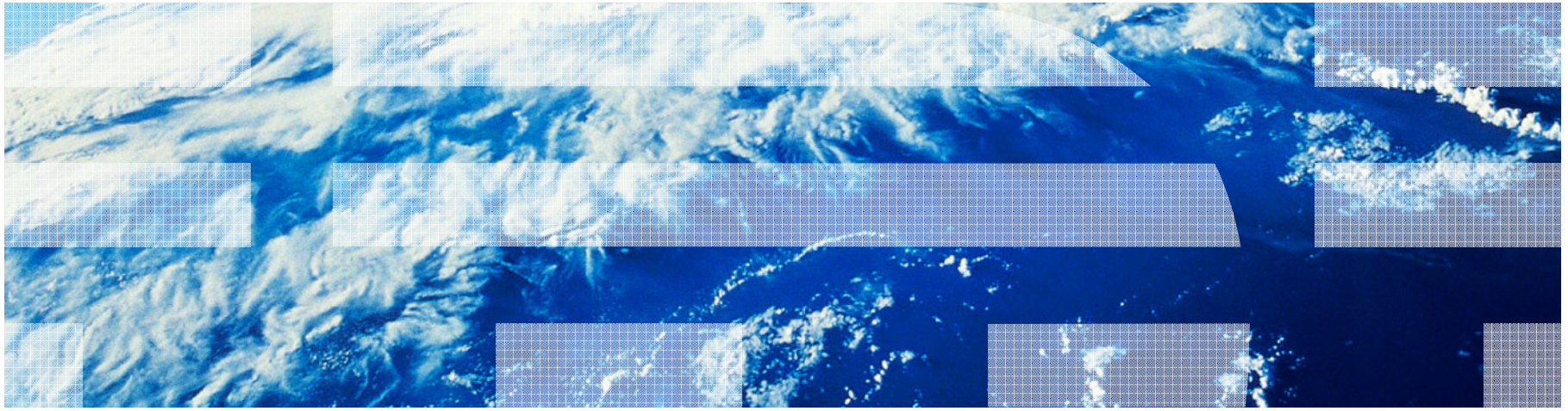
Business Service Management on System z Aligns business and IT

Clayton Ching - IBM Product Manager



Agenda

- What is Service Management?

- Dashboard are for Decision Making
  - Create for Personas/Departments/Groups
    > Business and IT
  - Determine what information you want to convey

- Discover
  - Infrastructure
  - Applications

- Events and Alerts
  - State
  - Status

- Tivoli Business Service Management

Business Leaders Struggle With Issues

Lack of Visibility into Operations Leads to Many Business Problems

Exceptions waste resources and increase costs

Ineffective inventory management leads to lost sales

Poor response time leads to unhappy customers

Poor workload management leads to dissatisfied employees

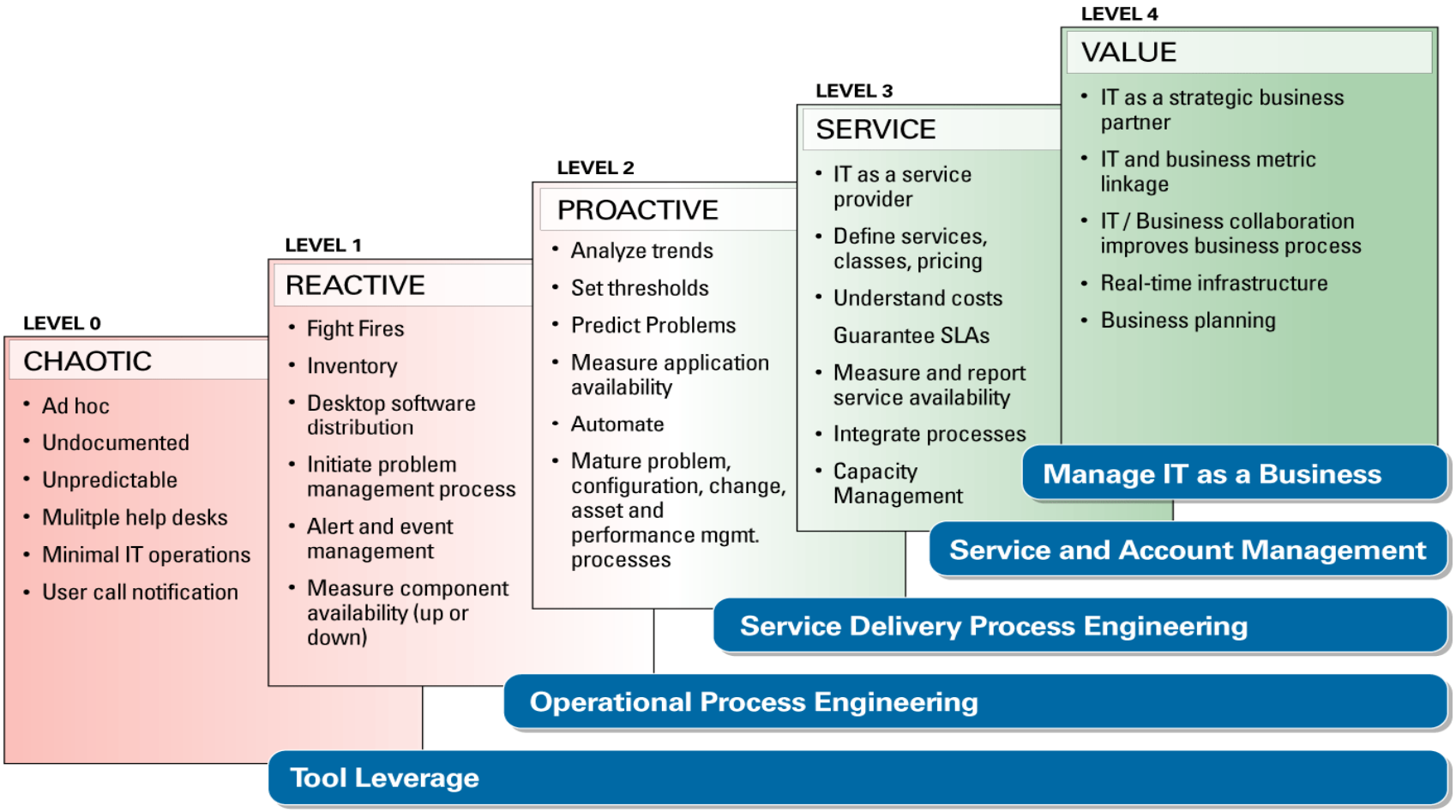
Paper-intensive and manual processes impede visibility

Supply chain disruptions increase costs

85% of CEOs Require More Insight into their Businesses

Source: IBM Global CEO Study

Gartner IT Maturity Scale



Source: Gartner Research (2005)

Busine es

The Challenge

- No understanding of how IT affects the business service
- Lack of collaboration between IT and Business groups, no team effort
- Unable to react to critical service problems before they impact the business.

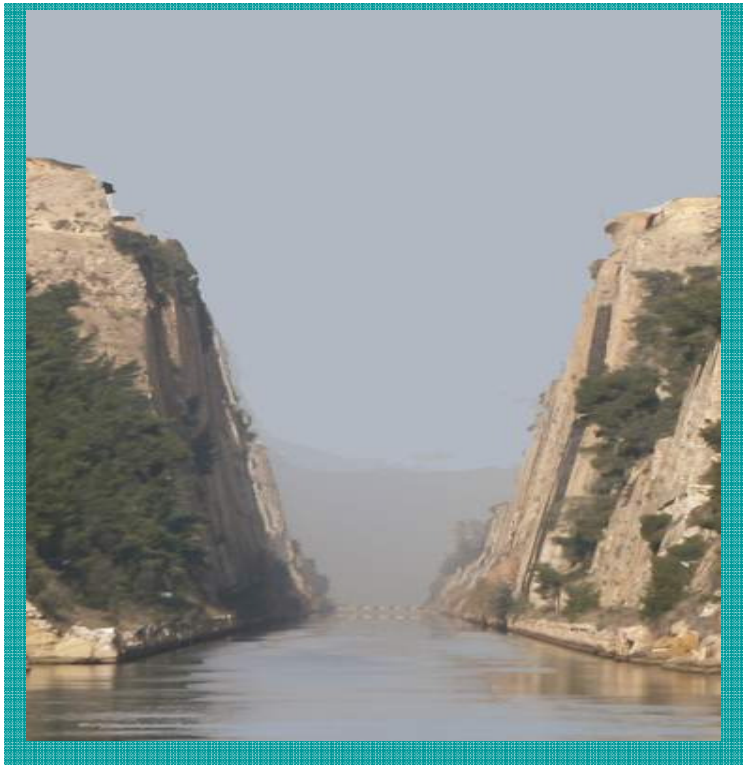
The Response

- Help you understand how services and applications are performing and take action on issues which might impact business goals or expected outcomes.
- Know which services may be impacted, that problems are being addressed, proactively manage to the business impact, and escalate accordingly.
- Provide the trust both IT and the business need from BSM to represent the right services, right resources, and measured in the right way to improve quality of service.

Businesses are Inhibited by the Gap between Business & IT

Business User

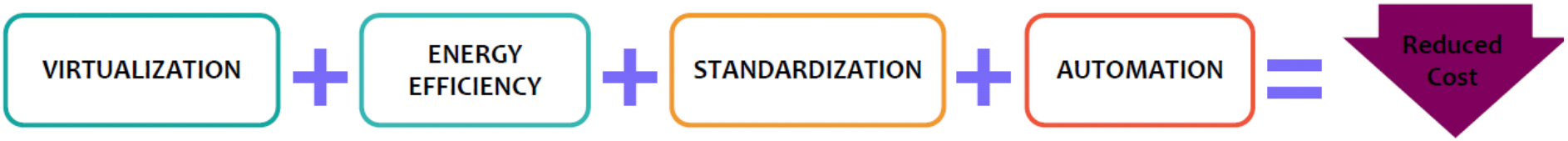
Business people know which business processes are critical, but aren't aware of the IT impact on business performance



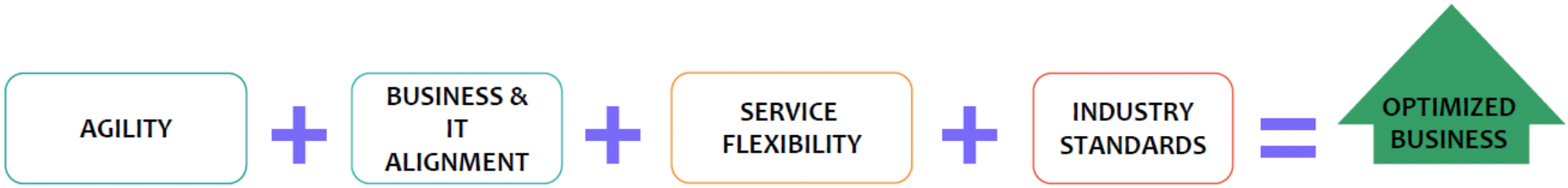
IT Operations

IT people often lack the visibility into business processes and activity to effectively prioritize decisions that support business objectives

Business users vs. IT



….leverages virtualization, standardization and automation to free up operational budget for new investment (inward looking)



