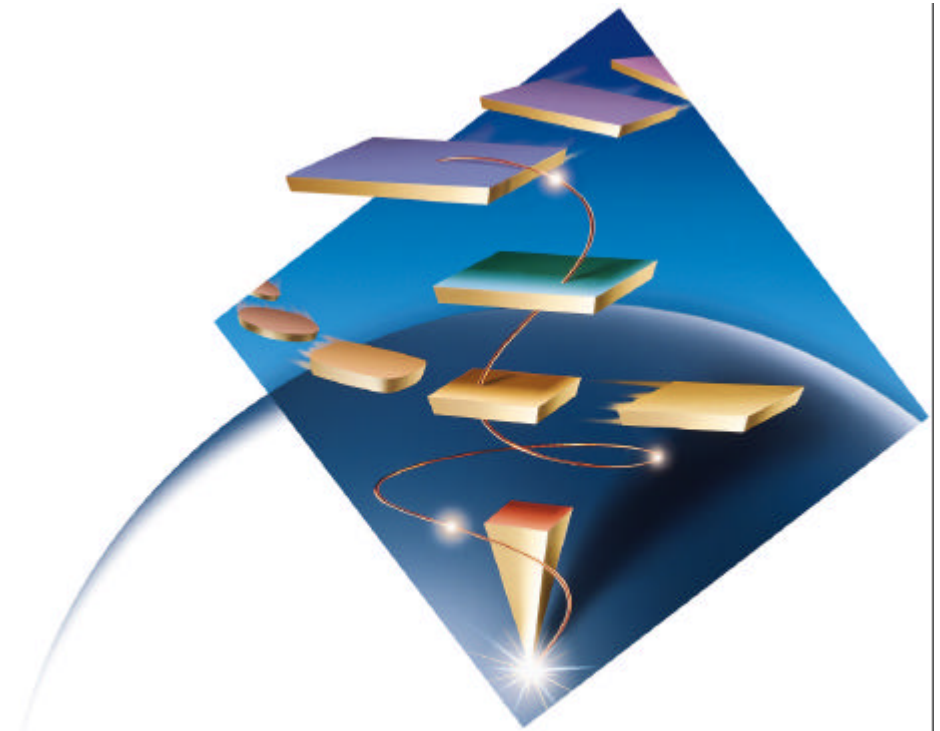




IBM eNetwork Communications Server for Windows NT Version 6.0



Abstract: Communications Server for Windows NT

Communications Server offers unparalleled availability and enterprise class dependability for your mission critical applications. IBM eNetwork Communications Server for Windows NT provides host and Internet access, network and application integration and end-to-end connectivity solutions to provide the foundation for IBM's network computing framework for e-business. With the integration of Web-to-host publishing, IBM gives you fast and easy access to enterprise applications and databases using your web browser. Communications Server interconnects people and applications, even over diverse platforms and network configurations, and allows companies to choose applications based on their business needs, not on their network.

This presentation is a product overview of the premier multifunction gateway for the NT environment, with emphasis on intranet and Internet solutions for mixed SNA and TCP/IP environments.

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What our Partners are saying....



"IBM has developed another vital link between end users and SAS software on S/390 architecture. SAS Institute customers will be able to integrate NT workstations seamlessly into their environments and easily access enterprise data with existing S/390 SAS software applications."

Chris Williams, S/390 Marketing Manager, SAS Institute, Inc.

"For our customers, application performance on the network is vitally important. Our Chariot product helps them test and measure end-to-end, application-level performance. While developing Chariot's Windows NT support, we tested on several NT communications products. IBM's Communications Server for Windows NT was more robust and a much better performer than Microsoft's SNA Server."

John Q. Walker, VP Development, Ganymede Software, Inc.

"Our customers are interested in high-technology connectivity solutions for host access. IBM's Communications Server for Windows NT and our FPX Host Access provides WAN multiprotocol support over X.25, SDLC, and frame relay networks. This multi-adapter support boosts PC availability."

Philippe Dambrine, CEO, CIREL (See: http://www.software.ibm.com/enetwork/casestudies/case_cirel.html)

"IBM's eNetwork Communications Server for Windows NT provides easy access to host information across the enterprise. WRQ's partnership with IBM lets our customers take advantage of Reflection's high performance and centralized administration combined with CS/NT's power to access critical host access applications."

Stuart Lisk, Market Manager for WRQ's Reflection for IBM, WRQ

Zephyr Development Corporation releases Version 6.1 of PASSPORT TN3270E Client for Windows 95/NT, concurrent with IBM's release of Communications Server for Windows NT Ver. 6.0. The new release of PASSPORT leverages leading-edge TN3270E enhancements found in Communications Server, one of which is the ability to provide server location and load balancing for TN3270E clients. This feature, the culmination of work done together by IBM and Zephyr in the IETF TN3270E Working Group, eases the administrative burden of configuring clients for specific servers and maximizes performance of the TN3270E client and Communications Server."

Gregg Ledford, Zephyr Development Corporation

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What our customers are doing...

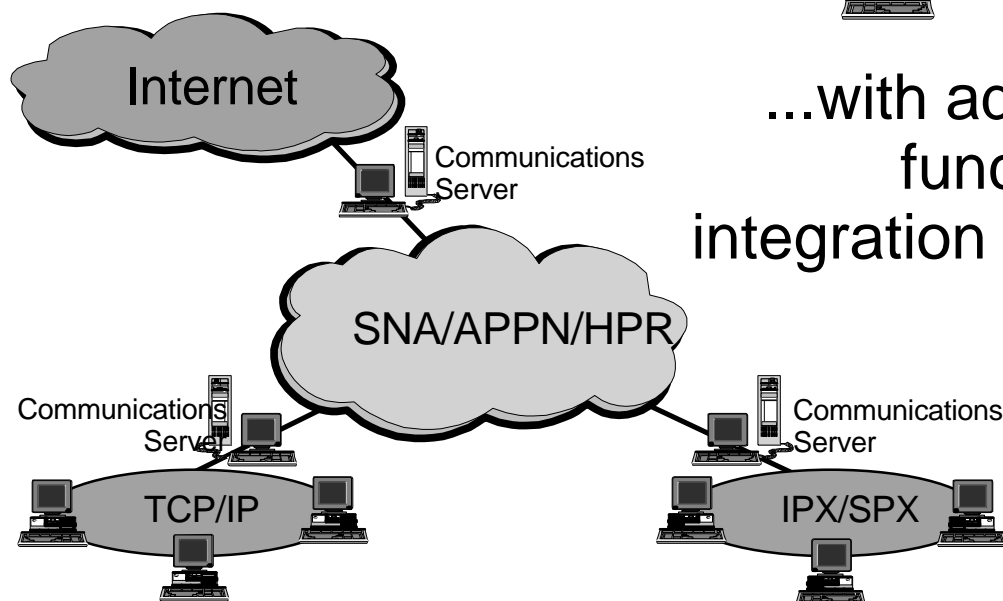
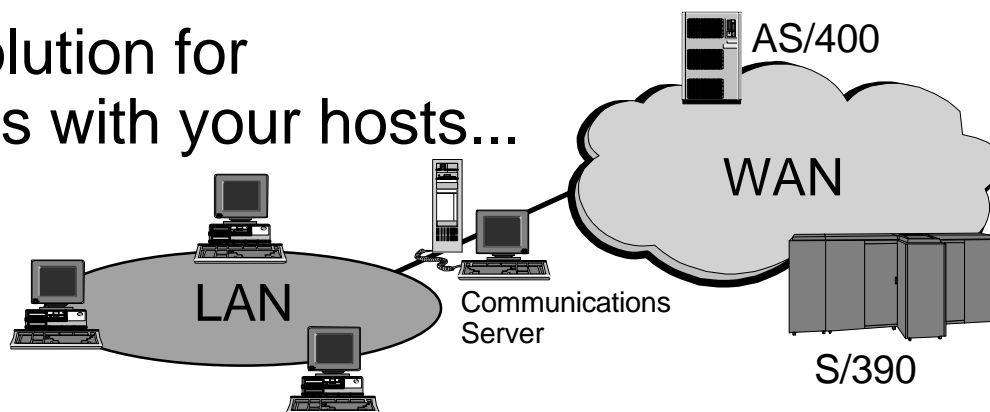
- ★ **DEETYA (Department of Education, Employment, Training and Youth Affairs) - Australia**, have 400 IP sites (job placement centers) rolled out with TN3270E access to mainframe terminal emulation. See the story on our Web at:
http://www.software.ibm.com/enetwork/casestudies/case_deetya.html.
 - ★ "It is robust and scalable-and it doesn't break. We have rolled out the solution to several sites, and we haven't seen any performance degradation in the servers. They're just humming along nicely." Jane Kozak, assistant director of communications
- ★ **Banco Real - Brazil**, uses a client/server business application, developed in house. This APPC application resides partly on Banco Real's mainframe and partly on the 30 NT machines at their customers' sites.
- ★ **Senate Democrat Computer Services in Harrisburg, PA** allows for their users to have database access to DB2 on VM via ODBC transactions initiated from their PCs. Communications Server for Windows NT is the APPN/SNA Gateway to their mainframe database.
- ★ **A large consumer packaged goods company** has been working with the Beta of Communications Server for Windows NT.
 - ★ "We are very impressed with how this release of csnt is coming along. Both Branch Extender and Enterprise Extender as well as the APPN support all on a Windows NT box will give us some real opportunities for our SNA network. The TN3270 support in this release is real strong and stable".

Agenda

- **eNetwork Communications Server Introduction**
- **Host Integration Solutions**
- **Access to Application Server legacy data**
- **Industry-Leading SNA Support**
- **Availability, Reliability, Security**
- **Development and Support Tools**
- **Summary**

What is an IBM Communications Server?

The best possible solution for integrating your LANs with your hosts...



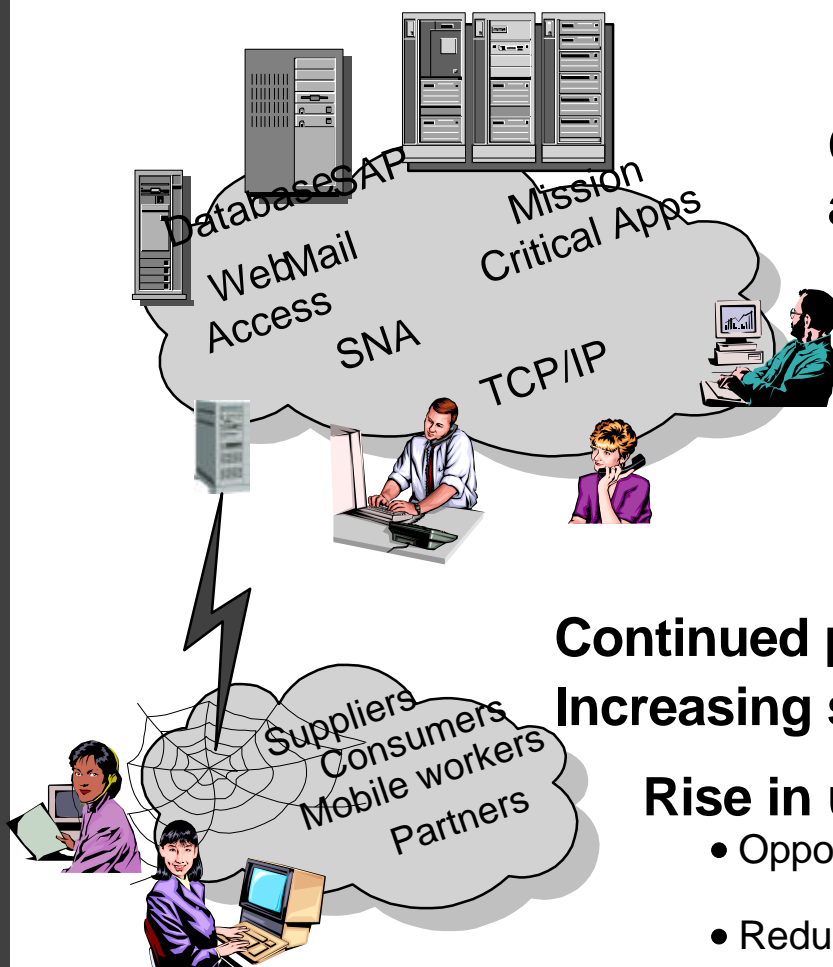
...with advanced networking function that allows the integration of different network types

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Industry Trends



Continued need for IBM server data access

- 80% of the world's business data
- From the Internet, intranet and extranet

Critical business applications

- Are selected based on value
- Without regard to networking protocol

Continued popularity of departmental gateways Increasing shipments of TN3270 and TN5250 servers

Rise in use of web to host access

- Opportunity to expand access
- Reducing cost of development, management support, and user training

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Communications Server for Windows NT

