IBM Software Group

What's New with NetView for z/OS? A Whole New Release

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Tivoli software

ON DEMAND BUSINESS

What's the Latest?

- NetView for z/OS V5.3
- Generally available July 27, 2007

Agenda

- TCP/IP Management
- Tivoli Enterprise Portal
- Product Integration
- Core Functions
- For More Information

TCP/IP Management

- **Enterprise Extender Support**
- Packet Filtering by Protocol
- Identify Hung Listeners
- More TCP Connection Information
- Additional IPv6 Support

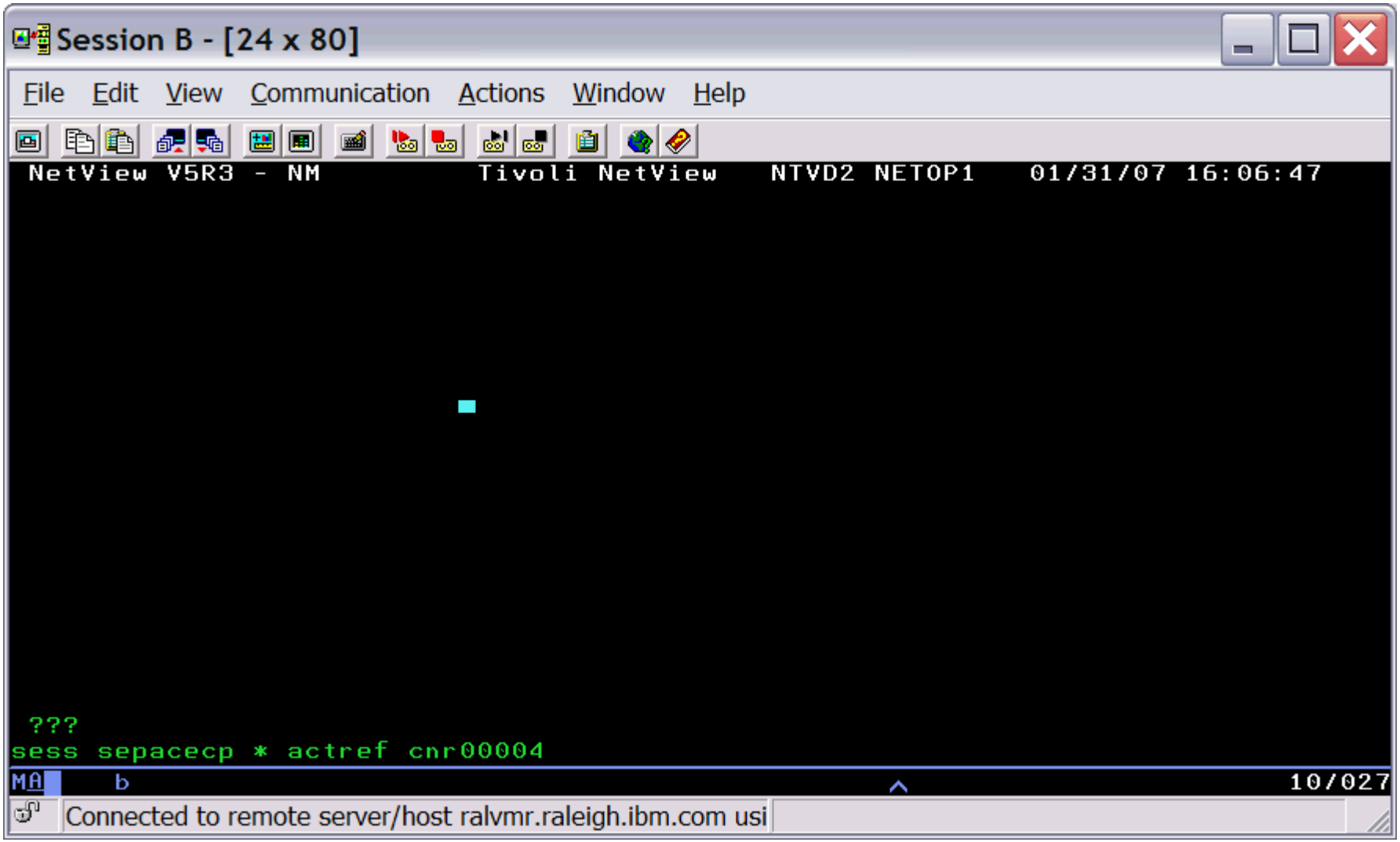
Enterprise Extender Support

- **Identification of EE sessions**
- More information about paths to session partners

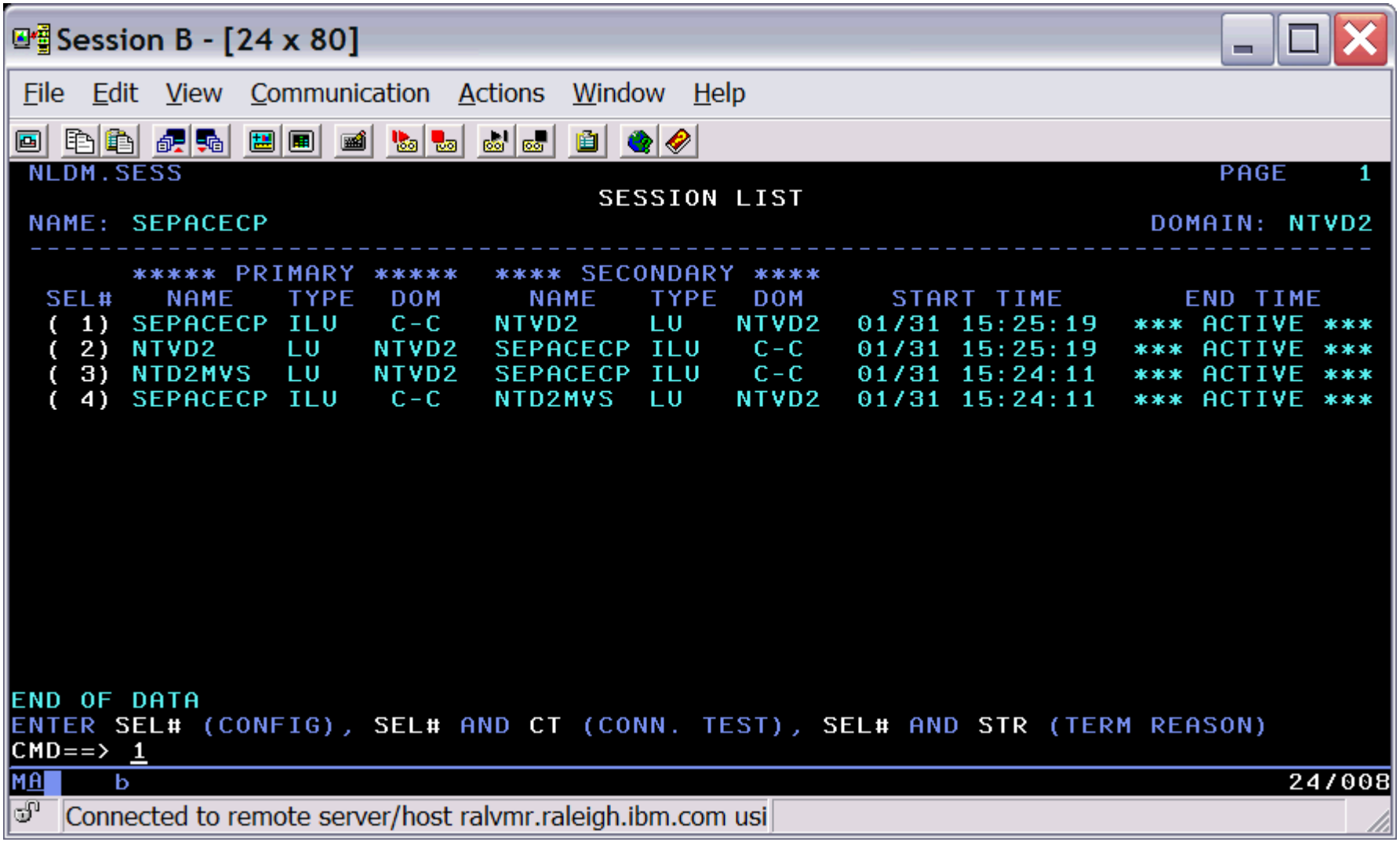
Identification of EE Sessions

- Allows selection of SNA sessions traversing a given resource – no longer need be a session endpoint.
- One common usage will be to see what sessions traverse an ALS (CNRnnnnn), as requested by Enterprise Extender (EE) customers.
- Affected commands
  - NLDM SESS
  - NLDM SESMGET
  - NASESMG

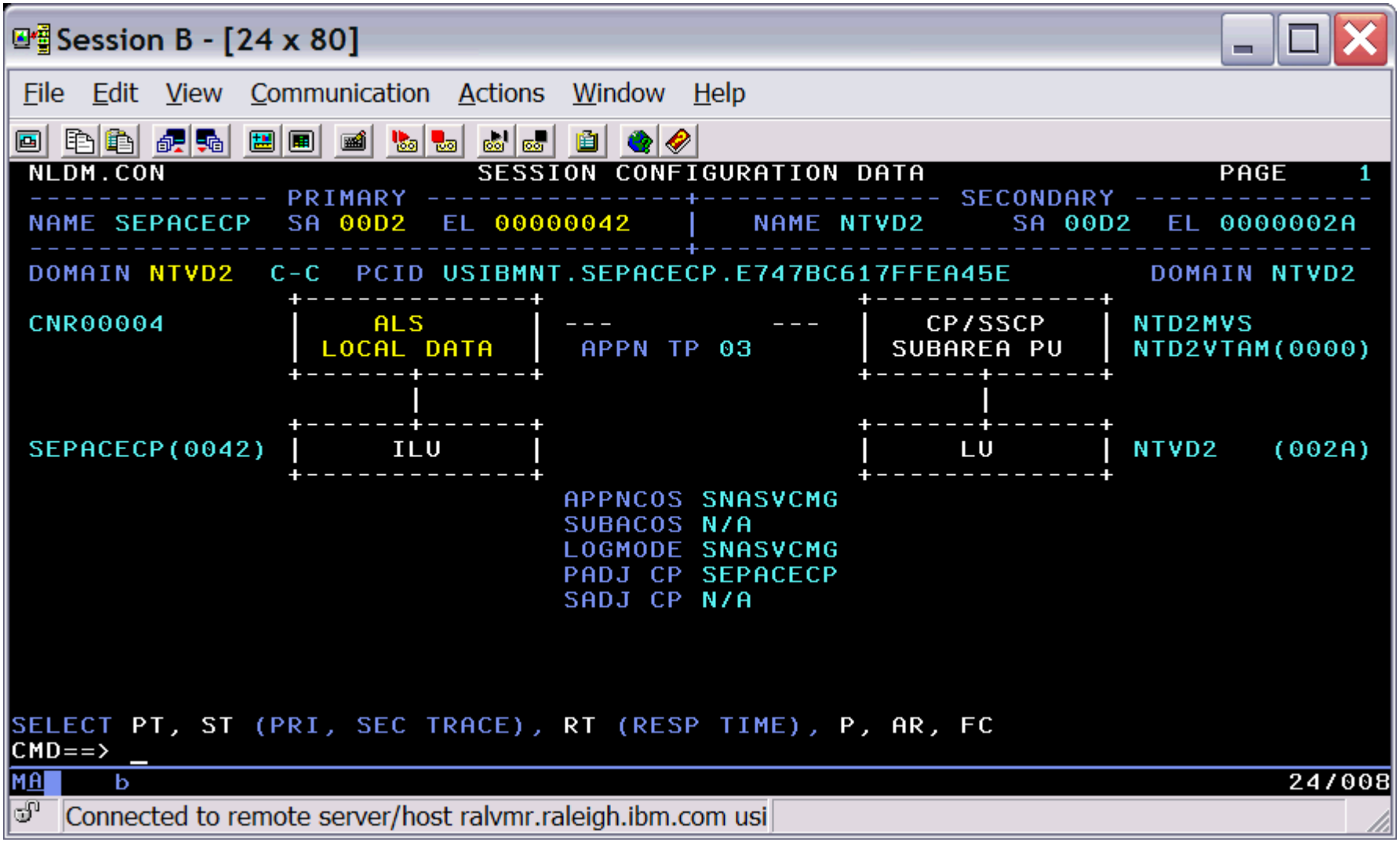
EE Support: NLDM SESS ACTREF



EE Support: NLDM SESS ACTREF



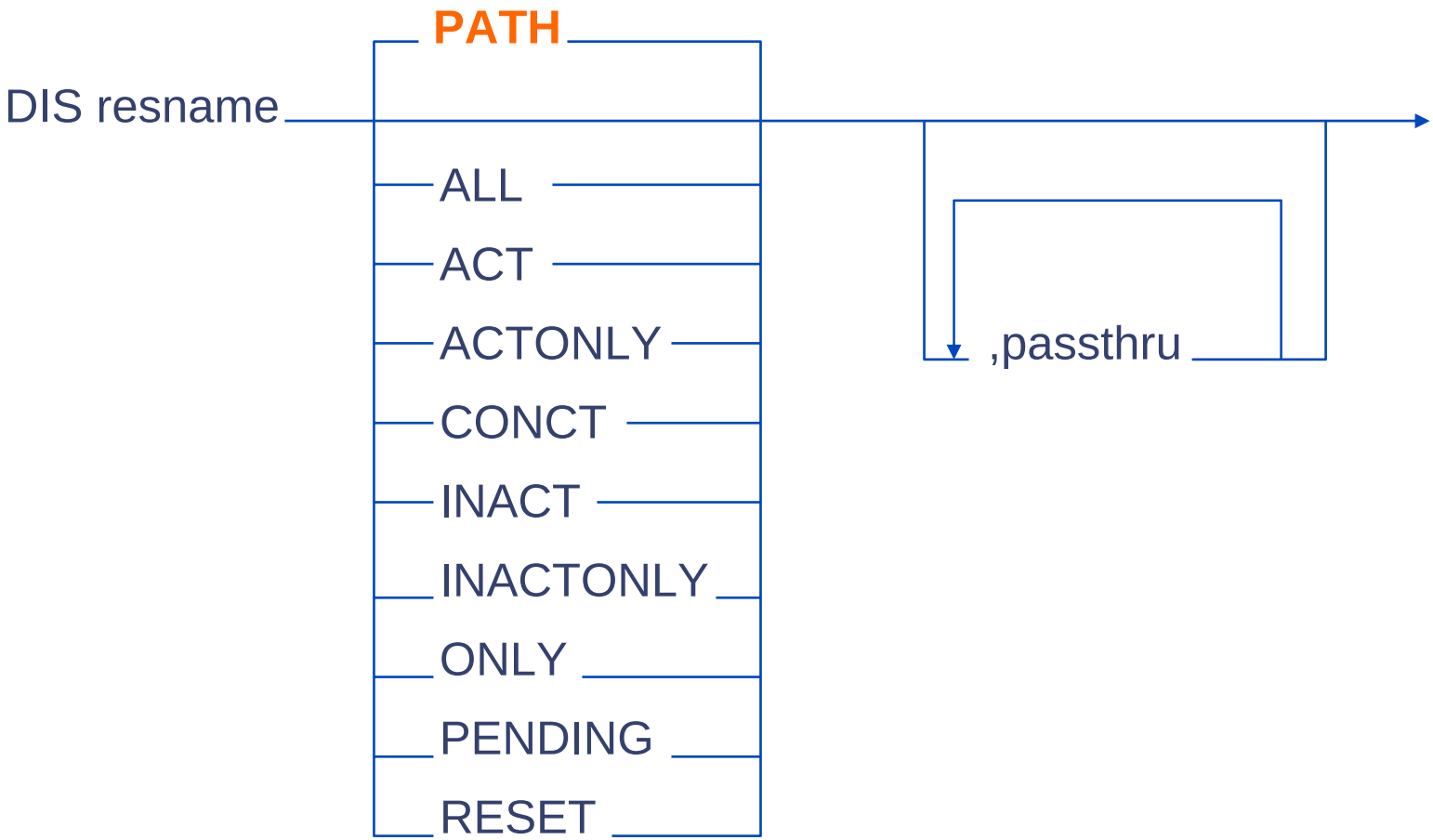
EE Support: NLDM SESS ACTREF



Enterprise Extender Support

- Identification of EE sessions
- **More information about paths to session partners**

