NASTEL

Driving Business Transaction Performance ®

AutoPilot®

Middleware-Centric Application Performance Management

Nastel Technologies
48 South Service Road
Melville, NY, USA 11747

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VENDOR PROFILE

- Middleware management and "Middleware-centric" application management & monitoring
- Messaging Middleware, Java & .Net Application Servers, ESB's, SOA technologies
- Key value proposition : Identify performance and quality of service issues before business is impacted

CUSTOMERS AND USE CASES

- Large companies, leaders in their markets
- Mission Critical Applications
- Powered by Middleware
- Trading, Order processing, Payments, Funds transfers

KEY DIFFERENTIATORS

- Best of breed solution for management and monitoring of WebSphere MQ
- Single point of control for multiple middleware
- Policy driven, Operational and Transactional Monitoring

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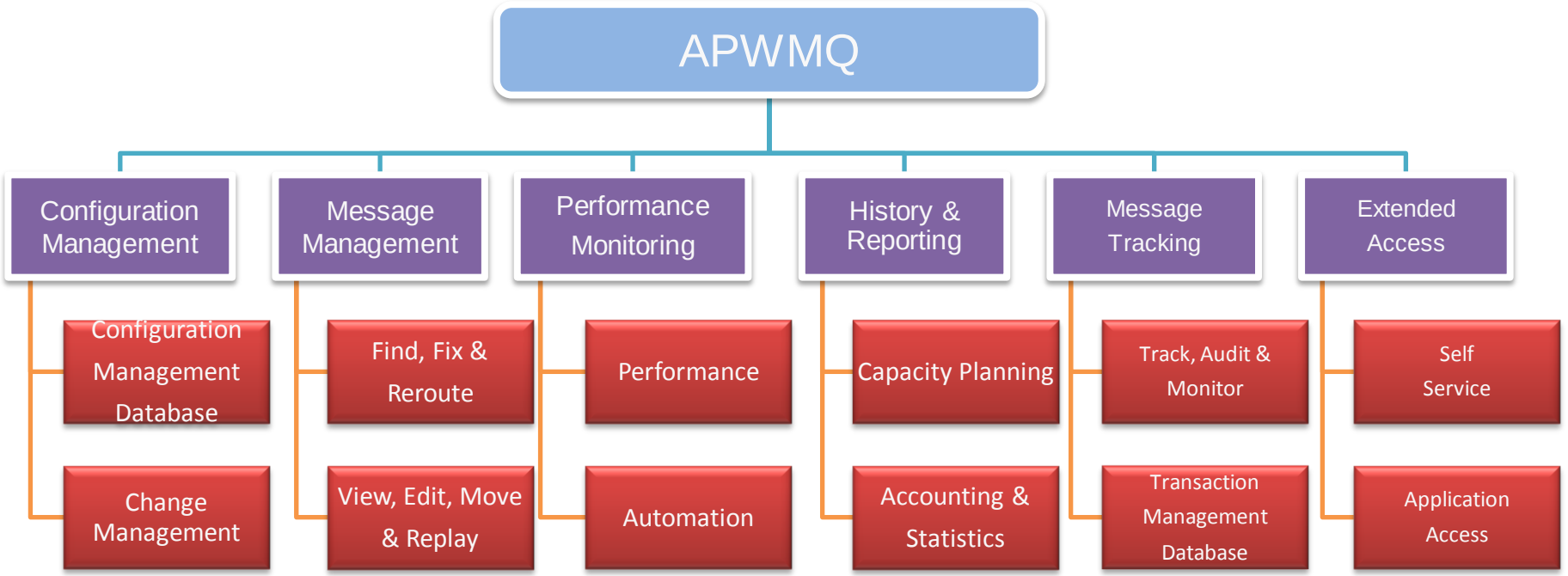
Nastel APWMQ Capabilities



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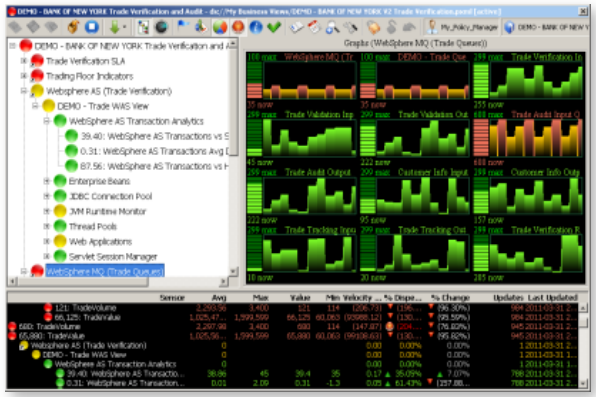
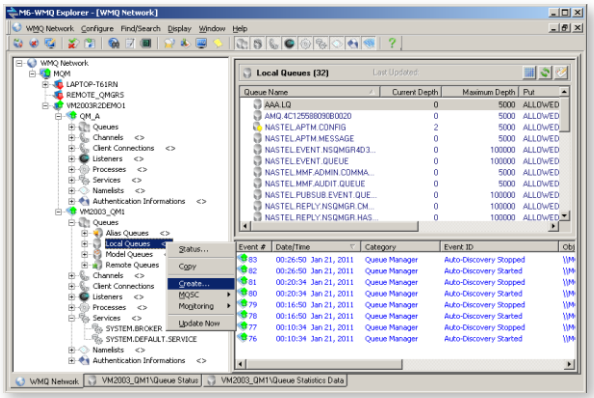
AutoPilot® for WebSphere MQ - 3 x "M"

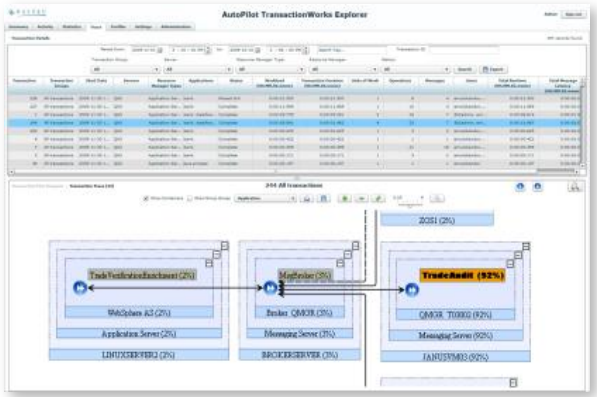
WebSphere® MQ
MONITORING



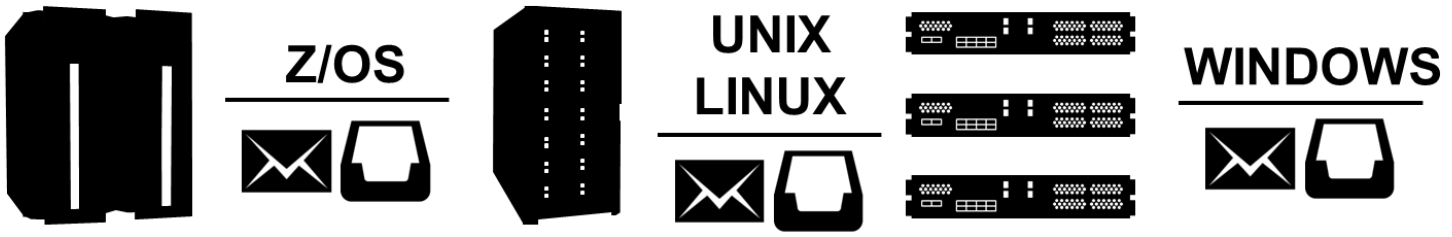
WebSphere® MQ
MANAGEMENT



WebSphere® MQ
MESSAGE TRACKING



WebSphere® MQ



+ Tandem, iSeries, VAX, …

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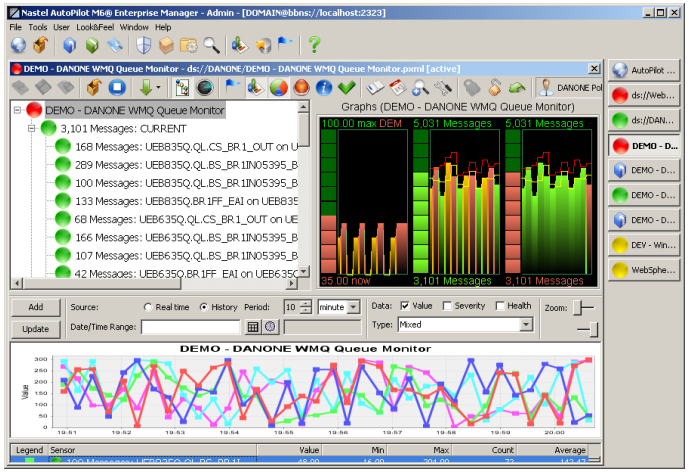
WebSphere MQ MONITORING

- Pre-defined & User-Defined Dashboards with intuitive KPI's
- Policy-based, Wizard-built monitoring
- No scripting
- Dynamic Thresholds & Automatic Baselining
- Alerts, Notifications & Automated Actions
- Real-time and historical analysis
- Easily locate & resolve performance issues *before* business impact



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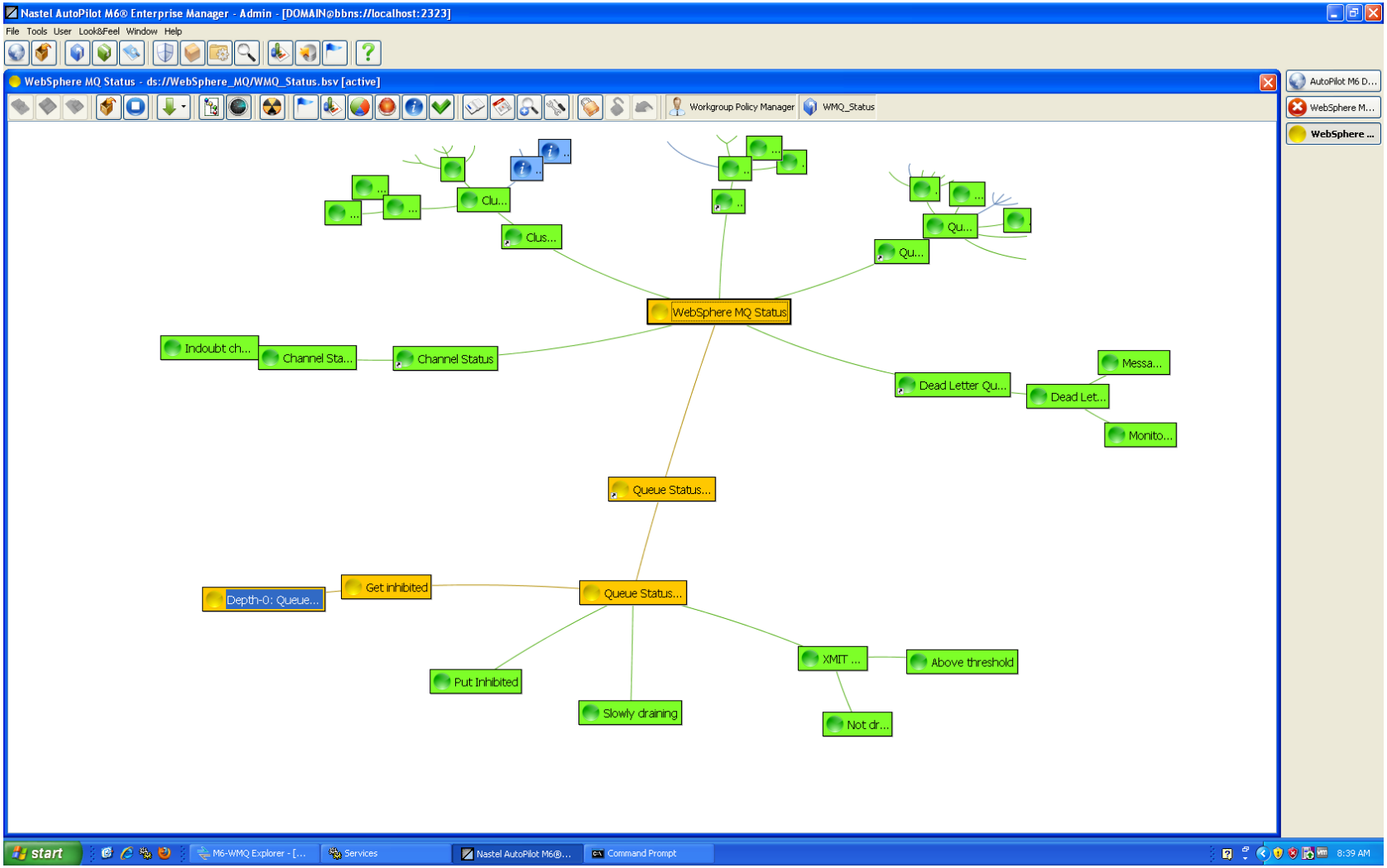
Single View of MQ Environment



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Policy

Queues Disabled

Alert me if any queue becomes get inhibited.

