

Auto Backup with Network Information System

Prajakta D. Phalke, Snehal G. Pote, Sakshi Dhar, Kshitija S. Urane

Abstract - In information technology, Backups have two distinct purposes. The primary purpose is to recover data after its loss, be it by data deletion or corruption. Data loss can be a common experience of computer users. The secondary purpose of backups is to recover data from an earlier time, according to a user-defined data recovery policy, typically configured within a backup application for how long copies of data are required. Though backups popularly represent a simple form disaster recovery, and should be part of a disaster recovery plan, by themselves, backups should not alone be considered disaster recovery. Not all backup systems or backup applications are able to reconstitute a computer system, or in turn other complex configurations such as a computer cluster, active directory servers, or a database server, by restoring only data from a backup. Auto Backup Software is an easy-to-use program designed to automatically backup your critical data to a local disk, the Network neighbourhood or remote FTP servers. Restoring is very easy, you can select files to restore to the original or a new location. Auto Backup Software can do integrated encryption, compression, and can use password protection. You can create self-restoring archives. Flexible backup date and time are specified to backup automatically. You can start backup and restore manually at any convenient time. It is a simple yet powerful backup solution for your business or for your personal needs in a networking environment or on a single machine. Auto Backup Software can work as a Windows NT/2000/XP/2003 service(Only Site License). Multi-threaded backup, restore and transfer engine allows you can start multi-backup and -restoring processes at the same time. You can edit multi-backup tasks at the same time, too. The system tray pop up menu provides for easy access to main functions. NIS is useful for network administrative to manage different clients from one space. NIS support get the screenshot of current screen for a any client on network. Power off the selected client PC. Shut down the PC from Administration PC. Admin can get the processes currently running on client pc and can also kill the unnecessary process running on client pc. It can send a message to particular client or all clients on network.

KEYWORDS: Networks Information System(NIS).

I. INTRODUCTION

Aim of the project is to design automatically backup your critical data to a local disk, the Network neighborhood or remote FTP servers. It is used to make a reserve copy of any valuable data on your system manually or automatically. To restore file to the original or a new location and to start backup and restore manually at any convenient time. As the present world is completely dependent on the computers, so the job of the Administrator increases.

Manuscript published on 30 March 2013.

*Correspondence Author(s)

Prajakta D. Phalke, Department Of Computer Science, Pune University, Maharashtra, India.

Snehal G. Pote, Department Of Computer Science, Pune University, Maharashtra, India.

Sakshi Dhar, Department Of Computer Science, Pune University, Maharashtra, India.

Kshitija S. Urane, Department Of Computer Science, Pune University, Maharashtra, India.

© The Authors. Published by Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP). This is an [open access](http://creativecommons.org/licenses/by-nc-nd/4.0/) article under the CC-BY-NC-ND license <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

An administrator deals with many operations while monitoring the network. Like which processes are currently running on the client side, if there is some illegal process then killing that process, finding the machine configuration of each client, monitoring the client etc. NIS allows you to secretly monitor and record user's activities on computer, such as application executed, login username, commands executed on console. With NIS one can be able to see EXACTLY what they have been doing online and offline. It can run in completely INVISIBLE mode as Network System works in background. This software uses server – client communication via socket programming. This is windows based utility and uses PING package for network scanning. AB-NIS is efficient software, which can be used in big software companies to control the activities of employees effectively. It gives administrators the power to check and control illegal activities, take the back up of all the employees data automatically.

Existing System :

In small scale organizations execution of file distribution or updating or taking backup of files is done manually using network file explorers like my network places with simple copy paste command.

It contain many drawback as gives below :

- Time consuming client and file search activity.
- We cannot copy files on different drives or folder for backup at same time, every time processing is done for a single drive or folder.
- Copy – Paste practice is useless when organization is large or updating are frequent.

Features of introduce system:

- Easy to Understand, use.
- Saves time.
- Automated file updating or taking backup makes system efficient and reduce repetition of work is not needed.
- Current & up to date files on clients
- Reduces client's manual work load of tacking backup.
- Supports Linux and Windows

II. DESIGN AND IMPLEMENTATION

A. **Project scope :**

Our objectives to design a system that will raise itself from other options by providing better GUI , open source and minimum network bandwidth. Scope is limited to support following functionalities

1. To update client database
2. To keep product structure intact
3. Encrypt and decrypt data
4. Controlling client by taking the screenshots, setting session, killing process.

