Pulse2011

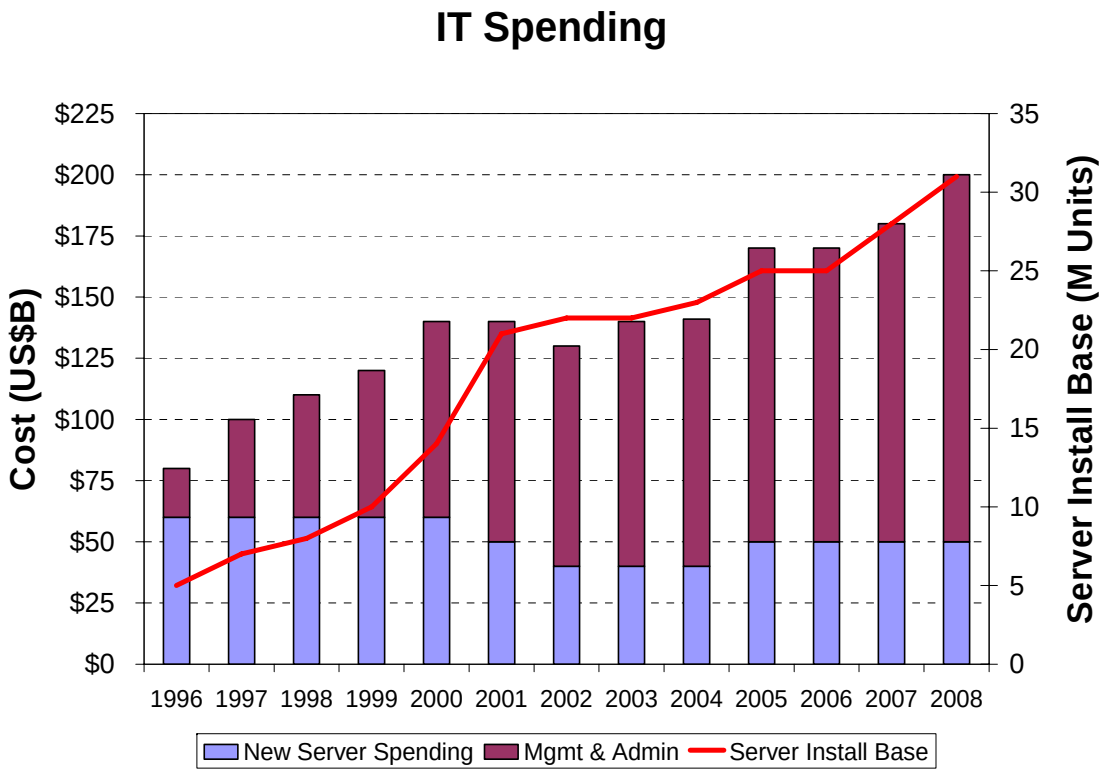
Seeing Is Believing : Monitoring Applications On System z with ITCAM

Roberto Calderon
rcaldero@us.ibm.com

What Our Customers Are Facing Today

IT Complexity Drives Hidden Costs

- Managing today's mixed IT platform environments can be complex and costly
  - Thousands of servers
  - Thousands of software licenses
  - Thousands of distributed control points
  - Underutilized assets
  - Ineffective costing methodologies
- The Result
  - Massive complexity
  - Spiraling people costs
  - Increased availability and downtime costs
  - Increased security breach costs
  - Sub-optimal investment choices



Many infrastructure management initiatives are focused on changing this direction but adoption & IMPLEMENTATION has been slow & difficult!!

Source: IDC

Customer Pain – Isolating a Problem Today

Response time is terrible; more than one minute.

Step 1: Check Operations Center

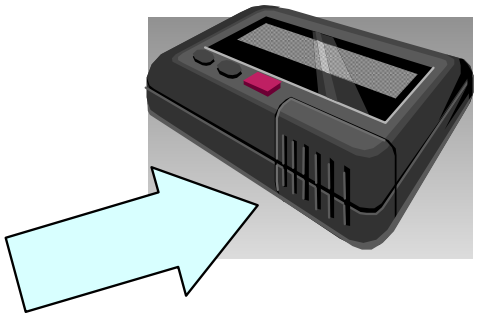
Network Problems:
- Alerts
- Health Monitors
- Excessive traffic
- Pings and Collisions

System Problems:
- System Alerts

Step 2: Call Applications Support

- Check change records
- Roll back application to old level

Step 3: Bridge Call with Tiger Team



Step 4: Check Everything

Multiple Vendor Monitoring tools:
- Hardware
- OS
- Applications
  - Logfiles
- Databases
  - Run Test SQL

Step 5: Locate Source of Problem

- Finger-pointing: "It's the network guy's fault“
- Recreating the problem is difficult
- Solutions by chance

