System and Application Management – Strategy Directions

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Disclaimer

The information on the new product is intended to outline our general product direction and it should not be relied on in making a purchasing decision. The information on the new product is for informational purposes only and may not be incorporated into any contract. The information on the new product is not a commitment, promise, or legal obligation to deliver any material, code or functionality. The development, release, and timing of any features or functionality described for our products remains at our sole discretion.
Service Availability and Performance Management

IT Operational and business events integrated in one console. Launch to operational console for quick root cause analysis.

Real-time data access, from virtually any data source across organizational boundaries

Consolidated operational view of performance & availability

Complete coverage of over 1000 device types

Policy driven automated response to events (failover, provision new capacity, problem resolution).

Note: All layers are inclusive of distributed and mainframe.
Customer Pain – Sensing and Isolating a Problem Today

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
Monitor What is Most Important to Your Business
Composite Application Management and Resource Monitoring

- 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
- Reduce MTTR and MTBF
IBM Tivoli Monitoring
The Industries’ Most Extensive Resource Monitoring
ITM and ITCAM Portfolio

ITCAM for Transactions
- Comprehensive Set of Response Time Capabilities

ITCAM for Applications
- Broad Application and Application Infrastructure Monitoring Capabilities

ITCAM for SOA Platform
- Integrated Service, Middleware and SOA Enterprise Management Offering

ITM for Microsoft Applications
- Health Monitoring of Microsoft Operating Systems, Application Infrastructure and Applications

ITCAM for WebSphere/J2EE
- Deep dive problem determination and resolution

ITM for Energy Management
- Reduce Power Consumption

ITM
- Health Monitoring of your Operating System

ME for AIX
- System p Optimization
Tivoli Common Reporting - adds value to your Tivoli based solutions by simplifying how information is visualized, delivered and shared

- Converge around an **incredibly simple launch point** for reports, where users can see what is available and use it with no training
- Provide an **effective way to deliver and share reports** and reporting ideas, and find the set of content that gives the greatest value
- Focus the individual reports on **quality of information and value**, not on the quantity of reports available
- Provide **consistency of the content and enable linkage between reports** for best analysis flow, even if they cross individual product boundaries

**Direction - Integration with Cognos based reporting within TCR** – lets you stay focused on providing high value report content for the enterprise
Transaction Management
Help Desk View

Hardware Monitoring
LDAP communication
• Response Times

Network traffic
• Bandwidth
• Packets

Hardware Monitoring
LDAP communication
• Response Times

Hardware Monitoring
DB Monitoring
• Locks/Lock escalations
• Response times

Firewall

Portal Monitoring
Page Requests
Remote Portlet Requests
Nested Engine Requests

Simple to understand dashboard view with clearly documented operator actions documented in operations handbook.

"...you don't want to think if you are under stress 😄"
I need to monitor my end-user's application experience and take the first step toward aligning my IT organization with the business.
End-User 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
  - Monitors real user client desktop Windows applications and transactions

Robotic Transactions
- Robotic Response Time Monitoring
  - Periodic testing of business transactions
  - Record and execute a set of user defined steps
- Internet Service Monitoring
  - Periodic testing of service availability
  - Simple and lightweight
End-to-End Monitoring, Tracking and Diagnosis

**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
Transaction Tracking Overview

- Unified, end-to-end transaction tracking across heterogeneous environments - fully integrated across distributed and zSeries
- Domain-thru-domain tracking capability via dynamic correlation
- Support for existing ARM instrumentation, plus introduction of a much simpler transaction tracking API ("ARM lite")
- 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
Enterprise-Wide Tracking

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

“Stitching” links correlated sections through dynamic correlation

Builds topology mappings using token-based and dynamic correlation
Tracking Architecture
Sample deployment

ITCAM for Transactions

TT Reporter TEMA
Retrieves data from TEMS, creates topologies and reports, sends to TEMS

TT Collector TEMA

For deeper diagnostic drilldown, can link to existing ITCAM workspaces

Launches Transaction Topology Workspaces

ITM 6.2.1

TEP
TEPS
TEMS

Aggregates and Instance Data

ARM

Link
Stitch

ITCAM for RT

IHS Domain

WAS Domain

Link
Stitch

MQ Domain

CICS Domain

Link
Stitch

Link
Stitch

MQ Tracking

ITCAM for WAS

Data Collectors monitor the domain and generate events to identify key stages in a transaction

Stitching provided by Txn Reporter TEMA
Transaction Tracking Topology

- Red "hot spot" indicates bottleneck
- Asynchronous transactions
- Synchronous transactions
Application Domain Coverage Today

- **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.