If there are message(s) on the queue, it should be a higher severity.

Once the queue is not longer get inhibited, it should be removed from monitoring.

Queues not Draining

Alert me if any queue where messages are building

If no Application is reading the queue, it should be a higher severity

…

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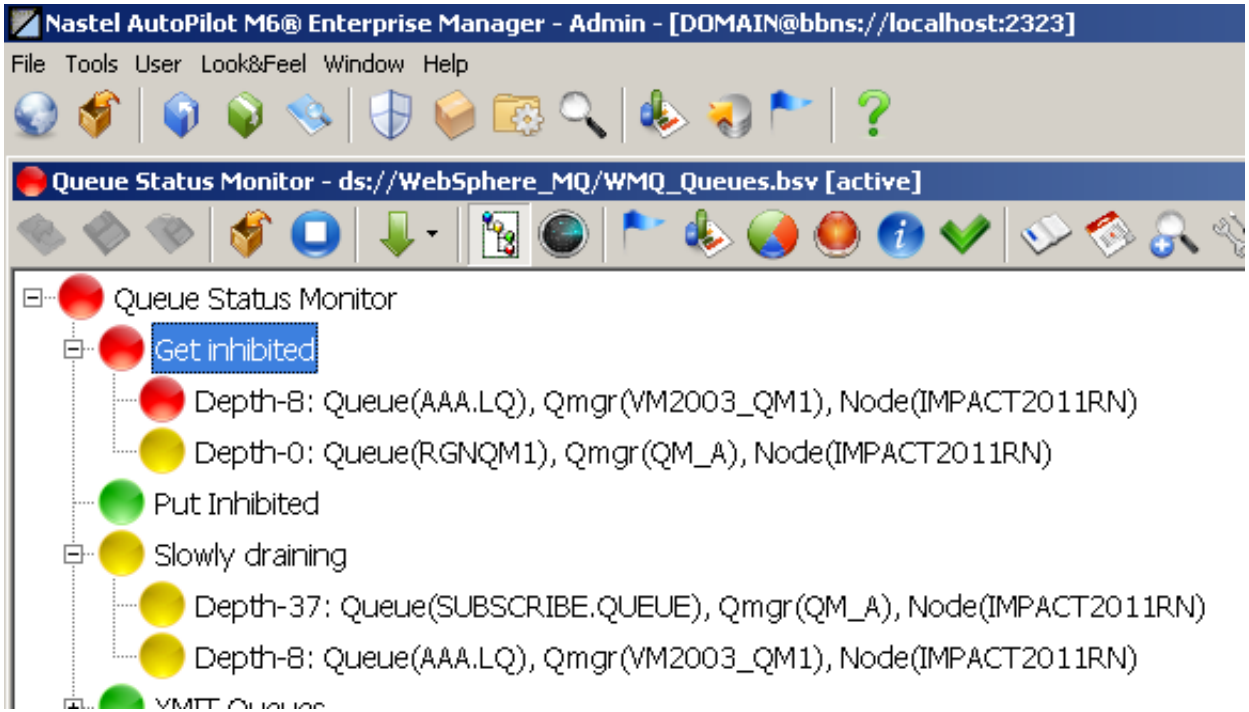
Policy



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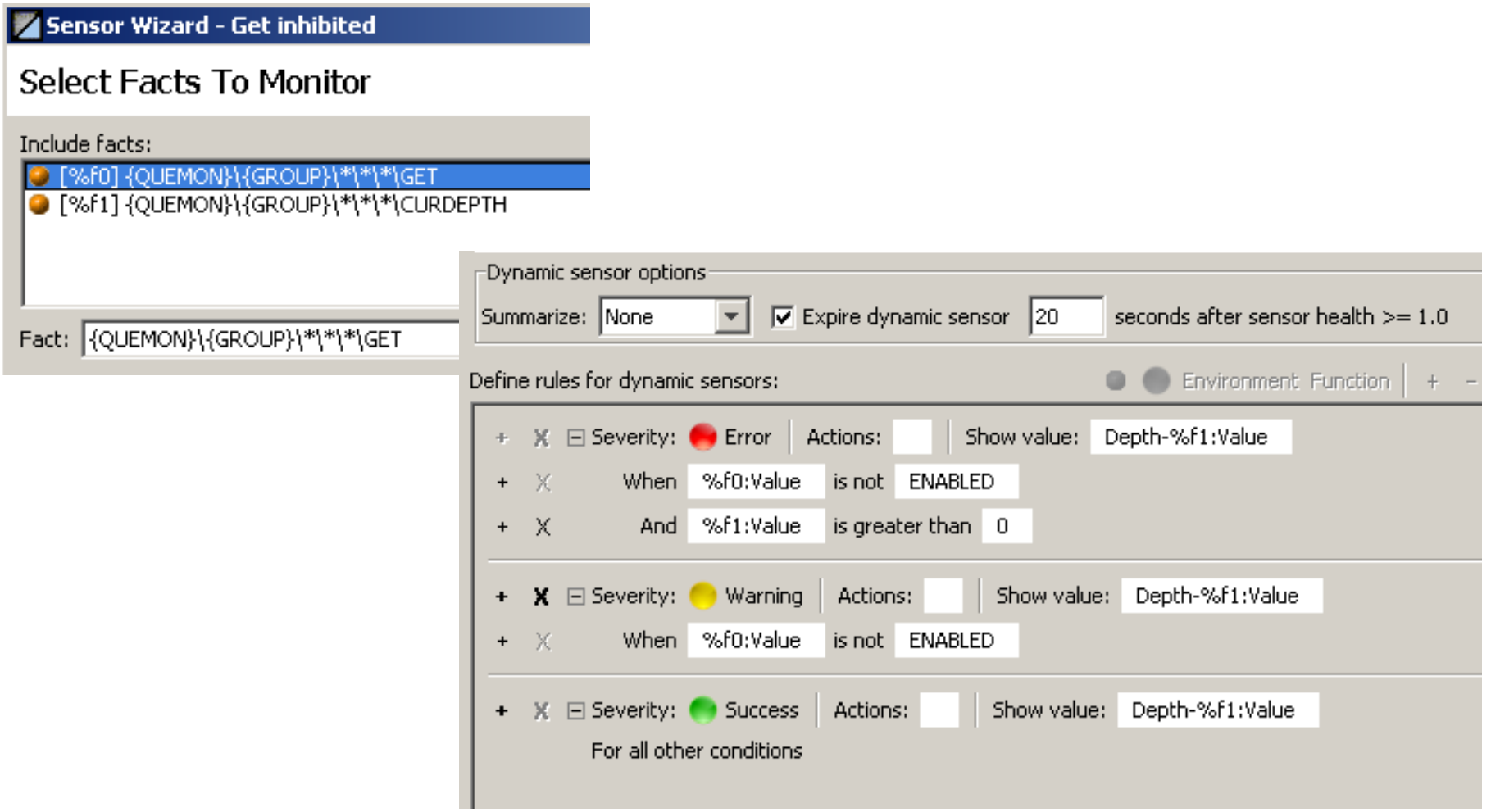
Policy Fundamentals



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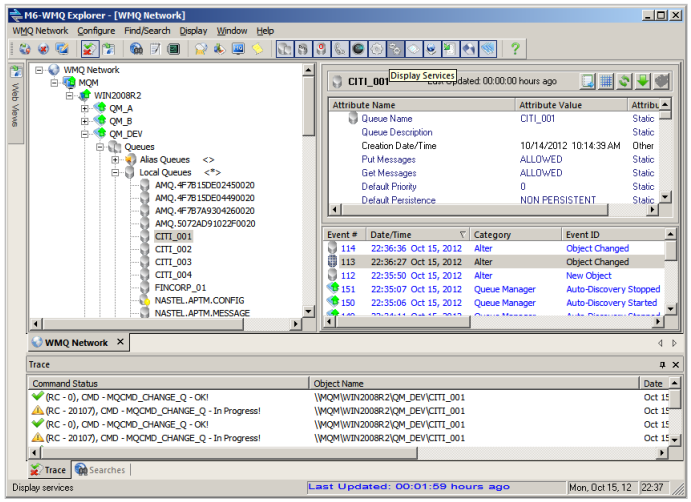
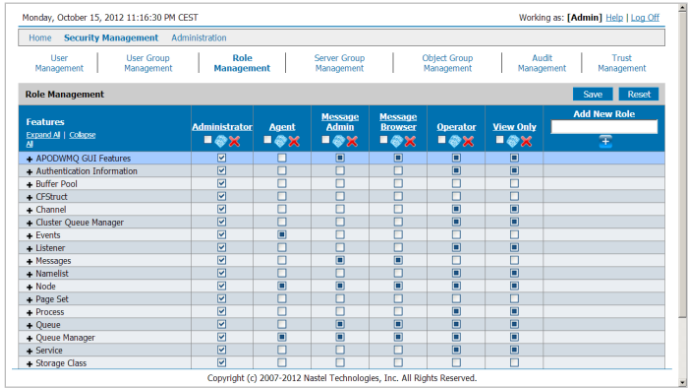
WebSphere® MQ MANAGEMENT

- Auto discovery of WMQ objects
- Automatic Configuration Management
- Audit trail & Rollback of changes to WMQ objects
- Agent and Agent-less management
- Message Management & Search
- View, Edit, Move, Copy, Delete, Re-route, DLQ handling
- Secure, Self Service WMQ Management – worry-free, highly *controlled* delegation of selected admin tasks to Application Developers and Operations teams





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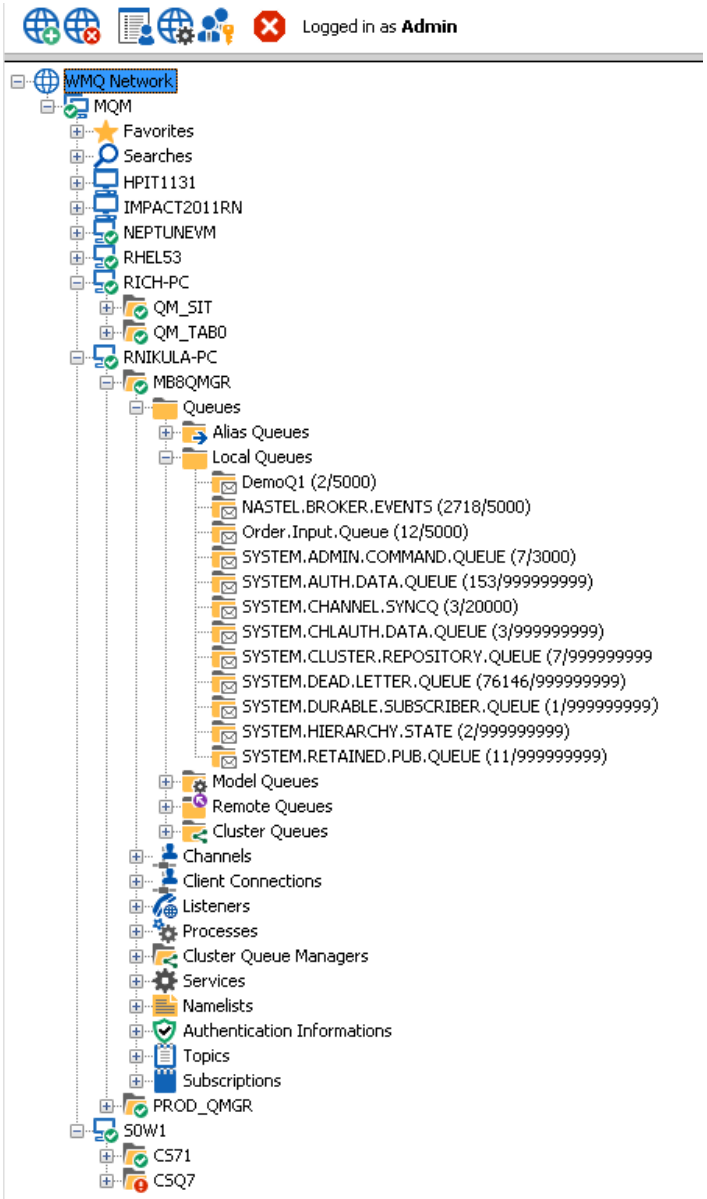
Access to all MQ Objects



- Across Operating Systems
- Across Versions of MQ
- Access to All MQ Objects
- Queues
- Channels
- Processes
- Etc.