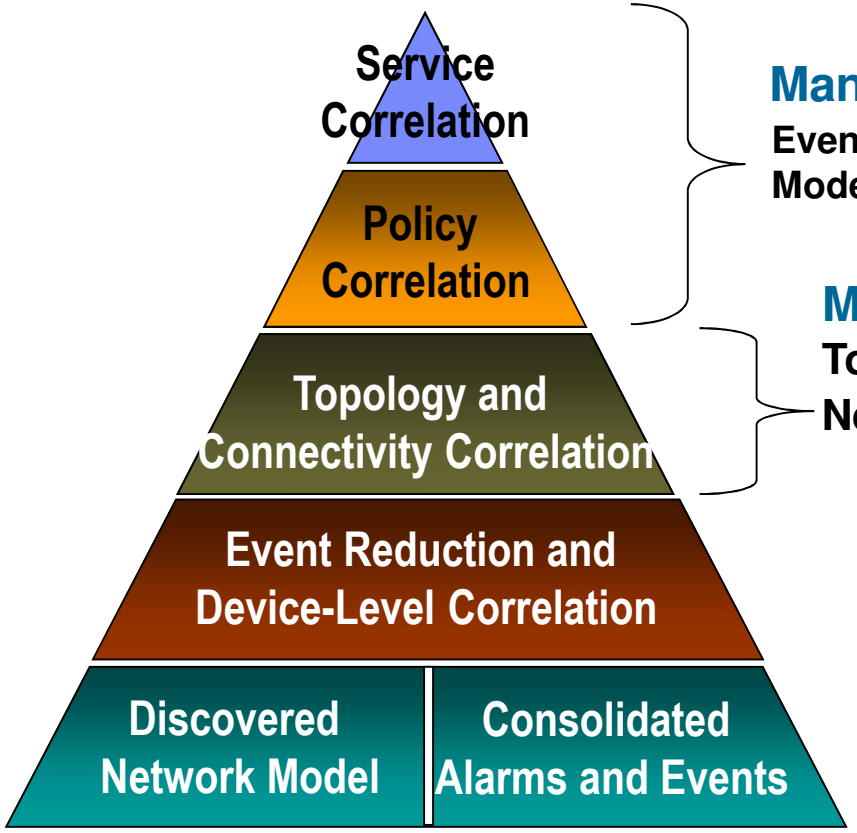
… allowing you to optimize new investments for direct business benefits (corporate strategy)

Business Service Management

IT and Business groups within an organization tend to have different priorities in how they measure and monitor performance goals and business impact

A key success factor for any business is to ensure alignment between the IT and Business groups as a whole with a focus towards common goals and customer success

The Path to Business Service Management



Manage Business Services

Event to Event / Service Model Correlation

Manage Applications

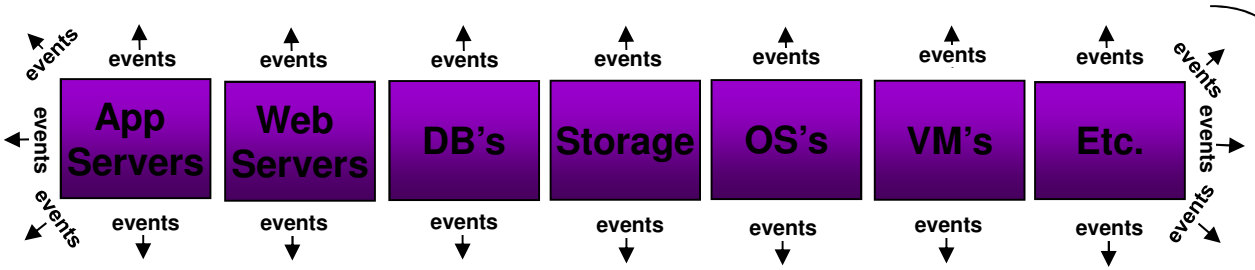
Topology-based event correlation

Network model based event enrichment

Infrastructure Monitoring

Event-to-Event correlation

Domain knowledge enrichment



Event List

Organisation raises events from many sources

Has active event list but no real correlation or order

Key Performance Indicators According to Personas

- Business
- IT

What are KPIs?

KPIs *(Key Performance Indicators) are Operational, Line of Business, and financial* ***metrics*** *that reflect the strategic performance of an organization*

Sample KPIs: Banking Transactions, Medical Record Lookups, processed orders, failed transactions, transaction response time

KPIs by Industry (samples)

Retail Financial Services

- Teller, ATM, Retail Banking Transactions completed
- Failed Transactions
- Revenue from transactions
- Operational Penalty for application downtime and severe performance degradation

Equities Trading

- Transactions completed online
- Transactions passed to trading floor
- Online trading application performance
- Online trading application availability

ASPs (service hosting)

- Active Users per application instance by Customer SLA Type
- Failed queries per application instance
- Average logged-in time by customer
- Average transaction completion time, and comparison to historic metrics under identical loads

Auto Manufacturing Sales

- Dealer Application Availability
- Orders processed
- Failed & reprocessed orders
- Order processing time when circuit utilization high.

Video Publishing

- Number of videos purchased by retailers
- 'Order processing' application availability
- Partner network circuit availability
- Failed & reprocessed orders

IT Centric KPIs

Email Environment

- ***MB of email processed by server and region***
- ***Internal and external Messages transferred***
- ***Average internal & external email transfer times***
- ***Failed transfers***

Server Virtualization

LPAR & Virtual Machine Utilization

Physical server or mainframe utilization

Efficiency achieved through virtualization

Virtual Instance and physical device availability

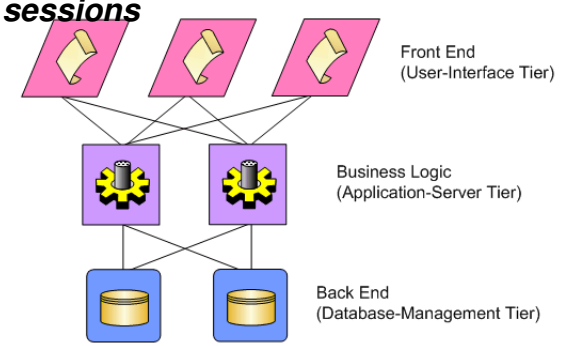
3 Tier Web Applications

- Breakdown of response times by tier and network

- Response time by tier as percentage of historic averages

- Active Users per application

- Load Balancer sessions



Enterprise Operations

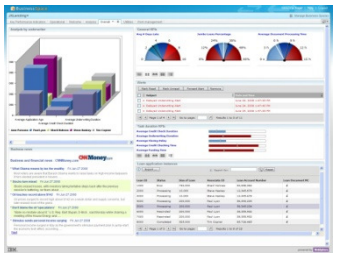
High Severity Tickets per Line Of Business

Line of Business Application Availability

Mean Time To Repair

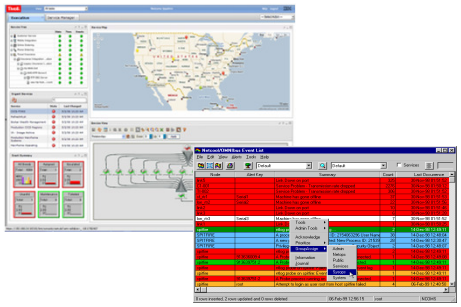
User experience by line of business vs. historic average

Correlating KPI's: Business and IT



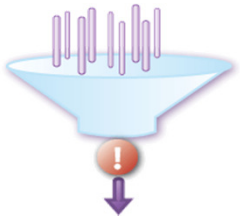
Business User

IT Operator



- Loan underwriting process is backed up
- Business monitors indicate backlog threshold exceeded

Business-only solution: add more underwriters



- Database server is down or failing
- Restart or Recycle DB

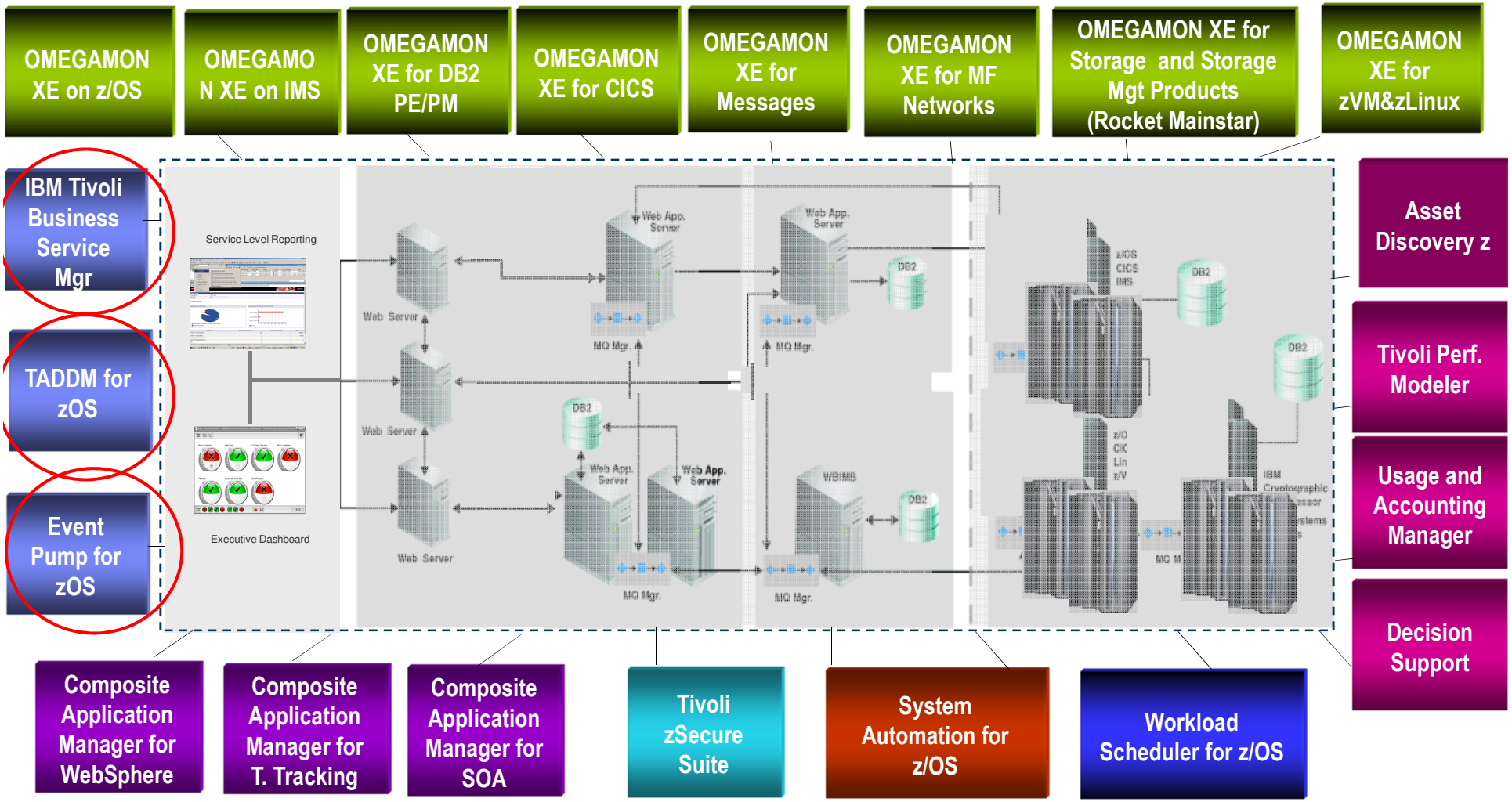
IT-only solution: Investigate further; What is the priority?

