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Track and Control Transactions *A* to *Z*

Evolving Successfully To SOA: Step One

A Unified View Across WebSphere MQ, TIBCO EMS, and All Your Messaging Systems

White Paper

The ability to rapidly identify and correct problems anywhere in the transactional flow is a crucial element of evolving successfully into SOA."

Introduction

As companies move to take advantage of Service Oriented Architectures (SOA), their IT infrastructures have to evolve to support applications and services that can be reused, shared across the enterprise environment, easily maintained and supported and effectively managed. This makes monitoring the flow of transactions and messages across the infrastructure - and the ability to rapidly identify and correct problems anywhere in that flow - a crucial element of evolving successfully into SOA.

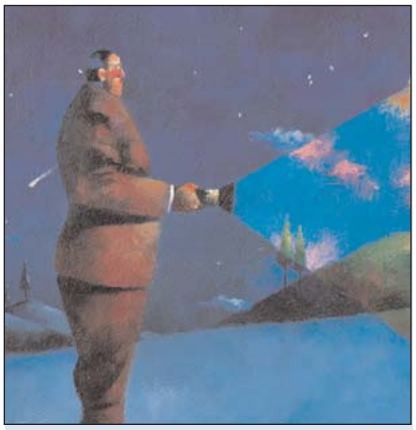
Message Oriented Middleware (MOM) has rapidly been accepted as the most common platform-independent way of linking systems in SOA environments. In most large companies, more than one brand of middleware has been deployed because different teams at different times have selected the middleware backbone they felt best suited their particular needs.

Two of the most commonly used messaging systems today are IBM WebSphere MQ and TIBCO Enterprise Message Service (EMS). Estimates put the combined market share of WebSphere MQ and TIBCO EMS at more than 85% of the entire MOM market. This means that most IT Professionals responsible for the performance of MOMs and applications running in SOAs will certainly need to be able to expertly manage both of these technologies.

Three Messaging Environments in One Unified Global View

Like so many large companies, one of Nastel's clients, a global banking and insurance conglomerate, had the challenge of monitoring and managing WebSphere MQ and TIBCO EMS as well as a homegrown messaging solution.

Historically, each of their individual applications ran on only one of their three messaging platforms. These platforms each had fairly extensive functionality and separate tools for monitor-



Nastel's AutoPilot effectively monitors WebSphere MQ and homegrown MOM systems

ing them. As the bank began to migrate to SOA, however; the IT team had to integrate services running on the different MOMs. In order to monitor the performance of the complete application end-to-end, they now needed to see their custom applications, the homegrown Message Broker, WebSphere MQ and TIBCO EMS through a single monitoring tool.

So the IT team began searching for a global monitoring solution that supported them operationally; including run-time operations, change management, rapid problem detection and isolation and operational review and planning. But it also had to support the increasing interoperability between WebSphere MQ and EMS.

First Step: Expanding Monitoring Capabilities

One Operations group within the bank's IT department had been using BMC Patrol to monitor WebSphere MQ. They replaced BMC Patrol with Nastel's AutoPilot to monitor WebSphere MQ on distributed and z/OS platforms because AutoPilot gave them the ability to monitor the homegrown Message Broker and internal business applications as well. A separate group was using TIBCO Hawk to monitor the Tibco/EMS system.

As the bank moved more aggressively toward SOA, they placed responsibility for all MOM under one team chartered with integrating front-end and back-end applications. It soon became impossible for this new MOM Operations team to meet the performance service level agreements mandated by the business.

They were running newly integrated mission-critical applications, like their high-volume trading application, but couldn't handle the demands of a full production workload, which is millions of transactions per second over hundreds of queue managers across various messaging environments. Having to deal with two monitoring solutions prevented them from meeting performance standards. The group determined that they needed a single monitoring solution that:

- provides visibility into the process on an end-to-end basis across heterogeneous messaging platforms, including TIBCO, WebSphere MQ and the homegrown solution
- is easy to install and configure
- is intuitive to use and requires little training for new employees globally
- costs little administration and change management overhead and
- is offered from a company they trust

AutoPilot: Less Expensive Than Freeware

Nastel's AutoPilot was already effectively monitoring the bank's WebSphere MQ and homegrown MOM systems. While the bank trusted TIBCO, the Hawk monitoring tool did not meet their other criteria. After a thorough evaluation, including an examination of freeware tools, they determined that free tools were ultimately more expensive to upgrade and maintain.

In SOA environments, which are constantly evolving, the speed and ease of adapting to changes was another key factor in the decision process. To configure TIBCO Hawk to monitor a new EMS server would typically take the team half a day. With AutoPilot, it takes just one minute. With the size of the bank's environment, AutoPilot emerged as the obvious choice. As an added benefit - and cost saving - they would no longer need to have a full time person on staff just to administer the monitoring tools.

