



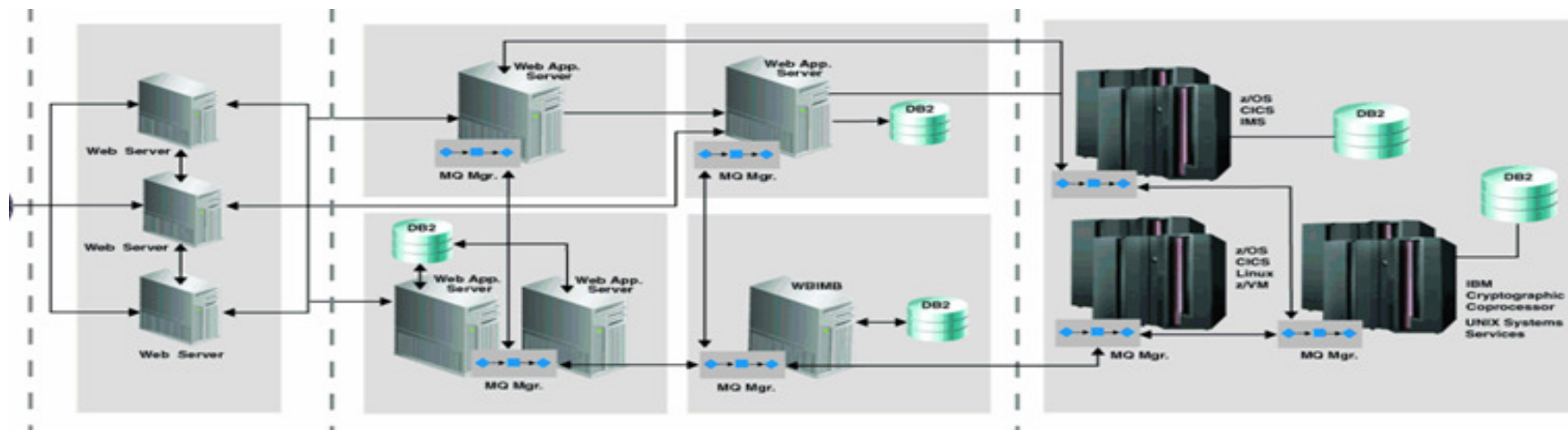
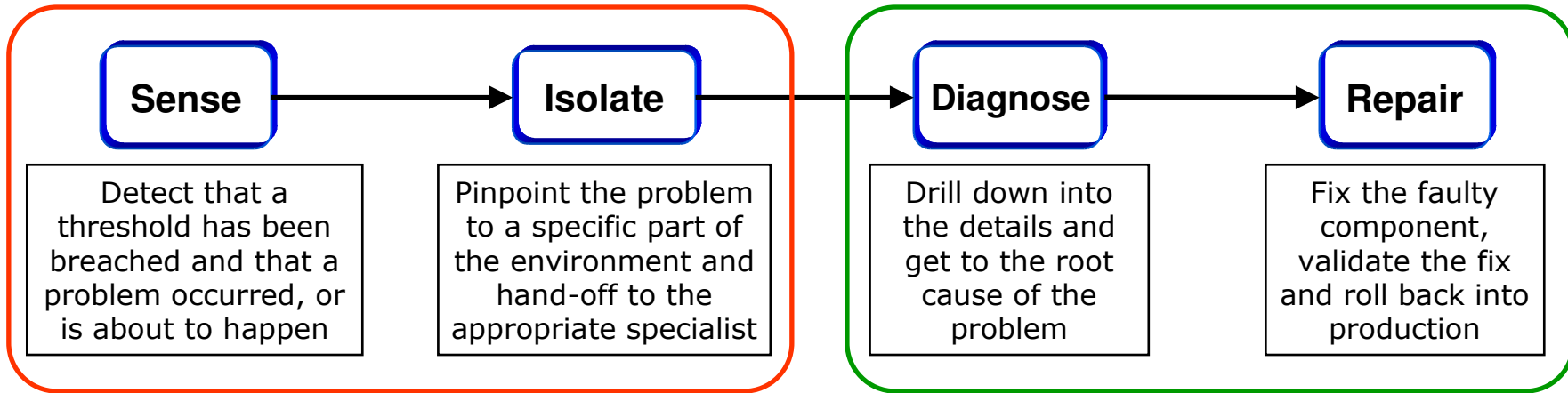
## Using ITCAM for Transactions to Manage Composite Z applications

### BSM and Netcool Team

Graham Davis (Perth – Australia - AP)

Master Certified IT Specialist (Systems Management)  
Mainframe Systems Mgt (20yrs) Distributed Systems Mgt (7yrs)  
Ex-TBSM Z Developer / Systems Programmer  
Tivoli SWAT AP Lead





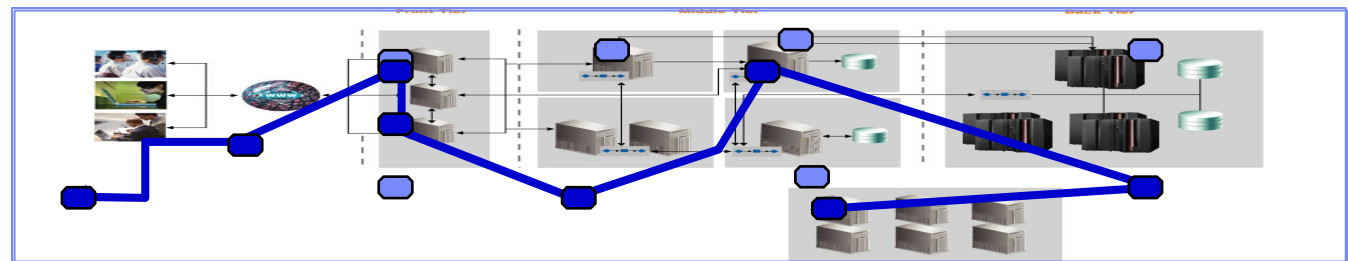
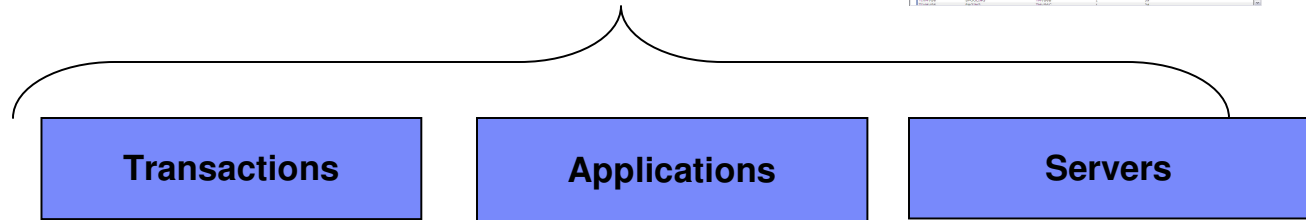
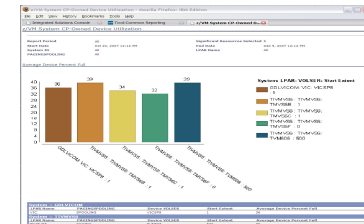
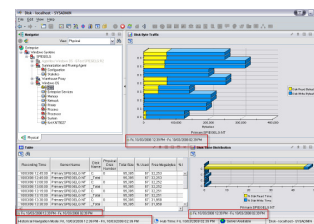
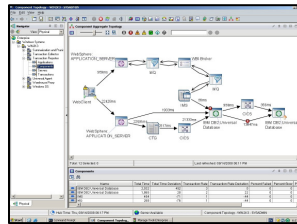
ITCAM for Transactions

Deep-dive tools

- ITM
- ITCAM for Applications
- ITCAM for SOA
- OMEGAMON



- Monitor application response to ensure business expectations are met
- Understand transaction flows over complex topologies
- Monitor infrastructure performance and availability
- Diagnose application performance issues
- Increase application availability and customer satisfaction
- Improve MTTR and MTBF



Response time is terrible; more than one minute.



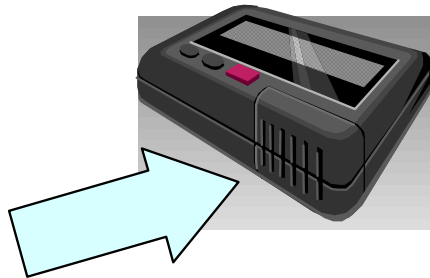
## Check all resources

- System Alerts
- Health Monitors
- OS Statistics
- Network traffic
- Application log files
- Database metrics

Everything looks normal ... but performance is still bad



## Bridge Call with Tiger Team



## Locate Source of Problem ... maybe ...

- Finger-pointing: "It's the network guy's fault"
- Recreating the problem is difficult
- Isolating the cause can take hours or days
- Solutions by chance

## **Money wasted** isolating problems

Sev 1 outages/slowdowns per year	12
Average time to isolate (hrs)	8
SME's involved in isolation	15
Avg. loaded hourly rate (/hr)	\$75
Total direct costs	<u>\$108,000</u>

## **Revenue lost** during outages

Lost revenue / hr	\$10,000
SLA penalties / hr	\$5,000
Hours downtime / yr	96
Total indirect costs	<u>\$1,440,000</u>

## **Total costs** of poor problem isolation capability

<b>Total lost / yr</b>	<b><u><u>\$1,548,000</u></u></b>
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Every customer case will be different ...

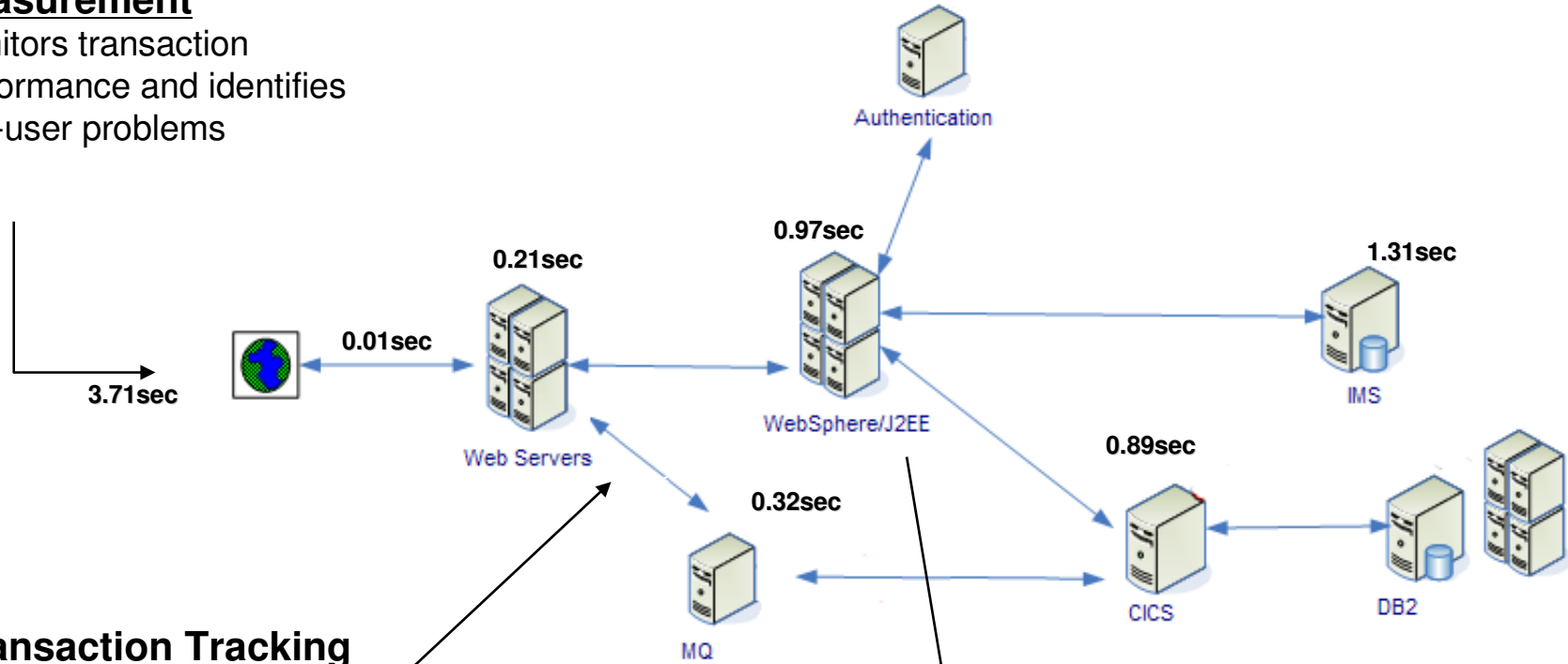
*...what do **you** lose each year due to poor performance?*