Poor Problem Isolation Means Higher Costs

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	$108,000

Revenue lost during outages

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

Total costs of poor problem isolation capability

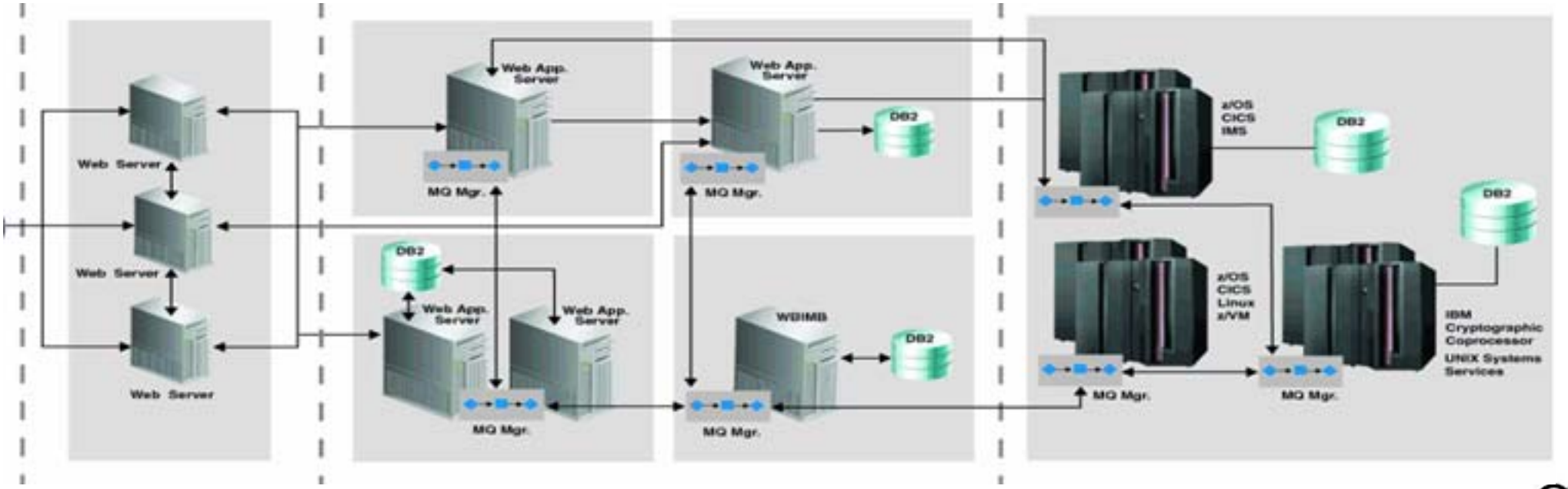
Total lost / yr	**$1,548,000**

Every customer case will be different …

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

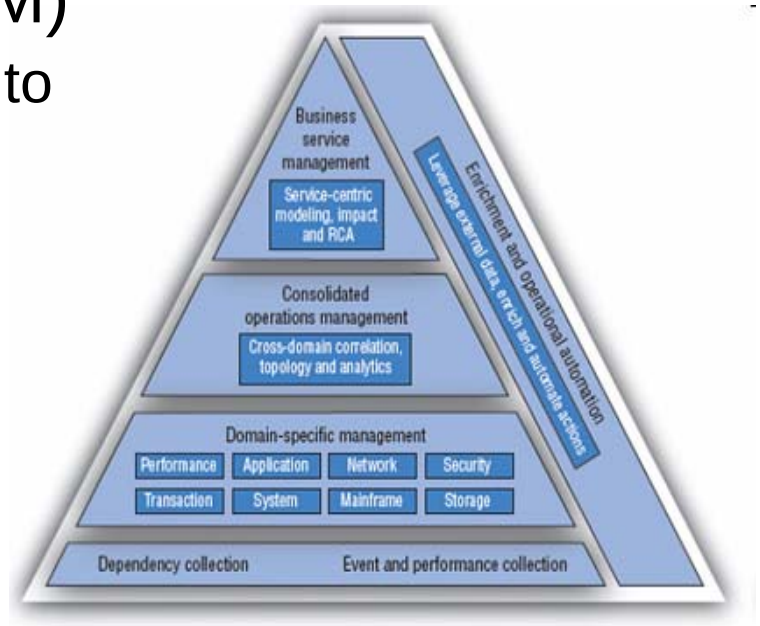
What is Composite Application Monitoring?

- Composite Application is
  - –N-tiered software architecture, or
  - –SOA architecture
- Composite Applications are multi element
  - –Implies CAM will consist of many elements
  - –Many aspects – real/synthetic, KPI vs Tracking
  - –“Tracking” is a vital function



CAM – What it isn't

- Point monitors (single domain monitors)
  - Monitors that just observe one element, eg
    - Network monitor
    - OS monitor, or
    - Even Middleware monitors that report only KPIs.
  - "Tracking" is the distinction between a CAM vs. a collection of point monitors
- Business monitors (eg BPM, TBSM)
  - Business monitors reports on impact to "business" capability/processes
  - More abstract than CAM