More Path Information: DIS Command



More Path Information

- If LU is EE-connected
  - Outboard resource (DLUR)
    - Info about path to owning CP
    - If both hosts are z/OS 1.7 or later, EEDIAG is performed and test results appended.
    - If NetView is active at remote CP and that RMTCMD is enabled and authorized, RTP pipe info from remote host is also appended
  - Inboard (local)
    - TRACERTE info also appended

DIS Output

```
CNMKWIND OUTPUT FROM  USIBMNT.DLD20101                    LINE 0 OF 85
*------------------------------ Top of Data ------------------------------
IST075I  NAME = USIBMNT.DLD20101 , TYPE = LOGICAL UNIT
IST486I  STATUS= ACTIV--, DESIRED STATE= ACTIV
IST1447I  REGISTRATION TYPE = NETSRVR
IST977I  MDLTAB=***NA*** ASLTAB=***NA***
IST861I  MODETAB=AMODETAB USSTAB=AUSSTAB  LOGTAB=***NA***
IST934I  DLOGMOD=MSDLCQ   USS LANGTAB=***NA***
IST597I  CAPABILITY-PLU INHIBITED,SLU ENABLED  ,SESSION LIMIT 00000001
IST136I  SWITCHED SNA MAJOR NODE = EESWMN2
IST135I  PHYSICAL UNIT = DPD20001
IST082I  DEVTYPE =             LU
IST654I  I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I  STATE TRACE = OFF
IST1936I  LOCADDR = 002
IST228I  ENCRYPTION = NONE        , TYPE = DES
IST1563I  CKEYNAME = DLD20101 CKEY = PRIMARY   CERTIFY = NO
IST1552I  MAC = NONE        MACTYPE = NONE
IST171I  ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST206I  SESSIONS:
IST1081I  ADJACENT LINK STATION = CNR00007
IST634I  NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I  NTVD2010 ACTIV-P    F58B139E11365775 0006 000C       USIBMNT
IST314I  END
BNH061I ... ADJACENT LINK STATION  CNR00007...
IST075I  NAME = CNR00007          , TYPE = PU_T2.1
IST486I  STATUS= ACTIV--LX-, DESIRED STATE= ACTIV
IST1964I  APPNCOS = #CONNECT - PRIORITY = MEDIUM
IST1476I  TCID X'314E695C00010214' - REMOTE TCID X'0000000005000000'
IST1460I  TGN  CPNAME             TG TYPE      HPR
TO SEE YOUR KEY SETTINGS, ENTER 'DISPFK'
CMD==>
```

DIS Output

```
CNMKWIND OUTPUT FROM  USIBMNT.DLD20101                    LINE 28 OF 85
IST075I  NAME = CNR00007          , TYPE = PU_T2.1
IST1460I  TGN  CPNAME             TG TYPE      HPR
IST1461I   21  USIBMNT.SEPACECP   APPN         RTP
BNH061I ...RTP resource = EX000002...
IST075I  NAME = EX000002          , TYPE = PU_T2.1
IST1680I  LOCAL  IP ADDRESS 9.42.44.61
IST1680I  REMOTE IP ADDRESS 9.27.143.39
IST2022I  EE CONNECTION ACTIVATED ON 04/13/07 AT 16:55:28
IST2114I  LIVTIME:    INITIAL =   10   MAXIMUM =    0   CURRENT =   10
IST2023I  CONNECTED TO LINE EELOFE
IST2025I  LDLC SIGNALS RETRANSMITTED AT LEAST ONE TIME    =          0
IST2026I  LDLC SIGNALS RETRANSMITTED SRQRETRY TIMES       =          0
IST2009I  RTP PIPES =          4      LU-LU SESSIONS      =          5
IST2027I  DWINOP   = NO      REDIAL = *NA*        REDDELAY =       *NA*
IST2028I  KEEPACT  = YES
IST2029I  MTU SIZE =   548
IST924I   ------------------------------------------------------------
IST2035I  TOTALS FOR ALL PORT PRIORITIES
IST2036I    NLPS SENT           =                1419  ( 001K )
IST2037I    BYTES SENT          =              113337  ( 113K )
IST2038I    NLPS RETRANSMITTED  =                   0  ( 000K )
IST2039I    BYTES RETRANSMITTED =                   0  ( 000K )
IST2040I    NLPS RECEIVED       =                1599  ( 001K )
IST2041I    BYTES RECEIVED      =              152017  ( 152K )
BNH061I ...related local RTP PIPE CNR00007 ...
IST1695I  PU NAME       CP NAME       COSNAME SWITCH CONGEST STALL SESS
IST1986I  CNR00007 USIBMNT.SEPACECP  #CONNECT  NO      NO      NO      1
BNH810I Tracing IP route to 9.27.143.39 max 30 hops
BNH811I 1: nmpipl50.tivlab.raleigh.ibm.com (9.42.44.50) 5ms
```

DIS Output

```
CNMKWIND OUTPUT FROM  USIBMNT.DLD20101                    LINE 55 OF 85
BNH810I Tracing IP route to 9.27.143.39 max 30 hops
BNH811I 1: nmpipl50.tivlab.raleigh.ibm.com (9.42.44.50) 5ms
BNH811I 2: mdf-rsm-vlan501.tivlab.raleigh.ibm.com (9.42.63.225) 20ms
BNH811I 3: core3-msfc.tivlab.raleigh.ibm.com (9.42.0.1) 14ms
BNH811I 4: dyn9042255252.raleigh.ibm.com (9.42.255.252) 21ms
BNH811I 5: RTP-fc-3b-g22.raleigh.ibm.com (9.42.254.41) 17ms
BNH811I 6: rtp-pd-10a-ge0-5.raleigh.ibm.com (9.42.254.3) 16ms
BNH811I 7: rtp-co-b-v842.raleigh.ibm.com (9.27.2.169) 17ms
BNH811I 8: rtp-ud-5a-v822.raleigh.ibm.com (9.27.2.90) 19ms
BNH811I 9: sepace.raleigh.ibm.com (9.27.143.39) 59ms
BNH061I ...PU = DPD20001...
IST075I  NAME = DPD20001          , TYPE = PU_T2
IST486I  STATUS= ACTIV     , DESIRED STATE= ACTIV
IST1043I  CP NAME = ***NA*** - CP NETID = USIBMNT  - DYNAMIC LU = YES
IST1589I  XNETALS = YES
IST1354I  DLUR NAME = SEPACECP           MAJNODE = EESWMN2
IST1934I  IDBLK = 05D IDNUM = 43330
IST654I  I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I  STATE TRACE = OFF
IST1656I  VTAMTOPO = REPORT   , NODE REPORTED - YES
IST1657I  MAJOR NODE VTAMTOPO = REPORT
BNH061I ...EEDIAG...
IST2066I  ENTERPRISE EXTENDER CONNECTION SRQRETRY INFORMATION
IST924I  -------------------------------------------------------------
IST1680I  LOCAL  IP ADDRESS 9.42.44.61
IST1680I  REMOTE IP ADDRESS 9.27.143.39
IST2024I  CONNECTED TO SWITCHED PU EX000002
IST2074I  SUCCESSFUL SRQRETRY ATTEMPT =  0     OCCURRENCES =          0
IST2074I  SUCCESSFUL SRQRETRY ATTEMPT =  1     OCCURRENCES =          0
TO SEE YOUR KEY SETTINGS, ENTER 'DISPFK'
CMD==>
```

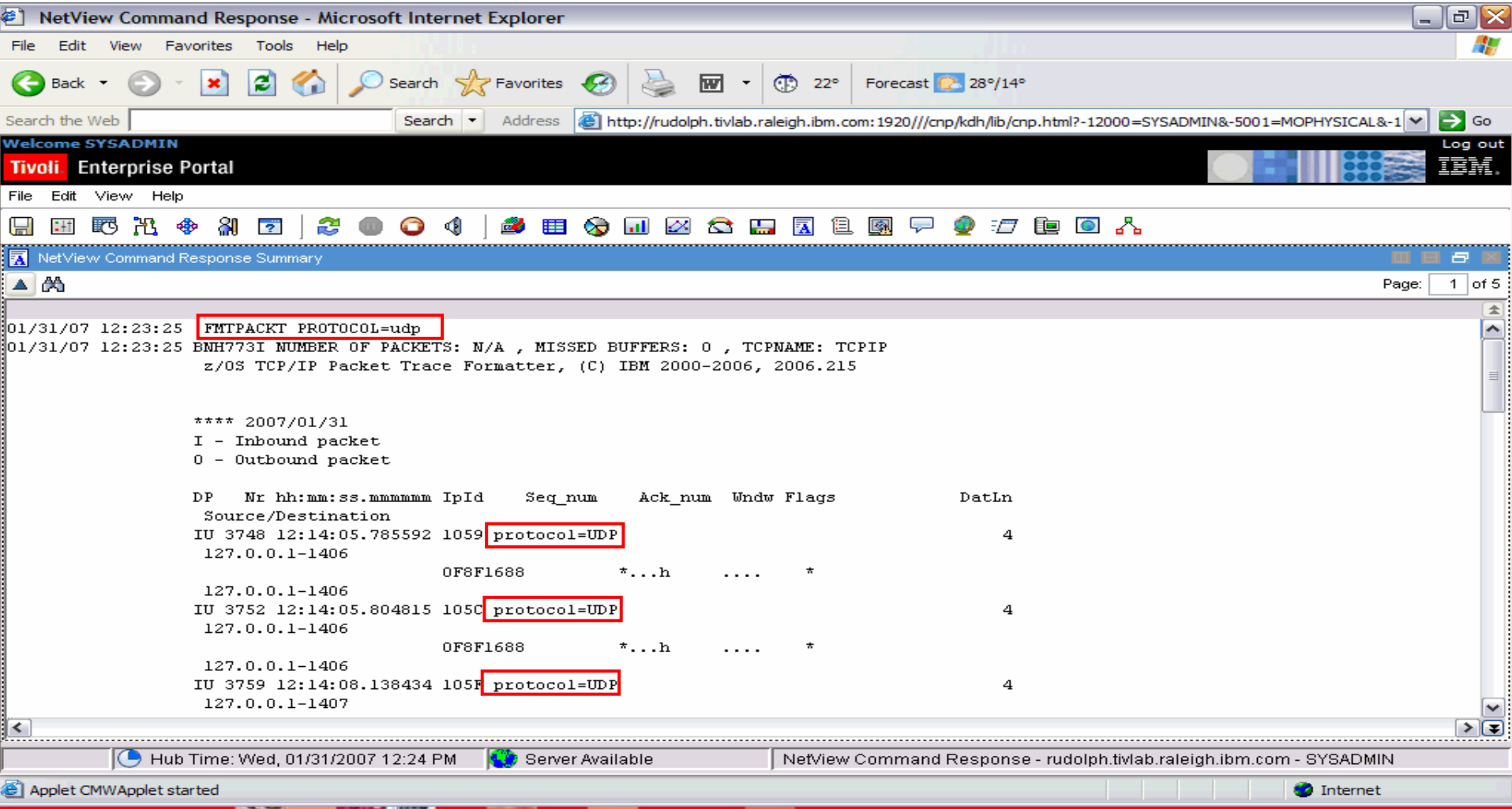
TCP/IP Management

- Enterprise Extender Support
- **Packet Filtering by Protocol**
- Identify Hung Listeners
- More TCP Connection Information
- Additional IPv6 Support

Packet Filtering by Protocol

- Allows user to select traced packets by IP protocol
- New parameter for PKTS and FMTPACKT commands
  - PROTOCOL
  - Can be specified as
    - a number from 0 thru 255, or
    - one of 3 names: TCP (6), UDP(17), OSPF (89).
- All other aspects of PKTS and FMTPACKT commands are unchanged

Packet Filtering by Protocol



TCP/IP Management

- Enterprise Extender Support
- Packet Filtering by Protocol
- **Identify Hung Listeners**
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Identify Hung Listeners

- Hung Listener
  - A port that refuses connections but appears to be normal in a netstat command

Hung Listeners: CNMETSTL

- API to set timer for monitoring listeners
- Syntax
  - **CNMETSTL {stackname | stackaddr} port_number monitor_interval**
  - Synonym: TESTPORT
  - If called with parms (stack, port, and interval)
    - sets one timer using the provided information
    - null or zero interval causes specified port to be checked immediately
  - If called with no parms
    - reads existing definitions
    - deletes any outstanding timers for issuing task
- Automatic or manual invocation
- Results in automatable message to allow for recovery

TCP/IP Management

- Enterprise Extender Support
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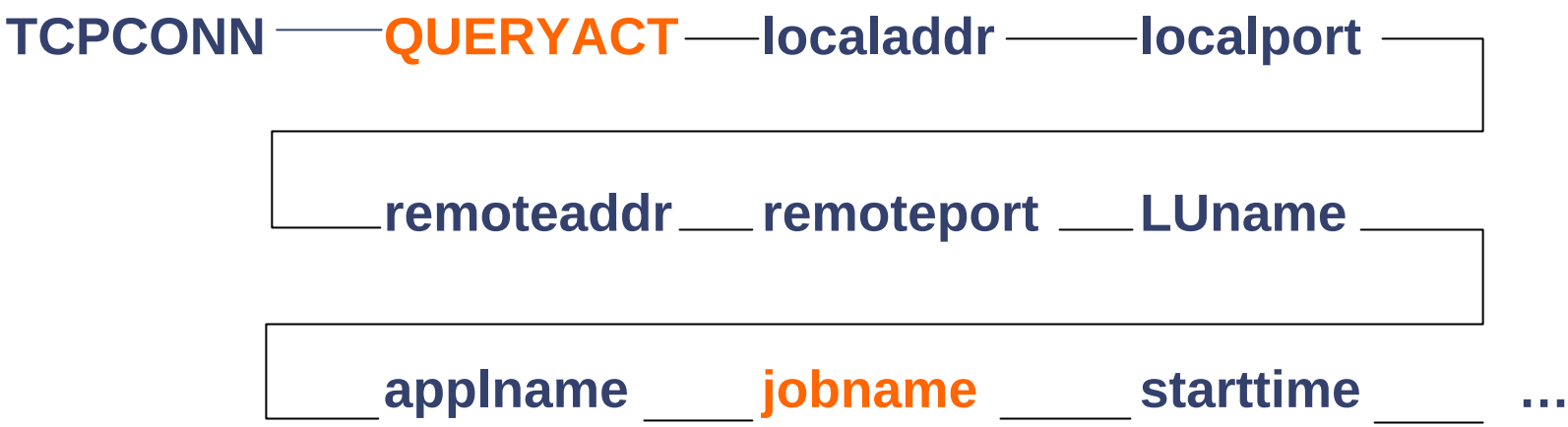
- Identify Hung Listeners
- **More TCP Connection Information**
- Additional IPv6 Support

