

REVIEW ARTICLE**Advanced Communication over LAN**

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ABSTRACT

“Advanced communication over LAN” provides the various functionalities that are being required for the daily LAN purposes. This software provides facilities like Text chatting, Audio calling, Remote server, File Transfer and Query & Response over LAN. It is actually client – server application. There are various clients that are accessing the various resources needed to them. These resources are either stored on the server machine or any other client machine. The basic idea behind creating this project is to provide the various different services to the clients that are connected to each other via LAN. The services are like Text Chatting, File Transfer, Remote Desktop, and Voice over IP & Query Resolution.

Keywords- Communication, LAN, Text Chatting, Audio Calling, Remote Desktop, File Transfer, Query & Response, Client-Server.

INTRODUCTION

Advanced communication over LAN introduces various services in LAN. We are offering new system which provides Text Chatting, File Transfer, Remote Desktop, Voice over IP & Query Resolution through LAN. We are connecting the client and server systems through IP addresses. By calling client IP address through Server system we can do text chatting, Transferring Files, Sharing desktop and Voice call over IP. It is a system developed for a group of members to communicate with each other over LAN. Considering this application for college use, both the students and teachers are equally benefited by the proposed system. The system saves a lot of time and effort for both. We are introducing new software for chatting purpose. We can say thoroughly that this software is very useful for the college. It is mainly designed for the college to reduce the communication gap between the different people in a college.

LITERATURE SURVEY

Existing Softwares:

- Skype:

The Skype operates on a peer-to-peer model, rather than the more traditional server-client model. The Skype user directory is entirely decentralized and distributed among the nodes in the

network, which means the network can scale very easily to large sizes currently over 171 million users without a complex and costly infrastructure. The Skype client's application programming interface (API) opens the network to software developers. The Skype API allows other programs to use the Skype network to get "white pages" information and manage calls. A Skype network is a peer-to-peer network with three main entities: super nodes, ordinary nodes and the login server. It is an overlay network: each client builds and refreshes a list of reachable nodes known as the host cache. The host cache contains IP address and port numbers of super nodes. Communication is encrypted using RC4; the method used does not provide any privacy but instead merely obfuscates the traffic [2].

- Team Viewer:

Team Viewer is an intuitive, fast and secure application for meetings and remote control. As an all-in-one solution, Team Viewer can be used to: Show your desktop for meetings, presentations or collaboration. Use the Team Viewer meeting function, e.g. for training sessions. Use the meeting apps for Android and iOS to participate in a meeting while being on

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the road. Provide ad-hoc remote support to colleagues, friends or customers. Establish a connection between computers with different operating systems. Team Viewer runs under Windows, Mac OS or Linux.

- **WinChat:**

Window Chat is a LAN- based text chatting program ^[5] included in the Window NT-line of operating systems, including Windows NT 3.x, 4.0, Windows 2000, Windows XP and Windows Server 2003. In later Windows versions, the Network DDE service may need to be enabled to receive calls ^[6]. It utilizes the NetBIOS session service and NetDDE. Users can chat with each other over an IPX LAN ^[7]. The shortcut to the executable is not present in the Start Menu in newer versions of Windows; it must instead be run by using Start > Run... > WinChat.exe ^[6].

Windows Chat utilizes a split screen user interface similar to UNIX talk (software). Windows Chat is real time text, with typing being transmitted immediately ^[7].

Microsoft removed the application from Windows versions from Vista on, with the removal of NetDDE^[8].though the program and the DDE service it needs may be manually installed.

- **Remote Access Services (RAS):**

Remote Access Services (RAS) refers to any combination of hardware and software to enable the remote access tools or information that typically resides on a network of IT devices. A RAS server is a specialized computer which aggregates multiple communication channels together. Because these channels are bidirectional, two models emerge: Multiple entities connecting to a single resource, and a single entity connecting to multiple resources. Both of these models are widely used. Both physical and virtual resources can be provided through a RAS server: centralized computing can provide multiple users access to a remote virtual operating system. Access Providers often use RAS servers to terminate physical connections to their customers, for example customers who get Internet through some form of modem. Originally coined by Microsoft when referring to their built-in NT remote access tools, RAS

was a service provided by Windows NT which allows most of the services which would be available on a network to be accessed over a modem link. The service includes support for dialup and logon, presents the same network interface as the normal network drivers (albeit slightly slower). It is not necessary to run Windows NT on the client - there are client versions for other Windows operating systems.

PROBLEM STATEMENT

There are various software's that are available in the market today that provide the different services to the client as a part of the total service. They provide the service as individuality. These makes the clients feel incompleteness for the services that are being provided to them.

