IBM eServer J iSeries J

Session: 450041

Accessing Windows Files

The QNTC File System

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Session Objectives

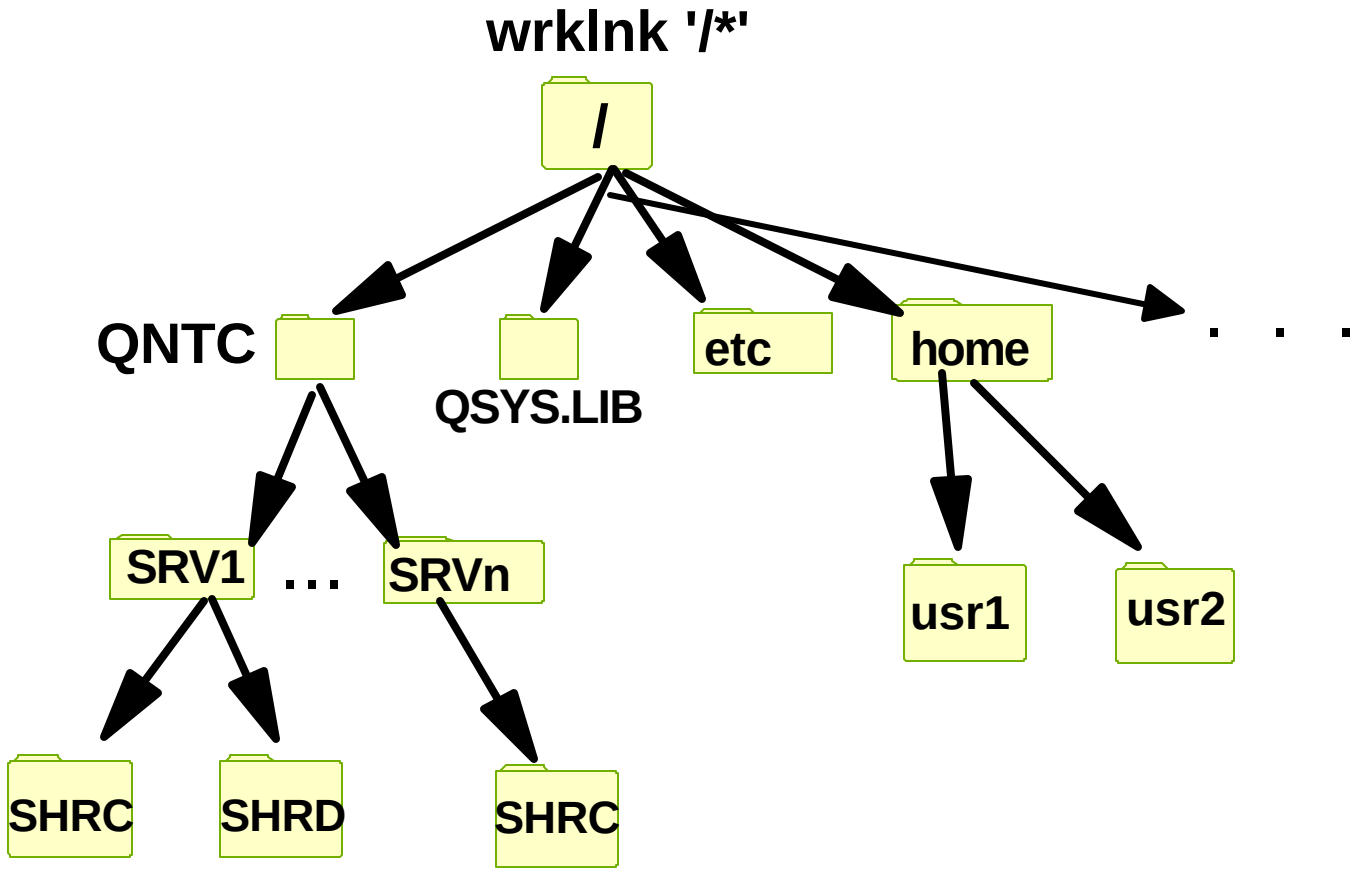
- Be able to define QNTC and how it fits into the iSeries IFS.
- Learn how QNTC is being used on the iSeries.
- Learn to configure an iSeries for QNTC.
- Learn how to improve QNTC performance.
- Learn how to debug common QNTC data access issues.

Agenda

- IFS and the QNTC file system
- What are companies doing with QNTC
- Configuration
- Security
- Tips / Troubleshooting

iSeries NetClient - QNTC

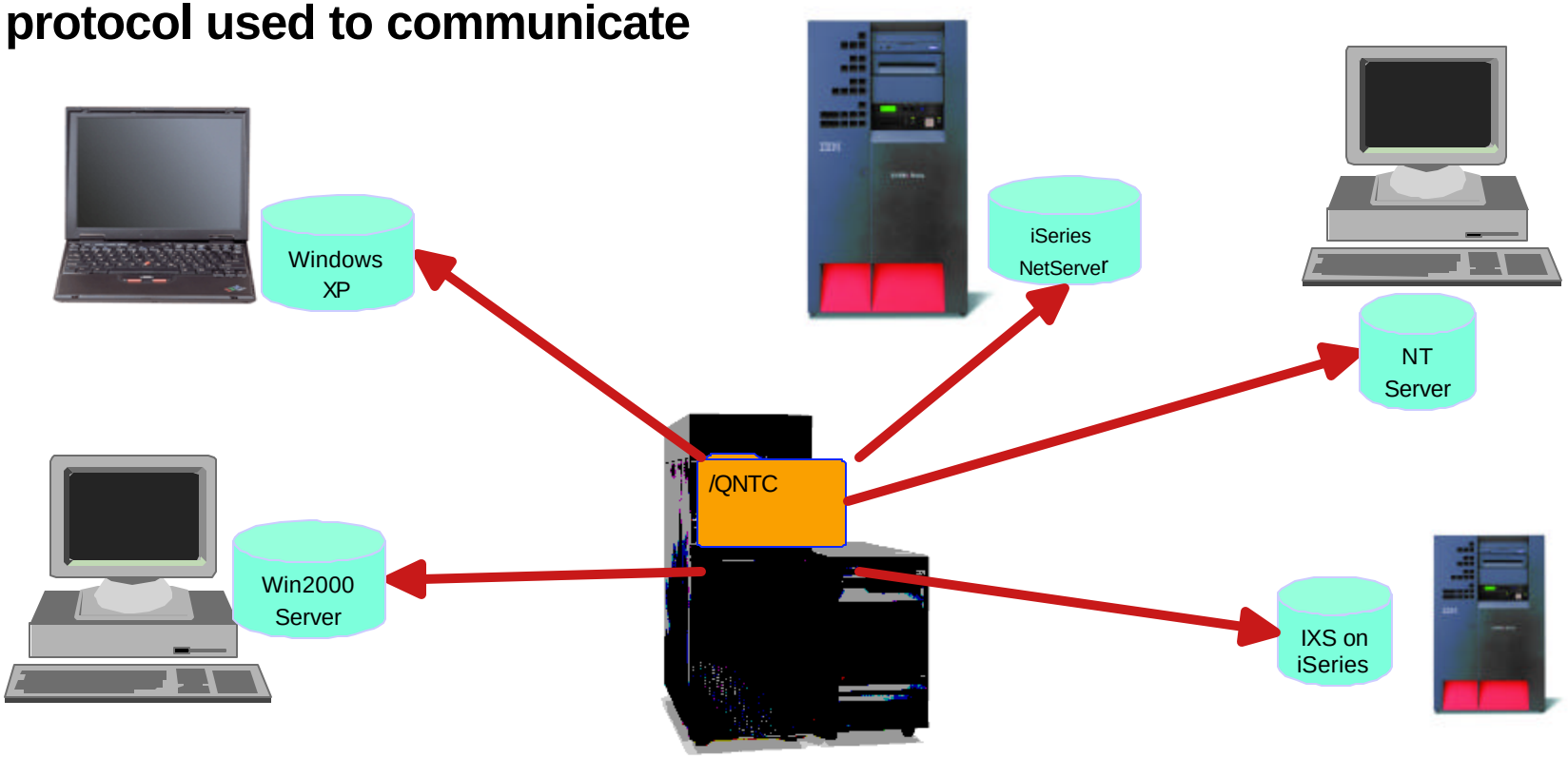
What a QNTC user will see:



