



## Product Technical Description

**Technical Specifications**

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## 1. Introduction

iNODE is an integrated solution that offers all the necessary networking infrastructure fulfilling the needs of an organization. Combining in one simple solution vital networking needs such as interconnection, networking applications and security guaranties cost reductions and simplified coordination for the enterprise.

iNODE's Key feature is user friendliness offering a quick and simple installation procedure as well as maintenance and supervision. Its modular design allows each organization to make use only of the components that suite their needs. On top of it all iNODE does not require deep technical understanding in order to install, administer and maintain it.

iNODE is Linux 2.4 based. Installation requirements are as simple as a ordinary PC or small server minimal configuration<sup>1</sup>: No operating system is required. The installation and initial configuration can be done in no time while the actual configuration can be performed with the use of Web Browser. It is through that same Web Browser where all monitoring and administration can be done even remotely.

iNODE operates as the connecting link of a local network (LAN) with other public or private wide area networks (WAN/MAN). It supports a number of different interconnection techniques and protocols including PSTN, ISDN, DSL, aDSL, Frame-Relay, Ethernet. The available interconnecting devices are automatically identified by the system as soon as they are connected to the system.

On top of the interconnection functionalities, iNODE offers a number of services to the users of the local network. Services include Email Server, File Server, Fax Server, Web Caching Proxy, DHCP/DNS Server, VPN, Remote access, Bandwidth Management, Access Control, Antivirus, Firewall and many more.



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<sup>1</sup> Please see chapter 1.3 on page 6

## 1.1 Supported functionality

iNODE offers all the necessary functionality and services required for the daily operation of a modern organization, alleviating any costs related to software and specialized infrastructure hardware. More specifically iNODE offers the following services:

- Router
- Proxy server
- E-mail server
- DHCP server
- DNS server
- Fax Server
- Unmanaged firewall
- Bandwidth Management
- VPN server/client
- Server based antivirus protection
- File server
- Remote Access Server
- Content Filter

## 1.2 Table of Features:

### Basic System

Static IP Routing  
 PSTN, ISDN, xDSL, ETH WAN i/f  
 DHCP Server  
 DNS Server  
 NAT with H.323,GRE,MMS Helpers  
 Basic Firewall  
 Easy Internet Connection  
 Leased Line Connection  
 RAS via ISDN interface  
 Dialing Scheduler  
 System User Management  
 Embended Dynamic DNS  
 Dial Backup for PPPoE and aDSL

### VPN Server

IPSec Gateway  
 IKE auto negotiation  
 PKI,X.509v3, PSK support  
 3DES, AES, SHA-1,MD5 ,DH5/2,PFS  
 CA Management  
 NAT Traversal  
 PPTP Server / PPTP Client  
 automatic PPTP LAN to LAN VPN

### Fax Server

Per user access control  
 Print to Fax Bridge  
 Fax router  
 Fax Protocol  
 Fax pool support  
 HiddenFAX ISDN  
 Email Integration  
 3rd party clients support

### File Server

Network Folder Access  
 User & IP access read/write permissions  
 Unicode support

### E-mail Server

Email Server  
 Remote Mailbox delivery  
 Mailing lists  
 DoS defense  
 Attachments limit  
 Unlimited Domains  
 Recipients number limitation

### Caching Proxy

Proxy Caching Server  
 User Access Control  
 Bandwidth Management  
 Transparent proxy support  
 Proxy Authentication support  
 Access by : IP, User, time, URL  
 Powerful Bandwidth control  
 HTTP, HTTPS,FTP proxy  
 Cache size selection  
 Cache policy support

### Unmanaged Firewall

Statefull inspection  
 DoS and flood defence mechanism  
 ICMP, FTP, HTTP traffic control  
 Email Antivirus  
 URL Filtering  
 Lockout VPN conseq. failed logins  
 Throttling icmp, tcp-syn

### System Management

System Config Backup  
 Maibox backup  
 Fax Protocol Backup  
 Remote Administration via web browser  
 SNMP Support  
 Easy Setup Wizards

Read on for a more detailed description of each service.

### 1.3 Hardware Requirements - Compatibility List

The following table shows the minimum hardware requirements for iNODEO:

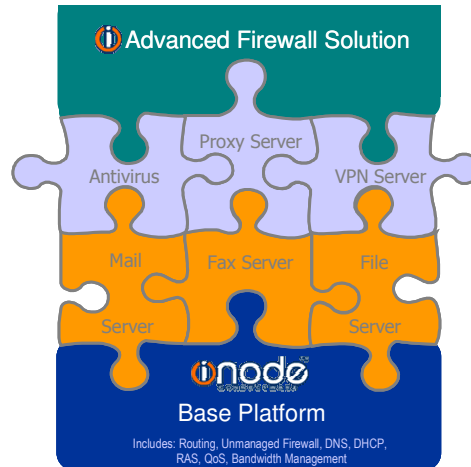
Minimum Hardware Requirements		Recommended Minimum
Server	Dedicated PC compatible Intel® Architecture	-
CPU	300MHz Pentium MMX	Pentium II 600MHz
Memory	64MB	128MB
Hard Drive	5GB IDE Drive	10GB
CD-ROM	Only for Installation	
Network	One LAN 10BaseT NIC	100BaseT
WAN	External Serial or USB/ACM Modem	Compatible ISDN S0 Interface

iNODE supports a number of available Network Interface Cards. The following table shows the hardware that is currently supported. Due to the fact that the list is getting updated constantly it is better to consult you reseller for an updated list.

Hardware Compatibility List	
CPU	All Intel CPU's, all AMD CPU's
Chipset	Any Chipset VIA, SiS, Intel
Hard Disk	IDE ATAPI compatible Hard Disks
Video	Any VGA compatible Video Controller
CD-ROM	Any ATAPI CDROM (must be bootable for installation)
NIC	RealTek RTL-8139, RTL-8390/8129/8130, RTL-8139C+ 3COM5x9 Etherlink III, 3COM59x/900 (592/595/597), SiS 900/7016, SMC EtherPower II, Intel PRO/100 VE, Intel Etherexpress PRO 100/VE, NE2000 Compatible, Generic DECchip & DEC EtherWORKS, SMC EtherPower II (EPIC/100), DECchip Tulip(dc21x4x), D-Link DL2000-based Gigabit, Intel(R) PRO/1000 Gigabit, BroadCom Xtreme 10/100/1000BaseT
ISDN	AVM Fritz!Card PCI, AVM Fritz!Card PCiv2, Eicon Diva 2.01 PCI, Eicon Diva 2.02 PCI, Teles PCI ,ELSA Quickstep 1000PCI, ELSA Quickstep 3000PCI, CAPI v2.0 support, AVM B1, AVM C2, Eicon DivaServer BRI, AVM Fritz!Card DSL
WAN	Cyclades-PC300 (RS-232/V.35, X.21, T1/E1 boards), Sangoma Single/Dual S514/ET1 PCI card with integral E1 or T1 DSU/CSU, Sangoma S514/56 PCI card with integral 56/64kbps DDS DSU/CSU, Sangoma S5141/S5142 PCI Dual/Quad Port Card (RS-232/V.35, X.21)
aDSL	AVM Fritz!Card DSL, Alcatel Speedtouch DSL USB modem, Sangoma S518/ADSL PCI card
MultiSerial	Cyclades Y-Series boards, Moxa Multiserial boards.