Integrated solution:

- Correlate backlog event and IT restart events
- Send Action to IT dept to raise priority of database problem

Tivoli Service Management for z/OS and z/VM Linux

System z Portfolio

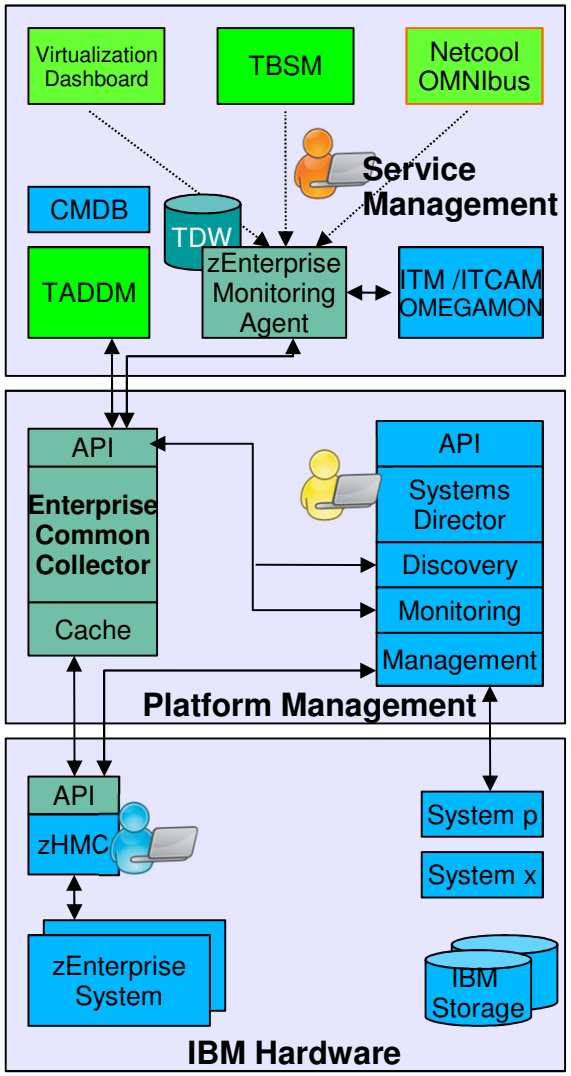


Discover

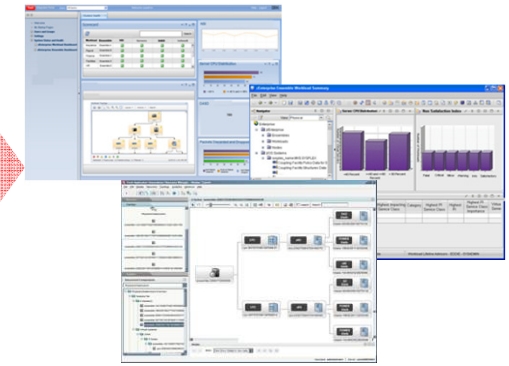
- Infrastructure
- Applications

zEnterprise Monitoring and Discovery

- Discovers physical, logical, and virtual zEnterprise System objects and their relationships within the enterprise
  - Fulfills query requests from single TADDM Sensor
  - Used by TBSM to create and visualize business services and for event correlation
- Visualizes the health and performance of your workload resource groups running on IBM zEnterprise System hardware
  - Across Ensembles and different types of resources
  - Highlights workloads that do not meet business objectives or highly utilized resources
  - Provides context of workloads with respect to the underlying physical and virtualized infrastructure including storage and network
- Enables effective performance analysis if goals are not met
  - Drill down into more detailed resource views
  - Drill down into workload details, such as service classes
  - Integration with other Tivoli Monitoring products for detailed analysis and problem determination
- Leverages IBM Tivoli Monitoring infrastructure
  - Situation monitoring and event forwarding
  - Historical reporting



Tivoli zEnterprise Monitoring, Discovery and Business Service Management



events

Business Service Management

Existing operating system, middleware, application monitoring agents and discovery sensors