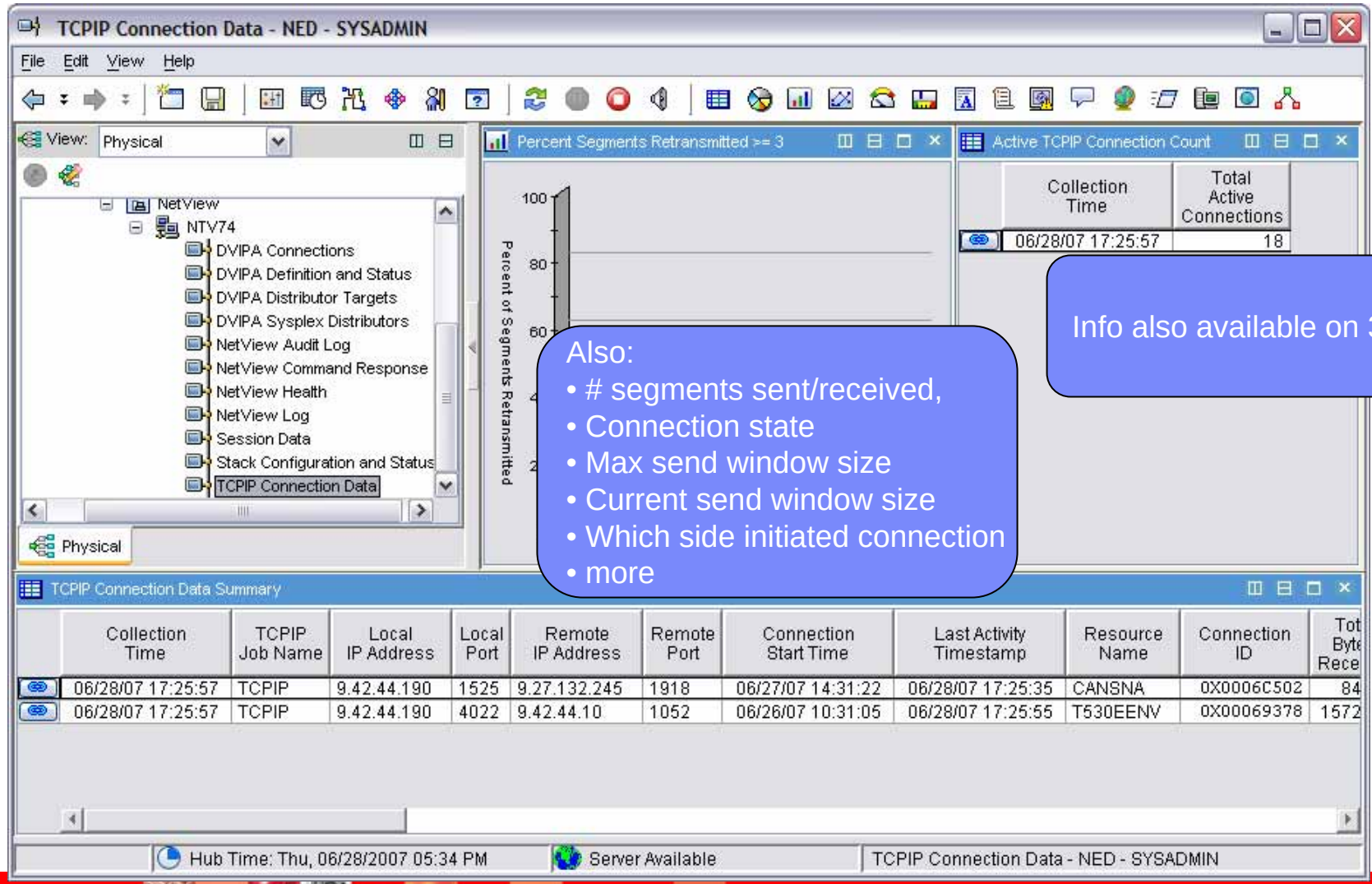
More TCP Connection Information

- New TCPCONN QUERYACT keyword
  - More data for active connections than QUERY keyword
  - New message BNH775I defines data fields for active connections
  - New minor keyword JOBNAME
    - Specifies criteria for application address space name filter
  - Data available in TEP and 3270
    - CNMSTCPC handles QUERYACT keyword for 3270 display
- Inactive connection processing remains unchanged

More TCP Connection Information



More Info on Active TCP Connections



TCP/IP Management

- Enterprise Extender Support
- Packet Filtering by Protocol
- Identify Hung Listeners
- More TCP Connection Information
- **Additional IPv6 Support**

Additional IPv6 Support

- Enable additional commands, components, and internal services
  - IPv6 addresses in input/output
  - IPv6 sockets, etc.
- Trap → Alert Service
  - Newly implemented as base NetView service, can replace existing E/AS Trap → Alert Service
  - Enabled for IPv6
  - Supports SNMPv1, SNMPv2c, SNMPv3

Tivoli Enterprise Portal

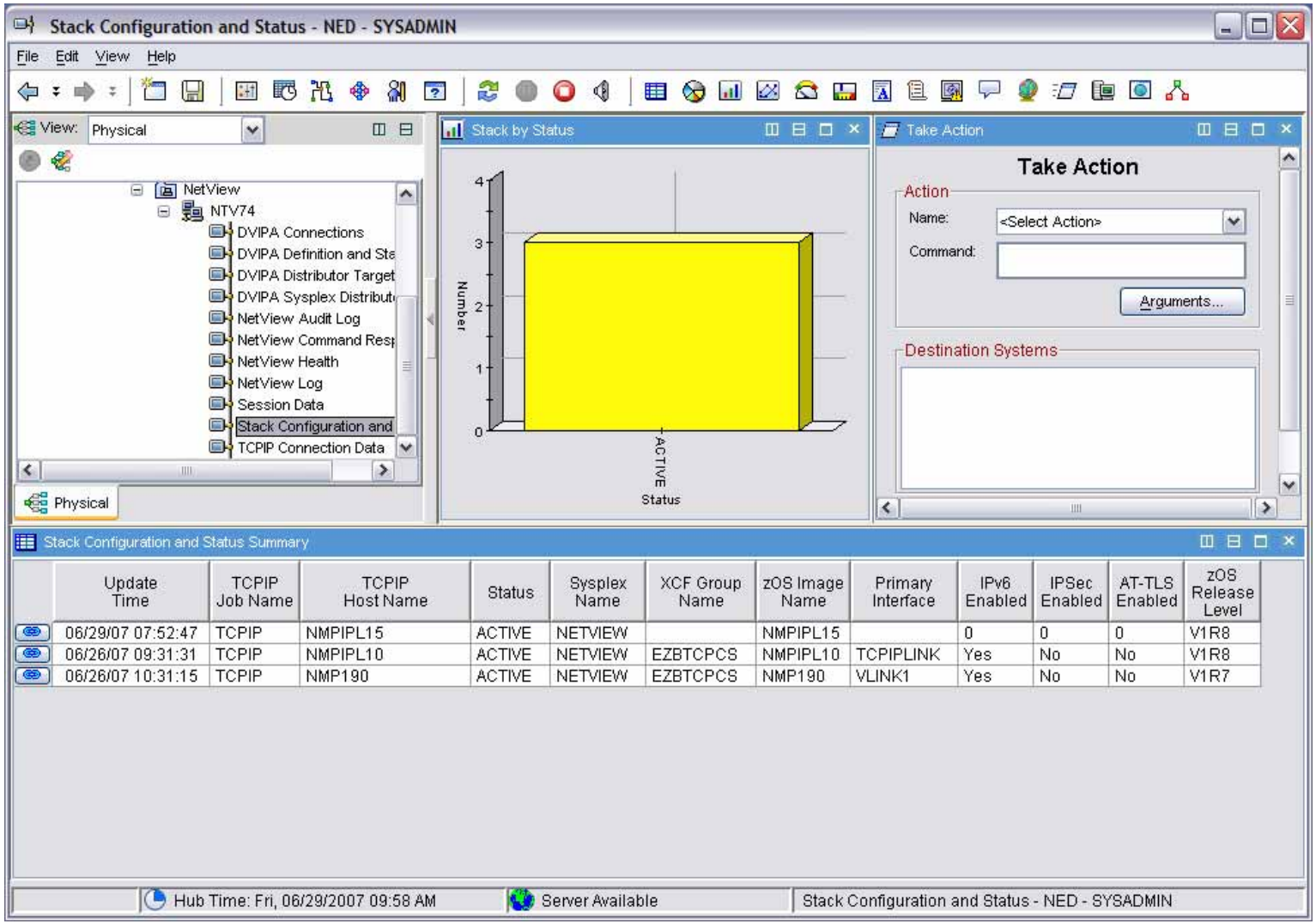
NetView Enterprise Management Agent

- NetView for z/OS 5.2: Tivoli Enterprise Portal V6.1 Agent
  - Windows
  - AIX
  - Linux (System z™ & Intel®)
  - Solaris
  - HP-UX
- NEW – NetView for z/OS 5.3: Enterprise Management Agent
  - z/OS

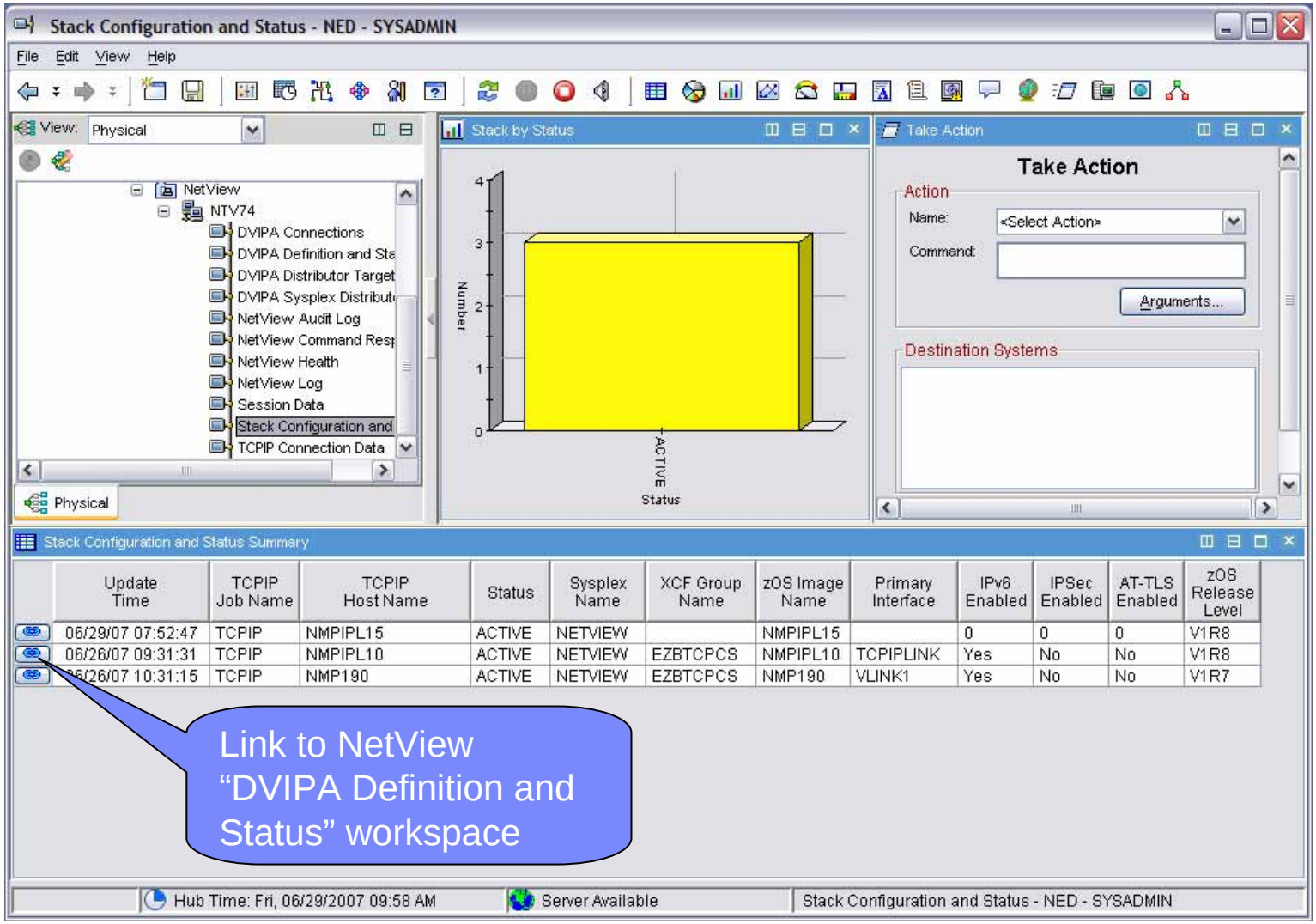
Expanded Presence in the TEP

- Additional and expanded NetView workspaces
  - DVIPA/Sysplex
  - More TCP/IP
  - NetView health
- 28 Situations provided out of the box
- Expert advice

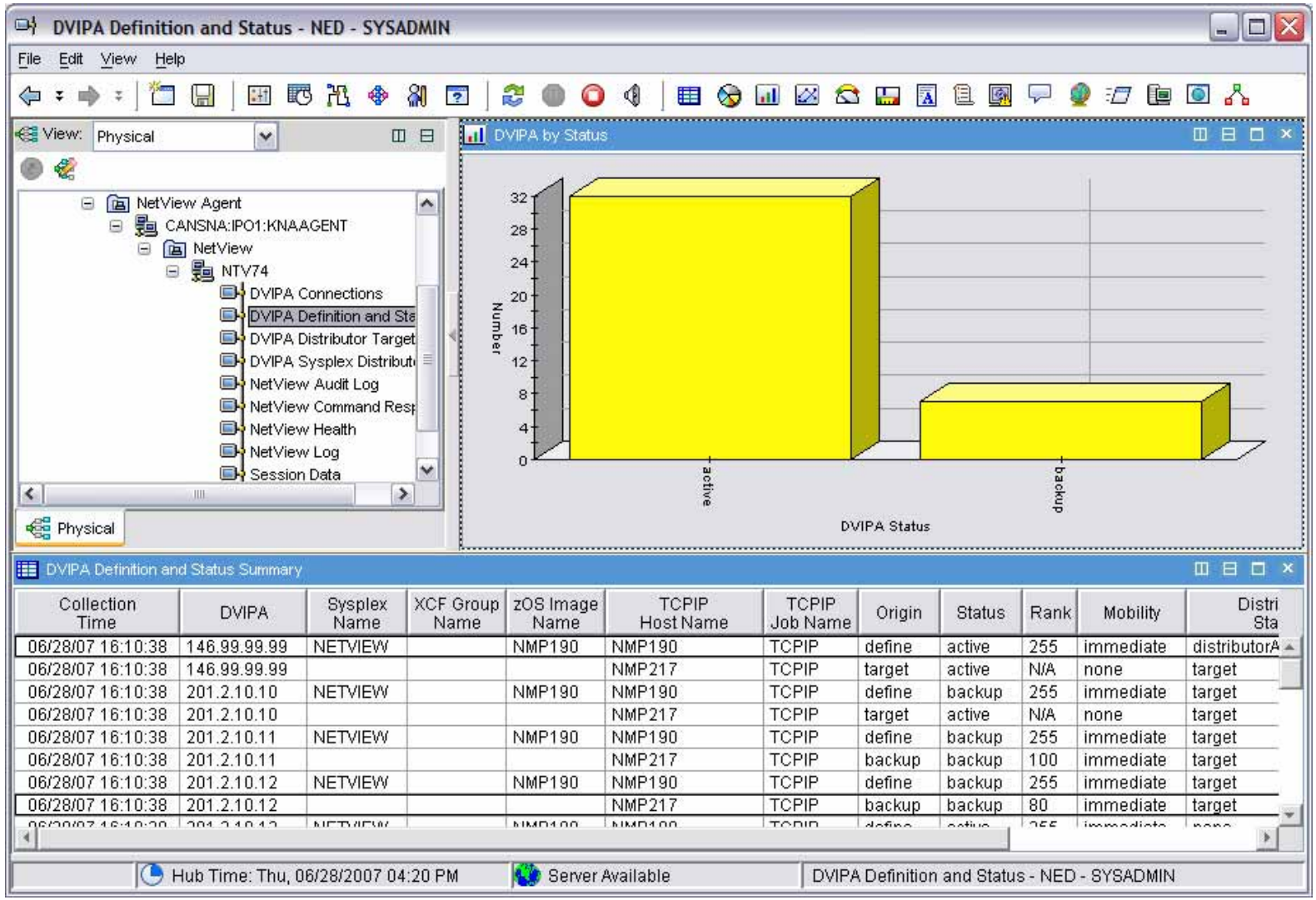
Stack Configuration and Status Summary Workspace