## 2. iNODE internals

iNODE's design is based on Linux operation system in conjunction with reliable open source solutions. The administrator of the system is not required to have any Linux or open source knowledge at all. The whole of the parameterization and configuration of the system can be realized through an intuitive graphical user interface with the use of any Web Browser.



**Modular Design**

As mentioned before, iNODE is modularly designed. It comprises of the main basic system platform and the add-on services or options. This design technique allows the owner of the system to operate only those services that are required in an organization. Should there be a need to make use of any other service at a later stage that can be easily done by simply activating the required service with no further installation.

### 3. iNODE Internals Explained

#### 3.1 iNODE Basic System Platform

The basic system platform offers routing functionality, interconnection functionalities (DNS, DHCP, NAT) and security services (Unmanaged Firewall).

For its operation, 2 network interfaces are required. One Ethernet (10 or 100 or 1000BaseT) that will be connected to the LAN while the other one will be an AnyWAN™ interface that will be used to connect to a public or private network (Internet, VPN, WAN, etc). This second interface can be any of the following:

- ❖ Async Serial
- ❖ USB
- ❖ Secondary Ethernet 10 or 100 or 1000BaseT (Wireless Connectivity with PPTP or PPPoE or Ethernet)
- ❖ ISDN internal PCI adapter
- ❖ Synchronous Serial internal PCI Adapter
- ❖ aDSL internal PCI Adapter

The different choices of networking interfaces offer flexibility in the way that the system is physically connected to the WAN. For each of the different options iNODE offers a specialized Internet Connection Wizard to assist you in configuring your connection at no time. Upon completion, the wizard tests your connections and informs you accordingly.

In case the connection is realized through aDSL, internal PCI, or PPPoE, iNODE offers you the functionality to configure a Dial Backup line through an existing ISDN internal PCI adapter. Thus, offering you an uninterrupted connection to the internet.

When the connection is realized through standard PSTN or ISDN lines there might be a need to control the connection to the internet based on time constrains. iNODE offers you a very powerful Dial Scheduler that covers this need (Connected on defined time schedule).

The DHCP service controls dynamically different TCP/IP settings to a DHCP client on the network. Among others settings it controls the default gateway and DNS servers. iNODE operates a Forwarding & Caching DNS Server which is responsible to handle all relevant requests from the LAN clients.

The NAT service is utilized when there is a need to share an Internet connection between different clients on the LAN. The NAT service supports NAT helpers that need special attention due to their nature and require more than just a translation of their internal fake IP address to the real IP address configured on the iNODE server to connect to the internet. This application that are supported with NAT helpers are:

- ❖ MSN Messenger
- ❖ H.323 Clients with Voice & Video
- ❖ FTP, IRC clients
- ❖ GRE tunnels initiated from inside the LAN eg. PPTP connections

Sometimes the use of a dynamic ISP account to connect to the Internet may come cheaper than a static IP connection. In such cases iNODE offers the DynamicDNS service which is integrated in the system and allows other services such as Email and VPN servers to operate.

The iNODE basic system platform supports the parameterization of the routing table for such scenarios where a company network makes use of more than one physical network or when it is physically dispersed or making use of VPN services.

iNODE can also support a connection through a Synchronous Serial port. If such an interface exists the system recognizes it upon startup, and the Leased Line Connection Wizard is enabled. This type of connection can be used to connect the head office with a subsidiary or even to connect to the internet through an ISP.

If iNODE detects one of the supported ISDN PCI adapters connected to the system then upon start-up it enables the configuration of the ISDN RAS Server which can be used for ISDN Dial-in or Dial-out from or to another site where a RAS dial-in server exists. This ISDN connection can also be operated to connect to the internet through the ISDN B-Channel at the same time.

**Security:** The base iNODE platform offers security facilities operating as an Unmanaged Firewall. iNODE Unmanaged Firewall facility intercepts all network attacks via its predefined and fixed Firewall policies. It does not permit any access attempts to the LAN via the external public network. The Firewall policies permit connections only to the publicly available services that must be opened (e.g. VPN and SMTP). Even in these cases the connection attempt will be monitored to not exceed allowed rates. We must notice that the security system of Unmanaged Firewall is carefully designed for maximum security without any flexibility drawback. Some of the iNODE security policies include:

- ❖ Martian packets
- ❖ XMAS packets
- ❖ NULL packets
- ❖ Syn & icmp flooding
- ❖ Antispoofing

iNODE system Administrator can block access to outgoing HTTP, FTP, ICMP services as well as to allow or deny access to web management interface from outside.

The basic iNODE platform includes a User Management interface. Via this interface one can define access rights to every user for the licensed services of iNODE (e.g. RAS Server dial-in). If a massive user insertion is required you can use the Batch User import facility.

### 3.2 Email Server

iNODE offers a full and powerful email system that is in a position to handle the whole of a company's needs in this area.

It supports unlimited domains and unlimited number of mailboxes. All users of the system can have their own personal mailbox. To create a mailbox you must first create the corresponding user to which the mailbox belongs to.

The administrator can define an unlimited number of mailing lists, can constrain the maximum number of recipients or the maximum number of attachments for each email, while at the same time the maximum allowed connections per second to the server can also be constrained. In addition, a Forwarder E-mail server can be defined.

Finally, the server allows the delivery of e-mails to a local account from any remote POP3 mailbox. The number of remote mailboxes that can be configured is unlimited. Through this subsystem (Remote mailbox delivery) it is possible to configure multidrop accounts.

The E-mail server supports all the known protocols (SMTP / POP3). If a client is located in a remote network then the system allows you to configure SMTP authentication.