PROPOSED SYSTEM

Our software contains these grouping of many services as a full part of the software. The proposed system defines the following modules:

- Module for text chatting in among students.
- Module for file Transfer.
- Module for Voice over IP.
- Module for Remote Desktop.
- Module for asking query by student and response by teacher which has following levels-

1. Administrator level
2. Staff level
3. Student level

Administrator level:

From the name itself we know that it is administrator's part. Only the administrator is authorized to log in to it. If any changes is needed in the system, he enter this level and will make enough changes .He is the only authorized person to alter the details in database and other important areas of the system. The updating of the details and other details are edited by him.

Staff level:

This is for the staffs working at the various departments or branches. Staff will log in using user id and password. He can provide feedback and answers to student's queries.

Student level:

Student can login from any client using user id and password. He can chat with other students and ask queries to his teachers.

Steps to use these Applications-

1. Select module among the options.
2. Based on selected module, run appropriate server.

DESIGN DETAILS

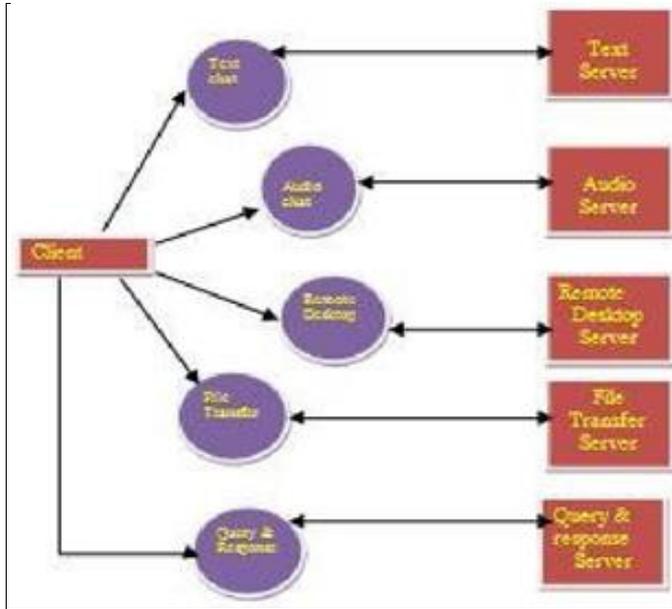


Fig.1 Data Flow Diagrams

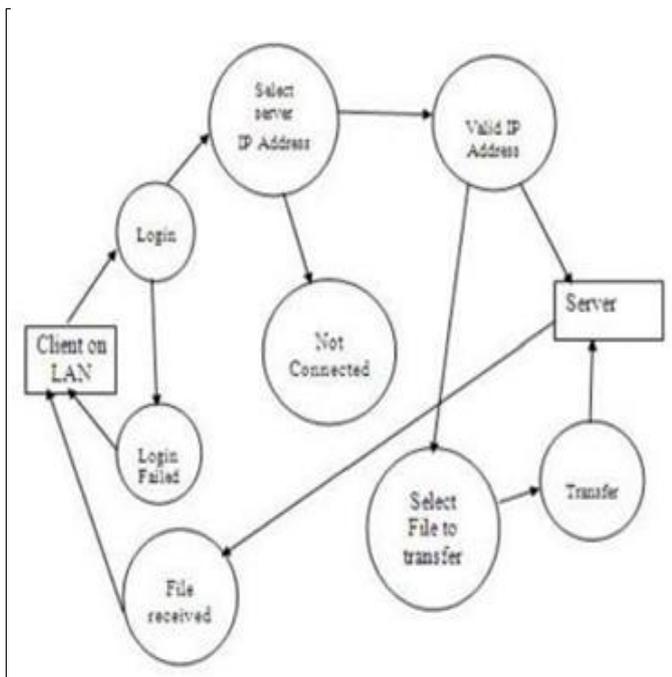


Fig.2 DFD for File Transfer

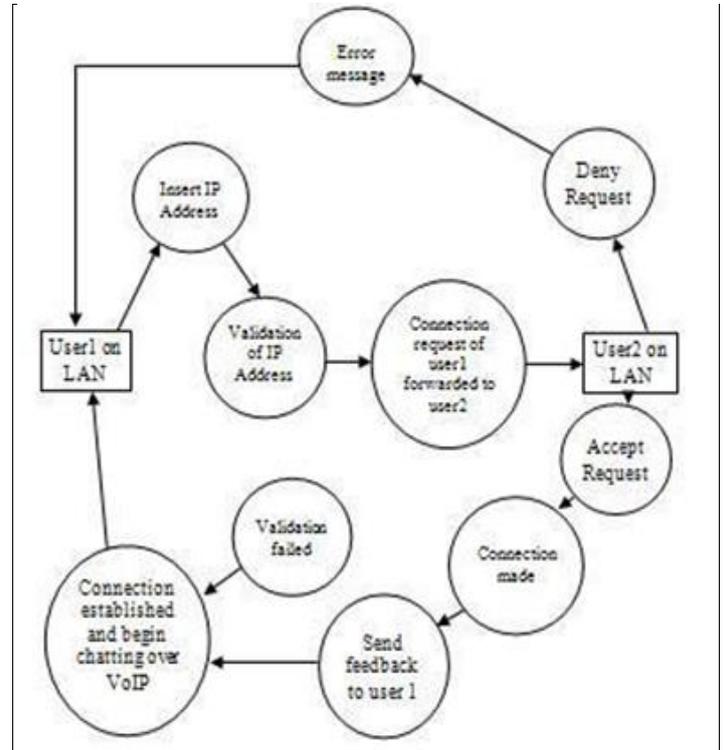


Fig.3 DFD for Voice Calling

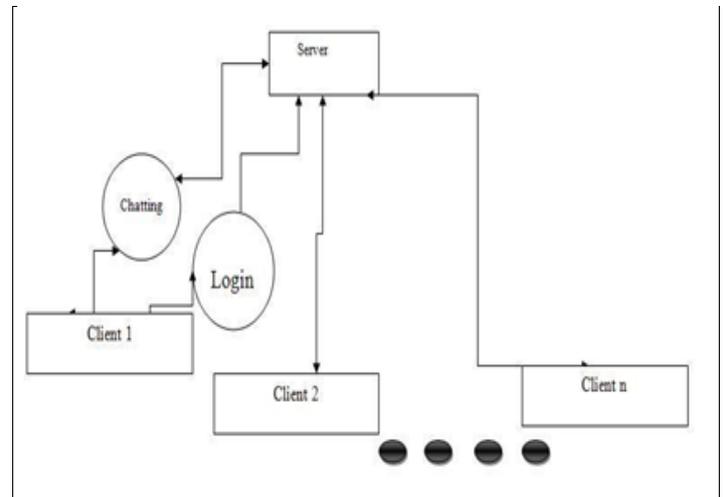


Fig.4 DFD for Text Chatting

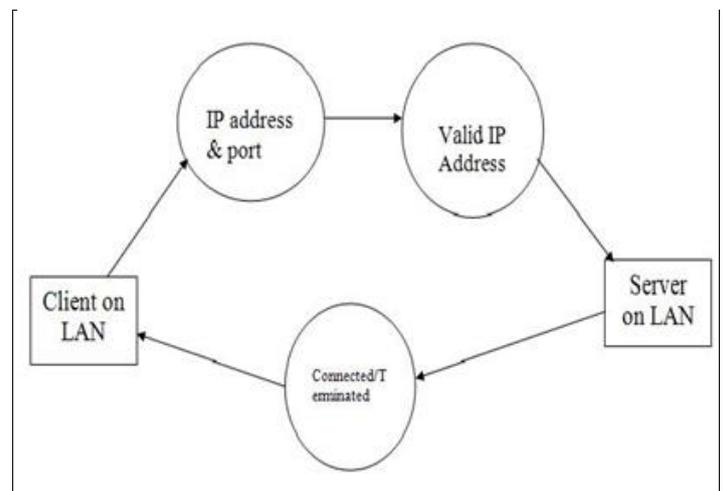


Fig.5 DFD for Remote Desktop

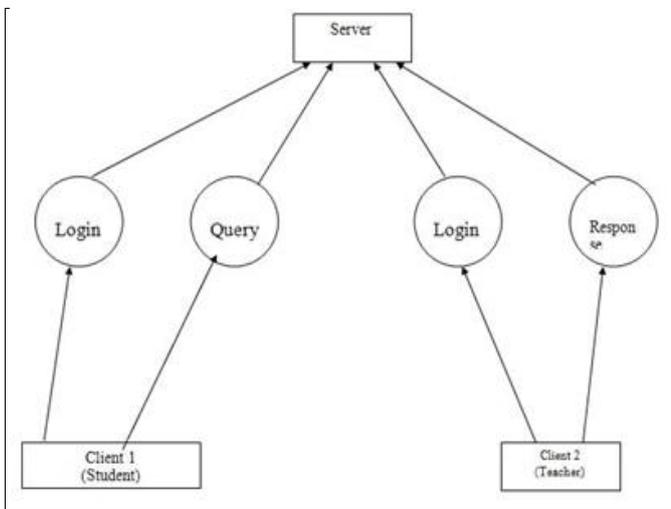


Fig.5 DFD for Query & Response

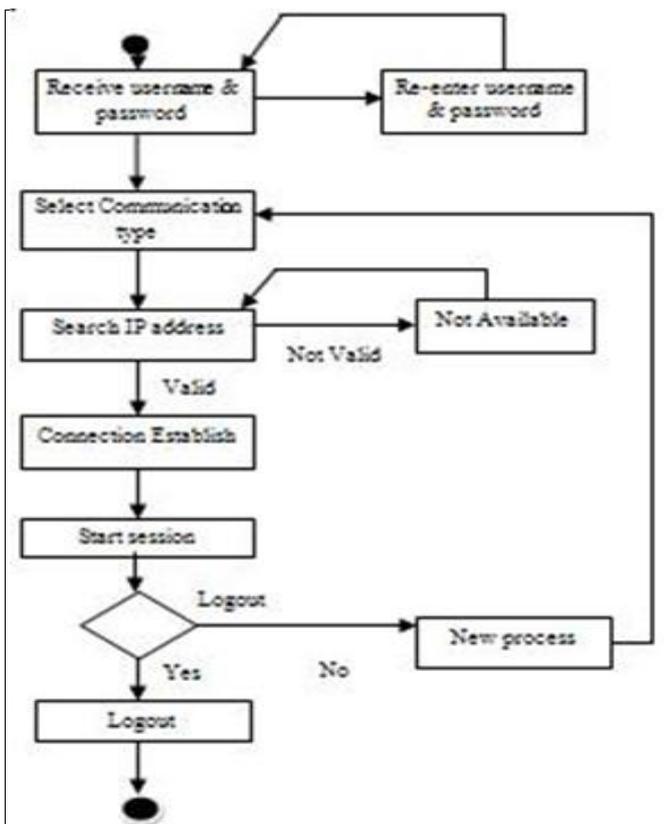


Fig.6 Activity Diagram

PROPOSED SYSTEM IMPLEMENTATION