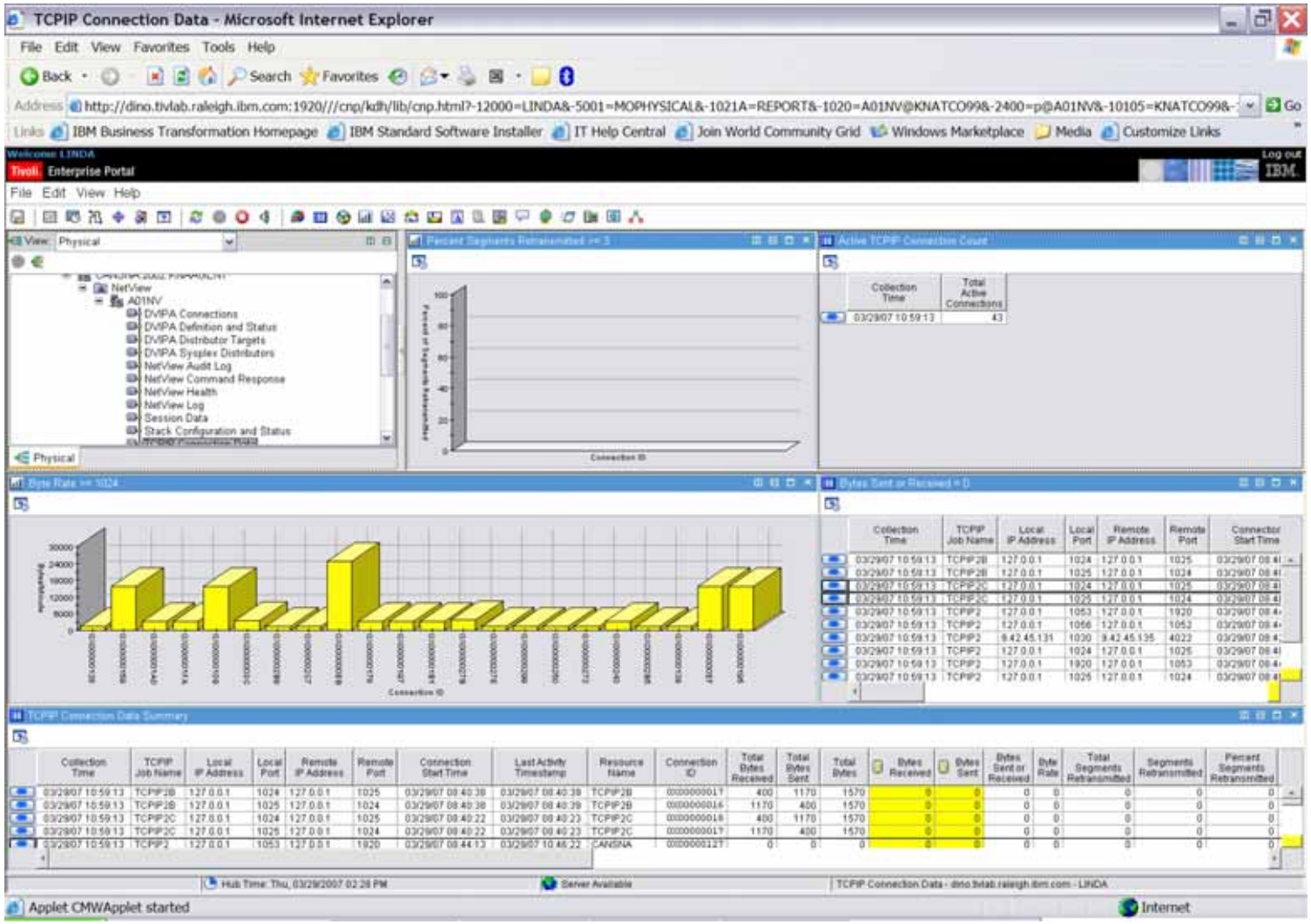
Stack Configuration and Status Summary Workspace



DVIPA Definition and Status

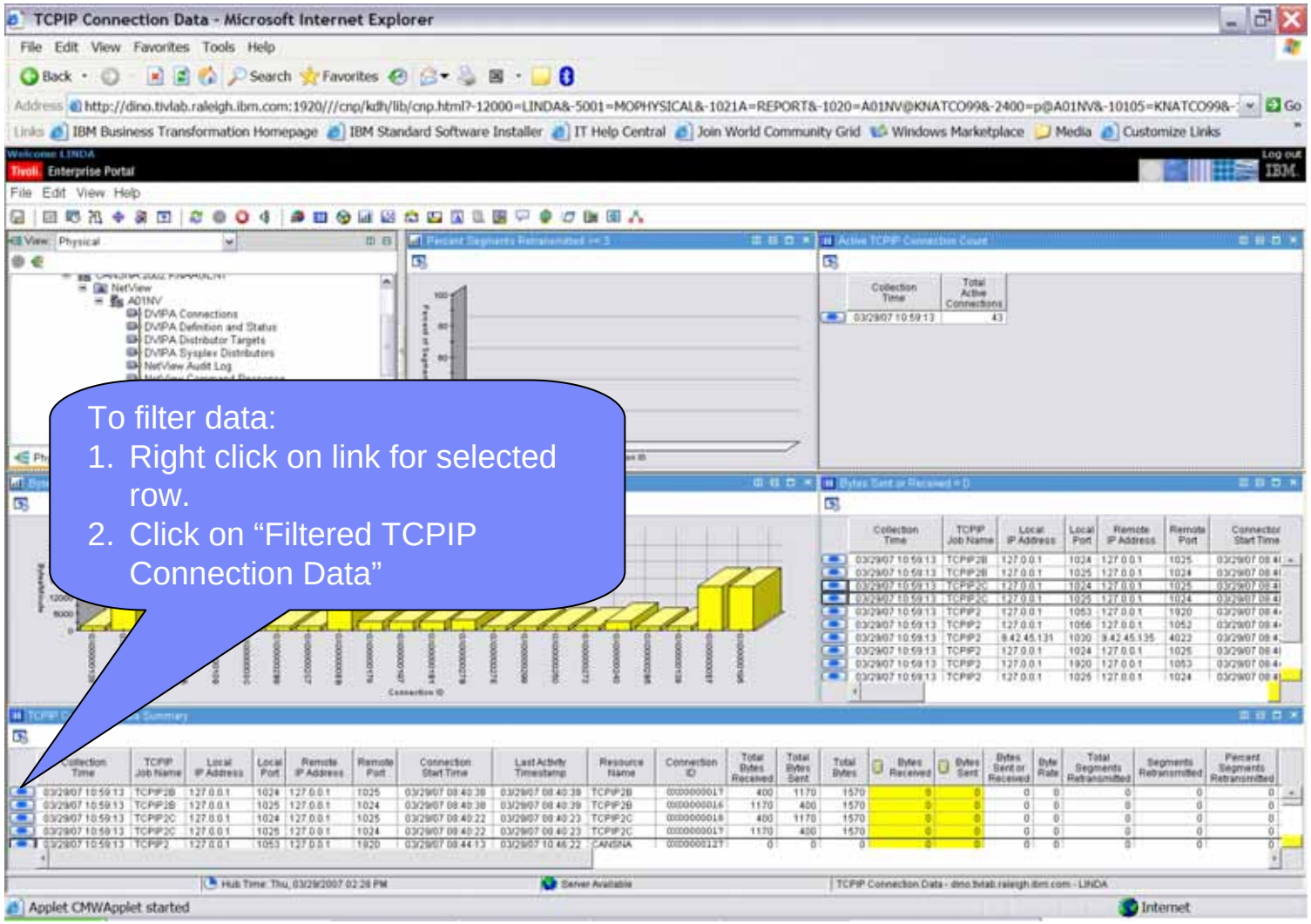


Active TCP/IP Connections



- Info on active TCP/IP connections on this LPAR for stacks defined in CNMSTYLE
- Much more info than previously available
- All data displayed in a readable format

Active TCP/IP Connections



- Info on active TCP/IP connections on this LPAR for stacks defined in CNMSTYLE
- Much more info than previously available
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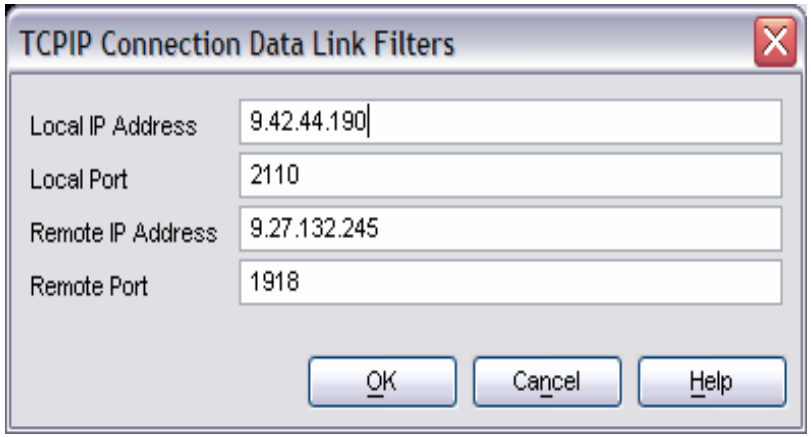
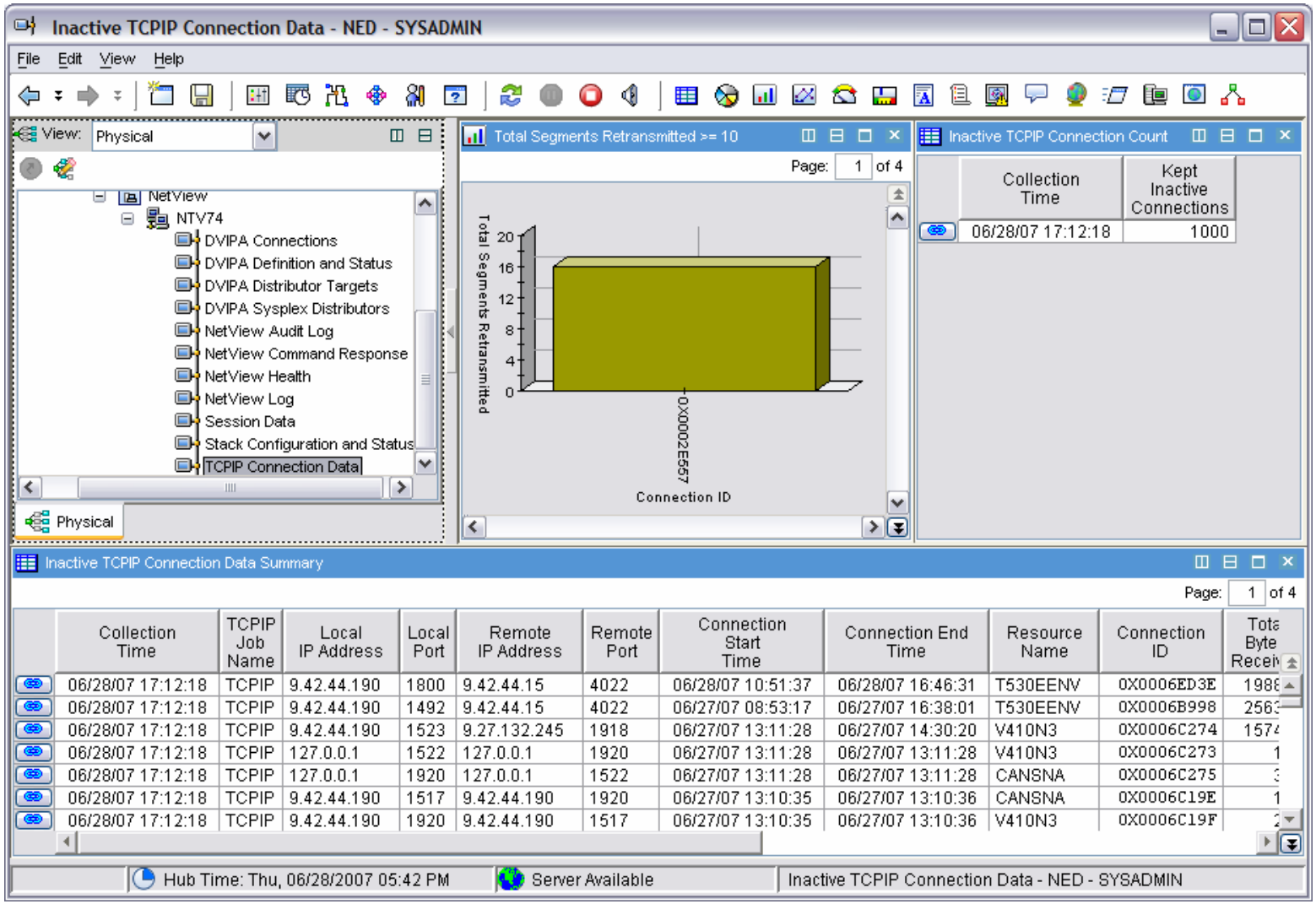
TCP/IP Active Connections Filter

Filter Criteria

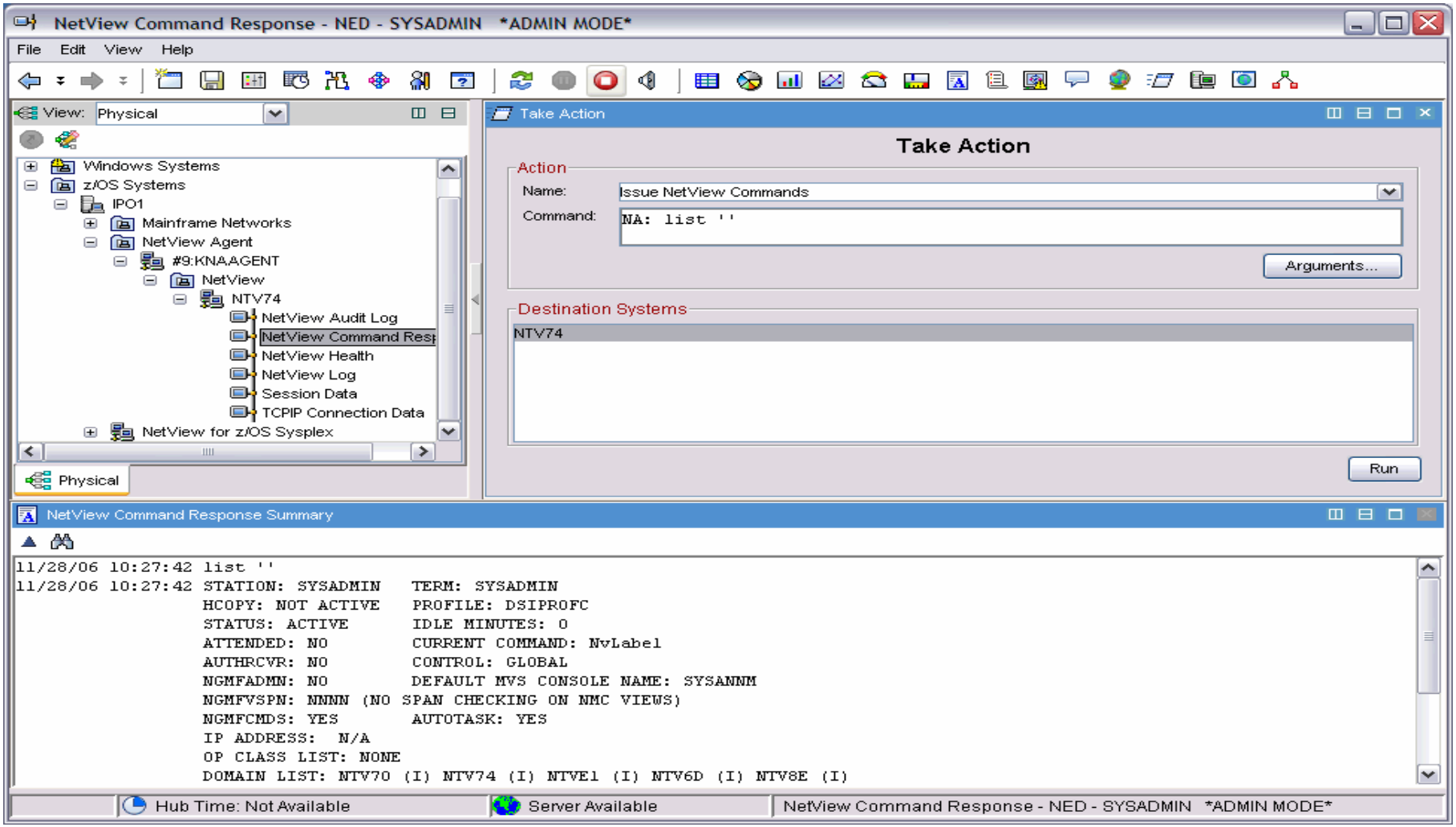


- The link filter dialog is populated with the values from the row.