The generation of a new account / mailbox can be done easily and quickly due to the user management console. The number of system users can be unlimited since there is no special licensing requirement for this service.

#### 3.2.1 Email Antivirus

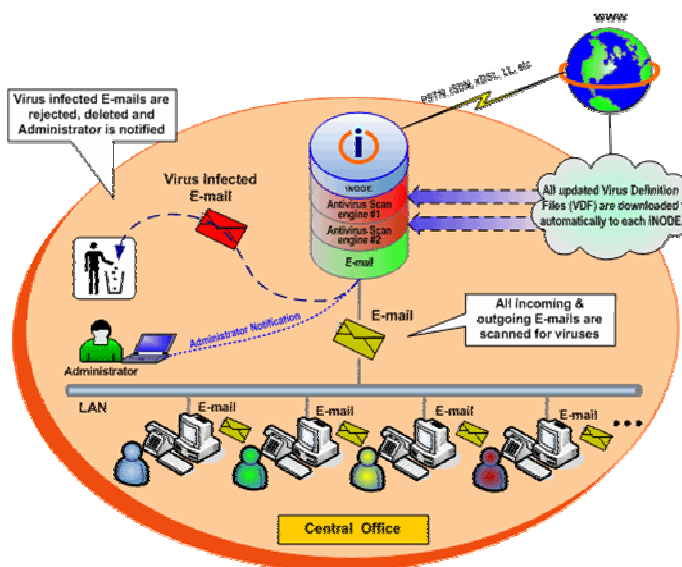
iNODE can optionally come equipped with antivirus capabilities. Each incoming email message is checked. In case an infected message is found, the senders as well as the administrator of the system are notified.

This subsystem uses 3rd party OEM tools and it can operate with one or two search engines at the same time. This way the possibility of identifying a virus increases while the time frame of exposure to a virus from the time it starts spreading is minimized.

New virus definitions updates are automatically done whenever they are available.

The administrator of the system does not have to do anything at all with regards to this matter, while the system keeps him notified in any case.

When an infected message is identified then the system notifies the recipient as well as the sender of the message while the message itself gets destroyed.

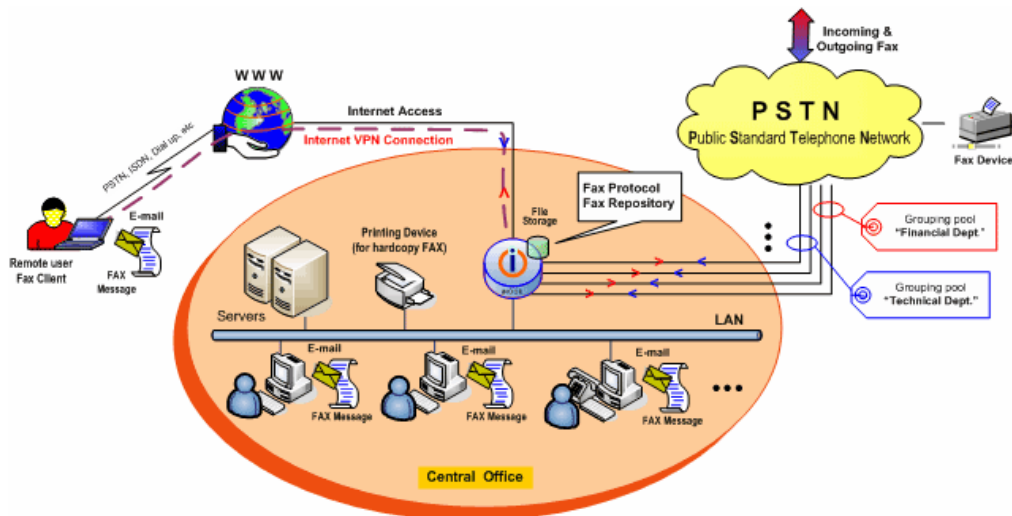


### 3.3 Fax Server

iNODE can also offer Fax Server functionality. It supports multiple fax lines that can be dedicated to certain network users.

It supports most of the external serial fax / modems that can be connected either to the serial ports of the iNODE server or to one multi serial port card that can be installed on the box such as the Cyclades Y-Series card. In addition it supports internal ISDN CAPI Group3 Fax modems (Eicon, AVM).

The incoming Faxes initially are registered and then are forwarded via email as attachments. Depending on the telephone line (modem) used to receive a fax or on a Fax ID shown as the sender of the fax they can be routed as attachments (pdf or tiff) to certain email recipients (Incoming Fax Routing).



The outgoing faxes depending on the recipient are routed through to a predefined group of modems. The transmission can be achieved with one of the two following ways:

A) Transmission through any software via a NetBIOS shared printer: In this case iNODE shares on the network a virtual network printer that must be installed as a postscript printer. Whoever has rights to use the Fax Service while have access to the shared printer through NetBIOS. This way regardless of the application used to compose the fax message, can be printed to this virtual printer. Upon completion of the print job the sender receives an email which is linked to a form asking to fill in the recipients' particulars. When the form is completed the fax joins an outgoing queue waiting to be send. Each sender receives email notifications for the status of the fax.

In any case the sender may observe the outgoing fax in the queue through the Windows Printer Manager. Through this same tool the sender may observe the status of the fax, can cancel the transmission just as can be done with any Windows printer job.

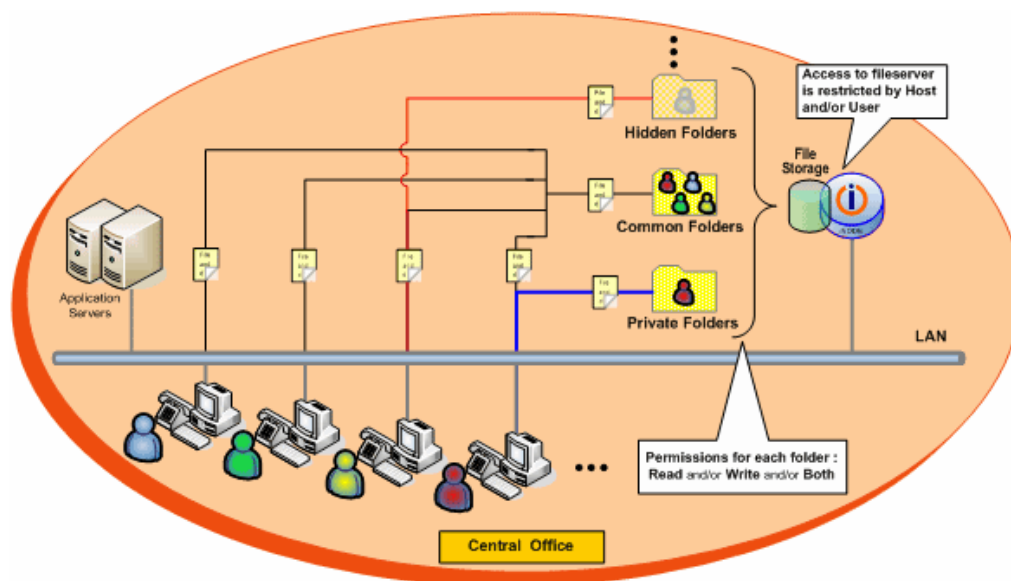
B) Transmission through a Fax Client: There are a lot of fax client software available that can be used to send and receive a fax message. For more information on this please check iNODE Documentation or contact Dataways Hellas.