## Response Time

### Measurement

Monitors transaction performance and identifies end-user problems



### Transaction Tracking

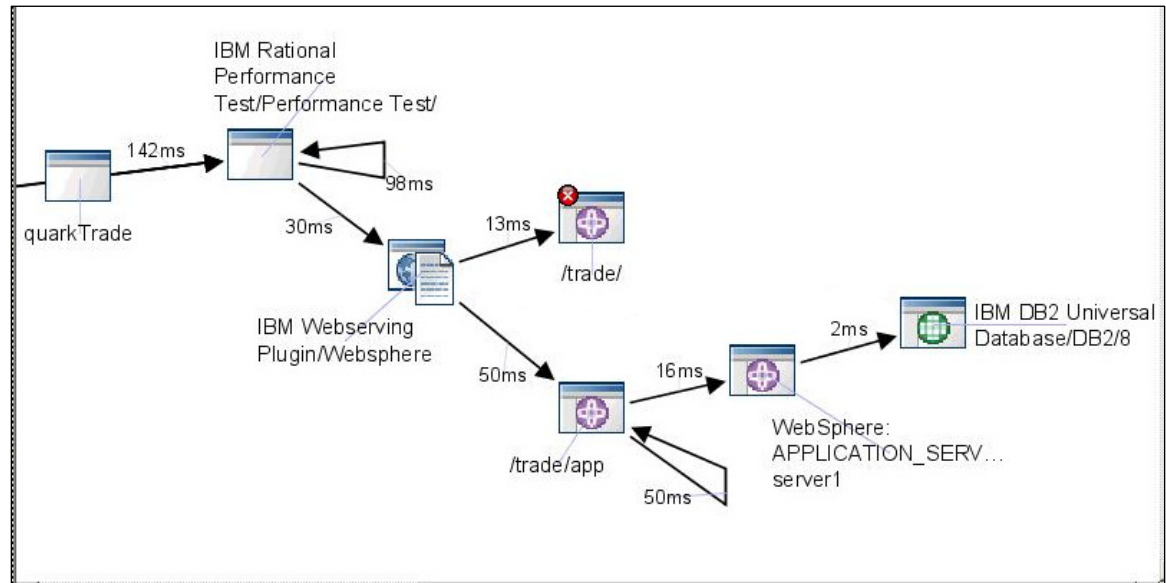
Correlate data from app server, MQ, CICS, IMS and custom instrumentation to show topology and isolate problems

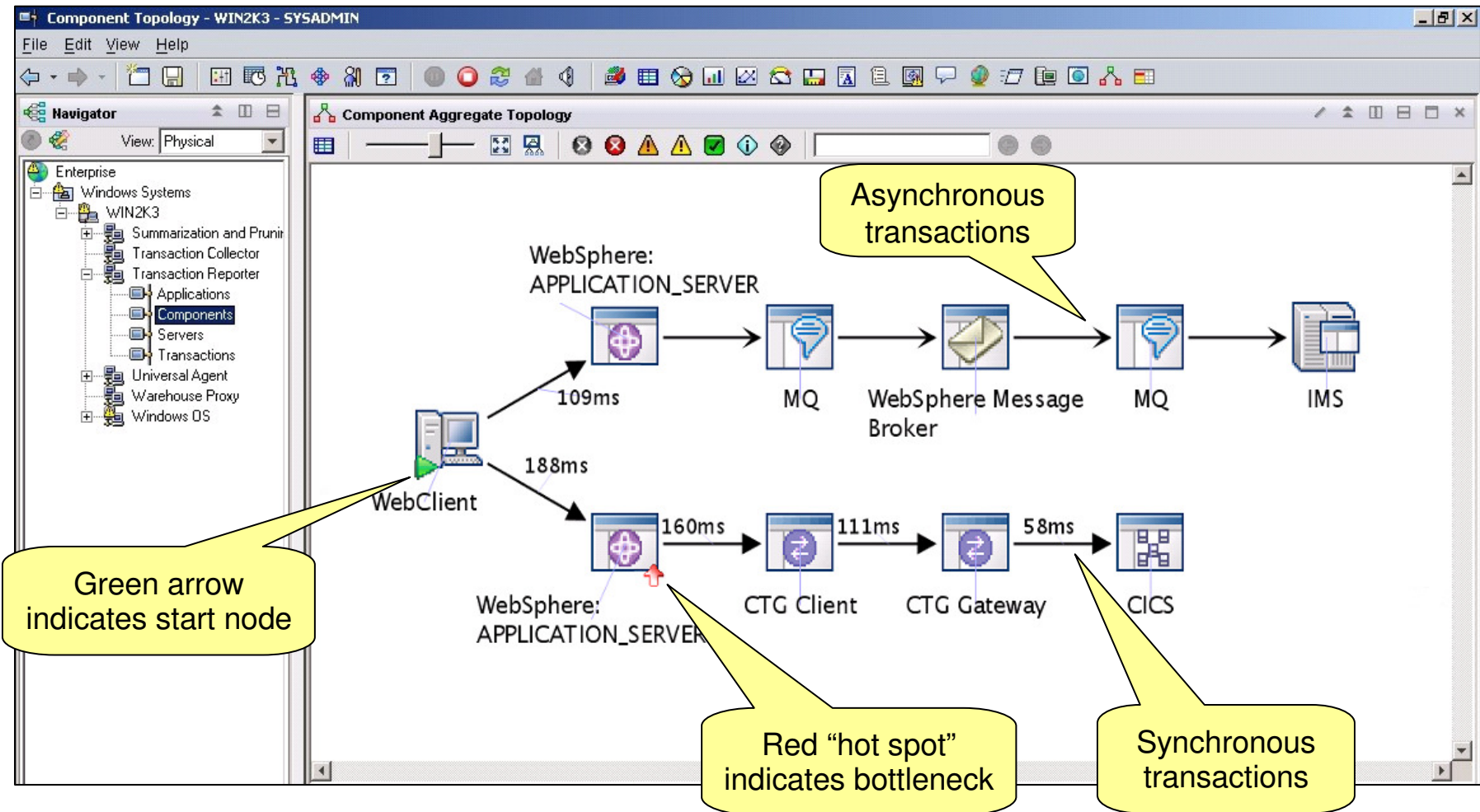
### Deep Dive diagnostics

Launch in context to SME capabilities including SME level tracking within specific domain

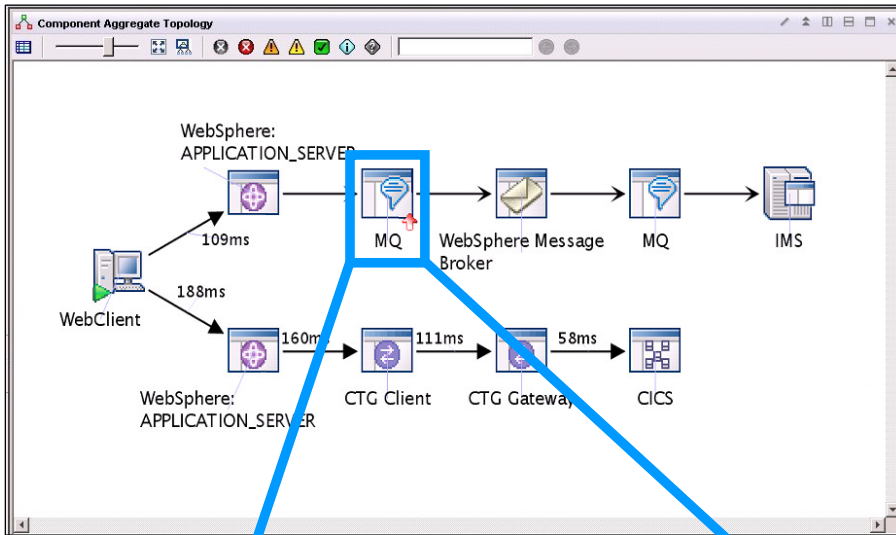


- Unified, end-to-end transaction tracking across heterogeneous environments - fully integrated across distributed and zSeries
- Domain-thru-domain tracking capability via dynamic correlation – token passing not required
- Support for existing ARM instrumentation, plus introduction of a much more flexible transaction tracking API (the TTAPI).
- Makes token-based based tracking more consumable, less dependent on how systems are connected
- Support for asynchronous transactions
- Extensible, modular framework
- Integrated response time and transaction tracking

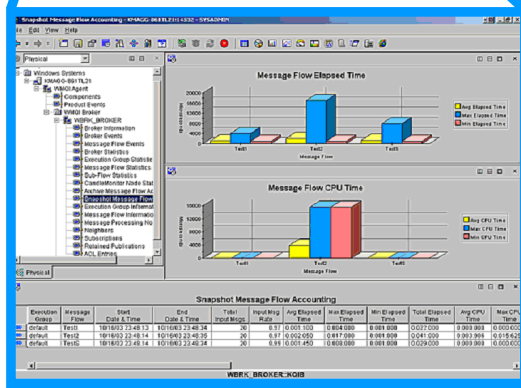








ITCAM for Transactions

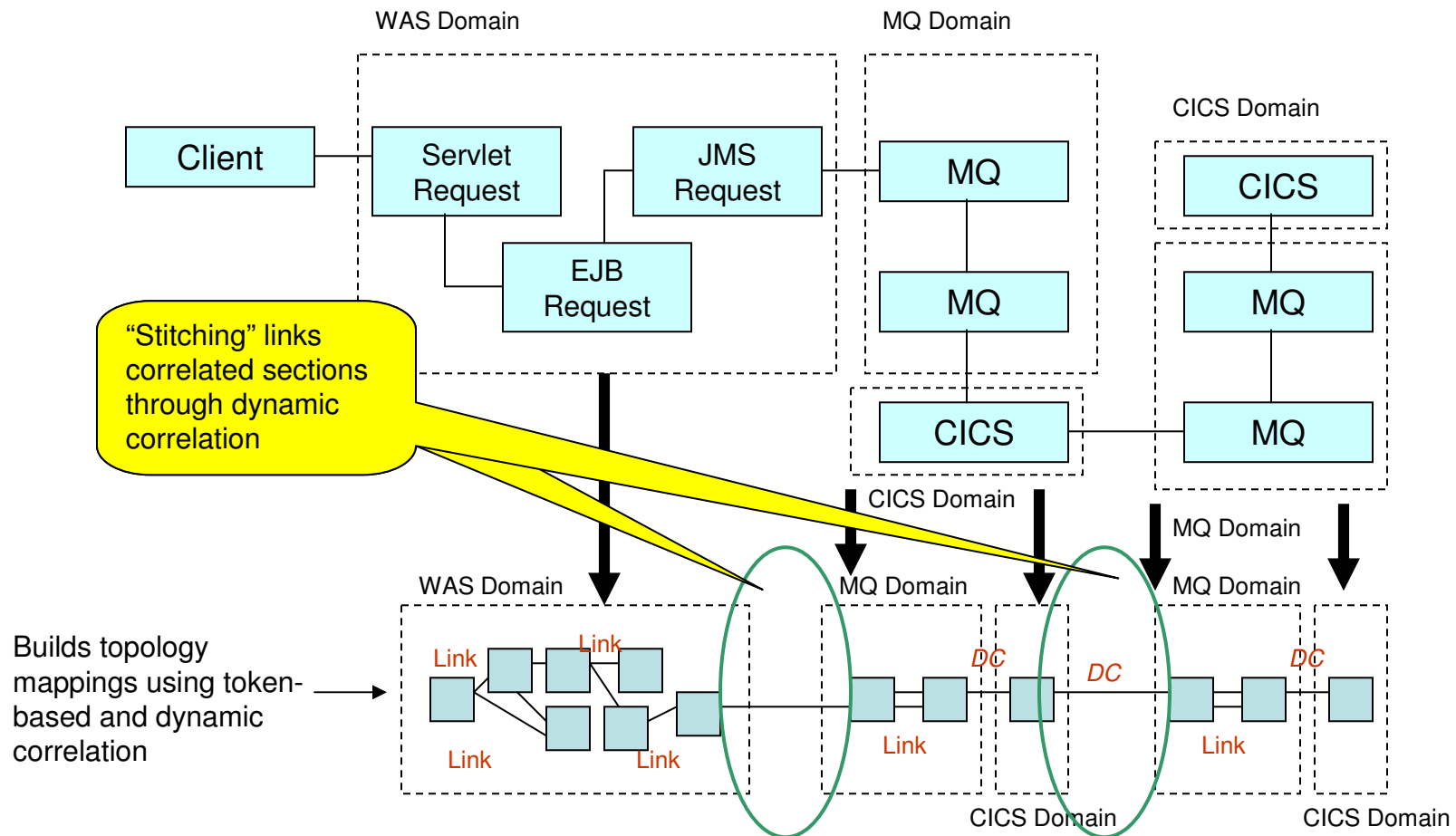


OMEGAMON XE for Messaging

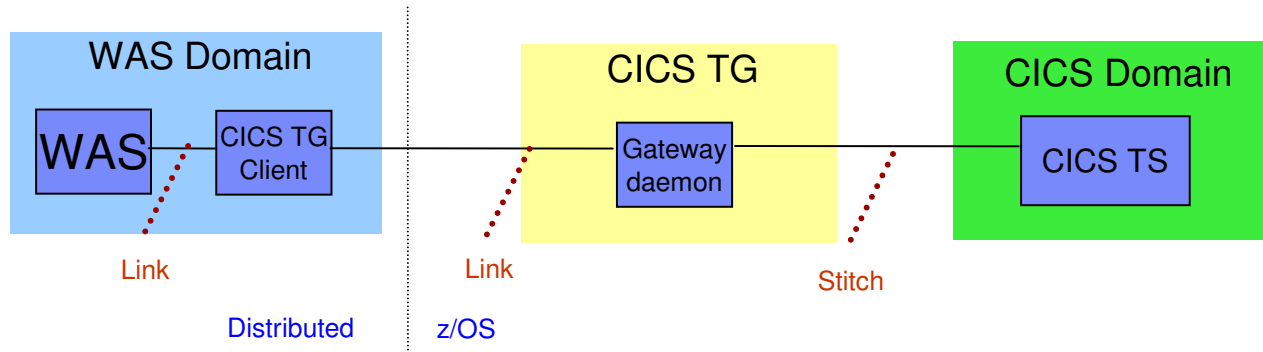
- Uses Dynamic Workspace Links to launch in context into appropriate SME tool.
- Launch destinations depend on type on data source. E.g:
  - MQ -> OMEGAMON XE for MSG
  - WAS -> ITCAM for WebSphere
  - CICS -> OMEGAMON for CICS
  - IMS -> OMEGAMON for IMS
- Where appropriate, will drill down to specific workspace (ie. In MQ, Queue Manager drilldown links to the Queue Manager Status Workspace for the specific Queue Manager).