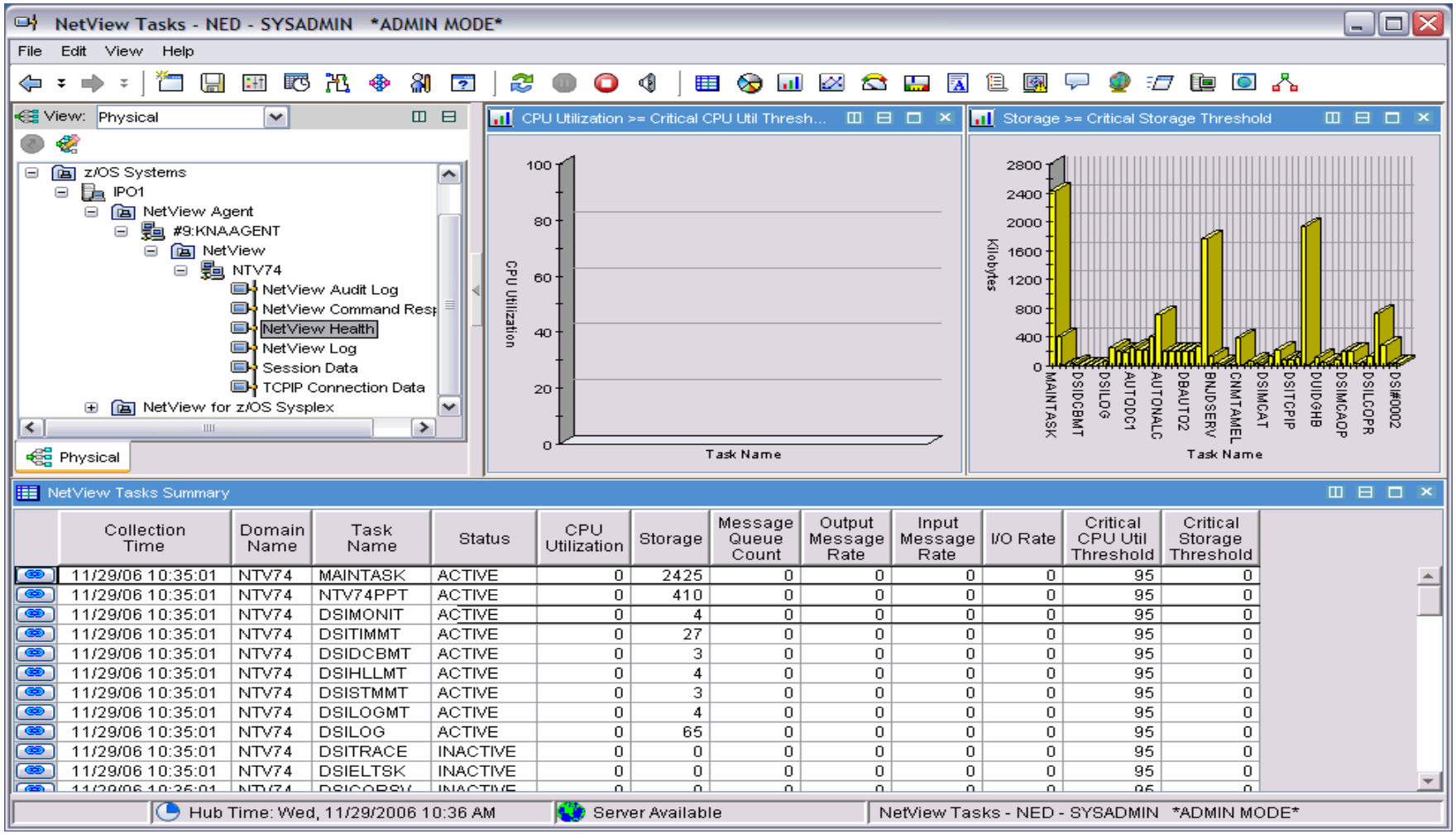
Inactive TCP/IP Connections



NetView Command Response

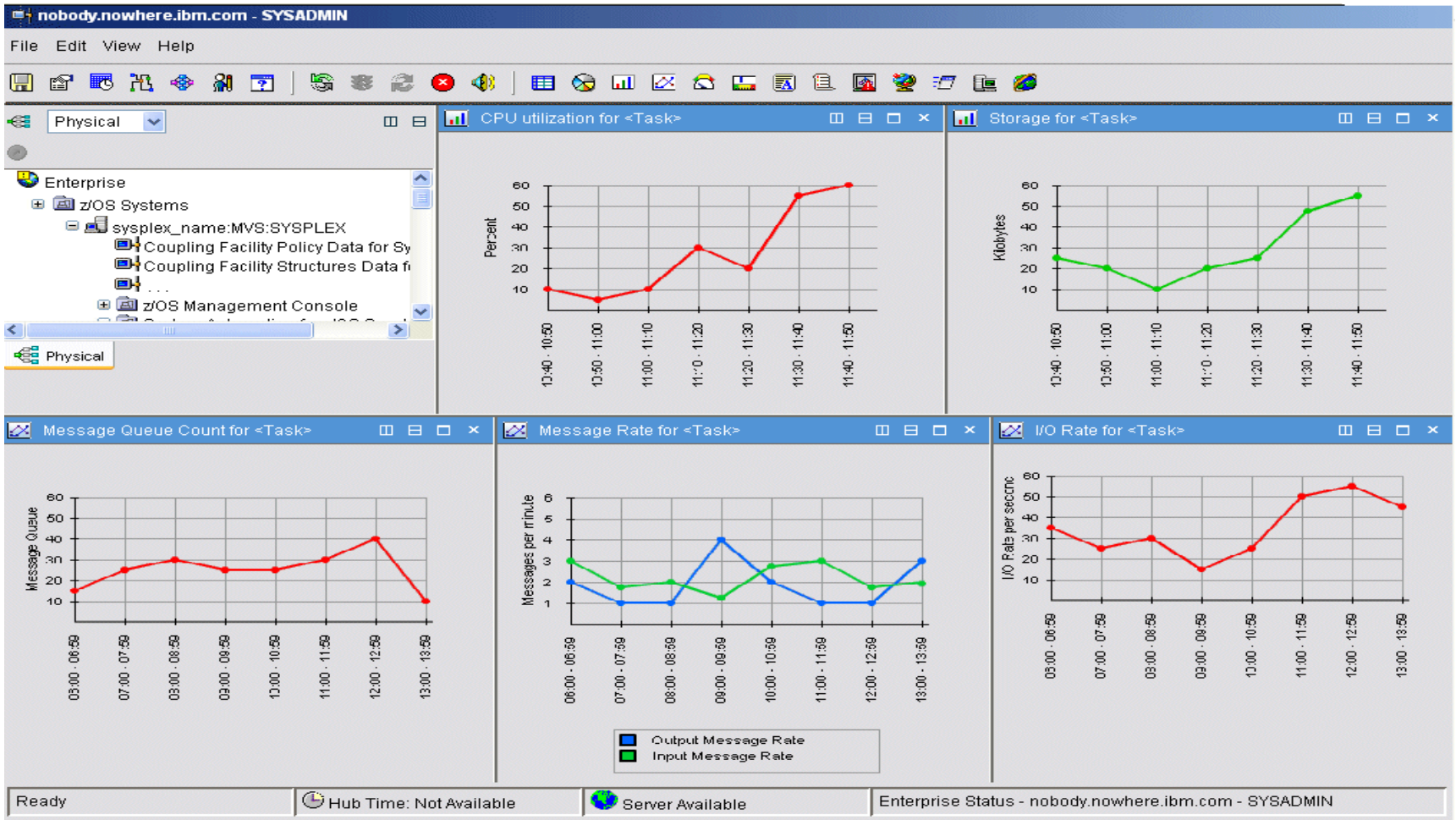


NetView Tasks Workspace



Provides task status and performance statistics for all NetView tasks

NetView Task Details Workspace



Five views show performance metrics for the selected task over time.

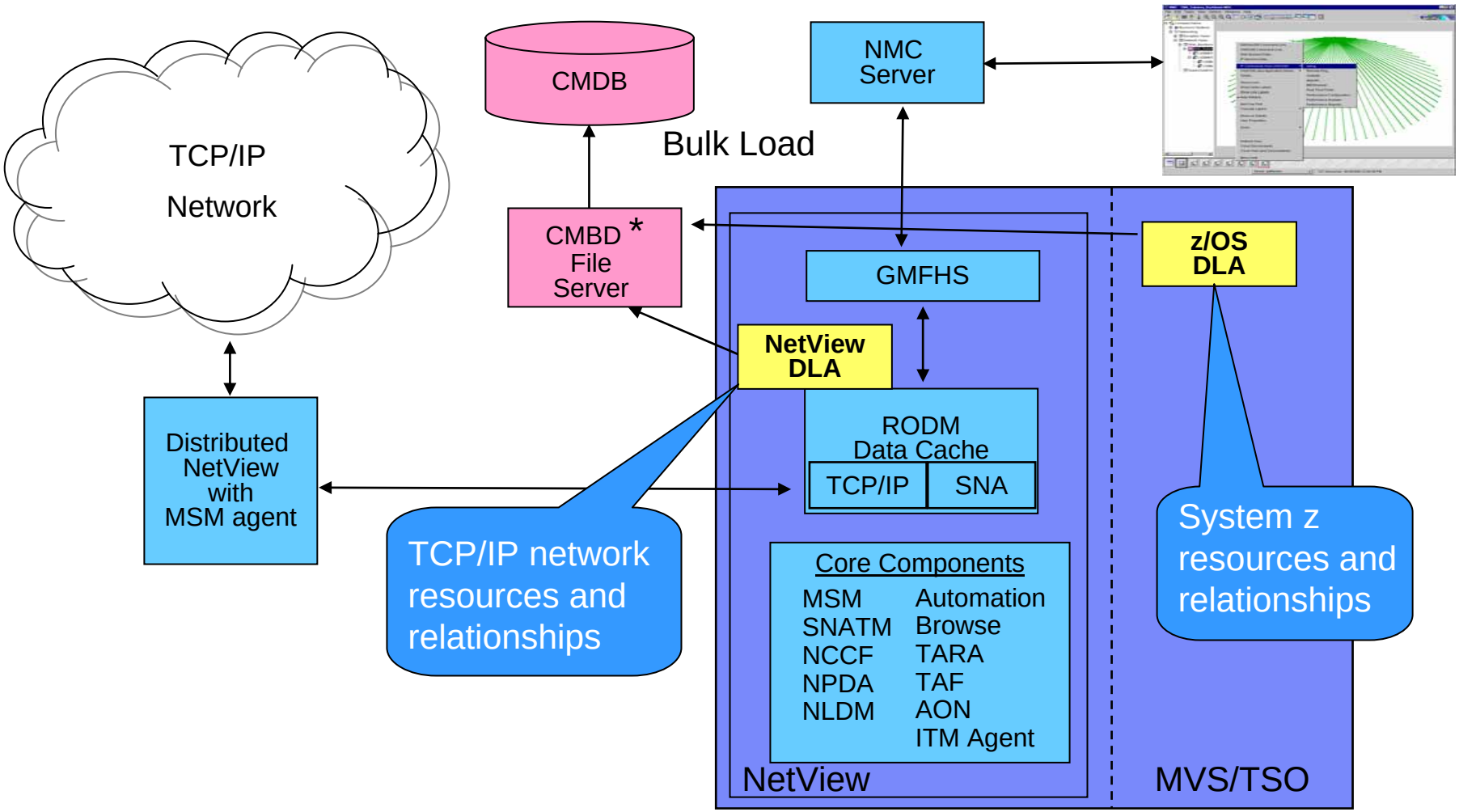
Historical Data Collection

- Both real-time and historical data are available within the NetView for z/OS Enterprise Management Agent workspaces.
- Available for:
  - DVIPA Distributor Targets
    - Server Acceptance
    - DVIPA Distributor Targets Summary
  - DVIPA Sysplex Distributors
    - DVIPA Sysplex Distributors Summary
  - Inactive TCP/IP Connections
    - All views except Inactive TCP/IP Connections Count
  - NetView Tasks (all views)
  - Session Data
    - Active Session Count
  - TCP/IP Connection Data (all views)

Product Integration

- **Support for CMDB**
- Additional integration with the OMEGAMON® suite

Discovery Library Adapters



* The CMDB file server runs on iLinux.

Data Types Collected, Results from Actual DLA Runs

z/OS DLA

ZOSBASE

Class Summary

Class	Count
ComputerSystem	1
Fqdn	1
IpInterface	1
IpV4Address	1
Organization	1
Sysplex	1
SystemSpecificCollection	1
ZOS	1
Total Class Instances	**8**

Link Summary

Link	Count
assignedTo	1
bindsTo	1
contains	2
hostedCollection	1
memberOf	1
owns	2
runsOn	1
Total Link Instances	**9**

ZOSTASK

Class Summary

Class	Count
AddressSpace	16
ComputerSystem	1
Fqdn	1
IpInterface	1
IpV4Address	1
Organization	1
Sysplex	1
SystemSpecificCollection	1
TcpPort	13
UdpPort	9
ZOS	1
Total Class Instances	**46**

Link Summary

Link	Count
accessedVia	17
assignedTo	1
bindsTo	23
contains	2
hostedCollection	1
memberOf	1
owns	2
runsOn	17
Total Link Instances	**64**

NetView for z/OS DLA

Class Summary

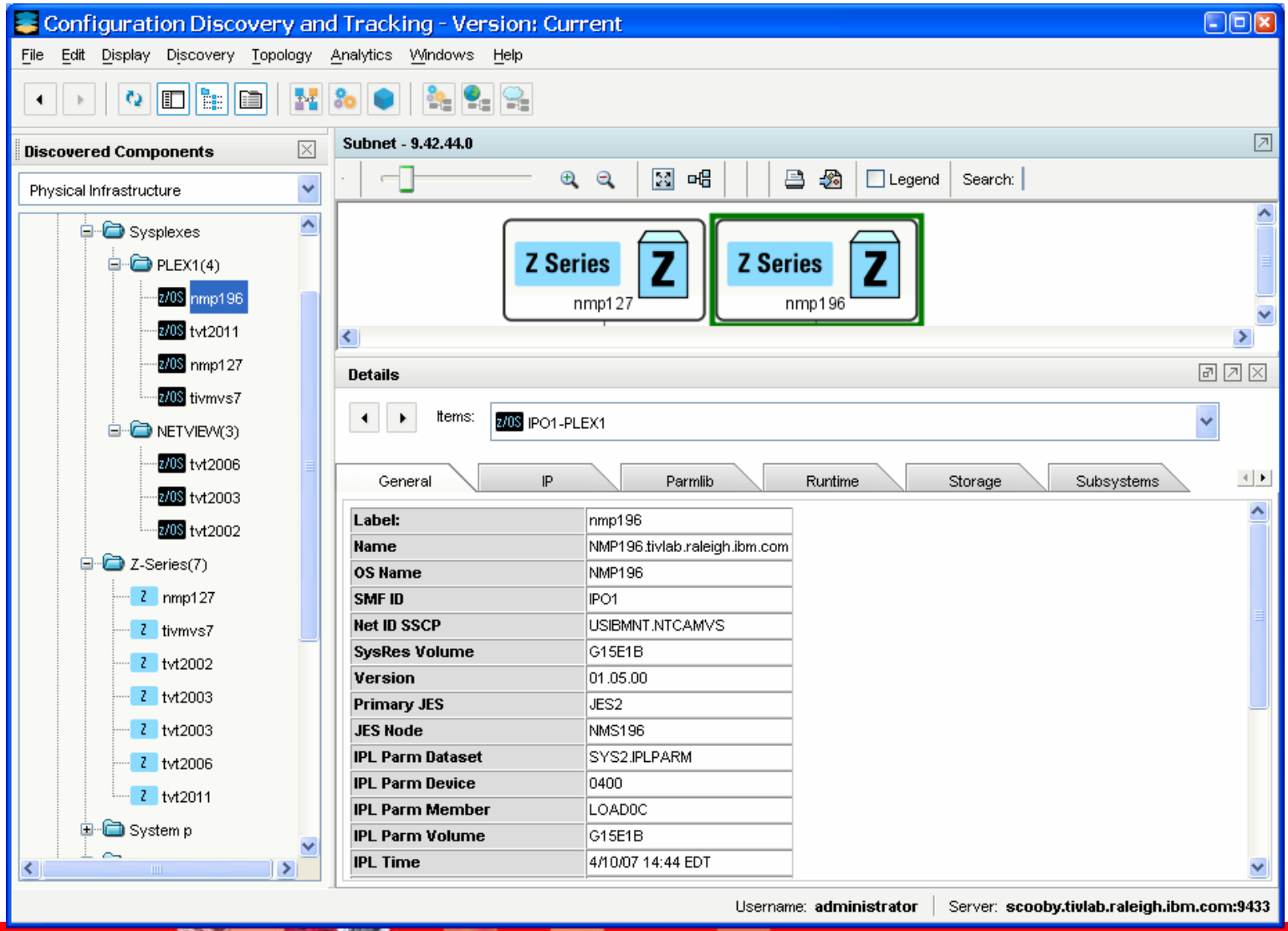
Class	Count
ComputerSystem	281
Fqdn	276
IpInterface	316
IpNetwork	12
IpV4Address	316
OperatingSystem	281
Organization	1
Router	5
SnmpSystemGroup	286
Sysplex	2
SystemSpecificCollection	2
ZOS	5
ZSeriesComputerSystem	5
Total Class Instances	**1788**