iSeries NetClient - QNTC

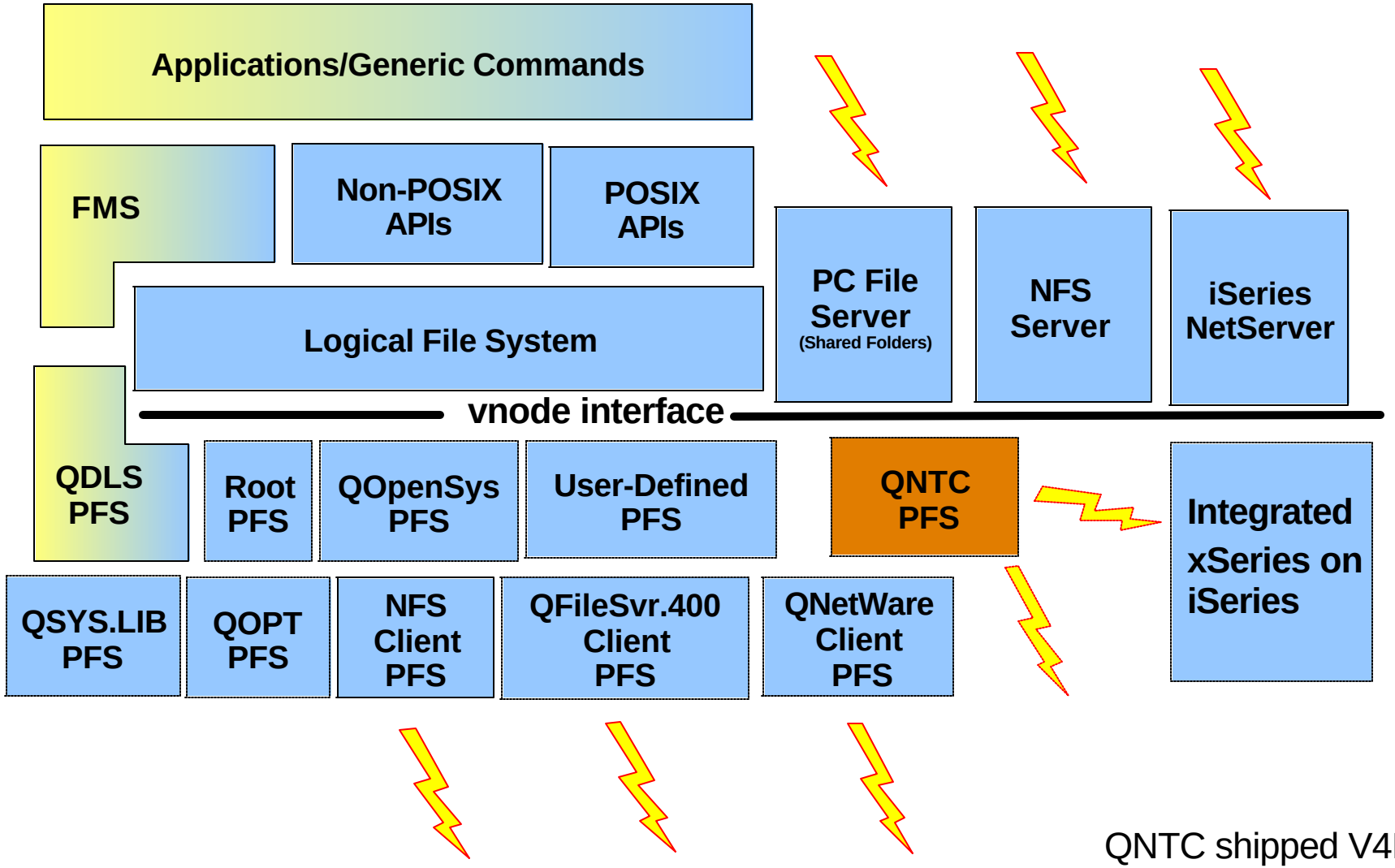
File share access to network data via CIFS

- **Windows / iSeries Netserver servers have shared resources defined**
- **QNTC maps the shared file resources into the iSeries file space**
- **cifs protocol used to communicate**



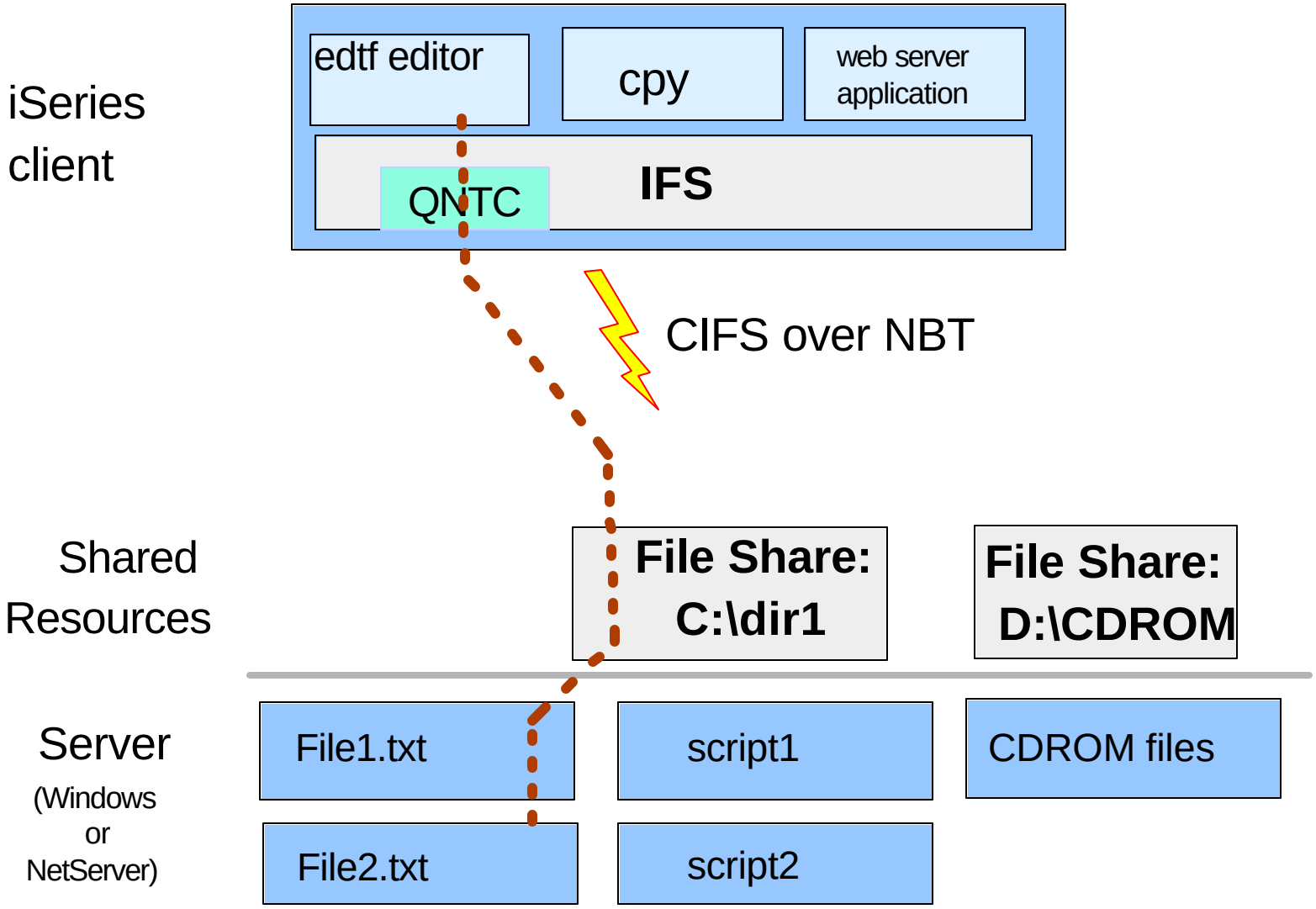
Integrated File System - iSeries NetClient