z/VM

LPAR

Power

Workload Resource Groups

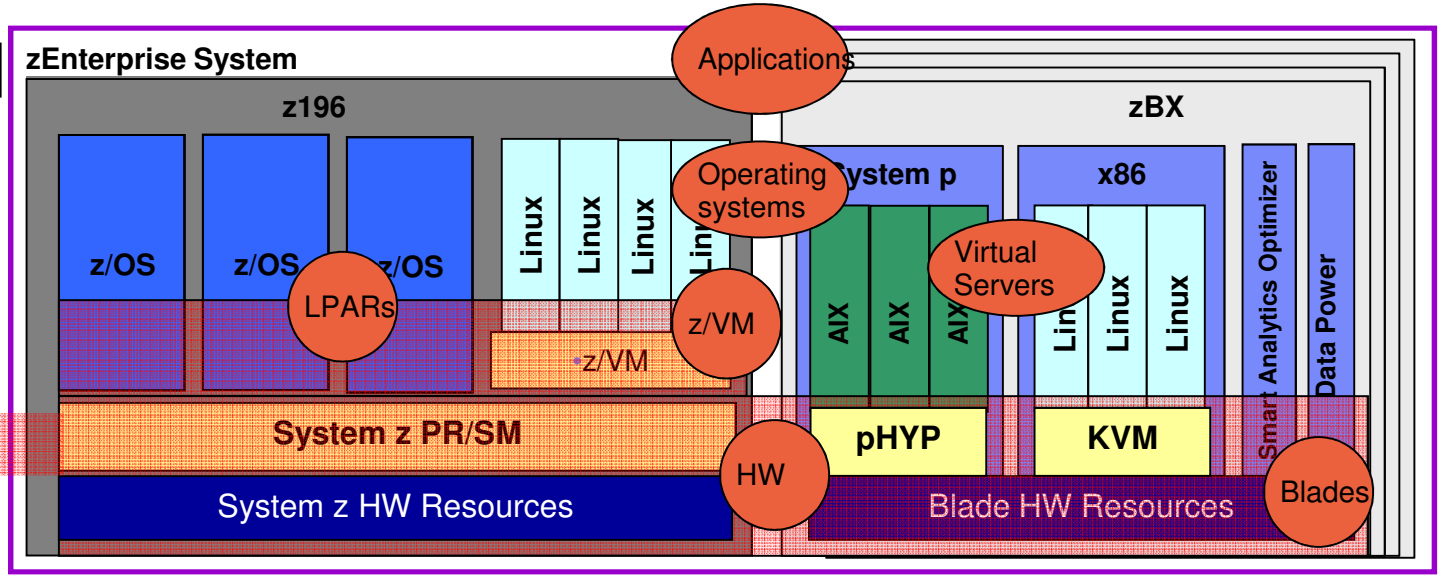
KVM

Network

Policy

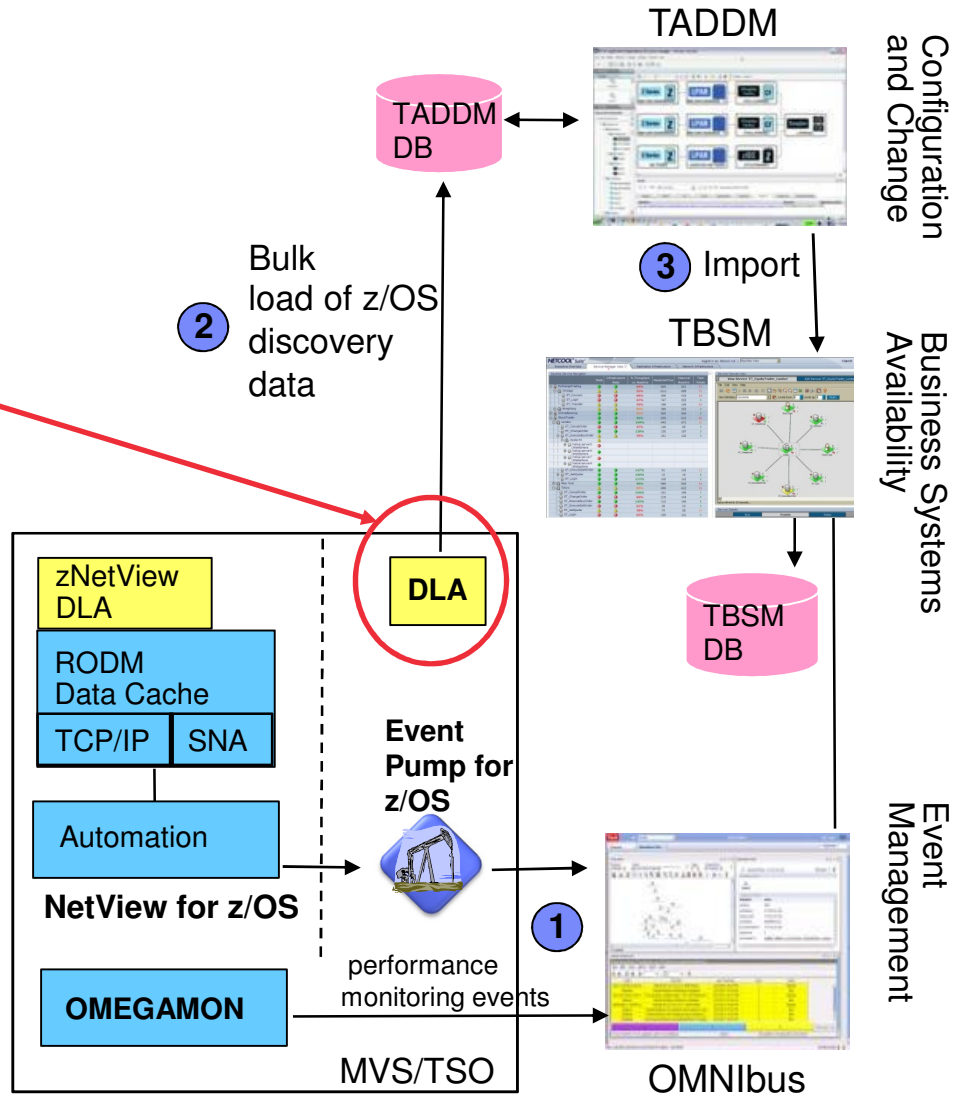
Storage

zManager APIs



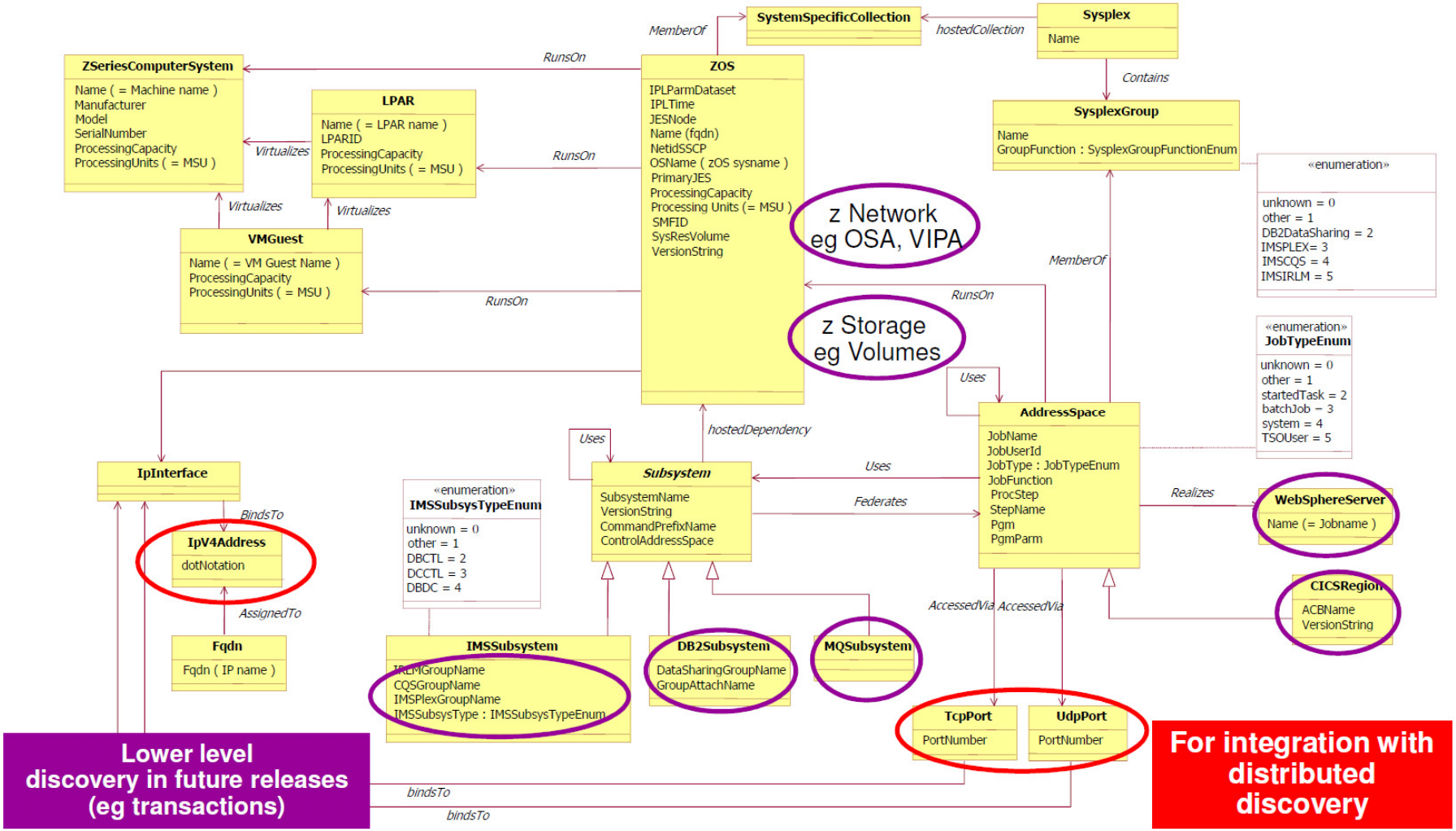
Integrated Business Service Management Technology Details:
z/OS Events and z/OS Configuration Discovery

- The **z/OS DLA** discovers resources and their relationships for zOSBase (z/OS, CPC, Sysplex, CouplingFacility, LPAR, VMGuest, TCPIP) and z/OS subsystems on LPAR (CICS, IMS, WAS, DB2, MQSeries etc)
- The **Event Pump for z/OS** sends summarized z/OS events to any EIF receiver (e.g. OMNIBus)
- TBSM loads TADDM and z/OS DLA, to define z configuration
- TBSM displays status of those z resources, using Event Pump for z/OS events since ***objects are mapped and correlated out-of-the-box*** *to business application service models and common data model*



z/OS DLA = z/OS Discovery Library Adapter
TADDM = Tivoli Application Discovery and Dependency Manager
TBSM = Tivoli Business Service Manager

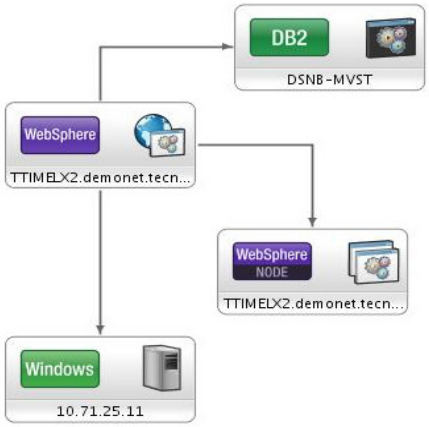
What does the z/OS DLA Discover?



Tivoli Application Dependency Discovery Manager (TADDM)

Universal Discovery Engine

Discovers configuration items and their Actual State. Includes Topology Views and the ability to **discover relationships** between items. **Name Reconciliation And Normalization** of data

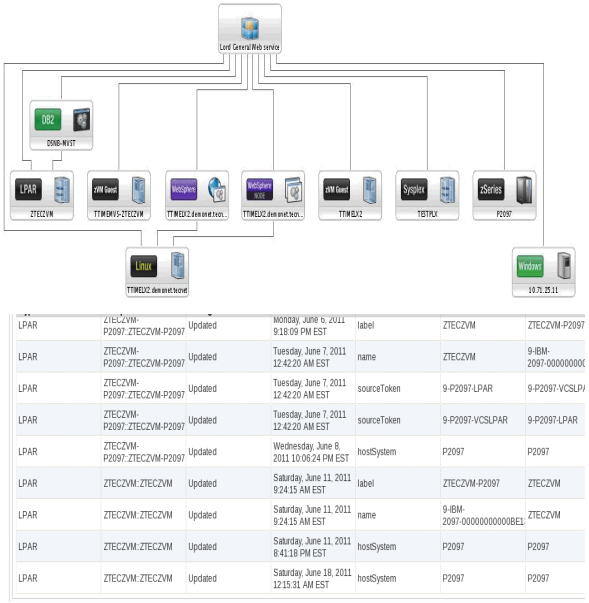


Application Mapping with Dependencies

Customer can understand what they have through agent-less **discovery of interdependencies** between applications, middleware, servers and network components and automated application maps

Configuration Auditing

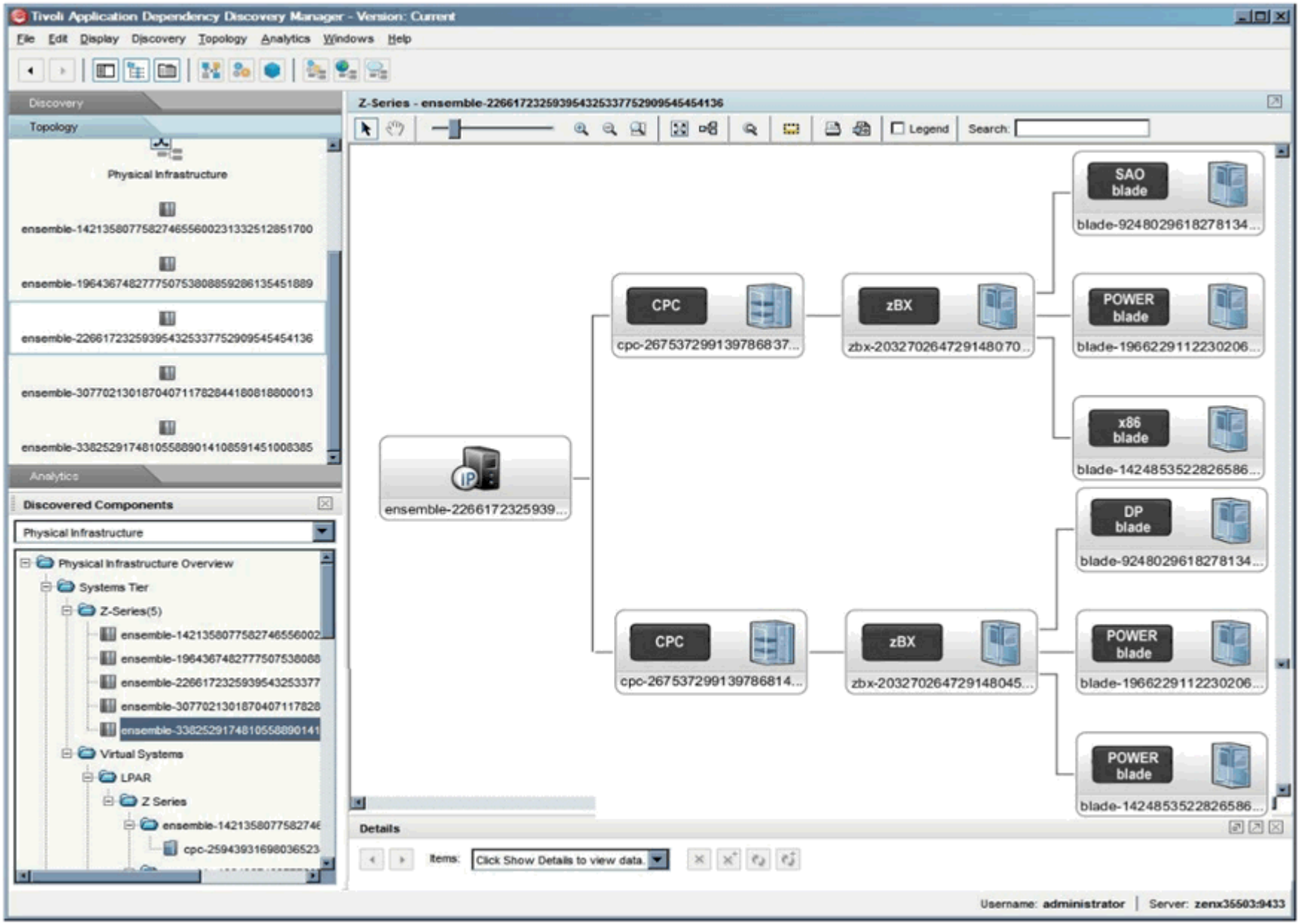
Shows how configuration items are configured and changing over time by capturing the configuration of each CI, tracking changes to it and providing analytics to report on the **history of these configuration changes** over time



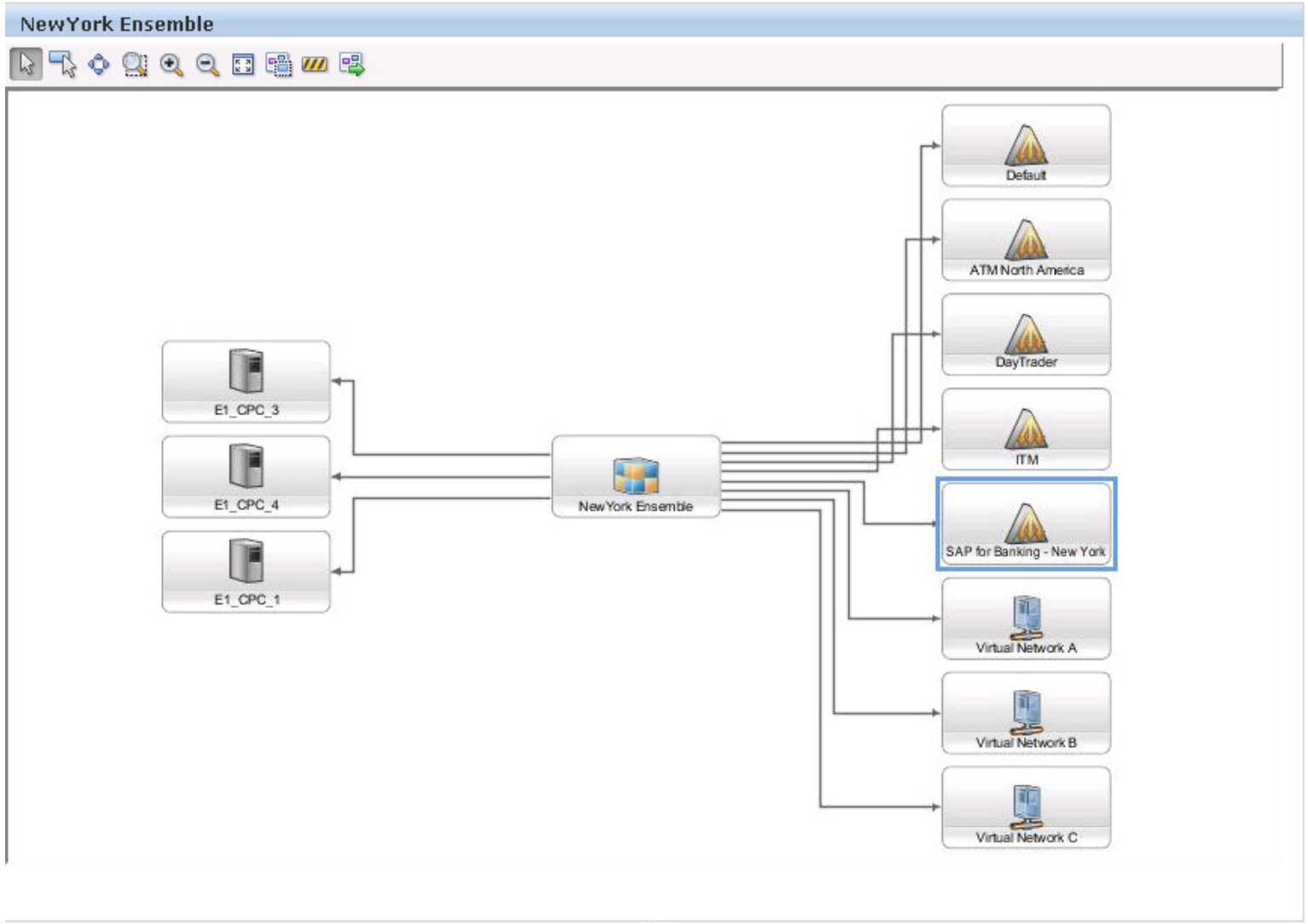
Compliance

Determines if configuration items are compliant by using the capability to compare discovered configuration of CIs to a "reference configuration" and determine the variations that define violations to local policy