- Track inside domains with correlated techniques
- Track between domains through stitching



- Linking and stitching is also used in the correlation of transactions flowing between WAS and CICS via CICS TG



- The CICS TG client application (EJB, JSP etc) is deployed into WAS. Events generated by ITCAM for WebSphere can be linked to by the client application.
- A link is constructed between the CICS TG gateway daemon and the client application
- Finally details of the connection between the CICS TG and CICS is stitched together by connecting attributes acquired by the CICS TG data collector and ITCAM CICS data collector.
- This allows a tokenless correlation to be recorded from WAS through to CICS

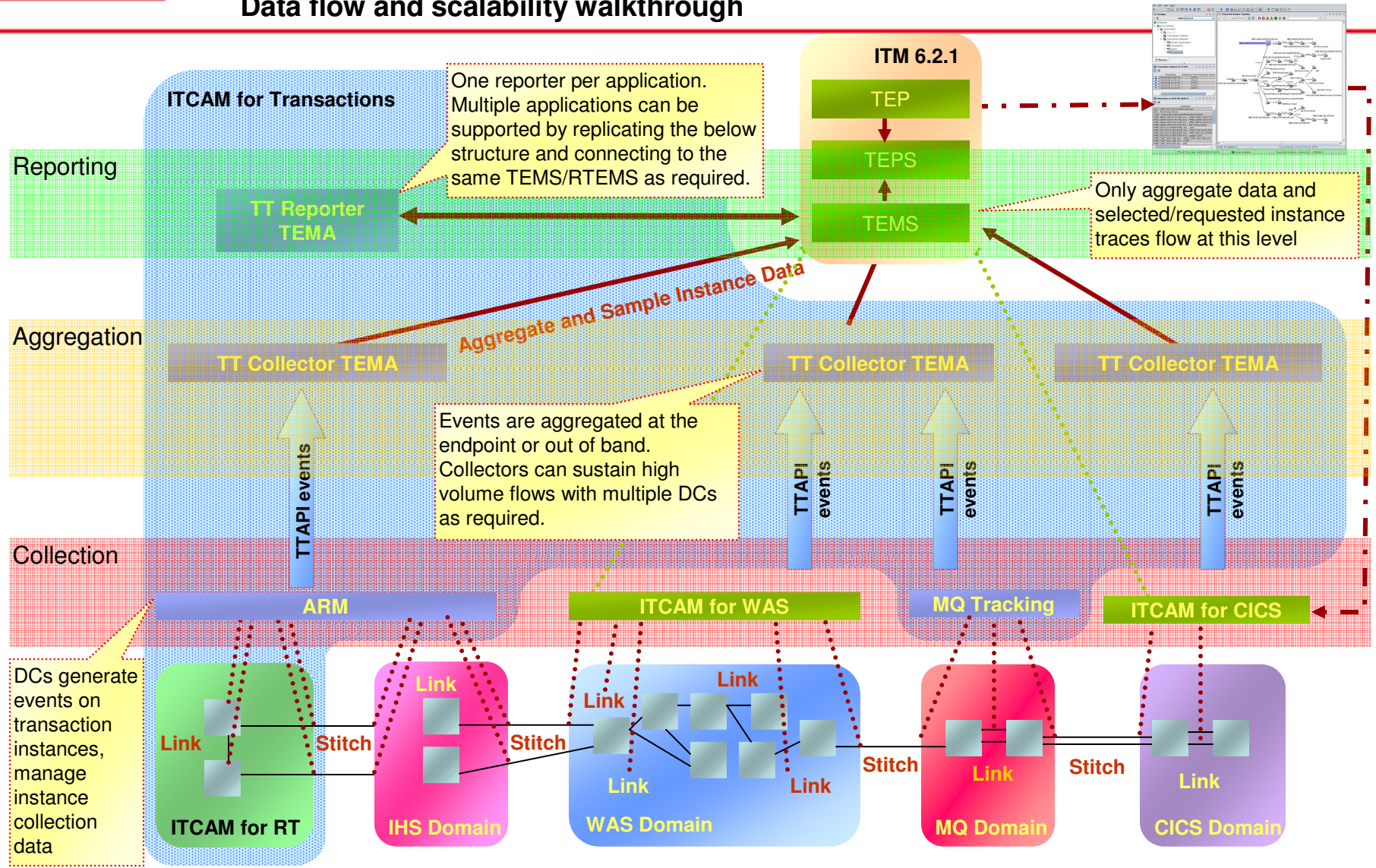
CICS TG attribute	CICS stitching attributes
Derived Network UOWID	Network UOWID
CICS TG Jobname	Exci caller Jobname
CICS TG Stepname	Exci caller Stepname
CICS TG SMFID	Exci caller SMFID


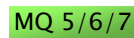







An example of CICS TG to CICS stitching via an EciSynconreturn transaction over EXCI



# Scalable Tracking Architecture

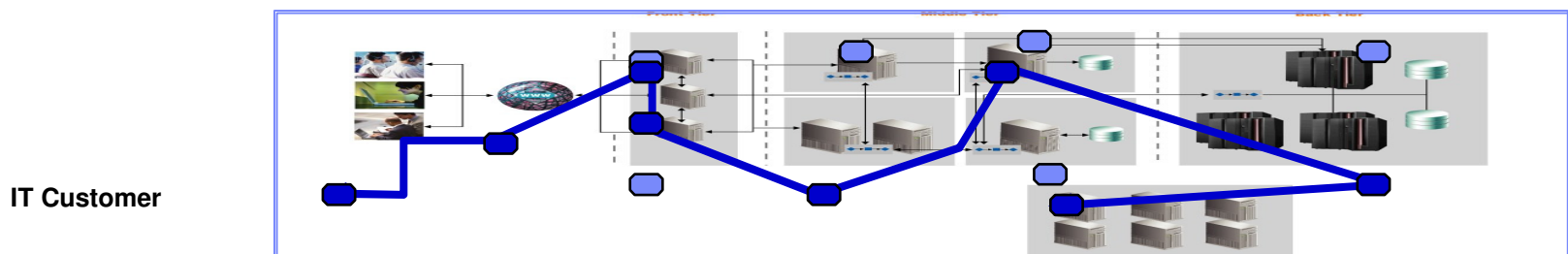
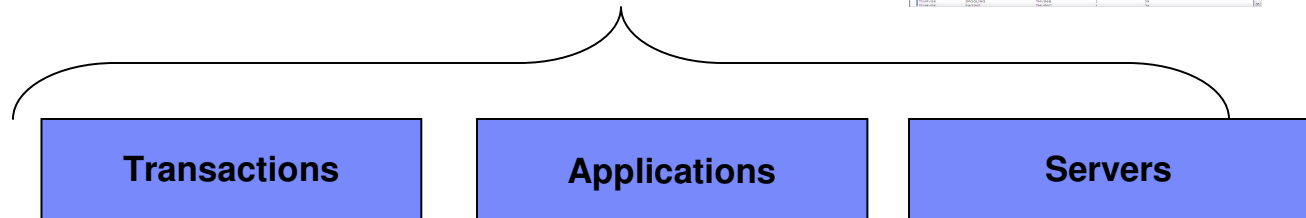
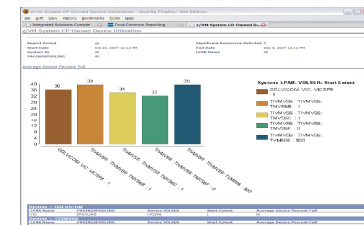
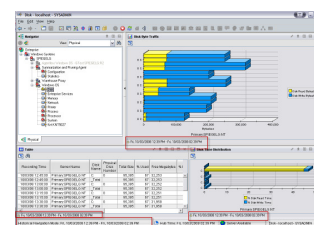
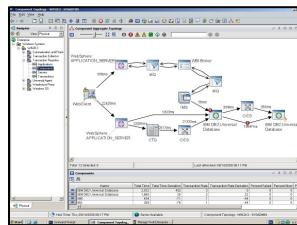
## Data flow and scalability walkthrough

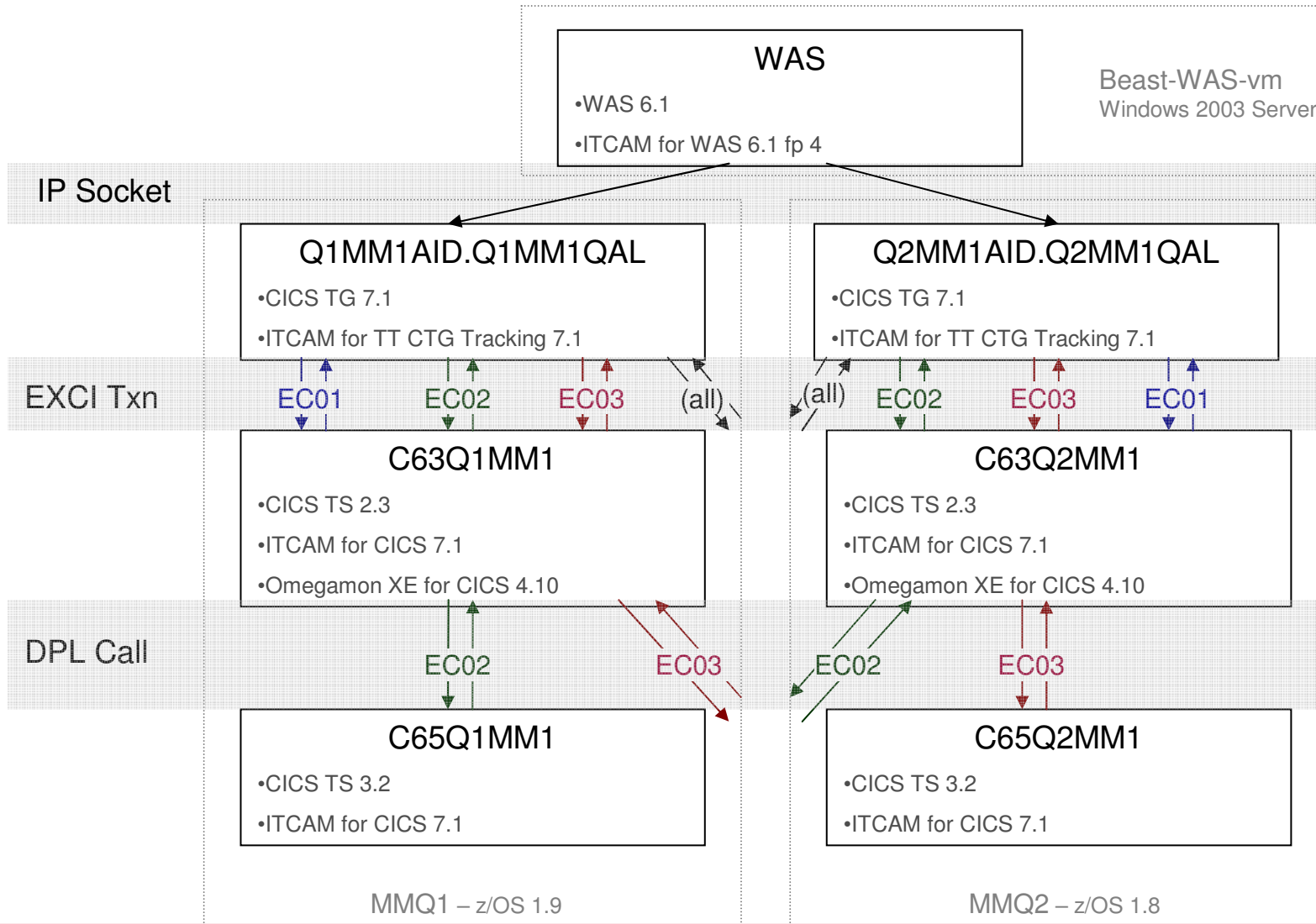


-  IBM WAS • WebSphere 5/6/7 tracking supported through BCI technology embedded in ITCAM for WAS – distributed and z/OS
-  MQ 5/6/7 • MQ 5.3 and up tracked by ITCAM for Transactions natively – distributed and z/OS
-  CICS • CICS 2.3+ transactions and services, including any CICS hosted applications (C++, COBOL, Natural, etc.)
-  ARM • ARM 2.0/4.0 instrumentation supported via native library linkages (libarm)
-  TTAPI • Customer instrumentation possible through our published Transaction Tracking API (TTAPI), available for a range of languages on both distributed and z/OS systems. Current language bindings include:
  - C, C++, Java (distributed)
  - C, C++, Java, COBOL, PL/I, Assembler (z/OS, including CICS)
-  CTG • CICS Transactions Gateway (CTG) 7.1+
-  IMS • IMS
-  WMB • WebSphere Message Broker v6.0 (distributed)
-  JDBC • JDBC tracking through WAS (supports all databases)