B. A Typical AB-Network Information System Maintains Many Relationships :-

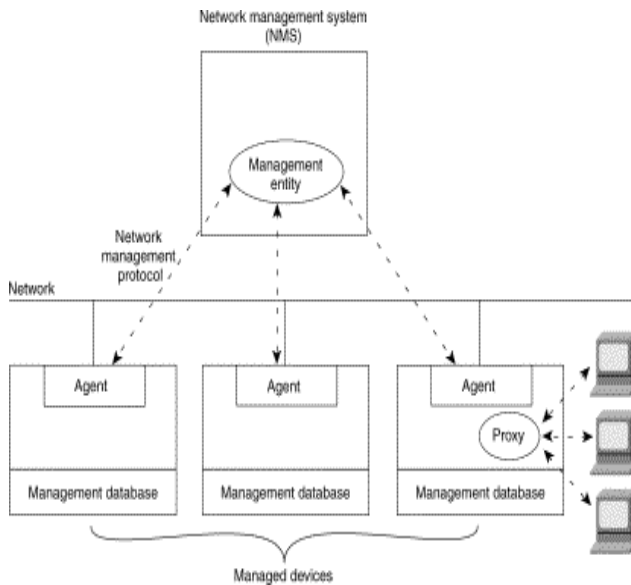


Fig 1: Network Management System

Here we are implementing base64 algorithm for encoding and decoding of the data. Base64 is an encoding algorithm used to alter text and binary streams into printable and easy-to-process form to be consumed by various programs as well as transmitted over the network. Base64 encoding is generally achieved by splitting a stream or block of data into 6-bit fragments and interpreting each fragment as the position in the following series of characters. Therefore the encoding yields data selected from 64 possible characters comprising:

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz0123456789+/-

After the Base64 encoded block is obtained it is ready to be processed, or transmitted, for example for MIME content transfer encoding used in email transmission. Base64 decoding employs a reverse algorithm to yield the original content. While Base64 encoding alters the original content, it is not suitable as an encryption mechanism as it can be easily decoded to reveal the original content. For that there are various encryption algorithms and products to be used. PGP is one of the better known encryption products.

The Base64 encoding process is to:

- Divide the input bytes stream into blocks of 3 bytes.
- Divide 24 bits of each 3-byte block into 4 groups of 6 bits.
- Map each group of 6 bits to 1 printable character, based on the 6-bit value using the Base64 character set map.
- If the last 3-byte block has only 1 byte of input data, pad 2 bytes of zero (\x0000). After encoding it as a normal block, override the last 2 characters with 2 equal signs (==), so the decoding process knows 2 bytes of zero were padded.
- If the last 3-byte block has only 2 bytes of input data, pad 1 byte of zero (\x00). After encoding it as a normal block, override the last 1 character with 1 equal sign (=), so the decoding process knows 1 byte of zero was padded.

- Carriage return (\r) and new line (\n) are inserted into the output character stream. They will be ignored by the decoding process.

III. USER CLASSES AND CHARACTERISTICS

1. System:

It is used to make a reserve copy of any valuable data on your system manually or automatically, to restore file to the original or a new location to start backup and restore manually at any convenient time. Auto Backup Software can do integrated encryption, compression, and can use password protection. You can create self-restoring archives, Multi-threaded backup.

2. Remote Server

The different files whose backup is to be taken is stored in the Remote Server. It will contain the name of the file and its content. Files are stored in encrypted form. .

3. Administrator:

Only the Authorized Person will be allowed to look the entries in the Database. He will be allowed to update the entries. The administrator can check the current processes running on clients pc, can kill any unwanted process or he is able to take the screenshots of client pc.

4. Clients

Clients should register themselves with server. They can add files or remove files from the backup. They can broadcast messages.

III. MODULES AND SYSTEM FEATURES

A. Modules :

1. First module will contain the GUI for the project and the database formation.
2. Second module will contain the creation of the clients and the server using socket programming.
3. Third module will contain backup logic and the algorithm implementation.
4. Fourth module will contain integration of backup with Network Information System (NIS).

B. System Features :

AB-NIS comes with a variety of handy features:

- The program is very straight forward
- Requires no special training for Administrator
- No Server Required
- Network Based
- No Internet connection required
- Quick view of online users
- User Friendly
- Open Source and Free software

C. External interface requirements :

User interface :

System will have following interfaces:

- Client registration server:
This interface will be used for storing the information about the client which is being registered and the information of the files whose back-up is to be taken.
- Administrator:

The Authorized Person will be allowed to access database .