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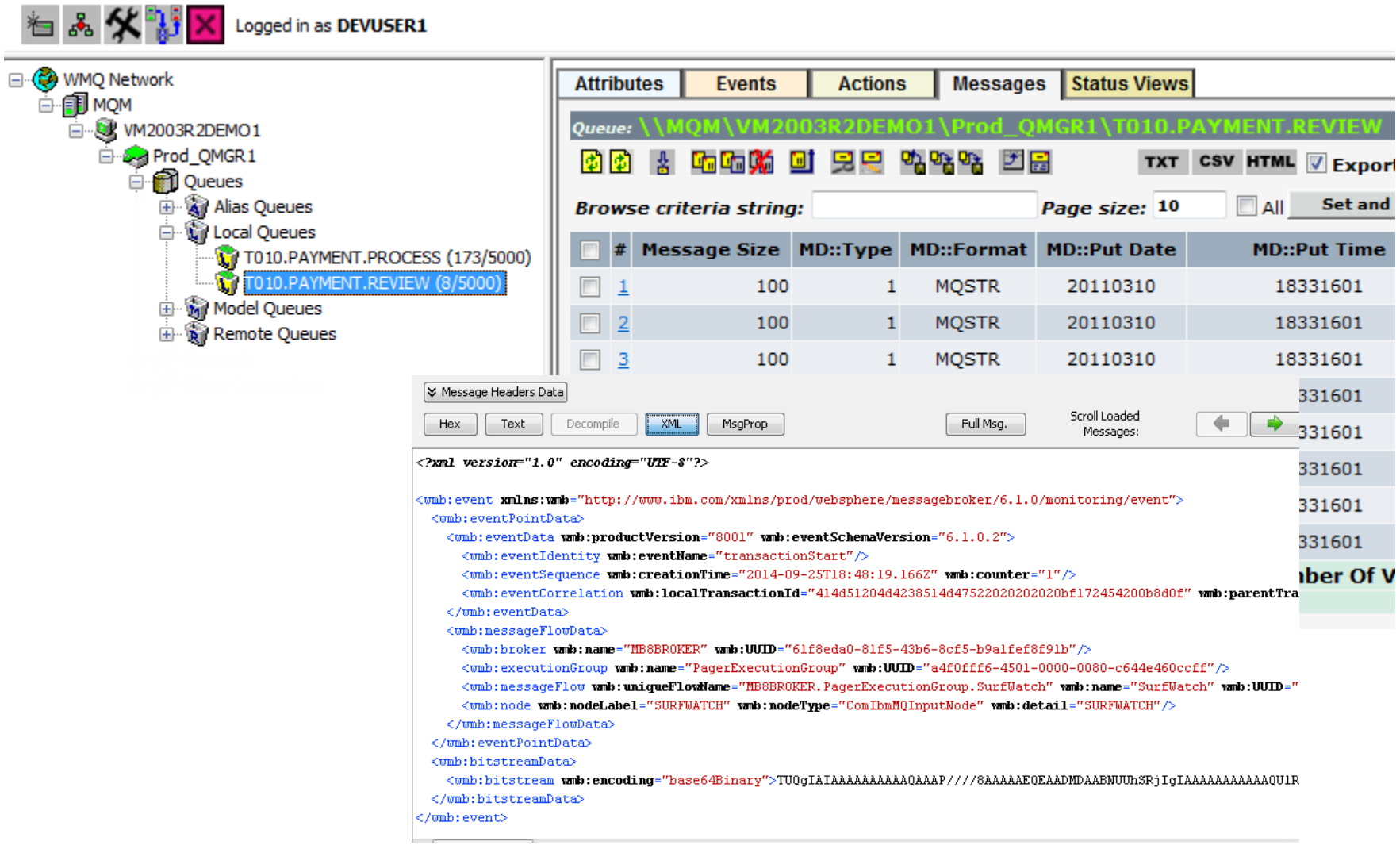
Fine Grained Security



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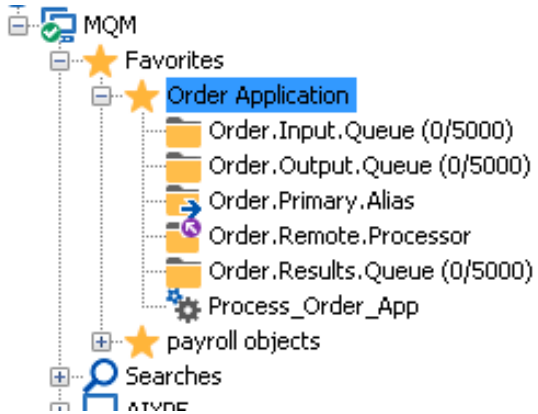
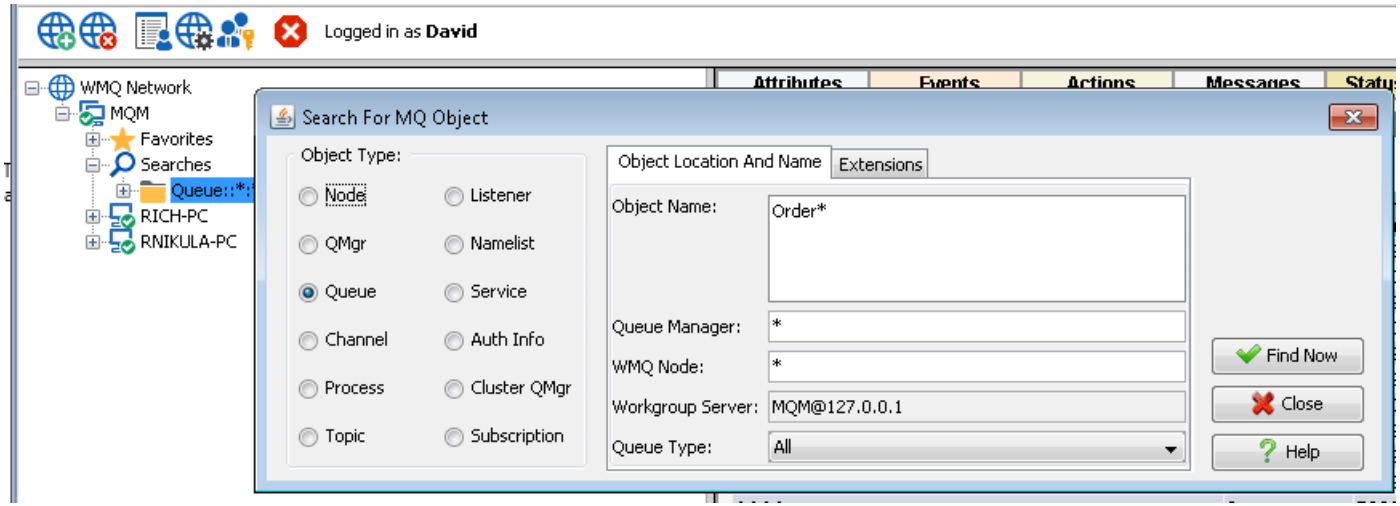
Customizable Access





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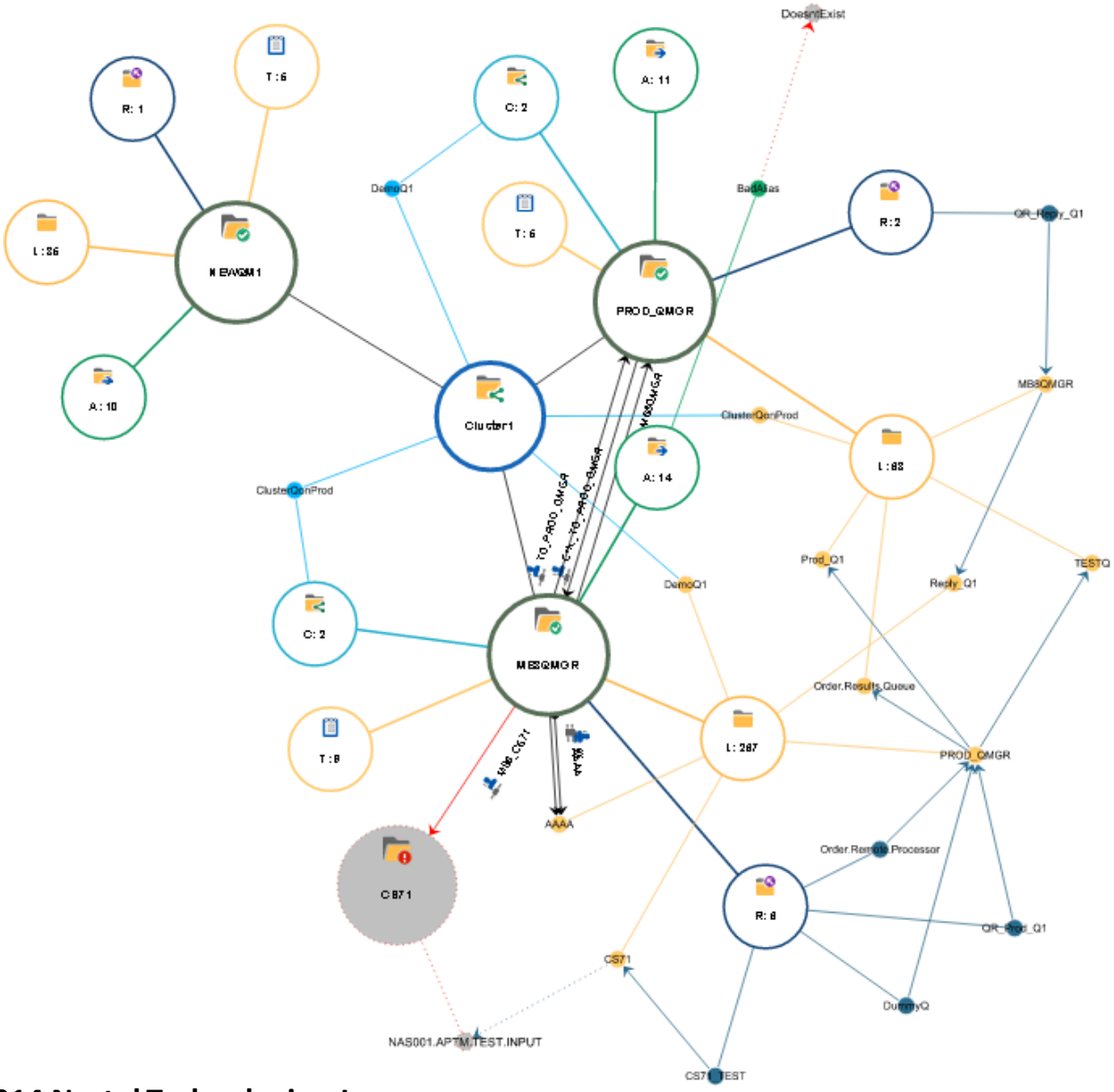
Queue Manager Topology