All fax messages regardless if there incoming or outgoing are registered with the iNODE registry, making it possible to keep track of all fax messages. Each fax message can be characterized with keywords that can later be used to search through the registry and identify particular fax messages through an intuitive user interface.

### 3.4 File Server

The File Server subsystem allows the administrator of the system to define shared folders called Sharepoints. On each of the Sharepoints, the administrator can define certain access rights (read / write etc) for each individual LAN or VPN user.

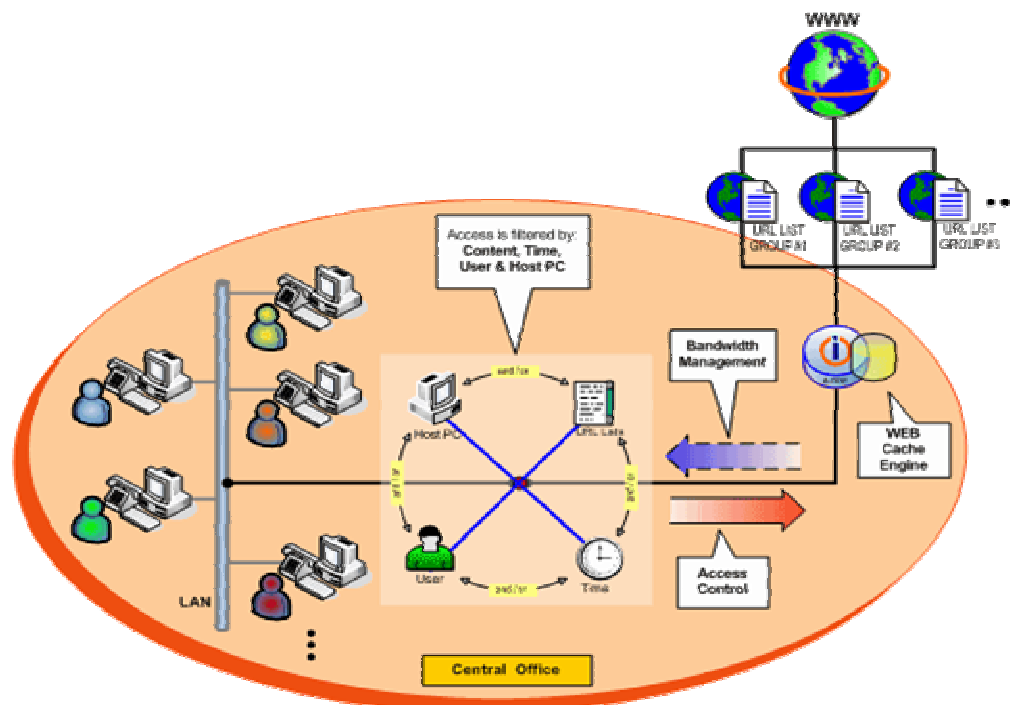
These shared folders can be constrained for each user depending on the IP used or the number of concurrent connection to the service. In additions



The files names and folder names follow the UTF-8 encoding standard supporting all the known languages.

### 3.5 Web Caching Proxy Server

iNODE is equipped with one of the most powerful Web Caching Proxy Server software that can be utilized for large scale installations from the majority of ISPs (squid-cashe.org)



All LAN users can take advantage of the web caching proxy server while there is no licensing restrains.

iNODE's administrator has to his disposal a tool with which can control all users' traffic. The tool enables the administrator to allow access to particular internet sites or network addresses or to control the available bandwidth for each user. All this can be controlled with the use of a user interface that allows to set-up, customize and activate filters based on IP addresses, users, time ranges or URL lists.

Having setup different filters based on the above parameters then the administrator can set-up combination of these filters as to control the traffic or to set the bandwidth for each of the filters. For example, you can setup filters that allow specific users or particular IP addresses to connect to the proxy during a predefined period of time while the access specific content from pre-specified URLs. On top of that it is allowed to set specific bandwidth limits for proxy requests that satisfy specific criteria, such as the ones mentioned above.

The service also allows to be configured as a transparent proxy meaning that all requests go through the proxy server.

Once proxy authentication is activated all users will have to login first before they have access to the internet.

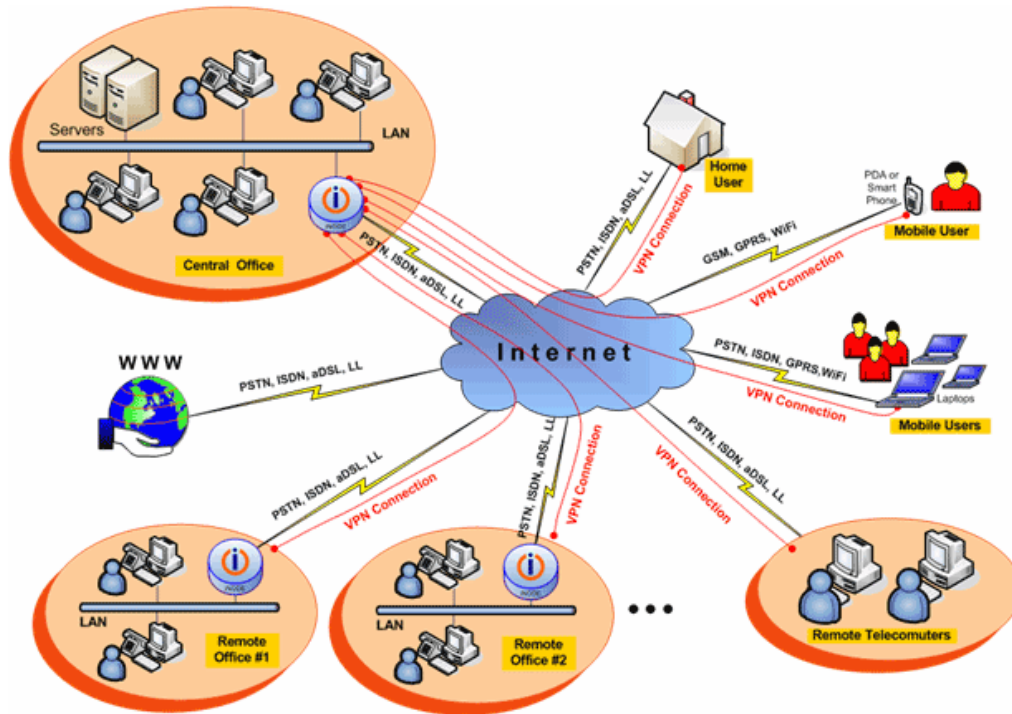
The administrator may set the physical disk and RAM space that will be available for the service to use, customizing the system according to what is actually needed.