Link Summary

Link	Count
assignedTo	276
bindsTo	316
contains	637
givesDetails	286
hostedCollection	2
installedOn	286
memberOf	5
networks	316
owns	7
provides	5
routes	32
runsOn	286
Total Link Instances	**2454**

These DLA tallies taken from IDMLBrowse tool UI (distributed with z/OS DLA and free on OPAL)

NetView Data + z/OS DLA Data in TADDM



zSeries NMP196 (IP01) discovered by NetView V5.3 DLA reconciles with NMP196 discovered by z/OS DLA.

z/OS DLA adds system infrastructure while NetView provides network infrastructure

NetView DLA Deployment options

- One centralized NetView for z/OS

  collects data from other NetView installations & multiple distributed NetView agents

– or –

- Multiple NetView for z/OS instances

  when topology info is distributed across multiple NetViews, each with its own RODM

Product Integration

- Support for CMDB
- **Additional integration with the OMEGAMON suite**

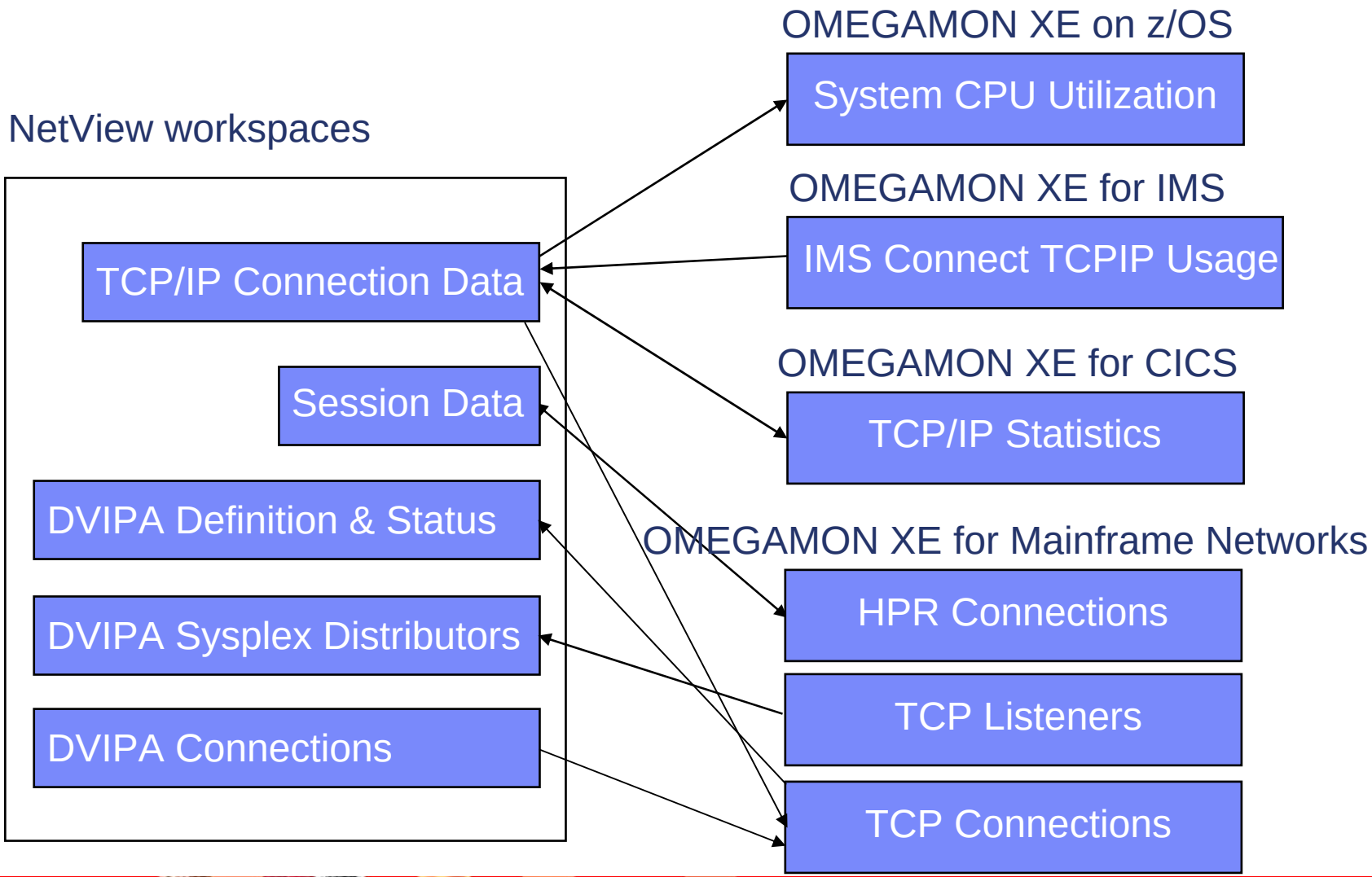
Additional OMEGAMON Integration

- **More correlated cross-product links**
- Command authorization with NetView

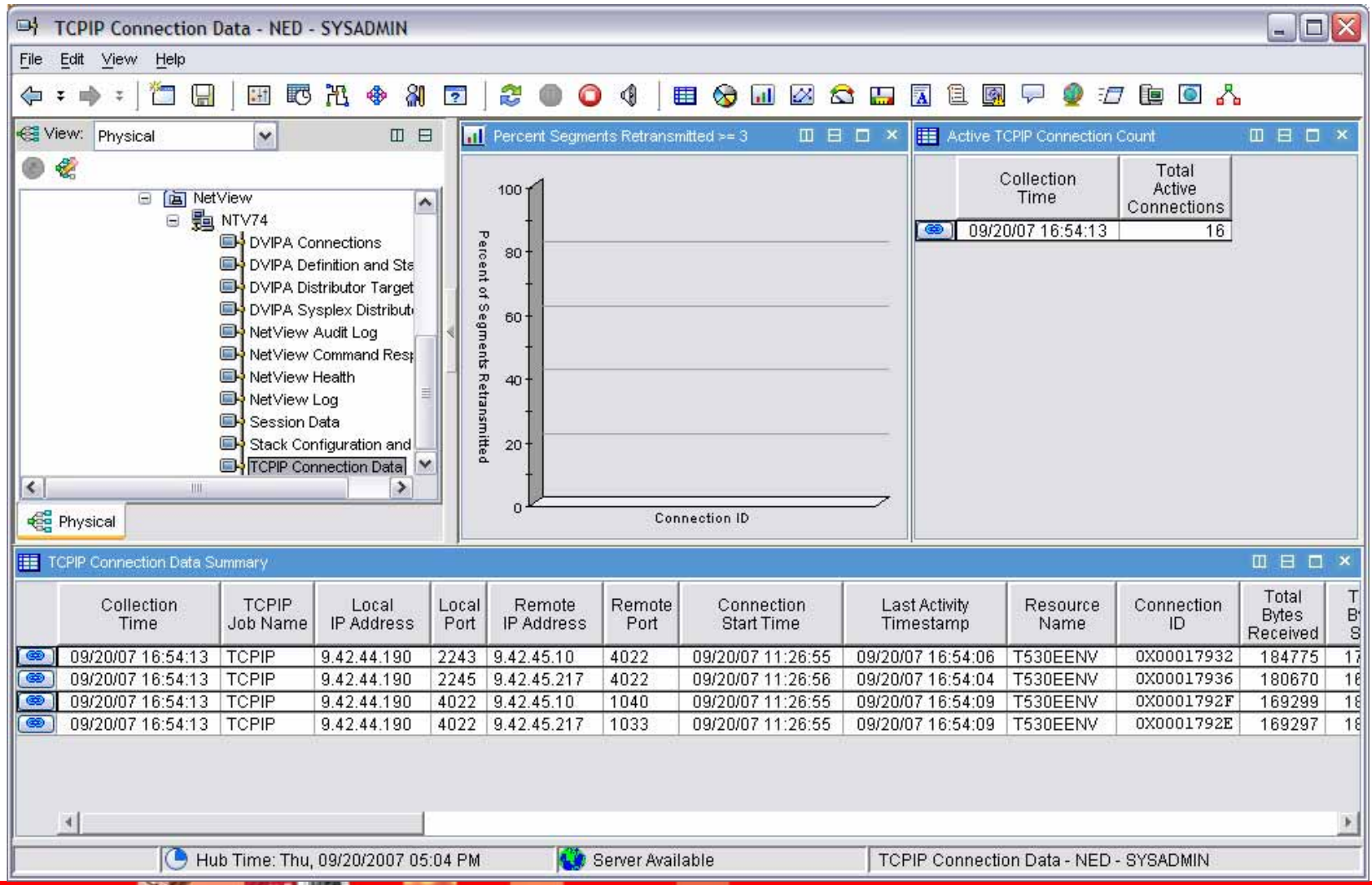
Additional Integration with the OMEGAMON Suite

- Correlated links between NetView and …
  - OMEGAMON XE on z/OS
  - OMEGAMON XE for CICS®
  - OMEGAMON XE for IMS™
  - OMEGAMON XE for Mainframe Networks

Additional Integration with the OMEGAMON Suite



Cross-product Integration Example



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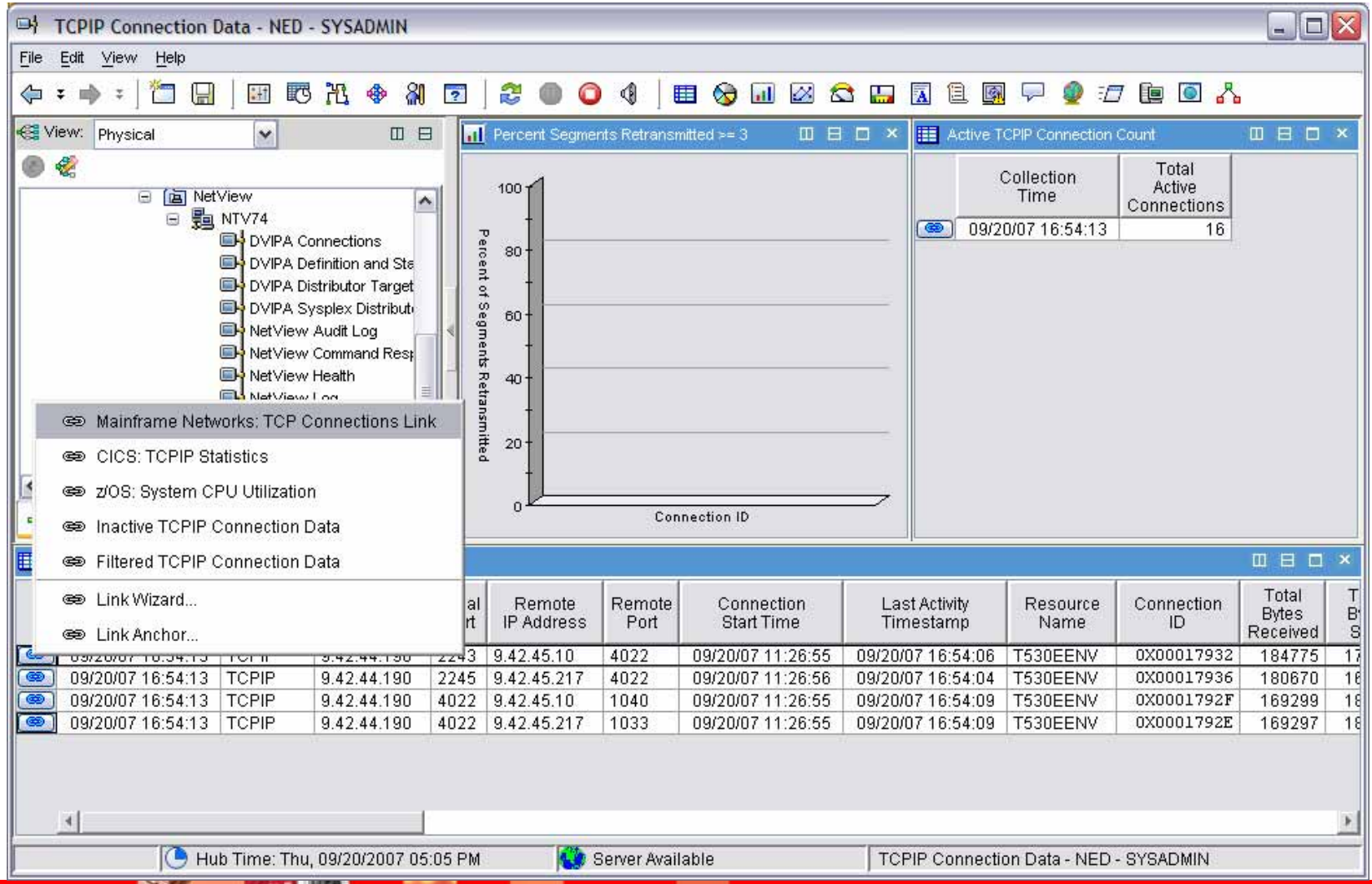