The Operations team decided to standardize all application performance monitoring under Nastel's AutoPilot. The Operations team felt that AutoPilot would allow them to:

- do more, better, faster
- create better Business Views, tailored to individual user needs
- monitor more applications, including custom inhouse-developed applications
- monitor the entire data lifecycle because of AutoPilot's unique global view across all of their messaging platforms.

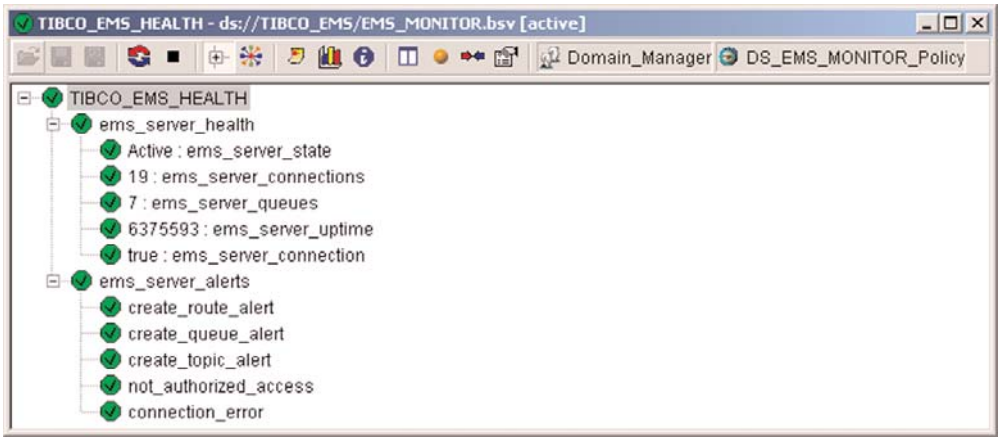
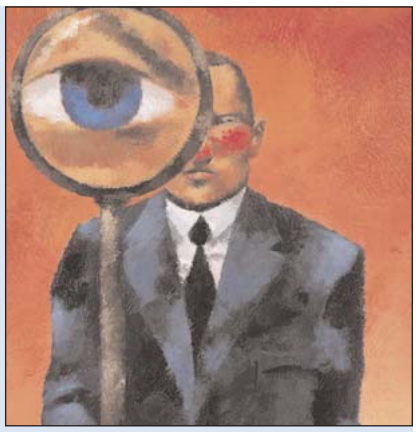


Figure 1. *Sample TIBCO EMS Health Business View*



With AutoPilot's TIBCO EMS plug-in expert, the Operations team can easily monitor TIBCO EMS servers and components such as queues, topics, consumers, producers, etc. from a single, consolidated vantage point.

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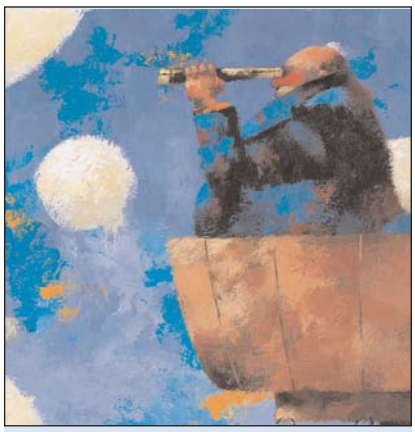

AutoPilot is now the foundation that enables the monitoring, automation, visualization and fault recovery for all of the bank's business integration components.

Nastel's TIBCO EMS Monitoring Solution

A major driver of the bank's decision to standardize on AutoPilot was its ability to monitor all of its MOM systems. With AutoPilot's TIBCO EMS plug-in expert, the Operations team can easily monitor TIBCO EMS servers and components such as queues, topics, consumers, producers, etc. from a single, consolidated vantage point. There is no limit to the number of TIBCO/EMS servers they can simultaneously monitor.

The TIBCO/EMS Plug-in expert is modularized based on the bank's EMS servers and their components, for example: queue expert, topic expert, consumer and producer experts. The bank's specific requirements for performance monitoring activities will determine how the experts are deployed -- they can be deployed individually or in any combination of multiple deployments.

In addition, the TIBCO EMS expert automatically measures and collects EMS performance metrics. The expert periodically samples information about TIBCO EMS servers and their components based on any interval defined by the bank's Operations team. Some of the key performance metrics they can collect include inbound, outbound, acknowledged and pending message volumes, message rates per second, average response times, message tracking, age of oldest messages and the like.

These metrics are collected for servers, queues, routes, groups, consumers, producers, transports, durables and events. AutoPilot's powerful correlation engine uses these metrics in policies the Operations team defines for validation, automation, notifications, logging and alerts etc.

