



A Whitepaper on Safentrix

Carizen Software (P) Ltd

No. 3, Leith Castle Street, Santhome, Chennai 600 028, INDIA

Ph:044-24958222/24958228 Fax: 044- 52185612

Email: info@carizen.com www.carizen.com

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Introduction

Safentrix is a **Complete Communication and Collaboration Intranet Suite** ideally suited for large enterprises, government organizations, and educational/research institutions. Safentrix provides all that is required by an organization to maintain a network infrastructure including:

- Software modules for Communication, Information sharing & Workflow automation
- Security modules for secure access and access control on various services
- Responsive support with a single point accountability
- Regular product upgrades to keep pace with technological advancements

The goal of the package is to provide the client with a one-stop integrated solution where the traditional problem of procuring multiple packages, integrating them and coordinating support goes away.

The vision of Safentrix is to provide a complete software platform in the future wherein the only thing an office will require is

- **Broadband connectivity and**
- **Safentrix**

Rationale

The major perceived disadvantage in opting for a Open source enterprise product is the lack of availability of an integrated product with a single point vendor support interface. Further, CIOs always look for future scalability and upgradability when deciding on an enterprise solution which are not clearly defined in many open source products.

Today, due to the exponential growth of broadband connectivity, many corporates, government organizations, and educational/research stations opt for maintaining an intranet set up in their own premises instead of the earlier practice of outsourcing the mail and web services to ISP/ASP/WSPs.

Safentrix endeavours to address these issues by offering a *well proven* product with superior features and a better cost/performance ratio.

Let us consider a typical enterprise scenario:

- Requirement of standard communication facilities like Email, Chat , Instant Messaging and Fax. Of course, latest addition include Mobile computing (Email through Mobile phones). All should be integrated and available through a single interface.
- Requirement of a Collaboration tool that enable the users within the intranet to collaborate with each other, share files and databases, access company's documents, manage projects, have threaded discussions and build a knowledge base.
- Requirement of Security modules like Authentication/authorization for various services, Firewall, SPAM Control, Content filtering, Blocking sites, Browsing restrictions, secure database access, secure relay of mails, single sign-on.
- Requirement of a product that is easy to set up, manage, and not saddled with too many features,
- Requirement of a product that gives an uptime of more than 99.9% and does not wreck havoc by frequent crashes

Rationale - contd.

- A responsive support that is available 24x7 to ensure minimal downtime, correct identification and quick resolution of problems, fast bug fixes and security updates
- Above all, a hassle-free licensing and upgrade policy that does not entail significant investments in the future.

Invariably, getting a single product that addresses all the above issues is a dream come true for many CIOs and Safentrix ensures the same.

Advantages of Safentrix

- Branded, packaged product combining the features of software, security and support.
- Covers the entire gamut of communication, information sharing, group scheduling and workflow
- A Plug-in type of product where all that is needed is a Leased line connectivity and a server to load Safentrix.
- Proven scalability for large organizations
- No Client licensing policy ensures there would be no investment costs in future expansions and a lower TCO
- Regular in-built upgrade policy ensures the product does not become obsolete at anytime

This document describes the various facilities of Safentrix in brief.

Features

While we have given an overview of Safentrix, it is important to know the modules that comprise the "Intranet Infrastructure" as of today. In this section, we outline the various modules in Safentrix and brief introduction about them. In the following sections, we will look at each module in detail.

- **Email server**

Email server module provides email communication infrastructure to enterprises. Based on the lightweight, quick and secure "Qmail" (used by organizations ranging from small businesses to portals), Safentrix provides value added functionality like SPAM control, Host Forwarding, Address Forwarding and Auto-reply.

- **Proxy Server**

Proxy Server module enables efficient sharing of Internet access efficiently and as per organizational requirements. Based on Industry standard "Squid" (used by organizations ranging from small businesses to large ISP), Safentrix provides functionality like site restrictions, IP restrictions, user restrictions and time restrictions for Internet browsing.

- **Firewall**

Firewall module provides the first defense against network attacks. Based on "iptables" module provided in Linux kernel, Safentrix provides support for DMZ, support to close/open ports from outside world, support for custom firewall rules and support for NAT, SNAT, DNAT.

- **Fax Server**

Fax server module helps replace a fax machine in an organization. Using this module, faxes can be sent right from a user's desktop. Incoming faxes are converted to an attachment and can be directed to the recipient's mail box.