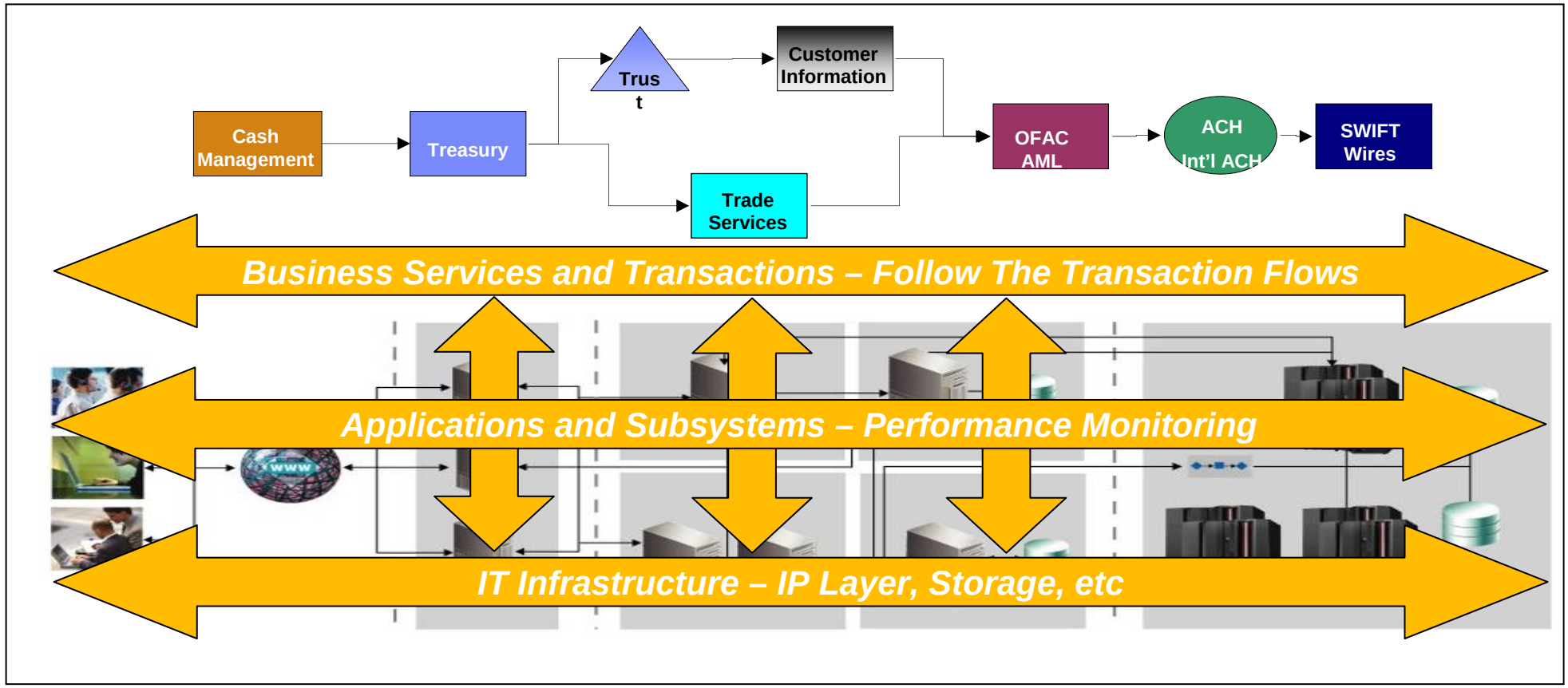


How does this help me?

- Solving classes of real monitoring problems that can't be solved by other means.

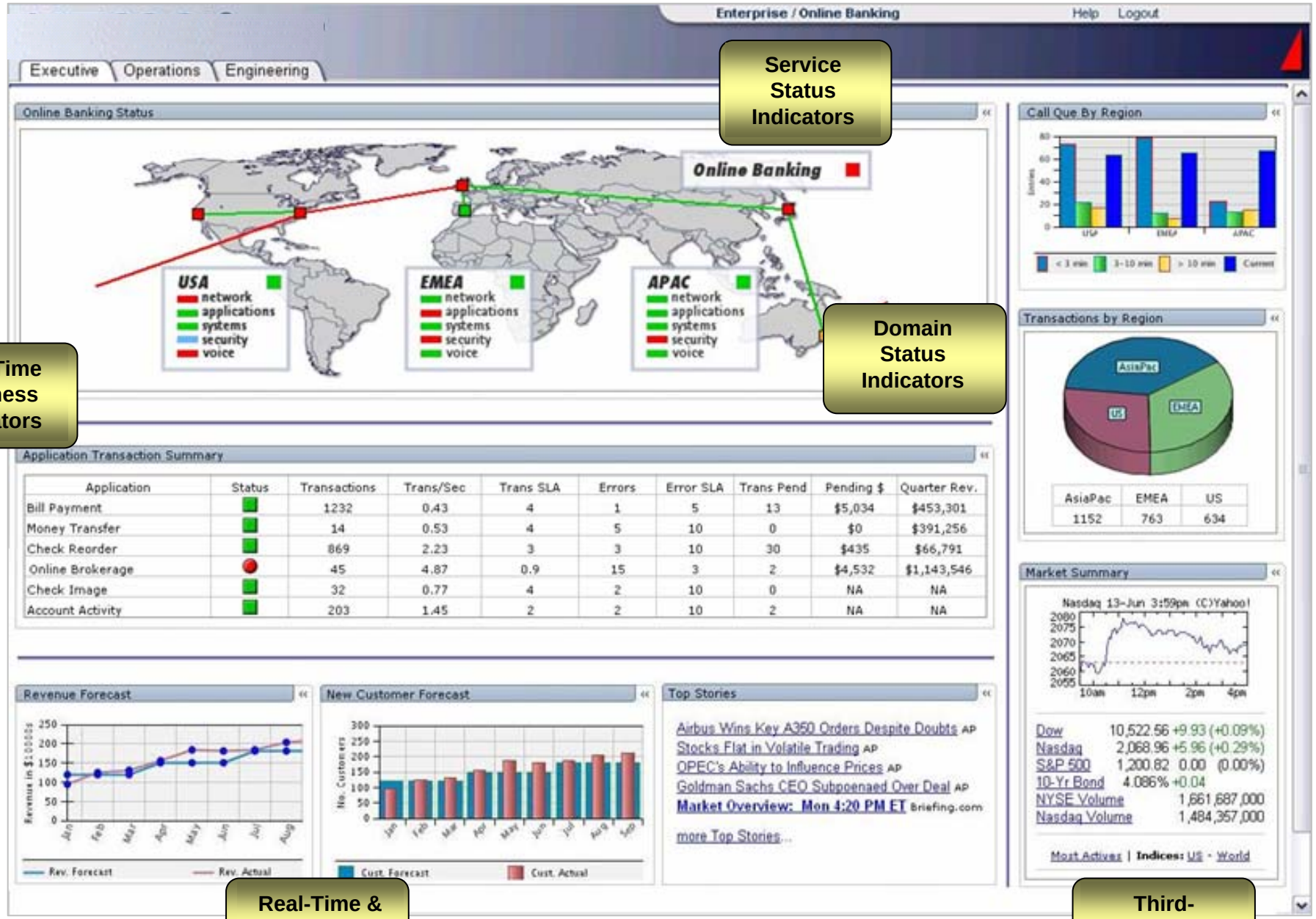
Monitor Type	Solutions offered	Examples
Point monitors, single domain	•KPIs – element vitality. •SLA conformance. •SME information – diagnostics	•Network monitor •ITM OS monitor •OmegaMon XE
Cross domain event correlating monitors. "Transactions Tracking"	•Application dependencies tracking •Problem sensing and isolation •Repair verification	•ITCAM for Transactions
Business monitors. Including impact and process monitoring.	•Business impact analysis •Process compliance monitoring	•TBSM •BPM

