer: Data layer consists of database server. Here information is stored and retrieved. Why three-tier architecture is suggested as alternative architecture for Hures Company? The main problem of Hures Company is difficulty in scaling the servers to respond to the increased load in the distributed environment and a continual requirement for increasingly powerful desktop machines because of rapid growth of the company. So, if the Hures Company introduces Three-tier client-server architecture the company in question will be benefited from scalability, maintainability, flexibility, interoperability, and usability.

Scalability: Because each tier is independent of the other tiers, scaling either server side or client side is pretty straightforward. The Hures Company can scale its system as per the future demand. Maintainability: As there is very less interdependency between layers, the Hures Company can update, upgrade or bring about changes according to the demand without affecting the system as a whole. Flexibility: Because each layer can be scaled and managed, flexibility can be increased. Interoperability: Hures Company can be benefited of Interoperability in three-tier architecture because back-end processes like complex computation and business logics are handled by application server without the presence of Human being. On top of that there is automatic communication between immediate layers due to which users

do not need to understand the complex communications. Middleware helps for interoperability.

Usability: This architecture allows users to request, access and present data through familiar desktop interfaces. 3. One of the suggestions proposed by Hures' IS department is the use of intranet web technology. Examine the pros and cons of such an idea. Intranet web Technology: A network based on internet protocols (TCP/IP Protocols) belonging to an organization, usually a corporation, accessible only member, employee, or other authorizations is called Intranet technology (webopedia. com). Intranet sometimes also called as organization's internal website. Intranet technology is generally based on three-tier architecture (en. kioskea. net).

Pros of Intranet web technology: An intranet web technology is a private and internal local network technology that uses typical internet protocols. As intranet is closed private network open only to selected groups, it more secure to outside world. It uses the same internet software due to which we don't need to deploy entirely new and untried software. Intranet is a world wide web site intranet using

4. Do you think the popularity of intranet software and the Internet pose threats to traditional Client/Server systems?

Yes, the popularity of intranet software and the Internet pose threats to traditional client/server system. Intranet: According to en. kioskea. net, an intranet is a set of internet inside a local network. It involves the use of client/server standards (TCP/IP) protocols and web server protocol (HTTP

protocol) to create information system inside an organization or enterprise.

Internet: Internet sometimes simple called Net is a worldwide system of computer networks-a network of networks in which a user in any computer can get information from any computer in the world if former has permission (searchwindevelopment. techtarget. com). It is network between Organizations. The technology uses a set of protocol called TCP/IP protocol (acronym for Transmission Control Protocol/Internet protocol.)

How intranet and internet cause threats to traditional client/server architecture? Traditional Client/Server architecture is somehow outdated architecture in this advance technological era because of defect in:

- Scalability
- Maintainability
- Flexibility
- Interoperability and
- Usability

The emerging architecture called three-tier architecture far surpasses traditional Client/Server architecture because later architecture overcomes all the problems in former architecture. According to en. kioskea. net, an intranet and internet are generally based on three-tier architecture, comprising:

- Client (generally web browsers);

- One or several application server (middleware) and
- A database server.

The network makes possible to exchange queries and the responses between clients and servers. Both intranet and internet are based on same

technology but the difference is intranet is secured from outside world by firewall while internet is open to outside world. As both intranet and internet are based on three-tier architecture, the systems are scalable, flexible, maintainable, usable and cost effective. The components can be managed and enhanced easily without affecting the other components. The systems can be scaled according to the change in internal and external environment easily because of less dependency among software architectures. Moreover, this architecture increases performances of network and throughput as well. On the other hand, in traditional client/server architecture as business logic is resided in client side, it is very ineffective, expensive to scale according to the need of Company. Conclusion