IBM Software Group

Understanding the Impact of Networks on DB2 and IMS Performance

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Tivoli software

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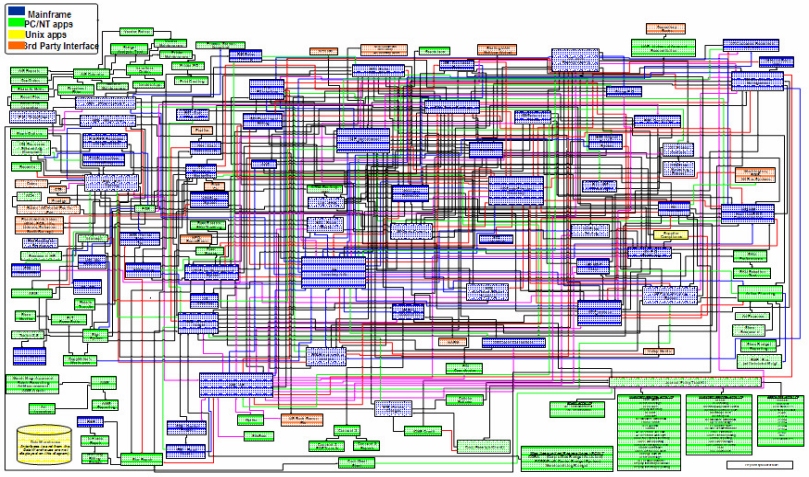
Agenda

- Challenges In Performance And Availability Management
- Understanding the application time line
- Benefits of the Tivoli Enterprise Portal
- OMEGAMON XE For DB2 PM/PE
- OMEGAMON XE For IMS
- OMEGAMON XE For Mainframe Networks & NetView
- Creating an integrated view
- Integrated navigation and linking
- Integrated alerts and corrective actions

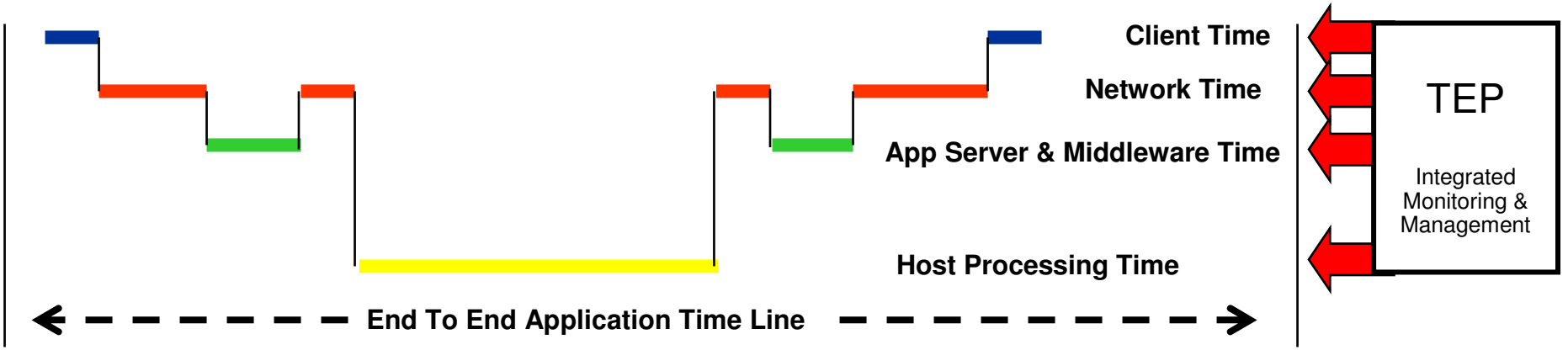
The Challenges Of Performance And Availability Management Of Complex Systems

- Most new applications are composite by design
  - Applications cross multiple subsystems and platforms
  - Integration and utilization of multiple core technologies
  - Pose challenges from a management and monitoring perspective



- Common Technical Challenges
  - Multiple platforms
  - Potentially multiple DB systems
  - Middleware considerations
  - One or multiple network hops
  - How best to do alerting, problem isolation, and root cause analysis

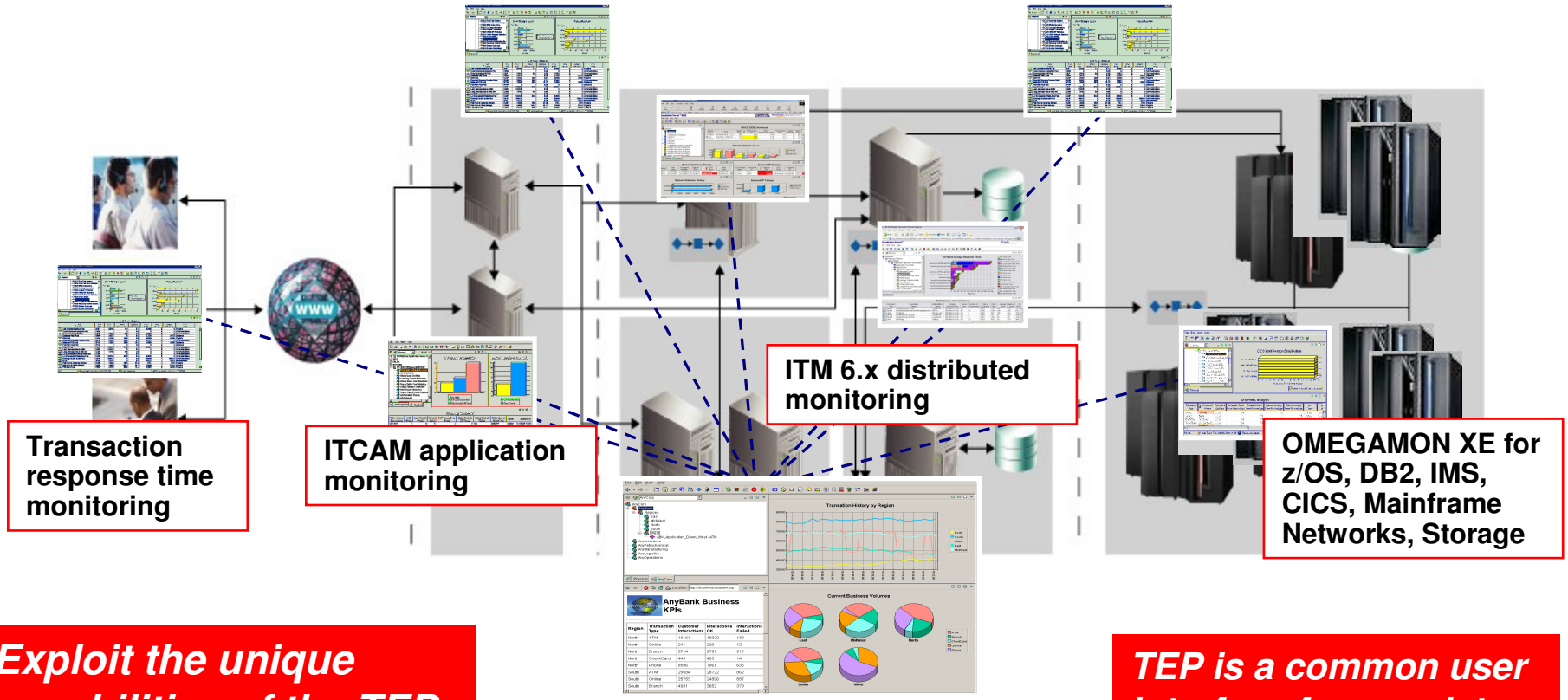
The Network And The Application Time Line



- Portions of response time may reside in any of the following
  - End user client processing, the application server or middleware level, the database, or other aspects of host z/OS application processing
- An integrated monitoring methodology enhances the ability to determine the impact of the network on the application time line
  - Monitor in depth using OMEGAMON and NetView on the mainframe, ITCAM in the middleware and application level, and ITM 6.x on the distributed level
  - Integrate monitoring and management using the Tivoli Enterprise Portal (TEP)

Where is the bottleneck?

Use The Tivoli Enterprise Portal (TEP) To Integrate Essential Performance Information



Exploit the unique capabilities of the TEP to make monitoring more powerful

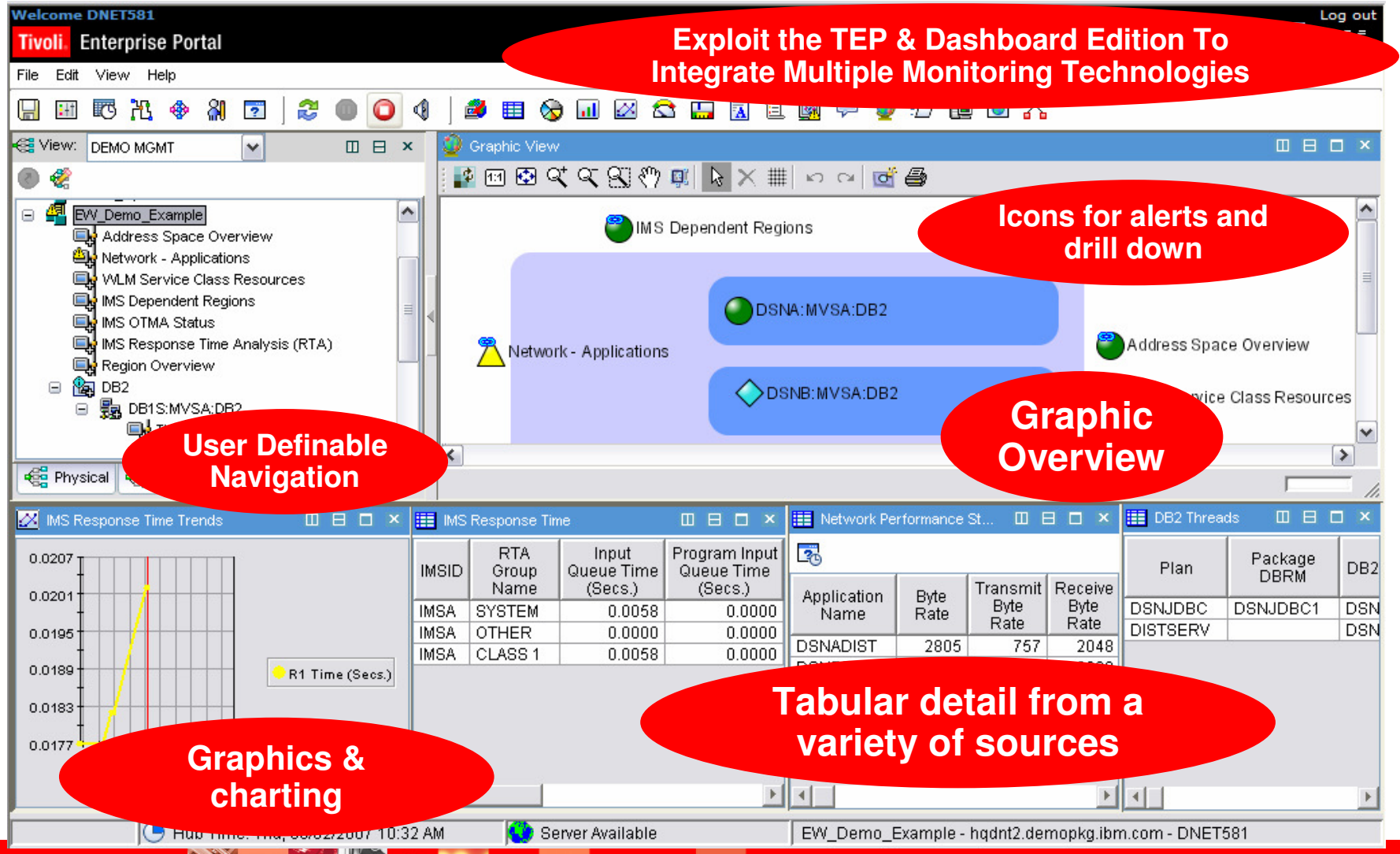
TEP is a common user interface for a variety of Tivoli monitoring and management solutions

Benefits Of An Integrated End To End Management Approach Using The TEP

- Provide the ability to add network performance and availability information to core OMEGAMON DB2 and IMS management displays
  - Provides a more complete view of performance
  - Is the problem in the network or somewhere else?
- Improved ability to manage composite applications
  - Integrated view of subsystems, platforms, and applications
- Reduce time to problem resolution
  - Improved event and problem isolation
  - Identify and isolate issues more rapidly
  - Superior performance analysis capabilities

Integration – The Power Of The Portal

TEP Provides An Integrated Management Paradigm



OMEGAMON XE For DB2 PM/PE V4.1

Major Features And Components

Real Time Thread Analysis
- ✔Thread detail & performance
- ✔Triggers, Procedures, & UDFs

Real Time – DB2 subsystem
- ✔Virtual & EDM Pool analysis
  - ✔Performance & snapshot
- ✔Locking & Logging Analysis
- ✔Storage Analysis

Application Trace Facility
- ✓Detailed performance tracing

Choice Of Interfaces
- ✓(TEP, PE GUI, 3270)

Buffer Pool Analysis (PE only)