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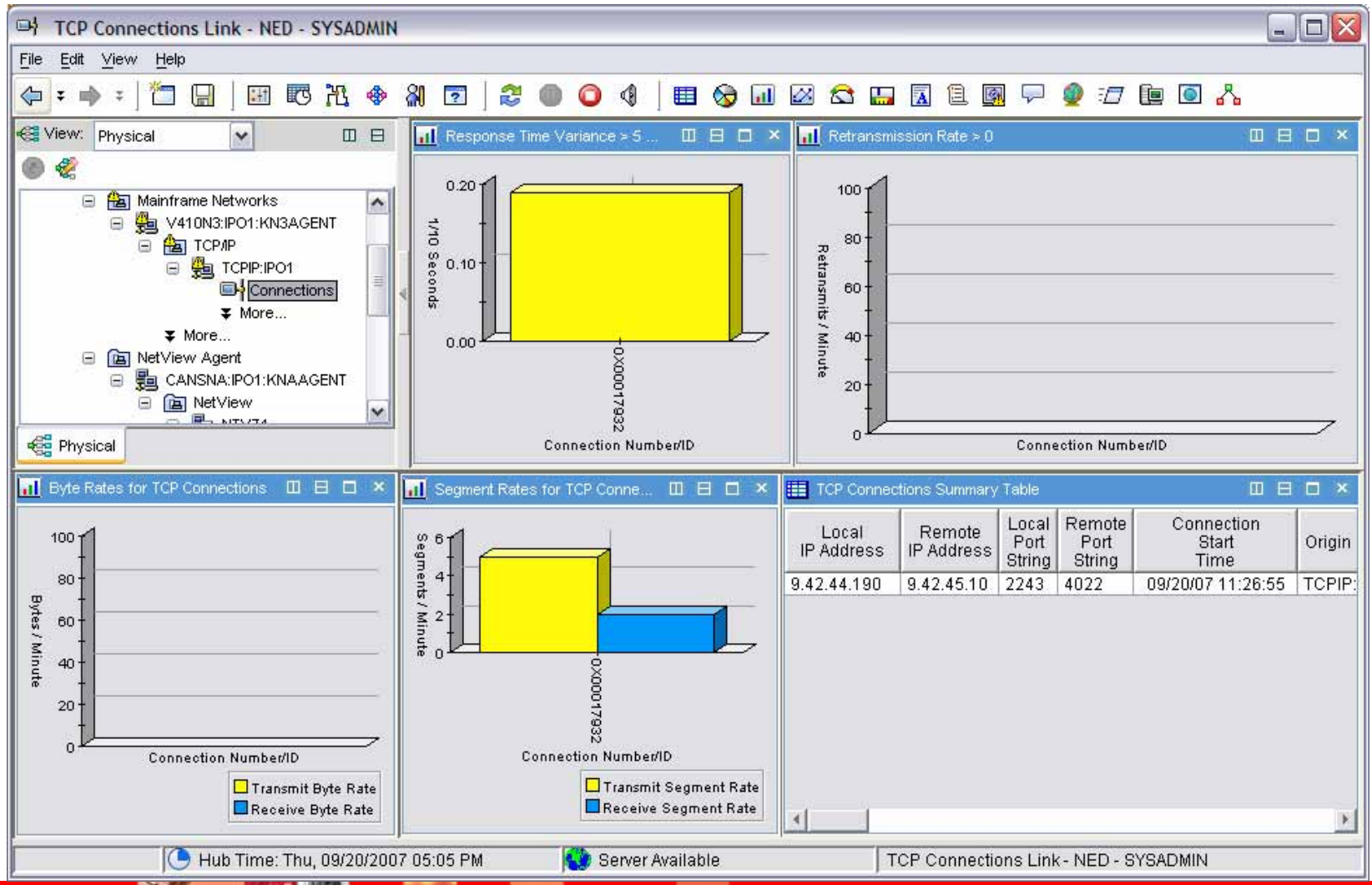


Additional OMEGAMON Integration

- More correlated cross-product links
- **Command authorization with NetView**

Command Authorization with NetView

- For agents that do not have a command handler
  - Route OMEGAMON Take Action MVS commands to NetView for execution
- Command authorization at NetView leveraging NetView's command authorization
  - Table Authorization
  - SAF Authorization
  - TEP userID is used to determine the NetView operator whose command authority is checked. If command authorization passes, the command is executed on that NetView operator.
- Messages are written to NetView Log to provide audit trail of commands and user who issued them.

z/OS OMEGAMON Agents

- OMEGAMON XE for CICS on z/OS V3.1.0 and V4.1.0
- OMEGAMON XE for DB2® on z/OS V3.1.0 and V4.1.0
- OMEGAMON XE for IMS on z/OS V3.1.0 and V4.1.0
- OMEGAMON XE for Storage on z/OS V3.1.0 and V4.1.0
- OMEGAMON XE for Mainframe Networks V3.1.0 and V4.1.0
- OMEGAMON XE on z/OS V3.1.0 and V4.1.0
- OMEGAMON z/OS Management Console V1.1.0 and V4.1.0
- OMEGAVIEW® V3.1.0
- OMEGAVIEW II® for the Enterprise V3.1.0

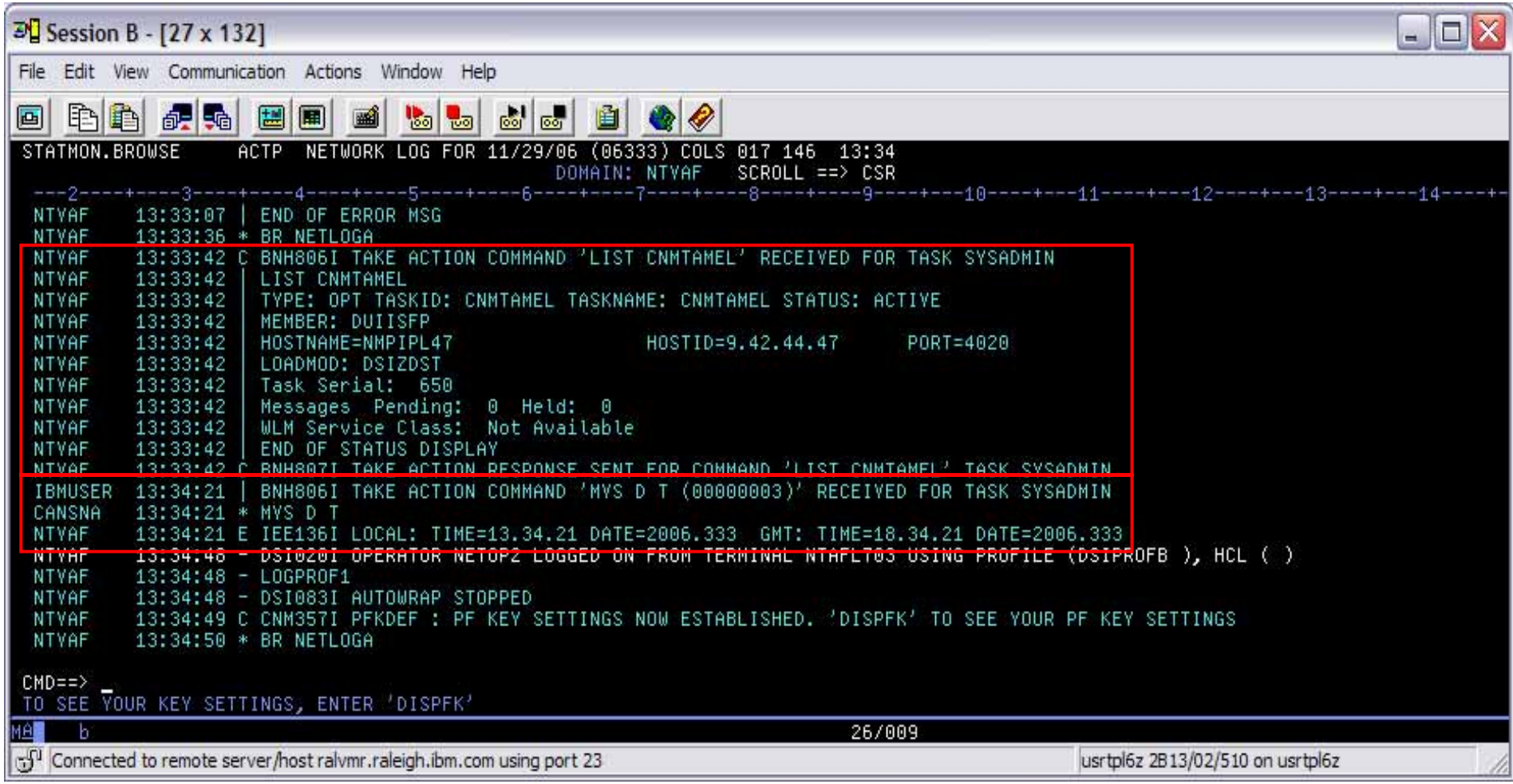
APARs for OMEGAMON Product Family

Product	V1.1.0	V3.1.0	V4.1.0
IBM Tivoli OMEGAMON XE for CICS on z/OS		OA19124	OA19124
IBM Tivoli OMEGAMON XE for DB2 on z/OS		PK36349	PK36349
IBM Tivoli OMEGAMON XE for IMS on z/OS		OA19528	OA19556
IBM Tivoli OMEGAMON XE on z/OS		OA19227	GA's 1/2007
IBM Tivoli OMEGAMON XE for Storage on z/OS		OA19146	OA19146
IBM Tivoli OMEGAMON XE for Mainframe Networks		OA18911	OA18748
IBM Tivoli OMEGAMON z/OS Management Console	OA19022		GA's 1/2007
IBM Tivoli OMEGAVIEW		OA19229	
IBM Tivoli OMEGAVIEW II for the Enterprise		OA19420	

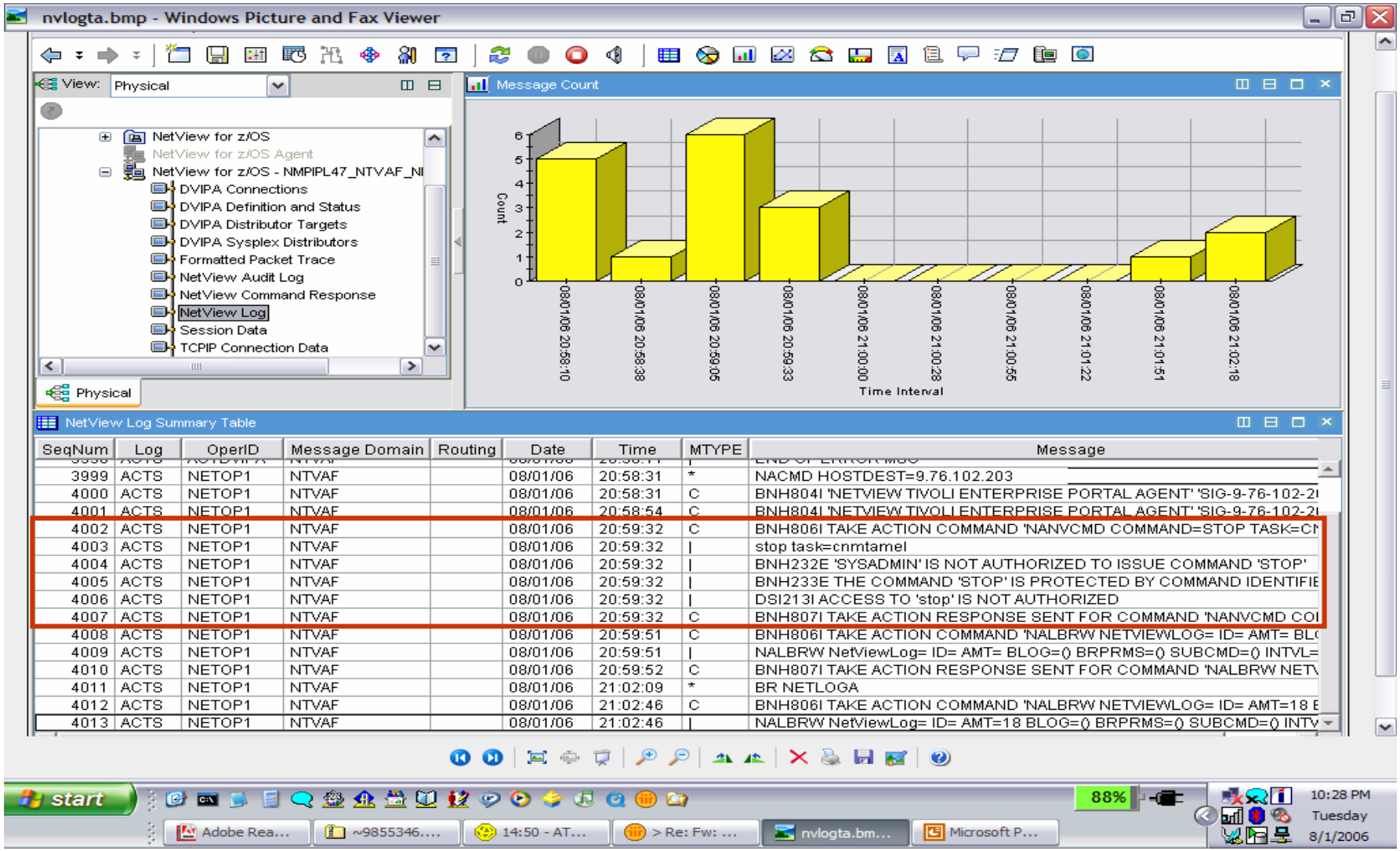
APARs for ICAT, OMEGAMON Platform V3.6.0, ITMS on z/OS V6.1.0

Component	OMEGAMON Platform V3.6.0	IBM Tivoli Monitoring on z/OS V6.1.0
ICAT framework V3.1.0 (CI310)	OA18174	OA18174
Candle Management Server V3.6.0 (DS360) Configuration	OA18378	
Candle Management Server V3.6.0 (DS360) FP6 HKDS360	OA14042	
CT/Engine V1.9.0 (LV190) FP6 HKLV190	OA16507	
IBM Tivoli Monitoring Tivoli Enterprise Monitoring Server V6.1.0 (DS610) Configuration		OA18378
IBM Tivoli Monitoring Tivoli Enterprise Monitoring Server V6.1.0 (DS610) FP4		OA17454
ITMS: Engine V6.1.0 (LV610) FP4 HKLV610		OA19090

NetView Log after Commands



NetView Log in the TEP



Core Functions

- **Dynamic Pipelines**
- Command Response Suppression
- NLDM: PIU Formatting
- Miscellaneous Enhancements

Dynamic Pipelines

- Allows for handling intermediate output from commands
  - Allows REXX to run while asynchronous, correlated messages are being returned.
  - For example, allows intermediate output from PING and TRACERTE
- Intended primarily for programmatic use, but can be used by operators
- New options on several commands
  - PIPE's PERSIST stage
  - ATTACH
  - TRAP clist command
- See CNMS1101 for example

Core Functions

- Dynamic Pipelines
- **Command Response Suppression**
- NLDM: PIU Formatting
- Miscellaneous Enhancements

Command Response Suppression

- Reduces number of responses to piped commands in the Syslog
- New option on DEFAULTS and OVERRIDE commands
  - SLOGCMDR (System LOG CoMmanD Responses)
  - Controls logging of WTOs inbound to NetView
    - Copies to CNMCSSIR are not affected
    - Keys on Console Name – not routecode
- New Message Revision Table (MRT) order
  - D4NV (“Destined for NetView”)

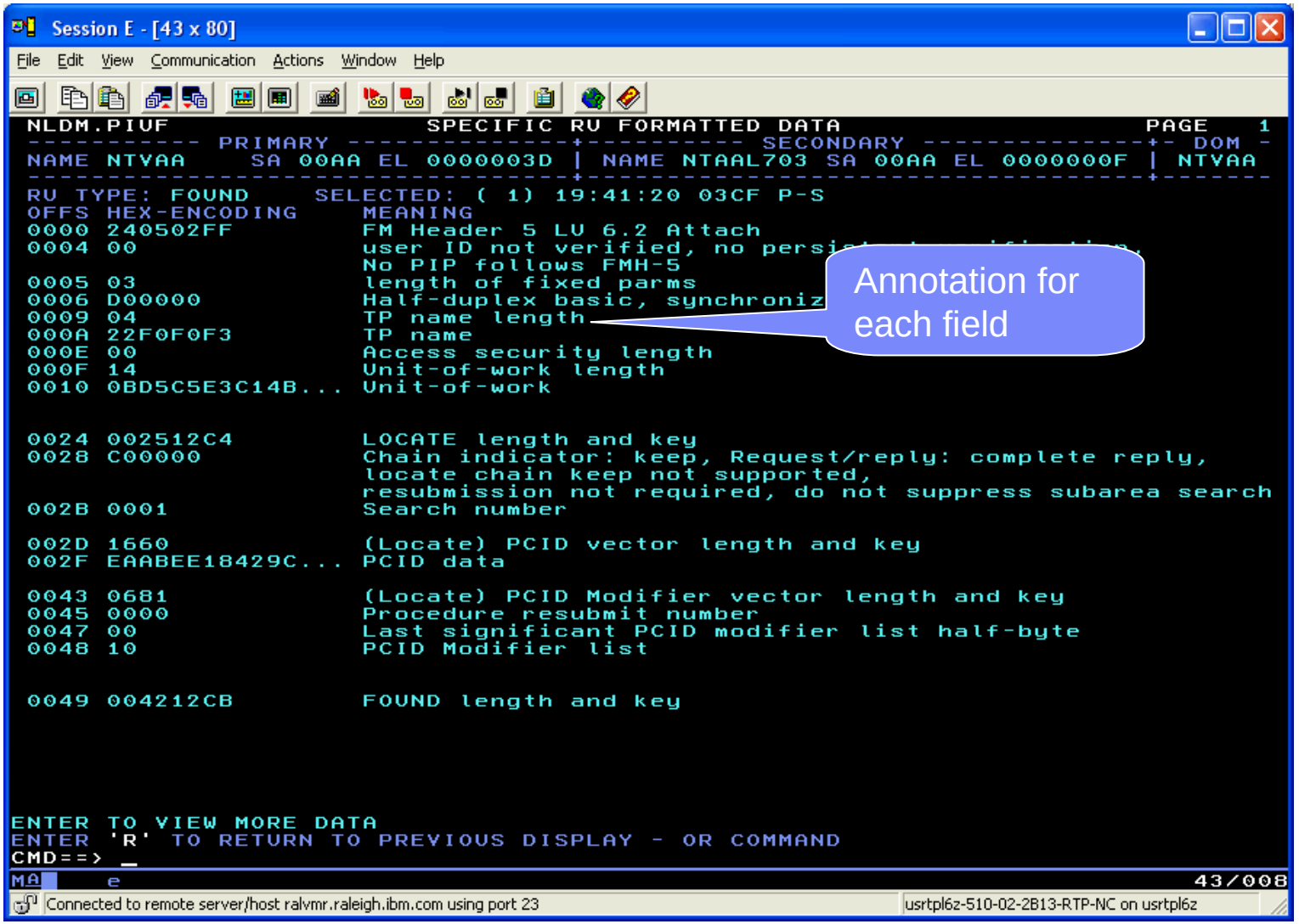
Core Functions

- Dynamic Pipelines
- Command Response Suppression
- **NLDM: PIU Formatting**
- Miscellaneous Enhancements