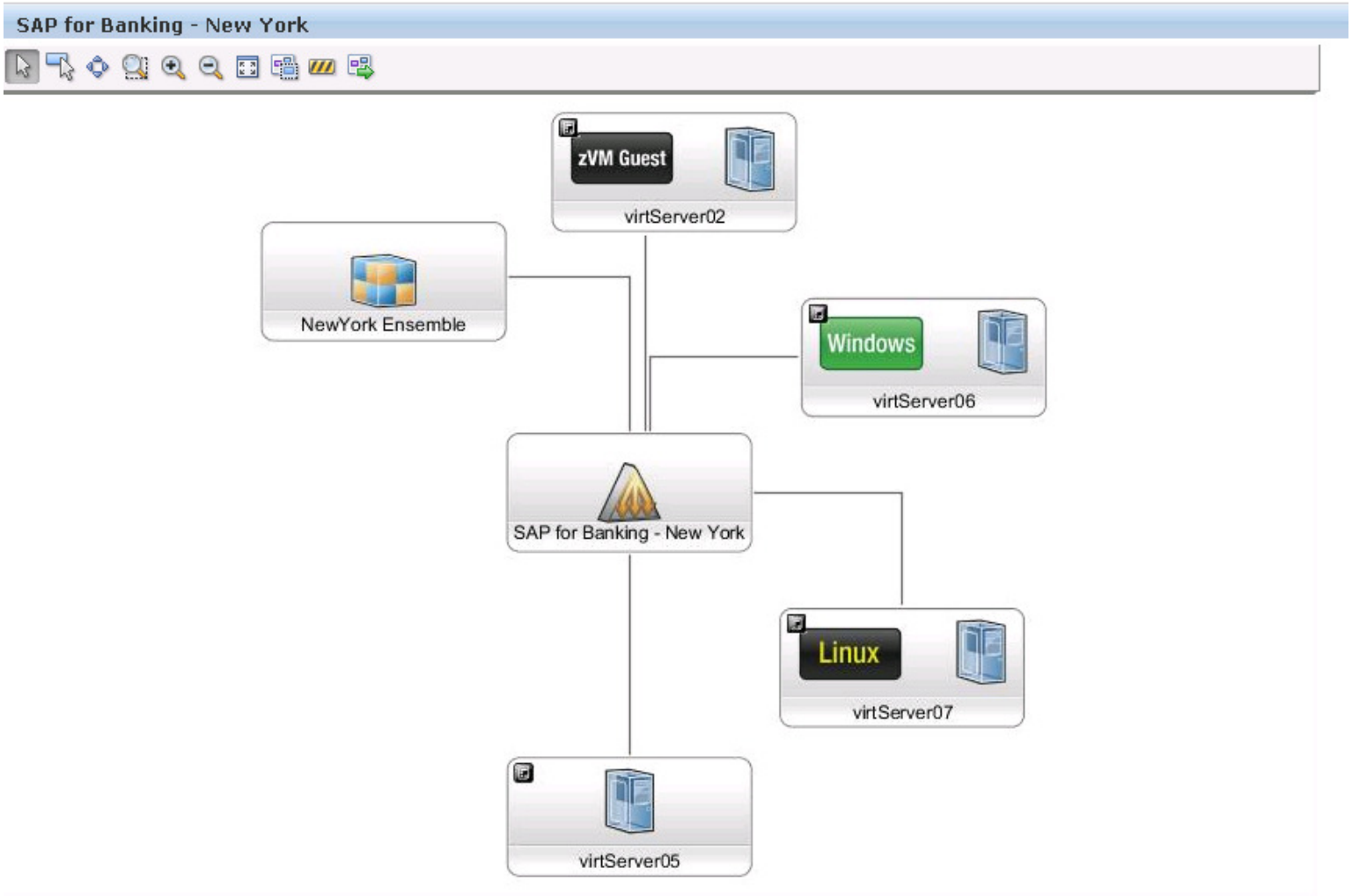
TADDM is Tivoli's strategic discovery tool and provides visibility to what a client has, how it is configured, and how it is changing over time.



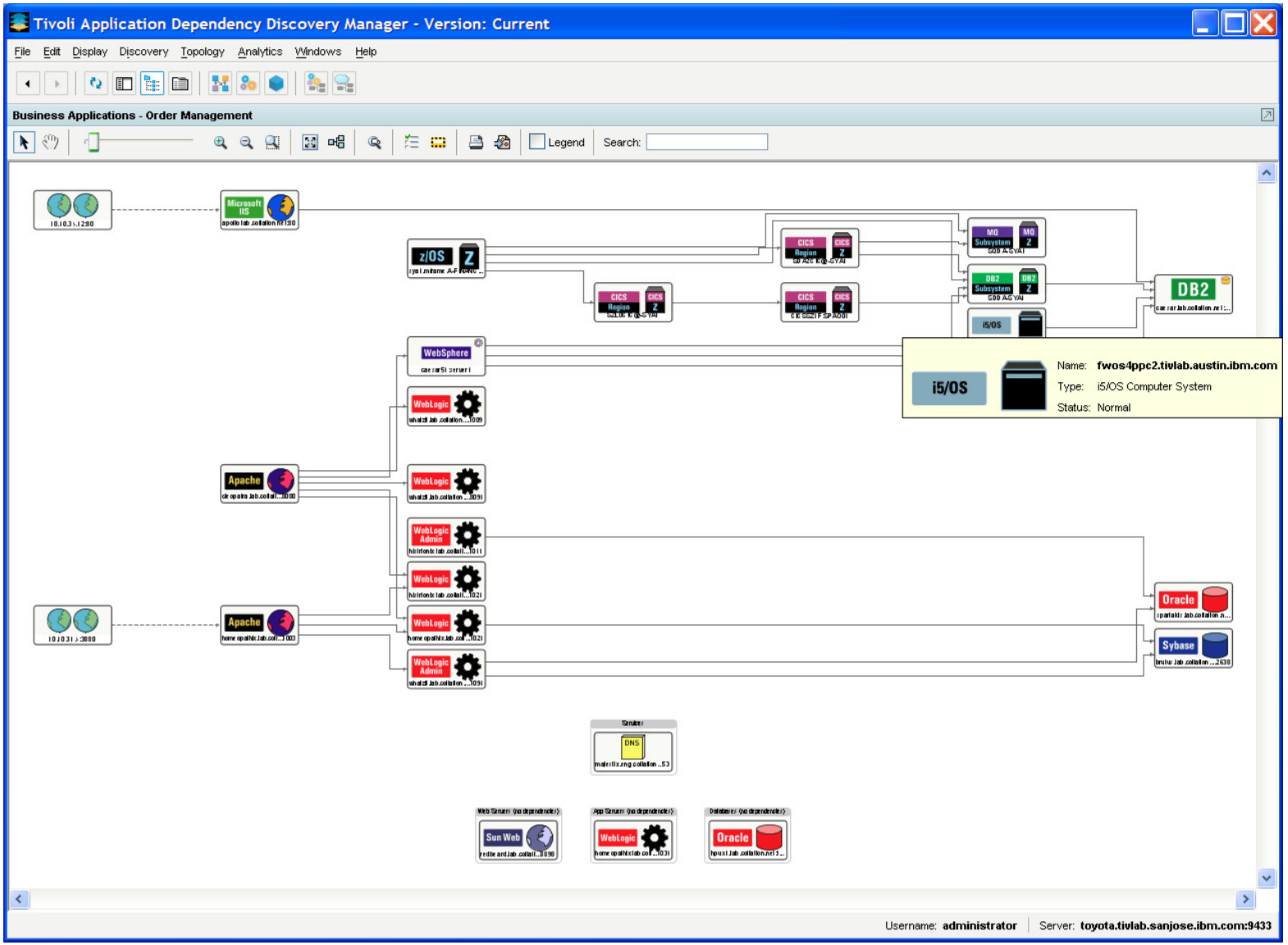
Universal Discovery Engine and Reconciliation



Workload Group Mapping



Discover IBM and Non-IBM



IT Event / Alert Management

Event Consolidation Integrated Management

Tivoli Monitoring Suite
ITM, TPM, OMEGAMON..

Data Network
(SNMP, Syslog)

Systems & Applications
(Linux, Unix, Windows)

Other Management Systems
(HP OpenView, BMC, …)

Voice Network
Wireline, Wireless, VoIP

Standards based
SOA, MTOSI

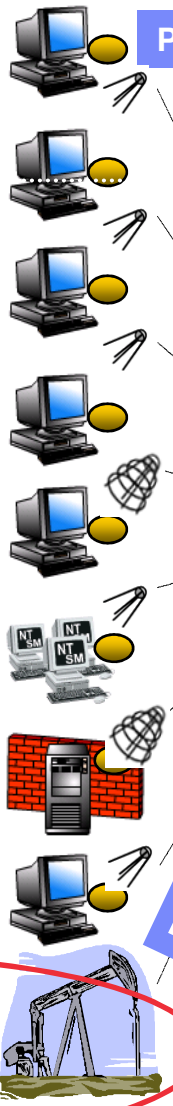
Virtual environments

Security/Firewalls

Non-IT Resources
(HVAC, UPS's, Physical Security)

z/OS Subsystems
(Event Pump for z/OS)

End to end service monitoring

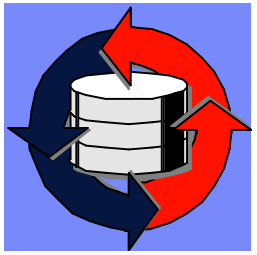


Probes

Normalize and Enrich Events

EIF Probe Rules

Netcool/OMNIbus
Consolidated Operational And Business Views / Reports



Integration
Consolidation
Deduplication
Correlation
Automation

Event Management

Put Events in a business context

Tivoli Business Service Manager
Tivoli Netcool/Impact

- Provisioning/Inventory Systems
- Customer Care / SLA Management
- Databases / Directories
- Messaging / Web Services

Event Enrichment, Archival and Process Automation

Gateways

Trouble Ticketing (TSRM, Remedy, Peregrine, Vantive, Clarify)
- RDBMS (Oracle, MS-SQL, DB2, MySQL, Informix, Sybase)
- SNMP

IBM Tivoli Network Management

Network Manager
(Discovery and Availability)
Configuration Manager
Performance Manager