- **Chat Server**

Chat server module helps provide instant messaging and chat facilities between different users in an organization. Being a secure, closed-user group facility, chat facility can be made use of using a web based client or a installable software client.

Features - contd.

- **File Server**

File sever module helps an organization to store files centrally for easy backup as well as maintenance. Based on "SAMBA", Safentrix includes access control lists which ensures that files can only be accessed by authorized users.

- **Web server**

Safentrix includes "Apache" web server, which is the industry-leading, crossplatform, secure web server. With support for dynamic pages using PHP, Servlets, JSP and CGI Scripts, this can be used to build complex Intranet web based applications.

- **Dial-in Server**

Safentrix provides RAS (or dial-in facility) using the Dial-in Server module (Built on Mgetty). Using this module, an user can dial into a phone number and become part of the organization's Intranet and access all the facilities provided.

- **VPN Server**

VPN (Built on FreeS/WAN) is the facility using which users can logon to corporate Intranet from anywhere in the Internet using an encrypted, secure medium and access various facilities. Safentrix includes a VPN server that authenticates users and allows them to connect to the corporate Intranet. Safentrix supports IPsec as well as PPTP VPN's.

- **Bandwidth Manager**

Bandwidth manager modules helps to regulate the Internet bandwidth available to users. Using this, an organization can form groups and assign specific bandwidth to various users ensuring certain minimum QoS (Quality of Service).

- **DNS Server**

DNS is a service that helps in identifying machines that can handle various services for a particular machine. The DNS server included with Safentrix (bind) not only supports storing DNS information for multiple domains, but also acts as a caching server that caches DNS queries so that the same information can be used at a later point of time.

Features - contd.

- **Groupware**

- **Calendar & Scheduling - A full featured time management program**

✓	Calendar view: Weekly, Monthly, and Yearly
✓	Add public & private events.
✓	Email notification to confirm events.
✓	Email notification for reminders.
✓	Add recurring events
✓	Import/Export events to multiple formats (including Palm Pilot)

- **Contact List/Maintenance**

- **Chat** : Chat with other users in the system using a web based interface.
 - **Discussion forums** : Have threaded discussion on any subject.
 - **File manager** : Place to store your documents.
 - **Project Manager** : Track your project status (visually using Gantt Chart if required).
 - **Notes** : Maintain notes.
 - **Polls** : Conduct Polls on various issues
 - **Knowledge Base** : Access various information
 - **ToDo list** : Maintain todo list with various parameters (priority, ending date, etc.)

- **Support Services**

In addition to standard Phone, Email and on-site support, Safentrix pioneers the concept of "SRTS" (Secure Remote Technical Support). Safentrix is the only product that has "If you can reach Internet, we can support you" philosophy. SRTS is totally under client control and has in-built safety mechanisms including authentication and encryption. SRTS reduces the resolution time for problems to mere minutes instead of days.

Why Safentrix

Some of the unique points of why Safentrix is the preferred solution of clients today:

- **Easy Installation**

Safentrix is based on standard Linux components like Qmail, fetchmail, Apache, SAMBA, bind and iptables. There are lots of Linux consultants who can put together a solution by installing and configuring these software at client premises. However these typically take at least 2-3 days to do and is done manually by the consultant. While the consultant may provide documentation for installation steps, that is where it will end.

Safentrix is given in a CD and includes an easy to use GUI based Installation which ensures that client themselves can install the software. All installation and initial configuration is handled by the installation software and can typically be completed within 15-30 minutes.

- **GUI based Configuration/Administration**

There are disparate administration console for different software (like Qmail, SAMBA, fetchmail) in Linux and when a solution is put together by a consultant, clients are made to use these different administrative programs which make the learning curve very steep. Also, clients have to be aware of interactions between these programs if the system is to be maintained properly.

Safentrix avoids this problem by bypassing the Linux administrative programs completely and providing a Single administrative console GUI that can be used to configure anything to do with Safentrix.

This ensures that learning curve for Safentrix is easy and administrative tasks can be performed even by users with little or no knowledge of Linux.

Why Safentrix - contd.

- **Single sign-on**

Safentrix takes a very deep view of "integration". Rather than treating integration as just co-existence of different programs on a single server, Safentrix takes a unified view.