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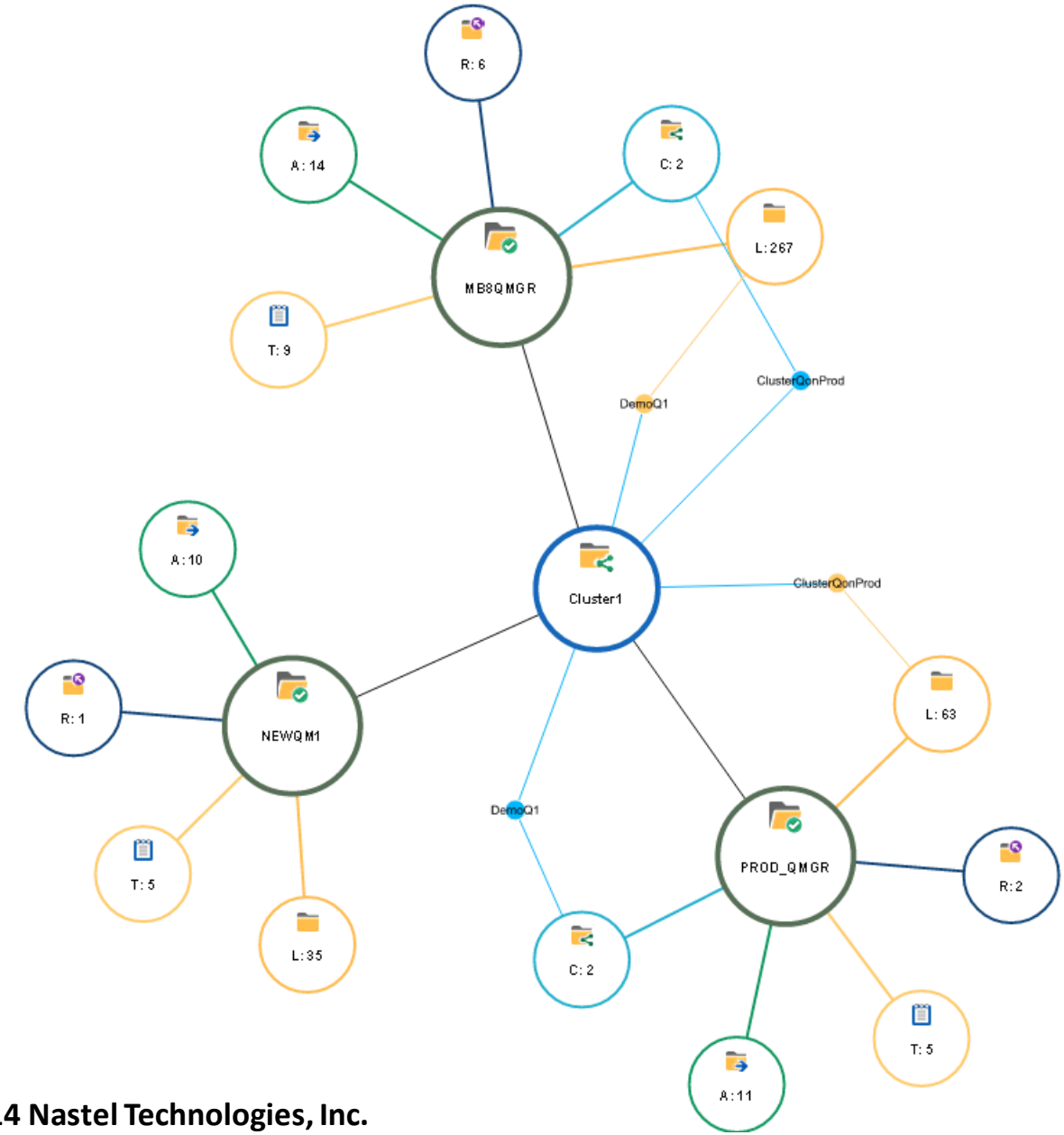
Cluster Topology



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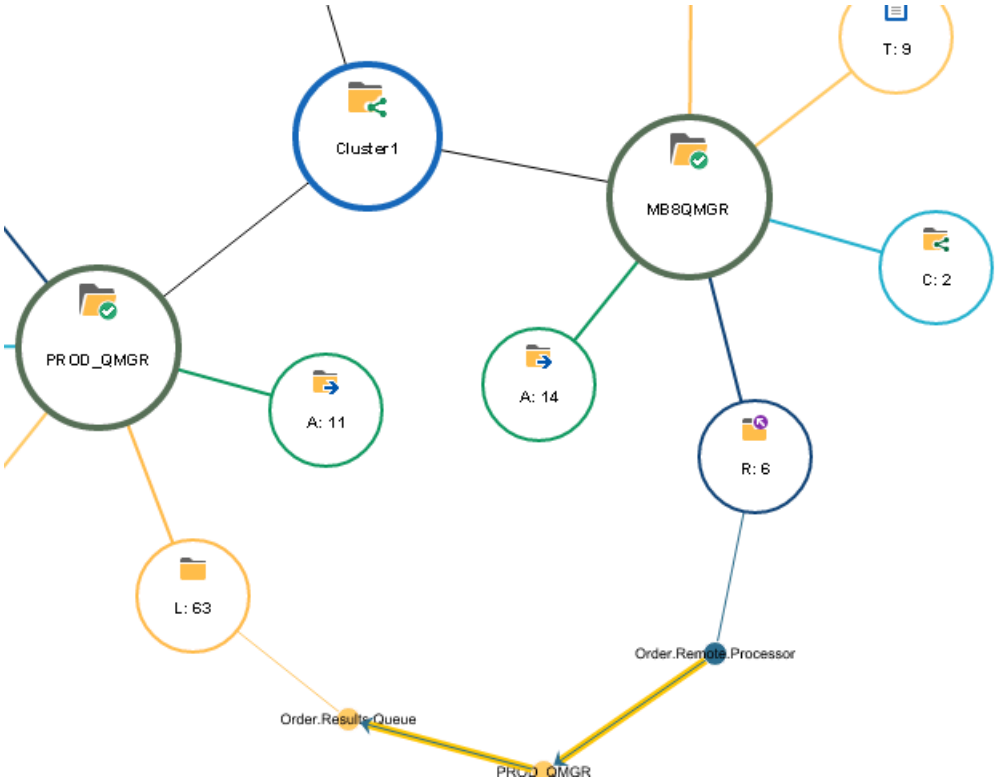
Invalid Definitions / Message Flow



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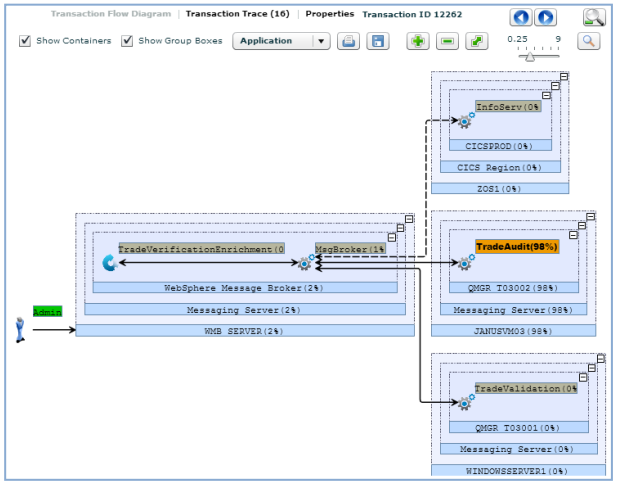
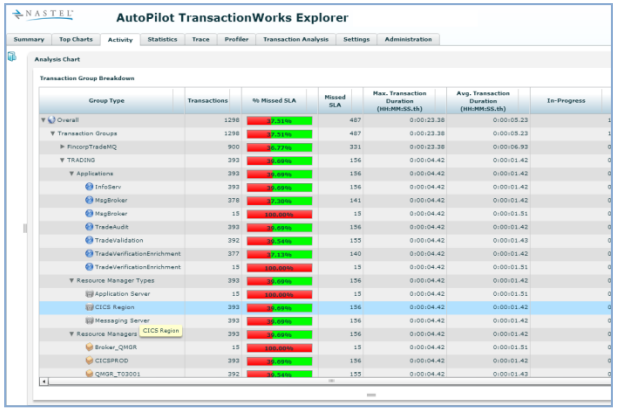
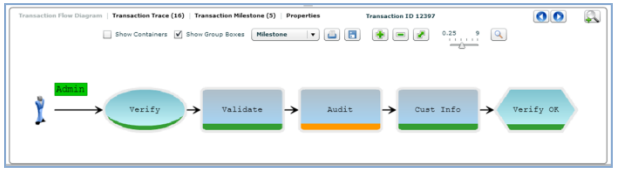
WebSphere® MQ MESSAGE TRACKING

- Graphical depiction of WMQ Message Flows, with details of each operation
- Real-time and historical analysis
- Create SLA's for message flows in one click
- Pinpoint message delivery problems, message latency and SLA breaches
- Criteria-based message search
- ALL message tracking information is recorded in SQL database – Persistent as well as Non-Persistent messages
- Pre-Defined and User-Defined Reports







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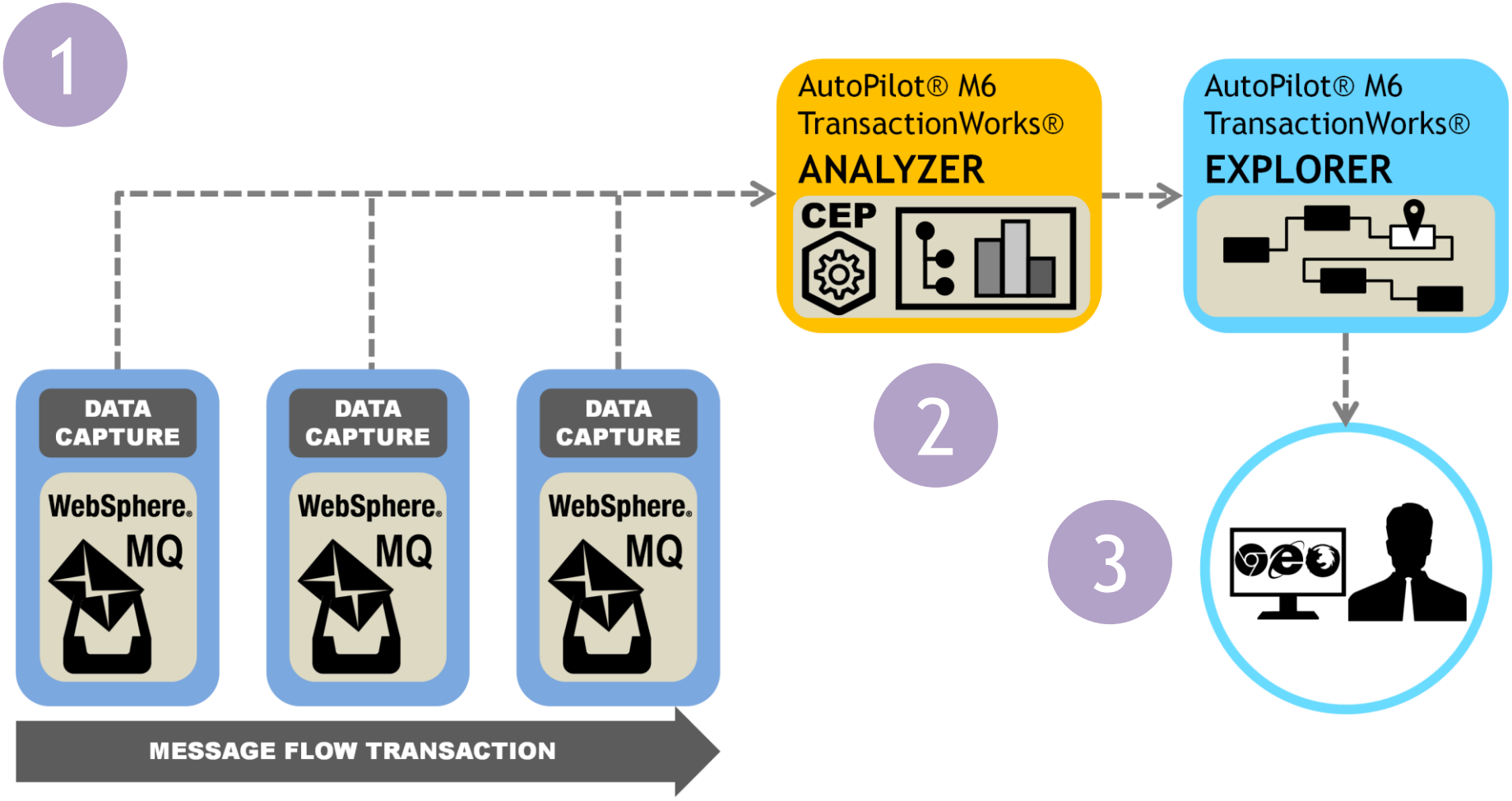
Message Flow Tracking