The project methodology used for developing this system will be Systems Analysis and Design as the area of research because it is a standard procedure for developing a system. The systems development life cycle (SDLC) is an element of Systems Analysis and Design that process of the understanding how an information system can support business needs, designing the systems, building it, and delivering it to users. The systems development life cycle (SDLC) has a five fundamental phases: planning, analysis, design, design (logical and physical) and maintenance [3].

1. Text Chat: At client side we provide two

windows- one for chatting and another window to show online users.

At server side we provide a single window for chatting and to show online users.

2. Voice Over IP: Voice over IP (VoIP, or voice over Internet Protocol) commonly refers to the communication protocols, technologies, methodologies, and transmission techniques involved in the delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks, such as the Internet. Other terms commonly associated with VoIP are IP telephony, Internet telephony, voice over broadband (VoBB), broadband telephony, IP communications, and broadband phone.

VoIP systems employ session control protocols to control the set-up and tear-down of calls as well as audio codecs which encode speech allowing transmission over an IP network as digital audio via an audio stream. The choice of codec varies between different implementations of VoIP depending on application requirements and network bandwidth; some implementations rely on narrowband and compressed speech, while others support high fidelity stereo codecs.

3. File Transfer: Both client & server have to authenticate through login feature. Make file selection to send a specific file .Make selection of particular client using IP address.