Internal Structure

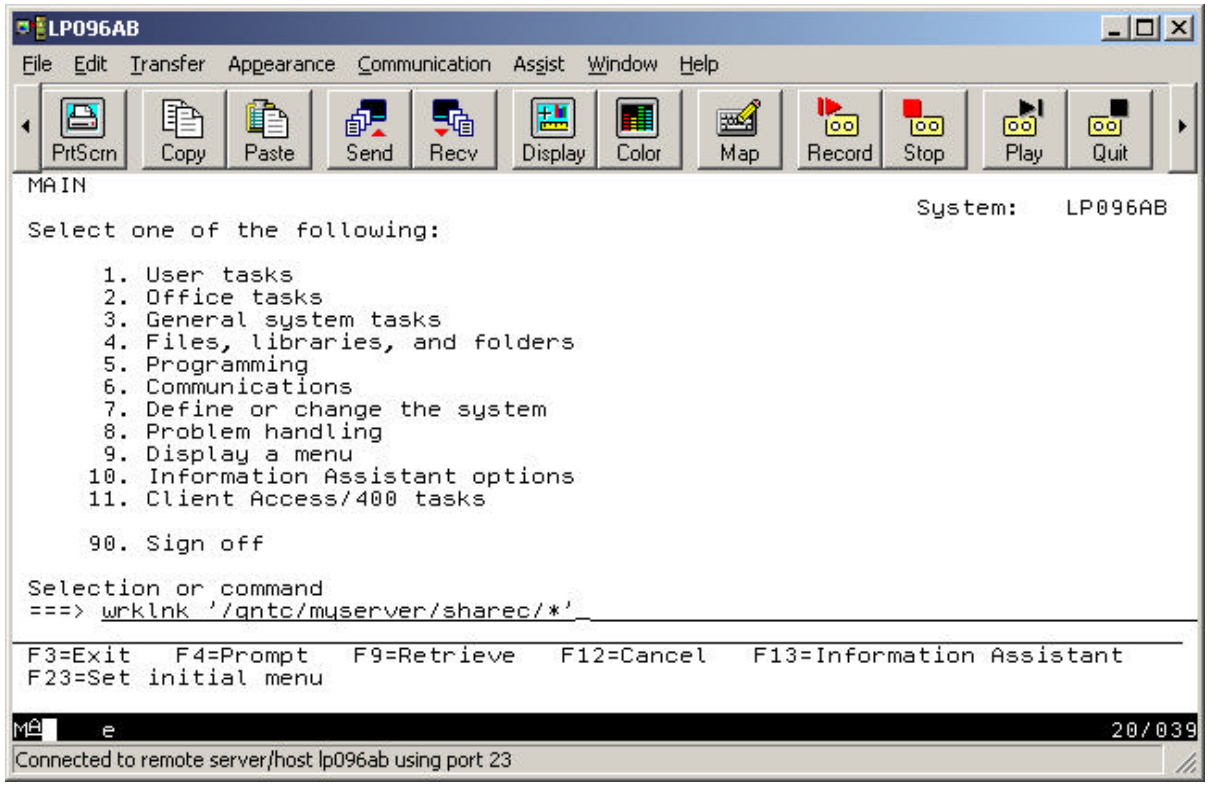


QNTC shipped V4R3

Example client/server request



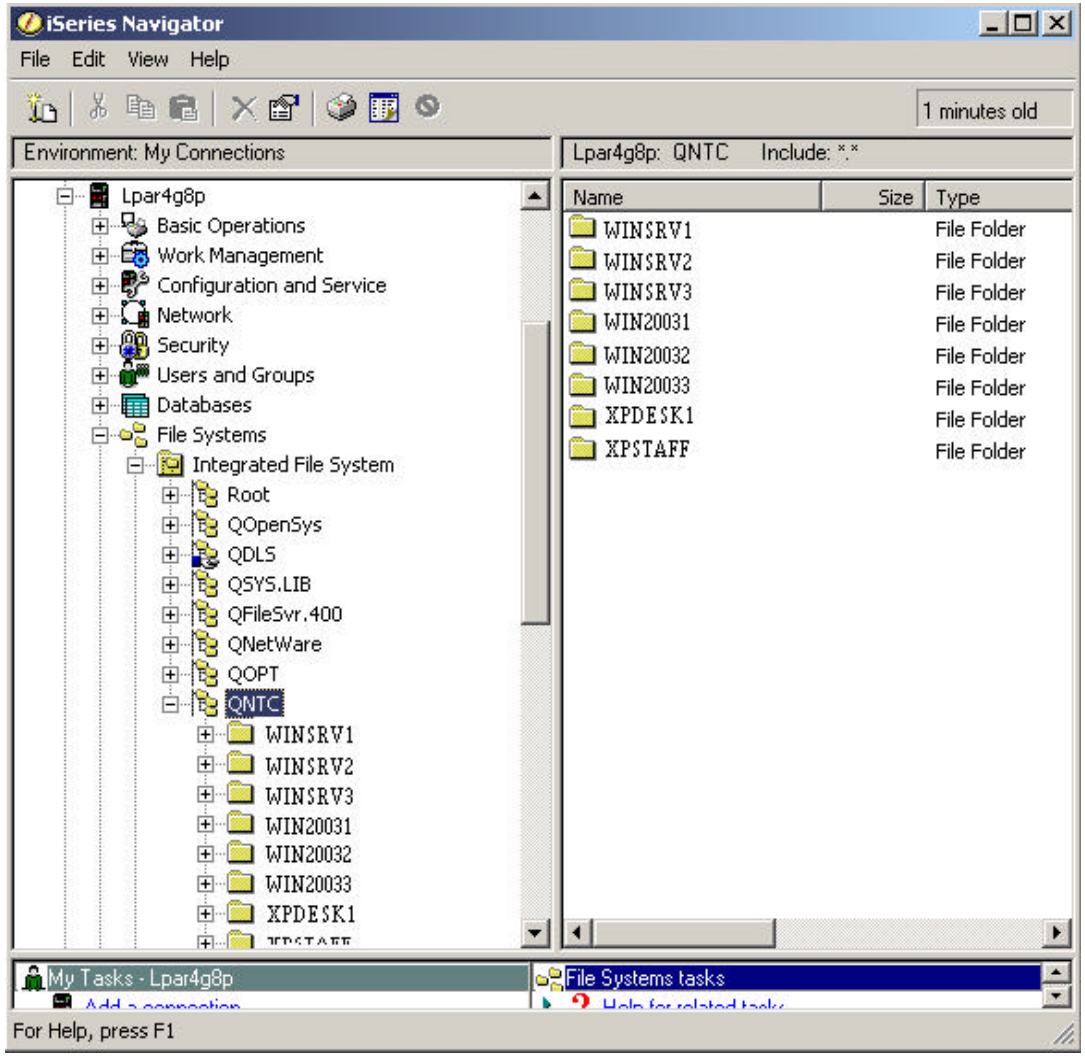
Accessing QNTC - 5250 session



Some other ways to use QNTC:

- wrklnk
- cpytostmf
- sav / rst
- APIs

Access QNTC - iSeries Navigator



Uses for QNTC

Using QNTC: iSeries Example

Save Integrated File Server Data

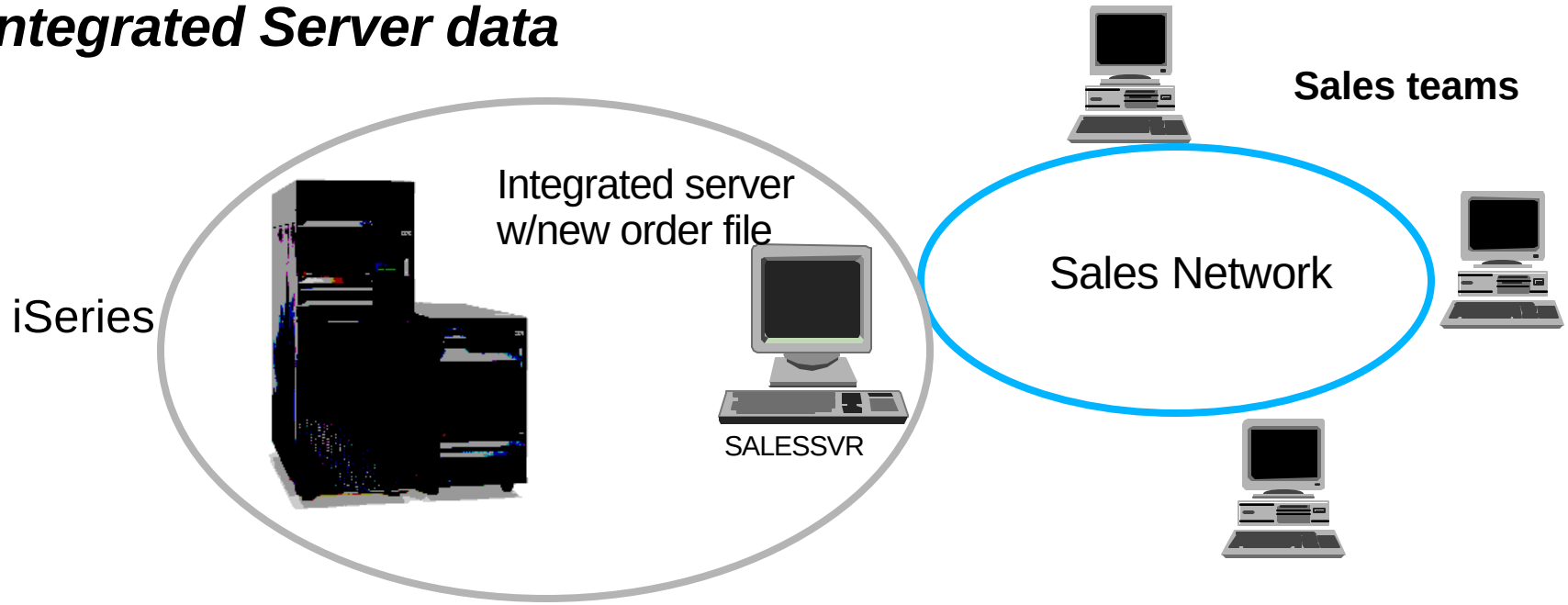
Business Problem

Multiple sales representatives input orders through an application that stores the data in a database on the Sales department's Windows 2003 Server. To protect this important data it needs to be saved on an hourly basis.

Every night the iSeries system is backed up to a tape library.