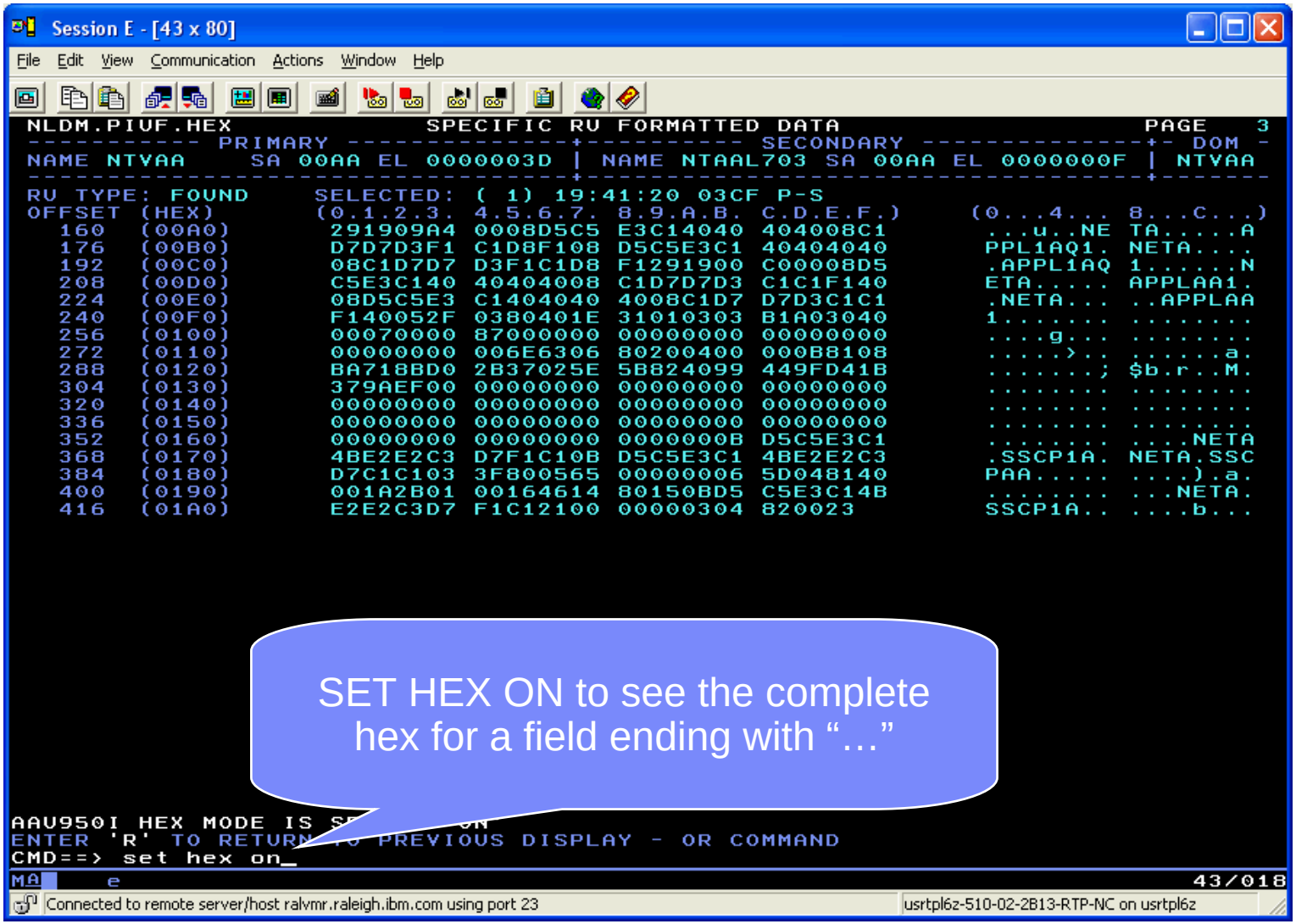
NLDM: PIU formatting

- Enhances existing NLDM functions that list PIUs and allows each to be expanded into “dump” format.
- New: if the PIU meets certain criteria (non-truncated LU 6.2 Attach), and “ F” is added to the selection number, NetView will format (interpret the data) the PIU.
- NetView also prompts for the “F” if there’s an eligible PIU on the PIUT screen.
- Can toggle between formatted screen and “in place” dump format via existing SET HEX ON|OFF command.

Formatted SNA PIU



Formatted SNA PIU ...



Core Functions

- Dynamic Pipelines
- Command Response Suppression
- NLDM: PIU Formatting
- **Miscellaneous Enhancements**

Miscellaneous Enhancements

Check for CLIST Existence

- Check for CLIST existence before checking user authorization
- Avoids “false positive” indications of security violation
  - RACF messages
  - Security-violation SMF records

Re-establish RMTCMD Connections

- If IP connection between source and target is disrupted
  - Automatically re-establish connection

AON Execs

- AON execs are once again shipped as source code, not compiled

For More Information

For More Information

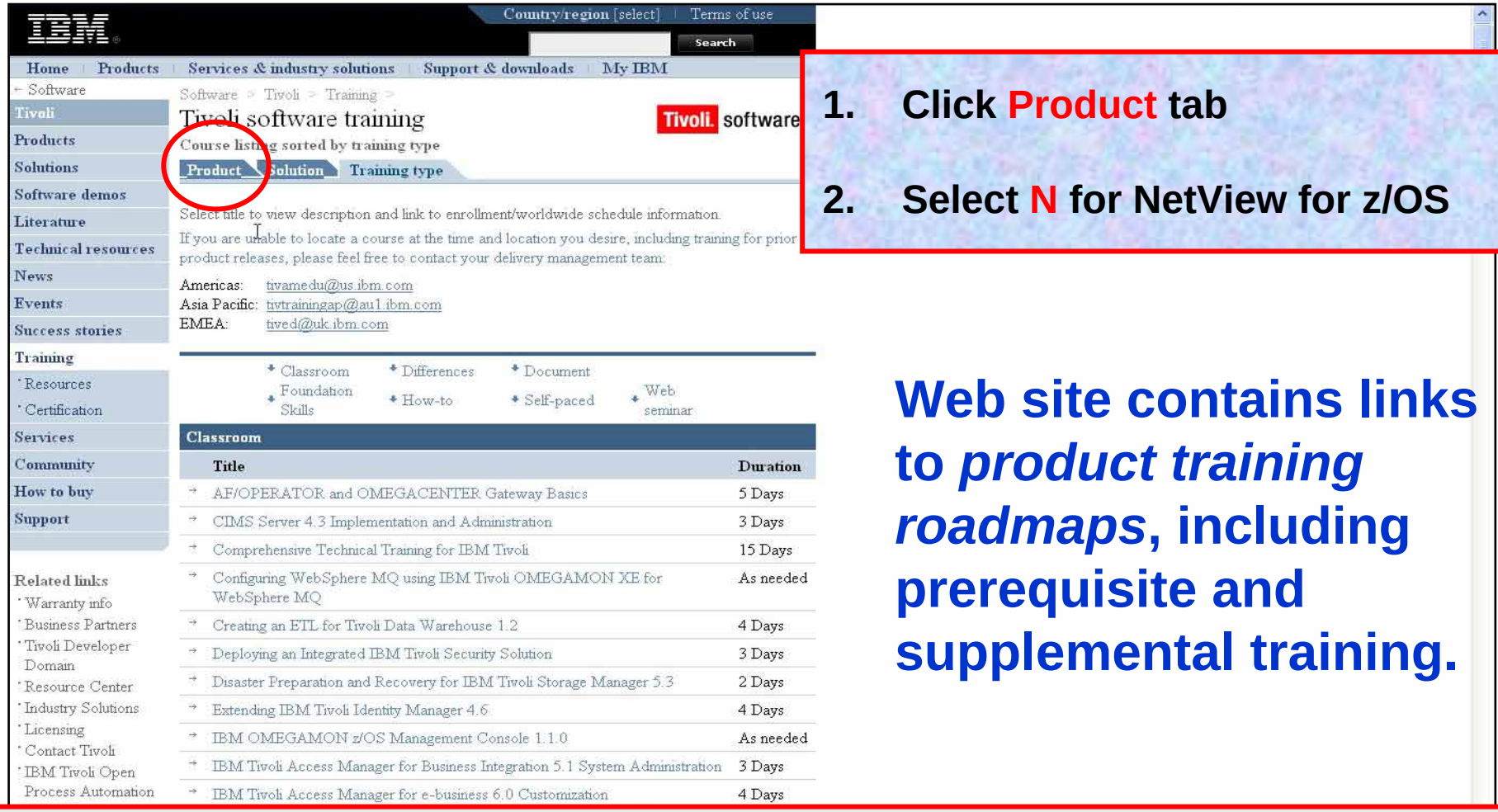
- NetView web site
  - http://www.ibm.com/software/tivoli/products/netview-zos/
  - Downloads (NMC, MSM agents, tools)
  - Release comparison
  - Link to online library
  - Link to Announcement letter
  - Links to other online information sources
  - More
- NetView Documentation
  - http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?toc=/com.ibm.itnetviewforzos.doc/toc.xml

Tivoli Software Training

- *Tivoli Enablement Development* produces training for *most* Tivoli products
  - **Differences training:** Covers most new and changed functions for a particular release of a product. (FREE)
  - **Web-based training (WBT):** Primary audience is distributed products. Topics generally are shorter in duration. Labs are usually a demonstration. Fees apply.
  - **Instructor-led training (ILT):** Traditional classroom training including lab exercises. Fees apply.
  - **Workshop:** Similar to ILT, but slides only. No additional student or instructor notes. Fees apply.
  - **Support Technical Exchange (STE):** Topics generally shorter in duration (less than 2 hours). No labs but demonstrations are possible. (FREE)
  - **IBM Education Assistant (IEA):** Similar to STEs, available on Boulder *infocenter* (FREE)
  - **White Paper:** Document related to a specific function of a product or how to use several products. Typically less than 50 pages. (FREE)

- All are available from the Tivoli Software Training Web page

Tivoli Software Training Web Page



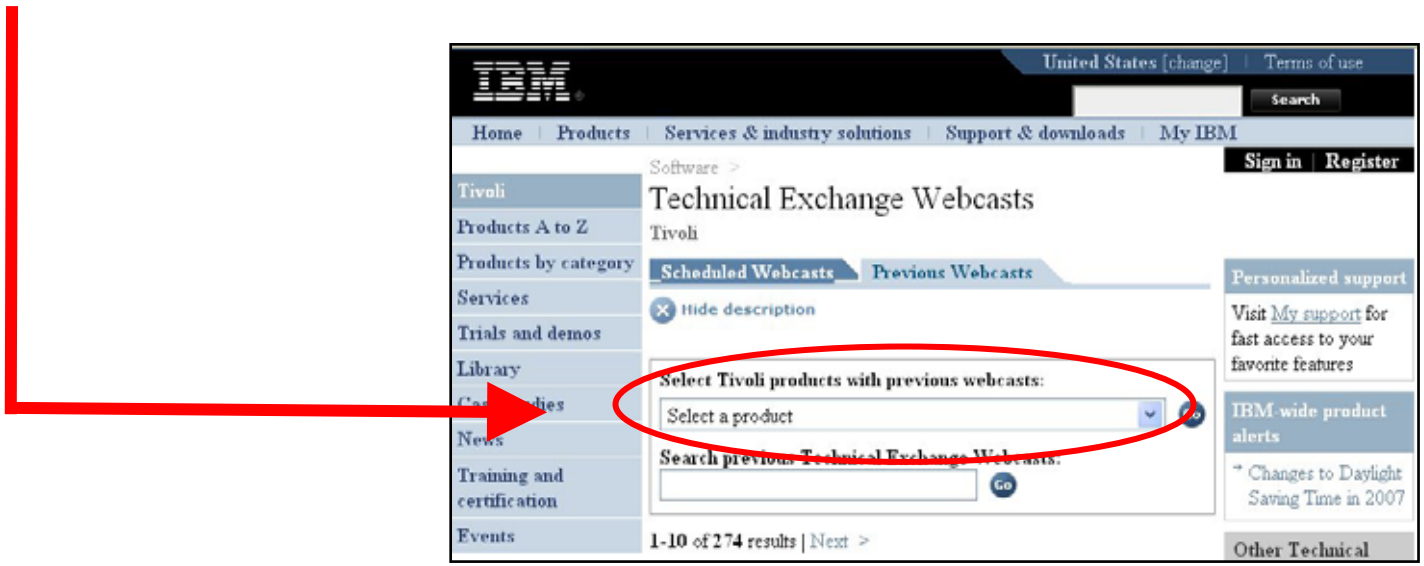
1. Click **Product** tab
2. Select **N** for NetView for z/OS

Web site contains links to *product training roadmaps*, including prerequisite and supplemental training.

http://www.ibm.com/software/tivoli/education/edu_type.html

Where to Find Web Seminars

- Recordings of all Web Seminars presented through Tivoli Education are available at the STE Web page:
  - http://www.ibm.com/software/sysmgmt/products/support/supp_tech_exch.html
- Search *Previous Webcasts*
  - NetView for z/OS



NetView Webinars

- Presented and recorded throughout 2006
  - General NetView for z/OS issues
  - Installing and Using the NetView for z/OS Tivoli Enterprise Portal V6.1 Agent
  - TCP/IP Management, Part 1
  - TCP/IP Management, Part 2
  - NetView Automation Enhancements
  - Time to Value, Ease of Use, and Migration Considerations
  - End User Interface and Product Integration
  - Miscellaneous Enhancements
- Descriptions and Recordings
  - http://www.ibm.com/software/tivoli/education/edu_prd.html#N
- Presented and recorded in 2007
  - Top 10 z/OS Communication Server problems: Isolating them with OMEGAMON and NetView for z/OS - March 29, 2007
    http://www.ibm.com/software/os/zseries/telecon/mar29/

New / Updated Classes

- Existing classes – under revision for NetView 5.3
  - “NetView Installation and Administration”
  - “NetView Customization Using Clists, Panels and Pipes”
- New classes under development
  - “NetView Fundamentals, Automation, REXX and Pipes”
    - Generally available: 1Q2008
  - “NetView V5.3 Differences”
    - Web-based
    - Available late October, 2007

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