Integration that enables multi-dimensional performance management across end-to-end services



- Proactively optimize the health of business entities by **elevating Service Management from a system focus to a line of business focus**
  - **View** – **see the health of business** entities and critical services and applications
  - **Control** – **standardize responses** when the business health deteriorates
  - **Automate** – **proactively** isolate, prioritize, diagnose root cause, and initiate corrective action

Visualizing Service Management Using TBSM



Service Status Indicators

Domain Status Indicators

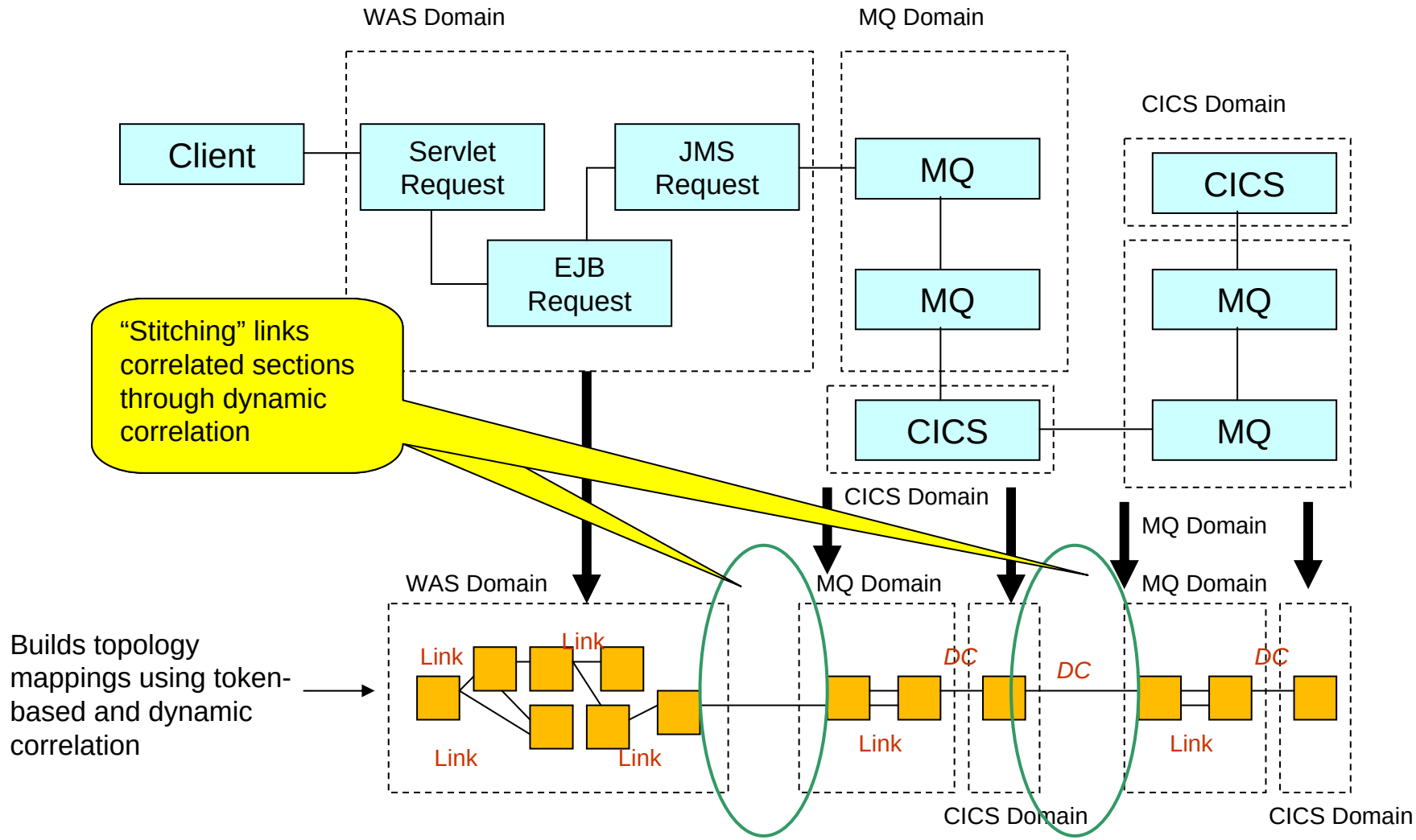
Real-Time Business Indicators

Real-Time & Historical Reports

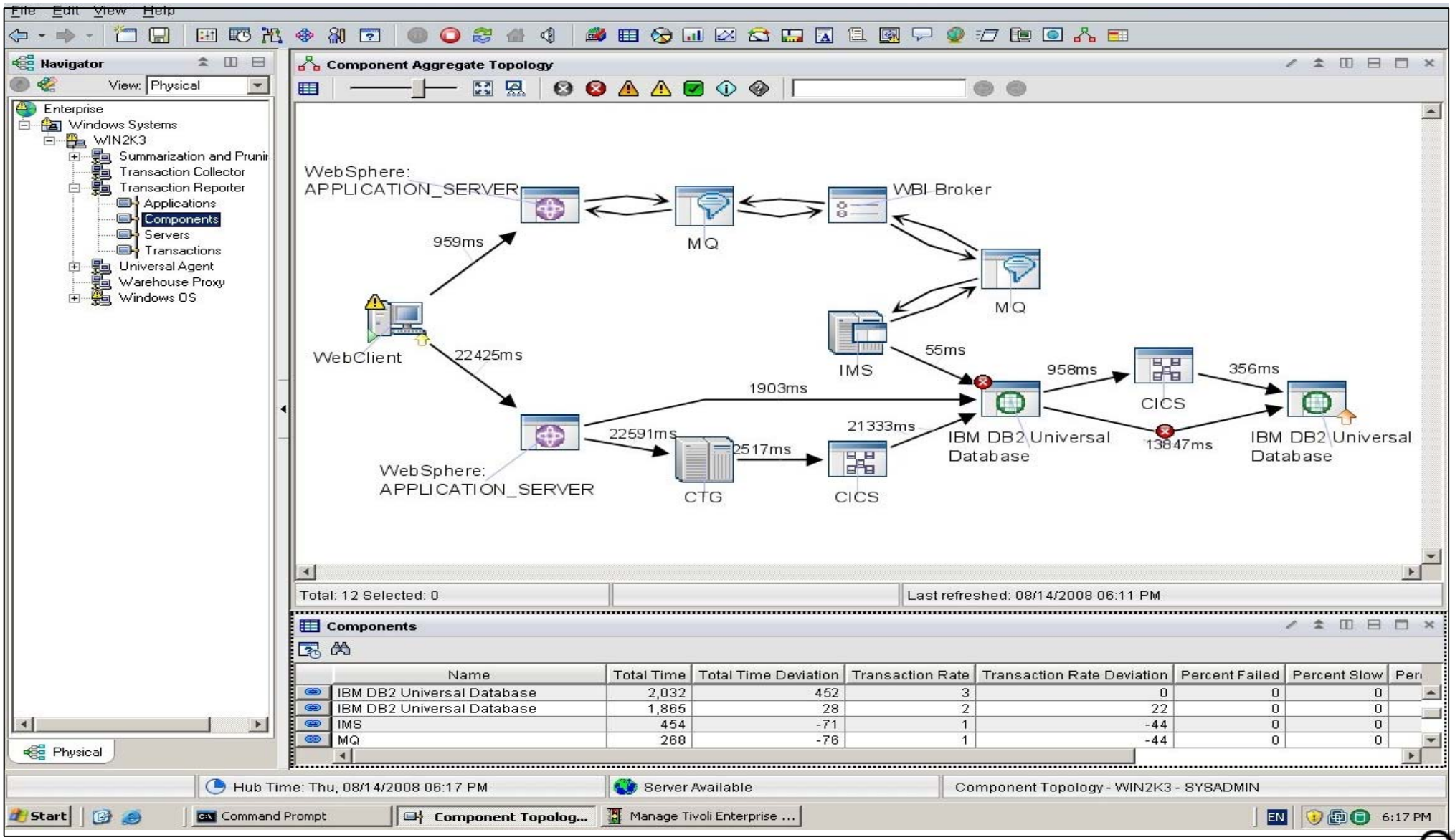
Third-Party Data

Solution To The Pain Is Enterprise-Wide Tracking

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



Identify Problems As The User Sees Them With Transaction Tracking



Workflow for Managing Composite Applications Problems

Sense

Detect that a threshold has been breached and that a problem occurred, or is about to happen