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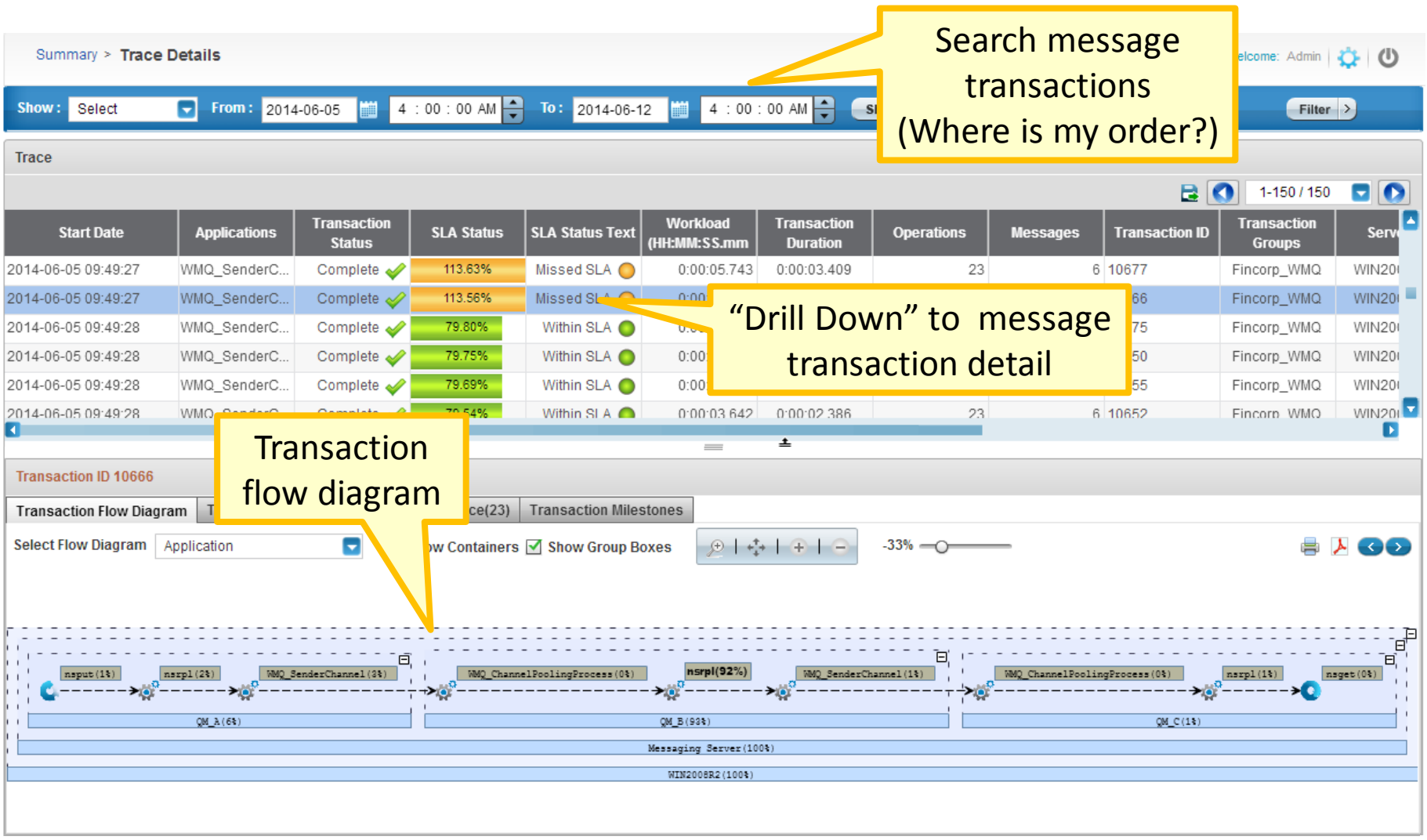
Message Flow Transaction Monitoring



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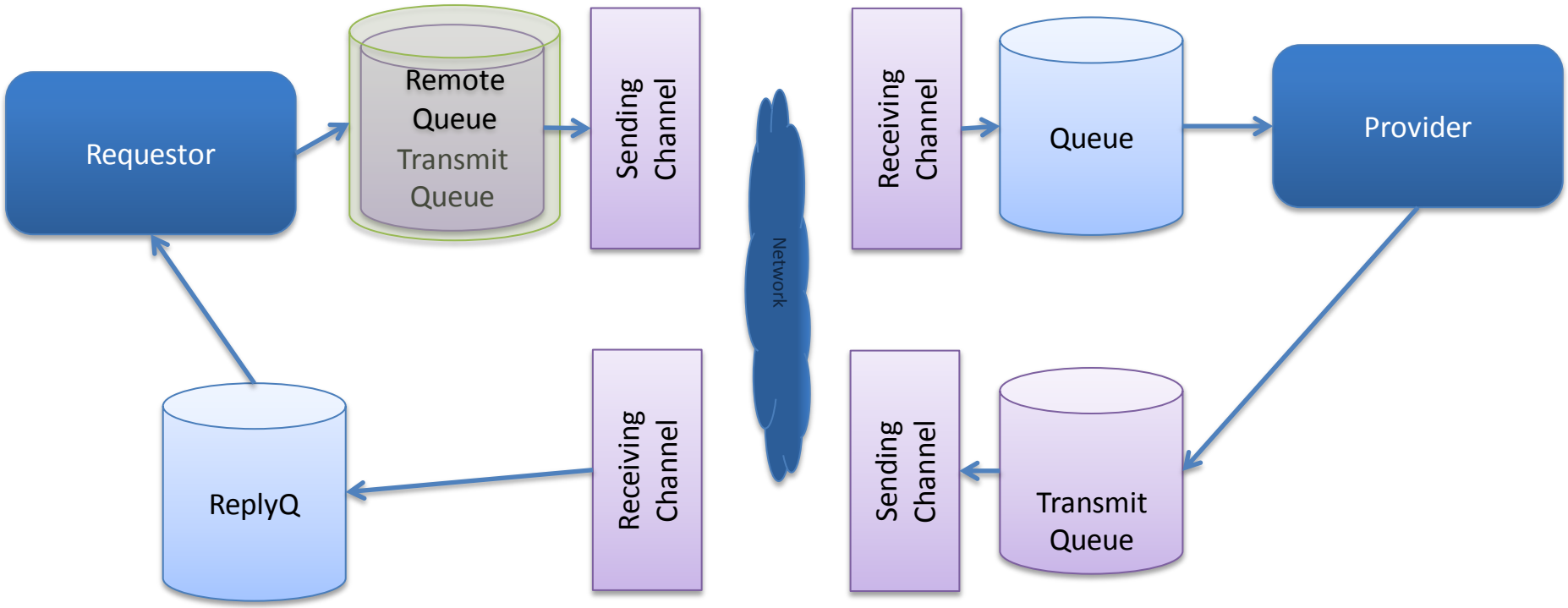
Simple WMQ Example



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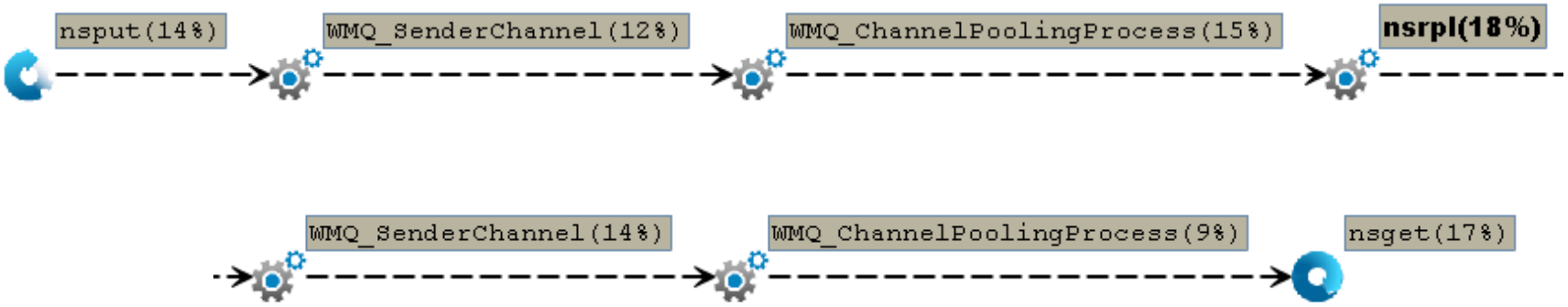
Simple Message Flow



Time	Application	Operation Name	Resource	Elapsed Time (usec)	Message Id	Message Age (usec)	Resource Manager	Completion Code	Server	Ma
2013-09-22 22:15:24.001	nsput	MQPUT	TEST_RQ	29	1	0	DESKTOP99_QMGR	Succeeded	DESKTOP99	Mes
2013-09-22 22:15:24.003	nsput	MQCMIT	DESKTOP99_QMGR	0		0	DESKTOP99_QMGR	Succeeded	DESKTOP99	Mes
2013-09-22 22:15:35.424	WMQ_SenderChannel	MQGET	MB8QMGR	24	1	11424000	DESKTOP99_QMGR	Succeeded	DESKTOP99	Mes
2013-09-22 22:15:35.465	WMQ_ChannelPoolingProcess	MQPUT	TEST	30	1	0	MB8QMGR	Succeeded	DESKTOP99	Mes
2013-09-22 22:15:46.062	nsrpl	MQGET	TEST	45	1	22062000	MB8QMGR	Succeeded	DESKTOP99	Mes
2013-09-22 22:15:46.062	nsrpl	MQPUT	TEST_REPLY_RQ	24	2	0	MB8QMGR	Succeeded	DESKTOP99	Mes
2013-09-22 22:15:46.067	nsrpl	MQCMIT	MB8QMGR	0		0	MB8QMGR	Succeeded	DESKTOP99	Mes
2013-09-22 22:15:57.886	WMQ_SenderChannel	MQGET	DESKTOP99_QMGR	23	2	10826000	MB8QMGR	Succeeded	DESKTOP99	Mes
2013-09-22 22:15:57.886	WMQ_ChannelPoolingProcess	MQPUT	TEST_REPLY	33	2	0	DESKTOP99_QMGR	Succeeded	DESKTOP99	Mes
2013-09-22 22:16:02.070	nsget	MQGET	TEST_REPLY	36	2	16009000	DESKTOP99_QMGR	Succeeded	DESKTOP99	Mes
2013-09-22 22:16:02.072	nsget	MQCMIT	DESKTOP99_QMGR	0		0	DESKTOP99_QMGR	Succeeded	DESKTOP99	Mes

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Beyond MQ
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IBM Integration Bus (aka WebSphere Message Broker)

Key Terms

- **Message Flow** – A specific logical flow through the message broker which may include logic, transformation and routing.
- **Execution Group** – a grouping of related Message Flows that provides isolation, performance allocation, and control

- **Topic** – A hierarchy that describes the context of a specific message
- **Subscription** – A request to receive posts to all or part of a topic hierarchy
- **Queue Manager** – An WebSphere MQ service that provides the underlying technology for Message Broker. ***Required even if the broker does not use WMQ Message Flows***