One of the main advantages of this approach is the single sign-on (or Login) system. User accounts created in Safentrix are valid for any facilities offered be it Email, Proxy, File, Chat, Dial-in or Fax Server. That is the same account and password can be used to avail of any of the facilities.

When password is changed by user, it is applicable for all facilities. This not only is of great convenience to users, but also increases security of the system because the inconvenience of having to change password at multiple places and/or remember multiple passwords discourages the user from changing password often and leaves the system vulnerable for brute-force password attacks.

In fact, this is a system that is followed by most Enterprise solutions (like Novell Directory Service, Microsoft Active Directory Service, etc.).

- **Enterprise Functions**

In addition to installing and configuring various services like Email, Proxy, etc., Safentrix also provides functions that help in keeping Safentrix running smoothly in an enterprise.

Safentrix has a single click Backup/Restore facility that ensures that there is minimal downtime. In case of Hardware crashes, Safentrix can be made up and running on a new hardware (with all old applications, configuration and data) in as quick as 30 minutes using this facility.

Safentrix also ensures that most of the administrative functions are automated so that system administrators can concentrate on most important things. Logs are automatically rotated and virus pattern files are automatically downloaded.

Why Safentrix - contd.

- **Connectivity Independence**

Safentrix can work with any kind of Internet connectivity including PSTN, ISDN, Cable, DSL, VSAT and Leased lines. This ensures that even if the client's leased line is down, all the services can be continually made available to client using a backup connection like ISDN, DSL or Cable.

Single click in the administrative console can switch the connectivity back and forth. This ensures that even in a dire situation like failure of connectivity, backup administrative task can be done by a person with little or no knowledge of Linux.

- **Multi Location Support**

While most solutions are great for single locations, Safentrix has been designed keeping in mind the requirements of organizations with multiple locations. For example, one concept preferred in organizations with multiple branches is to have the same address book at ALL the locations.

Safentrix has tools for the same (with the address book synchronize feature). Safentrix also supports the concept of email domains which make the de-centralized maintenance of email addresses a reality.

- **Support Services (SRTS)**

Safentrix provides an unique mode of support called SRTS. This gives the client control of allowing a support personnel to log in through the Internet and fix the problem in minutes instead of days.

Security of this scheme is ensured by a client specified password and also 128 Bit encryption.

SRTS, combined with traditional forms of support (like Phone, Email, on-site) ensure that Safentrix can be put to work for your organization in the most efficient manner.

Mail Server

Safentrix Email server is based on Qmail. Qmail is the No. 2 MTA in the Internet and is one of the most secure, fast MTA's available today. This ensures that the email server can be scaled right from 10 users to 1 million users as the organization's need increases.

Some of the salient features of Safentrix Email server are:

- **Multiple Domain Support**

Users can consolidate emails from all their domains in a single Safentrix installation. Safentrix supports "true" multiple domains and not just aliasing. This means that you can have the same user name in different domains and different persons can access them.

- **Sub domain support**

Sub domains can be created under a single domain for different departments/locations and Safentrix can be used as a centralized mail server for all these domains/sub-domains.

- **Local creation/maintenance of email addresses**

When user gets email services from Safentrix, email addresses can be created/maintained locally without needing to add/delete/change any settings in the Gateway server.

- **Group Lists - Logical groupings for mail, browsing, work group**

Safentrix supports the concept of "Groups". Users can be combined into groups and these groups can be used to give/restrict email/browsing/other facilities.

- **Mailing Lists**

Mailing list can be created in Safentrix and can be used to send mails to groups of users. The mailing lists can be either made public (available to outside users) or private (not available to outside users).

Mail Server - contd.

- **Internal only users**

In conjunction with email services, users can be restricted to only sending internal mails and not allowed to send mails outside of LAN.

- **Anti Virus protection for all incoming, outgoing and internal emails**

All internal, incoming as well as outgoing mails are scanned for viruses and if any virus is found, the mail is quarantined. The virus engine used for scanning is updated automatically every week.

- **Connectivity Independent**

Works with all kinds of connectivity including PSTN, ISDN , DSL, Cable and permanent connectivity. This ensures that critical facilities like Email need not be affected because of connectivity failures.