The administration of the proxy service can cover any potential needs while it controls Internet access which is a necessity for most of the companies.

iNODE also offers a wide variety of text and graphical reports for the use and operation of the service.

### 3.6 VPN Server

One of iNODE's key features is its VPN service. This service can operate over public networks thus reducing operational costs.



iNODE's VPN server allows to a remote network or remote users to connect to the local network (LAN). The number of concurrent VPN connections depends on the actual speed of the line that connects it the Internet, as well as the sizing (CPU and memory) of the system that is used. Practically, a common state of the art computer or small server box that runs iNODE offers far more better performance than a hardware VPN solution. According to independent reports an IPsec 3DES tunnel can reach 180Mbps with a Pentium 4 / 2.8GHz.

As a VPN client, iNODE allows routing to the LAN through a VPN connection so that the local network can potentially be part of a unified private network.

#### 3.6.1 PPTP

iNODE supports the PPTP protocol and is compatible with similar systems. To secure access to the private network iNODE offers a user authentication mechanism the blocks access to users after three consecutive failed login attempts.

The implementation of the PPTP Client and Server that has been integrated into iNODE allows the operation of LAN to LAN routing even if both sides use dynamic dial-up connections. When both connections are established the VPN is automatically enabled without requiring any intervention from the administrator. As far as security goes for this type of connections is considered to be safe enough since a 128 bit (MPPE40 or MPPE128) key is being used for encryption.

In case that iNODE is being used in both ends of the PPTP VPN connection the all traffic that goes through the tunnel is compressed with BSD compression protocol.

The administrator has the option to set for each VPN user if a static or dynamic IP address will be used for the connection. In addition, the system is equipped with a wide variety of reports and statistics for the service making the administration of the sub-system as easy as possible.

### 3.6.2 IPSec

The IPSec protocol is from its nature complex enough in order to guaranty high levels of security. iNODE simplifies the parameterization of the protocol since the choice of cryptographic protocols is automated (IKE Negotiation Phases). It allows connections from equivalent IPSec systems or remote users (road-warriors). The supported symmetric cryptography protocols are 3DES, AES, Twofish, Serpent and Blowfish, the symmetric key protocol Diffie-Hellman group 5 and group 2 which is verified with the MD5 or SHA-1 algorithms. In addition, it supports PFS, ESP tunnel and transport mode.

The user authentication can be done with a preshared key or with x.509v3 electronic certificates that can be issued from a Public Key Infrastructure (PKI) or from iNODE's CA Management.

It also supports NAT traversal in case that an iNODE systems or the remote system's IPSec is using NAT to connect to the public network.

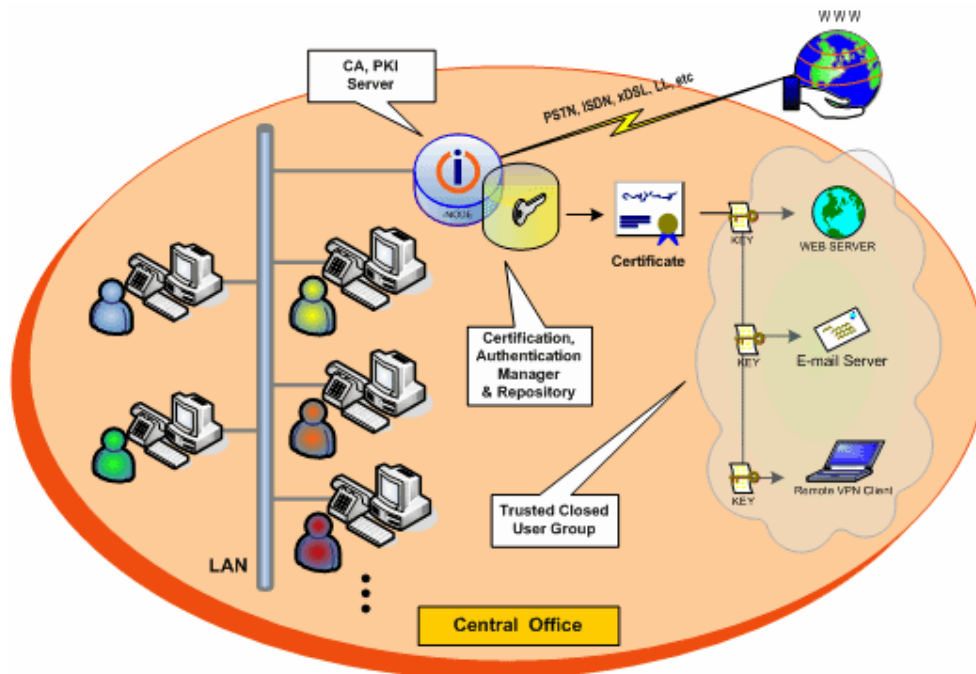
iNODE is fully compatible with other IPSec systems such as Cisco IOS, Cisco PIX, Windows 200x/xp, Watchguard, Netscreen, SSH, Safenet, PGP.

### 3.7 Certification Authority Management

With iNODE's CA Manager the issue of electronic certificates is an easy task. The certificates can be used for any purpose i.e. secure email, IPSec, SSL, etc. if and only if they x.509v3 standard is being followed.