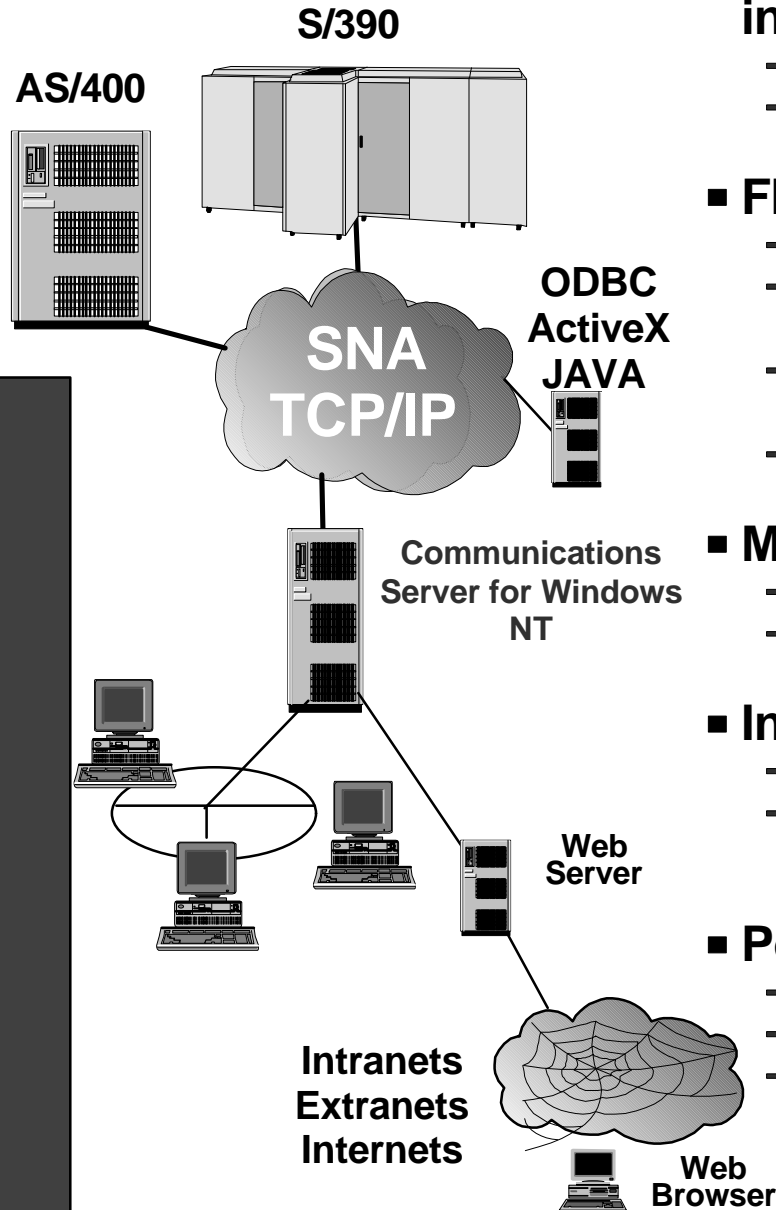


- **The solution for companies who want to:**
 - ▶ Easily integrate existing host data from multiple sources onto a single web page
 - ▶ Provide secure access to mission-critical host applications to all users from any location
 - ▶ Have the freedom to make application decisions based on business needs, not network protocols
 - ▶ Sharpen their competitive edge by developing best-of-breed applications without updating their network or building parallel networks
 - ▶ Leverage their current investments and run SNA applications over TCP/IP or IPX/SPX networks and run Socket applications over SNA networks
 - ▶ Improve their network's availability, efficiency and performance
 - ▶ Be positioned for the applications and networks of the future

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- **Extensible and shareable host integration infrastructure**
 - Most advanced SNA gateway on Intel in the market
 - Now a complete host integration server
- **Flexible, open system architecture**
 - Support for both TN3270 and TN5250
 - Broad range of connectivity options: Ethernet, Token Ring, FDDI, SDLC, X.25, Frame Relay
 - Client-server (split-stack) support of Windows 95 and Windows NT TCP/IP clients
 - LDAP enabled
- **Maximize return on IT and business investments**
 - Extends the reach of existing applications
 - Allows for the creation of new composite applications
- **Integrated secure end-to-end solution**
 - Integrated load balancing and hot standby
 - Enabled with Secure Sockets Layer (SSL), session level encryption and data encryption
- **Powerful application development infrastructure**
 - Host Access Class Library
 - OLE DB access to AS/400 data
 - Multi-Path Channel (MPC) Data Link Control

Key New Features of eNetwork Communications Server for Windows NT



Develop Extensible & Shareable Host Integration Infrastructure

New Communications Server for Windows NT Function	Value
Host Publisher	Easily integrate existing host data from multiple back end sources and deliver HTML to any Web Server. ODBC, ActiveX and Java currently supported
TN3270E, and TN5250 Servers	Easy access from IP users to SNA 3270 data on S/390s Easy access from IP users to SNA 5250 data on AS/400s
AS/400 Shared Folders	Clients connect to AS/400 data without additional client configuration
Enterprise Extender	Build Intranets by extending reach of SNA applications over IP network with similar levels of reliability, scalability enjoyed by SNA users
Branch Extender	Improve scalability and cost effectiveness of SNA networks with hundreds of branch offices
Enhanced Web Administration	Manage Communications Server over Intranet using web browser

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Deliver Flexible, Open System Architecture

New Communications Server for Windows NT Function	Value
Tivoli Plus Module Support	Integrates Communication Server management into Tivoli to distribute and install Communications Server
TN 5250 Server	Supports industry standard 5250 clients
Enterprise Extender	Contributed to AIW and IETF standards orgs.
Directory Exploitation	Split stack clients can access their configuration using Lightweight Directory Access Protocol

Maximize Return On IT And Business Investments

New Communications Server for Windows NT Function	Value
Enterprise Extender	Leverage investment in host SNA applications over IP
Host Publisher	Deliver existing applications and data to the web and create new composite applications
Muti-Path Channel (MPC) Data Link Control	Supports high capacity, high availability ESCON Channel connections to S/390 MPC capable hosts.

Key New Features



Deliver Integrated Secure End To End Solution

New Communications Server for Windows NT Function	Value
Load Balancing	Enables distribution of TN and split stack clients across parallel Communications Servers
Hot Standby	Host connections continue when critical server goes down by using alternate backup server
Secure Sockets Layer (SSL)	Data between TN clients and TN3270E and TN5250 server is authenticated using signed certificates
Session Level Encryption	Encryption for dependent LU and LU6.2
Data Encryption	Secure communication for split stack clients for LUA and LU6.2 connections to server

Establish Powerful Application Development Infrastructure

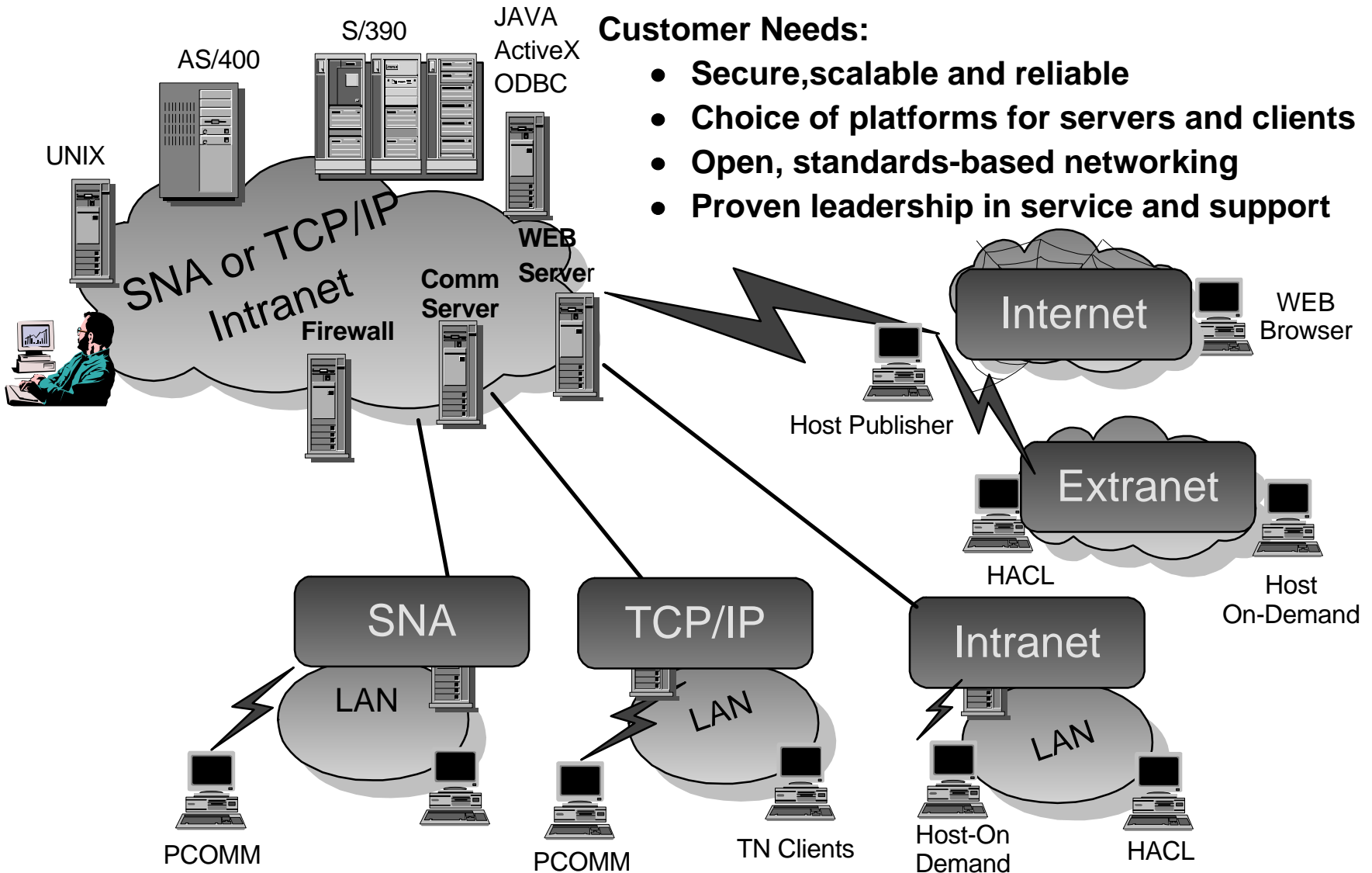
New Communications Server for Windows NT Function	Value
Host Access Class Library	Object oriented API that allows for the development of applications that access host 3270 or VT applications.
OLE DB Access to AS/400 Data	Application developers have record level access to AS/400 databases

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Host Integration - A Complete Story



Customer Needs:

- Secure,scalable and reliable
- Choice of platforms for servers and clients
- Open, standards-based networking
- Proven leadership in service and support

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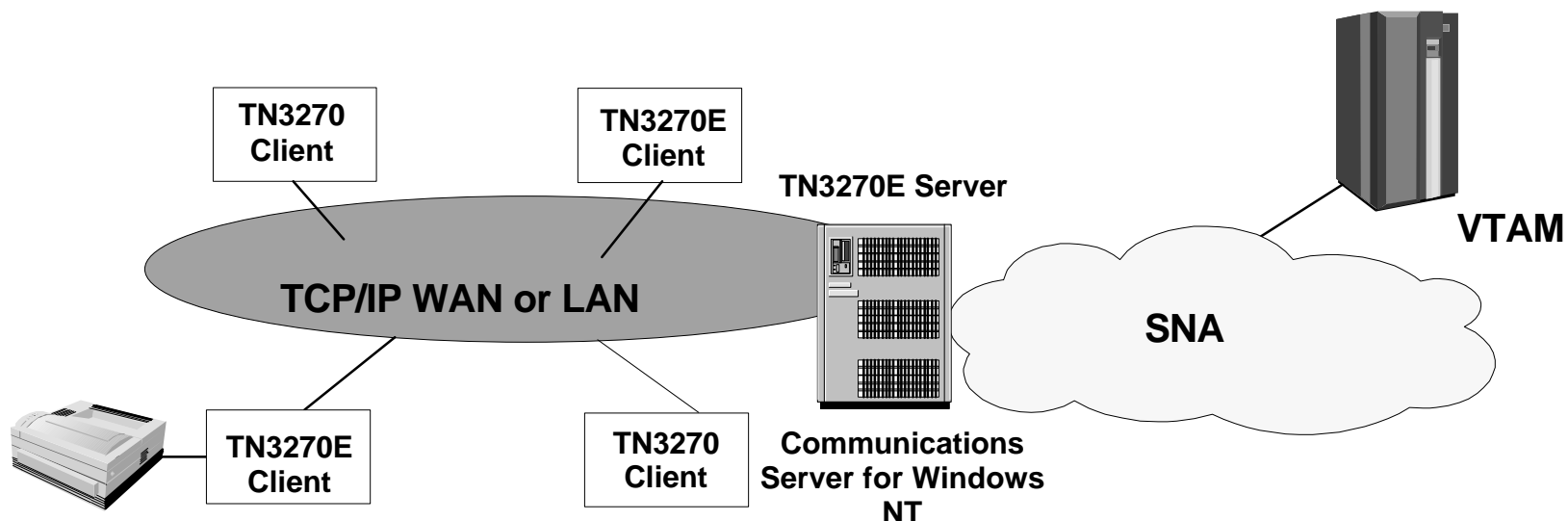
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Host Integration Overview

- **TN3270E and TN5250 Servers**
 - TCP/IP client access to 3270 and 5250 applications
- **Enterprise Extender**
 - Extends the reach of SNA applications over IP Networks
- **Host Publisher and Host On-Demand**
 - Integrate existing mission-critical data from various sources onto a single Web page
- **AS/400 Host Integration**
 - TN5250, Shared Folders, and OLE DB support
- **SNA API Client Support**
 - TCP/IP and IPX/SPX client access to SNA APIs without SNA protocol flows
- **Sockets over SNA**
- **SNA over TCP/IP**