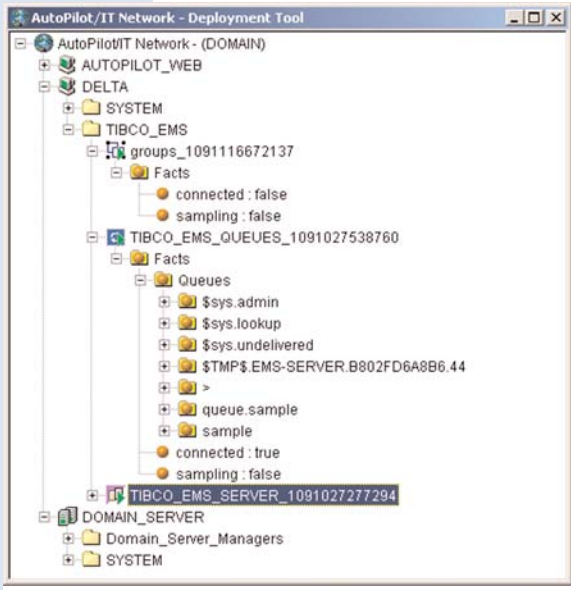

Figure 1. *TIBCO EMS Metrics Collected by AutoPilot's TIBCO EMS Experts*

AutoPilot's correlation engine can also combine metrics and data from many diverse systems within the bank's infrastructure. One of the most important features for the bank is that the AutoPilot TIBCO/EMS plug-in monitors multiple TIBCO EMS servers and the AutoPilot correlation engine relates the EMS metrics with metrics from other infrastructure components such as WebSphere MQ, J2EE and other supported technologies to dynamically create events and alerts as needed.

AutoPilot: Giving the Operations Team Complete Control

In addition to offering a comprehensive solution for monitoring their WebSphere MQ, TIBCO EMS and homegrown MOM systems, the Operations team has taken advantage of many of AutoPilot's other features. Some of the capabilities they most appreciate include:

- User-defined rules, events, alerts and policies
- Fully distributed rules-engine with distributed policies
- Web-based operators console, UNIX based console support
- Robust, granular security, authentication and access control integrated with the existing corporate eco-system (supporting Kerberos and LDAP)
- Real-time performance monitoring and visualization

Conclusion: A Powerful Monitoring Solution for SOA Environments

AutoPilot has proven to be a highly effective, comprehensive and powerful solution for the bank's complex, heterogeneous SOA environment. Since standardizing on AutoPilot, the Operations team is now able to pinpoint problem areas and also the source, or root cause, of a problem with laser-like precision anywhere across its various MOM systems, even if the problem is in the code. This dramatically reduces the mean time to problem resolution, increases overall uptime and reduces user support requirements by cutting down significantly on calls from business users to the Operations team.

AutoPilot also affords the Operations team a high degree of future-proofing and scalability as their SOA environment evolves and grows over time. In addition to its powerful core platform and the WebSphere MQ and TIBCO EMS plug-in experts the bank already employs, the AutoPilot Suite includes plug-ins for WebSphere Business Integrator, which incorporates WMQI, ICS and WorkFlow, as well as the WebSphere Application Server, the Oracle database OS monitors, JMX Expert, SNMP monitor, J2EE Expert, WebLogic and many more popular enterprise IT infrastructure components.

As a result, AutoPilot is now the foundation that enables the monitoring, automation, visualization and fault recovery for all of the bank's business integration components, including middleware, workflow engines, brokers, application servers, user applications, business processes and individual transactions end-to-end. AutoPilot lets the Operations team keep their entire SOA environment visible and manageable from a single pane of glass.

A Note from Nastel

In industries such as banking, financial services, insurance, retail and the like, successfully-executed transactions are the virtual product of the company. Customer and partner relationships, revenue and regulatory compliance each require consistently high performance SLAs. Until the availability of AutoPilot Transaction Management and Compliance Suite, IT Support teams had no way to track transaction paths end-to-end in order to detect delayed and incomplete transactions, nor could they produce the detailed transaction path audit reports required for regulatory compliance. AutoPilot Transaction Management and Compliance Suite was the first product of its kind to be offered from the leader in messaging infrastructures management – Nastel Technologies.

Nastel is a recognized market leader in providing solutions for application transaction monitoring and management. Nastel's AutoPilot Suite empowers cross-functional IT teams to manage transactions and support messaging infrastructures that integrate critical business applications, assuring consistently high performance and availability. AutoPilot rapidly identifies, resolves and prevents costly performance bottlenecks and failures in messaging infrastructures and sub-systems that impact critical business applications. Every day, billions of transactions flow through our clients' infrastructure that are managed and monitored by AutoPilot, including some of the world's largest banks, financial institutions, retail chains and insurance providers. Nastel, founded in 1994, is headquartered in New York, has offices in the U.S. and Europe and a growing network of resellers and partners around the world.

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