4. Remote Desktop: A total remote desktop control through the LAN connection. Full-screen mode allows maximized comfort of remote desktop usage. Multiple parallel connections with remote PCs.

REQUIREMENTS

1. Hardware Requirements for System Development: Dual core/Core 2 duo, 512 Mb & above, 40 GB & above. LAN Connection.
2. Software Requirements for System Development: Windows XP and Above, Java, Ms Access.

PROPOSED RESULTS AND CONCLUSIONS

Proposed Results:

This project aims at providing user-friendly, integrated software for text chatting, voice calling, file transfer, remote access and query resolution.

CONCLUSION

Core idea behind creating this project is to provide various different services to the clients that are connected to each other via LAN. After careful observation we concluded the following points:

1. We made detailed study of requirements for this service. We realized that it would be extremely useful, as well as easy to use.
2. As using the LAN service, this project provides Chatting between users like a messenger, Voice Calling over LAN, File Transfer with Security, and Remote Desktop with Authentication.

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REFERENCES

1. Lipo Wang, “Soft Computing in Communications”
2. IEEE Paper- Voice-over-IP Security : Research and Practice (March- April 2010)
3. http://articles.techrepublic.com.com/5100-10878_11-5031914.html
4. <http://support.microsoft.com/kb/308232>
5. Ed Krol, Paula Ferguson (1995). The whole Internet for Windows 95. O'Reilly. p. 376. ISBN 1-56592-155-0.
6. [http://technet.microsoft.com/en-us/library/ee449431\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/ee449431(WS.10).aspx)

7. Challenges in Securing Voice over IP: IEEE SECURITY & PRIVACY (2005)
8. "THE LAWRENCE RADIATION LABORATORY OCTOPUS". Courant symposium series on networks (Osti.gov).
9. "A brief informal history of the Computer Laboratory". University of Cambridge