The CA Management system can be certified from the responsible security person (self signed authority) or from some certified authority that signs certificates (trusted certification authority). In the first case the use of the certificates can only be trusted in a narrow circle of users i.e. within an organization and its' partners. In the second case the certificates can be trusted by any organization or individuals that trust the authority that signs them or issues them i.e. the root CA. In addition the system is secured by a CA manager password.

The administrator of the system can cancel a certificate, issue a new certificate or distribute a certificate. The system is in a position to automatically install a certificate as a VPN certificate to be used by the IPSec system.



iNODE gives priority to the VPN traffic (IPSec, GRE) by applying Quality of Service (QoS) rules on the outgoing IP packets. This allows for a concurrent VPN and Internet Access utilizing the same physical Internet connection.

### 3.8 Security

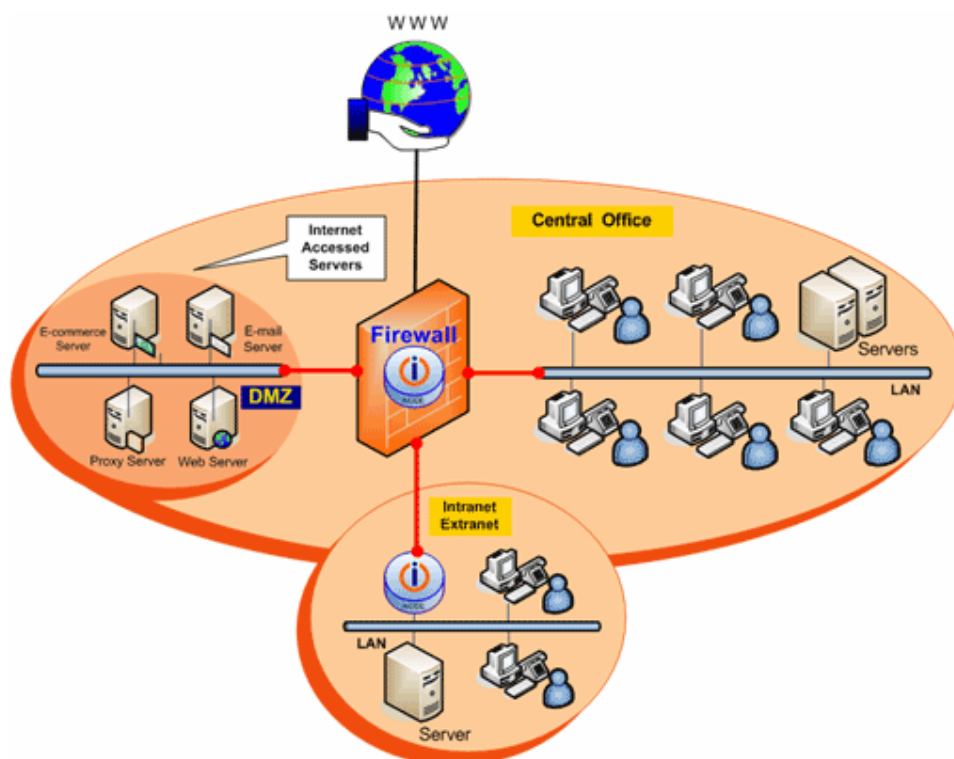
The issue of security concerns more and more system administrators due to the increase of intra-company use of the Internet through the company network.

For this reason the iNODE is designed in such a way as to guarantee firstly the security of the system itself while at the same time being in a position to offer security to the users of the LAN.

The system has an integrated number of firewall rules. These rules allow the firewall to protect the system and the network from the following type of attacks:

- Ping flooding
- TCPSYN DoS
- Brute attack
- NUK attack for NETBIOS
- Ping of death
- Throttling ICMP & tcp-syn rate

The administrator can decide whether ICMP, FTP or HTTP traffic is allowed to flow through the system.



iNODE can offer the maximum level of security utilizing services such as the E-mail Antivirus, VPN and the Proxy Url Filtering to an organization's network.

### 3.9 System Management

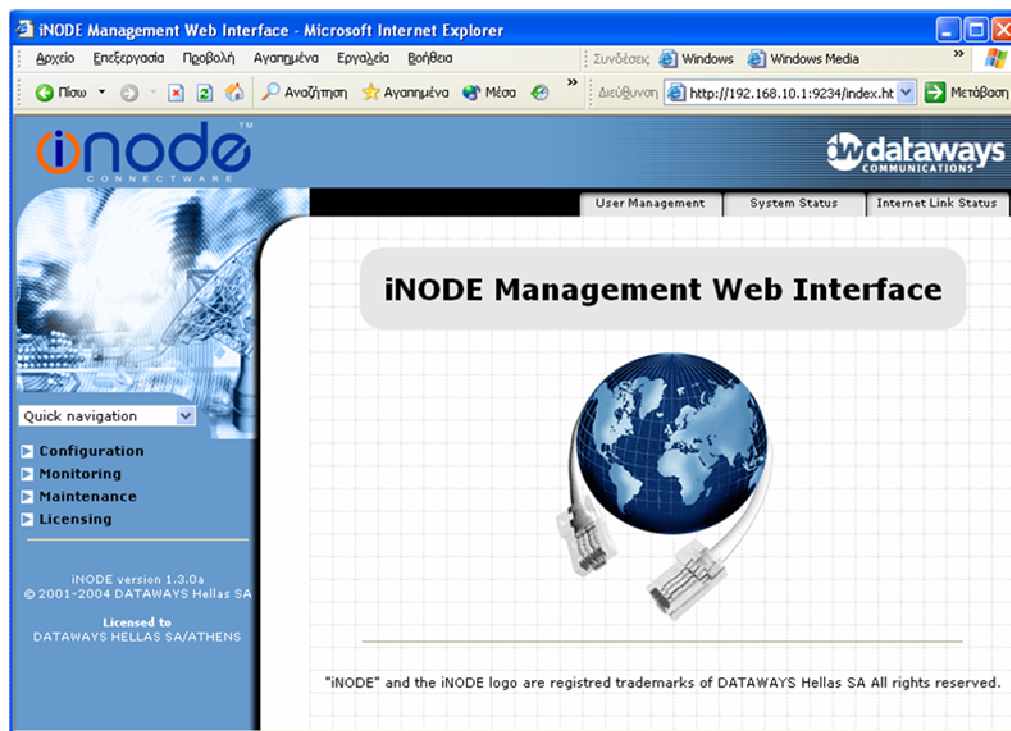
iNODE offers an intuitive and easy to use administration interface. The access to this interface can be limited only to the LAN. The administrator can utilize a number of intuitive wizards that will assist in the parameterization and configuration of the system.