TN3270E Server



- **Easy access from IP clients to 3270 applications and print services**

- No IP on host
- No SNA on workstations
- HPR-capable from gateway to host with non-disruptive sessions (CS/2 and CS/NT)

- **Supports traditional TN3270, RFC1646, RFC1647**

- LU1, LU2, and LU3 devices, print services
- LU name assignment
- ATTN, SYSREQ keys, SNA response handling
- Load balancing and SSL support

- **Placed in remote branches or channel attached to host**

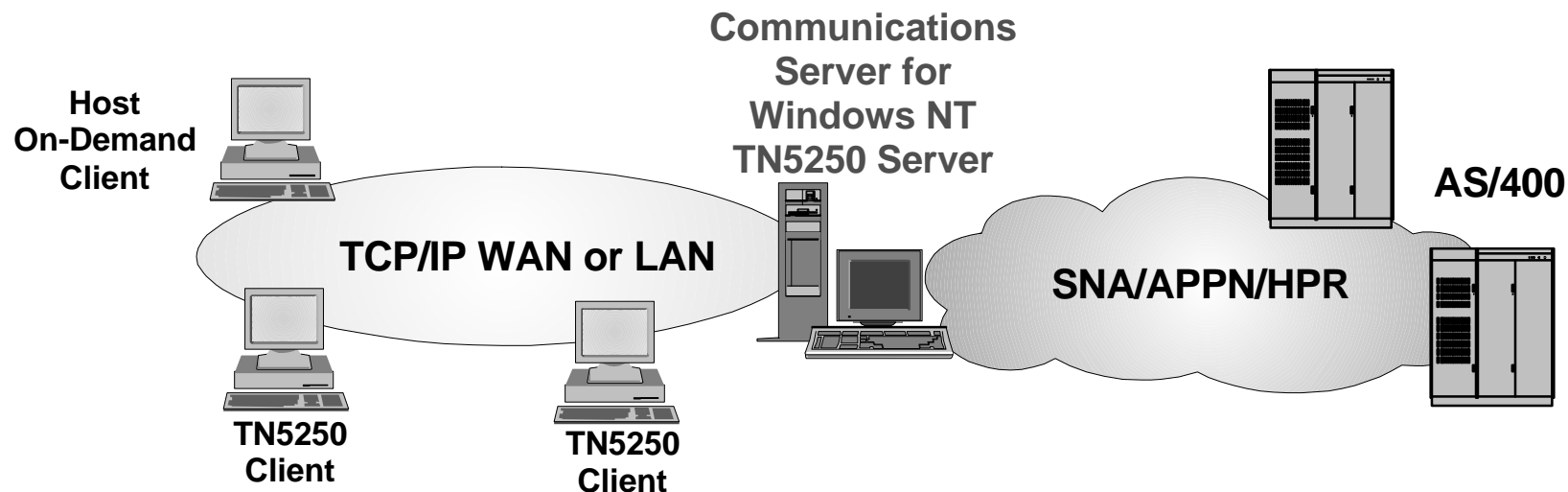
- **Bus-Tech NetShuttle provides OEM channel attach solution**

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AS/400 Host Integration - TN5250 Server



- Provides SNA 5250 application access to AS/400s on SNA network for industry-standard TN5250 clients
- Supports RFC1205
- Load Balancing and SSL Support
- Support for > 512 sessions per AS/400
- Support for multiple upstream AS/400s
- IP address filtering

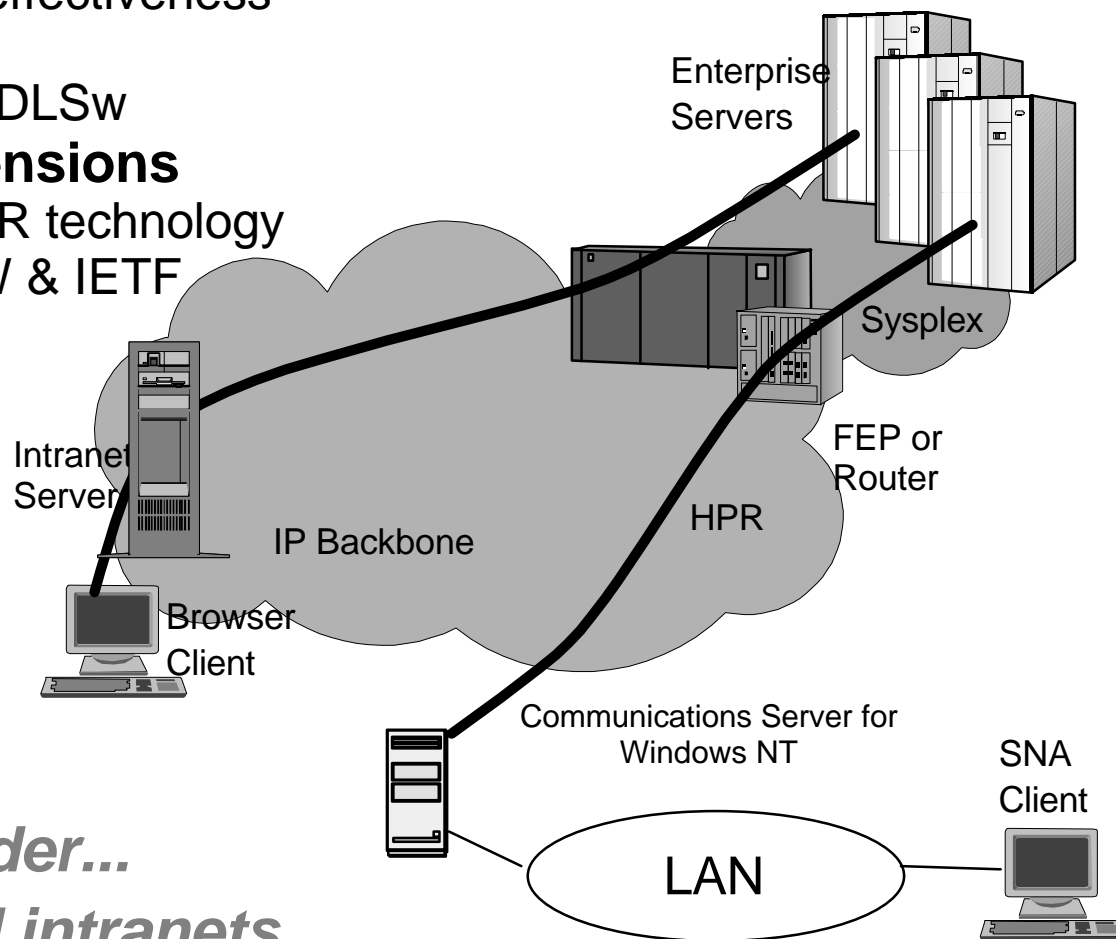
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Enterprise Extender

- **Advanced SNA & IP integration technology**
 - ✓ Failure protection
 - ✓ Scalability & Cost-effectiveness
 - ✓ Traffic control
 - ✓ Scales better than DLSw
- **Simple HPR extensions**
 - ✓ Based on open HPR technology
 - ✓ Contributing to AIW & IETF



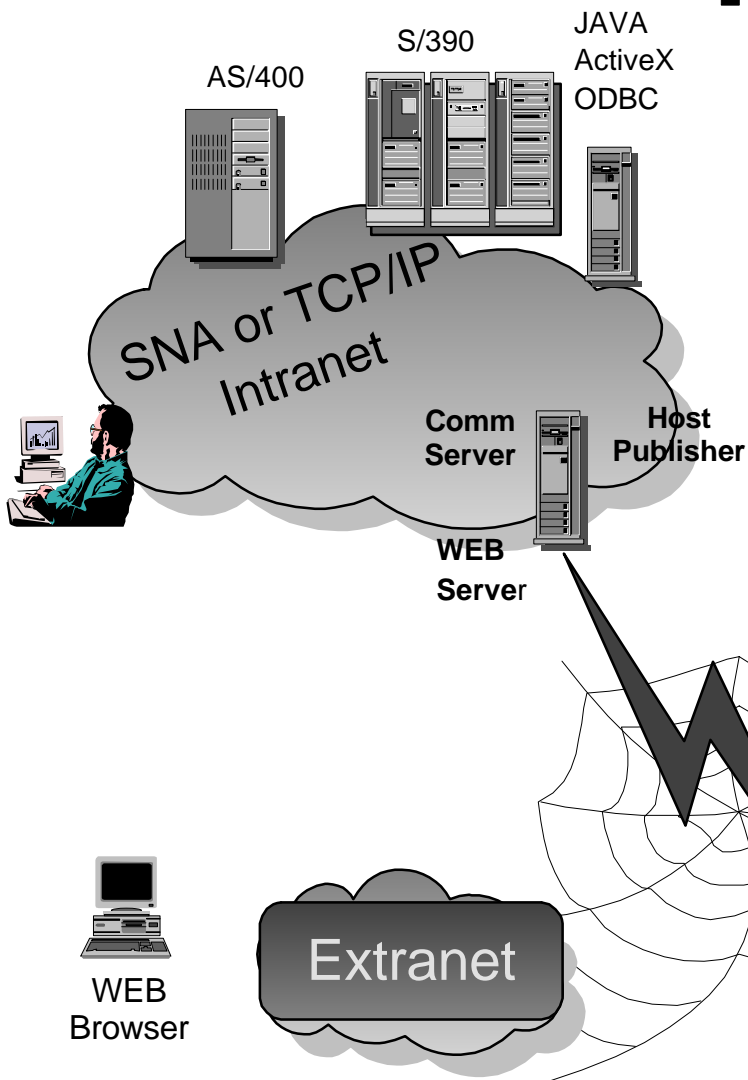
*Enterprise Extender...
...for real-world intranets*

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Host Publisher



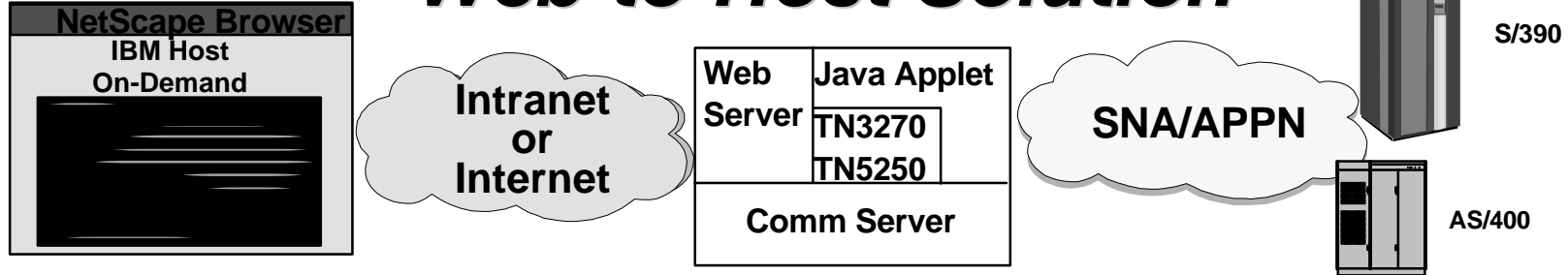
- **IBM Host Publisher is an eBusiness Connector for integrating existing business critical applications with the World Wide Web**

- Provides the capability to easily create dynamic web pages based on data from:
 - ▶ 3270 or 5250 applications
 - ▶ ActiveX servers and controls
 - ▶ Java classes
 - ▶ ODBC databases

All without making any changes/rewrites of existing applications

Host On-Demand V3.0 Entry Level

Web-to-Host Solution



- **Host On-Demand 3.0 Entry Level will replace the earlier Host On-Demand Release 1, adding much more functionality and providing:**
 - Full national language support, including support for the Eurocurrency symbol
 - TN3270, TN5250, and VT52/100/220 Emulation Support
 - Up to two concurrent sessions
 - A graphical toolbar and keypad
 - Ability to remap the keyboard keys
 - Convenience print to locally defined printer
 - Copy / Cut / Paste to the clipboard
 - Year 2000 Readiness
- **Host On-Demand 3.0 Entry Level, available 4Q98, with an unrestricted license, can be downloaded from the HOD Site at <http://www.software.ibm.com/enetwork/hostondemand>**

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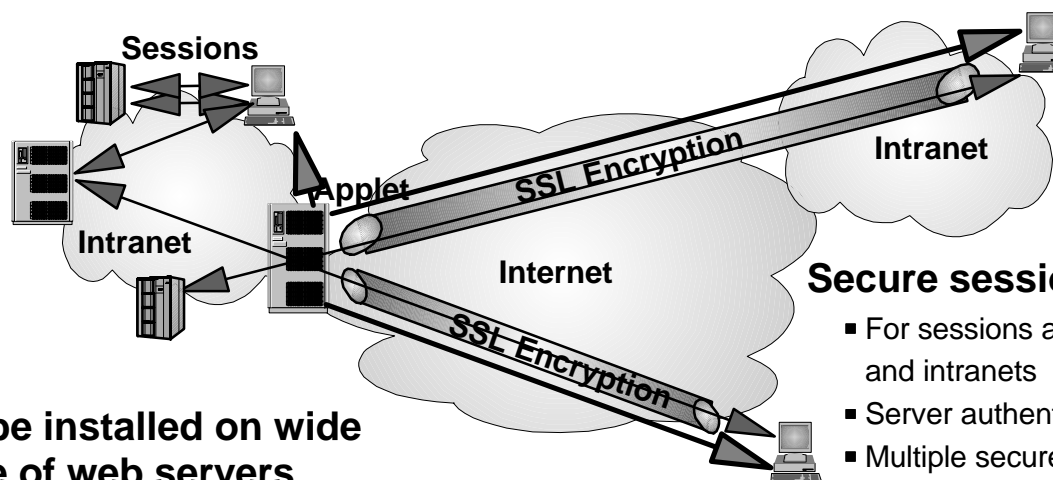
Host On-Demand V2.0*