DB2 Connect Monitoring

zIIP Engine utilization

Automation capabilities

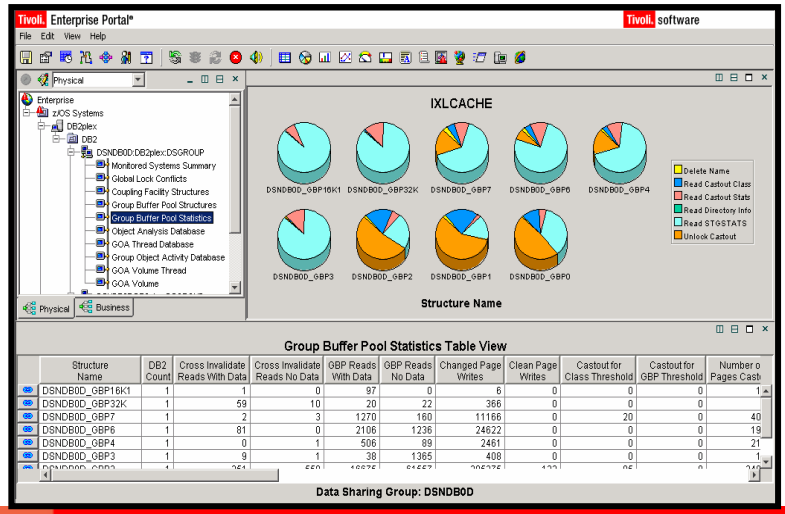
Locking & Lock Conflicts

DB2Plex Monitoring View
- ✔CF structure & lock analysis
- ✔Group object analysis

Object Analysis
- ✔I/O & getpage analysis
- ✔Correlate by object & App

Near-Term Historical
- ✔Near-term history online

Historical Analysis
- ✔Batch reporting
- ✔XE Tivoli Warehouse
- ✔Snapshot History
- ✔Performance Warehouse



Relevant Network Information Provided By OMEGAMON XE For DB2 PM/PE

- At the DB2 subsystem level
  - DDF status and DDF address space CPU rate
  - Send/receive counts and rates for transactions, SQL calls, and number of data rows
  - Number of distributed threads, inactive distributed threads, and thread high water mark
- DB2 Connect gateway performance
  - Detail about host time, time in DB2 Connect gateway, and time in network
- Application thread level
  - Transactions, bytes, messages, and blocks sent and received
  - Thread TCP/IP address and workstation name

The Challenge

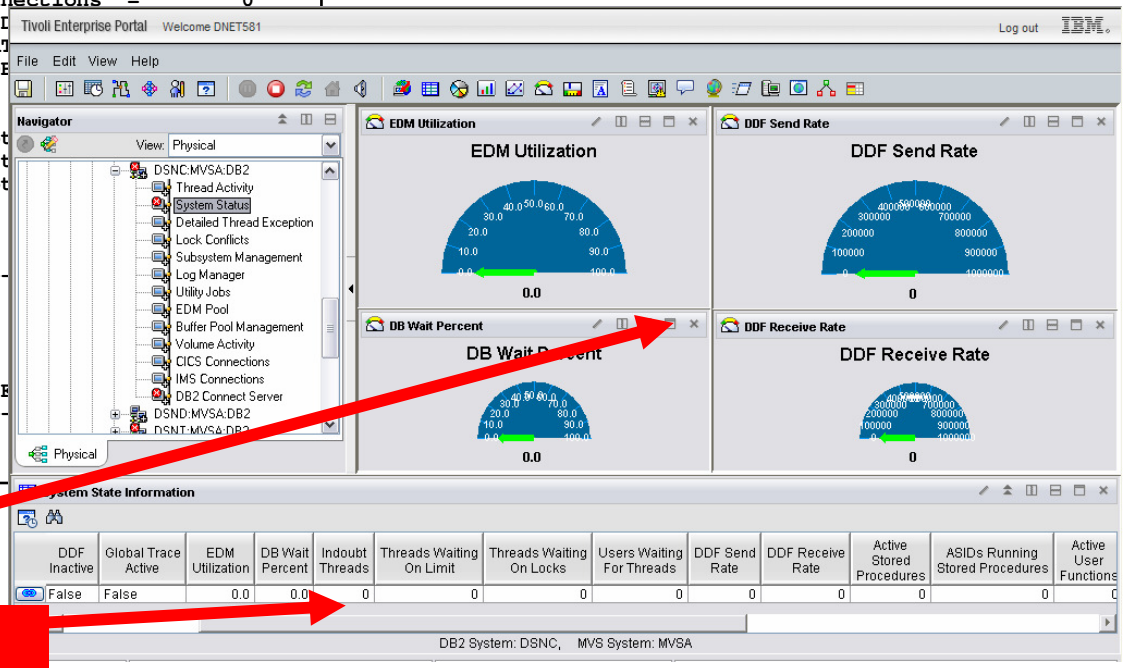
There are various techniques and topologies for applications to connect to DB2
How to measure and assess network impact on DB2 workload regardless of topology?

Subsystem Level DB2 Network Information

```
 _______________ ZDFST     VTM      O2        V410./I DSNC 03/12/08 10:39:08   2
>        Help PF1           Back PF3            Up PF7          Down PF8
> D.A
>    DISTRIBUTED DATA FACILITY:  Enter a selection letter on the top
>  *-DDF STATISTICS     B-DDF VTAM SUMMARY     C-DDF VTAM DETAIL     H-HISTORICAL
================================================================================
>                   DISTRIBUTED DATA FACILITY STATISTICS
 DFST
+ Collection Interval:  REALTIME                          Start:  03/12 10:38:56
+ Report Interval:       11 sec                             End:  03/12 10:39:0
+
+ Location Name           =     NDCDB203     DDF Status              =    ACTIVE
+ DDF CPU Rate            =     00.0%        Dist Allied Threads     =         0
+ Active DBATs            =         7        Inactive DBATs          =         0
+ DDF Send Rate           =    13K/sec       DDF Receive Rate        =    0K/sec
+ Resync Attempts         =         0        Resync Successes        =         0
+ Cold Start Connections  =         0        Warm Start Connections  =         0
+ DBAT Queued             =         0        Conversations
+ HWM All DBATs           =        17        HWM Active DBAT
+ Max DB Access (MAXDBAT)=       500        HWM Inactive DB
+
+ Remote Location Name    = DRDA REMOTE LOCS
+ Conversations Queued    =         0        Binds for Remot
+ Message Buffer Rows     =    295349        Block Mode Swit
+ Commits/Remote          =         5        Rollbacks/Remot
+ Indoubts/Remote         =         0
+
+          Tran      SQL      Row Message      Byte   Commit
+       ------- -------- ------- ------- --------- -------
+ Sent        4       27  295606  108257 1088675K        0
+ Recv      226    46950      25  108253 51726859    23808
+
+                                  Last  2-Phase
+ 2-PHASE COMMIT:          Prepare   Agent   Commit Backout
+                          ------- ------- -------- -------
+             Sent               5       4        0       0
+             Recv               5       4        0       0
```

To see history

Statistics for DDF activity



Message traffic (send and receive)

Thread count by type

DB2 Thread Level Performance Information

See IP address, user information, WLM service class, workstation information

Welcome DNET581

Tivoli Enterprise Portal

File Edit View Help

DB2 Threads

Plan	Package DBRM	DB2 Subsystem	Connection Type	Collection	Thread Type	Bytes Sent	Conversations	Messages Sent	Rows Sent	SQL Calls Sent	SQL Received
DISTSERV		DSNB	DBAcess		DB Access	334	0	5	0	0	0
DSNJDBC	DSNJDBC1	DSNA	RRSAF	DSNJDBC	Unknown	0	0	0	0	0	0

Thread level performance information

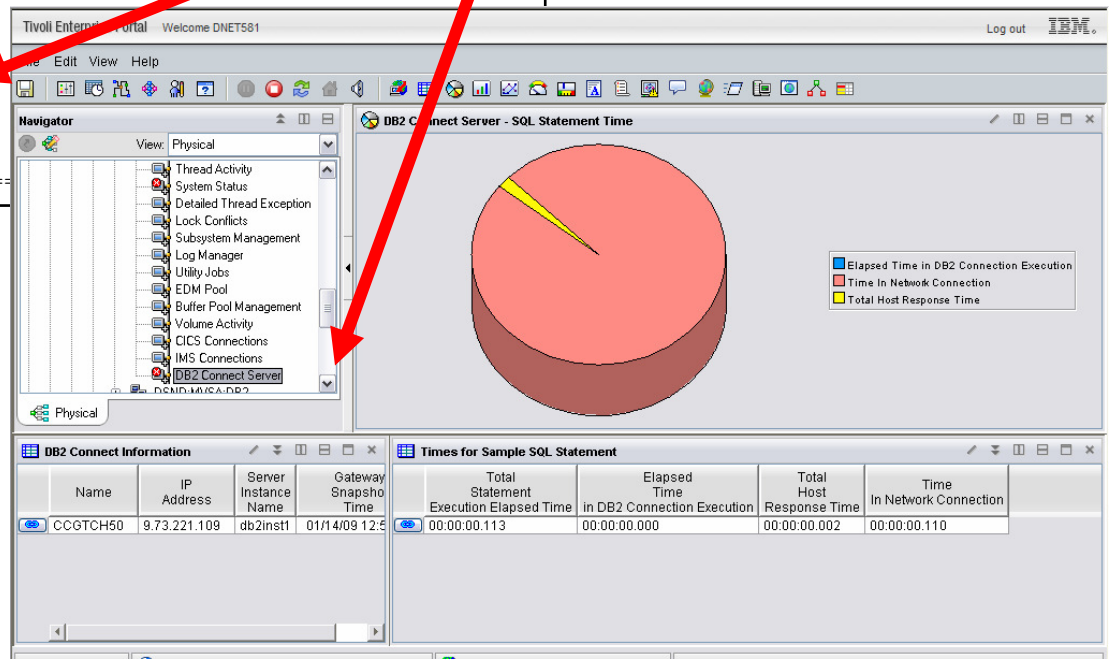
See distributed thread send and receive information

```
                V410./I DSNC 03/12/08 10:45:02   2
                                                 Back PF3

 selection letter on the top line.

K WAITS      D-LOCKS OWNED  E-GLOBAL LOCKS
STRIBUTED    I-BUFFER POOL  J-GROUP BP
ALLEL TASKS N-UTILITY       O-OBJECTS
 ACTIVITY    S-APPL TRACE   T-ENCLAVE

==========================================
 THREAD DETAIL

+ Thread:  Plan=DISTSERV  Connid=SERVER   Corrid=db2jcc_appli Authid=DNET581
+ Dist   :  Type=DATABASE ACCESS, Luwid=G94C1C2D.GB3B.C214F9B0EFE2=812813
+ Location  :  NDCDB203
 rsum
+                          Distributed TCP/IP Data
+Location          IP Addr  Port Ctbuser  Srvclsnam  Prod ID   Workstation Name
+----------------- -------- ---- -------- ---------- -------- ------------------
+9.76.28.45        094C1C2D  448 dnet581  DDFDEF      JCC02100 IBM-1E47754C52F
+
+ Transaction name: db2jcc_application
+ TCP/IP Userid:    dnet581
+
+                          Distributed SQL Statistics
+
+ Remote Location Name = 9.76.28.45        Remote Location Luname = G94C1C2D
+
+ Protocol Used        =                   Conversations Queued   =           0
+ Block Mode Switches  =           0       Message Buffer Rows    =        6336
+ Bind Remote Access   =           0       Max Allocated Conv     =           0
+ Conv Allocated       =           0       Conv Deallocated       =           0
+ Indoubt/Remote       =           0       Commit/Remote          =           0
+ Rollback/Remote      =           0

          Tran      SQL      Row Message      Byte   Commit    Abort     Conv   Blocks
       ------- ------- ------- ------- --------- ------- ------- ------- -------
 Sent        0       0    6336      48    554787       0       0       0      33
 Recv        1      33       0      48      4468      11       0       1       0

                                    Last 2 Phase                    Commit Backout
+ 2-PHASE COMMIT:       Prepare    Agent    Commit Backout  Forget    Resp    Resp
+                       ------- -------- --------- ------- ------- ------- -------
+           Sent              0        0         0       0       0       0       0
+           Recv              0        0         0       0       0       0       0
```

DB2 Connect Gateway Performance

```
 _________________ ZDBCP    VTM     O2       V410./I DSNC 03/12/08 10:53:06   2
>       Help PF1      Back PF3      Up PF7      Down PF8
>
> DB2 Connect/Gateway: Enter a selection letter on the top line.
>
> A-DB2 Connect/Gateway Statistics  B-Tasks List   *-Performance
> D-Package Statistics
================================================================
>                    DB2 Connect/Gateway Performance
 DBCS
+ Name: IBM-TRTL08U8STG IP Addr: 9.48.115.40     Srv Inst Name:DB2
+ Gateway Snapshot Time:2008-03-12-10.52.15.624000
 dbcp
+
+ Times for Sample SQL Statement
+ ------------------------------------------
+ Total Statement Time         =00:00:00.494260
+ Time in DB2 Connect          =00:00:00.000455
+ Time on DB2 Host             =00:00:00.000787
+ Time in Network Connection   =00:00:00.493018
================================================
```

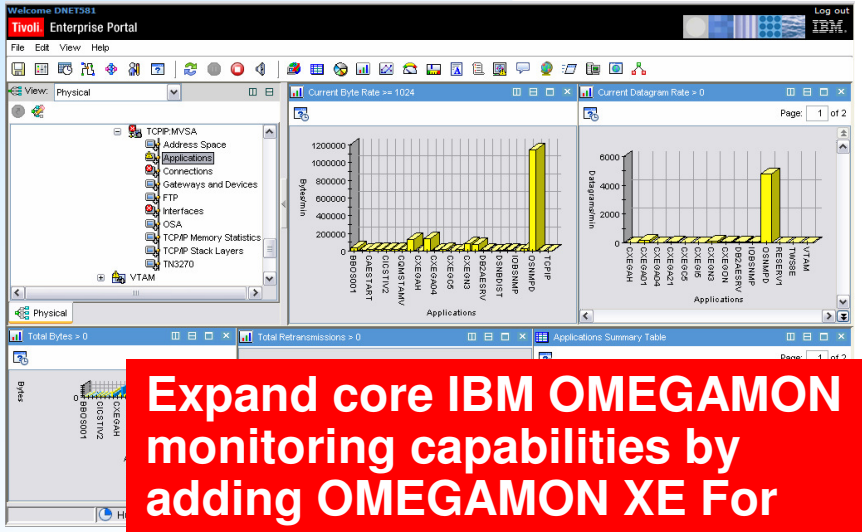
Is the problem in the network?
Is the problem in DB2?
Is the problem in the gateway?