- IBM WAS** • Non-BCI WAS tracking (ARM based)
- MQ** • Generic MQI Client
- .NET** • .NET TTAPI bindings
- Tuxedo** • Tuxedo Server (FML32 over ATMI) v9/10
- CICS**  
**IMS** • DB2 tracking from ITCAMfCICS and ITCAMfIMS
- SOA** • Service Tracking support through ITCAM for SOA – ESB support including:
  - WebSphere ESB – WebSphere Process Server – WebSphere CE – WebSphere Datapower – Weblogic – AXIS – CICS Web Services – SAP Netweaver

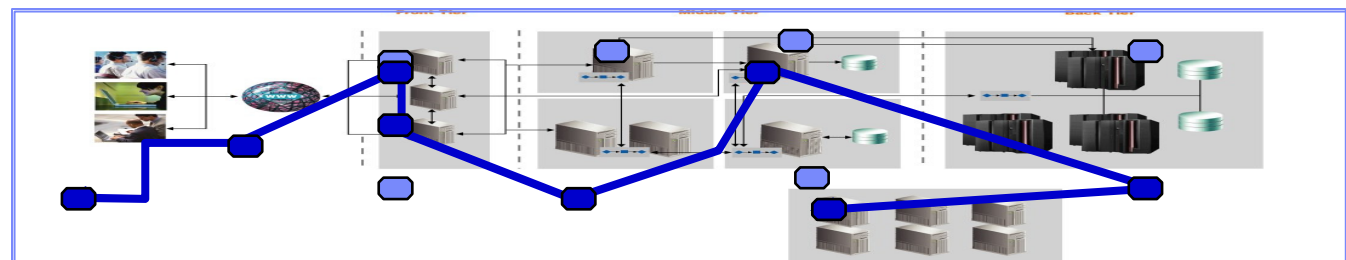
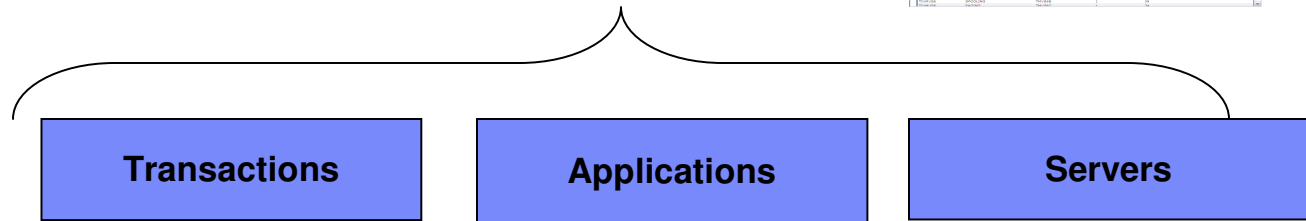
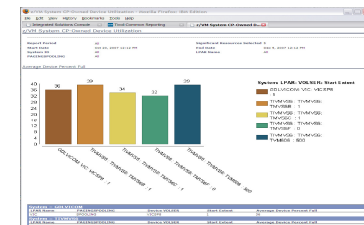
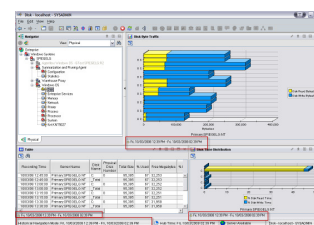
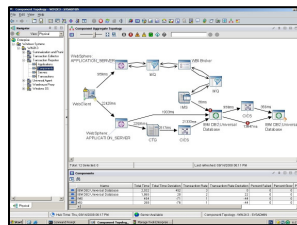
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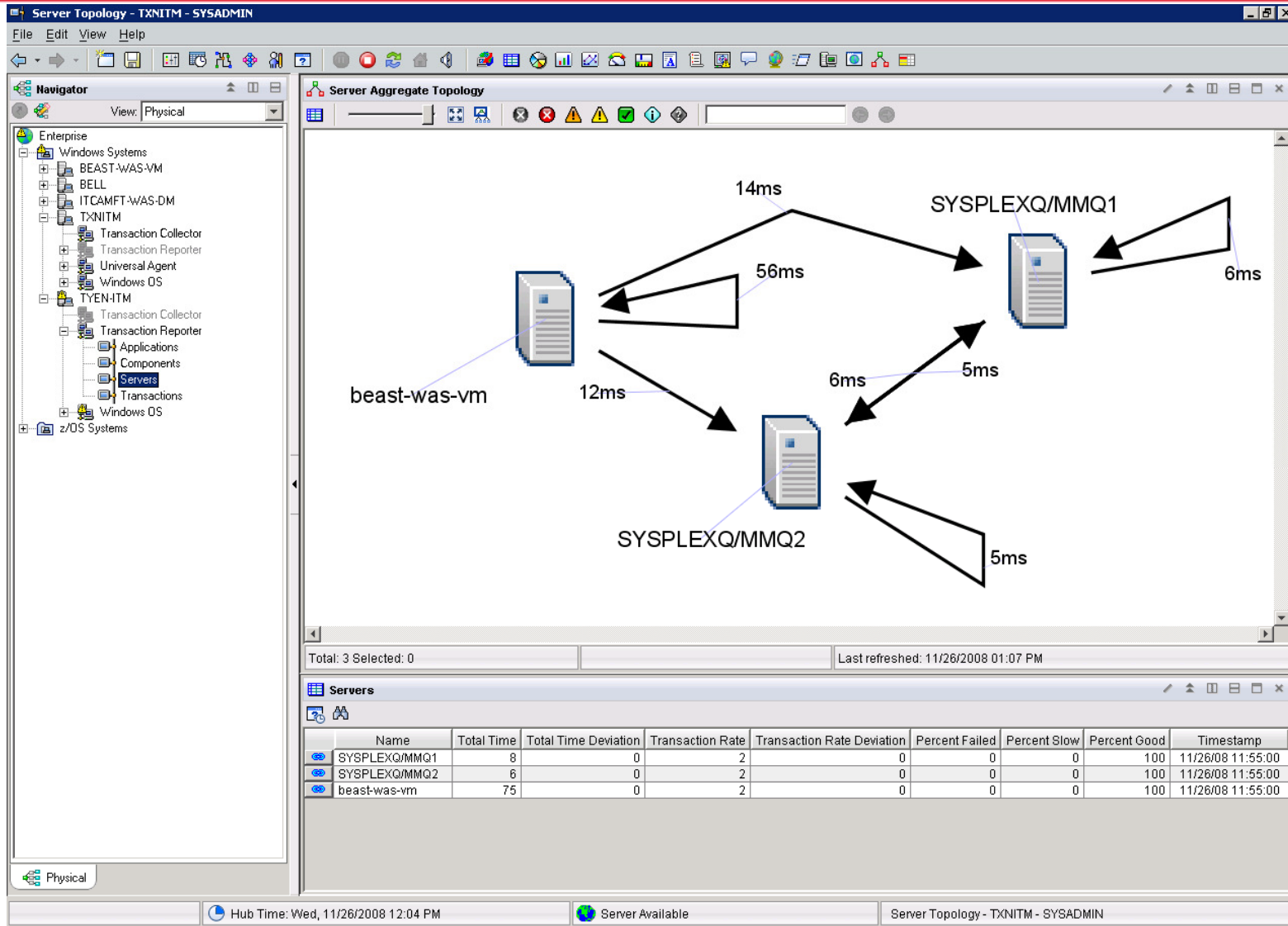






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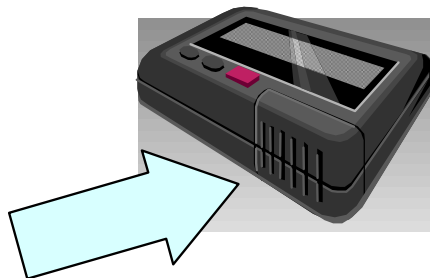
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Everything looks normal ... but performance is still bad



## Bridge Call with Tiger Team



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- **Finger-pointing: "It's the network guy's fault"**
- **Recreating the problem is difficult**
- **Isolating the cause can take hours or days**
- **Solutions by chance**



# Component Topology

## CTG Gateway Mouseover

The screenshot displays the Component Topology interface for TXNITM - SYSADMIN. The main window shows a 'Component Aggregate Topology' diagram with the following components and connections:

- WebSphere: APPLICATION\_SERV... (Total Time: 113ms)
- CTG Client (Total Time: 56ms)
- CTG Gateway (Total Time: 14ms)
- CTG Gatev (Total Time: 12ms)
- CICS (Total Time: 5ms)
- CICS (Total Time: 4ms)

Connections and Latencies:

- WebSphere: APPLICATION\_SERV... to CTG Client: 56ms
- CTG Client to CTG Gateway: 14ms
- CTG Client to CTG Gatev: 12ms
- CTG Gateway to CICS (top): 6ms
- CTG Gatev to CICS (top): 6ms
- CTG Gatev to CICS (bottom): 5ms
- CICS (top) to CICS (bottom): 5ms

A mouseover tooltip for the CTG Gateway component shows the following details:

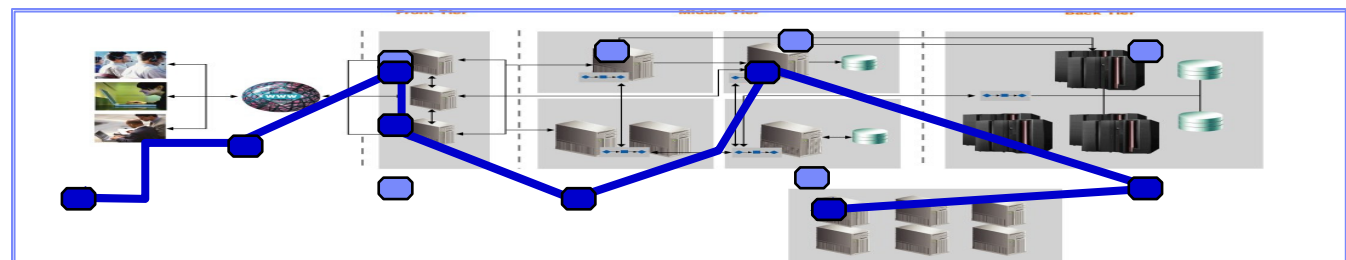
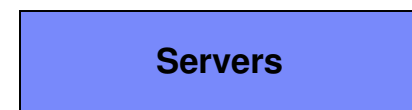
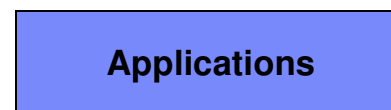
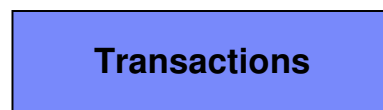
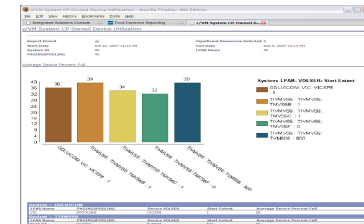
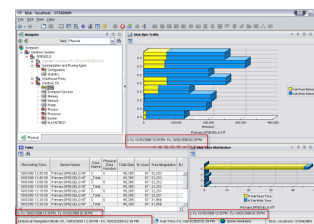
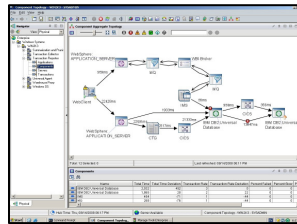
Component	CTG Gateway
Average time	12ms
Baseline	0ms
Deviation	0%
Enclosing Server	SYSPLEXQMMQ2

The 'Components' table at the bottom provides a summary of all components:

Name	Total Time	Total Time Deviation	Transaction Rate	Transaction Rate Deviation	Percent Failed	Percent Slow	Percent Good
CICS	5	0	1	0	0	0	100
CICS	4	0	1	0	0	0	100
CTG Client	56	0	1	0	0	0	100
CTG Gateway	14	0	0	0	0	0	100
CTG Gateway	12	0	0	0	0	0	100
WebSphere:APPLICATION_SERVER	113	0	0	0	0	0	100