Multiple concurrent client sessions

- Sessions with multiple hosts
- TN3270, TN5250, VT100, VT220
- Host file transfer and convenience printing
- Host access class library API for customized data access

Java Applet downloaded each time

- Guarantees latest code
- Reduced maintenance costs
- Reduced client DASD



Can be installed on wide range of web servers

- Standalone client installation also available

Secure session support

- For sessions across Internet, extranets and intranets
- Server authentication
- Multiple secure sessions from single client

Java enables consistency across platforms

- User installation and configuration eliminated
- Reduced user training costs
- Higher productivity as retraining is eliminated

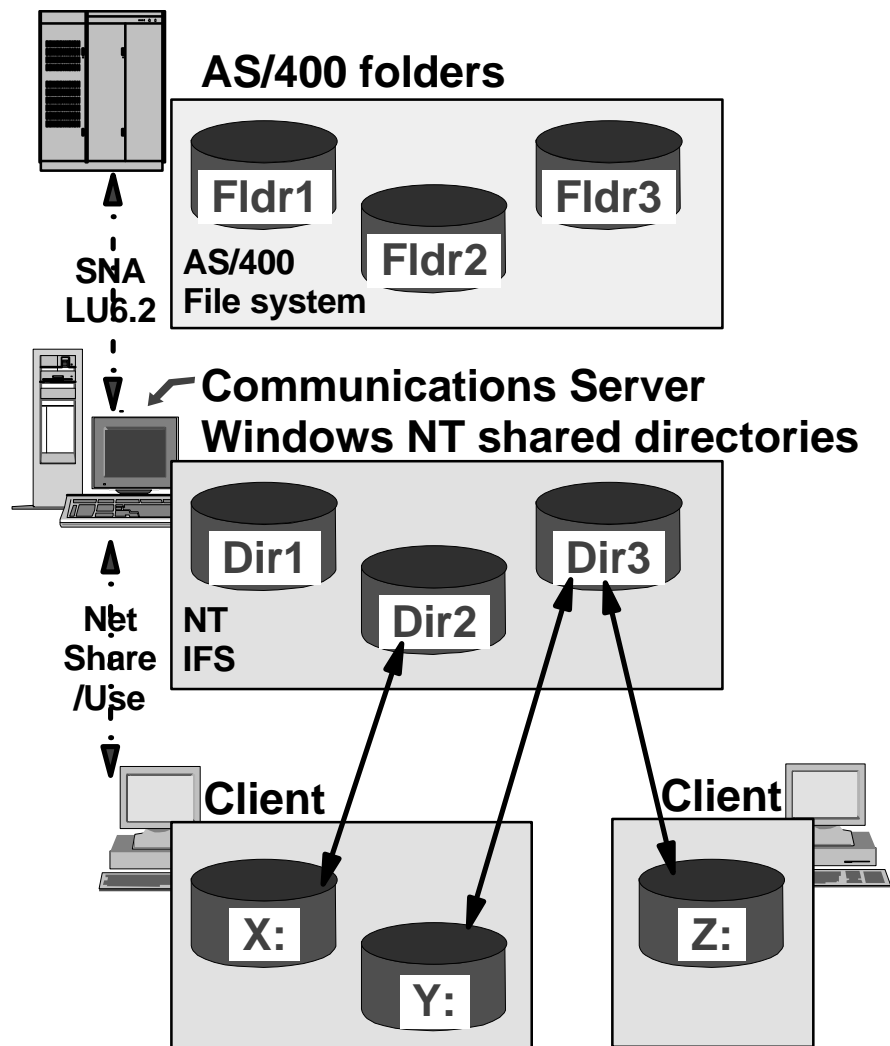
*HOD V2.0 with a restricted license is included on the product CD.

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AS/400 Host Integration - Network Drives Support

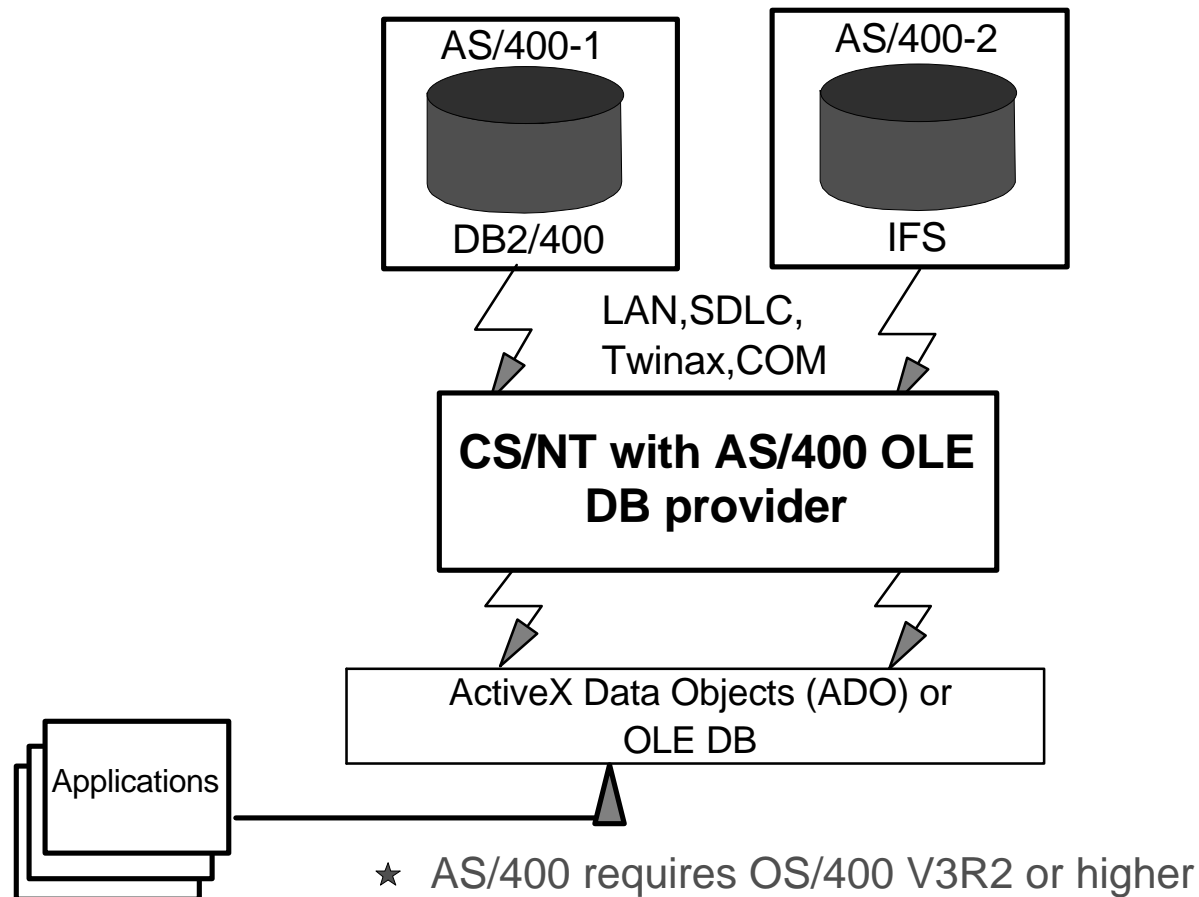


- Gives NT clients access to AS/400 data without additional configuration or code at client
- AS/400 folders appear as local shareable devices on NT server
- Multiple users can share same folder
- LU6.2 UserID / Password configured in Communications Server
 - No user intervention required
 - Automatic reconnection after IPL

AS/400 HOST Integration - OLE DB access to AS/400 *data*



- Provides application developers with record-level access to AS/400 logical and physical files

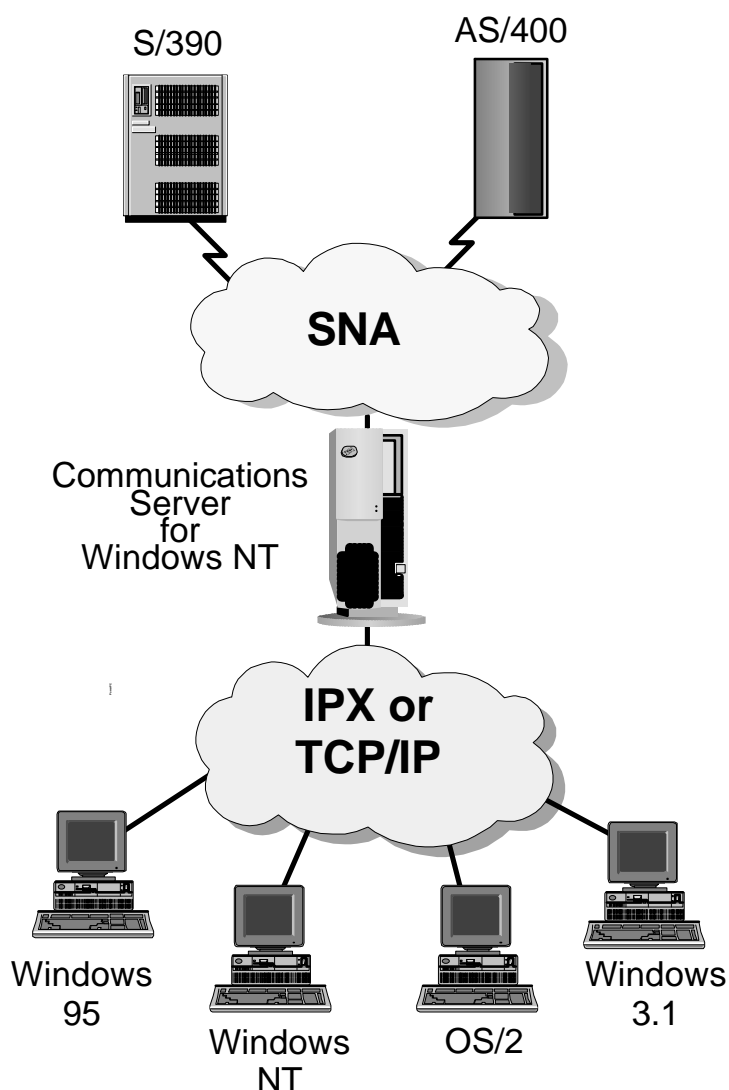


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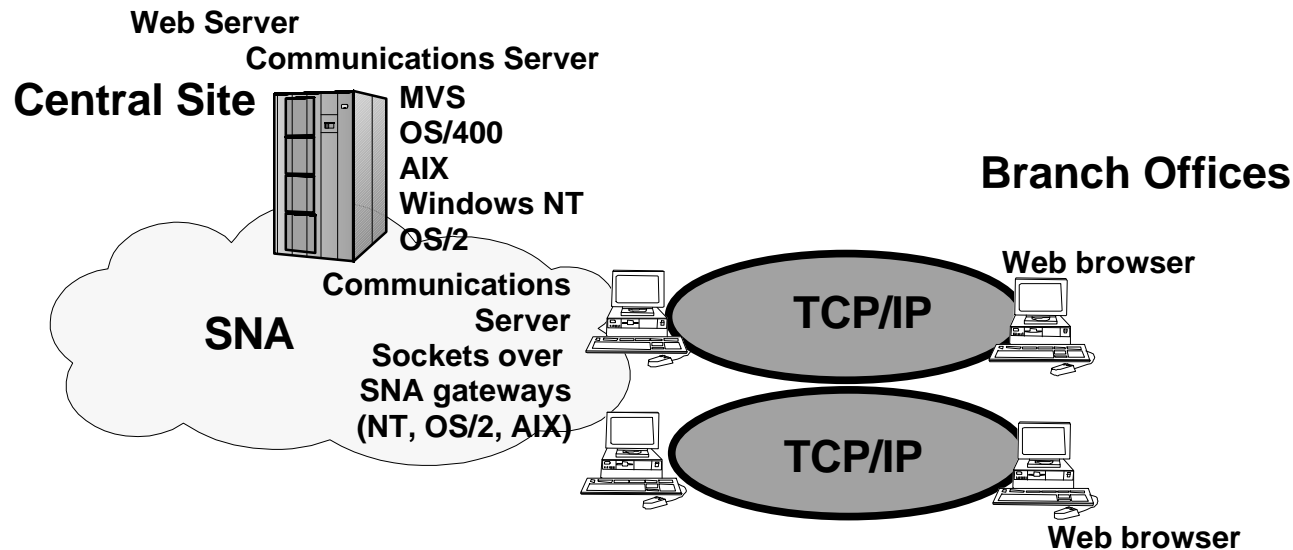


Remote API Client Support (Split Stack)