Focus of this session: Event Pump for z/OS

Integrated Business Service Management Technology Details:
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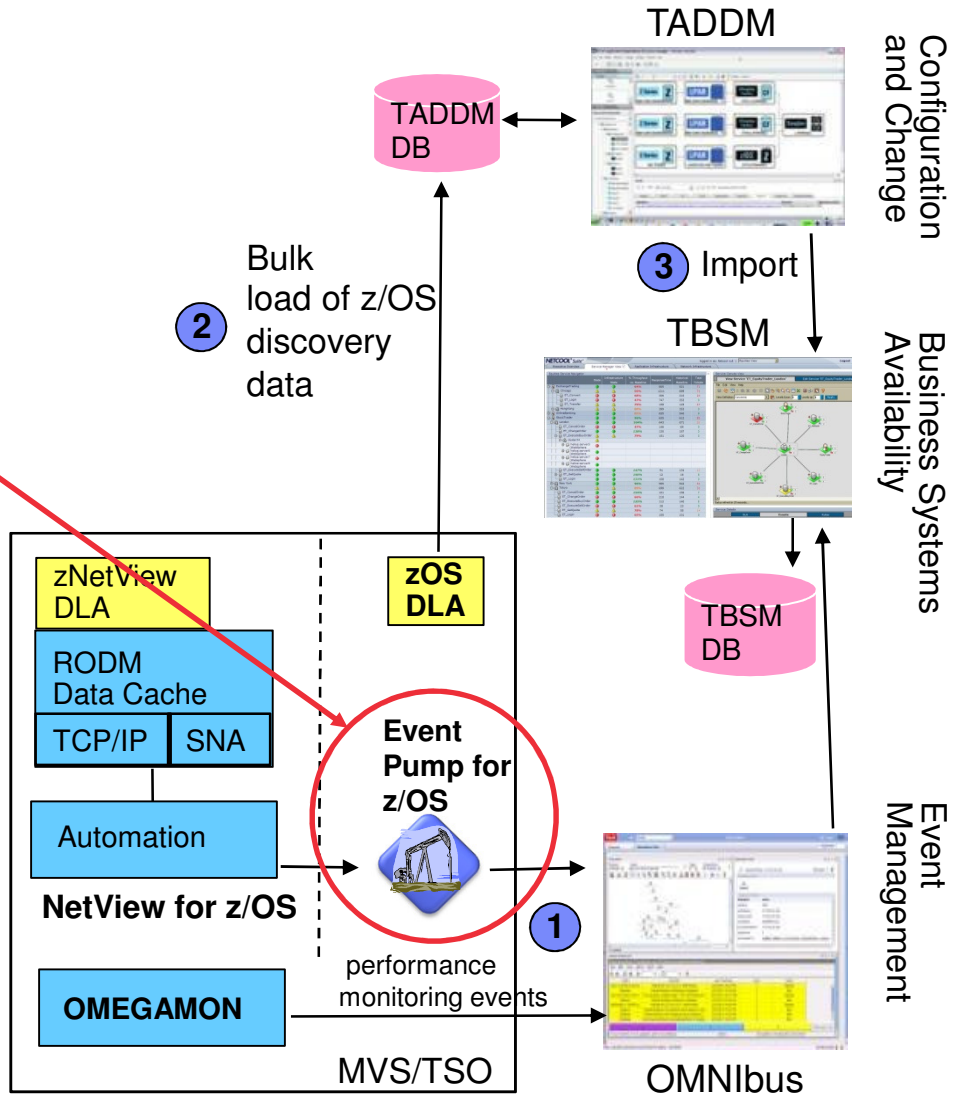

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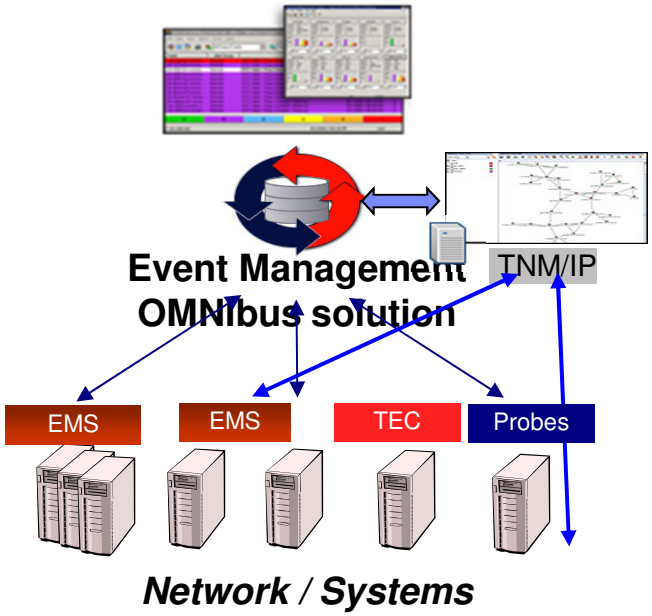
Tivoli z/OS management

Integrated for end to end solutions

z/OS *Performance* Management Integration



OMEGAMON XE for System z
OM XE on z/OS
OM z/OS MC
OM XE on z/VM Linux
OM XE for Storage
OM XE for MfN

Dashboard Edition

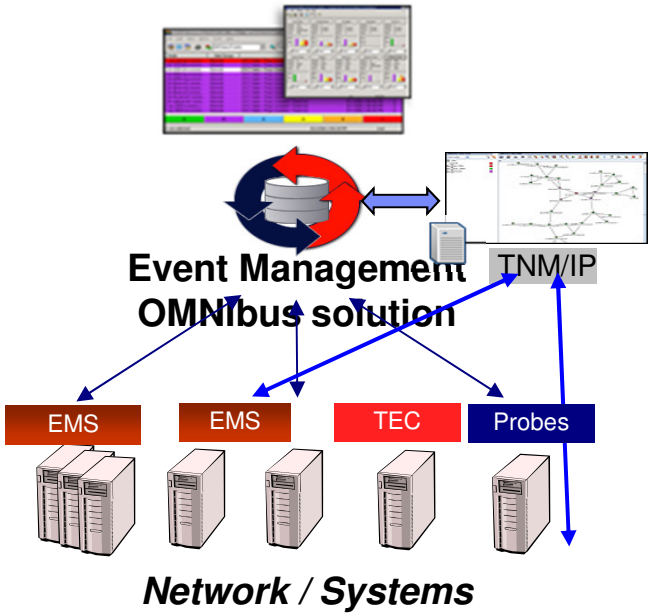
OMEGAMON XE for Applications
OM XE CICS
OM XE CICS TG
OM XE DB2 PM/PE
OM XE IMS
OM XE Messaging (z)

OMEGAMON XE deploy's proactive monitors for performance thresholds, queues, locks, links, loops, waits, that may or may not generate a message and when fired, sends information to OMNIbus

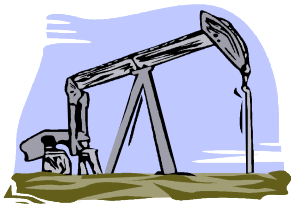
Tivoli z/OS management

Integrated for end to end solutions

z/OS *Event* Management Integration



Event Pump for z/OS

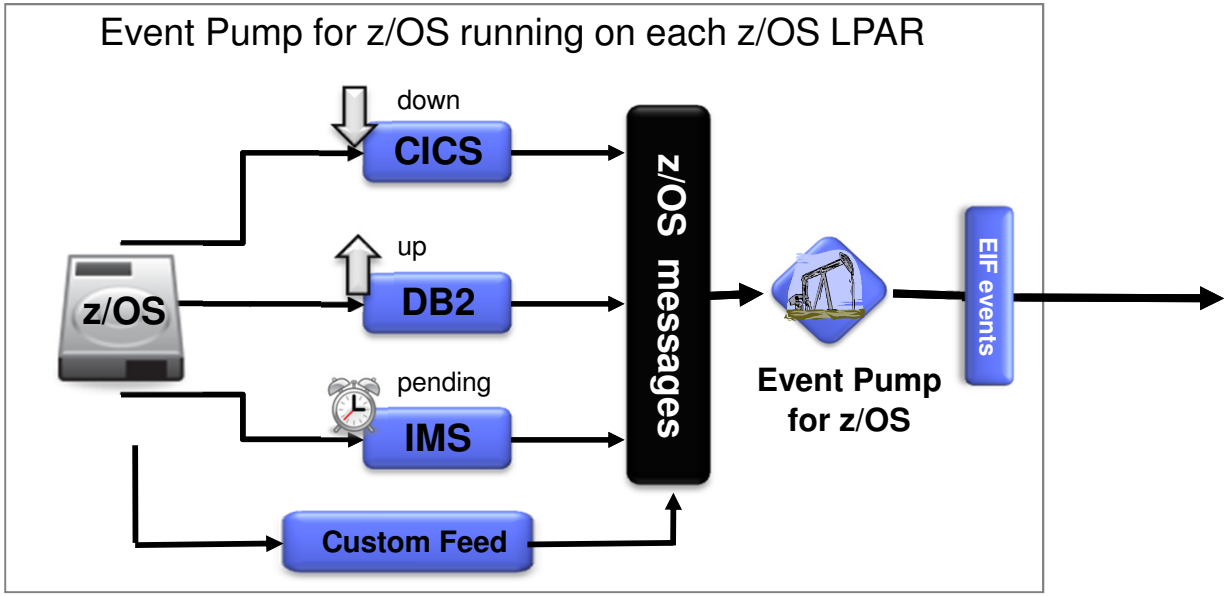


IMS - DB2 –CICS -OPS/MVS
z/OS -Systems Automation –
3rd Party

Event Pump for z/OS reads the syslog and take messages and change them into events to be forwarded to OMNIbus on changes of *state and status*