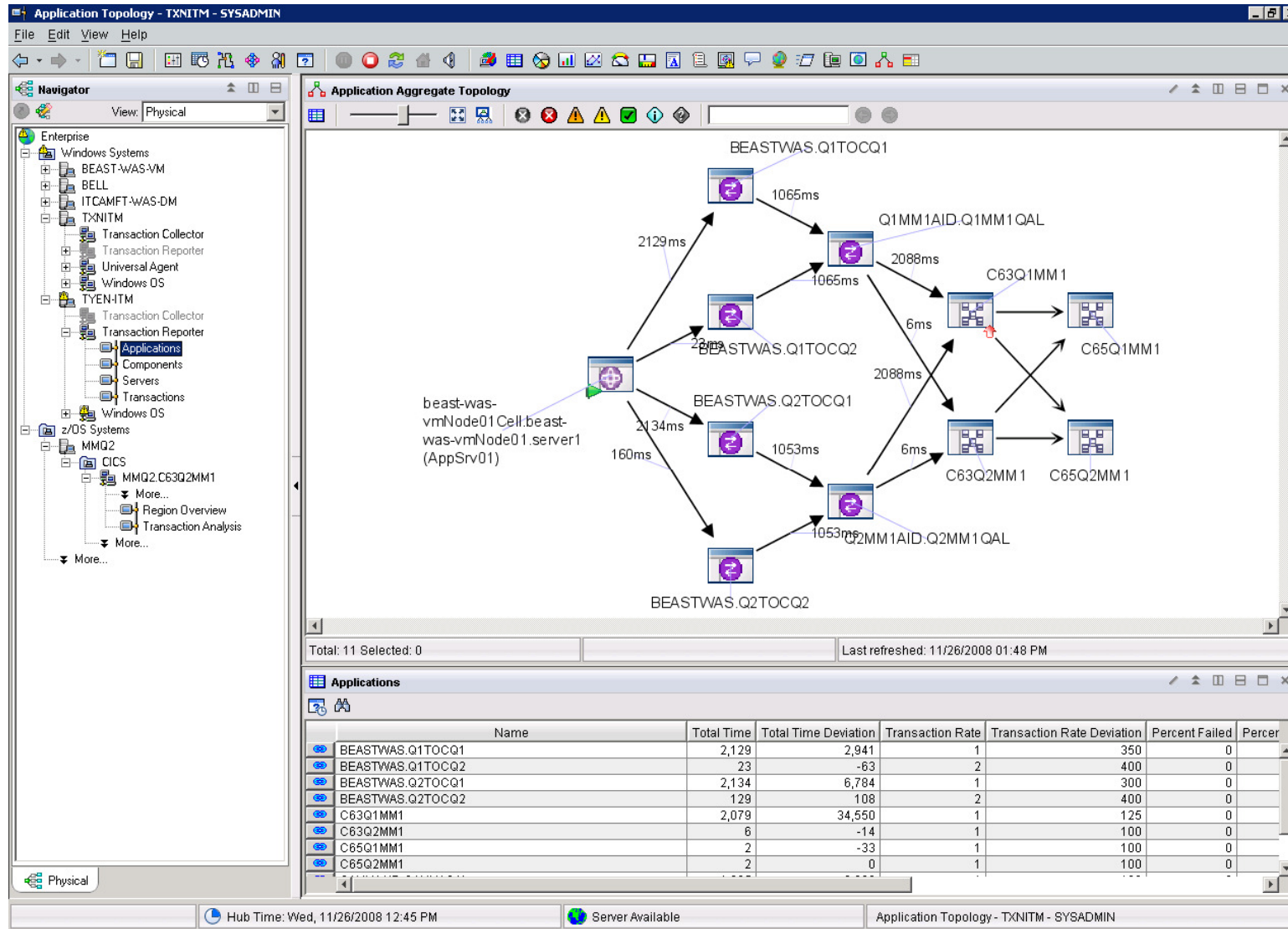


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- **Increase application availability and customer satisfaction**
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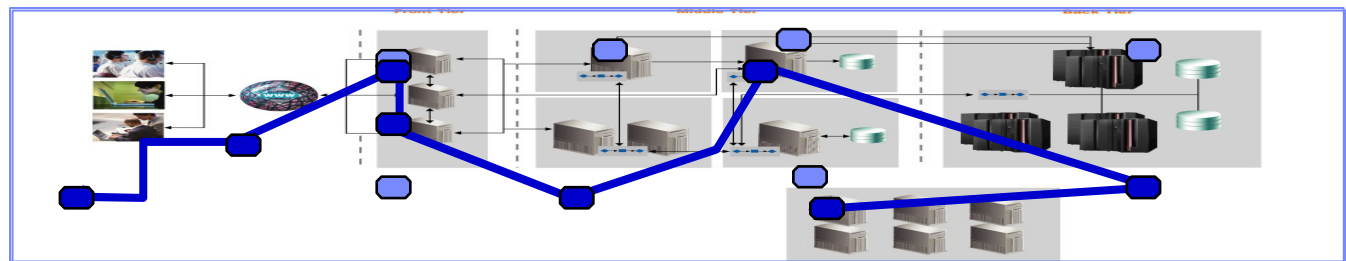
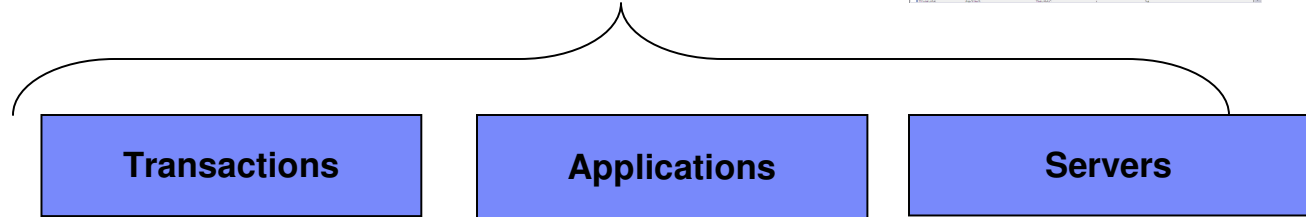
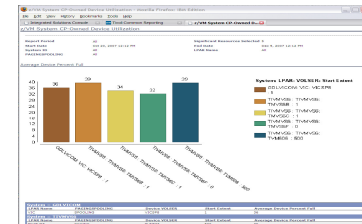
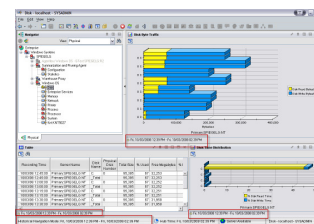
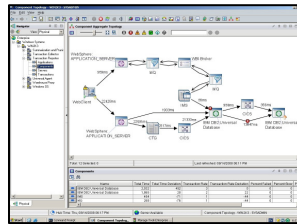


# Application Topology

## Slowdown in CICS C63Q1MM1



- Monitor infrastructure performance and availability
- Increase application availability and customer satisfaction
- Improve MTTR and MTBF
- **Diagnose application performance issues**
- Understand transaction flows over complex topologies
- Monitor application response to ensure business expectations are met



# Application Topology

## Slowdown in CICS C63Q1MM1

The screenshot displays the IBM Application Topology interface. On the left is a Navigator pane showing a tree view of the system hierarchy, including Windows Systems, z/OS Systems, and CICS components. The main area shows an 'Application Aggregate Topology' diagram with nodes representing various CICS components and their interconnections with associated latency values (e.g., 1065ms, 2129ms, 2088ms). A context menu is open over the diagram, listing actions like 'Link To...', 'Export...', and 'Properties...'. At the bottom, a table provides performance metrics for selected components.

Component	Total Time	Total Time Deviation	Transaction Rate	Transaction Rate Deviation	Percent Failed	Percent
BEASTWAS.Q1TOCQ1	2,129	2,941	1	350	0	
BEASTWAS.Q1TOCQ2	23	-63	2	400	0	
BEASTWAS.Q2TOCQ1	2,134	6,784	1	300	0	
BEASTWAS.Q2TOCQ2	129	108	2	400	0	
C63Q1MM1	2,079	34,550	1	125	0	
C63Q2MM1	6	-14	1	100	0	
C65Q1MM1	2	-33	1	100	0	
C65Q2MM1	2	0	1	100	0	





# Omegamon XE for CICS

## CICS Region Overview

Region Overview - TXNITM - SYSADMIN

File Edit View Help

Navigator View: Physical

- Windows OS
  - TYEN-ITM
    - Transaction Collector
    - Transaction Reporter
    - Applications
    - Components
    - Servers
    - Transactions
- z/OS Systems
  - MMQ2
    - CICS
      - MMQ2.C63Q2MM1
        - More...
        - Region Overview
        - Transaction Analysis

Physical

Transaction Rate

Maximum Tasks Percent

CICS CPU Utilization

CICS Region Overview

System ID	CICS Region Name	CICS Version	Region Status	CICS SYSIDNT	VTAM Applid	VTAM Generic Applid	VTAM ACB Open	SOS	Maximum Tasks Percent	Transaction Rate	I/O Rate	Page Rate	CPU Utilization	Storage Violations in Last Hour	Working Set Size	Largest Contiguous Available LSQA
MMQ2	C63Q2MM1	6.3.0	N/S	Q263	C63Q2MM1	C63Q2MM1	Yes	No	40	10	0.0	0.0	0.1	0	37544	3400

Hub Time: Wed, 11/26/2008 12:27 PM

Server Available

Region Overview - TXNITM - SYSADMIN



Online Data Viewing - TXNITM - SYSADMIN

File Edit View Help

Navigator

View: Physical

- Transaction collector
  - Transaction Reporter
  - Universal Agent
  - Windows OS
- TYEN-ITM
  - Transaction Collector
  - Transaction Reporter
  - Applications
  - Components
  - Servers
  - Transactions
  - Windows OS
- z/DS Systems
  - MMQ2
    - CICS
      - MMQ2.C63Q2MM1
        - Transaction Analysis

Physical

Historical Transaction Processor Utilization

Task Number: 000025

CPU Seconds: 0.000, 0.010, 0.020, 0.030

Historical Transaction Overview

System ID	CICS Region Name	CICS Version	End Time	Transaction ID	Task Number	Terminal ID	Transaction Type	User ID	Program ID	CPU Time	Response Time	Storage HWM	File Requests	Terminal I/O	ABEND Code
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:56:33	CSMI	00089	RG1	TRM	MMC631D	EC03	00:00:00	00:00:00.003	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:56:33	CSMI	00088	RG1	TRM	MMC631D	EC02	00:00:00	00:00:00.012	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:56:32	CSMI	00087	RG1	TRM	MMC631D	EC03	00:00:00	00:00:00.003	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:56:32	CSMI	00086	RG1	TRM	MMC631D	EC02	00:00:00	00:00:00.008	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:51:34	CSMI	00085	RG1	TRM	MMC631D	EC03	00:00:00	00:00:00.004	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:51:34	CSMI	00084	RG1	TRM	MMC631D	EC02	00:00:00	00:00:00.001	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:51:33	CSMI	00083	RG1	TRM	MMC631D	EC03	00:00:00	00:00:00.002	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:51:33	CSMI	00082	RG1	TRM	MMC631D	EC02	00:00:00	00:00:00.009	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:51:32	CSMI	00081	RG1	TRM	MMC631D	EC03	00:00:00	00:00:00.003	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:51:32	CSMI	00080	RG1	TRM	MMC631D	EC02	00:00:00	00:00:00.001	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:51:30	CSMI	00079	RG1	TRM	MMC631D	EC03	00:00:00	00:00:00.003	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:51:30	CSMI	00078	RG1	TRM	MMC631D	EC02	00:00:00	00:00:00.012	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:50:18	CSMI	00077	RG1	TRM	MMC631D	EC03	00:00:00	00:00:00.003	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:50:18	CSMI	00076	RG1	TRM	MMC631D	EC02	00:00:00	00:00:00.016	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:50:16	CSMI	00075	RG1	TRM	MMC631D	EC03	00:00:00	00:00:00.003	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:50:15	CSMI	00074	RG1	TRM	MMC631D	EC02	00:00:00	00:00:00.012	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:50:04	CSMI	00073	RG1	TRM	MMC631D	EC03	00:00:00	00:00:00.003	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:50:04	CSMI	00072	RG1	TRM	MMC631D	EC02	00:00:00	00:00:00.011	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:50:03	CSMI	00071	RG1	TRM	MMC631D	EC03	00:00:00	00:00:00.003	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:50:02	CSMI	00070	RG1	TRM	MMC631D	EC02	00:00:00	00:00:00.011	36736	0	0	
MMQ2	C63Q2MM1	6.3.0	11/26/08 12:49:51	CSMI	00069	RG1	TRM	MMC631D	EC03	00:00:00	00:00:00.002	36736	0	0	