- Allows IPX/SPX and TCP/IP attached clients to access SNA APIs without SNA protocol
- Supports the following clients
 - Windows NT
 - Windows 95
 - Windows 3.1 (TCP/IP only)
 - OS/2 (TCP/IP only)
- Clients provide API support for
 - CPI-C APPC
 - EHNAPPC
 - LUA RUI
 - jCPIC-C
 - Host Access Class Library (HACL)
 - Common Services
 - Management Services
- LDAP and NDS directory support to retrieve client, server and SNA configuration information
- Clients shipped with server
- Client requires less storage and processing capability and reduces configuration
- Load Balancing

Enterprise Intranet - Sockets over SNA Gateway



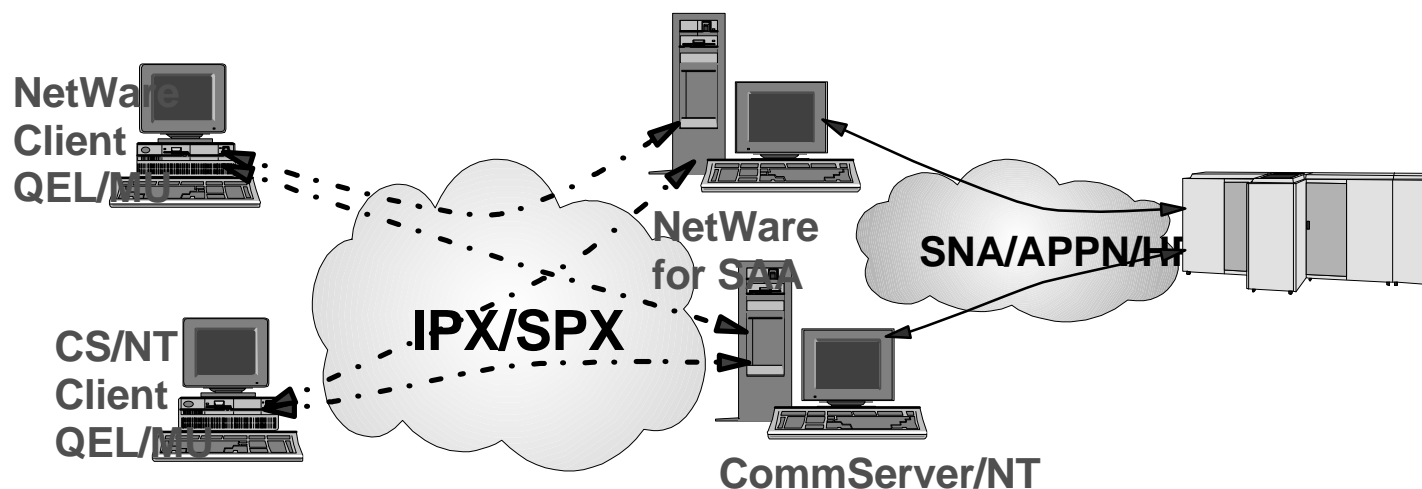
- Intranet improves and streamlines communications within corporations
- IP only Branch users can access Web server in SNA network
- Other sockets apps can be used in same configuration:
eg. FTP, Telnet, SAP R/3, SNMP, Lotus Notes
- Class of service traffic prioritization for TCP/IP applications
- Capacity: 2000 connections

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Netware 3270 emulator (QEL/MU) support



- CS/NT now supports emulators using Novell QEL/MU architecture
- Appears to client as a NetWare for SAA server



Access to Application Server Mission Critical Data

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Applications Integration

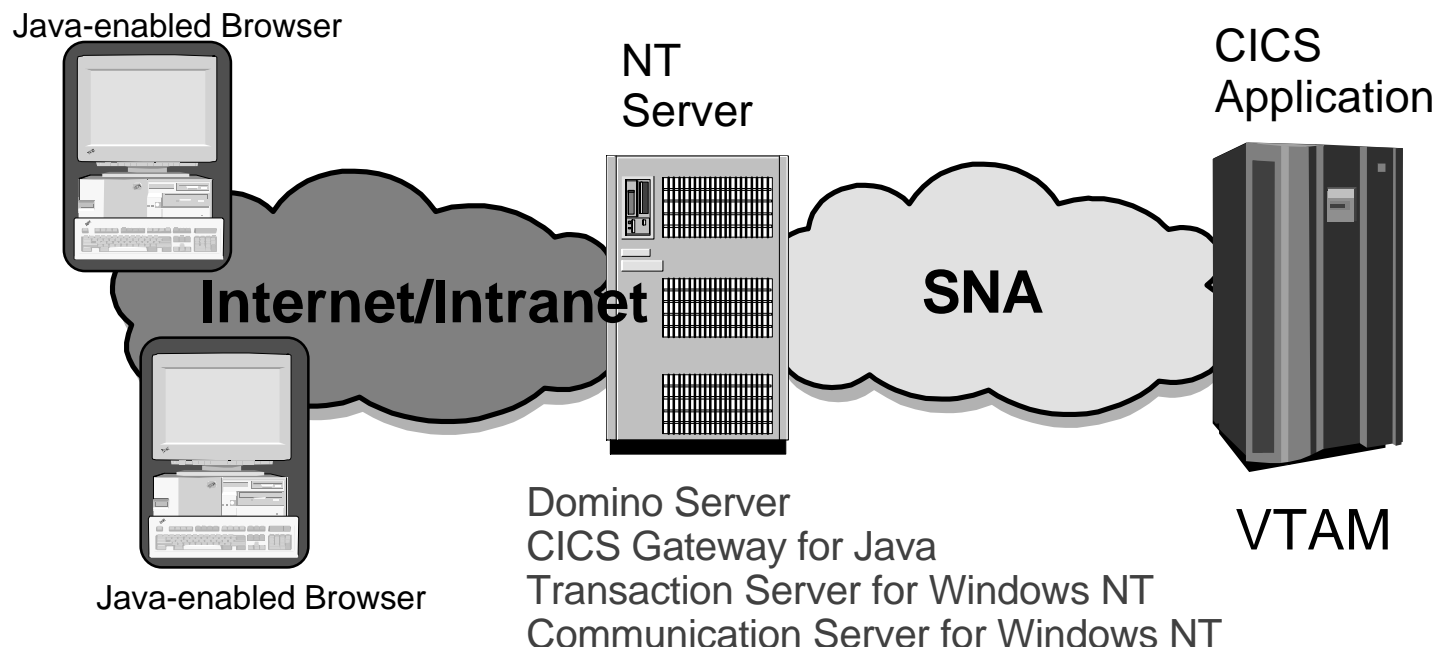
- **Now you can connect to your enterprise applications and data easily with our new client packaging:**
 - DB2 Client Application Enabler (CAE)
 - ▶ provides the client access to DB2/MVS or DB2/400 databases or DB2 Connect servers via an SNA Gateway such as eNetwork Communications Server for Windows NT
 - CICS
 - ▶ provides desktops access to transaction processing services across S/390, AS/400 or RISC System/6000
 - MQSeries
 - ▶ enables business applications to exchange information across different OS platforms and network protocols

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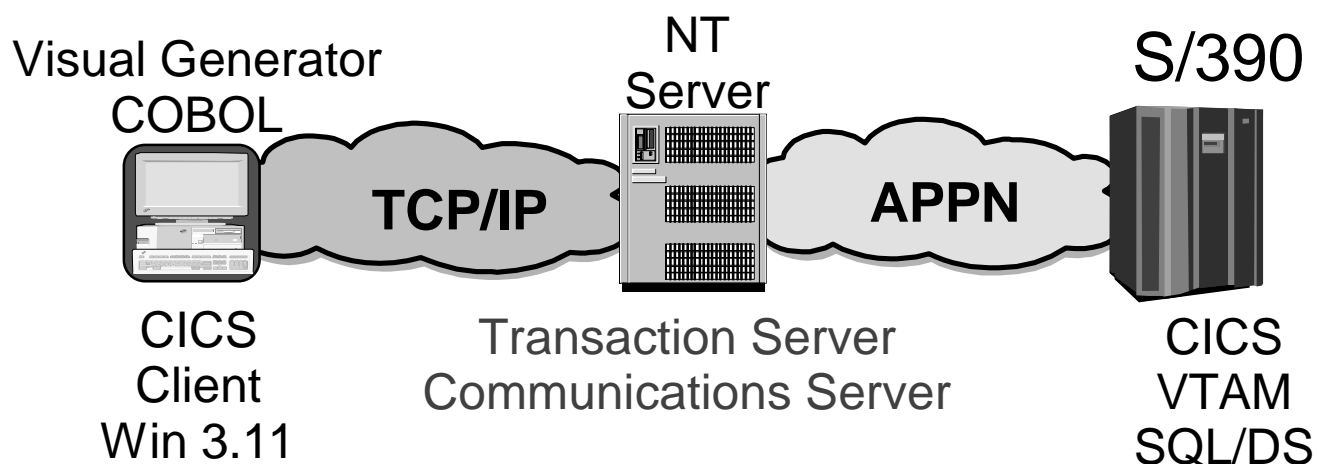


Web Access to Mission Critical CICS Data



- Existing CICS applications on mainframes or other servers can be accessed from web browser with no change to CICS 3270 applications
- Internet becomes extension of your enterprise

Volusia County Criminal Justice Information System



- **Business Need**

- Improve customer service and quality
- Provide GUI front-end screen to green screen applications
- Provide easier access to critical data about all felony and misdemeanor cases

- **Benefits**

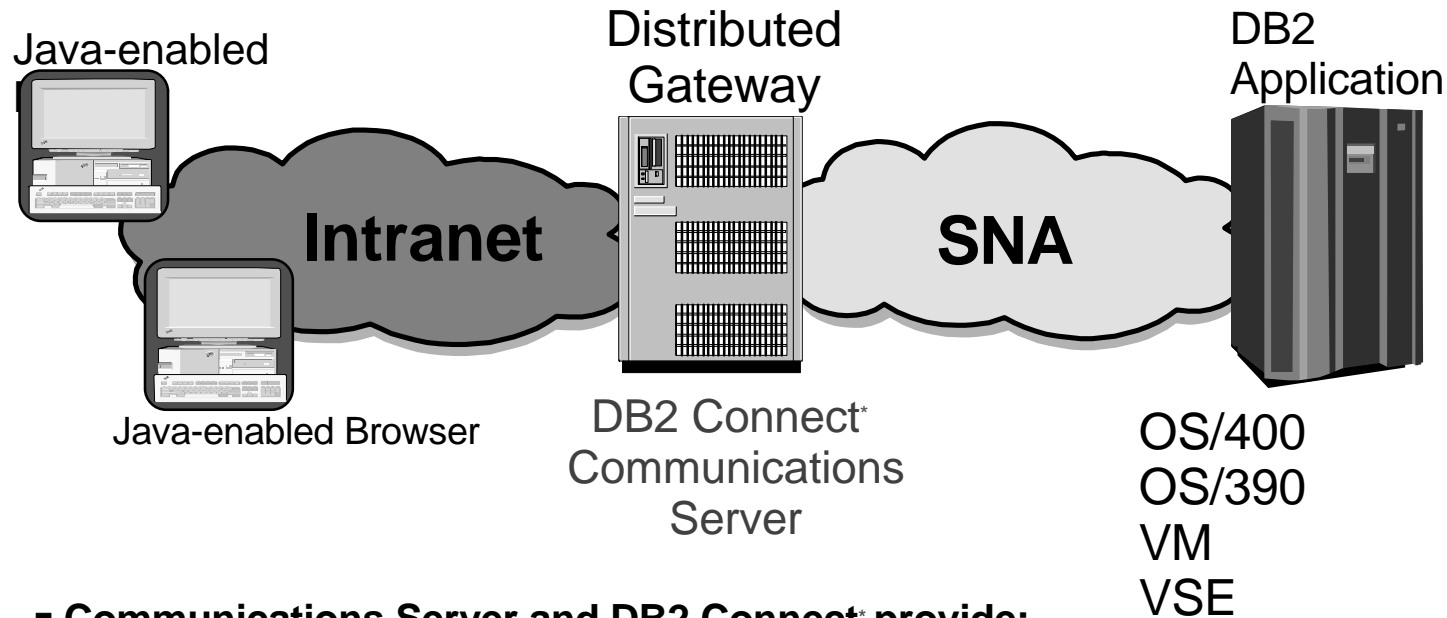
- Judges can now make quicker decision during first hearings or trials
- All information will appear at once to see and process

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Client Access to host DB2 Databases



■ **Communications Server and DB2 Connect* provide:**

- Best combination of services for PC and UNIX client connections to DB2
- Best offering for customers implementing a replicated branch office, departmental data base, or a Web application delivering both host data and multimedia content
- Indispensable foundation to insurance, retail, banking and health care industry solutions with data distributed across a mixture of hardware platforms queried from distributed sites