DB2 Connect gateway performance data is collected via an OMEGAMON agent process installed on the Connect gateway. Performance data is forwarded to OMEGAMON task running on z/OS.

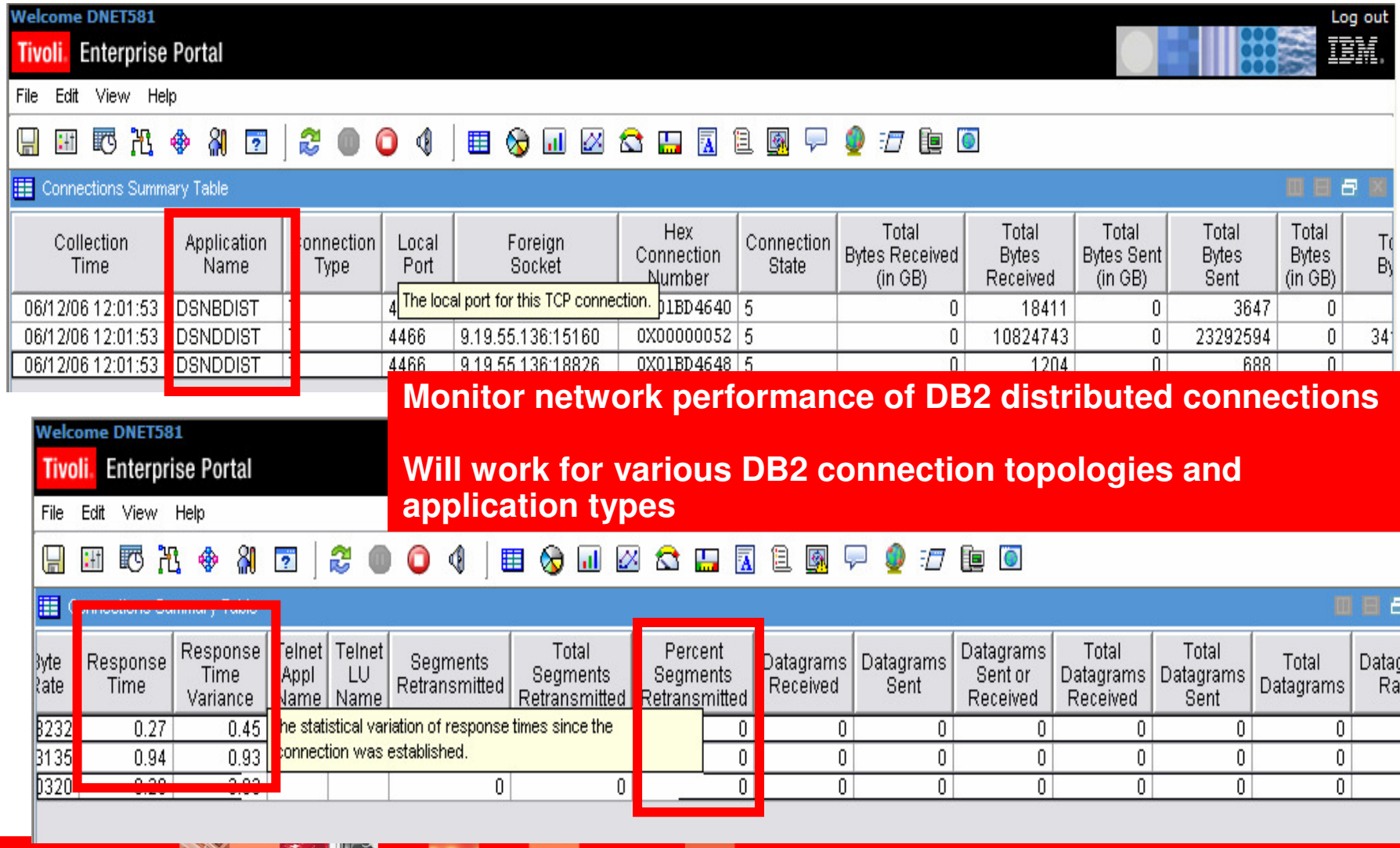
OMEGAMON XE for Mainframe Networks V4.1 Add Detailed Network Performance Information

- **Powerful monitoring and management**
  - Monitor TCP/IP and SNA network resources from a common interface
  - Real time and historical monitoring capabilities
- **Out of the box alerts and automation**
  - Product provided situations
- **Common user interface** – Tivoli Enterprise Portal (TEP)
  - Manage all z/OS resources from a single user interface.
  - Display data in graphs, charts and table format
- **Easy to configure**
  - Customize workspaces, reports, situations
  - Define thresholds, Filters, Sort
  - Generate Events
- **Integrated Capabilities**
  - OMEGAMON integration
  - NetView for z/OS V5.2 workspaces
  - ITM 6.x
- **Effective**
  - Determine the actual service level
  - Automate responses to performance problems



Expand core IBM OMEGAMON monitoring capabilities by adding OMEGAMON XE For Mainframe Networks to the TEP

OMEGAMON XE For Mainframe Networks Provides Detail For Connection Level Monitoring



Integration – The Power Of The Portal
Creating An Integrated Performance Workspace

- Creating an integrated performance management workspace using the TEP allows for the easy inclusion of network detail into DB2 and IMS displays
- Integration takes two primary forms
  - Integrated displays pulling together performance detail from multiple sources
  - Integrated cross product navigation using the capabilities of TEP links and dynamic workspace linking
- Integrated Situation Alerts, alert correlation, and corrective actions using the TEP
- History integrated with real time performance information

Customizing A TEP Workspace
Use Queries To Add Network Detail To The Workspace

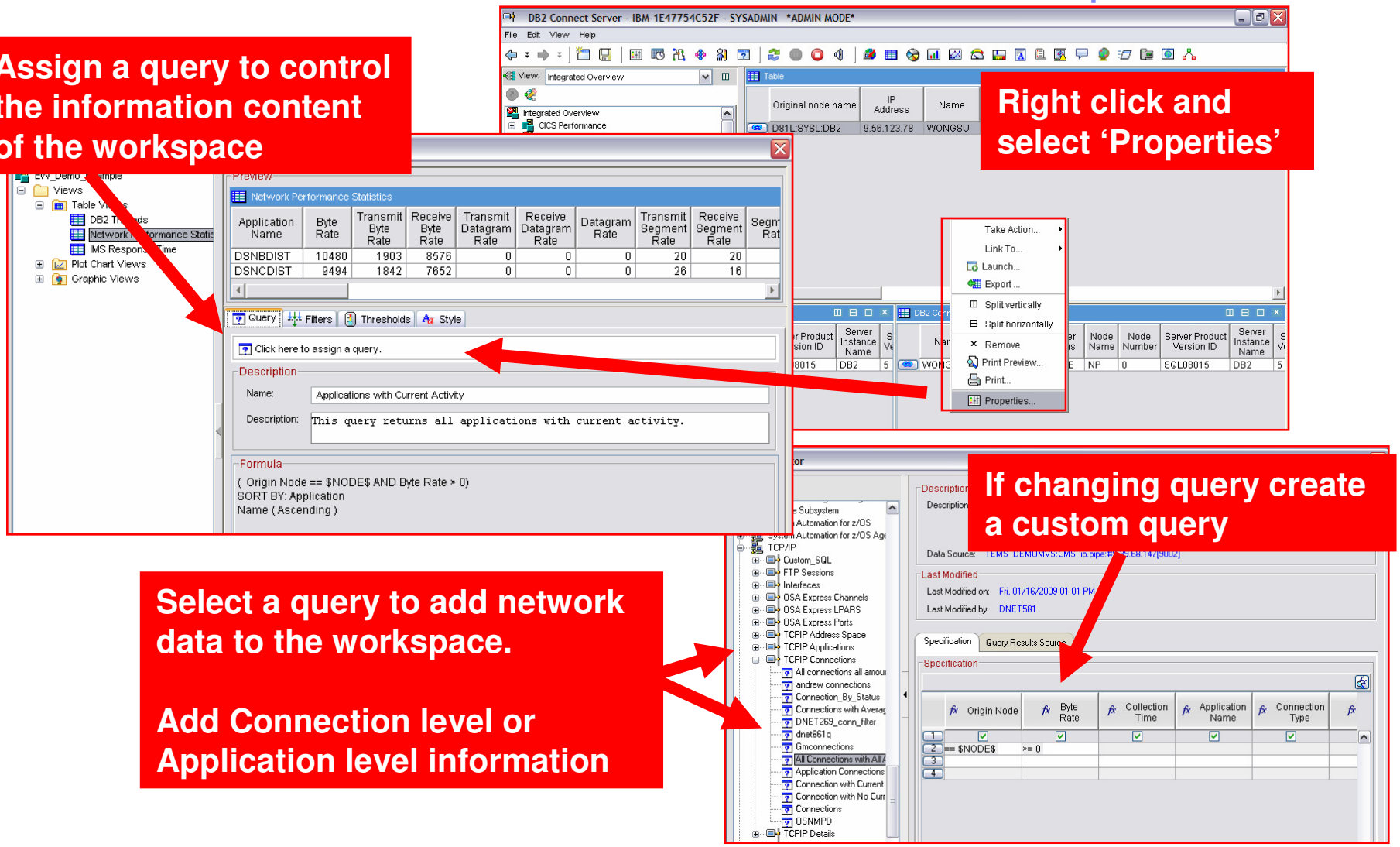
Assign a query to control the information content of the workspace

Right click and select 'Properties'

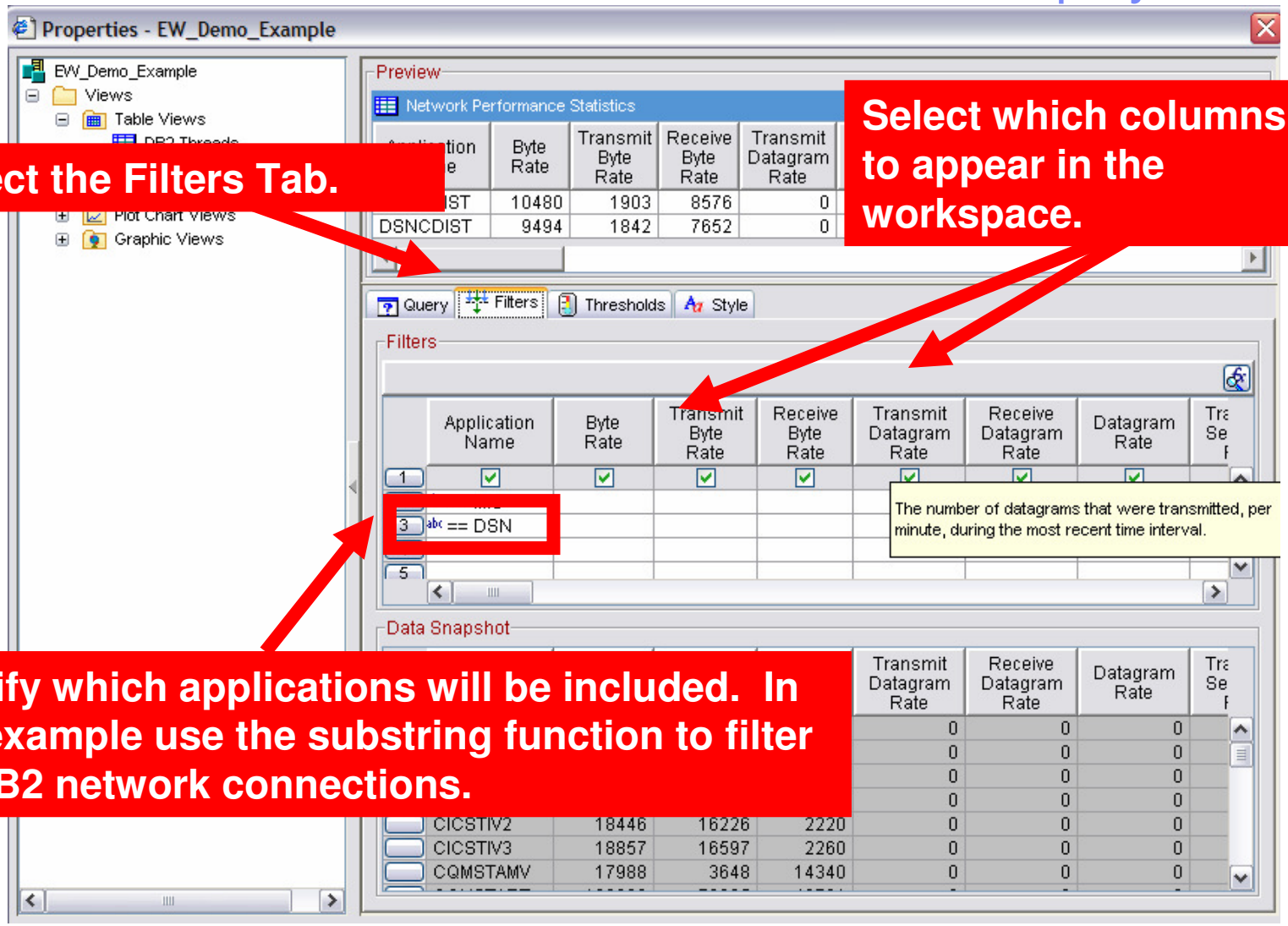
If changing query create a custom query

Select a query to add network data to the workspace.