QNTC: iSeries NetClient Example

Saving Integrated Server data




```
SAV   DEV('/QSYS.LIB/JUL2003.LIB/SALES013.FILE')
      OBJ(('/QNTC/SALESSVR/DDRIVE/OPTOINC/SALES.123'))
```

IFS root

File system

Server

File Share

File Path/Name

QNTC - Other Customer Scenarios

- Move data to xSeries so applications have local access to the data
- iSeries applications access to data stored on xSeries server.
- SAV / RST applications with integrated servers
- Store iSeries database data remotely

Configuring QNTC

QNTC Configuration

Prerequisites for using QNTC support

- iSeries NetServer must be configured and active.
- Servers must have NetBios over TCP/IP configured.
- iSeries users that will be using QNTC must have a Windows user profile with the same name and password.
- Server names must be browsable by the NetServer in order to automatically appear in IFS.

QNTC Configuration

- No QNTC specific configuration !!!
- Dependent on the configuration of other products
  - iSeries NetServer
  - Server configurations
  - User profile synchronization
  - Network topologies

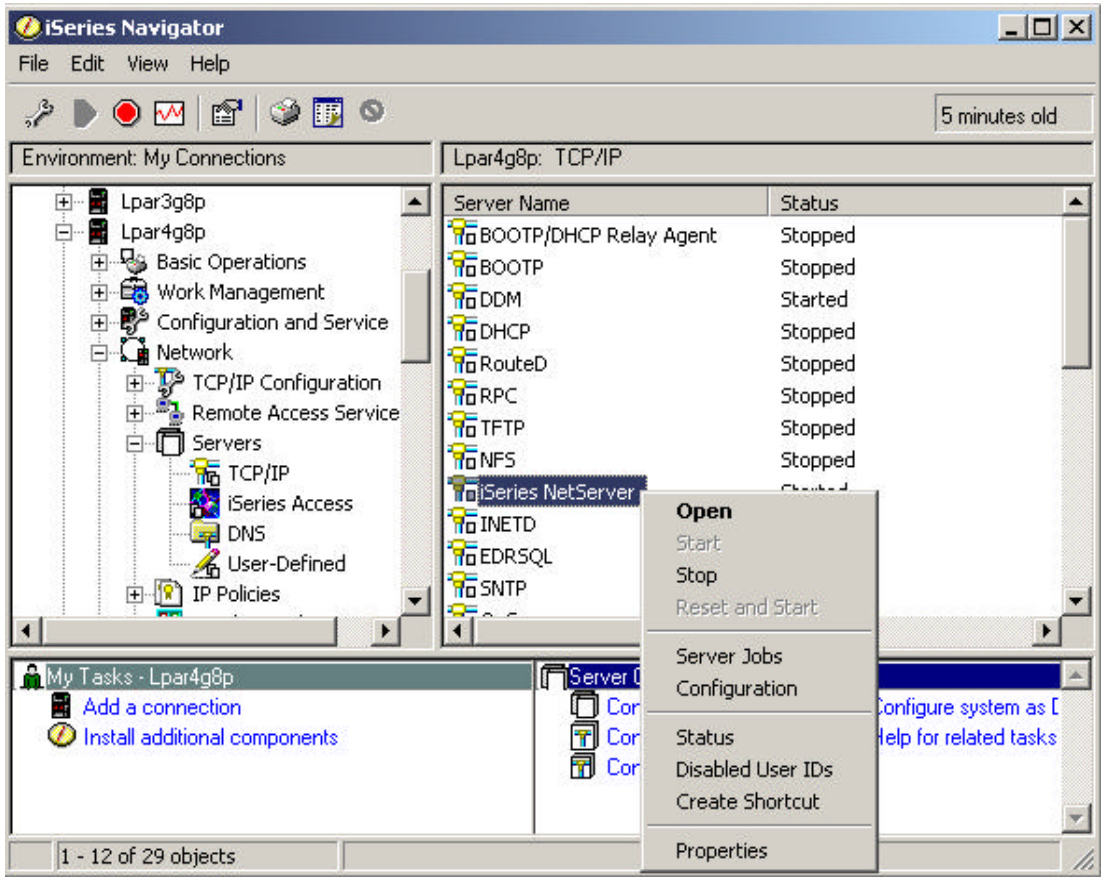
QNTC Configuration

What will show up in the QNTC directory?

- QNTC uses network browsers to build the directory
- Browsing = a method for locating resources within an organization
- Factors affecting browsing:
  - Master Browsers
  - Domain topology
  - Network topology
  - System configurations

Configuring QNTC

iSeries NetServer Configuration



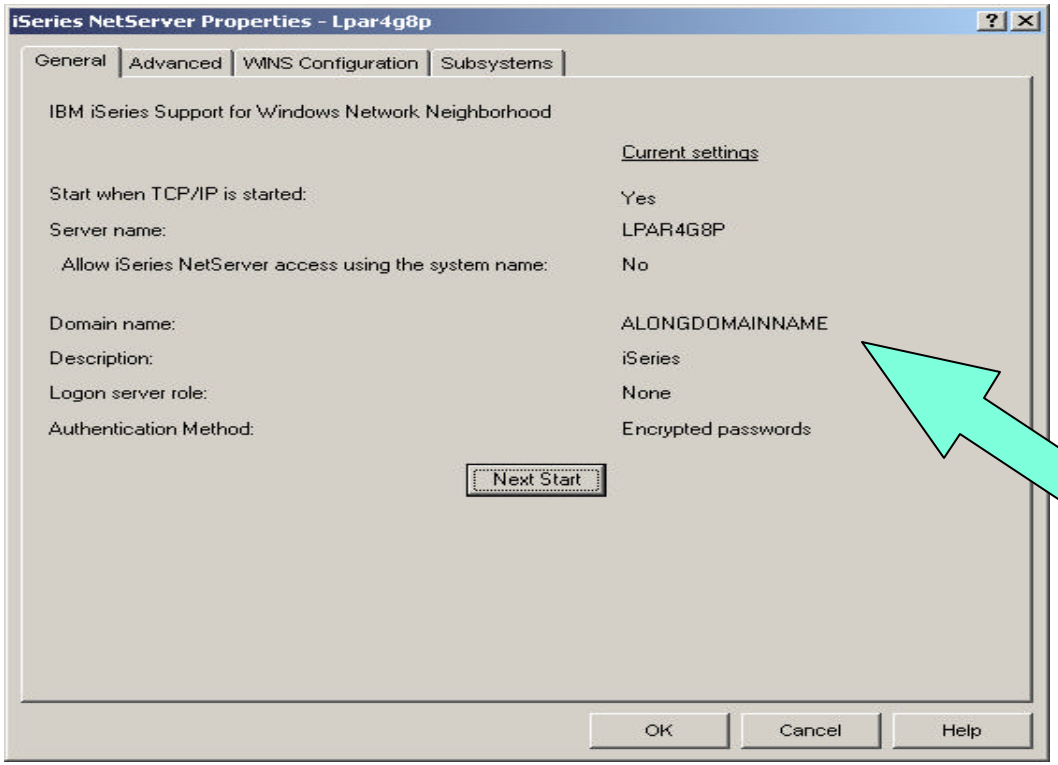
Configure iSeries NetServer using Navigator

Configuring QNTC

iSeries NetServer Configuration

iSeries NetServer must be configured then started.