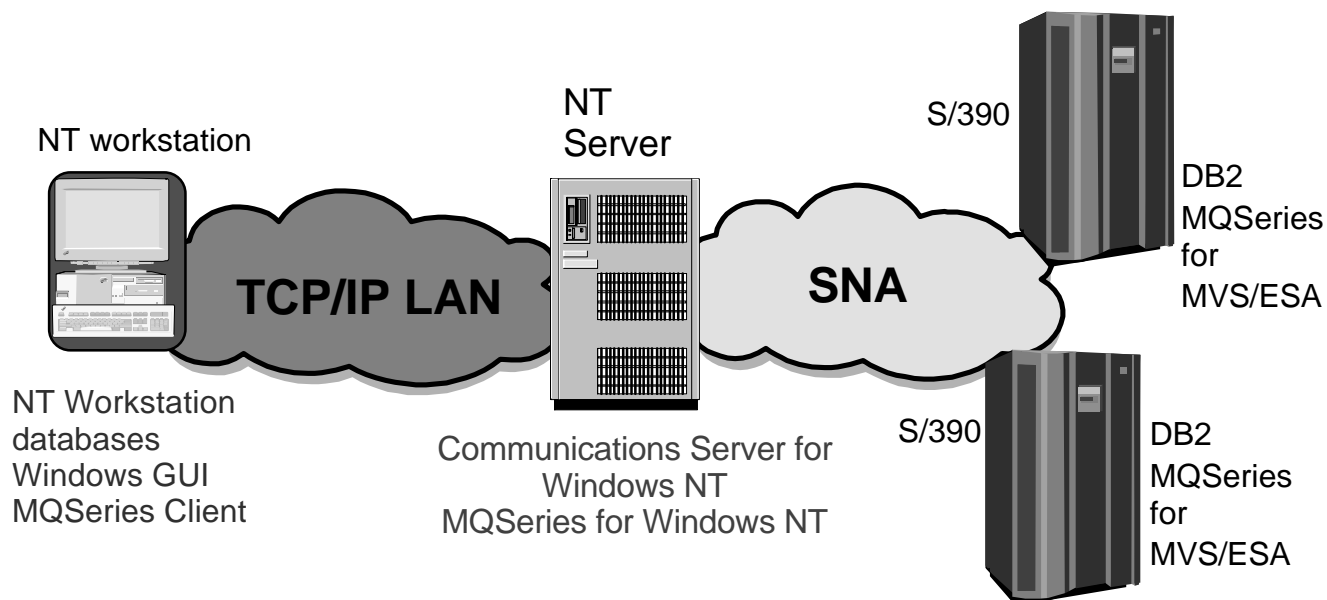
*DB2 Connect Enterprise Edition is included with this product for a 60 day trial period

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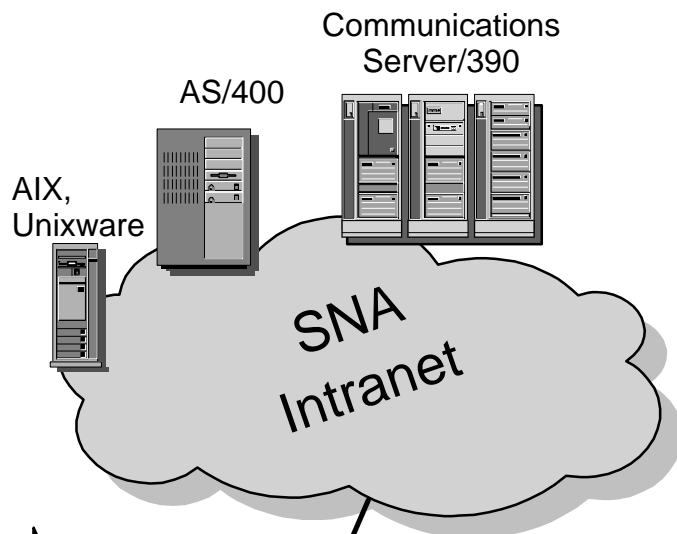


Communications Server and MQSeries - Finance Industry Pilot Scenario



- MQSeries used between DB2 mainframe databases and distributed data on a remote Windows NT workstation
- Windows GUI on the workstation to exchange data with the mainframe
- SNA communication allows compression between the mainframe and remote site

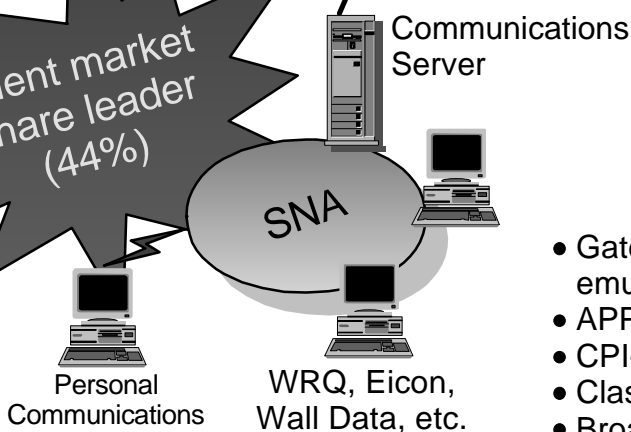
SNA Host Integration



Recognized industry leader

- Highest level of security
- Cost effective network utilization
- First to deliver new technologies
- Continued improvement of your current investment

Client market share leader (44%)



- Gateway for 3270/5250 terminals and emulators
- APPN / HPR / DLUR support
- CPI-C, LUA and APPC support
- Class of service, data compression
- Broad range of connectivity options

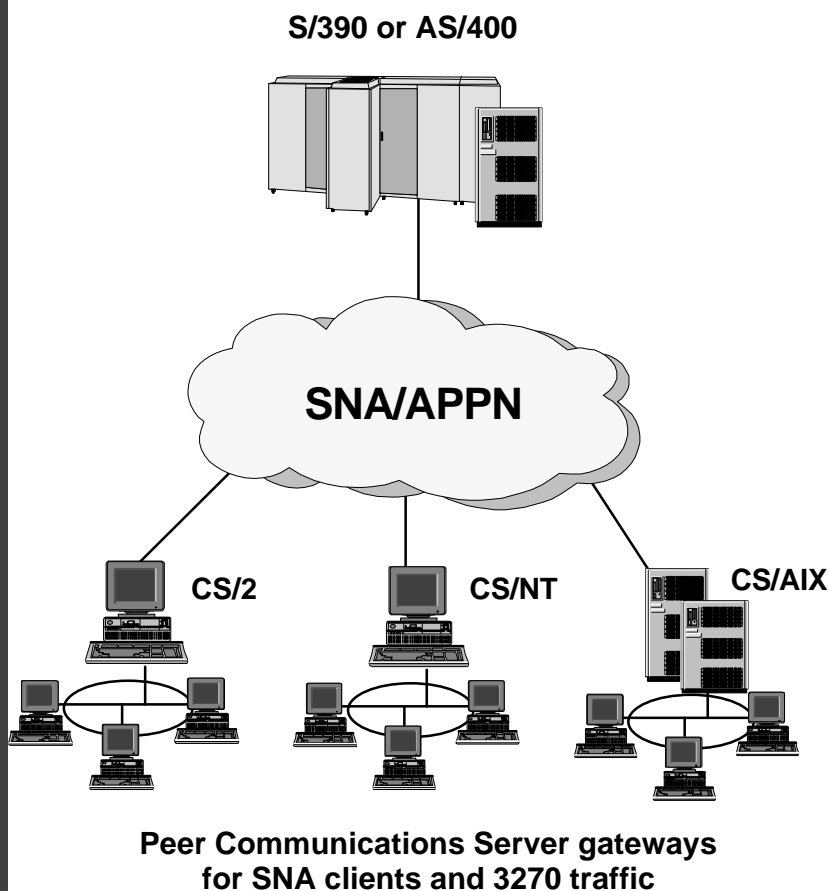
Proven reliability for mission critical applications (20+ years)

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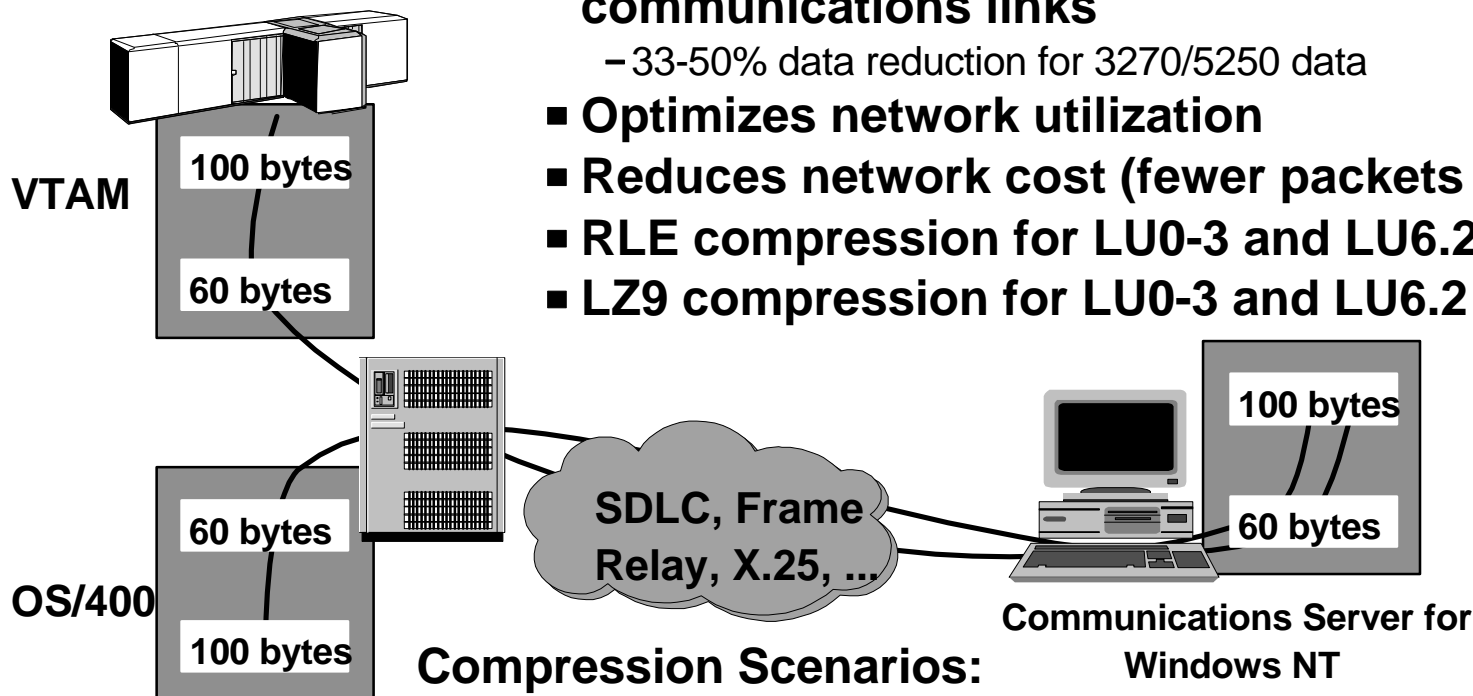
Communications Server for Windows NT SNA Function



- Industrial strength server with premier SNA, APPN, HPR functions
- SNA Gateway
 - Full peer to other Communications Servers
 - Discovery server
 - SNA data compression/encryption
- APING and AFTP support
- APIs
 - LUA RUI and SLI, CPI-C, APPC, jCPI-C, Host Access Class Library
- Load balancing across servers and host links
- Wide range of connectivity
 - 802.2 for LAN (Ethernet, Token Ring, etc.)
 - SDLC - point to point and multidrop
 - X.25 - including X.32
 - Asynchronous - SNA-A and AutoSync
 - Twinaxial
 - Frame Relay
 - ISDN
 - AnyNet SNA/IP or Sockets/SNA
 - Channel attachment (MPC support)
 - Full SNA with APPN and HPR

More Effective Utilization of Available Bandwidth - Data Compression

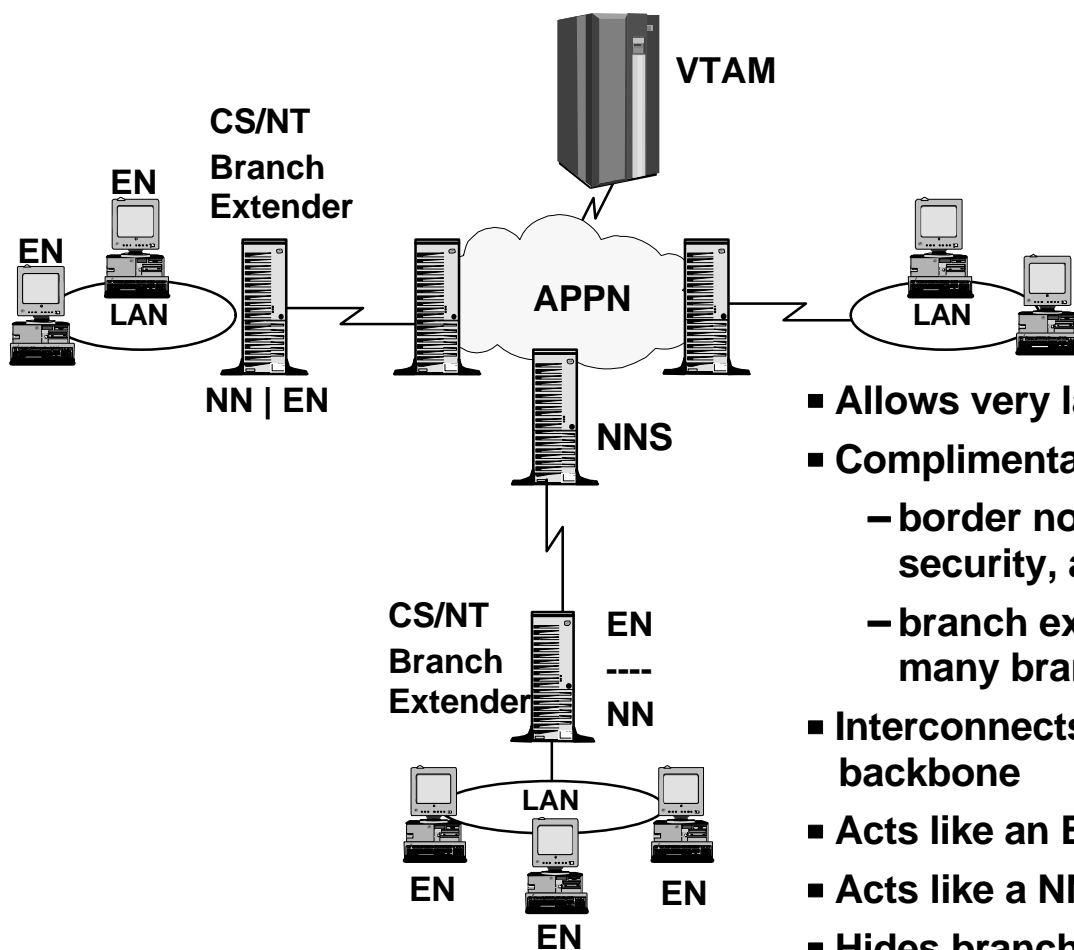
- Increases throughput of data across communications links
 - 33-50% data reduction for 3270/5250 data
- Optimizes network utilization
- Reduces network cost (fewer packets sent)
- RLE compression for LU0-3 and LU6.2
- LZ9 compression for LU0-3 and LU6.2