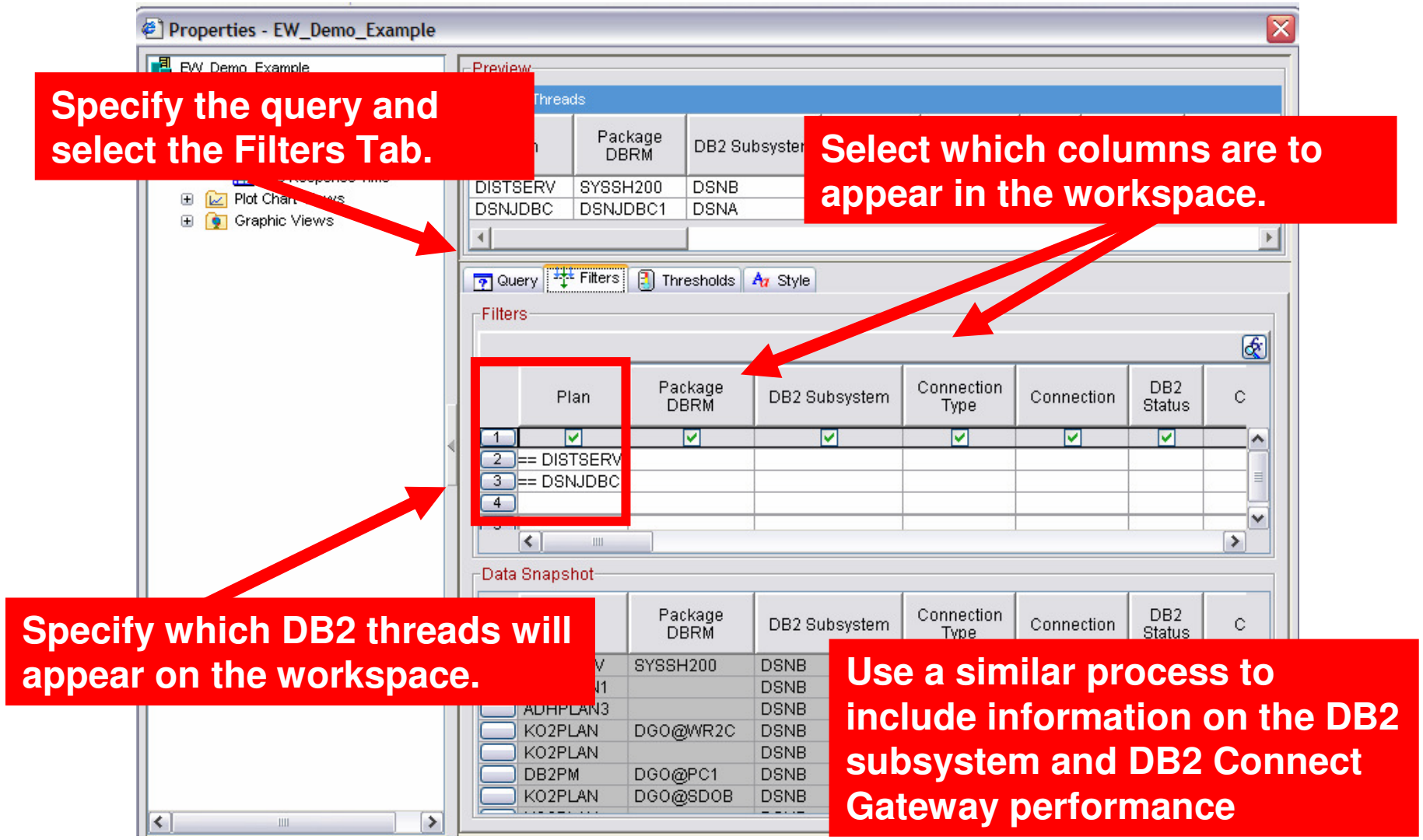
Add Connection level or Application level information



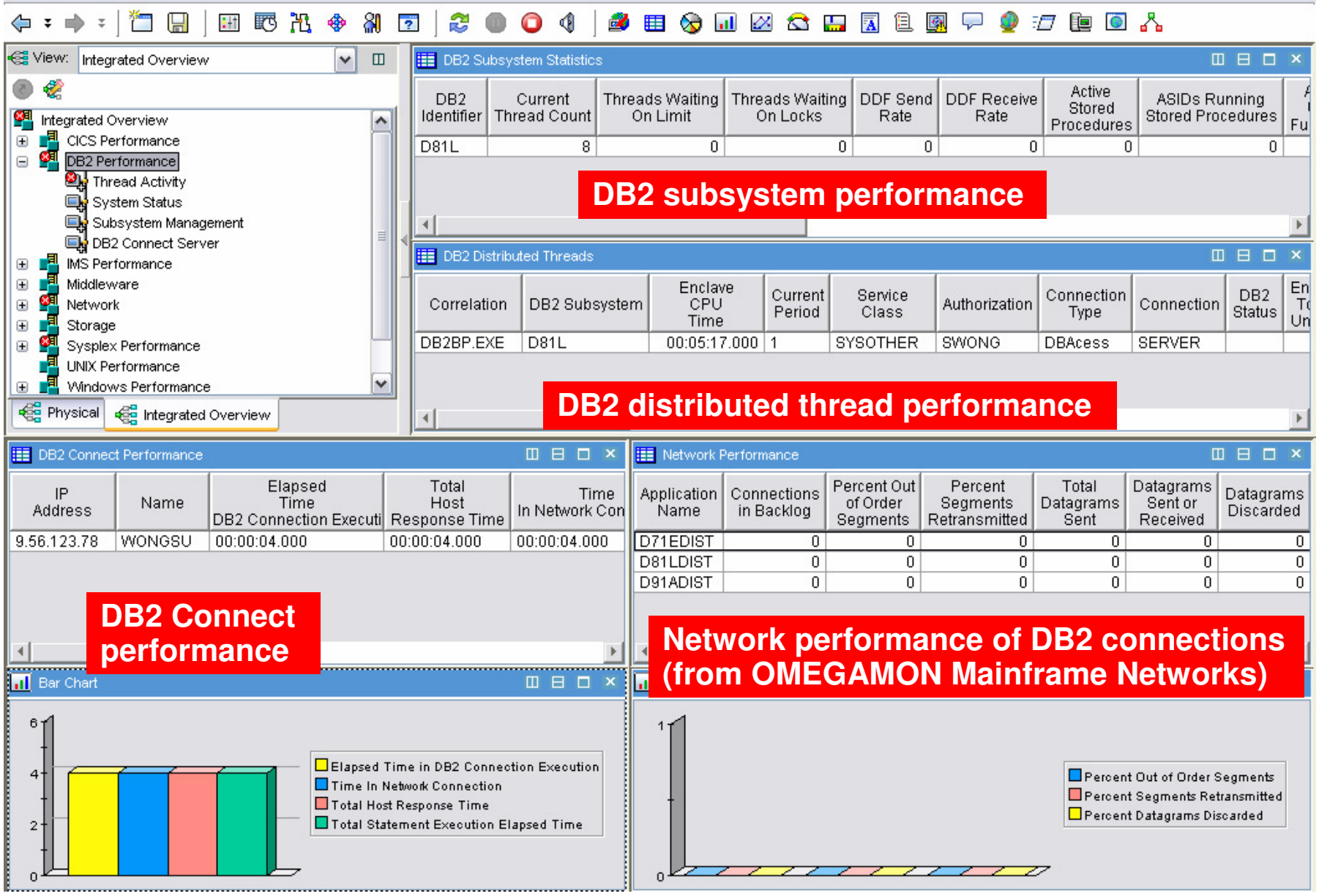
Use The Properties Options To Filter The View And To Control The Content Of Network Information Displayed



Use A Similar Technique To Include DB2 Information From OMEGAMON XE For DB2 PM/PE



The result is an integrated DB2 performance overview display

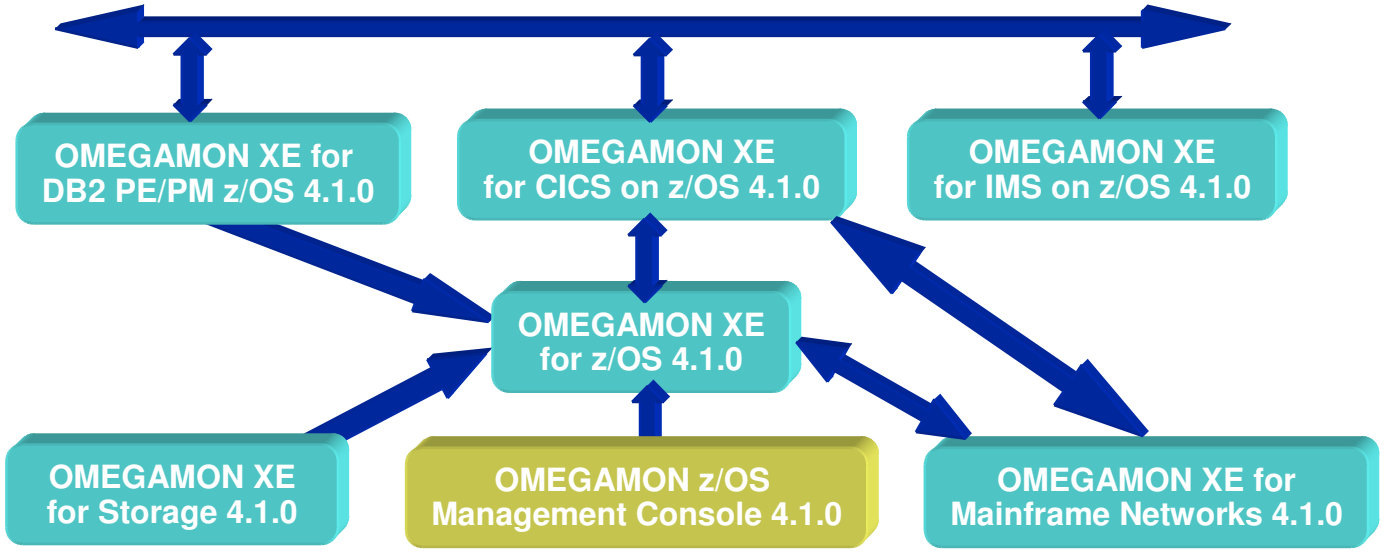


Dynamic Workspace Linking Enables Tight Integration Of Network Monitoring Information

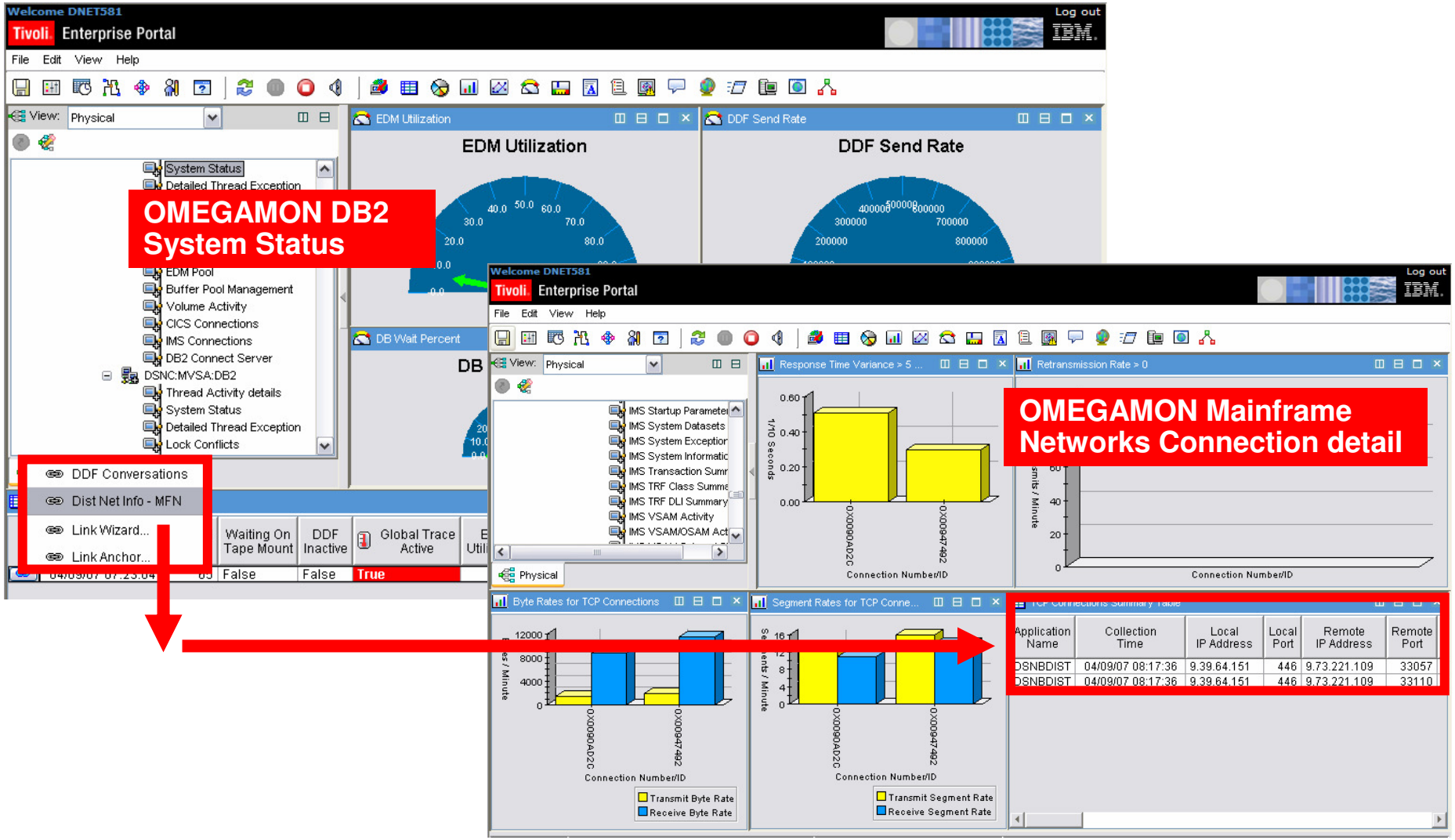
Problem: **How do I drill down for additional detail to determine where the problem is?**