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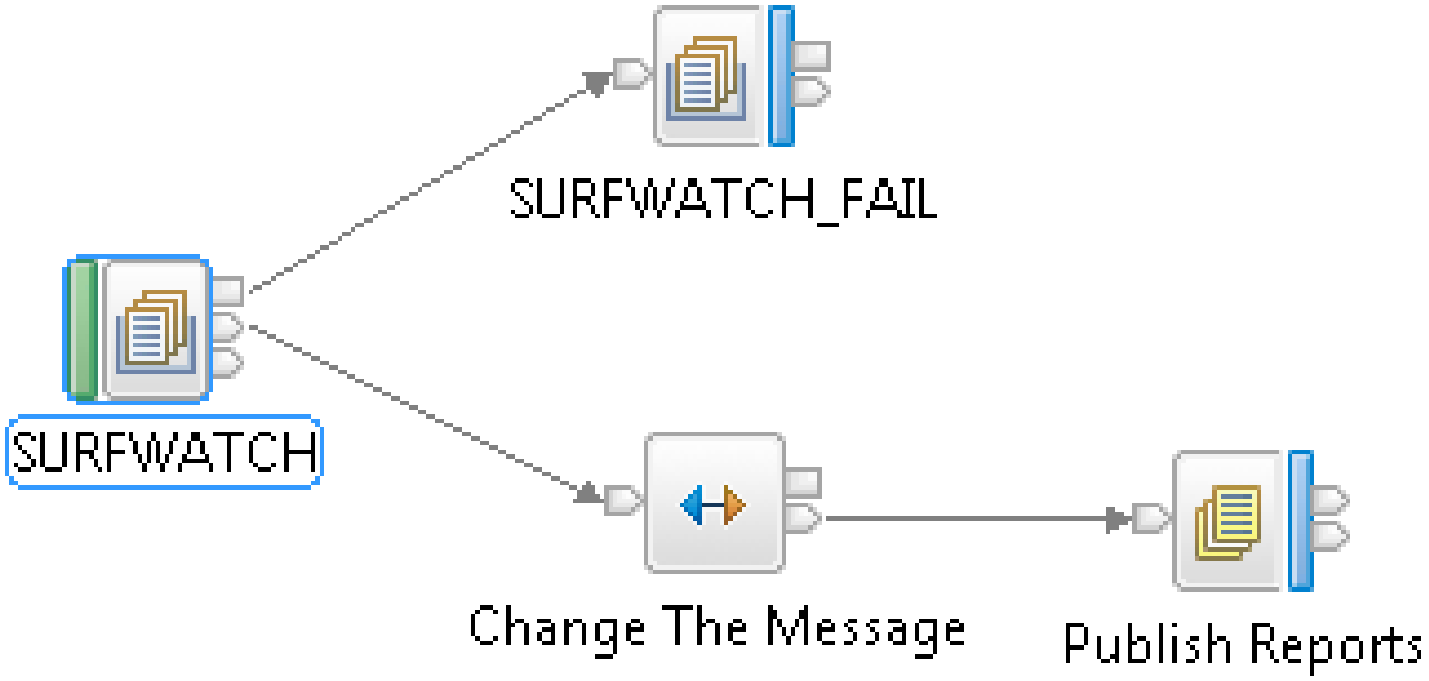
Message Broker – Simple Example

- "Surf Watch" is a sample message flow shipped with Message Broker
- 1 input node, 1 transformation step, and an output …
- Also has a potential failure node …



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Monitoring Message Broker Statistics

Message Flow Level (for the flow)

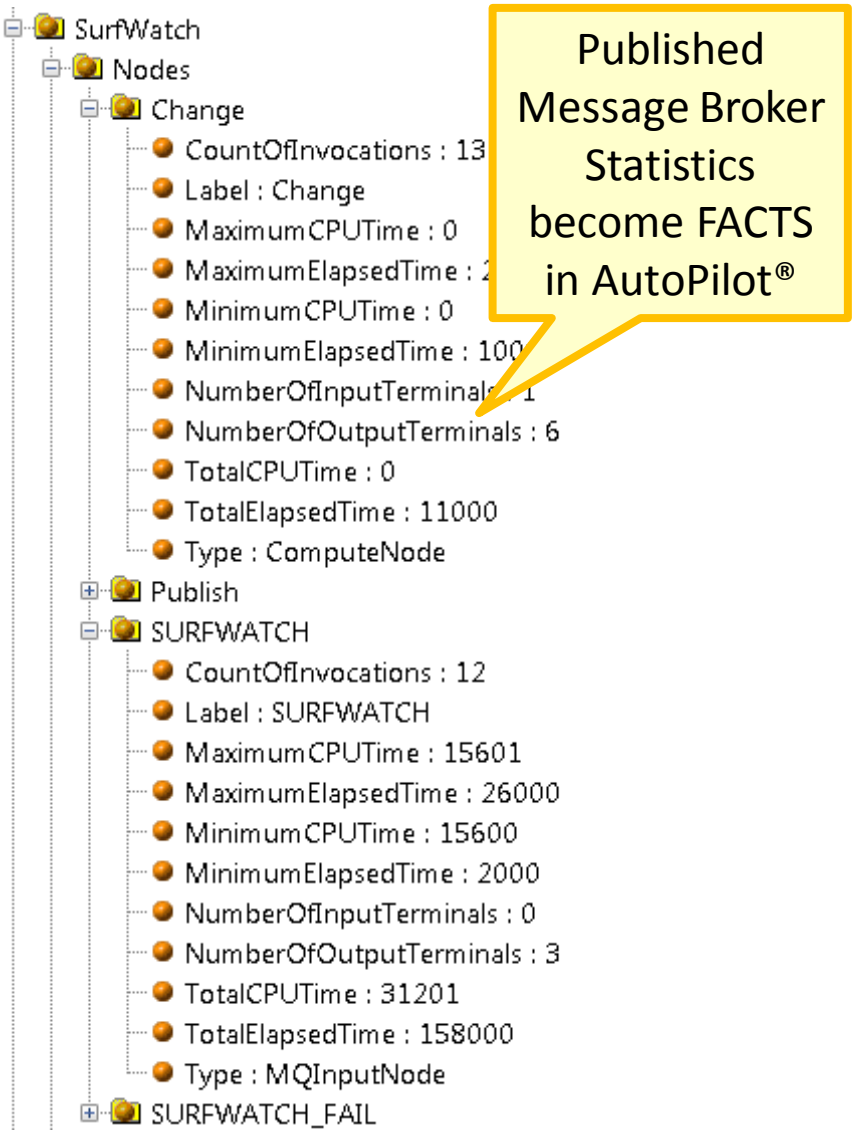
- Total Messages Processed
- Total Messages in Error
- CPU Time Spent
- Message Statistics

Node Level (for each processing node)

- Invocations
- CPU Time
- Information

Thread Level (for each thread)

- Messages Processed
- CPU Time Spent
- Message Statistics



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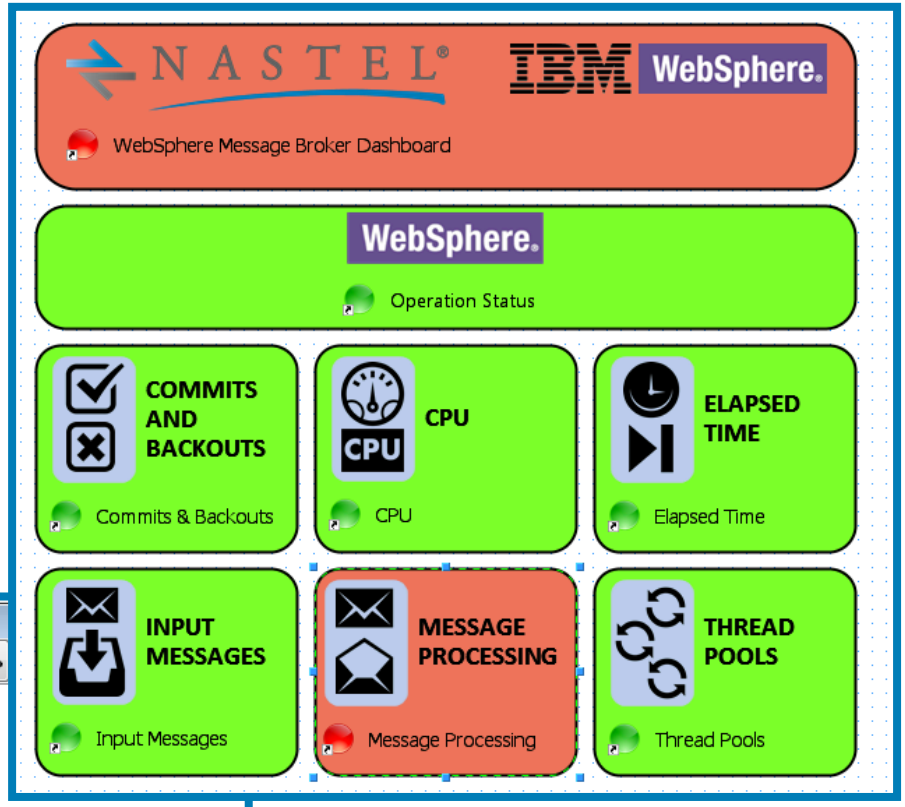
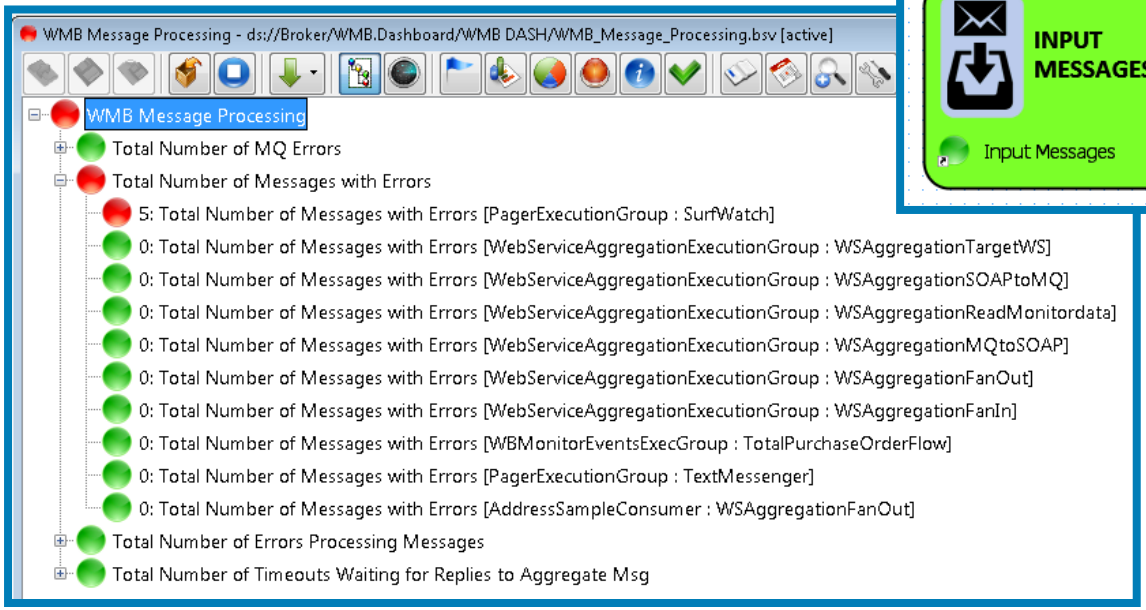
Monitoring Message Broker

- FACTS are used in AutoPilot® M6 ***rule-based dashboards***

  (Business Views)

- In this example: message processing errors are occurring
- Alerts → Notifications & Automated corrective actions





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Message Broker Transaction Monitoring

Transaction Group > Summary > Trace Details

Show : Select From : 2014-02-17 10 : 45 : 00 AM To : 2014-02-17 10 : 46 : 00 AM Show