Isolate

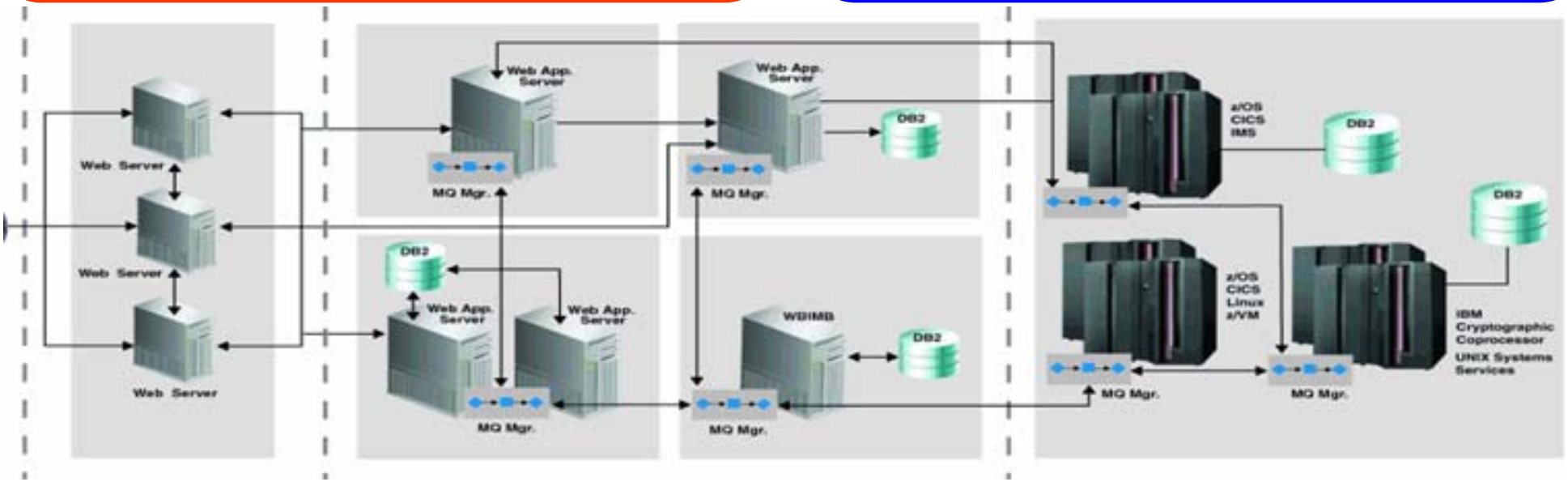
Pinpoint the problem to a specific part of the environment and hand-off to the appropriate specialist

Diagnose

Drill down into the details and get to the root cause of the problem

Repair

Fix the faulty component, validate the fix and roll back into production

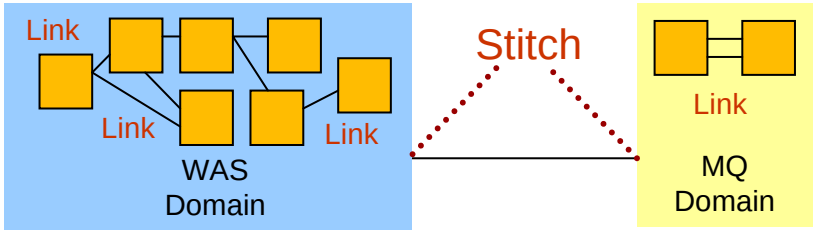


ITCAM for Transactions

OMEGAMON CICS & IMS Integration

Dynamic Correlation

- Dynamic correlation is a technique for enabling transaction tracking from one application domain to another. A domain here refers to a section of a transaction that utilizes a similar tracking technology, E.g. WAS, or MQ, or a native customer application.
- “Stitching” is the term we use to define the way we apply the dynamic correlation technique within the tracking product to track an individual transaction between two domains.