Scenario: **Dynamically link between OMEGAMON DB2 and Network monitoring**

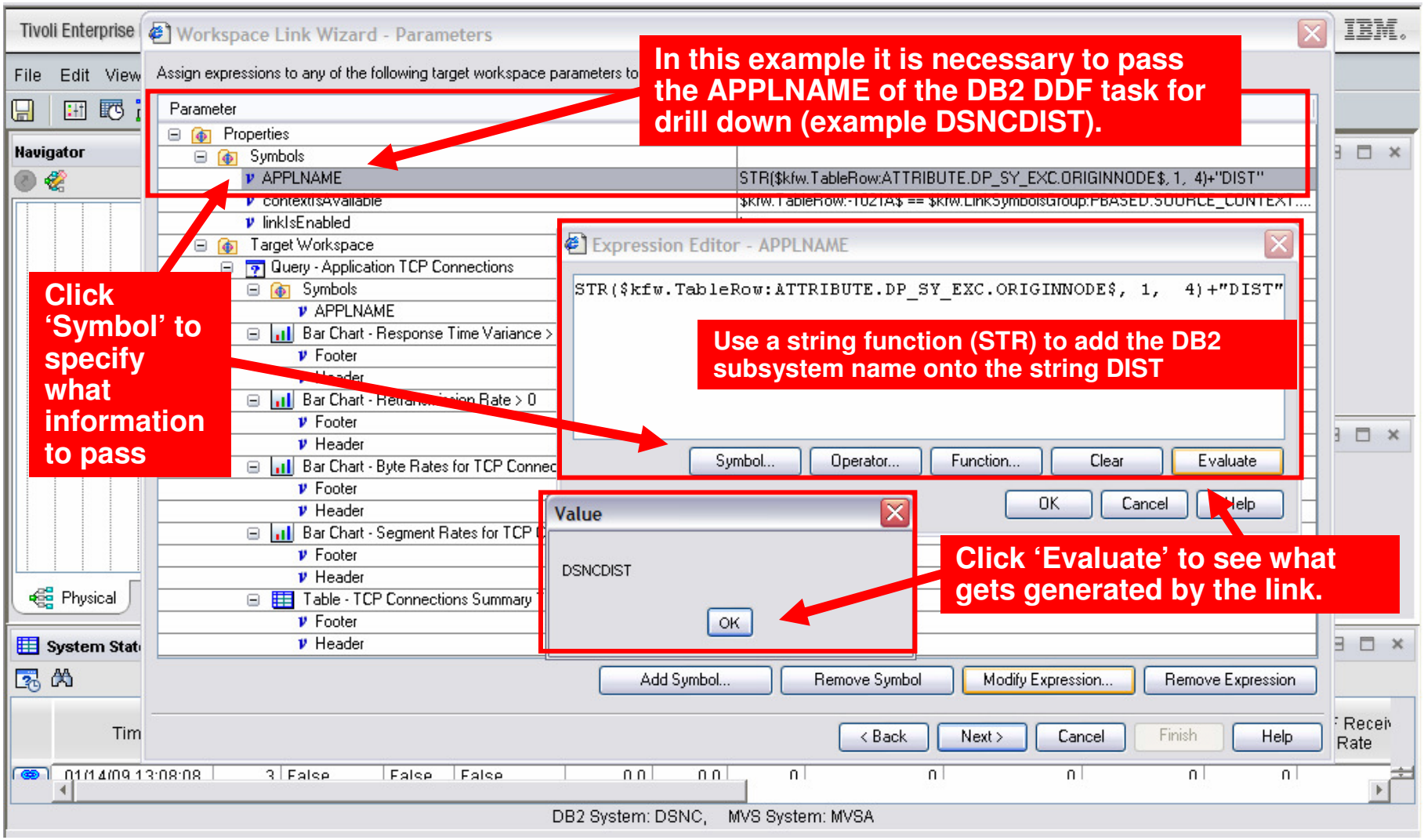
Solution: **Dynamic Workspace Linking**
Product provided links & user customized



Dynamic Workspace Link
Drill Down In Context To DB2 Network Information



How The DB2 Network Drill Down Link Is Defined



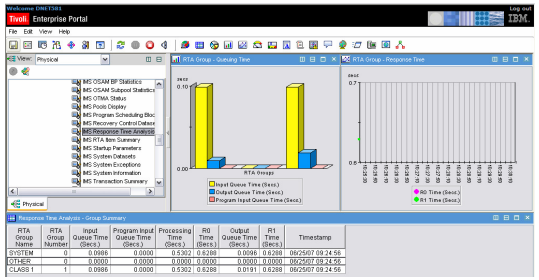
OMEGAMON XE For IMS on z/OS Components And Facilities

Real Time

- ***Real Time Monitor***
  - *Subsystems, regions, resources, pools, DBs, Fast path*
  - *IMS Connect, OTMA*
- ***Response Time Analysis (RTA)***
  - *Transaction Response time by user defined groups*
- ***Bottleneck Analysis***
  - *Workload performance and task analysis*
- ***Operator Assist & Integrated Console Facility***
  - *IMS resource commands*
- ***Online Transaction Reporting Facility (Online TRF)***
  - *View transaction information in the TEP*
- ***Trace Facilities***
  - *Application Trace and Near Term History*
- ***Multiple System and Plex level information***
  - *N-way data sharing, Global Locking, MSC, shared queues*
- ***Exceptions & Alerts***
  - *Integrated alert/automation*

Historical

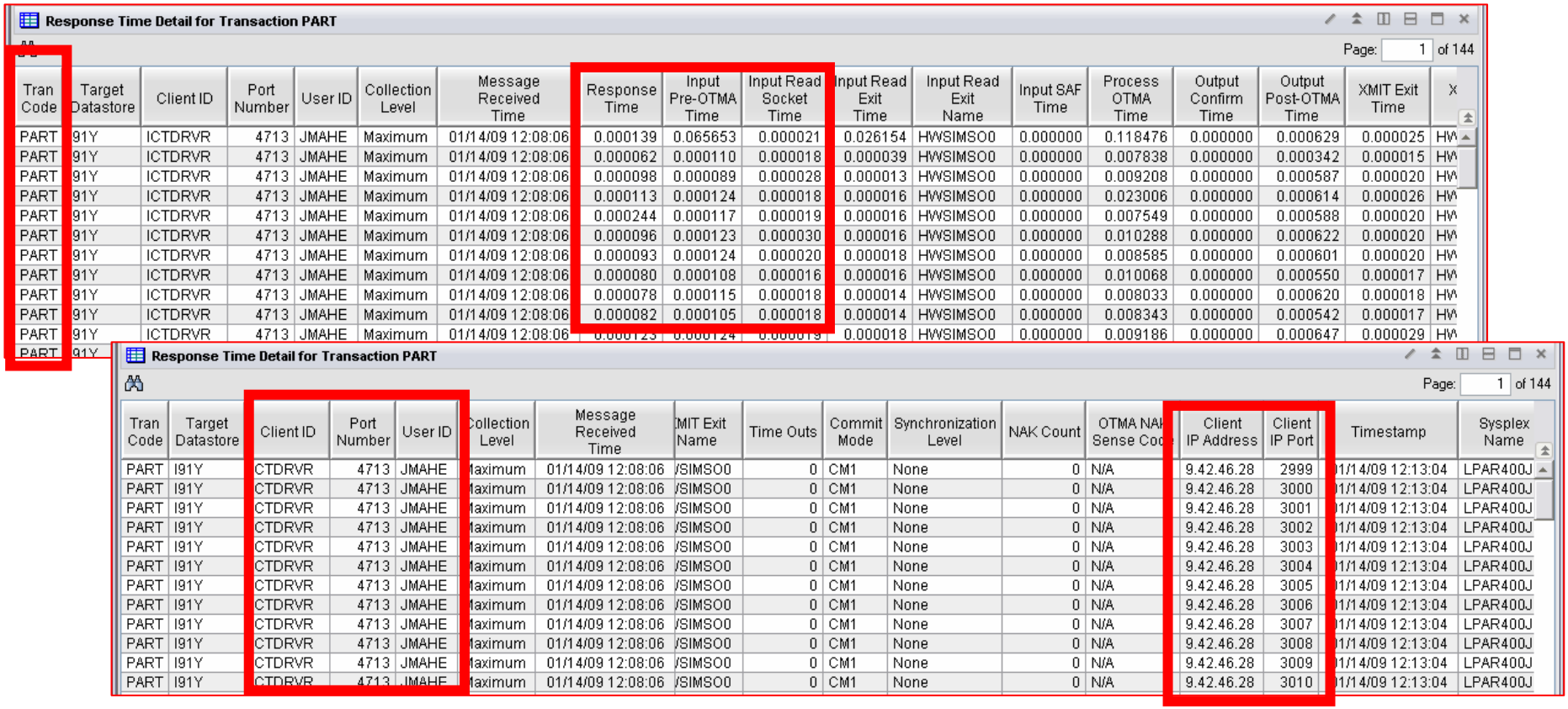
- ***EPILOG Historical***
  - *Historical analysis of transaction response, bottlenecks and IMS resources*
  - *Stored in VSAM Epilog Data Store (EDS) by group and time interval*
- ***Transaction Reporting Facility (TRF)***
  - *Detailed transaction & database data – individual transactions*
  - *Suitable for performance analysis & chargeback*
  - *Data retrieved from IMS log*
- ***XE Snapshot Historical***
  - *Snapshot historical stored in the Tivoli Data Warehouse*



Relevant Network Related Information Provided By OMEGAMON XE For IMS

- Network status information and command functions
- Advanced program-to-program communication (APPC) performance information
- OTMA performance information
- Multiple Systems Coupling (MSC) link status and queue information
- Transaction queuing statistics
- IMS Node and IMS Lterm status and queue information
- IMS Connect monitoring
  - IMS Connect status
  - Detailed IMS Connect performance and response time information
    - *Requires IMS Connect Extensions in addition to OMEGAMON XE For IMS*

OMEGAMON XE For IMS
Detailed IMS Connect Transaction Level Monitoring



Response Time Detail for Transaction PART

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Tran Code	Target Datastore	Client ID	Port Number	User ID	Collection Level	Message Received Time	Response Time	Input Pre-OTMA Time	Input Read Socket Time	Input Read Exit Time	Input Read Exit Name	Input SAF Time	Process OTMA Time	Output Confirm Time	Output Post-OTMA Time	XMIT Exit Time	X
PART	91Y	ICTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	0.000139	0.065653	0.000021	0.026154	HWSIMSO0	0.000000	0.118476	0.000000	0.000629	0.000025	HW
PART	91Y	ICTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	0.000062	0.000110	0.000018	0.000039	HWSIMSO0	0.000000	0.007838	0.000000	0.000342	0.000015	HW
PART	91Y	ICTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	0.000098	0.000089	0.000028	0.000013	HWSIMSO0	0.000000	0.009208	0.000000	0.000587	0.000020	HW
PART	91Y	ICTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	0.000113	0.000124	0.000018	0.000016	HWSIMSO0	0.000000	0.023006	0.000000	0.000614	0.000026	HW
PART	91Y	ICTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	0.000244	0.000117	0.000019	0.000016	HWSIMSO0	0.000000	0.007549	0.000000	0.000588	0.000020	HW
PART	91Y	ICTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	0.000096	0.000123	0.000030	0.000016	HWSIMSO0	0.000000	0.010288	0.000000	0.000622	0.000020	HW
PART	91Y	ICTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	0.000093	0.000124	0.000020	0.000018	HWSIMSO0	0.000000	0.008585	0.000000	0.000601	0.000020	HW
PART	91Y	ICTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	0.000080	0.000108	0.000016	0.000016	HWSIMSO0	0.000000	0.010068	0.000000	0.000550	0.000017	HW
PART	91Y	ICTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	0.000078	0.000115	0.000018	0.000014	HWSIMSO0	0.000000	0.008033	0.000000	0.000620	0.000018	HW
PART	91Y	ICTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	0.000082	0.000105	0.000018	0.000014	HWSIMSO0	0.000000	0.008343	0.000000	0.000542	0.000017	HW
PART	91Y	ICTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	0.000123	0.000124	0.000019	0.000018	HWSIMSO0	0.000000	0.009186	0.000000	0.000647	0.000029	HW

Response Time Detail for Transaction PART

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Tran Code	Target Datastore	Client ID	Port Number	User ID	Collection Level	Message Received Time	MIT Exit Name	Time Outs	Commit Mode	Synchronization Level	NAK Count	OTMA NAK Sense Cod	Client IP Address	Client IP Port	Timestamp	Sysplex Name
PART	I91Y	CTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	/SIMSO0	0	CM1	None	0	N/A	9.42.46.28	2999	01/14/09 12:13:04	LPAR400J
PART	I91Y	CTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	/SIMSO0	0	CM1	None	0	N/A	9.42.46.28	3000	01/14/09 12:13:04	LPAR400J
PART	I91Y	CTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	/SIMSO0	0	CM1	None	0	N/A	9.42.46.28	3001	01/14/09 12:13:04	LPAR400J
PART	I91Y	CTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	/SIMSO0	0	CM1	None	0	N/A	9.42.46.28	3002	01/14/09 12:13:04	LPAR400J
PART	I91Y	CTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	/SIMSO0	0	CM1	None	0	N/A	9.42.46.28	3003	01/14/09 12:13:04	LPAR400J
PART	I91Y	CTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	/SIMSO0	0	CM1	None	0	N/A	9.42.46.28	3004	01/14/09 12:13:04	LPAR400J
PART	I91Y	CTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	/SIMSO0	0	CM1	None	0	N/A	9.42.46.28	3005	01/14/09 12:13:04	LPAR400J
PART	I91Y	CTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	/SIMSO0	0	CM1	None	0	N/A	9.42.46.28	3006	01/14/09 12:13:04	LPAR400J
PART	I91Y	CTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	/SIMSO0	0	CM1	None	0	N/A	9.42.46.28	3007	01/14/09 12:13:04	LPAR400J
PART	I91Y	CTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	/SIMSO0	0	CM1	None	0	N/A	9.42.46.28	3008	01/14/09 12:13:04	LPAR400J
PART	I91Y	CTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	/SIMSO0	0	CM1	None	0	N/A	9.42.46.28	3009	01/14/09 12:13:04	LPAR400J
PART	I91Y	CTDRVR	4713	JMAHE	Maximum	01/14/09 12:08:06	/SIMSO0	0	CM1	None	0	N/A	9.42.46.28	3010	01/14/09 12:13:04	LPAR400J

OMEGAMON XE For IMS V4.x provides support for IMS Connect monitoring. Provides detailed transaction level response time information.