- **Compatible with Lotus Notes/Exchange Server**

Can function as a gateway to the above mail servers for sending/receiving mails from the Internet. This facility can be used to either increase security of mailing or to make a smooth transition from Lotus Notes/Exchange Server to Safentrix.

- **Batch mode mailing with queuing**

In a PSTN/ISDN connectivity, mails can be made to go out at pre-determined intervals. Any sent mails will be stored in the queue till it is ready to be sent out. This optimizes the Internet connectivity and potentially saves cost of Internet/Phone connectivity.

- **Spam control**

Multiple type of SPAM controls are available. Safentrix allows one to blacklist based on sender address/domain, thus reducing unwanted mails.

When email services are availed, SPAM control based on contents of is supported. This method uses a battery of tests (some of them based on email headers and some of them based on actual text) and tags the email as SPAM when the score exceeds a certain fixed value.

Mail Server - contd.

- **POP3/IMAP Support**

Emails can be viewed with any POP3/IMAP client (Outlook express, Eudora, etc). By default, emails retrieved this way are deleted from the server. However, by enabling the option to keep a copy on the server, user can keep a backup copy of all emails in the server.

- **Web-based email client**

Emails can be accessed from anywhere in your LAN/WAN using the included web based email client. Some of the salient features of this web based email client are:

Multiple Folder support

Messages can be sorted onto Multiple folders for easy tracking and maintenance.

Draft Folder support

Messages can be composed in multiple steps by using the Draft facility. Partially composed messages can be placed in the Draft folder and can be added to till actually sent.

Spell Check

Included spell checker ensures that user's correspondence can be maintained clean easily.

Filtering rules

Filtering rules allow redirection/deletion of messages based on certain criteria like "Subject", "From address", "To address" and Body content.

External mail consolidation

Email client support consolidation of all your POP accounts into this single account. By specifying details of your various mail accounts, you can ensure that mails coming to different accounts are downloaded onto your account in RIS for easy access.

Mail Server - contd.**Message arrival notification**

Sound can be played/pop up window can be displayed whenever a new mail arrives.

Read Receipt

Supports read receipt, by which a mail is received when the recipient reads the message in his email client.

- **Automated scheduler**

In a dial-up scenario, mails can be made to be received/sent with included automatic scheduler.

- **Auto-forwarder/auto-responder**

Automatic forwarding of mails to a different email address/host is supported. Using this feature, users can forward their emails to a different address for checking.

The Auto-reply feature ensures that the sender gets a "canned" message whenever he sends a mail. This facility is useful if the recipient is not able to read the mails for a long period of time (say due to vacation or illness).

This feature can also be used to send "canned" replies when email is sent to certain generic email addresses.

- **Back up & Restore**

Single click Backup & restore functionality ensures that RIS can be made up and running even in the case of catastrophic hardware failures within 30 minutes.

- **Address Book Server**

Global address book can be maintained using the LDAP based address book server. These address books can be automatically synchronized in multi-location environments so that the same address book is available in different locations.

Address book server also supports searching of addresses in LDAP compliant email clients like Netscape, Outlook Express and Outlook.

- **SMS Alerts**

SMS Alerts can be sent to mobile numbers on receipt of non-junk emails. This is a free facility and is available wherever the mobile service provider supports this facility. Some of the operators who currently support this facility are Airtel, RPG and Aircel.

Proxy Server

Based on the industry leading “Squid”, Safentrix proxy server not only controls who is given access to access Internet, but also speeds up Internet access using Caching methodology.

The easy-to-use GUI allows to create groups of users and give them specific permission to browse the Internet. Detailed features can be seen below:

- **Automatic Connection**

When used in conjunction with a PSTN/ISDN line, a valid browsing request automatically makes the Modem dial and establish an Internet connection. Similarly, if there is no browsing activity for a pre-determined interval, the proxy also disconnects the Modem from Internet, thus saving on Internet charges.

- **Web Caching**

Whenever a site is downloaded, it is also cached onto the local Hard Drive. Next time, the request is serviced from the local hard drive (if the page has not changed). This saves on precious Internet bandwidth and also makes accessing Internet faster.

- **User Restrictions**

Specific users/group of users can be barred/given Internet access. If an user is given access, he is prompted for an user name and password when he tries to browse. If it is a valid account, the user is allowed to browse.