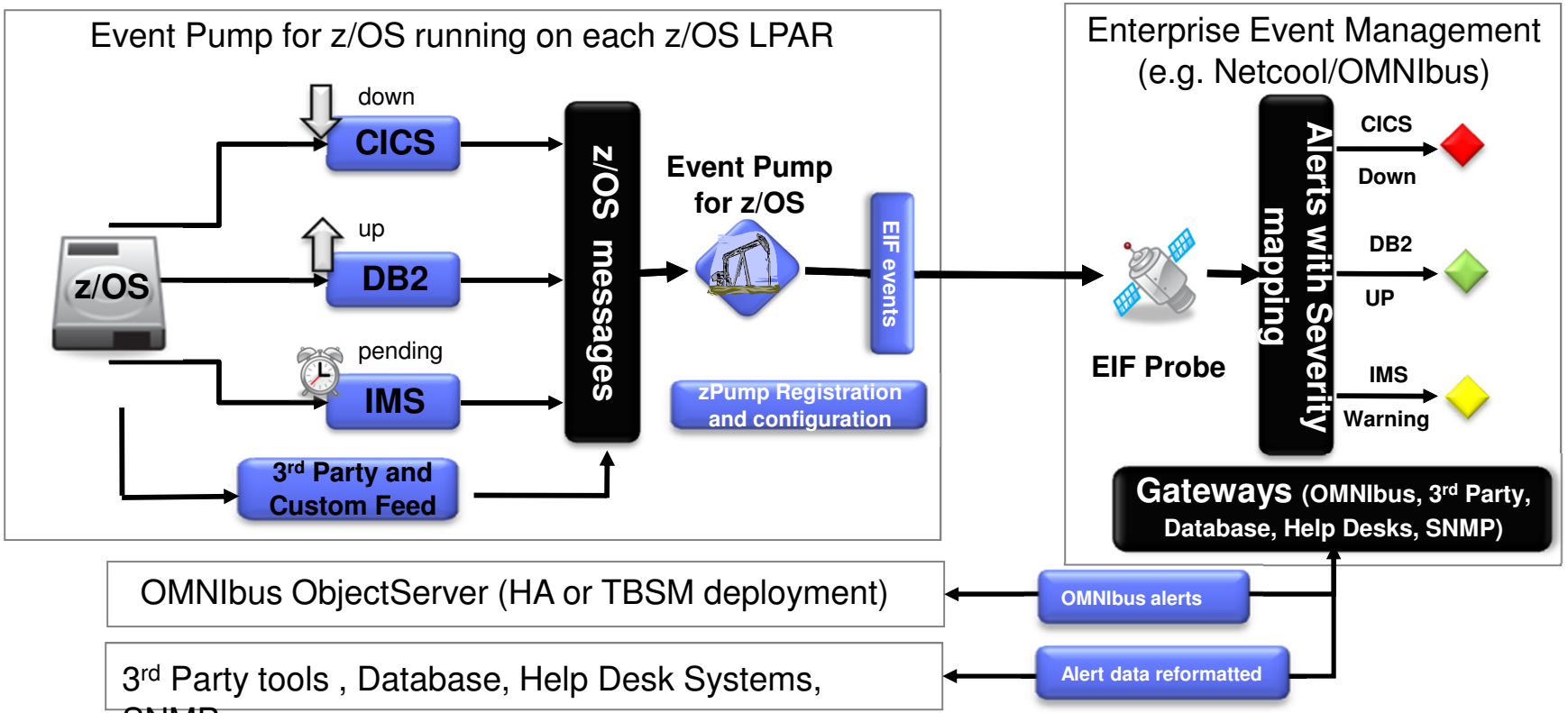
Example z/OS Event Use Case: Step 1

- **z/OS Subsystems (CICS, DB2, IMS, DFSMS, JES etc.) write state messages to the z/OS SYSLOG**
- **Event Pump for z/OS monitors a subet of the SYSLOG or JOBLOG messages, interprets the resource information and converts the message to an EIF event**
- **Using DB2 for z/OS as an example**
  - **Out-of-box, EIF events can be created for 200+ DB2 exceptions**
  - **Event ID, state, description, resolution and severity are provided for buffer pools, data sharing, database, IRLM, table spaces, etc.**
  - **User can configure which messages should be trapped, and which should be ignored**

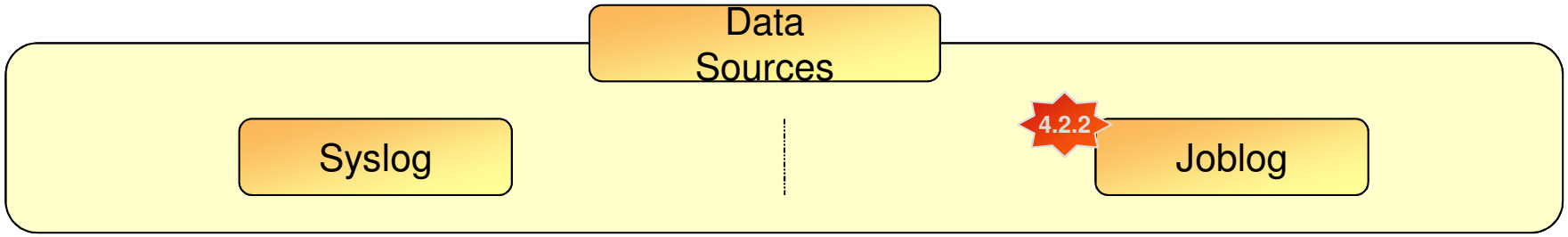


Example z/OS Event Use Case: Step 2

- The EIF events are sent to an Netcool/OMNIbus EIF Probe for further processing:
  - Alerts are created with severity (Green, Red, Yellow, Purple), consolidated and correlated with other enterprise events from distributed systems, in memory for high-speed and scale
  - Gateways sync events with other OMNIbus ObjectServers in HA configurations or embedded in other products such as Tivoli Business Service Manager (TBSM)
  - Gateways can also convert events into trouble tickets for Tivoli Service Request Manager (TSRM), or forward events in another format (e.g. SNMP) to 3rd party applications



Supported Event Feeds and Data Sources



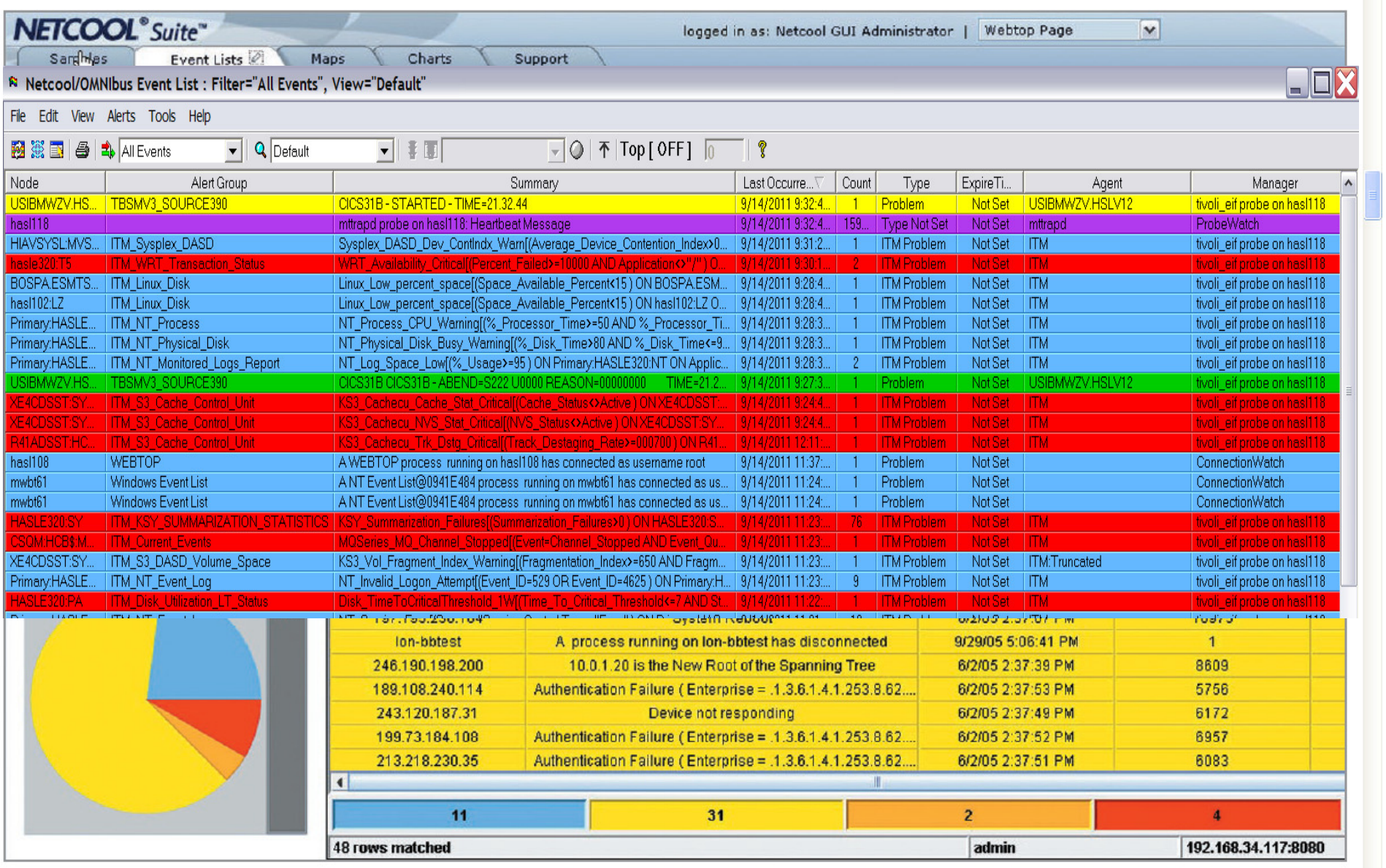
IBM Feeds

Event Feed	Event Pump version
CICS	
Base CICS	4.2.0
CICS TDQ	4.2.0 IF1
CPSM	4.2.0 IF3
DB2 (w/o NetView)	4.2.1
IMS (w/ NetView)	4.2.0
RMF	4.2.0 IF2
Storage (DFSMS)	4.2.2

Event Feed	Event Pump version
Tivoli	
AF/Operator	4.2.1 IF1 4.2.2
System Automation for z/OS (w/ NetView)	4.2.0
TWS	4.2.0 IF1
Health Checker)	4.2.2 IF1
z/OS generic traps and user defined events	4.2.0 4.2.2

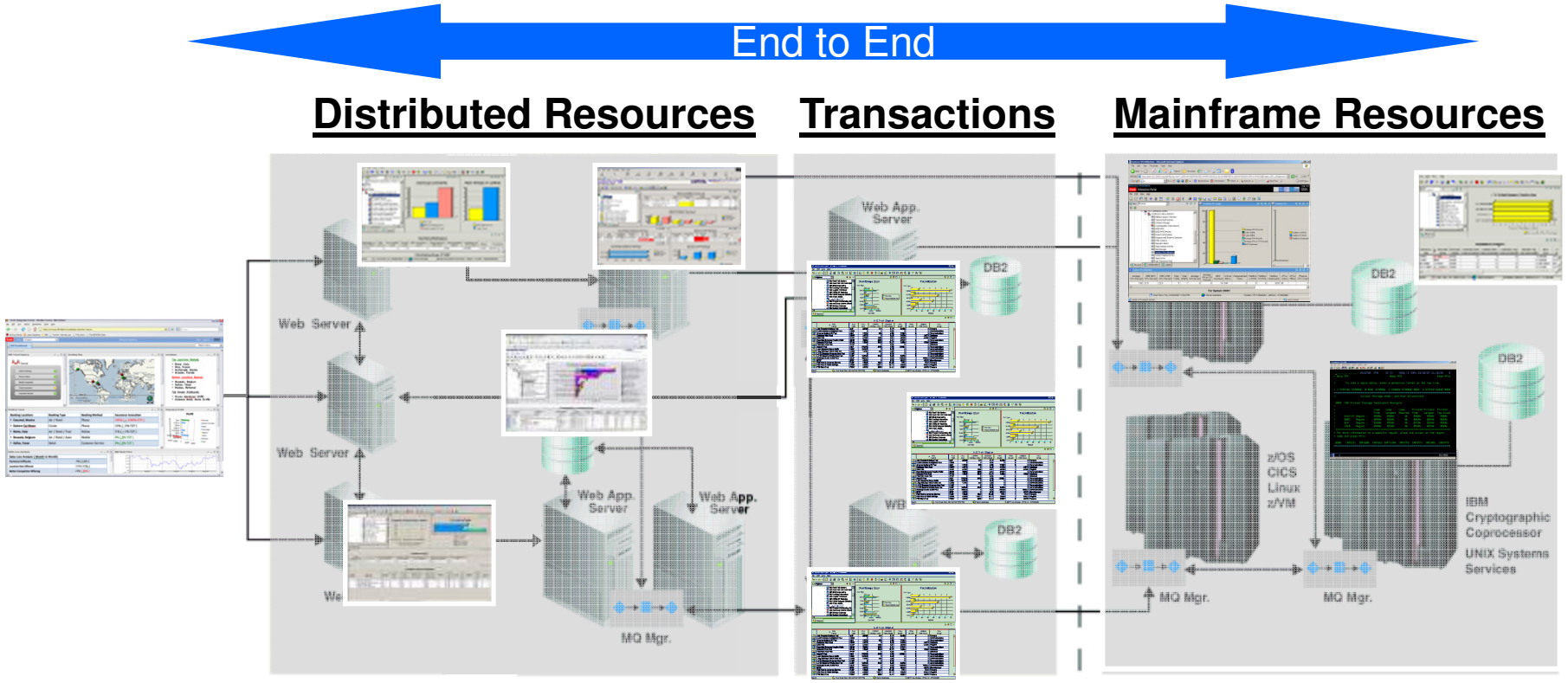
3rd Party Feeds

Event Feed	Event Pump version
BMC	
AutoOperator	4.2.1 IF2 4.2.2
MAINVIEW DB2	4.2.1 IF2 4.2.2
MAINVIEW CICS	4.2.1 IF2 4.2.2
MAINVIEW Z/OS	4.2.1 IF2 4.2.2
CA	
OPS/MVS	4.2.0