Note – Detailed IMS Connect monitoring requires IMS Connect Extensions.

Understanding IMS Response Time

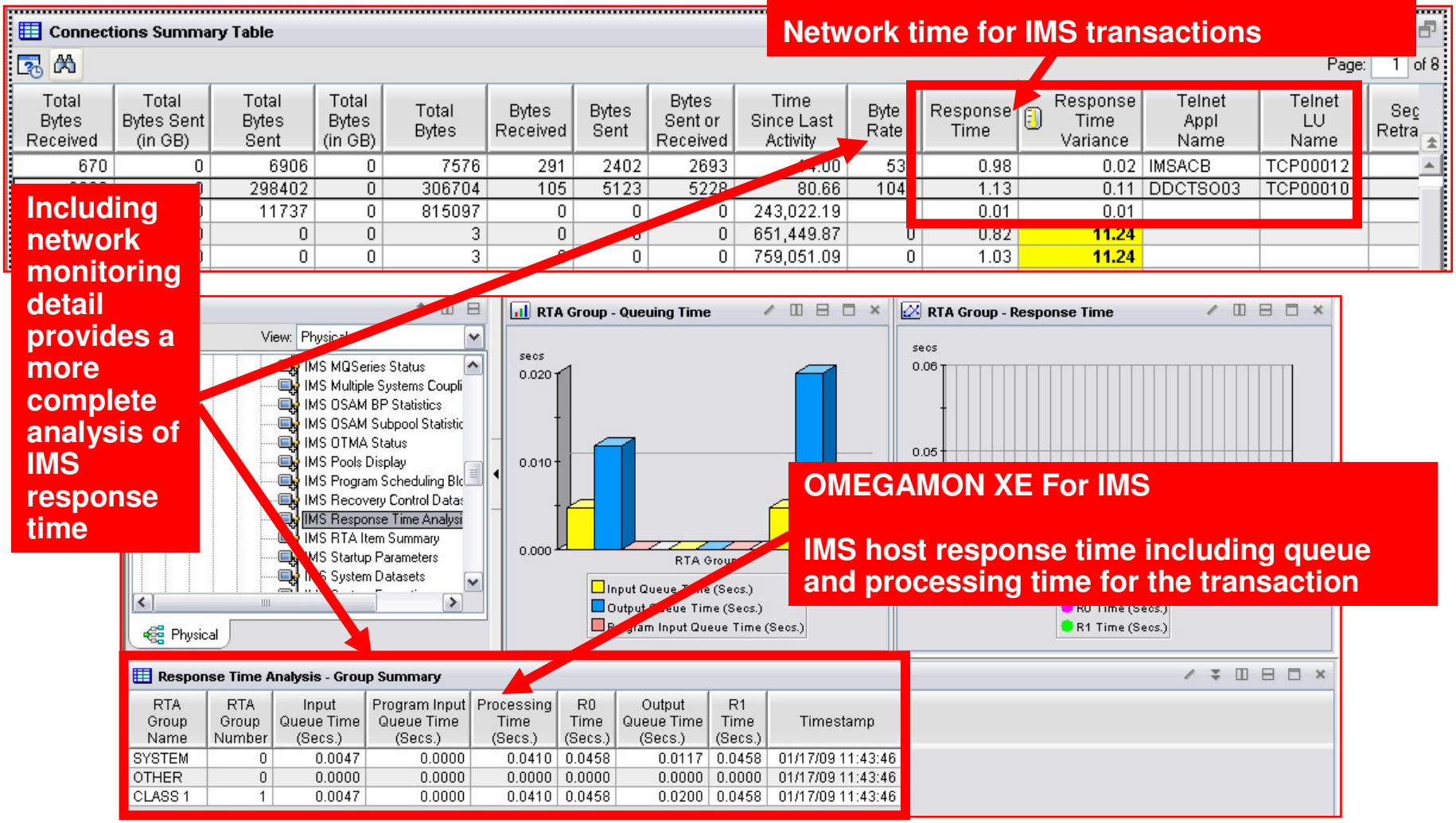
OMEGAMON XE For Mainframe Networks

Network time for IMS transactions

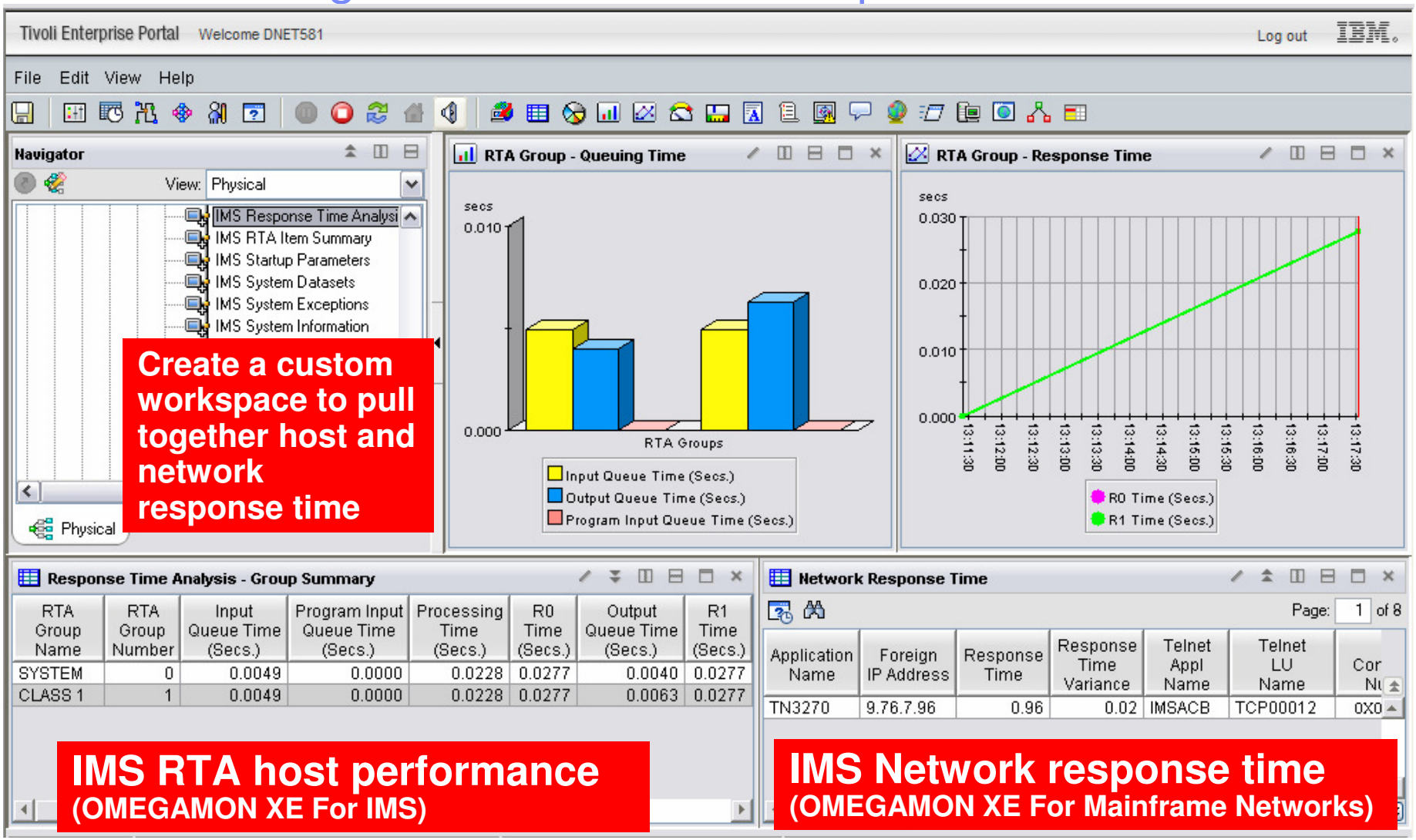
Including network monitoring detail provides a more complete analysis of IMS response time

OMEGAMON XE For IMS

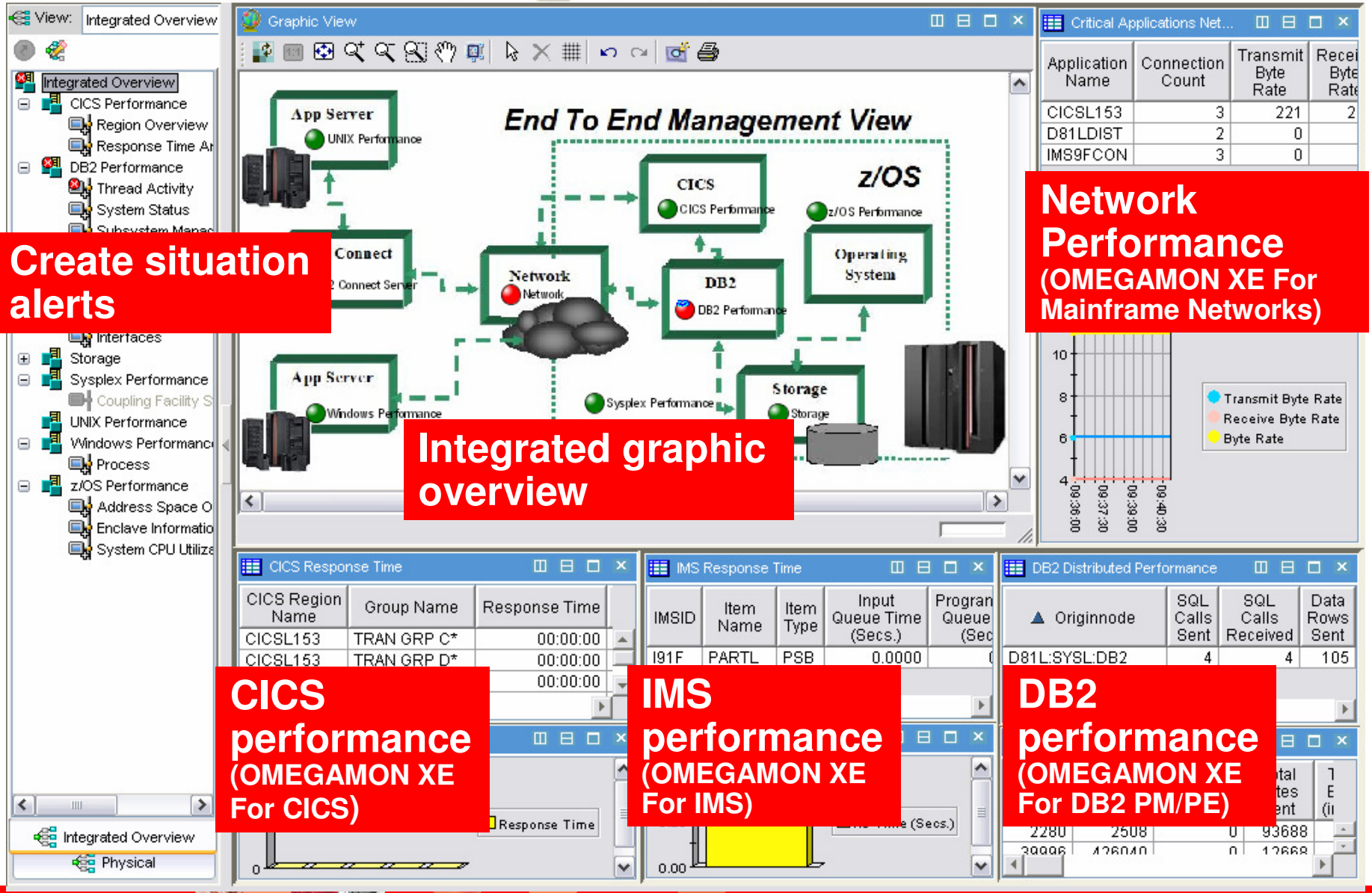
IMS host response time including queue and processing time for the transaction



Leverage The Power Of The Portal
Create An Integrated View Of IMS Response Time



Use the TEP to create an integrated end to end performance management view that includes a graphic overview showing DB2, IMS, CICS, and network