Trace

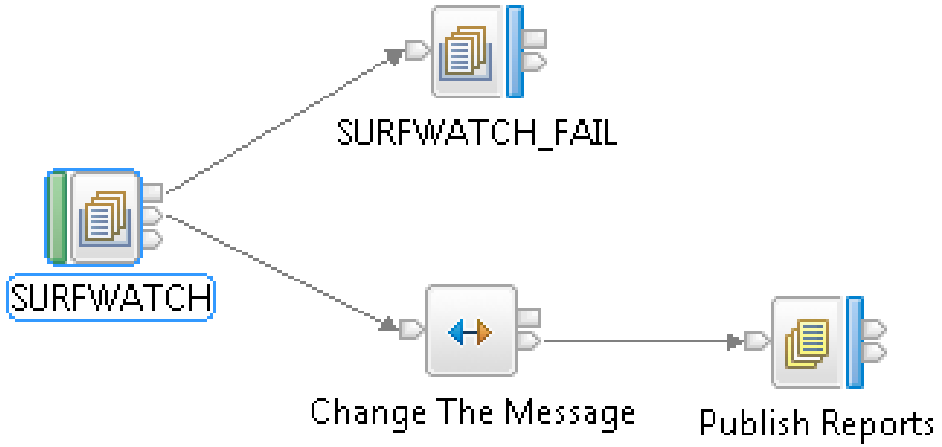
Start Date	Applications	Transaction Status	SLA Status	SLA Status Text	Workload (HH:MM:SS.mm	Transaction Duration	Operations	Messages	Transaction ID	Transaction Groups	Servers	Resource Manager Ty
2014-02-17 10:45:20	MB8BROKER.P...	Complete		Within SLA	0:00:00.000	0:00:00.025	2	1	3		DESKTOP99	Messaging S
2014-02-17 10:45:35	MB8BROKER.P...	Complete		Within SLA	0:00:00.000	0:00:00.015	2	1	2		DESKTOP99	Messaging S
2014-02-17 10:45:17	MB8BROKER.P...	Complete		Within SLA	0:00:00.000	0:00:00.008	2	1	1		DESKTOP99	Messaging S

Transaction ID 3

Transaction Flow Diagram | Transaction Timeline | Transaction Trace(2) | Transaction Milestones

Show Hierarchy

Time	Application	Operation Name	Resource	Message Id	Message Age (usec)	Completion Code	Correlator	Ser
2014-02-17 10:45:20.214	MB8BROKER.PagerExecutionGroup.SurfWatch	transactionStart	SURFWATCH	1	0	Succeeded	414d51204d4238514d4752202020202035b8fb5220687f1d	DESKTOP
2014-02-17 10:45:20.239	MB8BROKER.PagerExecutionGroup.SurfWatch	transactionEnd	SURFWATCH		0	Succeeded	414d51204d4238514d4752202020202035b8fb5220687f1d	DESKTOP




```
<SurfWatch>
<TimeDate>17.02.14 10:45:20</TimeDate>
<Break>Kahaluu</Break>
<Waves>1</Waves>
<Wind>Onshore</Wind>
</SurfWatch>
```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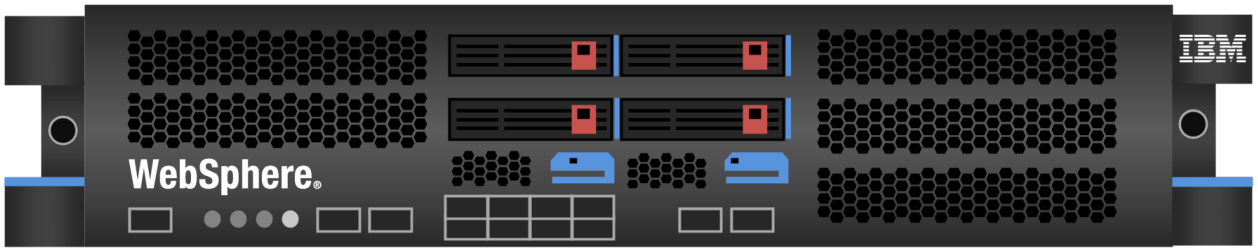
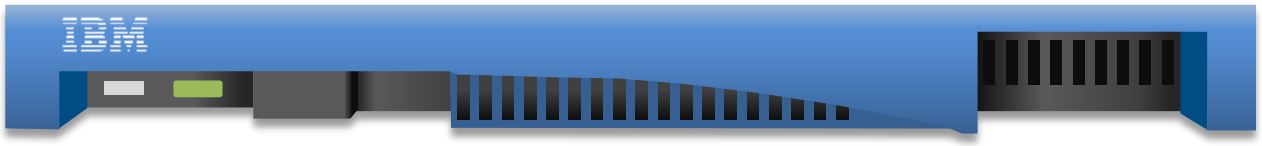
IBM DataPower SOA Appliances

- **Firmware** on flash storage – no Operating System
- Users **cannot run 3rd party applications**
- Principally used to perform **enterprise messaging**
- Transformation and routing of messages: it's an **Enterprise Service Bus**
- **Protects** web services and the architecture behind them from attacks
- **Integrates** any two applications by considering them as services

DataPower Xi52



DataPower Xi50



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IBM DataPower SOA Appliances

- **XML Firewall** – Security for XML messages
- **Web Service Proxy** – Web service interface used to extend internally hosted services: security, abstraction
- **Multi-Protocol Gateway** – Interface to extend internally hosted services: protocol conversion, transformation, validation, security, abstraction

- **Gateway Policy** – Set of rules for processing messages
- **Policy Rules** – Set of actions to be performed for a specific condition: message arrival, message departure, error conditions
- **Rule Actions** – Process to be performed

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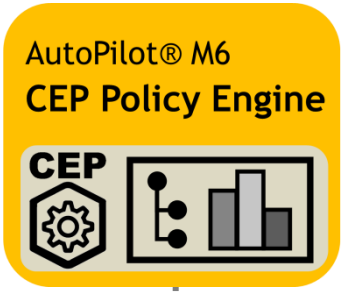
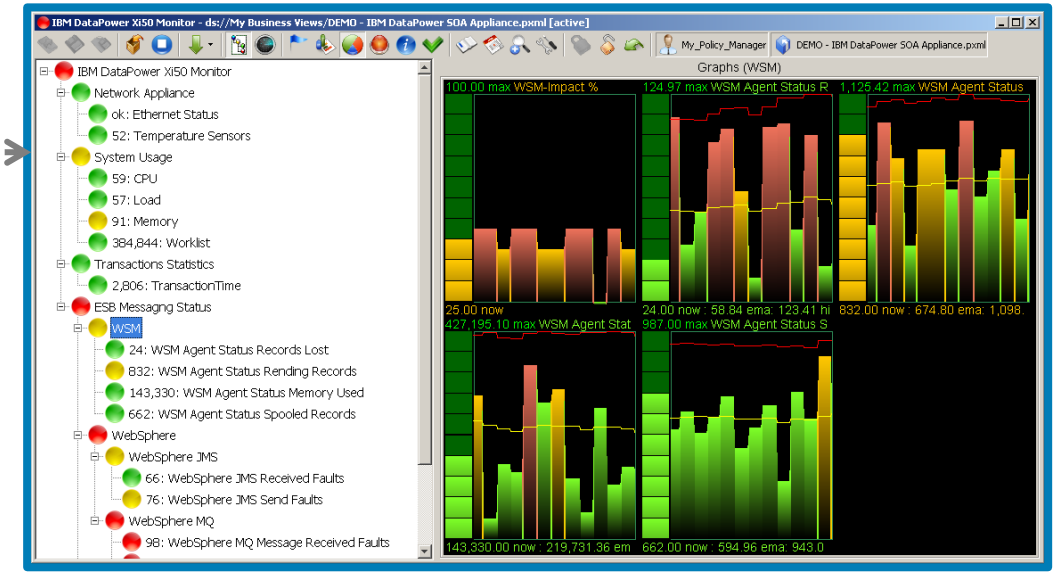
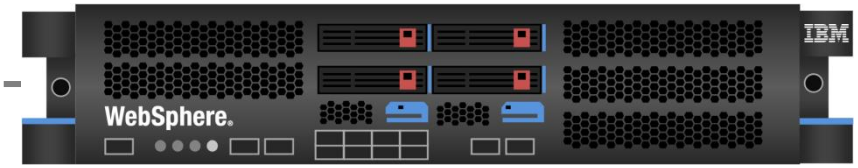
AutoPilot® M6 for IBM DataPower SOA Appliances





AutoPilot® M6 Plugin for IBM DataPower SOA Appliances



Key takeaways

- DataPower is the proverbial "Black Box"…
- It publishes lots of information, but … can you make sense of it?
- AutoPilot M6 collects, analyzes and presents this information …
- … in *Business Context* : "Situational Awareness"

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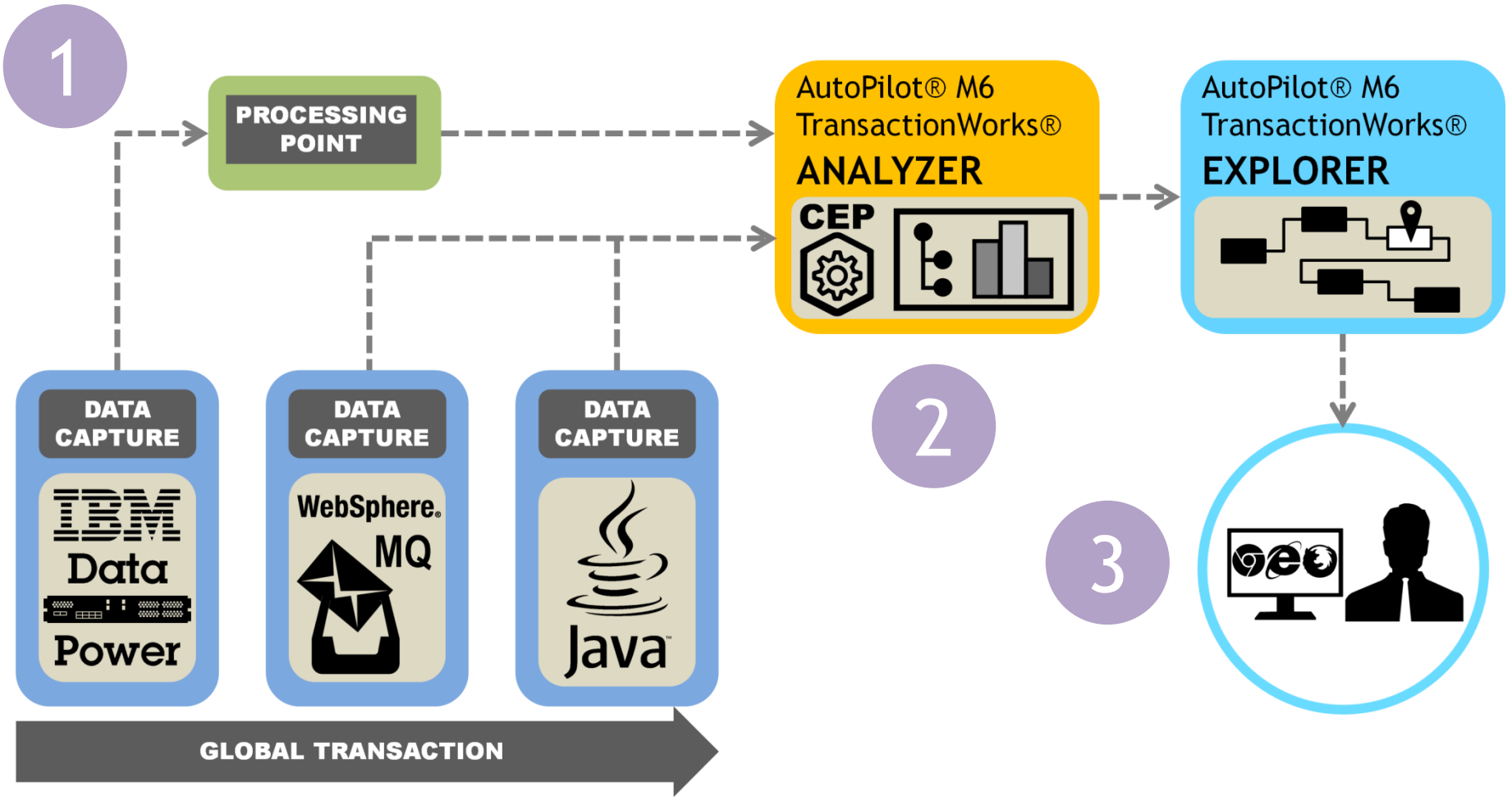
DataPower Transaction Monitoring