For more info see 406170 - iSeries NetServer Setup and Usage



Domain will determine what appears in the /QNTC directory

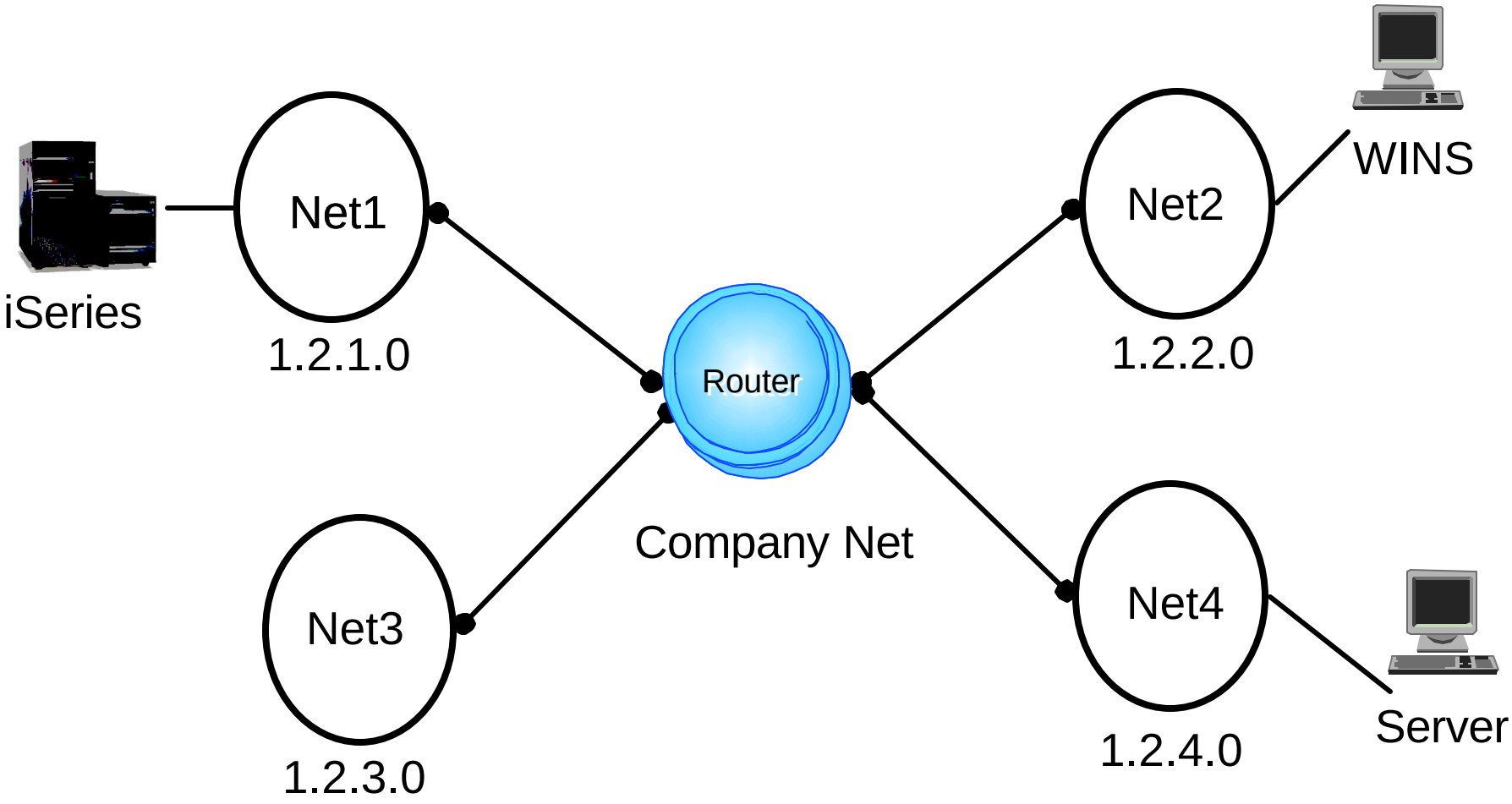
Configuring QNTC

Browsing for Server Names

- QNTC directory contents come from iSeries NetServer
- NetServer gets a list of Servers from a domain local browser
  - NetServer must be able to find a domain local browser
  - More than 1 domain local browser may exist
- WINS gives consistency across routed networks

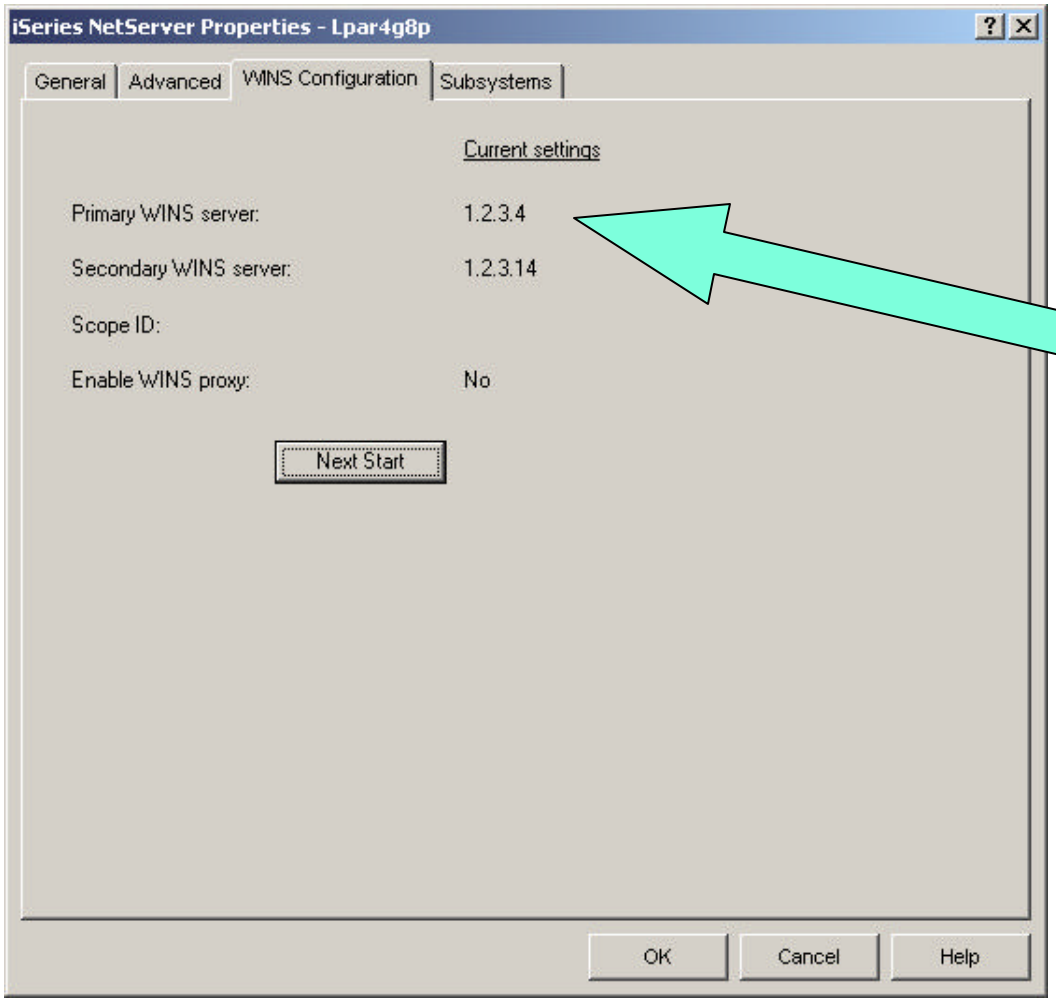
Configuring QNTC

WINS Configuration



Configuring QNTC

iSeries NetServer Configuration

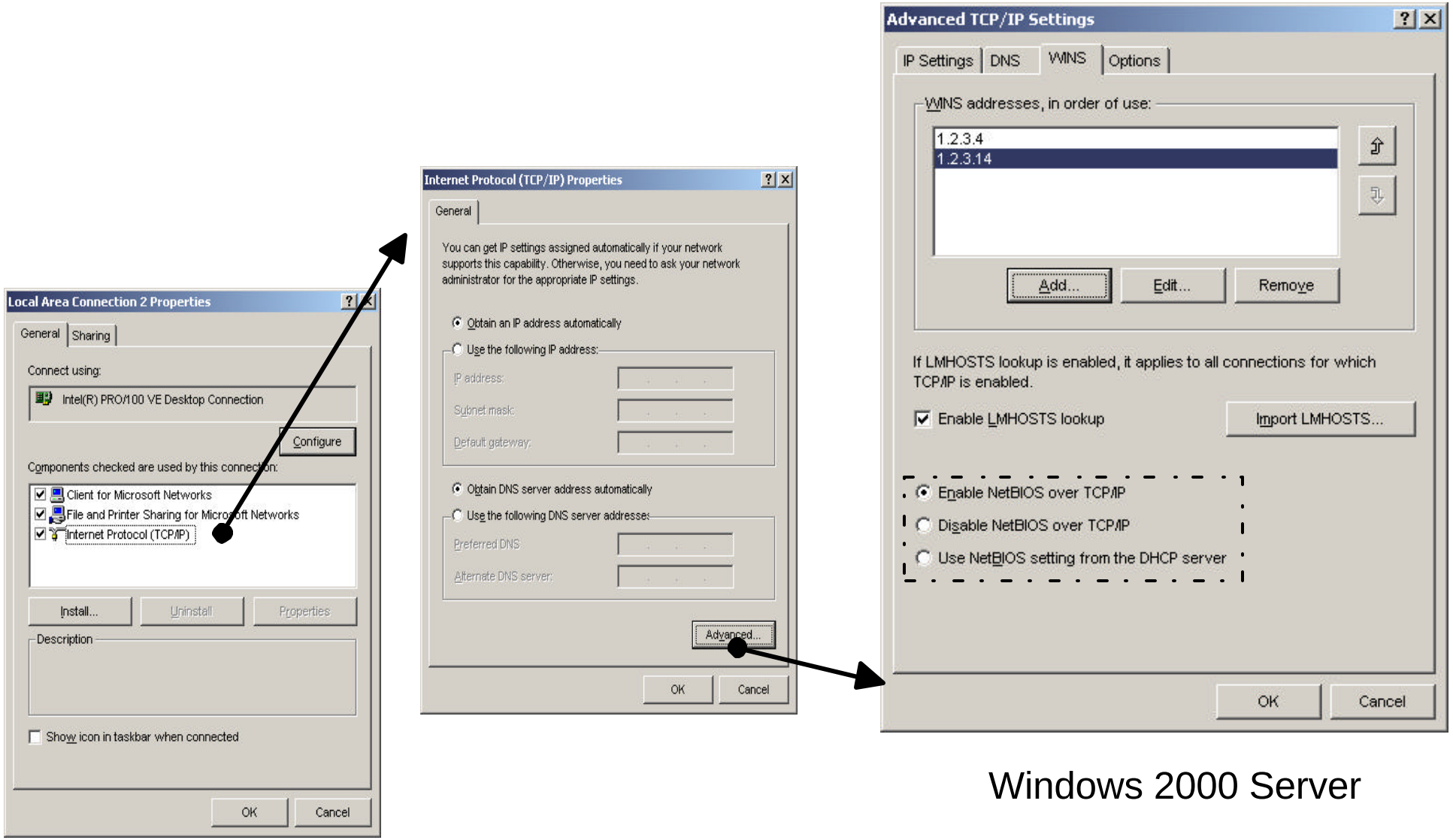


Determines which servers you will be able to access.