- **CTG**
  - CICS Transactions Gateway (CTG) 7.1

- **IMS**

- **WMB**
  - WebSphere Message Broker v6.0 (distributed)

- **Database**
  - JDBC tracking through WAS (supports all databases)
Future Transaction Tracking Domain Coverage

**Q2 2009**

- WAS-lite tracking (ARM based)
- Non-WAS J2EE support (Weblogic, JBoss, Sun JES)
- MQ1 Client (used to enable Tuxedo to MQ)
- IIS to Host Integration Server (COM+)
- .NET TTAPI bindings
- Tuxedo Server (FML32 over ATMI) v9/10
- DB2 tracking from CAMfCICS and CAMfIMS

**Q4 2009**

- Siebel CRM
- SAP NetWeaver
- Service Tracking support through ITCAM for SOA – ESB support including:
- Logfile-to-TTAPI converter for out-of-band instrumentation

Future domain coverage subject to change without notice.
Application Management
MTTR and MTBF

Availability and response time monitoring
Fault Isolation
Diagnosis
Repair/test/re-deploy

Predictive Analytics
ITCAM for Applications
Managing Applications and Application Infrastructure

- Messaging Backbone
  - WebSphere MQ
  - WebSphere Message Broker

- Operating Systems
  - Virtualized Environments
  - Custom Environments

- E-Mail and Collaboration
  - Lotus Domino

- Web Resources
  - Web App Server
  - Web Servers

- Databases
  - DB/2
  - Oracle
  - Sybase

- Applications
  - SAP
  - Siebel
  - PeopleSoft
ITM for Microsoft Applications
Turn-key monitoring solution for Microsoft environment.

- Microsoft .NET
  - Microsoft Sharepoint
  - Microsoft Biztalk
- Microsoft Exchange Server
- Microsoft SQL
- Microsoft IIS Server
- Microsoft Active Directory
- Microsoft Windows
  - Windows Server 2008 Hyper-V

1 Hyper-V and Microsoft Cluster support in 2009 – Subject to change
2 Universal Agent/Agent Builder entitled for use on systems licensed for ITM for Microsoft Applications Advanced
ITCAM for Applications – Roadmap

### 2008

- Launched ITCAM for Application - Integrated Application and Infrastructure performance management offering
- Integration enhancements
  - Simplified packaging
  - Offering Quick Start Guide
  - Quicker problem resolution with Dynamic Linking
- New Application monitors
  - Siebel
  - Peoplesoft
- Monitoring Enhancements
  - WebSphere MQ v7 support
  - Domino v8 support
  - SAP v7.1 support
  - Oracle monitoring performance improvements

### Future directions

- Offering Integration enhancements
  - Simplified Solution Installer
  - Out-of-box performance and availability reports
- New Monitors
  - Lotus Sametime
  - IBM Informix Dynamic Server Database
- Resource Monitoring enhancements
  - Updated support for WebSphere / J2EE monitoring
    - Application status visualization
  - Database monitoring enhancements
    - Oracle RAC / ASM support
    - 64-bit DB on 64-bit Windows support (DB2, Oracle)
    - WebSphere MQ v7 configuration support
    - SAP Solution Manager integration (alerts)
Deep-dive diagnostics

- Launch in context into appropriate SME tool via dynamic workspace links
- Launch destinations depend on type on data source. E.g:
  - MQ -> OMEGAMON XE for MSG
  - WAS -> ITCAM for WS
  - CICS -> OMEGAMON for CICS
  - IMS -> OMEGAMON for IMS
- Where appropriate, will drill down to specific workspace (i.e., In MQ, Queue Manager drilldown links to the Queue Manager Status Workspace for the specific Queue Manager).
ITCAM for WebSphere and J2EE

**ITCAM for Web Resources: Operations Teams**
- Need to quickly identify problems, take automated action where possible, and route complex problems on to SMEs
- ITCAM for Web Resources provides a high-level view of the health and performance of the application environment and allows operators to monitor and analyze key metrics such as:
  - Throughput
  - Heap Usage
  - CPU usage

**ITCAM for WebSphere/J2EE: Application Developers & SMEs**
- Need to analyze performance problems to find the root causes
- ITCAM for WebSphere/J2EE provides deep-dive functions which Application Developers and SMEs would need, such as:
  - Display all in-flight requests, as well as details for a single request
  - Memory leak analysis
  - Method and stack “traces” to display the detailed execution flow of a request
  - Lock Contention Analysis on serialized methods
### ITCAM for WebSphere/J2EE roadmap