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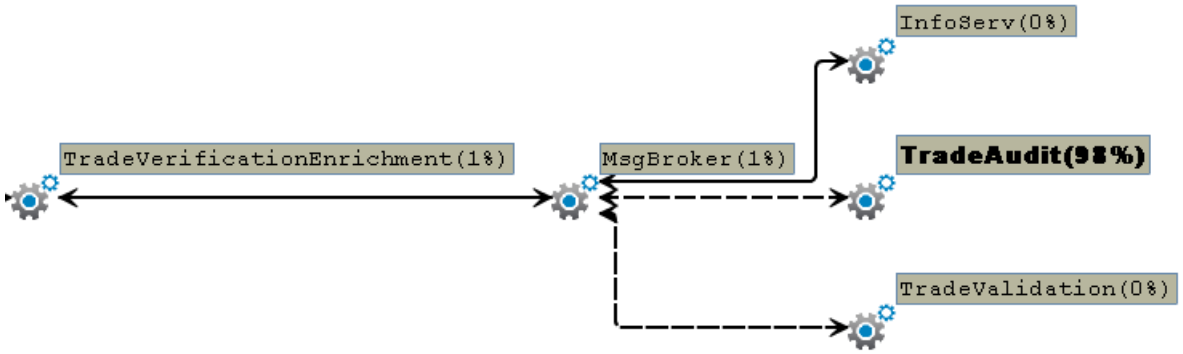
Cross Application Tracking



Time	Operation Name	Resource	Elapsed Time (usec)	Message Id	Message Age (usec)	Completion Code	
2013-03-26 13:41:47.17	/trading/verification	/trading/verificati	7875		0	Succeeded	L
2013-03-26 13:41:47.19	com/acme/trading/verify.start	java	5749		0	Succeeded	L
2013-03-26 13:41:47.19	HTTP/GET/trading/verification	/trading/verificati	7665	2195	0	Succeeded	L
2013-03-26 13:41:47.19	Statement.executeQuery(String)	MySQL5.1:DBSer	1823	2196	0	Succeeded	L
2013-03-26 13:41:47.20	com/acme/trading/verify.request	java	1495		0	Succeeded	L
2013-03-26 13:41:47.20	QueueSender.send	queue://trading/	6565	2186	0	Succeeded	L
2013-03-26 13:41:47.20	MQPUT	TradeVerification.	10107	2186	0	Succeeded	L
2013-03-26 13:41:47.22	MQGET	TradeVerification.	10908	2186	834	Succeeded	B
2013-03-26 13:41:47.22	MQPUT	TradeValidation.I	9399	2187	0	Succeeded	B
2013-03-26 13:41:47.24	MQGET	TradeValidation.I	9507	2187	116	Succeeded	W
2013-03-26 13:41:47.24	MQPUT	TradeValidation.C	9803	2188	0	Succeeded	W
2013-03-26 13:42:23.22	MQGET	TradeValidation.C	35970000	2188	652	Succeeded	B
2013-03-26 13:42:23.22	MQPUT	TradeAudit.Input.	10511	2189	0	Succeeded	B

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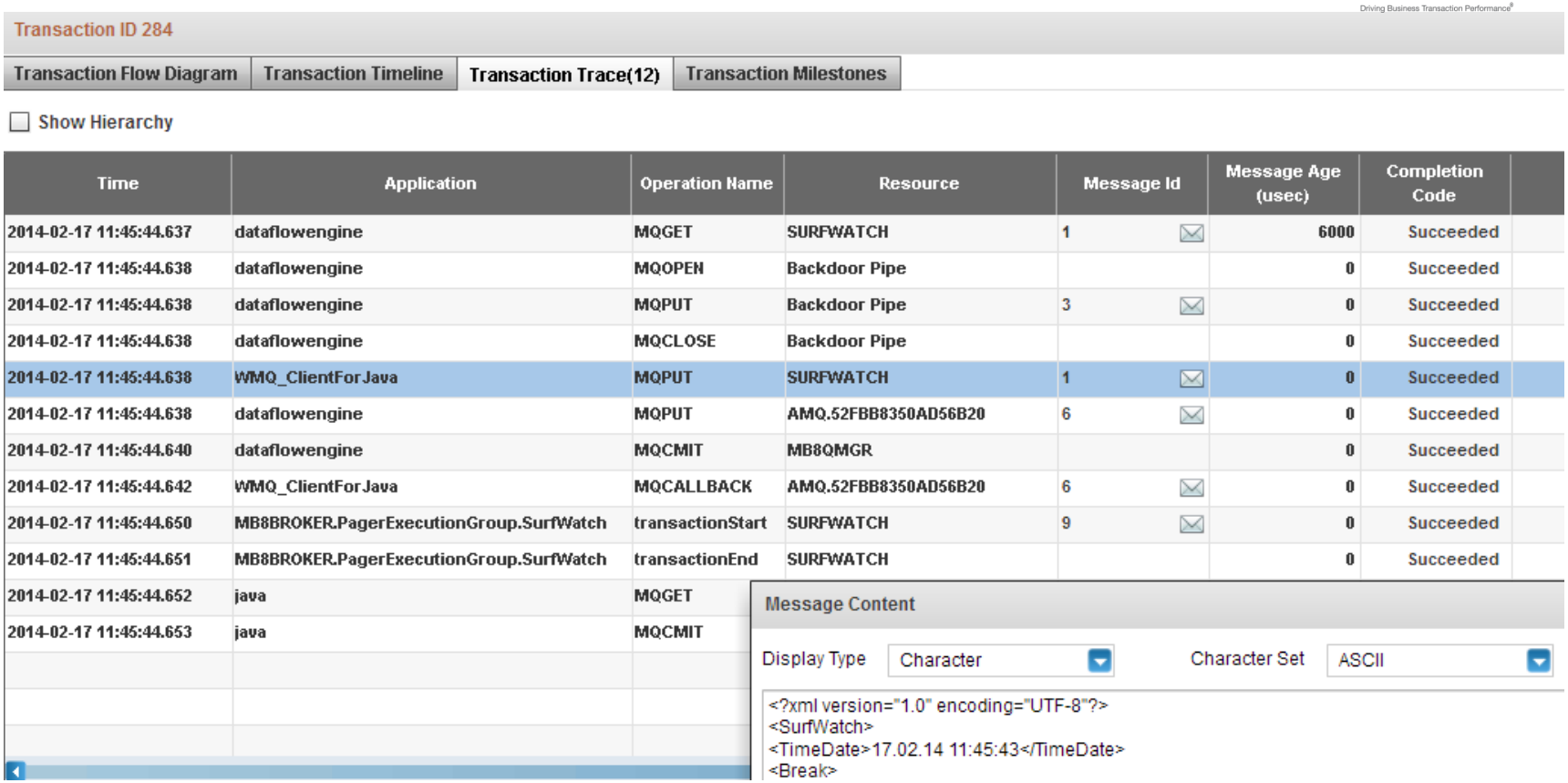
Ability to See the Combined Flow



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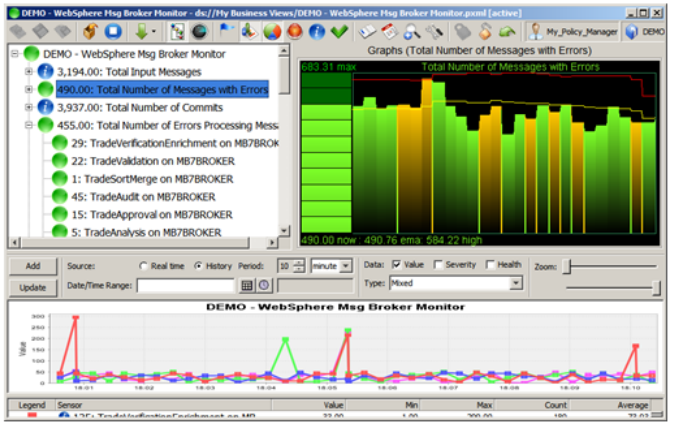
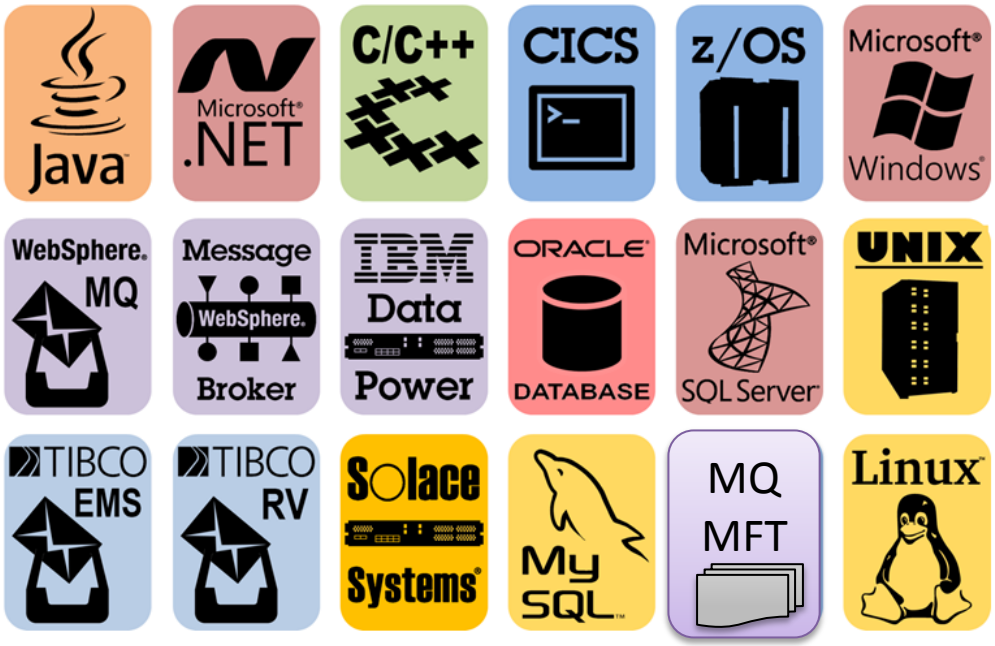
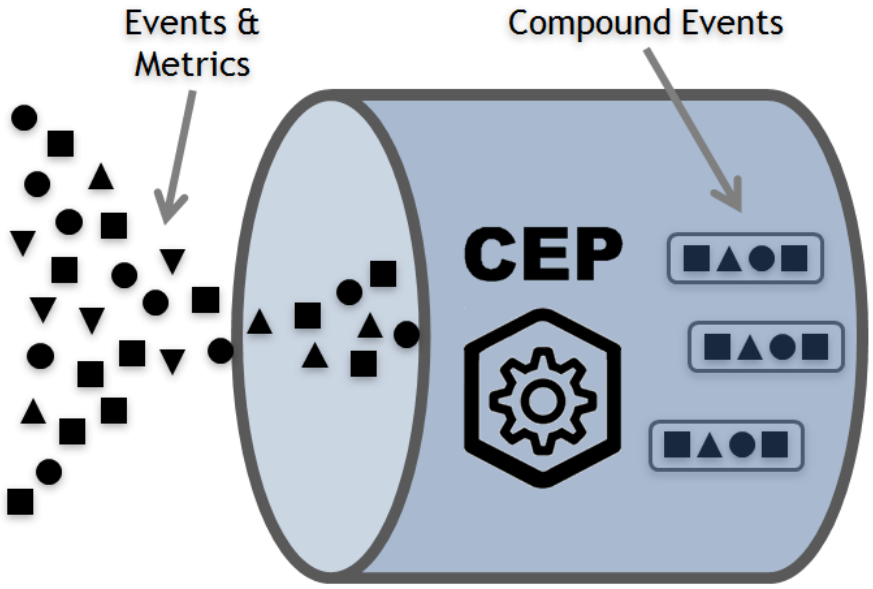
AutoPilot® M6 Proactive Performance Management

- Business Activity & IT Dashboards
- Context Sensitive Application Views
- Business Transaction Management







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