- **Site Restrictions**

Users/Group of users can be restricted to certain sites. This can be done by either allowing users to browse certain sites ONLY or by not allowing the users to browse certain sites.

- **IP restrictions**

Internet access can be restricted/allowed ONLY to certain machines based on their IP address.

Proxy Server - contd.

- **Time based browsing**

Users/Group of users can be restricted to browse only during certain time of the day. This combined with any or all of the above facilities ensures that Internet usage can be controlled as per the policy set by the organization.

- **Browsing Reports**

Detailed Internet access logs are available to system administrators. These present information like which user browsed which site from which machine. Other information like the top sites, sites accessed, time accessed, bandwidth usage are present in the reports.

Firewall

Safentrix Firewall is based on the "iptables" modules supplied in Linux. Safentrix Firewall is much more feature rich than the standard firewall supplied with Linux and is comparable in feature sets to many of the branded firewalls available in market today.

The firewall, in addition to basic packet filtering, also supports stateful inspection, thus ensuring that any security policy can be implemented by the Firewall in the most efficient manner.

Firewall is also optimized for performance by pushing computation intensive rules to the end. Details of the features are given below:

- **Hardened OS**

Even though Linux is less vulnerable to OS attacks, Safentrix Firewall is built on a hardened Linux kernel that ensures that Firewall is not compromised due to OS problems.

- **DMZ Support**

DMZ of "Demilitarized Zone" is a terminology used for a zone wherein Firewall rules are not as strict as your LAN machines, but not as simple as your public machines.

These are typically machines that need to access/be accessed by both LAN machines and the external Internet.

These can have a different set of rules and the rules can be modified as per policy.

- **NAT**

NAT (Network Address Translation) is a way for internal machines to be safely exposed to the Internet. Safentrix Firewall supports DNAT wherein internal machines can reach the Internet using the IP address of the Gateway machine (the traffic seems to be originating from the Gateway machine, thus protecting the Internal machine).

Safentrix supports SNAT wherein selective access to an Internal machine is given to external clients.

Firewall - contd.

- **Access Restriction**

Access restrictions can be made on the base of IP address/Ports of the incoming/outgoing traffic.

- **Restricts all incoming access**

By default all gateway ports are closed to Internet. Even in the commonly used ports (like 80, 25), the most secure software is run to ensure that software specific attacks do not succeed..

- **Protection against DOS attacks**

Using rules to limit the rate of incoming traffic from a single client as well as limiting the damage to the resource that can be done because of an open connection, Safentrix Firewall offers a level of protection against Denial Of Service attacks.

- **Protection against IP spoofing**

Safentrix ensures that the packet identifiers do not follow a predictable pattern and thus offer a level of protection against IP Spoofing.

- **Opening External Ports**

Safentrix Firewall allows opening up of select ports to outside world. This is useful when client wants to run a public web server from his office

- **Internal Access Restriction**

Internal internet access can be restricted based on ports/IP (destination as well as sender) so that unnecessary data transmission from within the organization does not occur.

- **VPN Support**

Compatible with the PPTP/IPSec module provided with Safentrix. This ensures that secure/authenticated/encrypted access can be given to users to Intranet resources.

Fax Server

Safentrix Fax server, based on "Hylafax" helps streamlining the fax sending/receiving process and possibly eliminate the usage of Fax machine.

With a fax machine, scheduling sending of faxes becomes a problem when the demand is too much. Safentrix Fax Server simplifies this process by automating the fax sending process. All the user has to do is send Fax from his desktop and Safentrix Fax server takes care of scheduling different faxes and sending them out.

Fax receiving is also simplified wherein faxes are available right in the user's INBOX. Details of the features are given below:

- **Fax Sending**

Faxes can be sent directly from user's desktop. Faxes can be sent from ANY application that supports printing. Using a special client software installed on every desktop, user sends faxes by printing onto a "Fax Printer".

Once printing is completed, the fax is stored in Safentrix outgoing queue for sending and sent out when possible.

If the fax cannot be sent for some reason, an email alert is sent to the user.

- **Fax Receiving**

A person in the organization is designated as the Fax administrator. Faxes are received by Safentrix and forwarded to the Fax administrator as an email attachment. The fax administrator can examine the content and forward the attachment to the person whom the fax was addressed to.

This way received faxes directly land up in user's INBOX.