#### 2008

- Support for WAS v7
- eCAM available with WAS V7
- Integration with ITCAM for Transactions – launch in context
- Reduced footprint and managed memory footprint
- Improved install process
  - Pre-install environmentat check
- UI Improvements
- z/OS Support for ITCAM for WR
- BCI Engine Improvements
  - AspectJ instrumentation replaced with ASM, with an independent class loader
  - OOB config files to switch between L1, L2, and L3
  - Maintain read-only BCI instrumentation in application classes

#### Future directions

- Deep dive application diagnostics within TEP
- Improved user interface
  - Application summarization views
- Appliance mode
- Enhanced support for WebSphere XD and WebSphere VE
- Simplified installation
  - Fewer panels
  - TEMA and DC combined install
  - Install and configure within 2 hrs.
- Improved baselining feature
- JAX-WS support
- JCA support

Extended Beta program planned for 2009.
Monitor and Manage Services and the end-to-end SOA Infrastructure

- Monitor and manage services and service performance
- Monitor and manage application servers and applications
- Monitor and manage relevant SOA middleware
- Monitor and manage virtual environments
- Monitor and manage operating systems

Reduce MTTR by quickly identifying and isolating service level problem areas
### ITCAM for SOA Platform Roadmap

<table>
<thead>
<tr>
<th>2009</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced visualization of Service Health</td>
<td>Generic Data Collector</td>
</tr>
<tr>
<td>Service Summary view</td>
<td>Monitoring</td>
</tr>
<tr>
<td>Service Availability designation</td>
<td>Logging/filtering</td>
</tr>
<tr>
<td>TCR reports (Service Availability)</td>
<td>Transaction Tracking integration</td>
</tr>
<tr>
<td>Enhanced Message Broker monitoring</td>
<td>Tibco DC</td>
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<tr>
<td>More granularity of monitoring intervals</td>
<td>WSRR</td>
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<tr>
<td>DataPower Multi-Protocol Gateway support</td>
<td>SCA &amp; MB support</td>
</tr>
<tr>
<td>Platform and application currency</td>
<td>Versioning support</td>
</tr>
<tr>
<td>Support 64-bit app servers, MS Vista, MS Windows 2008</td>
<td>Policy enforcement</td>
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<tr>
<td></td>
<td>SLA integration</td>
</tr>
<tr>
<td><strong>SOA Platform bundle consists of:</strong></td>
<td>Platform and application currency</td>
</tr>
<tr>
<td>ITM v6.2.1</td>
<td>Expanded Platform and app support</td>
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<tr>
<td>ITCAM for SOA v7.1.1</td>
<td>OpenSCA</td>
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<tr>
<td>ITCAM for WR v6.2 FP4</td>
<td>.NET 3.5 &amp; WCF</td>
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<tr>
<td>ITM for VS v6.1 Sparkler 2</td>
<td>SAP NetWeaver 7.1</td>
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<tr>
<td>OM XE for Msg v7</td>
<td>BEA Aqualogic</td>
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<tr>
<td></td>
<td>Platform currency</td>
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Infrastructure Management
ITM for Servers
Monitoring of heterogeneous physical or virtual operating system environments

- Windows Server
  - Windows Server 2008 Hyper-V
- SUN Solaris
  - SUN Containers
  - SUN Zones
- VMware
  - Microsoft
  - Linux
- HP Unix
- IBM AIX
  - IBM AIX LPAR
  - IBM AIX DPAR
  - IBM AIX WPAR
- Citrix
  - Presentation Server
- Linux Operating Systems
  - Suse
  - Red Hat
  - Others
- Custom Environments

1 Hyper-V support in 2009 – Subject to change
2 Customer must purchase ITM to run Microsoft/Linux monitoring in Virtual Machine
3 Universal Agent/Agent Builder entitled for use on systems monitored by Operating System monitors

ITM (also includes UA/Agent Builder)
ITM for Virtual Servers
IBM Universal Agent/Agent Builder
Tivoli Monitoring Architecture

- Highly Scalable from SMB to Largest Enterprise. (1 to over 20000 monitored endpoints)

- Agent-based and Agent-less both natively supported
  - Agent-based technology resides directly on a managed server and collects data based on policy set locally or by the management server
  - Agentless technology resides primarily on a management server and gets its data via a remote application programming interface (API)

- Extensible architecture at the agent and server level
  - Universal Agent
  - Agent Builder