Create situation alerts

Integrated graphic overview

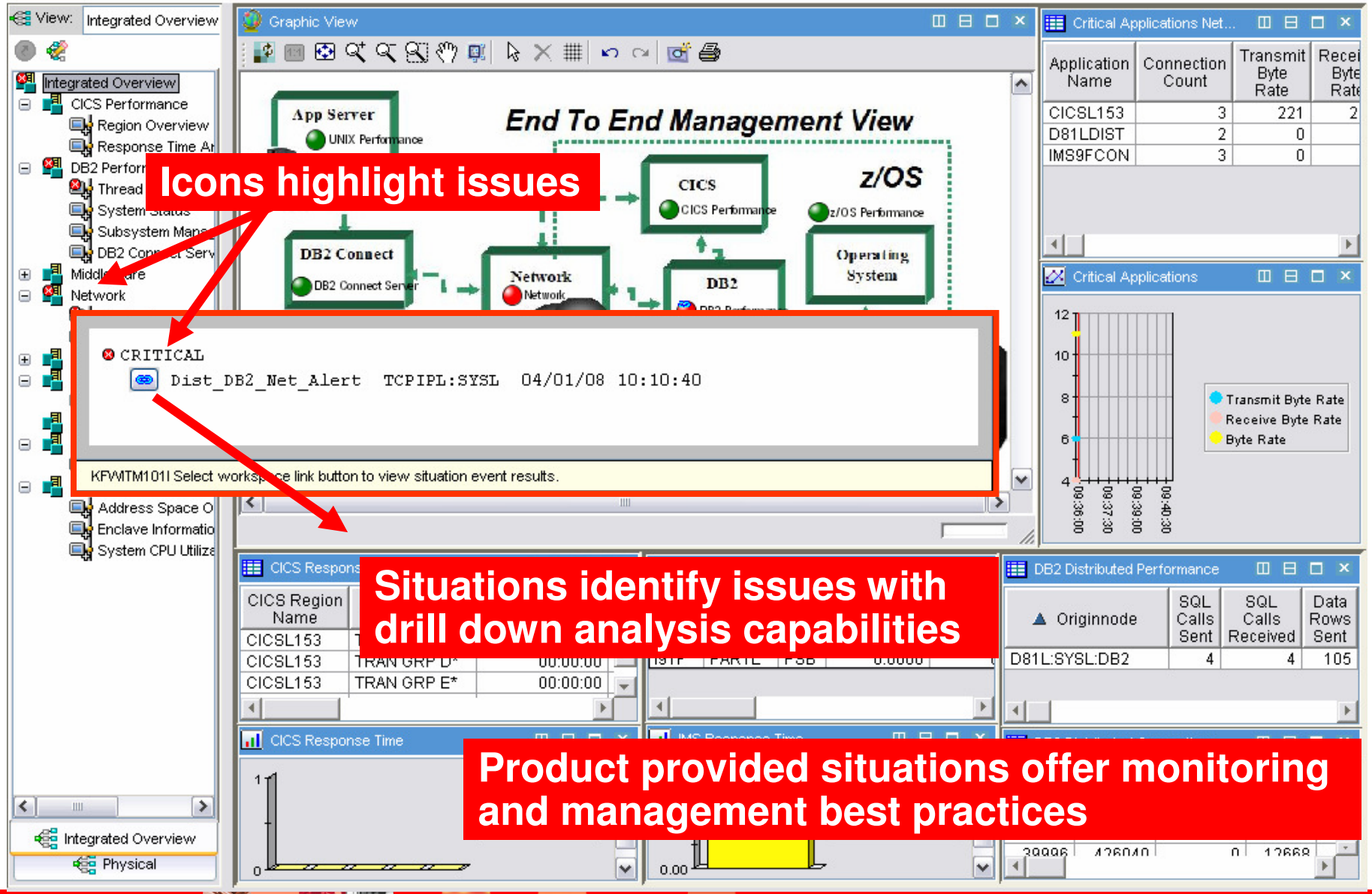
Network Performance (OMEGAMON XE For Mainframe Networks)

CICS performance (OMEGAMON XE For CICS)

IMS performance (OMEGAMON XE For IMS)

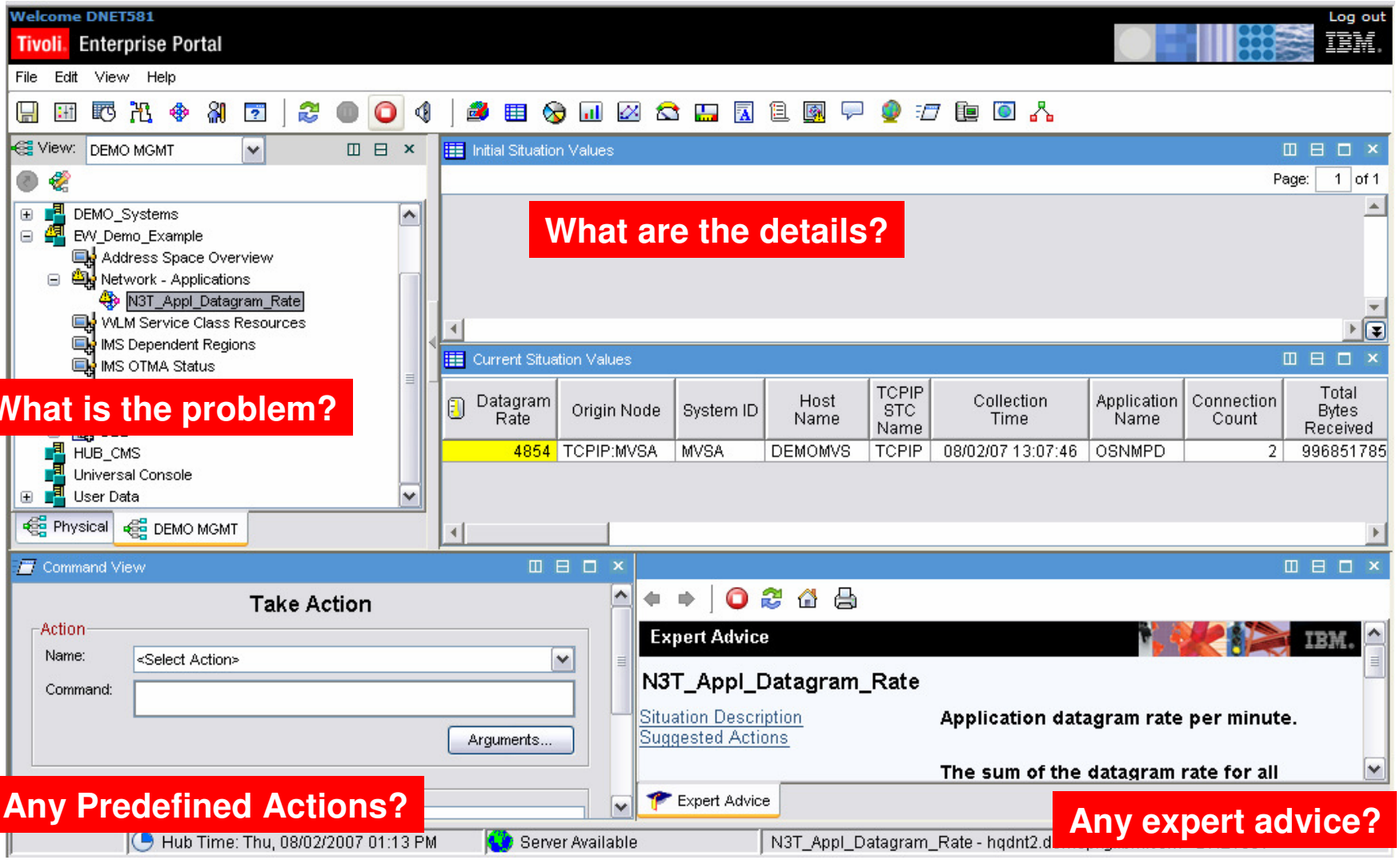
DB2 performance (OMEGAMON XE For DB2 PM/PE)

Situations provide powerful event management and problem isolation

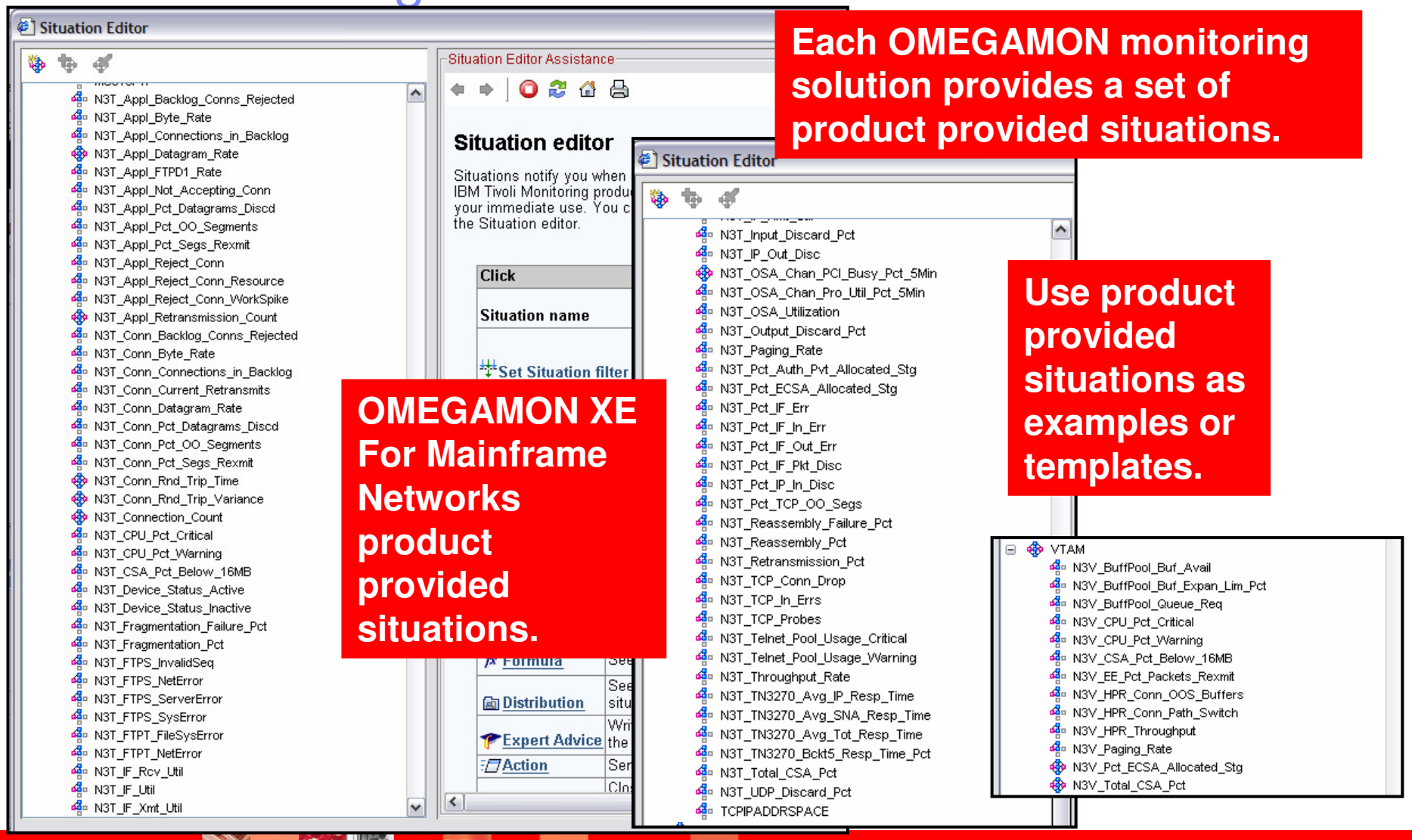


Isolate The Problem

The Situation Detail Drill Down Display



Product Provided Situations Provide A Starting Point For Alert Management

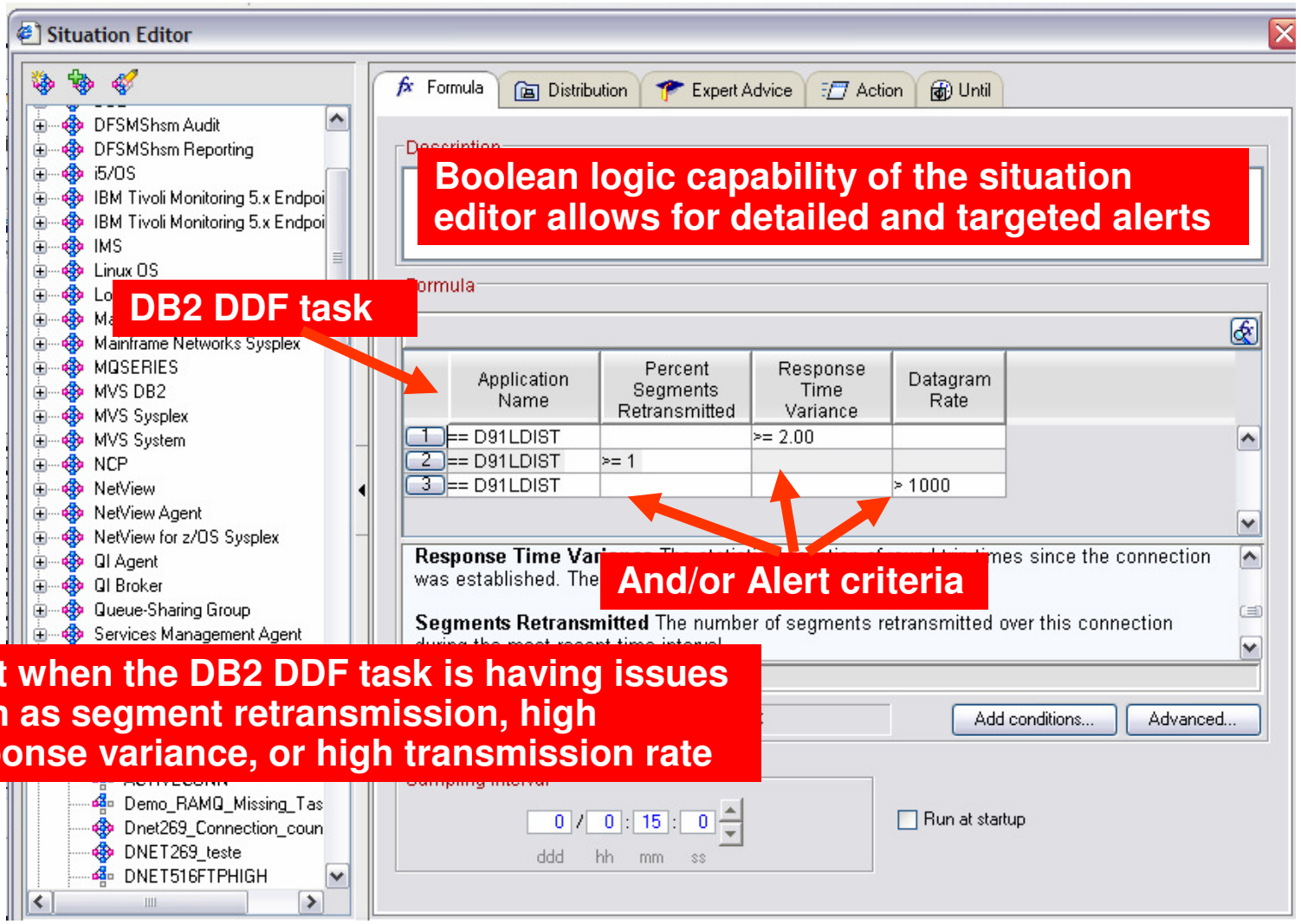


Each OMEGAMON monitoring solution provides a set of product provided situations.