Compression Scenarios:

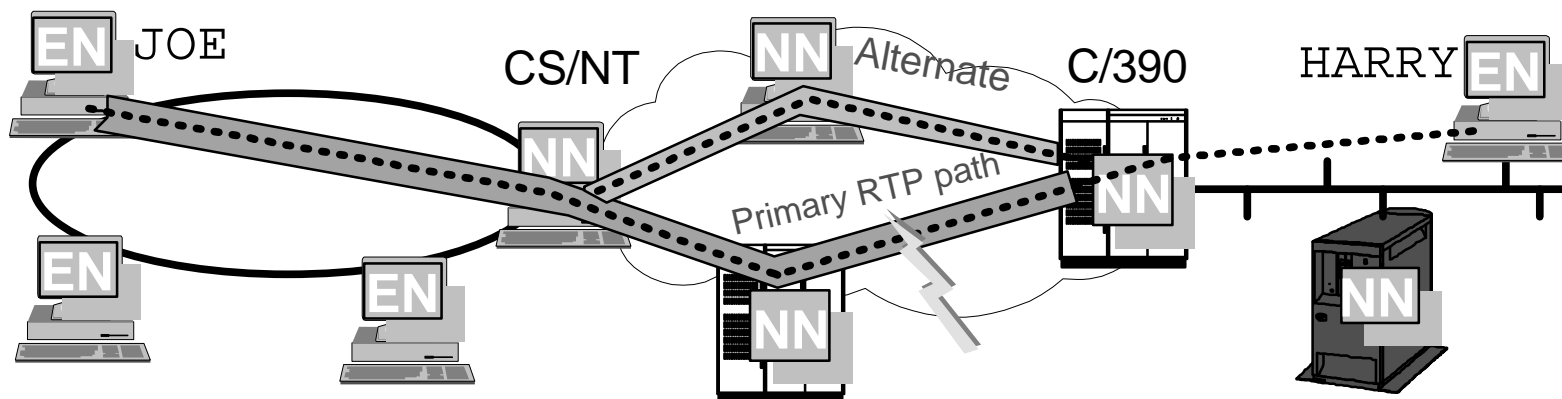
- SNA Gateway
- LU6.2 appl (DB2, Transaction Server, MQSeries)
- SNA API or TN3270E/TN5250 clients

Branch Extender for Large APPN Networks



- Allows very large APPN networks
- Complimentary to border node:
 - border node for large internets requiring security, accounting
 - branch extender for large intranets with many branches
- Interconnects branch offices to APPN WAN backbone
- Acts like an EN to APPN backbone
- Acts like a NN server to LAN workstations
- Hides branch topology from WAN reducing WAN traffic

High-Performance Routing



HPR Advantages

- ★ Better performance with Rapid Transport Protocol (RTP)
 - End-to-end error checking only
- ★ Lower overhead with Automatic Network Routing (ANR)
 - Source routing reduces storage and increases speed
- ★ Non-disruptive session rerouting around failures
 - New RTP path recalculated in case of interruption
- ★ Full APPN (pre-HPR) compatibility

"HPR is the most efficient and highest level of the protocol stacks..."

Frank Dzubeck, LAN Times, March 1996

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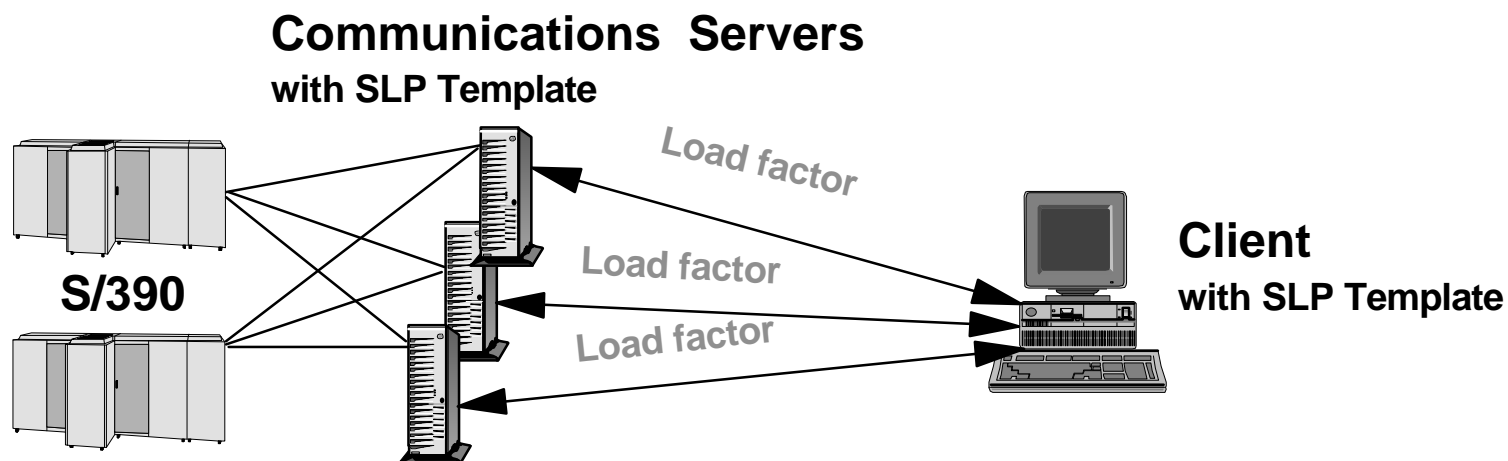
Availability, Reliability, and Security

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Load Balancing



- **Load balancing provided for client types:**
 - QEL/MU (Novell NetWare clients)
 - Telnet (TN3270E & TN5250)
 - SNA API client support (split-stack)
- **Utilizes Service Locator Profile protocol (RFC 2165)**
 - Same protocol used for NetWare for SAA
- **Requires SLP-capable client**
 - IBM Personal Communications (1Q99)
 - Zephyr Development Corp. PASSPORT family (soon)
 - Other vendors to follow

Load Balancing (continued)

- **Server load calculated via "load metric"**
 - Two values per server
 - LU0-3 value (for QEL/MU, TN3270, & SNA API clients)
 - LU6.2 value (for TN5250, SNA API/APPC clients)

- **Clients and servers utilize advertisement template (defines criteria for available server)**
 - Service TYPE
 - TN3270, etc
 - Attributes
 - Pool Name
 - Load Value
 - Device Types

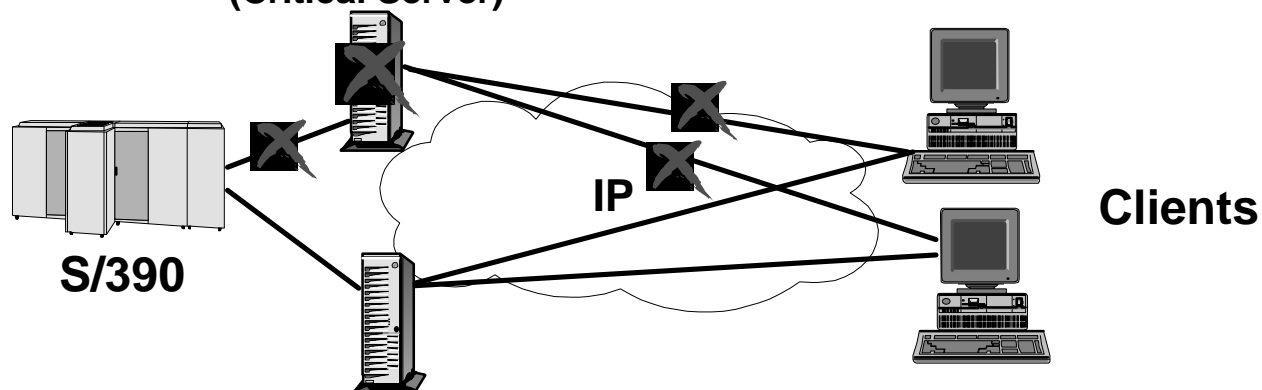
- **Clients send multicast to all servers to determine their load**
 - Based on advertisement template

- **Load Factor calculated on per session basis**
 - Exception: client can cache load data and reconnect to same server

Hot Standby

Communications Server for Windows NT

(Critical Server)



Communications Server for Windows NT

(Backup Server)

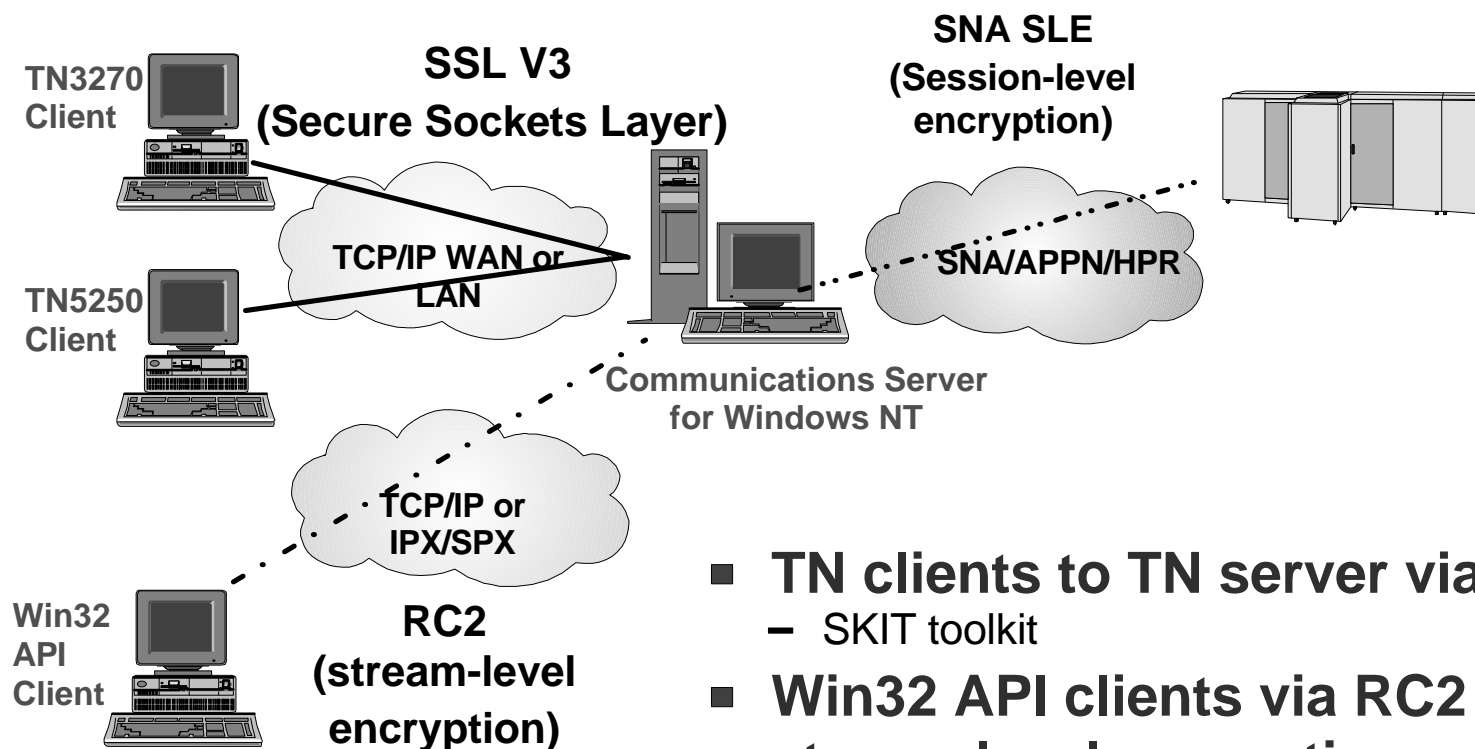
- Communications Server configured as backup server to one or more primary critical servers
- Applicable to TCP/IP environment only
- Backup server fully configured and active in network
- Backup server proactively polls critical server(s) to detect outage
- Backup server will automatically activate backup connections, host links, etc.
- Clients must reconnect after network outage
- User licensing is transferred from critical server to backup server

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Security enhancements: SSL, RC2, SLE