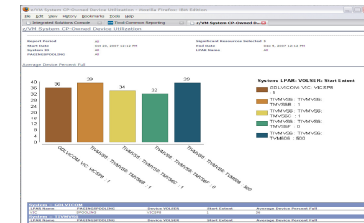
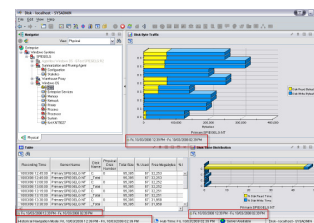
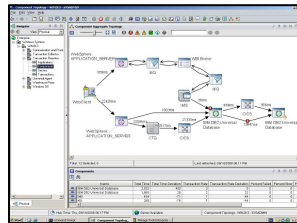
Hub Time: Wed, 11/26/2008 12:11 PM

Server Available

Online Data Viewing - TXNITM - SYSADMIN



- Monitor infrastructure performance and availability
- Increase application availability and customer satisfaction
- Improve MTTR and MTBF
- Diagnose application performance issues
- **Understand transaction flows over complex topologies**
- Monitor application response to ensure business expectations are met

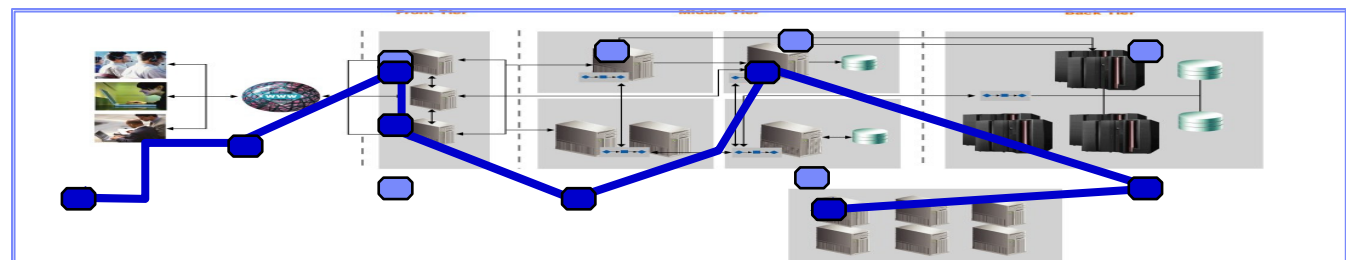


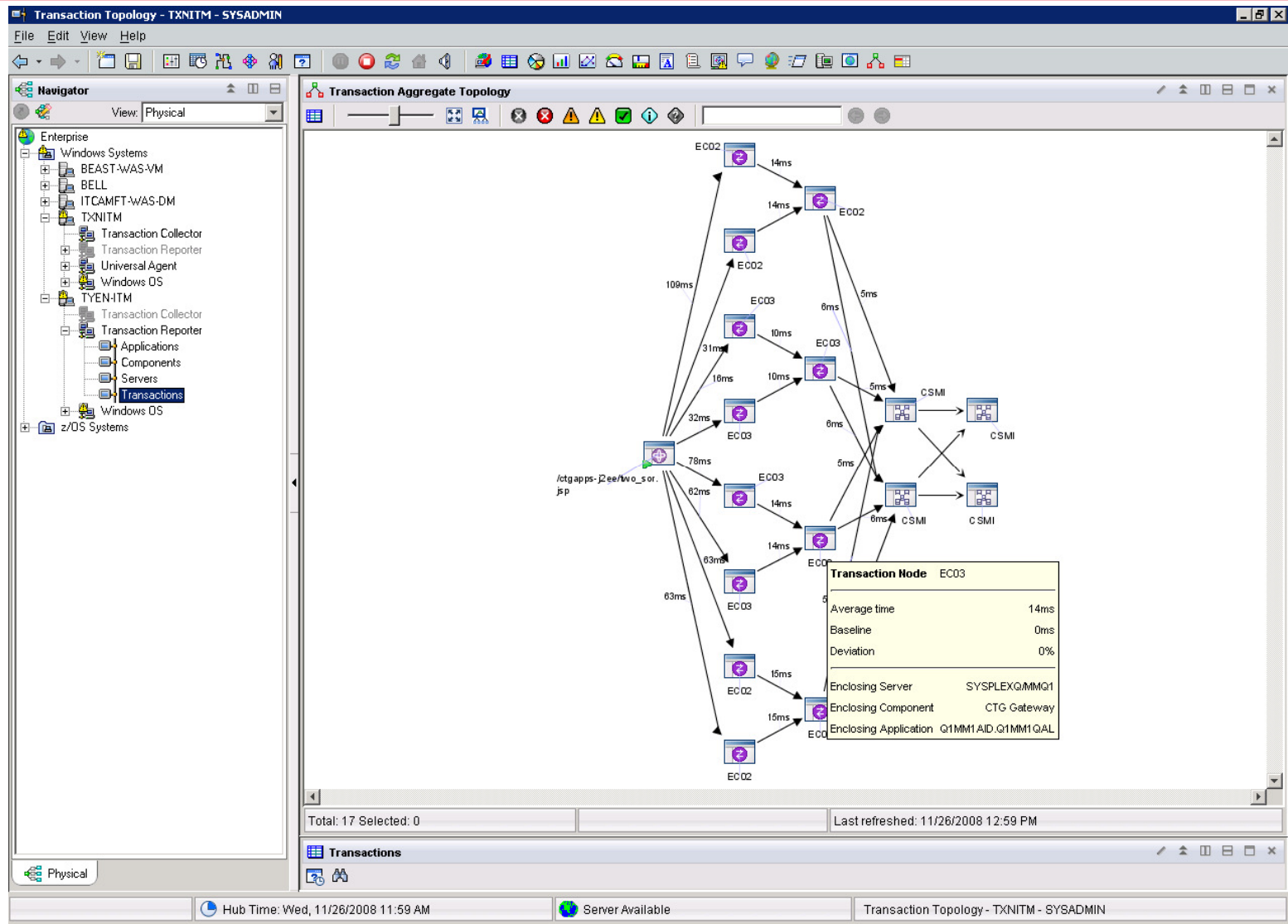
Transactions

Applications

Servers

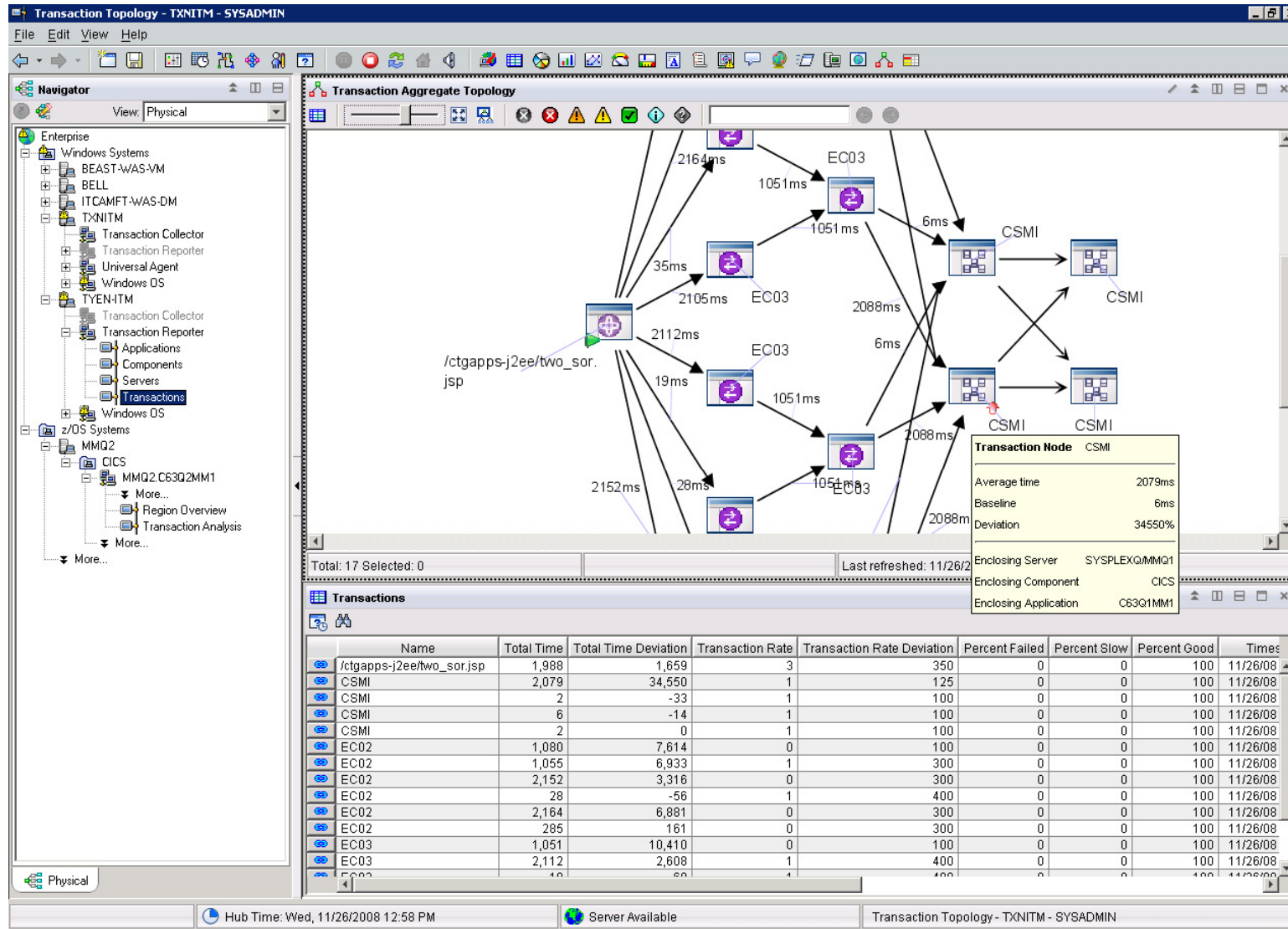
IT Customer





# Transaction Topology

## Slowdown in CICS Transaction – Transaction Mouseover



# Transaction View

## Link to Transaction Instance

The screenshot displays the 'Transaction Topology - TXNITM - SYSADMIN' interface. On the left is a 'Navigator' tree showing a hierarchy of systems including Windows Systems, z/OS Systems, and various transaction collectors and agents. The main window shows a 'Transaction Aggregate Topology' diagram with nodes representing servers (EC02, EC03, CSMI) and transaction paths with associated times (e.g., 2164ms, 1051ms, 6ms). A context menu is open over the diagram, with 'Link To...' selected, showing options like 'Link Wizard...', 'Transaction Interaction by Time', and 'Transaction Instances'. Below the diagram is a 'Transactions' table with columns for Name, Total Time Deviation, Transaction Rate, Transaction Rate Deviation, Percent Failed, Percent Slow, Percent Good, and Times.

Name	Total Time Deviation	Transaction Rate	Transaction Rate Deviation	Percent Failed	Percent Slow	Percent Good	Times
/ctgapps-j2ee/two_sor.jsp	1,659	3	350	0	0	100	11/26/08
CSMI	34,550	1	125	0	0	100	11/26/08
CSMI	-33	1	100	0	0	100	11/26/08
CSMI	-14	1	100	0	0	100	11/26/08
CSMI	0	1	100	0	0	100	11/26/08
EC02	1,080	7,614	0	100	0	100	11/26/08
EC02	1,055	6,933	1	300	0	100	11/26/08
EC02	2,152	3,316	0	300	0	100	11/26/08
EC02	28	-56	1	400	0	100	11/26/08
EC02	2,164	6,881	0	300	0	100	11/26/08
EC02	285	161	0	300	0	100	11/26/08
EC03	1,051	10,410	0	100	0	100	11/26/08
EC03	2,112	2,608	1	400	0	100	11/26/08



# Transaction Topology

## Transaction Instance View – CTG Gateway Mouseover

The screenshot displays the Transaction Instance Topology window with a mouseover tooltip for node EC02. The topology shows a flow from a root node to EC02 and EC03, then to CSMI nodes. The tooltip for EC02 provides the following details:

Transaction Instance Node EC02	
Total time	25ms
Baseline	0ms
Deviation	0%
Enclosing Server	SYSPLXGMMG1
Enclosing Component	CTG Gateway
Enclosing Application	Q1MM1AID.Q1MM1QAL

Below the topology, the 'Interactions at 11/26/08 11:56:33' table is shown:

Interaction	Parent Sub Transaction Time	Parent St
/ctgapps-j2ee/two_sor.jsp - EC02	63	
/ctgapps-j2ee/two_sor.jsp - EC03	62	
CSMI - CSMI	0	
CSMI - CSMI	0	
EC02 - CSMI	19	
EC02 - EC02	63	
EC03 - CSMI	10	
EC03 - EC03	62	
Root: /ctgapps-j2ee/two_sor.jsp	125	

# Transaction Topology

## Link to Omegamon XE for CICS Transaction Units of Work

The screenshot displays the Transaction Instance Topology for the transaction `/ctgapps-j2ee/two_sor.jsp`. The topology is as follows:

- Root Node: `/ctgapps-j2ee/two_sor.jsp` (63ms)
- Branch 1: `EC03` (62ms) → `EC03` (12ms) → `CSMI` (2ms) → `CSMI`
- Branch 2: `EC02` (25ms) → `EC02` (11ms) → `CSMI` → `CSMI`

The left pane shows the Navigator tree with the following structure:

- CLCCC
  - CLEMENTI
  - IBM-D05D762C9A4
  - ITCAMFT-WAS-DM
  - TXNITM
    - Transaction Collector
    - Universal Agent
    - Windows OS
  - TYEN-ITM
    - Transaction Collector
    - Transaction Reporter
    - Applications
    - Components
    - Servers
    - Transactions
  - Windows OS
  - z/OS Systems

The bottom status bar shows: Hub Time: Mon, 12/01/2008 03:44 PM, Server Available, Transaction Instances - TXNITM - SYSADMIN. A red box is present in the bottom right corner of the slide.