- **Control of outgoing faxes**

Users can schedule their outgoing faxes and also control various parameters like number of retries, time when the fax should be sent (say because ISD Faxes are cheaper at night) and cover page.

- **User Restrictions**

Fax privileges can be controlled on a user basis. Only select users can be allowed to send outgoing faxes. If that is the case, the user can send faxes only after entering his account name/password.

Chat Server

Safentrix Chat server allows instant messaging/chatting between users in an organization. This is more secure than public chat services like Yahoo!, MSN! as outside users do not have access to this facility.

Single sign-on system ensures that the same account name/password can be used for chat. Details of the chat functionality are as below:

- **CUG**

Safentrix administrator is in complete control of which user gets access to chat facility. This makes it a secure, fast, easy to maintain CUG. No messaging/chatting with external persons is possible under this scheme.

- **Conferencing**

Safentrix Chat server supports one-to-one chat as well as conferencing. Conferencing can be done by creating a chat room. Chat rooms can be public (meaning anybody can join) or private (meaning only specific users can join).

Once a chat room is created, users can join the same. Then a message sent by user goes to all members of the chat room. This can be used to do group discussions.

- **Logging**

Extensive logging of all chat/conference sessions can be enabled. This will ensure that all business transactions done over chat sessions are available for records.

- **Online Indicators**

Users can let other parties to know of their availability to chat as well as get an indication when anybody tries to chat with them.

File Server

Safentrix File server, based on "SAMBA", provides a centralized repository to store organization files. This simplifies the process of maintaining and backing up important documents.

Safentrix File server mimics the "workgroup" system in "Windows", but has more powerful features than the peer-to-peer networking supported by "Windows 9x". Safentrix File server can also be customized to work with the "Domain Controller" concept introduced in Windows NT. Various access control mechanisms available with the File server ensure that documents can be shared ONLY between users who are entitled to the same. Details of File server features are as below:

- **Web Interface**

Safentrix File server contents can normally be accessed from the "Network Neighborhood" of Windows machine or by using a SMB Client in Unix machines.

An additional web based interface is provided with Safentrix so that files in the server can be accessed with just a browser (Internet Explorer or Mozilla) from anywhere in the world.

- **Alerts**

Email/SMS Alerts are generated when the File server disk usage becomes high and crosses a percentage limit.

- **Public and Private Shares**

Safentrix File server supports public and private shares. Public shares are those which can be accessed by any valid user of the system. These are meant to store common document like "List of Holidays", "Extension number of employees".

Safentrix supports private shares. Files in these shares can only be accessed by a select set of users. These can include your accounting information (accessible only to accounting head and CFO).

This fine grained access control mechanism ensures the security of the files stored in the server.

Web Server

Safentrix provides a web server using the industry leading "Apache" server. It is a complete cross-platform, secure server used right from small organizations to large portals. In addition to serving static pages in the form of HTML and various other documents, Apache also allows serving of database driven dynamic pages using PHP, Perl, Servlets, JSP, ASP (using an optional module) and CGI Scripts.

Database connectivity support also extends from MySQL, PostgreSQL, Oracle and any ODBC compliant database using ODBC.

A default Intranet page containing various useful links is installed with Safentrix. This can be customized changed to suit customer requirements and a complete dynamic Intranet (possibly with workflow) can be implemented.

Dial-in Server

Safentrix Dial-in server allows users in branches/roaming users to become a part of the LAN of the headquarters by connecting through a telephone line and allows them to share all resources including databases, email and Internet. Once the basic system requirements (Modem, Dedicated telephone line, Serial port) are met, the dial-in server can be enabled. Once enabled, users can login with their user name/password (same as the email user name/password) and become part of the Corporate Intranet.

Using special Hardware (Specialix IO/8+ Card, 8 Modems, 8 Dedicated telephone lines), up to 8 simultaneous logins can be allowed into Safentrix Dial-in server.

VPN Server

Rainmail VPN Server allows access of the corporate Intranet, database and applications from anywhere in the world. With atleast a 128Kbps dedicated leased line connectivity and a static IP, Rainmail VPN server can be enabled to allow outside users access to Intranet.

VPN access can be restricted based on users and a system administrator generated password given to VPN accounts to have two levels of security. Some of the salient features of VPN Server are:

- **PPTP/IPSec**

Safentrix VPN can use PPTP (Point to Point Tunneling Protocol) or IPSec to establish a VPN. At installation time, one protocol is to be chosen and all VPN connections are then expected to be made using that protocol.