- Database :
The updation time, file name etc will be stored in this Database.
- Software Interfaces :
• Java language
- Microsoft SQL Server-2008

IV. SYSTEM IMPLEMENTATION PLAN

1. Firstly user will login
2. Setting time for automatic back up and selecting file for taking back up.
3. Coding for backup will execute
4. If admin wants to see the processes of client. Just click on the process button.
5. If he wants to kill the process he can killed it.
6. Admin can set session for the user and he can take the screen shot of the user.

V. HOW IT WORKS

This module (Auto-Backup) contains main two entities those are server and client. Working of these entities in details as follows:

Server :

In this entity server starts automatically when server computer is start and it will continuously check the request from client, if any client sends request it give response.

IF we choose the EXIT option it close the server program.

Client :

This entity should have to be on the machine which want to use "Auto-Backup". This is also starts when client computer is switched on. In this entity contain following options :

1. Select the files for Backup :
It will open a file chooser dialog window from this we can add files for Backup and can also delete file which we doesn't want take backup further.
2. Set time for Backup :
It will set time for backup ,if we doesn't set it then it will take backup at default time .
3. Take Backup :
It shows a screen to select file which we want to take backup of that file.
4. Exit :
IF we choose the EXIT option it close the program.

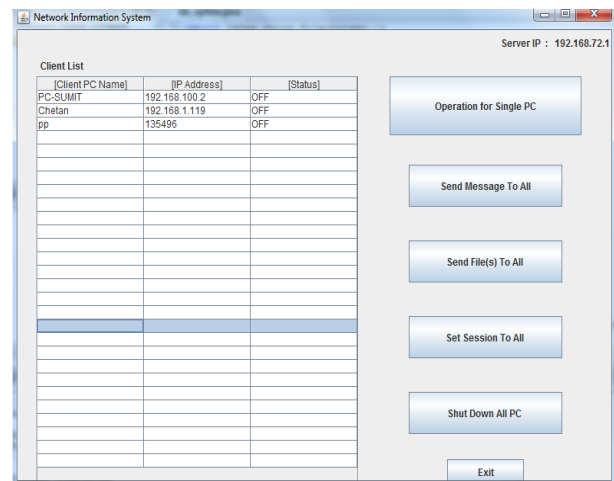
VI. GUI FOR SYSTEM

A. System Tray Icon For NIS:

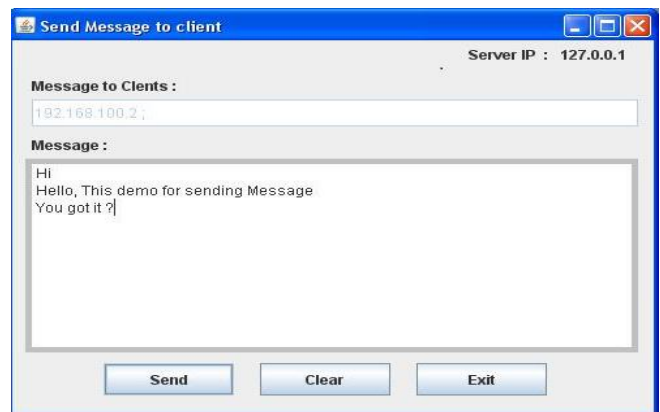
After installation, an icon is created in the system tray which is used for further functionality. Add client pc is used to add different clients present in the network.