# Transaction Topology

## Transaction Analysis by Unit of Work

Units of Work - TXNITM - SYSADMIN

File Edit View Help

Navigator View: Physical

- Message Queuing Analysis
- MVS TCB Summary
- Pagepool Summary
- Recovery Manager Analysis
- Region Overview
- Response Time Analysis
- Service Level Analysis
- Service Task Details
- Storage Analysis
- Subpool Details
- System Initialization Table
- Task Class Analysis
- TCPIP Statistics
- Temporary Storage Queues
- Temporary Storage Summary
- Terminal Storage Violations
- Transaction Analysis**
- Transaction Storage Violations

Physical

Unit of Work by Region

System ID	CICS Region Name	CICS Version	Number of Transactions	CPU Time	Overall Elapsed Time	Total Wait Time	Dispatch Time
MMQ1	C63Q1MM1	6.3.0	1	00:00:00.001	00:00:00.003	00:00:00.001	00:00:00.001

Unit of Work by Transaction

System ID	CICS Region Name	CICS Version	Transaction ID	Task Number	Task Status	CPU Time	Overall Elapsed Time	Total Wait Time	Dispatch Time	First Dispatch Delay	Terminal I/O Wait	Journal Wait	Temporary Storage Wait	File Wait	Redispach Wait
MMQ1	C63Q1MM1	6.3.0	CSMI	00062	Done	00:00:00.001	00:00:00.003	00:00:00.001	00:00:00.001	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00

Hub Time: Mon, 12/01/2008 03:07 PM Server Available Units of Work - TXNITM - SYSADMIN



# Transaction Topology

## Link to Omegamon XE for CICS Application Trace

The screenshot shows the IBM Transaction Topology interface. On the left is a 'Navigator' pane with a tree view of analysis categories. The main area is split into two panes: 'Unit of Work by Region' and 'Unit of Work by Transaction'. The 'Unit of Work by Transaction' pane shows a table with columns for System ID, CICS Region Name, CICS Version, Transaction ID, Task Number, Task Status, CPU Time, Overall Elapsed Time, Total Wait Time, Dispatch Time, First Dispatch Delay, Terminal I/O Wait, Journal Wait, Temporary Storage Wait, File Wait, and Redispatch Wait. A context menu is open over the first row, with 'Link To...' selected, and a sub-menu showing 'Link Wizard...' and 'Application Trace'.

System ID	CICS Region Name	CICS Version	Number of Transactions	CPU Time	Overall Elapsed Time	Total Wait Time	Dispatch Time
MMQ1	C63Q1MM1	6.3.0	1	00:00:00.001	00:00:00.003	00:00:00.001	00:00:00.001

System ID	CICS Region Name	CICS Version	Transaction ID	Task Number	Task Status	CPU Time	Overall Elapsed Time	Total Wait Time	Dispatch Time	First Dispatch Delay	Terminal I/O Wait	Journal Wait	Temporary Storage Wait	File Wait	Redispatch Wait
MMQ1	C63Q1MM1	6.3.0	CSMI	00062	Done	00:00:00.001	00:00:00.003	00:00:00.001	00:00:00.001	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00

# Transaction Topology Application Trace

Application Trace - TXNITM - SYSADMIN

File Edit View Help

Application Trace Details

Date Time	Type	Function	Program	Offset	Resource	Response
16:02:53.6401359843	TSKSTR	1ST DISPATCH	DFHMIRS	+0		
16:02:53.6401575937	EXECIN	LINK	DFHMIRS	FFFFFFFF	DFHCCNV	
16:02:53.6401825625	EXECIN	ADDRESS	DFHCCNV	+204	EIB	
16:02:53.6401885781	EXECOUT	ADDRESS	DFHCCNV	+204	001400D0	NORMAL
16:02:53.6401906250	EXECIN	LOAD	DFHCCNV	+1480	DFHCNV	
16:02:53.6402176875	EXECOUT	LOAD	DFHCCNV	+1480	DFHCNV	NORMAL
16:02:53.6402244687	EXECIN	LINK	DFHCCNV	+1A48	DFHUCNV	
16:02:53.6402403750	EXECIN	RETURN	DFHUCNV	+27E		
16:02:53.6402524218	EXECOUT	LINK	DFHCCNV	+1A48	DFHUCNV	NORMAL
16:02:53.6402645000	EXECOUT	LINK	DFHCCNV	FFFFFFFF	DFHCCNV	NORMAL
16:02:53.6402690156	EXECIN	LINK	DFHCCNV	FFFFFFFF	EC02	
16:02:53.6404106562	EXECIN	ASKTIME ABSTIME	EC02	+5DA		
16:02:53.6404160937	EXECOUT	ASKTIME ABSTIME	EC02	+5DA		NORMAL
16:02:53.6404183906	EXECIN	HANDLE CONDITION	EC02	+60A		
16:02:53.6404264218	EXECOUT	HANDLE CONDITION	EC02	+60A		NORMAL
16:02:53.6404286875	EXECIN	READQ TS	EC02	+6AA	ECSSLOW	
16:02:53.6404422031	EXECOUT	READQ TS	EC02	+6AA	ECSSLOW	QIDERR
16:02:53.6404506562	EXECIN	LINK	EC02	+88A	ECPROG	
16:02:53.6405608125	EXECIN	ADDRESS	EC02	FFFFFFFF	EIB	
16:02:53.6405646875	EXECOUT	ADDRESS	EC02	FFFFFFFF	001400D0	NORMAL
16:02:53.6405675000	EXECIN	LINK	EC02	FFFFFFFF	DFHDYP	
16:02:53.6405832656	EXECIN	RETURN	DFHDYP	+21E		
16:02:53.6405948437	EXECOUT	LINK	DFHDYP	FFFFFFFF	DFHDYP	NORMAL
16:02:53.6406554687	EXECIN	RETURN	CYIPDYP	+29A		
16:02:53.6420938771	EXECOUT	LINK	EC02	+88A	ECPROG	NORMAL
16:02:53.6420981740	EXECIN	FORMATTIME	EC02	+98A		
16:02:53.6421107521	EXECOUT	FORMATTIME	EC02	+98A		NORMAL
16:02:53.6421128459	EXECIN	RETURN	EC02	+9C0		
16:02:53.6425612521	EXECOUT	LINK	EC02	FFFFFFFF	EC02	NORMAL
16:02:53.6425679084	EXECIN	LINK	EC02	FFFFFFFF	DFHCCNV	
16:02:53.6425885021	EXECIN	ADDRESS	DFHCCNV	+204	EIB	
16:02:53.6425923146	EXECOUT	ADDRESS	DFHCCNV	+204	001400D0	NORMAL
16:02:53.6425973928	EXECIN	LINK	DFHCCNV	+1A48	DFHUCNV	
16:02:53.6426154084	EXECIN	RETURN	DFHUCNV	+27E		
16:02:53.6426268771	EXECOUT	LINK	DFHCCNV	+1A48	DFHUCNV	NORMAL
16:02:53.6426389709	EXECOUT	LINK	DFHCCNV	FFFFFFFF	DFHCCNV	NORMAL
16:02:53.6426851271	EXECIN	INQ TASK	DFHCCNV	FFFFFFFF	0000062	
16:02:53.6427177053	EXECOUT	INQ TASK	DFHCCNV	FFFFFFFF	0000062	NORMAL

Task Details

Transaction ID	CICS Region Name	CICS Version	CPU Time	Dispatch Time
CSMI	C63Q1MM1	6.3.0	00:00:00.001	00:00:00.001

Task Details continued

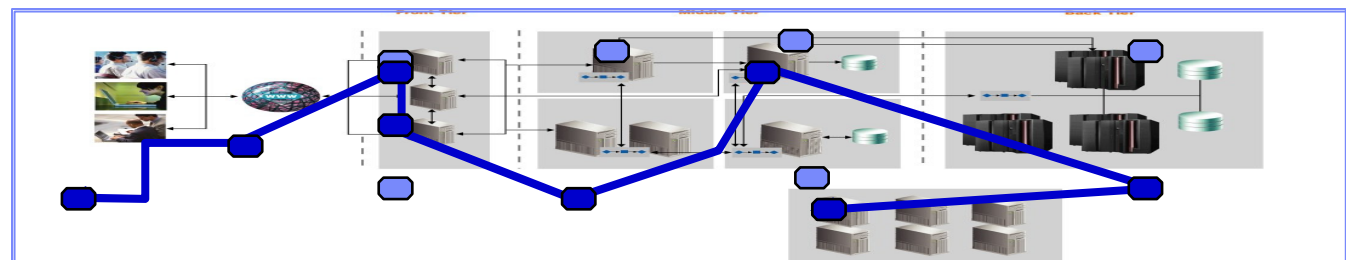
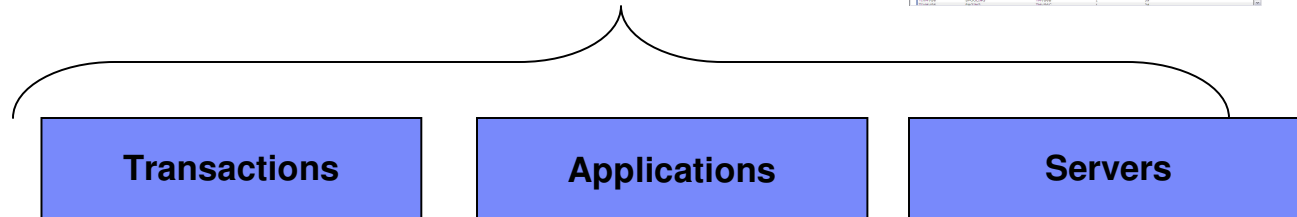
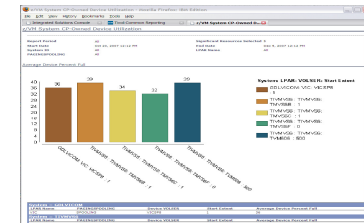
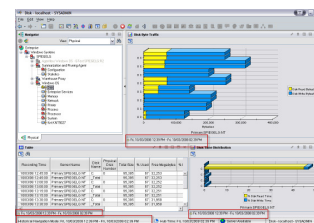
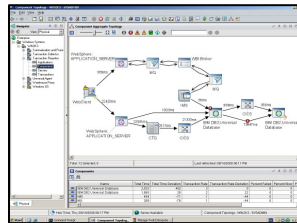
First Dispatch Delay	Terminal I/O Wait	Journal Wait	Temporary Storage Wait
00:00:00	00:00:00	00:00:00	00:00:00