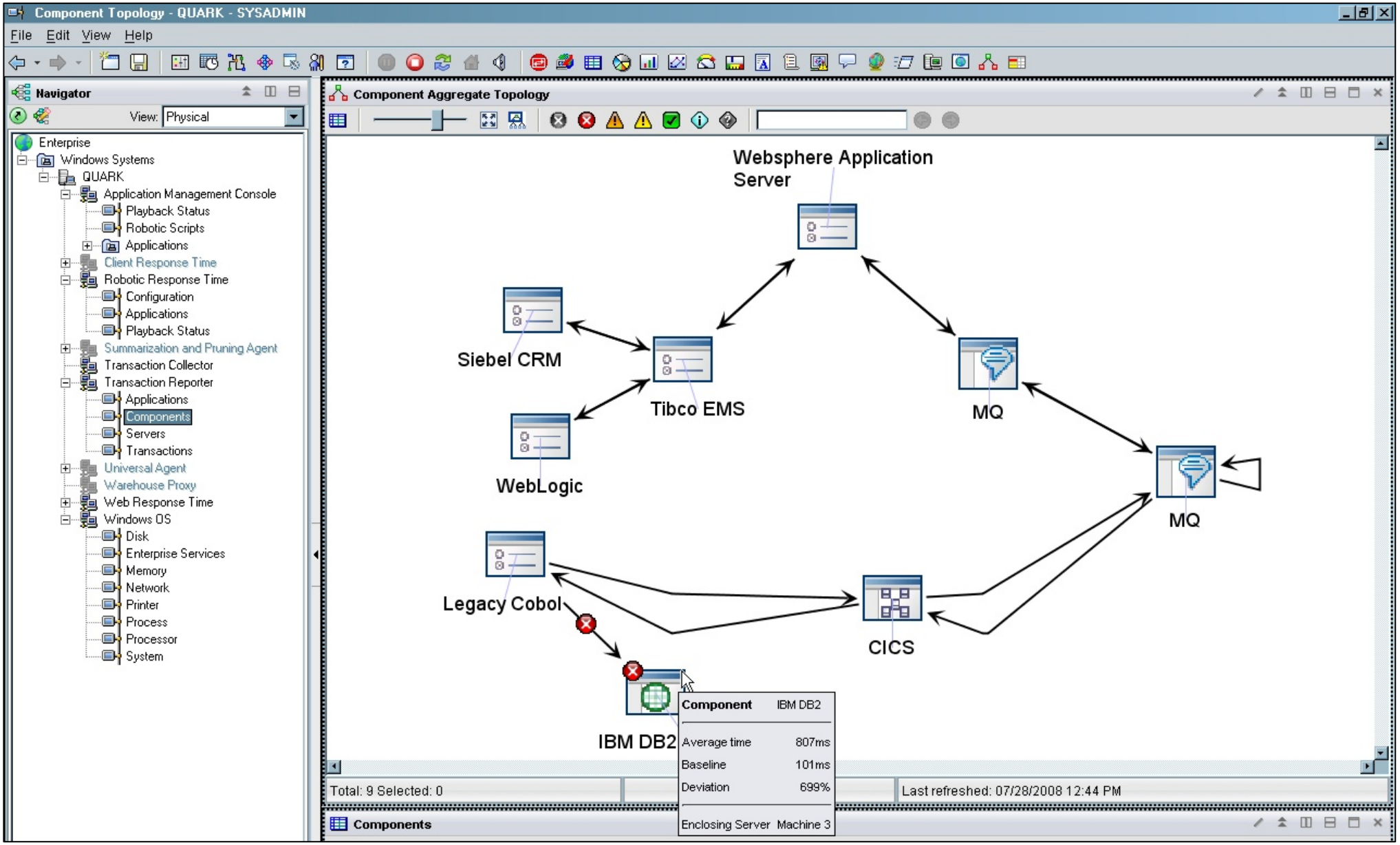


- The dynamic correlation will match configured attributes from each side of the domain boundary to create a “stitch”. For example, the set of common attributes between WAS and MQ may be of this form:

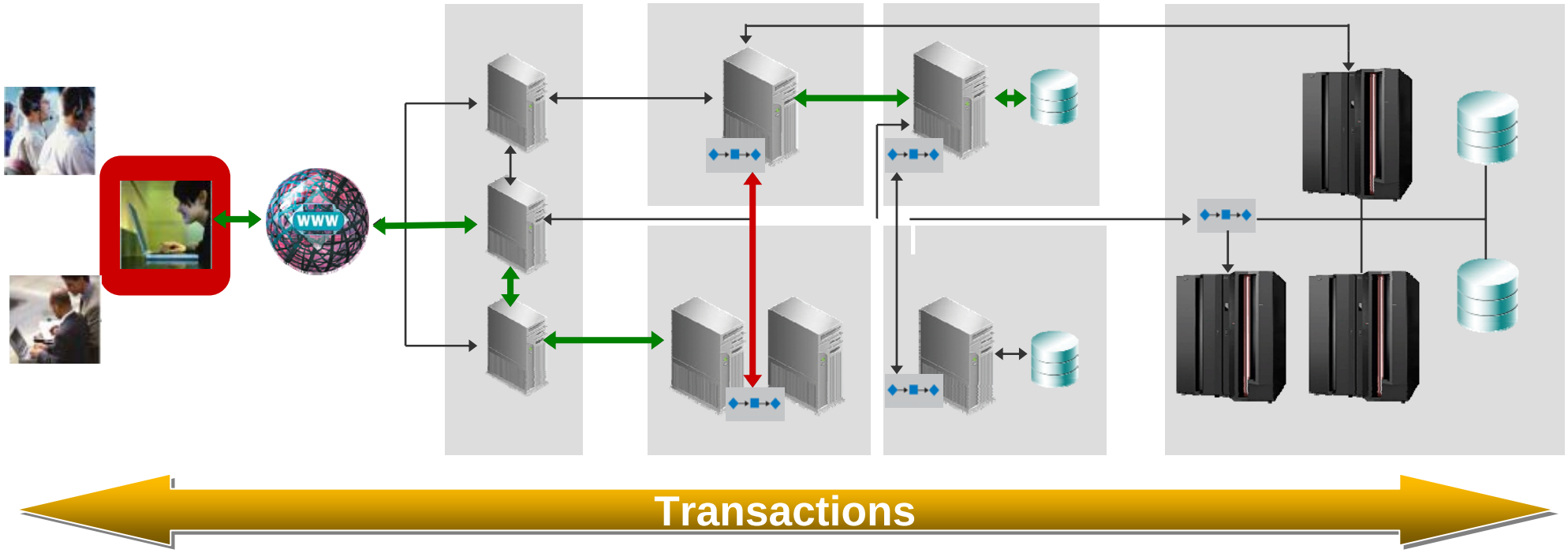
Outgoing WAS transaction attributes	Incoming MQ transaction attributes
Application Name	
Source Host	**Connecting Server name**
Thread ID	
Destination Queue Manager	**Connected Queue Manager**
Destination Queue	**Opened Queue**
	Message ID
etc.	etc.