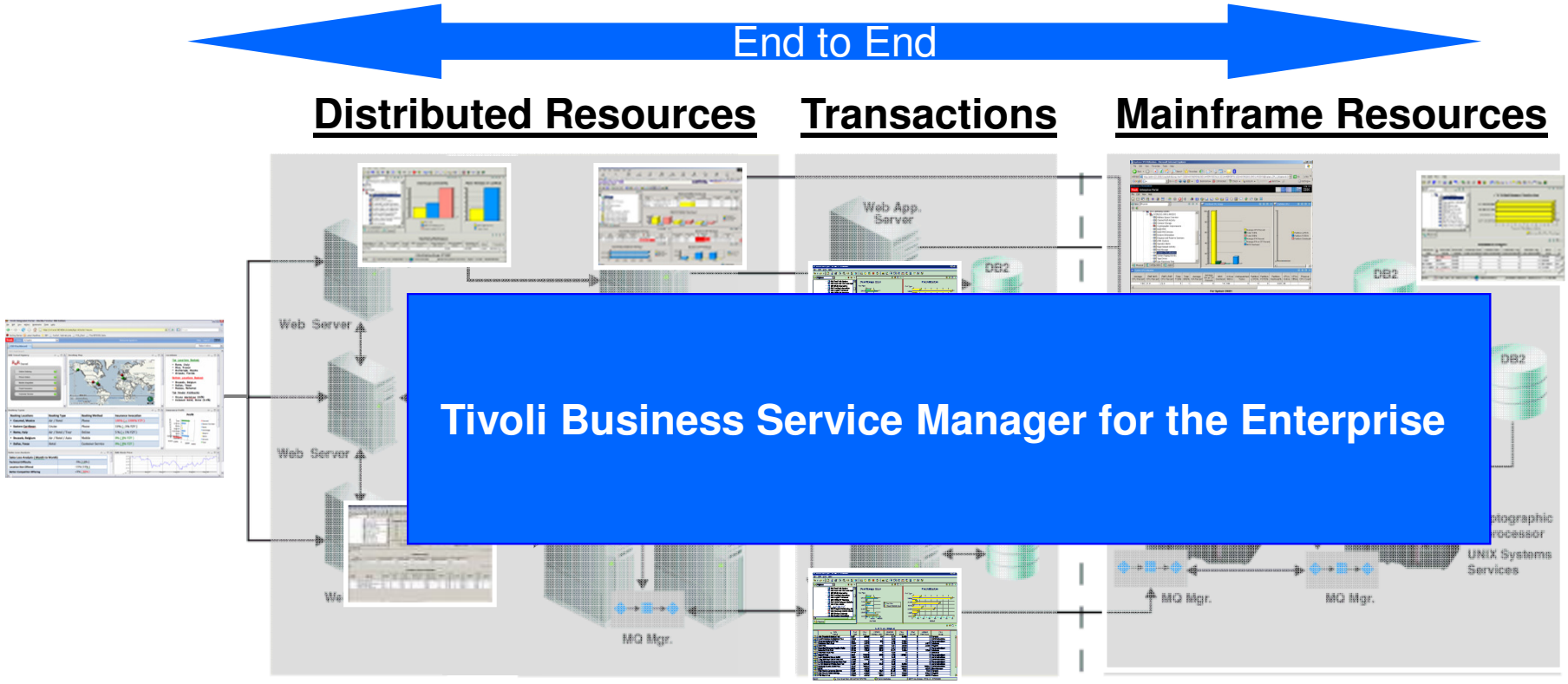
Tivoli Business Service Manager for the Enterprise

Today's Management Needs to be End to End



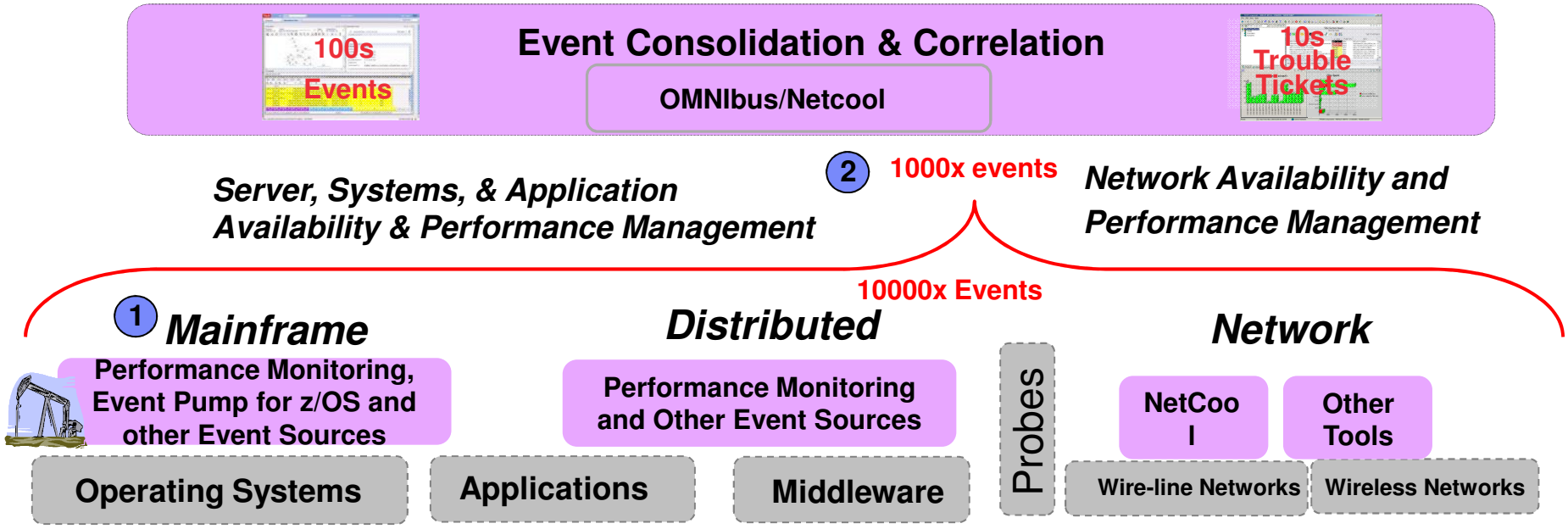
- In today's environment applications span End-to-End
- A variety of Domain tools to help manage these applications
- When a problem is seen they have no idea of the impact to the business

Today's Management Needs to be End to End



- In today's environment applications span End-to-End
- A variety of Domain tools to help manage these applications
- When a problem is seen they have no idea of the impact to the business

Industry Example
Centralized Business Service Management on System z

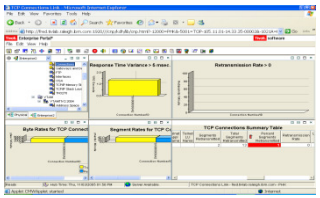


Industry Example: Centralized Business Service Management on System z

Hosted on z/VM and Linux on System z

Operations Monitoring

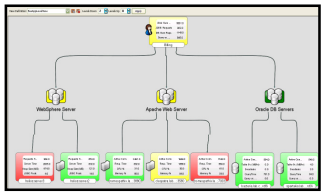
Tivoli Enterprise Portal (TEP)



Service Dashboard

Tivoli Business Service Manager (TBSM)

3



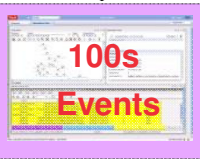
Configuration Discovery

Tivoli Application Dependency Discovery Manager (TADDM)

configuration

Performance and availability monitoring

events



Event Consolidation & Correlation

Netcool/OMNIbus

2 1000x events

Server, Systems, & Application Availability & Performance Management

Network Availability and Performance Management

10000x Events

1 ***Mainframe***

Performance Monitoring, Event Pump for z/OS and other Event Sources

Distributed

Performance Monitoring and Other Event Sources

Network

NetCool

Other Tools

Operating Systems

Applications

Middleware

Probes

Wire-line Networks

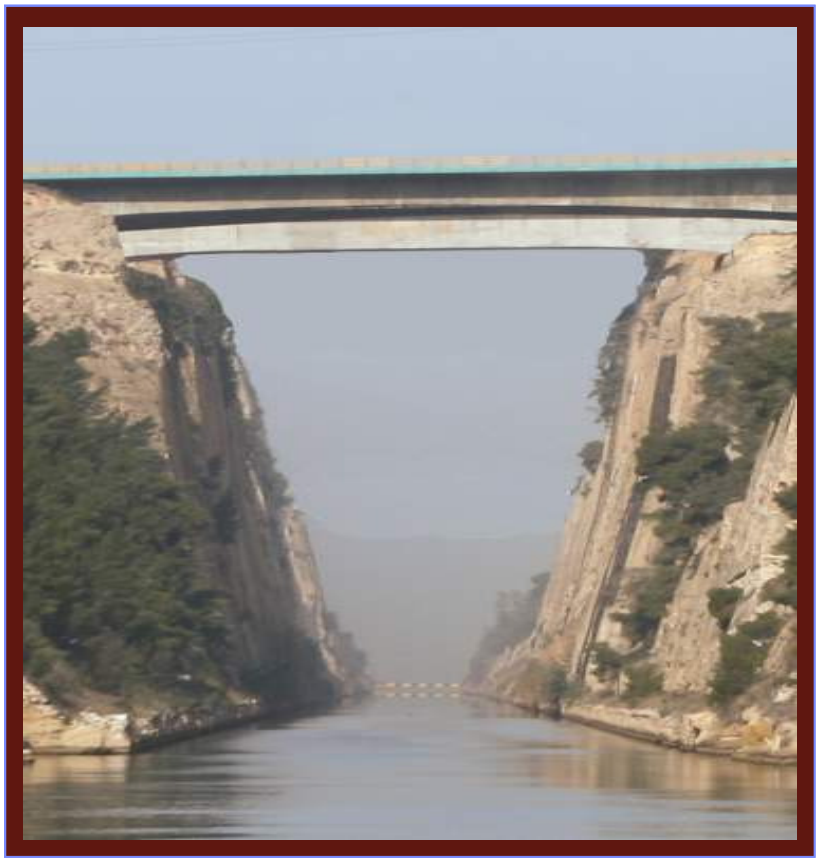
Wireless Networks

An Integrated Solution Bridges the Gap between Business & IT

Business User

Empowers business users

- Drill into IT domain via integrated dashboards
- Create views of service patterns and events
- See activity in real time



IT Operations

Empowers IT users

- Prioritize work in relation to the Business
- Recommends or initiates targeted action
- Able to control cost with focus on the most important problems
- Demonstrate to the business the IT value.

Summary

- Decide what you want to Dashboard
  - Create for Personas/Departments/Groups
    > Business and IT
  - Determine what information you want to convey
  - Dashboards are for decision making

- Discover
  - Infrastructure
  - Applications

- Events and Alerts
  - State
  - Status

- Tivoli Business Service Management