Use the same WINS Server as your Windows Domain Controller.

Configuring QNTC

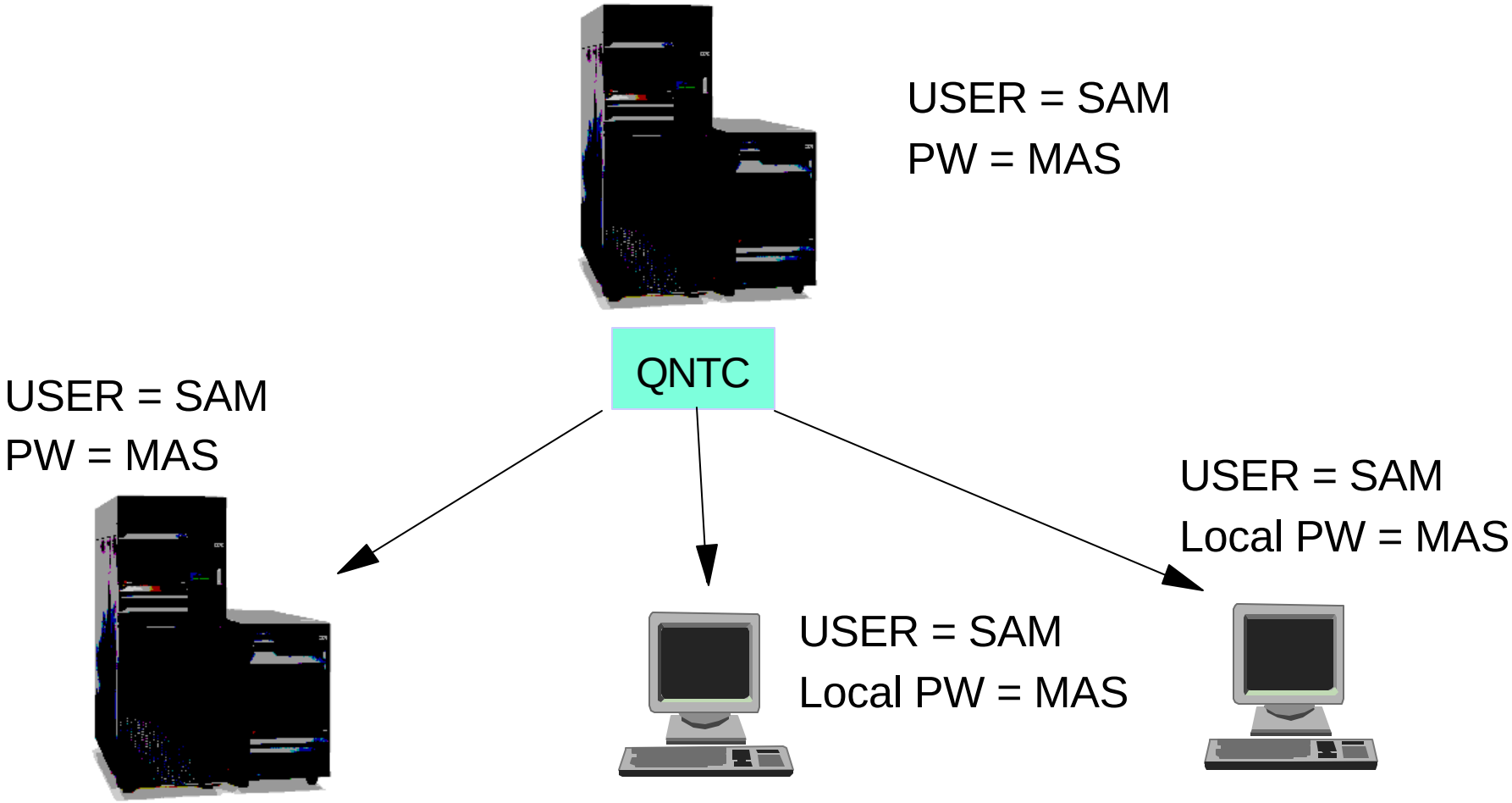
NetBios over TCP/IP configured on Server



Windows 2000 Server

Configuring QNTC

Passwords must be synchronized



Standalone Servers

Securing QNTC Data

QNTC - Security

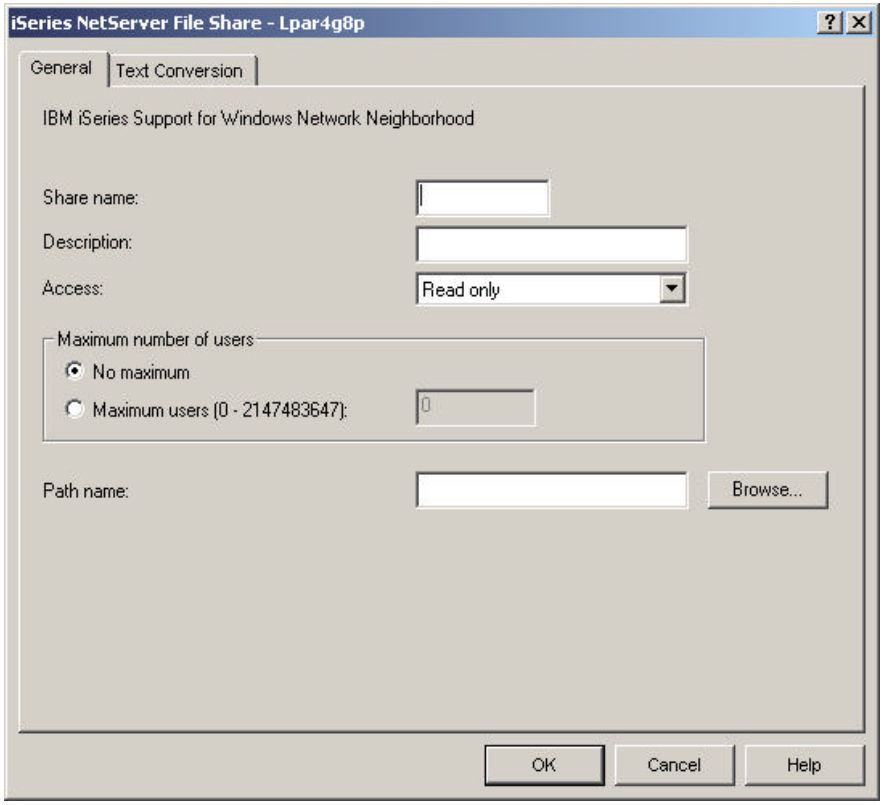
- QNTC subdirectories and files are distributed objects.
- Access to server data is controlled by the server (Windows or iSeries), not QNTC.
  - Share level security

    Defines the permission that a user has to the share.

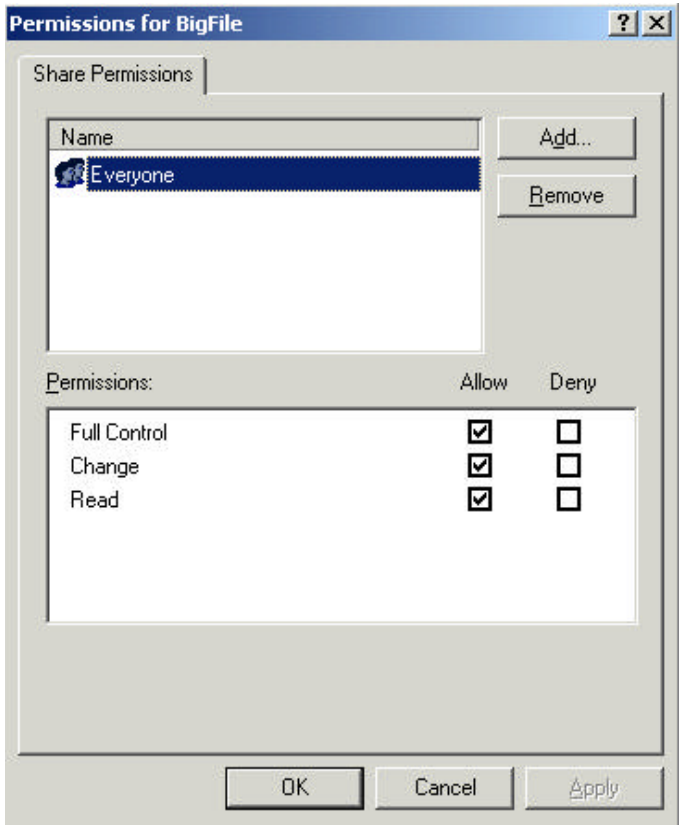
  - Object level security

    Defines the permission that a user has to the file or directory.

