

N-supportPro™ Product Requirements

Customer

Supported OSs:

Win 98 SE/ ME/ XP/ Vista
Win NT 4.0 / 2000 sp3 / 2003
Windows Mobile 2003 SE/ 5/ 6
Mac OS X 10.3.9 +
Linux Kernel 2.4, 2.6**

Browser Min Required*:

Internet Explorer 5.5
Firefox 1.0
Netscape 6
Opera 9
Safari 1, Camino 1 (on Mac Only)
Konqueror, Epiphany (on Linux Only)

Internet Connection:

Minimum: 56Kbps
Recommended: 256kbps

Operator / Administrator

Supported OSs:

Win 98 SE/ ME/ XP/ Vista
Win NT 4.0 / 2000 sp3 / 2003
Mac OS X 10.3.9 +

Supported browsers*:

Internet Explorer 5.5
Firefox 1.0

Internet Connection:

Minimum: 56Kbps
Recommended: 256kbps

* The browser must support JavaScript 1.1 (present in most current browsers). ActiveX components can be executed only with IE. An executable alternative is available for other browsers. Co-surfing can only be performed with Internet Explorer.

** N-supportPro™ currently supports Ubuntu, Debian, Red Hat, Mandriva or SuSE Linux distributions based on Linux Kernel 2.4 or 2.6. Other distributions based on these kernels are also being tested.

Connectivity

Recommended minimum bandwidth upload speeds

Chat: 33Kbps

Remote control: 16 colors (56Kbps), 256 colors (128Kbps), 16-24 bit (256Kbps)

Voice over IP: 56Kbps

Video: 256Kbps

File transfer: 56Kbps (Transfer speed automatically adjusted to match available bandwidth. A standard T-1 (1.44Mbps) provides an average transfer speed of around 100 KB/sec.)

Protocols and ports used

Chat: HTTP on Port 80 or HTTPS (SSL) on Port 443. Chat uses JavaScript 1.1.

Remote control: One of the following ports: 21, 25, 80, 110, 443 (standard) or 11438 (non-standard).

- All communications use TCP/IP and are compatible with Network Address Translation (NAT).
- If deep packet inspection is performed, packets can be wrapped in an HTTP or HTTPS wrapper to ensure compatibility.

The remote connection is established through either an ActiveX component or .exe. This creates a .dll container on the customer's computer which downloads the appropriate .dll for the remote control mode selected. When using the ActiveX, each .dll is stored to make future connections more rapid (only need to download once). When using the .exe, all components are deleted entirely at the end of the session.

Security

All data transmitted through N-supportPro is encrypted, always, regardless of whether or not the operator enables the “secure connection” feature. The data is encrypted both in transit and when stored on the N-supportPro servers (remote control session data is encrypted end-to-end and is not stored unless the operator chooses to record the session). No data is ever transmitted in the clear, anywhere in the N-supportPro system.

- Chat data is encrypted using an industry-standard symmetric encryption algorithm (the same algorithm used in SSL, but applied inside the data packet).
- SSL can also be enabled to provide an additional level of encryption at the transport layer. This re-encrypts the already encrypted data packet a second time as it is transmitted using the SSL v3 protocol and provides a visual indication that the connection is secure (the URL shows “https” and some browsers display a padlock icon). Note, however, that chat data is always encrypted inside the data packet with or without the additional SSL layer.
- Remote control, video/VoIP and file transfers are always end-to-end encrypted using 256-bit AES encryption.

Establishing a Session

During login, the operator connects to the N-supportPro Web server over port 80 (or 443 if SSL is used). Upon clicking the live chat button, the customer’s computer also contacts the N-supportPro Web server over port 80 (or 443 if SSL is used). The N-supportPro ACD assigns the chat session to an available operator and then the Web server acts as the bridge between the customer and the operator.

All chat-based features communicate through the Web server using HTTP protocols on port 80 / 443. When remote control is initiated, the operator’s and customer’s computers attempt a direct peer-to-peer connection over port 110. If this fails, both computers attempt a connection to the socket server over all six possible ports, using the standard N-supportPro protocol. If a firewall or proxy blocks this communication, the connection is re-attempted using an HTTP or HTTPS wrapping protocol.

The socket server will establish a bridge connection using the first port / protocol that is successful (only one of the six ports or protocols is needed on each side to establish the bridge between the customer and the operator). The remote control connections do not travel through the Web server, only the socket server.

Architecture

N-supportPro architecture consists of a Windows IIS server, a socket server, and an SQL database (SQL 2000 / 2005), all running on a Windows 2003 server. All components can reside on the same physical server or can be separated to individual servers (IIS server requires a static public IP address). We recommend having a backup of each physical device.

In a SaaS model, the infrastructure is hosted by N-supportPro and the customer only needs a supported browser and OS. Optionally, the customer may install their own local socket server to improve the performance of remote control.

N-supportPro architecture is organized into three logical layers: the presentation layer, the business intelligence layer and the data layer.

- The **presentation layer** is handled by the IIS server and serves up HTML code by interpreting VBS scripts and by executing applications that use the IIS API (ISAPI).
- The **business intelligence layer** consists of multiple Microsoft COM+ object model components encapsulated in DLLs. The components are developed in C++ and VB languages.
- The **data layer** is handled by the SQL server and the data access objects OLE DB and ADO (ActiveX version of OLE DB).

Video Conference / VoIP

- Full Duplex (bi-directional) with no setup, installation or configuration of proxies or NATs required.
- Uses same ActiveX container as remote control, therefore does not require an additional ActiveX download. When initiated for the first time, the existing container simply downloads the latest Video / VoIP component, just like the .dll for remote control.
- Video conference component is approx. 100 Kb, consisting of eight concurrent threads that manage connectivity, audio and video.
- Uses any Windows-compatible microphone, webcam or other video source (sound card required). We do not specifically recommend any particular brand(s).
- Audio feature uses standard 16-bit GSM compression and our own post-compression technology, resulting in a higher quality audio transmission than a standard telephone.
- Video feature uses standard H.263 compression which is compatible with all Windows OSs.
- Compression quality and frames per second are automatically adapted according to available bandwidth, image movement, amount of silence, response time and CPU usage on both ends.
- All data is encrypted using 256-bit AES.
- Requires: Internet Explorer 5.5 + (only supported in IE)
400 MHz CPU
128 MB of additional RAM than that required by the OS
- Bandwidth: Voice over IP (56Kbps upload speed recommended)
Video (256Kbps upload speed recommended)

Video Conference / VoIP

There is no file size limit imposed by N-supportPro system. File transfer is only limited by external factors such as an HTTP proxy which could possibly limit the max size of the HTTP post.

There is also no restriction on file types when using the advanced file transfer mode (in the remote control toolbar). Simple file transfer mode (inside the chat session) is restricted and cannot send the following file types:

- .EXE, .INI., .VBS, .BAT, .LOG, .JS, .CMD, .POL, .HTM, .COM, .DAT, .HTML, .HTW, .ASP, .IDA, .CER, .IDQ, .CDX, .HTR, .ASA, .IDC, .ASP, .SHTM, .CER, .SHTML, .CDX, .STM, .ASA, .PRINTER.

These file types must be zipped or modified to be sent through simple (chat) mode file transfer.



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