OMEGAMON XE For Mainframe Networks product provided situations.

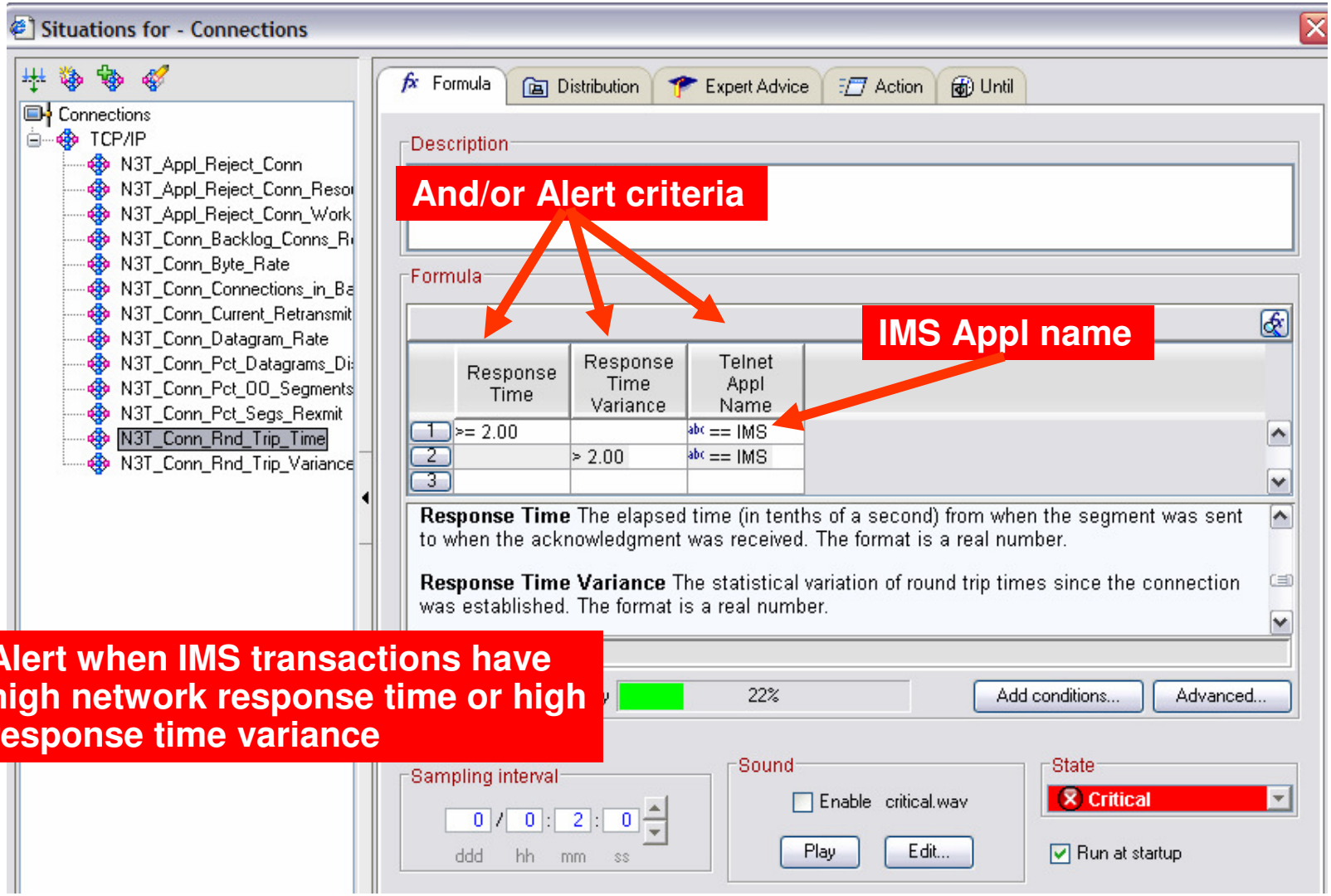
Use product provided situations as examples or templates.

Use OMEGAMON XE For Mainframe Networks To Alert On DB2 Distributed Network Issues



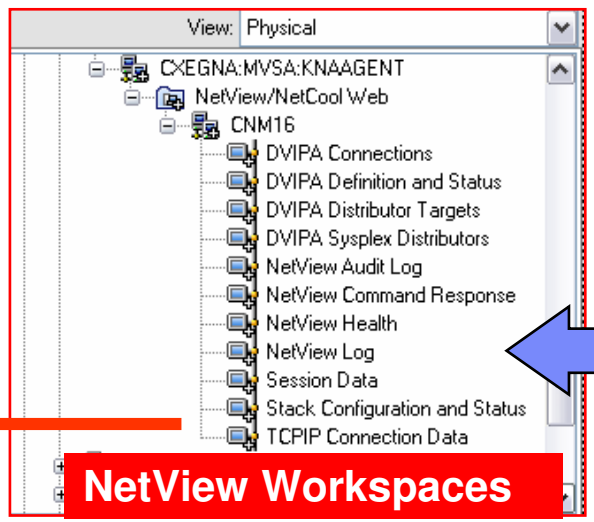
Alert when the DB2 DDF task is having issues such as segment retransmission, high response variance, or high transmission rate

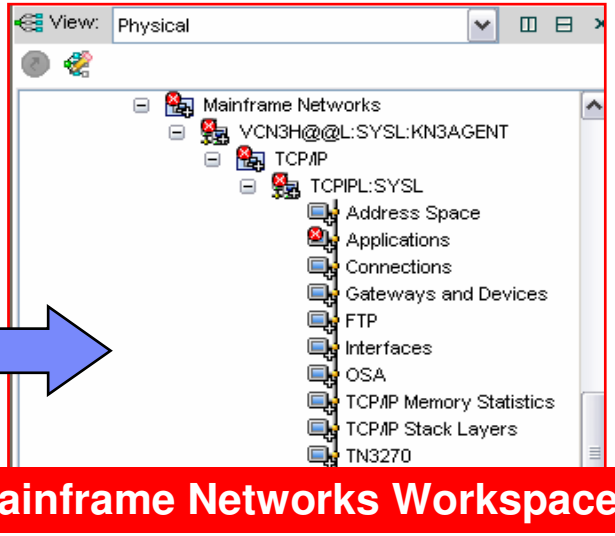
Use OMEGAMON XE For Mainframe Networks To Alert On IMS Transaction Network Issues



Alert when IMS transactions have high network response time or high response time variance

OMEGAMON XE For Mainframe Networks And NetView Integration In The TEP



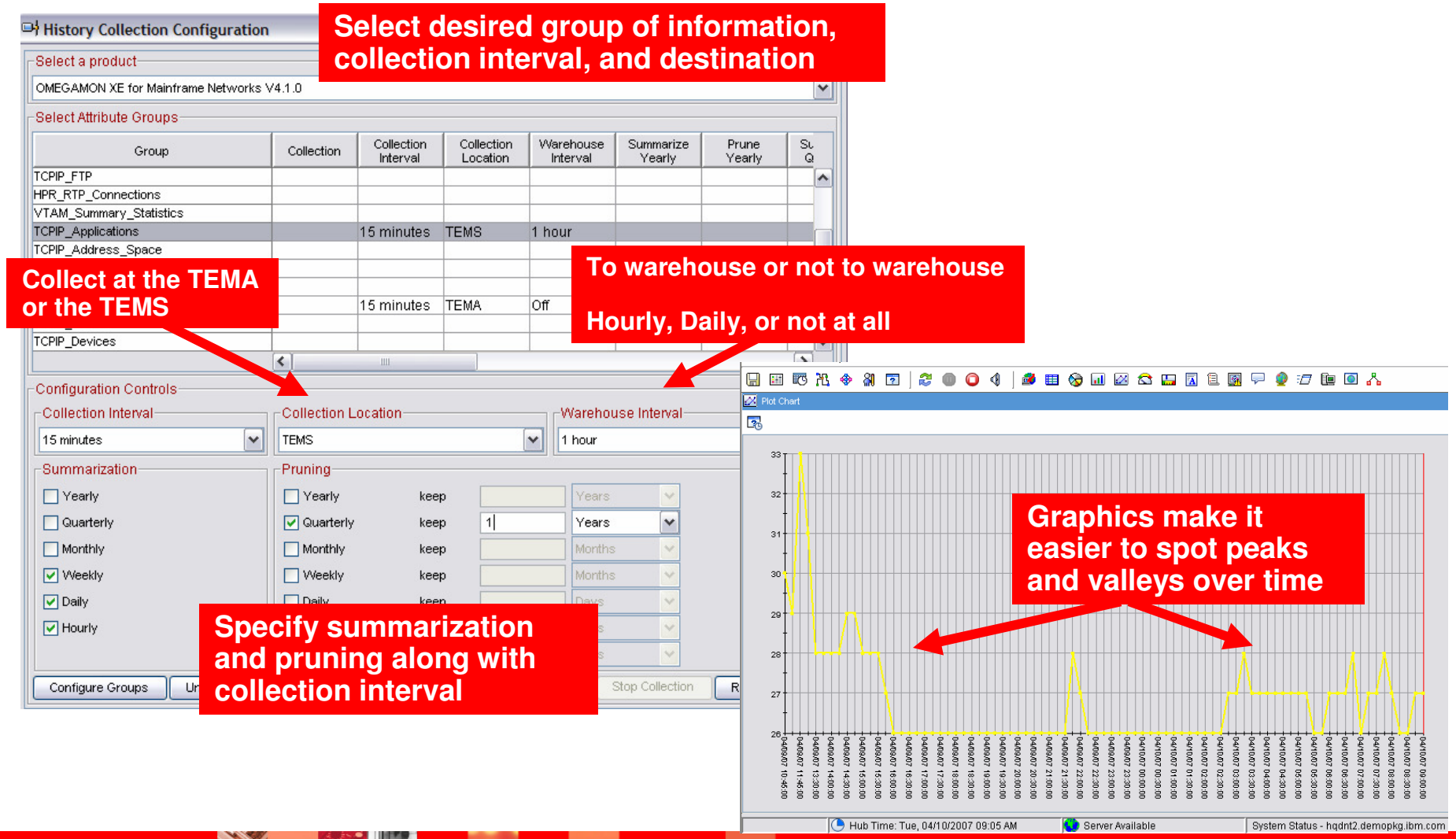


TCPIP Connection Data Summary

Resource Name	Connection ID	Total Bytes Received	Total Bytes Sent	Total Bytes	Bytes Received	Bytes Sent	Bytes Sent or Received	Byte Rate	Total Segments Retransmitted	Segments Retransmitted	Percent Segments Retransmitted	Tot Segm Rece
DSNBDIST	0X00046F56	105506500	34007793	139514293	380662	123044	503706	33580	2	0	0	157
DSNCDIST	0X000918D0	98894	27443	126337	98894	27443	126337	11485	0	0	0	
DSNCDIST	0X0008C1DC	9378865	3279963	12658828	360239	126968	487207	32480	0	0	0	14
IBMSM2	0X0009013F	24357	192029	216386	480	15279	15759	1050	0	0	0	

- NetView provides an agent capability to plug in to the TEP
  - Allows the addition of VIPA and TCPIP connection information into workspaces
- Dynamic workspace links
  - Integration between OMEGAMON XE For Mainframe Networks, NetView, and other OMEGAMONs

Tivoli Enterprise Portal History Collection For Network Performance Data



Strategy Summary

- OMEGAMON XE For Mainframe Networks will plug into the existing Tivoli Enterprise Portal (TEP) infrastructure
  - Provides detailed network application level and connection level monitoring information
- OMEGAMON XE For Mainframe Networks benefits
  - Data may be included in integrated monitoring workspaces
  - Dynamic workspace links may be used to enable drill down for detailed analysis of network performance metrics
  - Situation alerts may be crafted to alert based upon network issues
- Optionally – If NetView is available consider enabling the NetView agent into the TEP
  - Will provide connection, VIPA, and other network relevant information

Strategy Summary - continued

- Enhancing DB2 monitoring and management
  - OMEGAMON XE for DB2 PM/PE provides key network information at the level of the DB2 subsystem, DB2 thread, and DB2 Connect gateway
    - Available data will vary depending upon deployment and topology
  - Adding OMEGAMON XE For Mainframe Networks/NetView data to the mix provides a more complete picture of network impact on performance
    - More flexible for various DB2 application topologies
- Enhancing IMS monitoring and management
  - OMEGAMON XE For IMS provides relevant network information at several levels including network status, APPC, OTMA, MSC, Nodes, Lterms, and IMS Connect
    - Available IMS Connect data will depend upon if IMS Connect Extensions is installed
  - Again, adding OMEGAMON XE For Mainframe Networks/NetView data to the mix provides a more complete picture
    - Example – OMEGAMON IMS Response Time Analysis (RTA) provides host response time. Add Mainframe Network data to add network response time.

Thank You!