Security - Share permissions

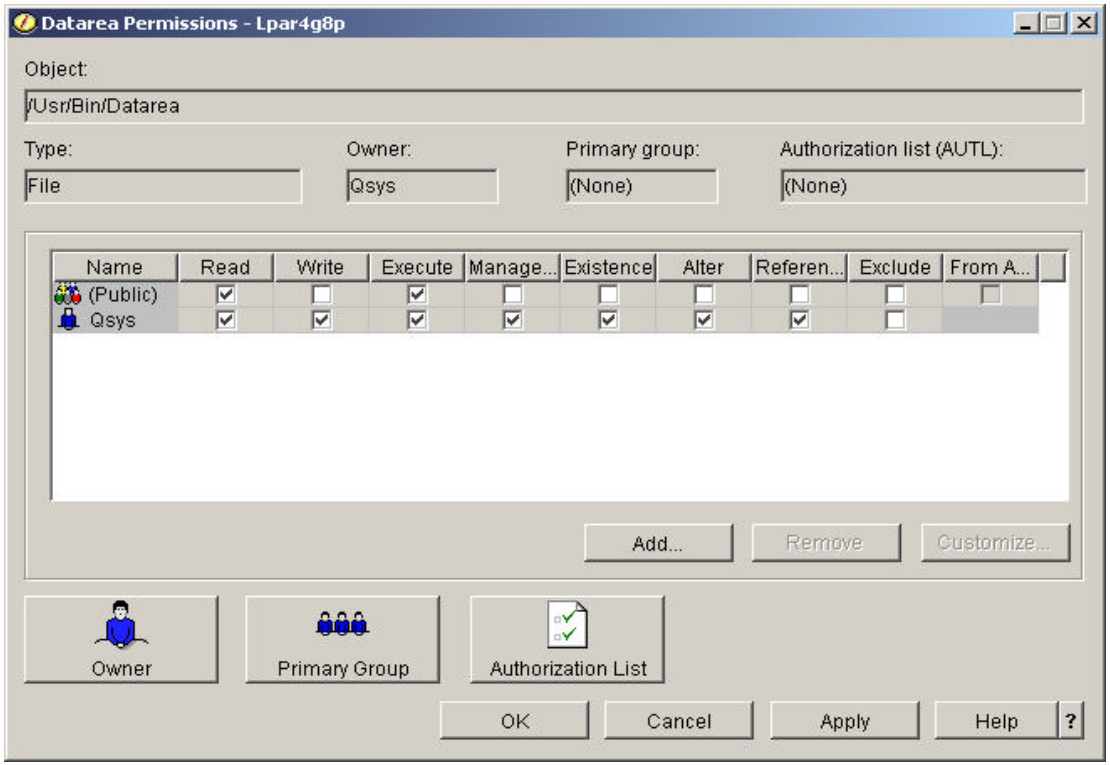


iSeries NetServer share access level

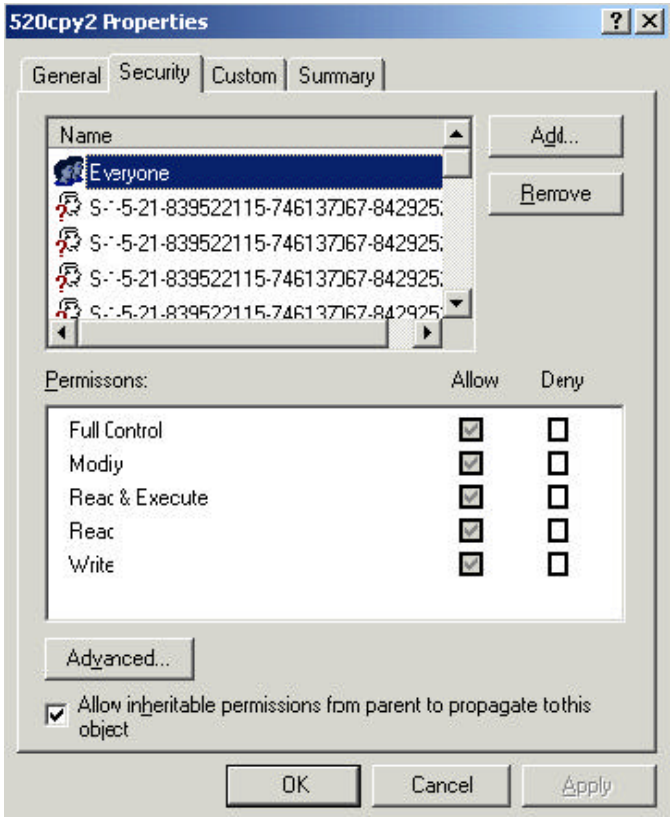


Win2000 share permissions

Security - object permission



iSeries object permisions



Windows file permissions

QNTC - Security

Security Tips

- Share only what you need to share
- Don't allow access to root level (/* or C:\ )
- Set appropriate permissions on shared files/directories
- Use Group Profiles to make managing access easier
- Use strong passwords

QNTC Tips and Troubleshooting

QNTC Tips

- Improve performance with environment variable
  - **`ADDENVVAR ENVVAR(QZLC_SERVERLIST) VALUE(1) LEVEL(*SYS)`**
- Domain size can affect performance
- Adding servers from other domains
  - **`mkdir '/qntc/svrName'`**

QNTC Troubleshooting- Common Problems

- No data in a QNTC directory or subdirectory
  - ✓ User was rejected by server
    - passwords don't match
    - local vs domain profiles
    - Digitally signing required by server
  - ✓ Master browser cannot be located
    - NetServer isn't configured for correct domain
    - Broadcasts aren't being routed and no WINS
- Server lists don't match on 2 different iSeries
  - ✓ Different networks
  - ✓ Multiple interfaces

QNTC Troubleshooting - Common Messages

Display detailed messages

- CPDB055 - Comm error on session to Network Server
  - Netbios errors - Check server configuration
- CPDB050 - Session initialization error with Network Server
  - 109 error - Name found, session rejected
  - 110 error - Name not found
  - 3448 error - NetServer is not started
- CPFB692 - SPI QzlsGetComputerInfo failed with reason code 4
  - Network browsing problem (rc 4) - couldn't find a Browser
    - No browsers for domain
    - WINS configuration problems
    - Scope ID configuration problems

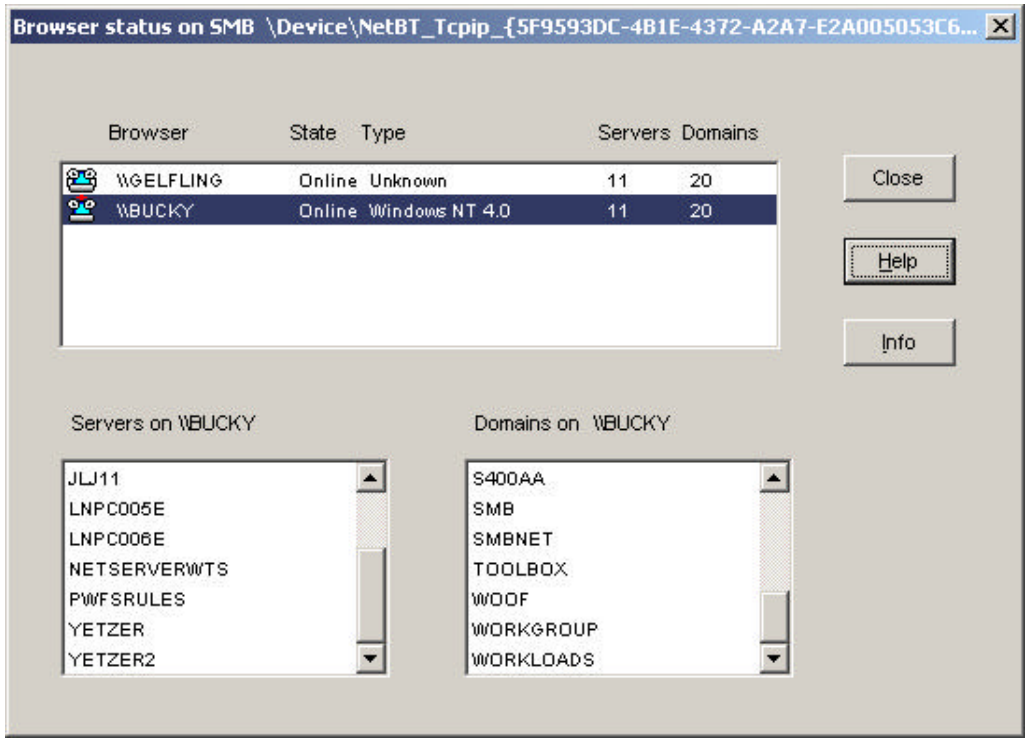
More QNTC Troubleshooting Messages

- CPFA0A9 - Object not Found
  - (Browseable server) The server isn't active in this domain
  - (nonBrowseable server) The server dir hasn't been created
- CPDB054 - Error connecting to IPC$
  - Current releases of QNTC don't support Message Auth Codes
  - Local security policy can't REQUIRE digital signing