The operation and performance of the system are under the control of the administrator, monitoring the status of the system in real-time. The system offers a number of meaningful reports and logs for this purpose, complemented with graphs for the majority of the services.

iNODE supports the SNMP protocol for the LAN and WAN ports so that the monitoring of the system can be done with the use of NMS or MRTG tools.

In addition it is also possible to monitor the iNODE system with the use of NMS tools that support monitoring of protocols such as tcp, udp, icmp etc.

The powerful backup mechanisms with which iNODE, is equipped allows quick and safe recovery of the system in case there is a catastrophic failure regardless of the cause. The backup mechanism keeps copies of the configuration files and any other vital information needed to restore the system to operation in the quickest possible time period. It is with the same ease that copies of mailboxes and faxes are being kept automating the procedure for iNODE users. This can be achieved with the use of any backup application that can operate with the use of a single URL.



## 4. Support

iNODE's development is based on the stability and reliability of the Linux operating system, minimizing possible problems that can be caused due to the operating system. Most of the possible problems that can be observed arise from the associated hardware that is needed for the operation of the network such modems, cabling etc.

### 4.1 Documentation

For the ease of the installation, parameterization support and maintenance of iNODE comes equipped with a number of alternatives with regards to the documentation covering deferent levels of support such as:

- Online Help
- Quick Start Guide
- White Papers
- User Manual
- iNODE website

### 4.2 Technical Support

Dataways offers all needed infrastructure to cover all of each customers needs with regards to iNODE from the pre-sales to post-sales activities. In between others Dataways offers the following:

- Hotline Support through certified partners
- Email Support
- Onsite Support
- Online FAQ
- Online Knowledge base
- Product Documentation & How-to

## 5. Detailed Technical Specifications

### Basic System

#### Linux kernel

- X86 compatible code
- ACPI Support
- Hardened & secure kernel startup

#### File System

- Ext3 fs
- Encrypted file system
- 1 IDE Disk Support

#### Networking

- SYN flood protection
- Network packet filtering (netfilter) with Connection Tracking
- Fast NAT
- NAT Helpers for GRE, H.323, MMS, FTP, IRC
- multicasting Advanced router
- Advanced Routing
- Policy Routing
- Traffic Shaping/Policing for in/egress traffic
- 802.1Q VLAN Support
- 802.1d Ethernet Bridging
- QoS and/or fair queuing with CBQ, HTB, RED, SFQ
- RSVP support
- AsyncPPP, MLPPP, SyncPPP, PPPoE, PPPoA, PPP-BSD Compression
- Generic, Raw, Cisco & FrameRelay HDLC
- Support for Cyclades SyncPPP & WANPIPE™
- ISDN SyncPPP, ISDN CAPI, ISDN CAPI FAX G3, HiSAX chipset
- USB ACM device support
- Eicon DivaServer & AVM Passive/Active ISDN boards support
- iNTEL, Broadcom 10/100/1000 NIC support
- iNTEL, Realtek, SMC, SiS, 3Com NIC 10/100 support
- Unlimited Static Routing Entries
- Dialup idle timeout disconnect
- Dialup powerful Scheduler
- Leased Line Connection Wizard
- ISDN RAS for dial in & dial out
- Internet Connection Wizard
- aDSL dial backup via ISDN
- Dynamic DNS
- IP Traffic statistics and graphs
- WAN Link real-time statistics
- IP Looking Glass Tools (ping, traceroute, nslookup)

## Services

### VPN Server

- IPSec Gateway with automatic IKE negotiation
- IKE support for 3DES, AES, Blowfish, Twofish, Serpent codec's
- Diffie-Hellman Group 5 and group 2 with PFS
- Tunnel or transport mode
- PKI x.509v3 or Preshared key authentication
- NAT Traversal
- DHCP over IPSec support
- CA Manager for easy certificate management
- PPTP easy LAN to LAN VPN
- Automatic lockout of failed logins
- Easy VPN Setup
- IPSec & PPTP full reporting per user, IP, time, tranfered volumes
- 3rd party IPSec, PPTP clients, full Gateway interoperability

### Fax Server

- Legacy external Faxmodems support (Class1/1.0/2.0/2.1)
- HiddenFAX ISDN CAPI Fax Group3 Support (Active PCI boards)
- HiddenFAX ISDN CAPI Fax Group3 Passive AVM Fritz support
- Fax to Email Gateway
- Print to Fax Gateway
- Modem pools (groups) support
- Incoming Fax routing
- Outgoing Fax routing via specific modem/group
- Fax Protocol Database with Easy Search and Find
- 3rd party Fax Clients
- User Access Control to Fax
- Progress Notifications
- Windows Printing System Integration
- Detailed Fax logging

### File Server

- Unicode naming support
- User restrictions for read/write permissions
- Browsable Sharepoints
- Protection from Filesystem delete
- Host IP restrictions per Sharepoint
- Fax virtual printer sharing
- File Server Utilities (NetBIOS LAN hosts, shares)
- Realtime File Server Log

### E-mail Server

- SMTP and POP3 servers
- SMTP Forwarder support
- Connection rate throttling
- Max recipients and max message size settings
- Unlimited Remote mailbox delivery (Multidrop or single)
- RBL antispam support (orbl.org)
- Unlimited mailing lists, aliases
- Unlimited domains support
- E-mail Server Realtime log
- E-mail Server detaled graph and statistics

### Web Caching Proxy

- Adjustable Cache Disk & RAM Size
- Transparent Proxy Support
- Proxy Authentication vs Local Users
- Adjustable simultaneous IP per User
- User Defined Proxy Access Control Filters (ACF)
- ACF per Host IP, Username, Proxy Access Time, Requested URL
- Conditional Proxy Access ACF definition
- Conditional Bandwidth Management ACF definition
- Adjustable max cashable object
- HTTP, FTP, HTTPS support
- Proxy Realtime Log
- Proxy detailed report with graph and Statistics


### E-mail Antivirus

- Automatic virus definitions update
- Update Notifications
- Automatic scan of incoming and outgoing SMTP
- Multiple scan engines support

### UnManaged Firewall

- Statefull packet inspection
- Antispoof, Antismurf embedded rules
- DoS defense (SYN, icmp flood)
- Block xmass, null, martian packets
- URL Filtering
- ICMP, FTP, HTTP Traffic Control
- Web Management Access Control
- Default policy DENY, accept only trusted IPs or Internet Services
- Rate limit icmp & tcp-syn

### System Management

- System Configuration Backup
  - Mailbox container backup
  - Fax Protocol Database Backup
  - SNMP polling support
  - Easy Setup Wizards
- 

## 6. Frequently Asked Questions (FAQ)

### 6.1 About Linux

*Q: Do I need to have Linux skills in order to administer iNODE ?*

**A:** iNODE is build in such a way as to eliminate possible interaction with the operating system. The administration and configuration is solely done through the web interface with the use of a web browser.