Attributes in **red** show the common set of attributes that define a unique transaction instance.

Tracking Topology



Why Monitor End-User Response?



- See what your users are experiencing
- Validate production system performance
- Identify problems before they affect SLA's
- **If you have a problem, find out about it *before* the customers start complaining**

A majority of IT problems are still being **identified by customer complaints**

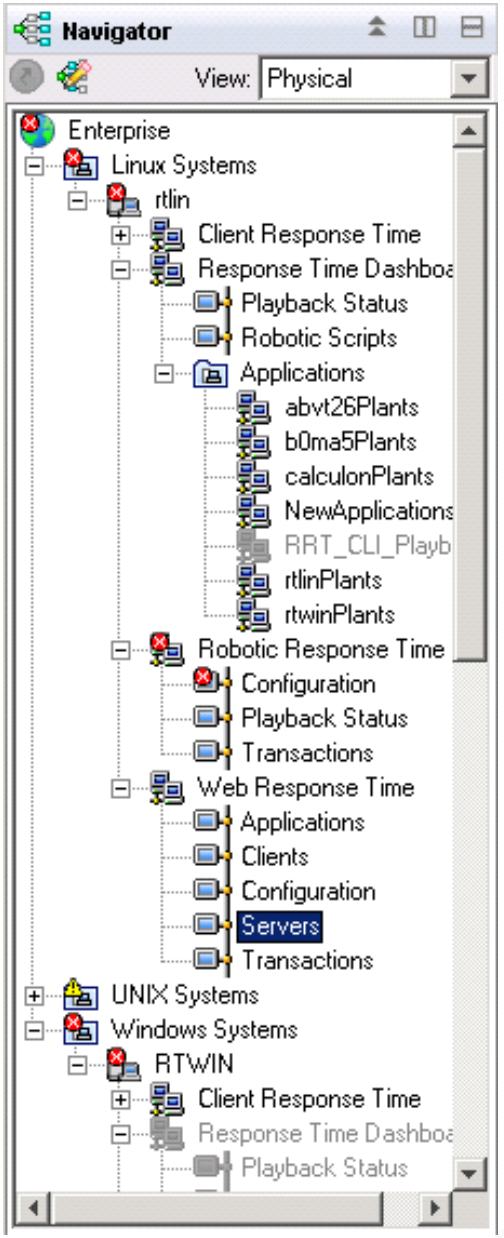
Two Approaches to Response Time Monitoring

Real End User Transactions

- **Web Response Time Monitoring**
  - Reports end user experience for web applications
  - Appliance mode eliminates overhead at the server
- **Client Response Time Monitoring**
  - Monitor real end user client Windows application transactions

Robotic Transactions

- **Robotic Response Time Monitoring**
  - Scheduled playback of robotic scripts
  - Optimized for Rational Performance Tester
  - Additional support for Rational Robot, LoadRunner, custom scripts



Transaction Tracking DEMO

Cool XE CICS 4.2 Features!

- Previous To This Enhancement ATF Traces Had A Limitation
  - Trace Facility Is Only Available For Tasks That Have ***Completed***
  - Application Trace Must Be Specifically Requested Via CUA Or Classic

- Enhancement Adds In-Flight Transaction Tracing & Viewing!!!
  - Via A Take Action Command From An XE Situation
    - CP:TRAC TASK=nnnnn | TRAN=NNNN USER=UUUU TERM=TTTT DURATION=mmmm
    - CP TRAC TRAN=&CICSplex_Transaction_Analysis.CICS_Transaction_ID DURATION=30
    - CP TRAC TASK=&CICSplex_Transaction_Analysis.Task_Number
  - RLIM Enhancement To Automatically Start Trace On A WARNED Transaction
    - RESOURCE_LIMITING_TRACE_WARNED=YES||NO

- These Enhancements Complement ITCAM For Transactions CICS Tracking Functions

धन्यवाद

Hindi

多謝

Traditional Chinese

ขอบคุณ

Thai

Спасибо

Russian

Gracias

Spanish

Thank

English

You

شكراً

Arabic

Obrigado

Brazilian Portuguese

Danke

German

多谢

Simplified Chinese

Grazie

Italian

Merci

French

நன்றி

Tamil

ありがとうございました

Japanese

감사합니다

Korean

Trademarks and disclaimers

The customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics may vary by customer.

Information concerning non-IBM products was obtained from a supplier of these products, published announcement material, or other publicly available sources and does not constitute an endorsement of such products by IBM. Sources for non-IBM list pricesand performance numbers are taken from publicly available information, including vendor announcements and vendor worldwide homepages. IBM has not tested these products and cannot confirm the accuracy of performance, capability, or any other claims related to non-IBM products. Questions on the capability of non-IBM products should be addressed to the supplier of those products.

All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

Some information addresses anticipated future capabilities. Such information is not intended as a definitive statement of a commitment to specific levels of performance, function or delivery schedules with respect to any future products. Such commitments are only made in IBM product announcements. The information is presented here to communicate IBM's current investment and development activities as a good faith effort to help with our customers' future planning.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput or performance improvements equivalent to the ratios stated here.

Prices are suggested U.S. list prices and are subject to change without notice. Starting price may not include a hard drive, operating system or other features. Contact your IBM representative or Business Partner for the most current pricing in your geography.

Photographs shown may be engineering prototypes. Changes may be incorporated in production models.