B. NIS Options:

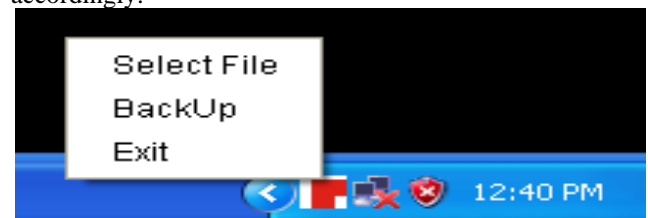


C. Send Messages To Different Clients:

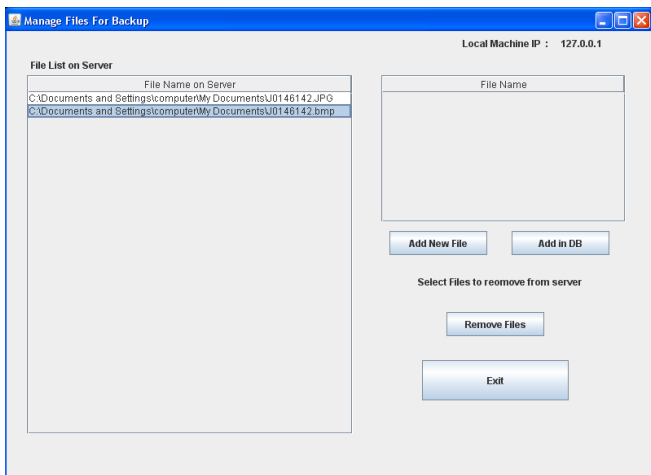


D. System Tray Icon For Backup:

Different files for backup are selected and time is set accordingly.



E. Managing Different Clients:



F. Administration Login:



VII. TECHNICAL SPECIFICATIONS ADVANTAGES

1. Easy to Operate.
2. Dynamic Network Scanning.
3. No operating cost.
4. .No maintenance cost.
5. Current information is available at any time.
6. Current information Back up is available at any time.
7. Encoding and Decoding of Current text file backup.
8. System is very easy to use.
9. Uses Existing Network Facilities.
10. Saves time, money as well as papers

DISADVANTAGES:

1. System will not be able to encrypt and decrypt video or audio data.

APPLICATIONS

1. In Large scale organization having small network, employees can take the back up of their Data. It will be also useful for the admin to control the employees of organization.
2. Helpful in network based applications working offline

VIII. CONCLUSION

Auto Backup Software can do integrated encryption, compression, and can use password protection. You can create self-restoring archives. Multi-threaded backup, restore and transfer engine allows you can start multi-backup and -restoring processes at the same time. Here we are using Base64 encoding and decoding algorithm to protect user important files. Proposed algorithm is less complex as compare to other encryption and decryption algorithms which makes the system more efficient. For managing different clients from one space, NIS is useful for

network administrative. NIS supports to get screenshot of current screen for any client on network.

IX. FUTURE SCOPE

1. Cross Platform: By integrating Simple Network Monitoring Protocol To communicate and control Windows based systems in Local Area Networks.
2. Remote Desktop Operator
3. Standard protocol based

REFERENCES

1. "Data Backup and Recovery Based on Data De-Duplication" Guo-Zi Sun (Institute of Computer Technology, Nanjing Univ. of Posts & Telecommunication, Nanjing, China),IEEE, Yu Dong,Dan-Wei Chen and Jie Wei, oct.2010.
2. "Web log system of automatic backup and remote analysis" Conference Publications. Zhou Hangxia(Coll. of Inf. Eng., China JiLiang Univ., Hangzhou, China), IEEE, Zheng Peng and Yan Yong, oct.2010.
3. "Based A Self-Adaptive Backup System on Data Integration Mechanism" Xu Wei (Inst. of Computer Technology, Chinese Acad. of Sci., Beijing), IEEE, Wang Min, He Xiang and Xu Lu, Nov. 2008.
4. "A Data Backup Method Based on File System Filter Driver" Zhao Zhongmeng(Dept. of Computer Science & Technology, Xi'an Jiaotong Univ., Xi'an, China),IEEE, Yao Hangtian, Dec. 2010
5. John P. Slone, "Local area network handbook", CRC Press LLC, USA, 2003.
6. "Distributed data transaction network in client server applications using of M/M(1,b)/1 Markovian models" Kirubanand,V.B. Palaniammal,S.,IEEE,DEC 2010.
7. "The Development of Monitoring Software for Local Area Network" Yuhua Qin, IEEE, June2008.
8. [8] "Study of security management system based on client/server model" Soon Choul Kim, IEEE,1999.

AUTHOR PROFILE



Prajakta D. Phalke, Pursuing B.E , P.V.P.I.T, Pune.
Email-ID – phalke.prajakta@gmail.com



Snehal G. Pote, Pursuing B.E(Computer), P.V.P.I.T, Pune. Email-ID – 11snehalgovindpote@gmail.com



Sakshi Dhar, Pursuing B.E(Computer), P.V.P.I.T, Pune. Email-ID – sakshi.dhar08@gmail.com



Kshitija S. Urane, Pursuing B.E(Computer), P.V.P.I.T, Pune.