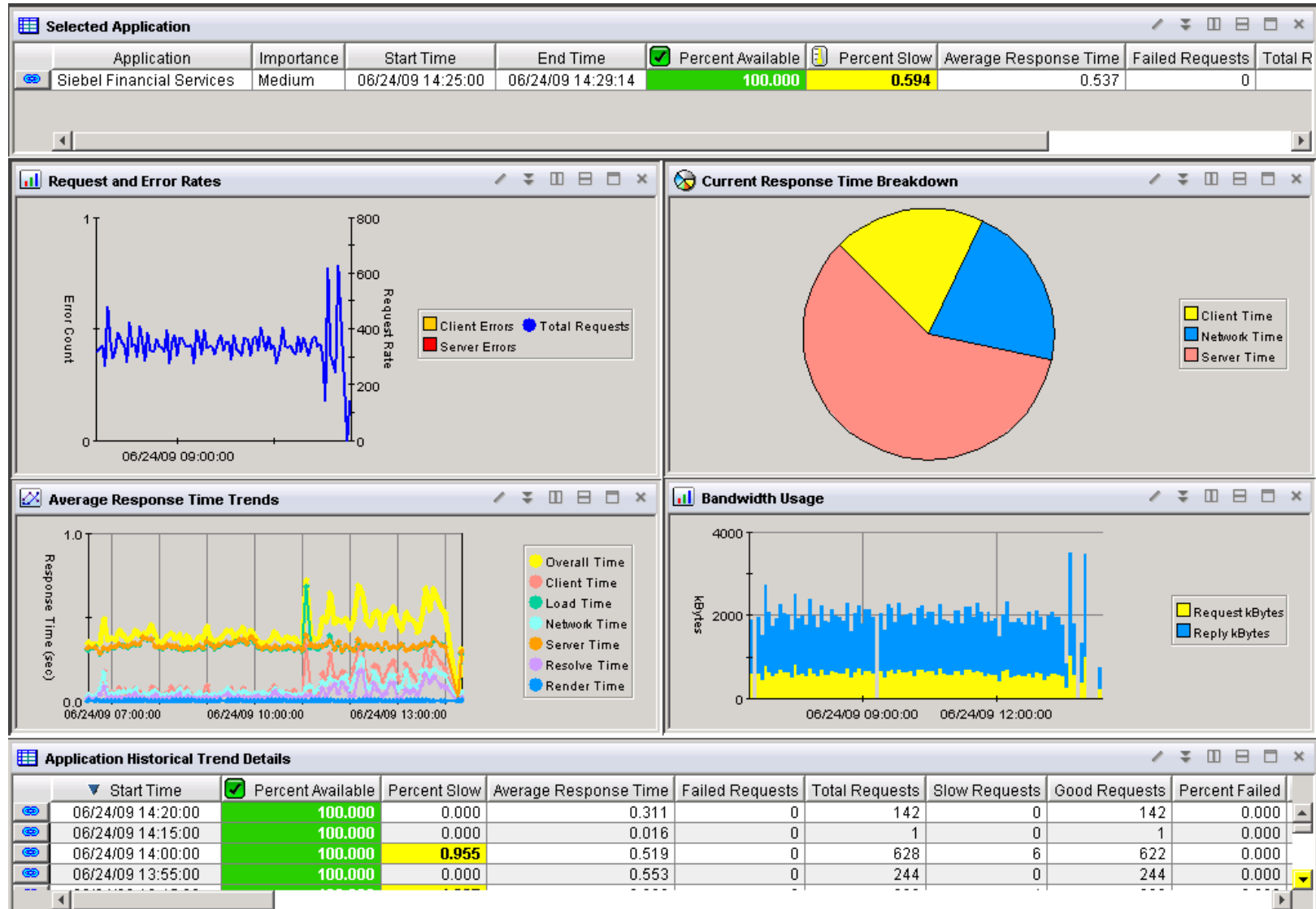
Hub Time: Mon, 12/01/2008 03:08 PM

Server Available

Application Trace - TXNITM - SYSADMIN

- Monitor infrastructure performance and availability
- Increase application availability and customer satisfaction
- Improve MTTR and MTBF
- Diagnose application performance issues
- Understand transaction flows over complex topologies
- **Monitor application response to ensure business expectations are met**



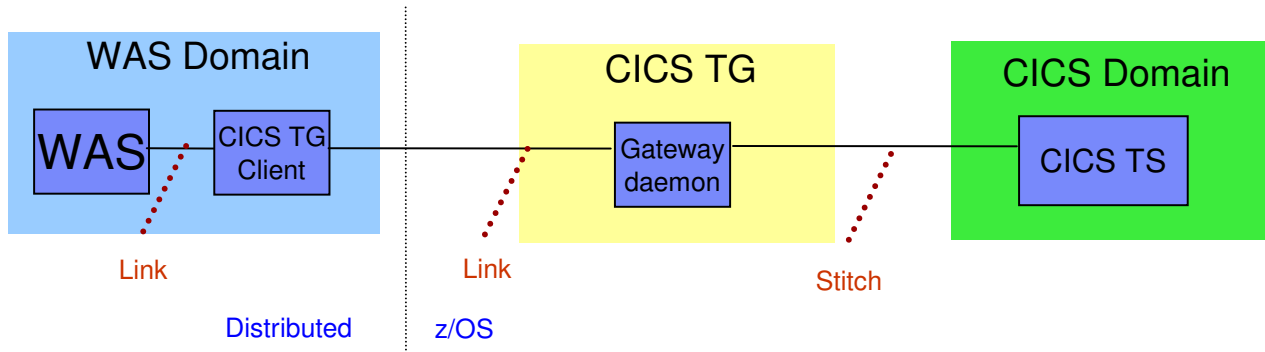


# Questions?



# Backup

- Linking and stitching is also used in the correlation of transactions flowing between WAS and CICS via CICS TG



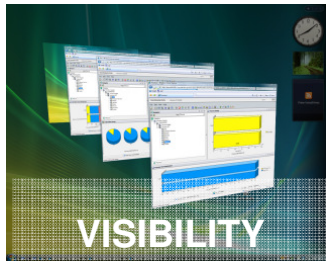
- The CICS TG client application (EJB, JSP etc) is deployed into WAS. Events generated by ITCAM for WAS can be linked to by the client application.
- A link is constructed between the CICS TG gateway daemon and the client application
- Finally details of the connection between the CICS TG and CICS is stitched together by connecting attributes acquired by the CICS TG data collector and ITCAM CICS data collector.
- This allows a tokenless correlation to be recorded from WAS through to CICS

CICS TG attribute	CICS stitching attributes
Derived Network UOWID	Network UOWID
CICS TG Jobname	Exci caller Jobname
CICS TG Stepname	Exci caller Stepname
CICS TG SMFID	Exci caller SMFID

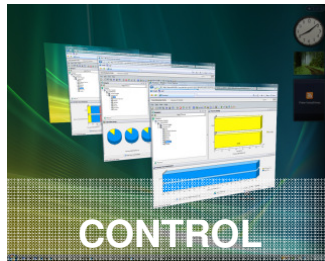
An example of CICS TG to CICS stitching via an EciSynconreturn transaction over EXCI



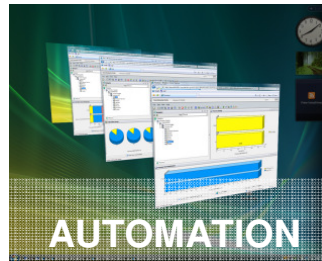




**VISIBILITY**  
Tivoli Enterprise Portal (TEP)

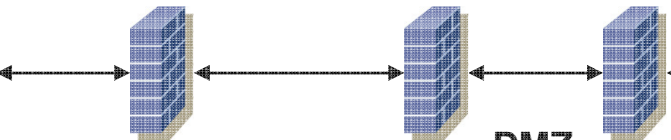


**CONTROL**  
Tivoli Data Warehouse (TDW) and Situations

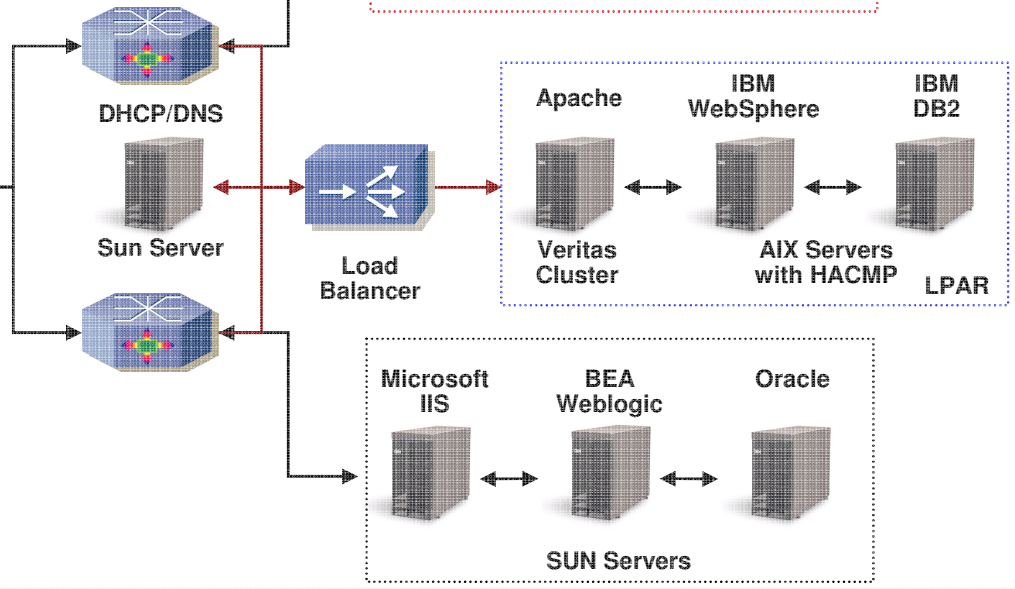


**AUTOMATION**  
Take Action and Workflows

Windows Clients

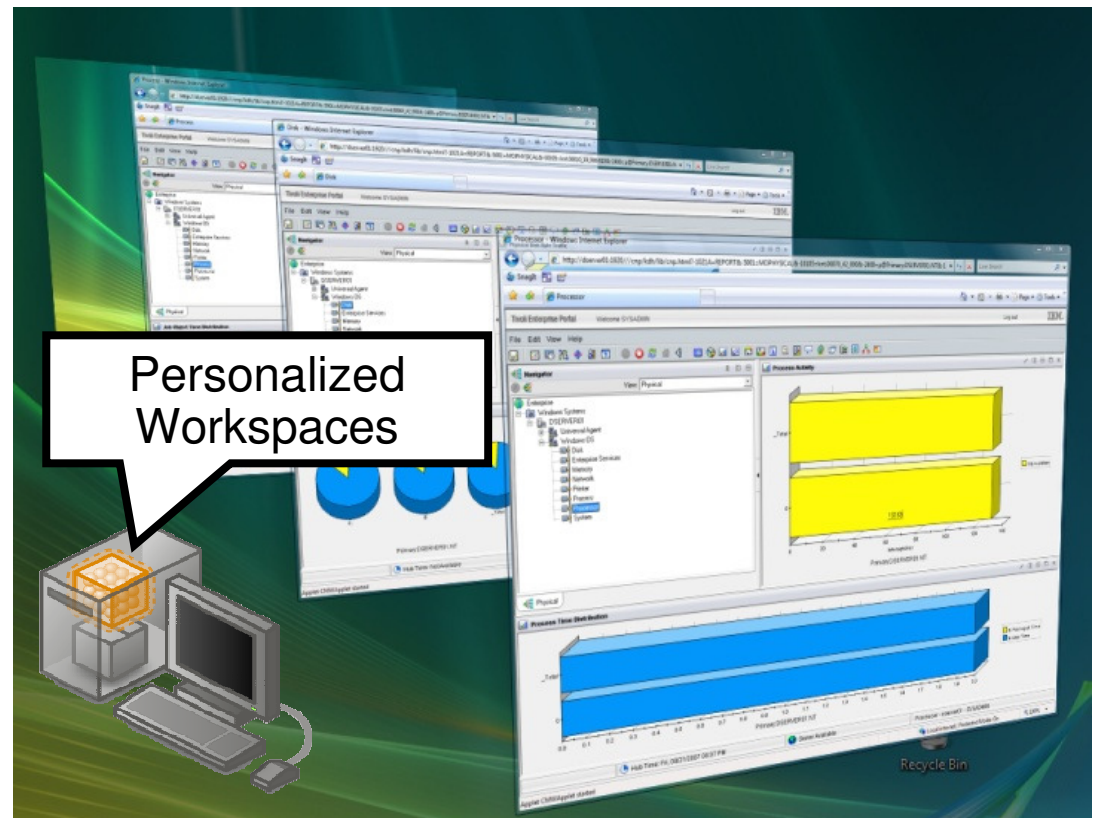


DMZ



## The Tivoli Enterprise Portal (TEP) is the central location to view and act on contextualized information provided by the system monitors

- **Consolidated** view and **contextual** information can significantly reduce mean time to recovery by aiding in “**root cause**” analysis
- **Centralized** visualization of real-time and historical data can help with “intermittent” problems
- **Personalized** views based on the user roles and scope
- **Visualization of resource utilization** can highlight areas to reduce costs
- Anything visualized in the TEP is available in the **Data Warehouse**





Tivoli Data Warehouse and Situations

## Situations allow operators to quickly define, distribute and take a reflex action to a set of defined conditions in any monitored resource

- Pre-defined **out-of-the-box** situations provide immediate return on investment and fast time to value
  - **Extended** situations reduce false alerts and raise confidence of operators that alerts are real
- Easy **distribution** to a set of targets
- **Expert Advice** imbeds run book automation
- **Tight integration** into root cause analysis and correlation tools improve mean time to recovery

The screenshot shows the 'Situation Editor' window with the 'Formula' tab selected. The left pane lists various system metrics, with 'NT\_Process\_CPU\_Warning' selected. The main area shows the following configuration:

**Description:** Percent of processor time used by this process.

**Formula:**

	% Processor Time	% Processor Time	Priority Base	Process Name
1	>= 50	< 65	!= 0	!= _Total
2				

Below the table, there is a 'Situation Formula Capacity' indicator showing 18% and a 'Sampling interval' field set to 0 / 0 : 15 : 0. The 'Run at startup' checkbox is checked. Buttons for 'Add conditions...', 'Advanced...', 'OK', 'Cancel', 'Apply', and 'Help' are visible at the bottom.



**Take Action allows for entry of individual commands and either manual or automated processes to be executed in response to an individual situation**

- **Out-of-the-box** take actions provide immediate return on investment and fast time to value
- **Reflex Action** allows the return of a server to a specified state even though disconnected
- **Personalized** take actions can capture a local best practice for unique situations and execute it preemptively
- **User-defined** text can also imbed knowledge that may be unique to a particular situation