*Q: Can I have Linux shell access?*

**A:** iNODE is build so that you can not access any Unix functionality.

*Q: Can I install my own application(s)?*

**A:** iNODE does not offer such functionality since it is a closed application in itself and due to the fact that it operates a vital part of the network infrastructure.

*Q: Why should I use iNODE and not another Custom Linux system?*

**A:** The major difference has to do with the fact the iNODE is a product. It offers specific functionality and is a closed system minimizing support costs. A custom Linux system offers excess flexibility with the cost of deep knowledge in order to maintain it. The administrator of the system should have a sound understanding of Linux and the affiliated open source software applications that come with it. In addition, it is required to have an understanding of each individual installation since each installation differs from another. iNODE is offered from a network of trained and certified re-sellers. It is equipped with documentation and technical support.

*Q: Is iNODE developed from scratch?*

**A:** iNODE is based on open source projects that have been widely used, tested and are reliable and stable.

*Q: Since it is based on open source software, why is it a closed system (GPL - Licensing)?*

**A:** The GPL license has absolutely no restriction except from the copyleft. The manufacturer is obliged by the copyleft to make available to all users the source code that has been altered and used in the system. Thus the open source license does not restrict the distribution of a closed box Linux system for security reasons. All iNODE services are based on open source code and have been configured and integrated so that they all work together without any problems.

E.g.

Email Server - sendmail, gnupop3, fetchmail

VPN Server - poptop, strongswan

Fax Server - hylafax

File Sevrer - Samba

Proxy Server - squid

## 6.2 About the Filesystem

*Q: What happens if the system is abnormally terminated due to power failure?*

**A:** The filesystem supports journaling which means that regardless of the abnormal termination the filesystem maintains its integrity. Every 15 startups the system checks the filesystem and if it is needed it automatically fixes any faults that may be identified.

*Q: Is it possible to recover data from the hard disk?*

**A:** It is your responsibility to keep backups of all the data that is stored on the system. After a system failure you can restore the data from your latest backup. The system administrator can keep backups of all the system configuration together with the emails and fax data.

*Q: Is it possible to install iNODE on a RAID system or a SCSI hard disk?*

**A:** iNODE only supports installation on a IDE hard disk. The following release of iNODE will support all available hard disk controllers.

*Q: Is it possible to make a copy of the iNODE's hard disk?*

**A:** iNODE's hard disk can be copied to another hard disk of the same size using any of the available disk cloning tools. This way you may "install" the iNODE to another system without using the installation CD.

## 6.3 About iNODE licensing

*Q: I have the installation CD. Can I install it and use it for trial purposes?*

**A:** The iNODE's installation CD is the same whether you have purchased the iNODE system or you are installing it for trial or demo purposes. Once installed and configured through the start up wizard the system will operate for 30 days. If you decide to purchase the system then you can contact your local reseller or the manufacturer.

*Q: I have purchased iNODE. Can I install it on two or more system?*

**A:** When installed iNODE locks the MAC address of the network card. Every license purchased is matched with one MAC address on the system that will operate. The installation on another system requires a second license. If you transfer the hard disk from one system to another then you will have to transfer the network card as well. In any other case the system will cease to work.

*Q: My network card has failed. Can I replace it?*

**A:** Of course. Once you installed the new network card you will have to contact your reseller.

## 6.4 About performance

*Q: Can all services operate on the same machine?*

**A:** This depends on the number of users on the network. It also depends on how loaded is the system in terms of services demand as well as the network connection speed. Usually you should plan ahead the installation of the system and have identified all possible bottlenecks and split the system into 2 or more systems.

*Q: How fast can iNODE route packets?*

**A:** Much faster than the simple routers. Even the faster router (except the specialized routers) does not have a fast CPU from the common one used in the PCs. In any case Linux offers a very well designed kernel for the IP stack and the manufacturer has taken care to configure the stack in such a way as to route packets as fast as possible. Common cases of interconnection with the internet up to 2Mbps cause no hassle to the system runs concurrently all services such as email, VPN, Proxy. iNODE can reach its hardware limits of the WAN speed is greater than 100 Mbps.

*Q: How many concurrent VPN tunnels are supported?*

**A:** Practically unlimited. Although this depends on the hardware (CPU, RAM) and the WAN connection speed. A Celeron 2.4GHz CPU can AES encode concurrently up to 10.000 tunnels with total access speed of 140Mbps.

## 6.5 About security

*Q: How secure is the internal LAN with iNODE?*

**A:** With integrated Unmanaged Firewall, iNODE does not allow any connection to external connection to the LAN. It only allows connections to its public services such as the E-mail & VPN Server.

*Q: Can I administer the unmanaged Firewall?*

**A:** The Unmanaged Firewall has preset rules so that it protects a LAN from any possible attack. The administrator can allow or disallow user access from the LAN to certain Internet services such as (HTTP, FTP, ICMP).

*Q: How often the antivirus definitions get updated?*

**A:** The antivirus system offers a well designed functionality for updating itself with new virus definition files or scan engine updates when they are available or when it is first connected to the internet. You can define who must be notified (Antivirus Administrator) in any antivirus update.

## 6.6 General Questions

*Q: Can iNODE be monitored through an NMS solution?*

**A:** iNODE supports SNMP through which it can publish SNMPv2 information with regards to the network ports. It is also possible to be monitored through an NMS software system if this system has access to its services through TCP, UDP, ICMP queries.

*Q: Can I schedule Automatic Backups?*

**A:** Of course. Each backup system that can have access to files through http can be used for this purpose.

*Q: What is included in the iNODE support contract?*

**A:** It includes all software updates and support through the reseller that iNODE was purchased.

*Q: I have problems with the installation procedure. Where can I get help?*

**A:** All support services are offered through the reseller network which are certified from the manufacturer. Through the certified reseller you can get all the assistance you might need. In case there is a major problem the reseller can contact the manufacturer and together they can give a solution to your problem.



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