- **TN clients to TN server via SSL**
 - SKIT toolkit
- **Win32 API clients via RC2 stream-level encryption**
 - BSAFE SDK and libraries
- **Upstream to SNA host via SLE**
 - requires 4758 adapter and software

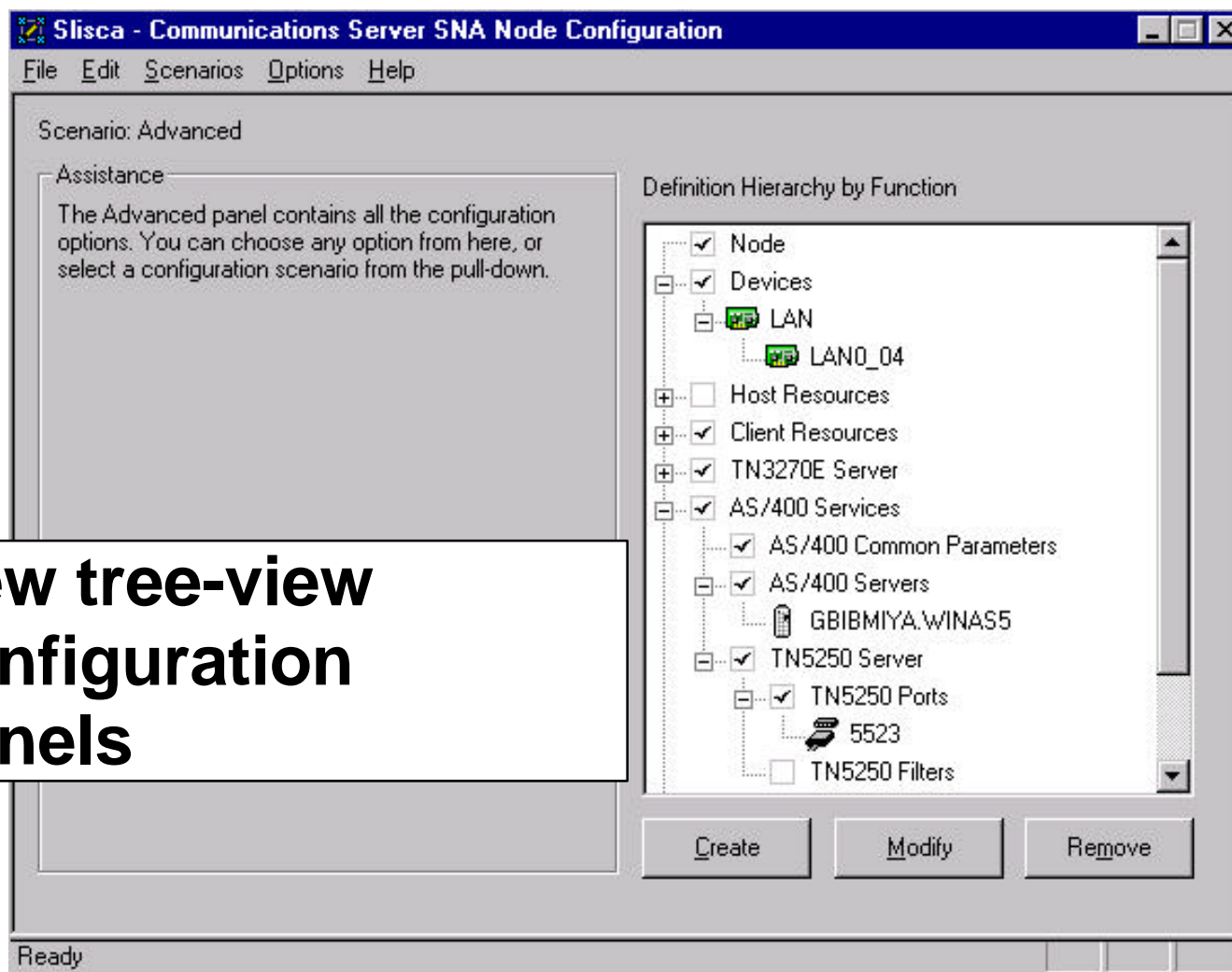
Development and Support Tools

- **Sophisticated programming interface supporting a rich set of 32-bit APIs including:**
 - CPI-C
 - jCPI-C
 - APPC
 - Conventional LU Application Interface (LUA) RUI and SLI
 - EHNAPPC
 - Host Access Class Library (HACL)
- **Tools and advanced tutorials to simplify configuration and systems management**
- **Web-based server administration through an easy-to-use graphical interface**

Middleware

- **eNetwork Host Access Class Library (HACL) API**
 - ▶ Java API for platform-independent applications to access host information in 3270 or 5250 applications
 - ▶ Installable on the server and on Win32 API clients
 - ▶ Applications can be run by any Java-capable client on any platform
- **Java CPI-C**
 - ▶ Java API for platform-independent applications to access host information via SNA LU6.2 connection
 - ▶ Provides bindings allowing a Java application to use an SNA network
- **APPC and CPI-C**
 - ▶ Industrial strength client-server LU6.2 applications between all platforms
- **LUA (RUI and SLI)**
 - ▶ Low level programming for LU 0, 1, 2, 3
- **System Management (NOF)**
 - ▶ SNA system resource administration
- **Common Services**
 - ▶ Common functions such as translation, traces, message logging, etc.

Tree-view administration & configuration



New tree-view configuration panels

Tree-view administration & configuration



Name	Value
Routing tree cache use limit	100
SNA Clients	Active
Store DLUR RSCVs	No

Name	State	Sub-state
LKWINAS5	Inactive	Reset

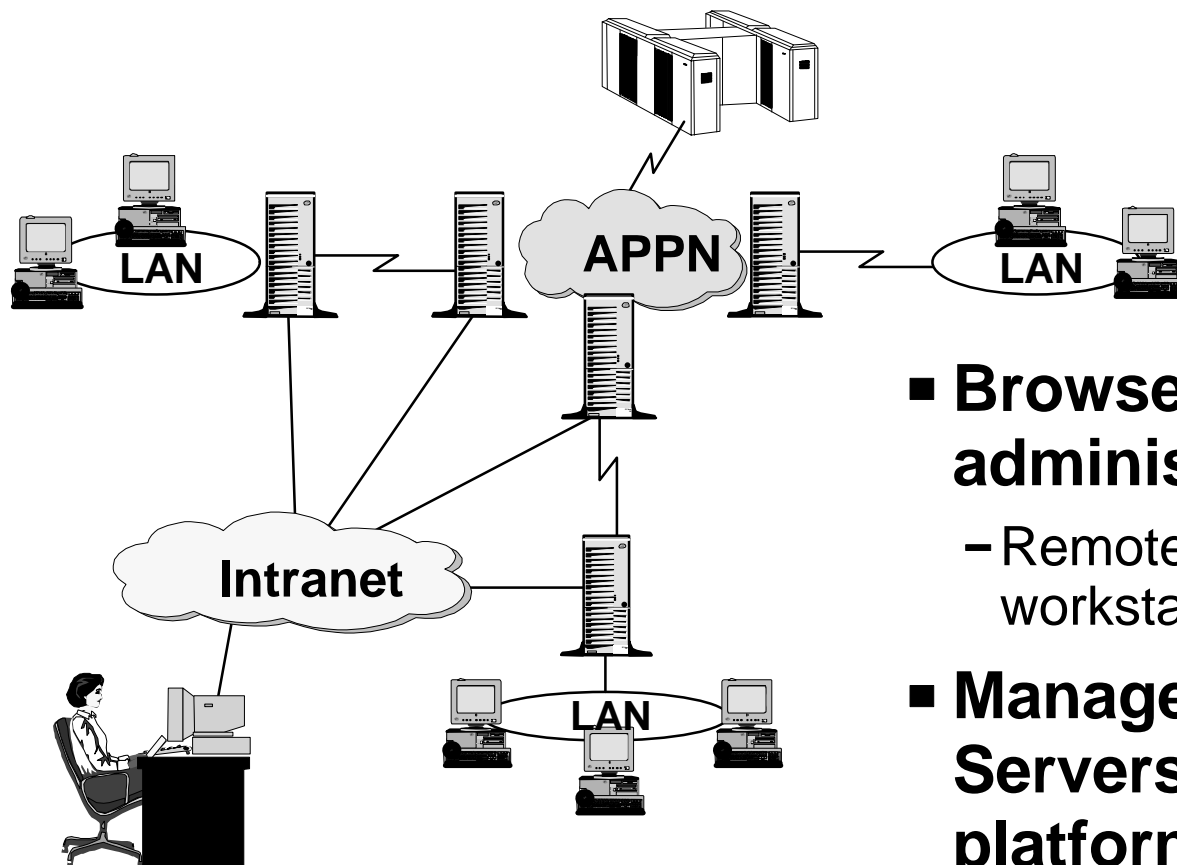
**New tree-view
node operations**

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Web Based Administration



- **Browser based administration**
 - Remote from any workstation
- **Management of Servers on multiple platforms**
 - AIX, OS/2, NT, NetWare

All-in-One Packaging



- All product files
- Clients for remote SNA API support
- Entry PCOMM emulator for server administration
 - 3270 and 5250 Entry Level Emulation
- Development tools, APIs, and samples
- Complete online documentation
- Host Publisher
- Host On-Demand V2.0 Restricted License
- Web Administration
- Remote server administration client
- Hot buttons for Communications Server Web pages

***Single CD-ROM for server and client installation.
All from one integrated graphic interface.***

Bonus CD includes DB2, CICS, and MQSeries clients!!!

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Pre-requisite Hardware and Software

Communications Server for Windows NT

- Hardware
 - Will run on hardware required by MS Windows NT Server V4.0 or later
 - Recommendation: Intel Pentium, 100 MHz CPU, 32 MB of RAM, 75 MB of hard disk
 - Ultimately, hardware required will depend on network environment and may be greater than recommendation
- Software
 - MS Windows NT Server 4.0 or later
 - MS TCP/IP and/or IPX/SPX (SNA API clients)

Remote Admin Client Pre-Reqs

- Hardware
 - Will run on hardware required by MS Windows NT
- Software
 - MS Windows NT Workstation or Server
 - MS Windows NT Server 3.5.1
 - MS Windows NT Server 4.0

SNA API Clients Pre-Reqs

- Hardware
 - Will run on hardware required by base operating system
- Software
 - OS/2 3.0 (Warp) or above
 - MS Windows 3.1.1 or above and TCP/IP
 - MS Windows 95 with service packs 1 & FIX Q128336
 - MS Windows NT Workstation or server
 - MS Windows NT Server 3.5.1 with Service Pack 4 or above
 - MS Windows NT Server 4.0 (Service Pack 3 recommended)
 - TCP/IP and/or IPX/SPX to communicate with CS/NT Server

Capacity Planning

Description	Design (Sessions)
SNA Gateway	255 Per PU PUs - No limit
TN3270E and TN5250 Server	30,000
APPN Network Node	No limit
SNA/IP Gateway	10,000
Sockets/SNA Gateway	2,048

Communications Server Competitive Advantages

- **Host Publisher**
 - Web-to-Host Publishing
- **Powerful SNA gateway**
 - Most competitive SNA implementation and best performance
 - APPN, High-Performance Routing and DLUR
- **Premier multiprotocol support**
 - Full range of network integration capability
- **Supports Web browsers, Lotus Notes and the Internet access over SNA**
- **Support for legacy applications and LAN applications on an TCP/IP network**
- **Single vendor for total networking solutions across OS/2, AIX, Windows NT, OS/390 and NetWare**
- **Proven reliability and performance in large-scale enterprise environments**
- **Out performs the competition where it counts**
- **Investment protection with network integration and API support. Communications Server delivers what your business needs... today and tomorrow**

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eNetwork Communications Server Technology Highlights

Industry-leading SNA support:	CS/2	Windows NT	CS/AIX	OS/400	NetWare	CS/MVS
3270 SNA gateway	X	X	X	X	X	N/A
APPN EN and NN function	X	X	X	X	X	X
HPR intermediate routing	X	X	X	X	X	X
HPR connection endpoint	X	X	X		X	X
3270 support over APPN (DLUS/R)	X	X	X	N/A	X	X
Branch Extender	X	X				X
Multiprotocol support:						
TN3270E server	X	X	X	N/A	X	X
TN5250 server		X	X		X	N/A
Enterprise Extender		X				X
Sockets over SNA access node	X	X	X	X		X
APPC over TCP/IP access node	X	X	X	X		X
SNA over TCP/IP access node	X	X				X
Sockets over SNA gateway	X	X	X		X	
APPC over TCP/IP gateway	X	X	X			X
SNA over TCP/IP gateway	X	X				X
IPX over SNA gateway	X				X	
IPX over TCP/IP gateway	X					
NetBIOS over SNA gateway	X					
NetBIOS over TCP/IP gateway	X					

For more information

URL	Content
http://www.software.ibm.com/enetwork	eNetwork Software
http://www.software.ibm.com/enetwork/commserver	eNetwork Communications Server
http://www.networking.ibm.com/ene/idc2_forecast.html	IDC Worldwide SNA Gateway Review and Forecast
http://www.software.ibm.com/enetwork/ondemand	Host On-Demand
http://www.software.ibm.com/enetwork/pcomm	Personal Communications
http://www.software.ibm.com/enetwork/mobile	Wireless
http://www.software.ibm.com/enetwork/technology	Network Technologies

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