Safentrix IPSec VPN Can be customized to use digital certificates instead of pass phrase when connecting from Windows 2000.

- **Client Software**

Client Software are available for all platform (including Windows) for free. PPTP server supports 40 Bit as well as 128 Bit encryption with 40 bit encryption enabled for legacy clients.

- **Segregation**

VPN accounts have system administrator generated passwords. This is to provide an additional level of security for roaming users. VPN access can be restricted based on user accounts. Only the users who actually travel and need to access the Corporate Intranet can be given access.

- **Unlimited client IP licenses**

By default, there is no limit on the number of clients that can connect to the VPN server or the number of simultaneous connections that are allowed. Being a software solution, scalability can be ensured by scaling up the hardware.

- **Firewall protection**

Safentrix Firewall works in conjunction with VPN Server to ensure that minimal opening is made for a user to login through VPN. This ensures that security is not breached when VPN is deployed.

Bandwidth Controller

Safentrix Bandwidth Manager gives the administrator flexibility in utilizing the available Internet bandwidth in an efficient manner.

In a normal scenario, there is absolutely no control over how bandwidth gets utilized by users in the Intranet. It is possible for an user to hog the whole bandwidth while leaving other users unable to browse and frustrated.

If the users unable to browse NEED to browse, the situation is made even more complicated. Safentrix Bandwidth Manager comes in handy in this situation. It allows administrators to define group of users (based on IP addresses) and allocate bandwidth to these users. Detailed features follow:

- **Minimum Bandwidth**

The system allows administrators to specify the minimum bandwidth that must be made available to users. Once specified, the system will strive to maintain the specified bandwidth to those users.

- **User based**

Provisioning of Bandwidth can be done at the individual user level (based on their IP address).

- **Group based**

Provisioning of Bandwidth can be done at group level. Group of users can be put together and bandwidth provisioned for the whole group.

- **Intelligent redirection**

When surplus bandwidth is available, it is redirected to users who CAN use the additional bandwidth. Safentrix GUI has a provision to specify whether a group/user can avail of additional bandwidth. If a group/user is selected to avail of additional bandwidth, they will get better throughput when there is unutilized bandwidth.

DNS Server

Safentrix implemented a DNS Server using "bind". This allows Safentrix to act as the primary as well as secondary DNS Servers for your organization's domain.

Safentrix GUI includes tools to configure the DNS Server. Details of the features are:

- **Multiple Zones**

DNS server has support for specifying multiple DNS Zones. Each zone corresponds to a domain active in the organization. In addition to "A" records, there are provisions for adding "NS", "MX" as well as individual machine records.

- **Reverse DNS**

DNS Server allows specification of Reverse DNS entries. Please note that this has to be implemented in conjunction with ISP's DNS servers to be effective.

- **DNS Caching**

In addition to being a standard DNS Server, Safentrix DNS Server can also act as DNS Server for your Intranet. Incoming DNS requests are cached and used in a later request to cut down on time for DNS resolution.

Support infrastructure

In addition to a proven software and unbeatable service, Safentrix ensures that all its features are utilized efficiently with a strong and committed support team.

Safentrix ensures quick resolution to support problems by providing multiple support mechanisms. Details of support mechanism follow:

- **24 x 7 Support**

Support can be availed of by contacting any of the branches/resellers during office hours. A cell number is provided at each location for support during non-office hours/emergencies.

- **Multiple Mechanisms**

Email, Phone, SRTS and on-site support mechanisms ensure that your problem WILL get sorted and that too in the quickest time possible.

- **SRTS**

Secure Remote Technical Support, a concept pioneered and available ONLY with Safentrix, ensures that our technical support personnel can reach you and fix the problem in minutes.

If you can reach the Internet, Safentrix support personnel can reach you and fix the problem. There is no restriction on having a static IP.

This mechanism, besides being quick is completely secure as it can ONLY be enabled by the client, authentication is based on a password provided by the client, the whole transaction is encrypted AND it can easily be disabled once the support resolution is completed.

- **Infrastructure**

Offices at Chennai, Mumbai, Delhi, Bangalore and Hyderabad and resellers in multiple locations ensure that even on-site support is possible at any of your locations