QNTC - Diagnostic Tools

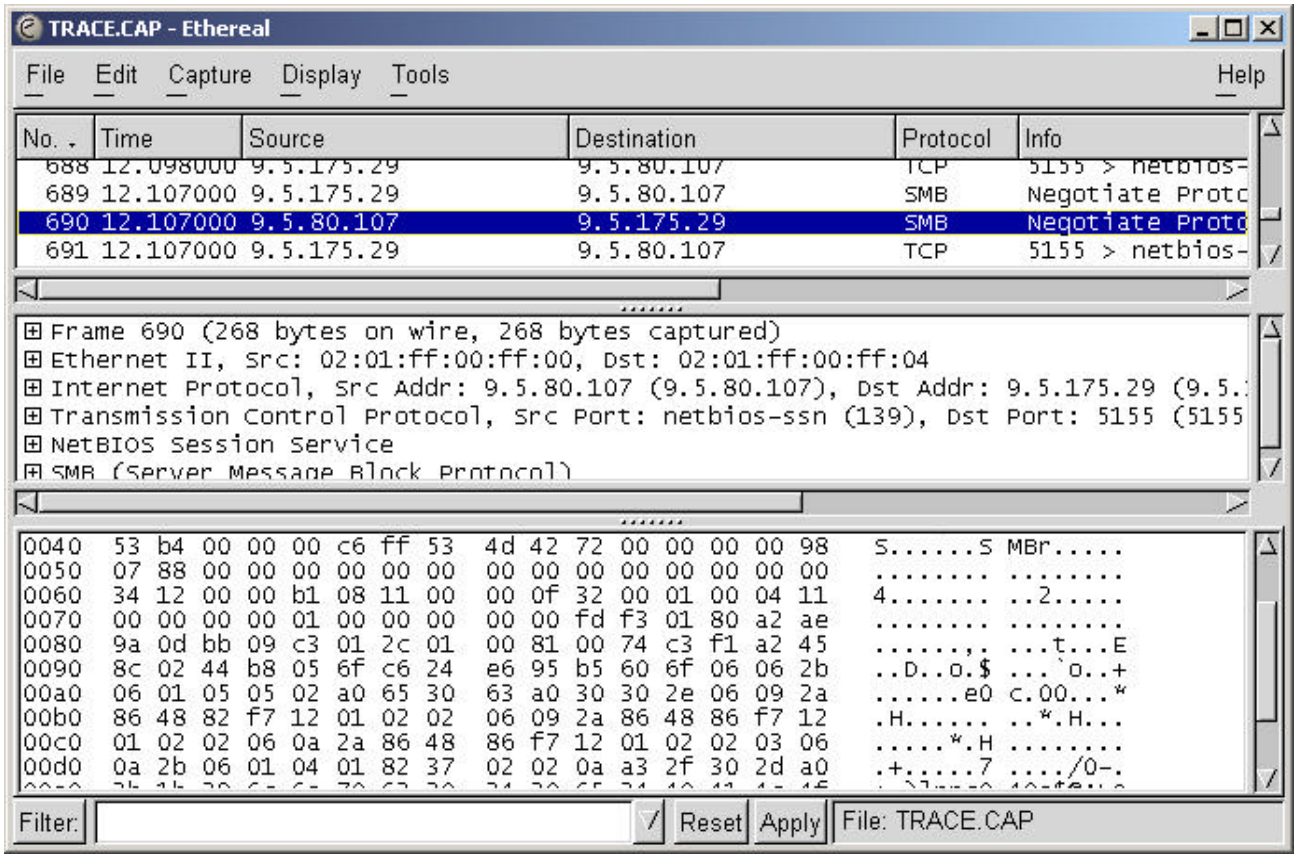
- Browse tools (browmon.EXE) useful for problems finding servers.
- Network Trace tools (Ethereal) for troubleshooting connection problems.
- QNTC trace tool
  - **CALL QZLCTRC (t x'FFFFFFFF')** - start trace
  - **CALL QZLCTRC (t x'00000000')** - stop trace
  - **CALL QZLCTRC (p)** - print
  - **CALL QZLCTRC (c)** - clear
  - output file is QSYSPRT

BROWMON



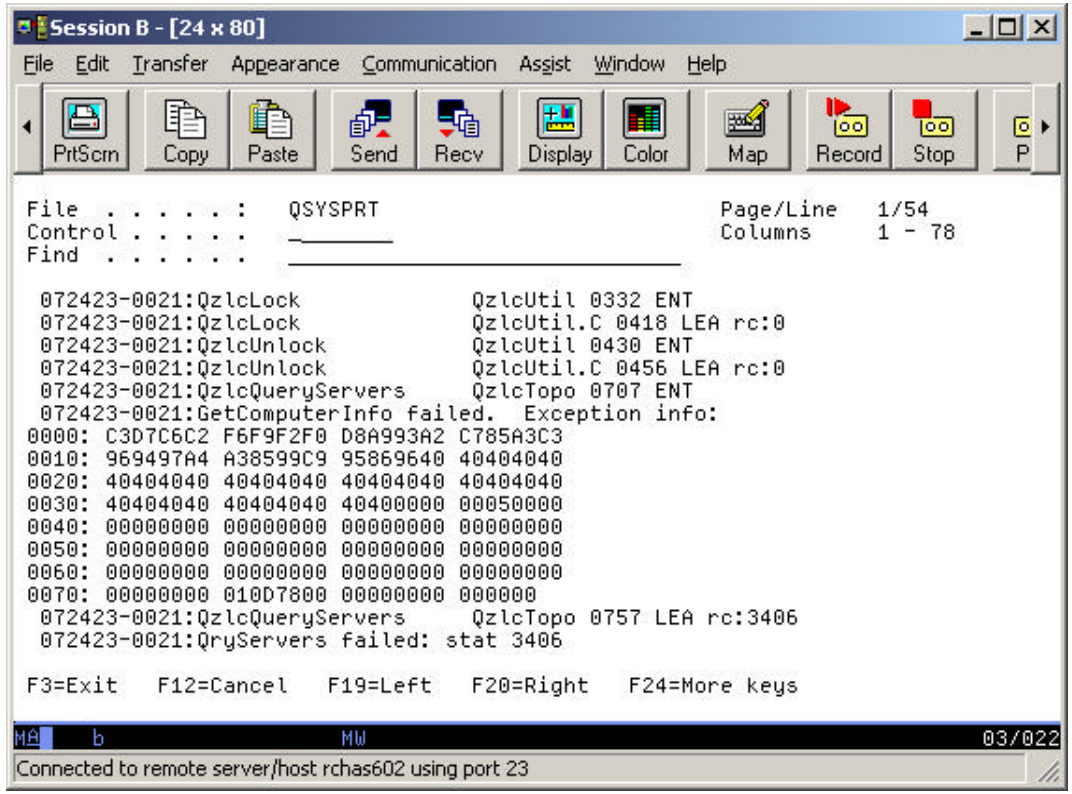
Helps understand the topology of your network

Ethereal



Analyze network connectivity problems

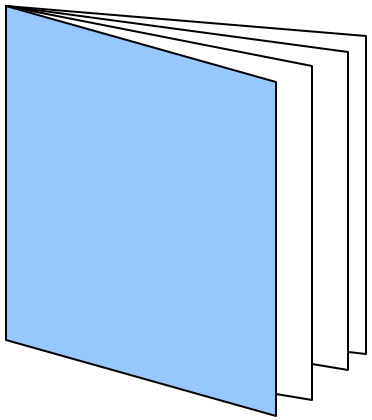
QZLCTRC Output



Low level QNTC debug

More Information

- **Integrated File System Introduction (SC41-5711)**
- **iSeries NetServer website**
  - http://www.ibm.com/servers/eserver/iseries/netserver
  - "Service Update Link" for current PTFs
- **iSeries Information Center web site:**
  - http://www.ibm.com/as400/infocenter



Questions:

- Define QNTC and how it fits into the iSeries IFS.
- Show how QNTC is being used on the iSeries.
- Describe how to configure iSeries for QNTC.
- Review common data access issues and debugging them.

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