- Fully Integrated Warehousing

- Adaptive Event Management to allow customized thresholds for individual resources/servers
Agent or Agentless technology

- **Agentless technology is about cost of ownership**
  - Lower overhead cost on the server
  - Lower cost of agent maintenance
  - Faster speed of implementation
  - Less intrusive technology

- **Agent technology is about mission-critical**
  - Higher resiliency and availability
  - Better data availability, granularity and uniqueness
  - Automated and independent take actions
  - Real-time responsiveness to an incident
  - Lower overhead cost on the network

Sometimes you need to watch from the “outside”

Agentless

Sometimes you need someone “on the ground”

Agent Driven
Anticipating Virtualization Challenges
When a virtual environment has a problem, where did it originate?

The are no “virtual performance problems”, only very real performance problems manifested in a very complex consolidated, virtual environment.

In the Application (bad process) running on the virtual resource?

In the Logical Partition/Machine sharing the same physical resource?

In the VIRTUAL RESOURCE?

In the HYPervisor overhead?

Or in the PHYSICAL RESOURCE?
Complete monitoring coverage for virtual infrastructures

Real time monitoring, historical reporting and alerts on databases, applications and transaction response times.

Real time monitoring, historical reporting and alerts on guest operating systems to include process level data.

Real time monitoring, historical reporting and alerts for virtual resource allocations, utilization of virtual resources, pools, clusters, device status, virtual machine migrations

Real time monitoring, historical reporting and alerts for overall server utilization & availability, power utilization & IBM Hardware Alerts
Predictive Analytics Built into the Solution, not onto

**Tivoli Solution**

- **Predictive Analytics across all layers:** Built-in PA span all levels of technology stack!
- **Broad collection/integration:** Largest available experience library of collectors, integrations, and run-books!
- **Robust domain experience:** We’re investing more intelligence up-front!
- **Efficient & scalable:** We collect the right data, not just lots of data!
- **Robust visibility:** Get the metrics that matter most, more frequently!
- **Maximum intelligence:** Nimble approach to collecting & storing data for maximum Intel

**Add Predictive Capabilities into the data you are already collecting, distributed across the solution to provide maximum value with minimum extra effort**
Dynamic Thresholds Apply to Anything

Full Resource Monitoring Coverage
- zSeries to Distributed
- Integrated Virtualization
- Broad Resource Coverage
- Any Metrics Monitored using ITM or TEP
- Baseline any Metric in the Warehouse
- Agent or Agent-less Monitoring
- Out of the Box or Custom Agents

End to End Resource Monitoring
- Operating Systems, Agent-based and Remote*
  - Vmware*, pSeries, zSeries, Citrix
  - DB2, MS SQL, Informix
  - Exchange, Domino, SAP* - Storage and SANs
  - IMS, CICS, USS
  - Custom & Agentless Solutions

Security Operations Monitoring

Storage Systems
- SANs and Storage Devices
- DR and Data Recovery

Network Monitoring
- Multi-Protocol Topology and Root Cause
- Telecom Class Data Collection

End User Response and Application Monitoring
- User Transactions
- Web Resources
- Tracking and Diagnostics

* Requires v6.2.2, 1H09
ITM Future enhancements

- Visualization Enhancements for Dynamic Thresholding
- Agent Configuration for Autonomous Operations
  - Reduced agent disk footprint
  - Local agent config files (optional)
  - SNMP Eventing from agent (optional)
- Predictive analytics enhancements
- Agent Builder
  - Java, JDBC, SSH, HTTP(S) Providers
- Data Warehouse – Granular Collection
  - Autonomous agent warehousing
- Infrastructure
  - Agent Management Services
  - Platform Coverage
- CLI
  - tepsLogin

- Granular RBAC Security Model
  - Options customized by user/action/object

- Very Large Scale Mgmt
  - Policy-based admin/agent mgmt
  - UI Federation of multiple installations
  - Agent Autonomy
  - Scheduling Service
  - 64b exploitation

- ITM TEP-TIP Integration

- Serviceability
  - Maintenance application
  - Audit
  - Self-Monitoring

- Service Status Display
- Platform currency
Tivoli Technical Community

- Security, storage og service management
- Hold dig opdateret på
  - Produktportefølgen
  - Kurser
  - Eventskalender
- Udbyg dit netværk
- Spar med andre teknisk interesserede
- Få invitationer til gå-hjem-møder

- Starter med pilotprojekt i Danmark
- Tilmelding på Tivoli stand
Thank You – Coffee Break