



Optimizing your Operations Infrastructure with Intelligence and Automation

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Tivoli BSM Product Management

PulseANZ2010

Meet the people who can help
advance your infrastructure





Challenges to Effective Event, Alert & Incident Management

- Customer are noticing problems before we do
- Too many non-service impacting events & related incidents
- Silos of experience and information
- Tools not well integrated
- Difficulty identifying the root cause
- Long mean time to resolution
- Rising labor costs and limited resources

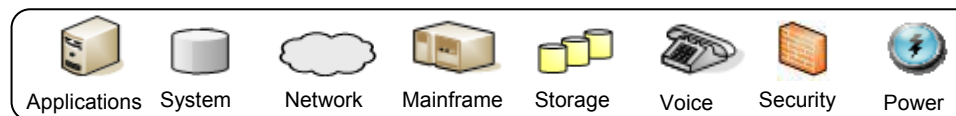
Datacenter



NOC



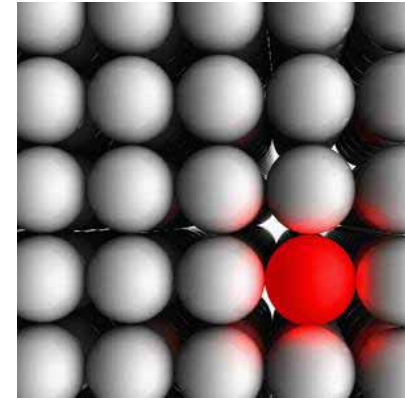
SOC





Operations Staff Lack the Context Needed to Rapidly Identify, Diagnose and Resolve Events/Alerts & Incidents

- What is the root cause event/alert or incident?
- Has a service been impacted?
- Who owns the issue?
- Have any changes occurred?
- What is the correct workflow?
- What tools are needed for troubleshooting?



Operations Workflow

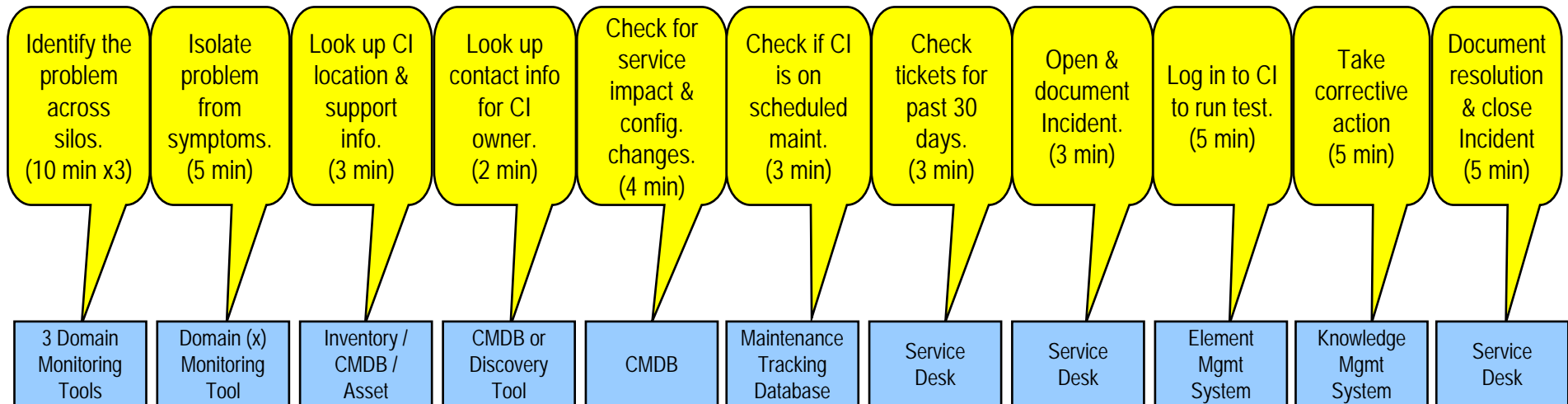


Lack of context is the primary reason for longer MTTR!

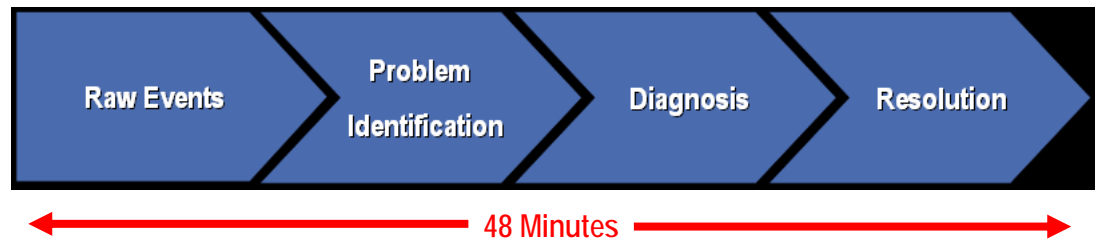


MTTR Example: Quantifying the impact on Operations

■ Manual Steps ■ Operational Tools ■ Operational Impact



- High event/incident/call volume
- # Manual Steps: ~11
- # of Tools: ~11
- Operator Time: ~68 Minutes
- MTTR: ~48 Minutes
- Customer Satisfaction & Revenue: Impacted





Addressing the four phases of Operations Workflow...

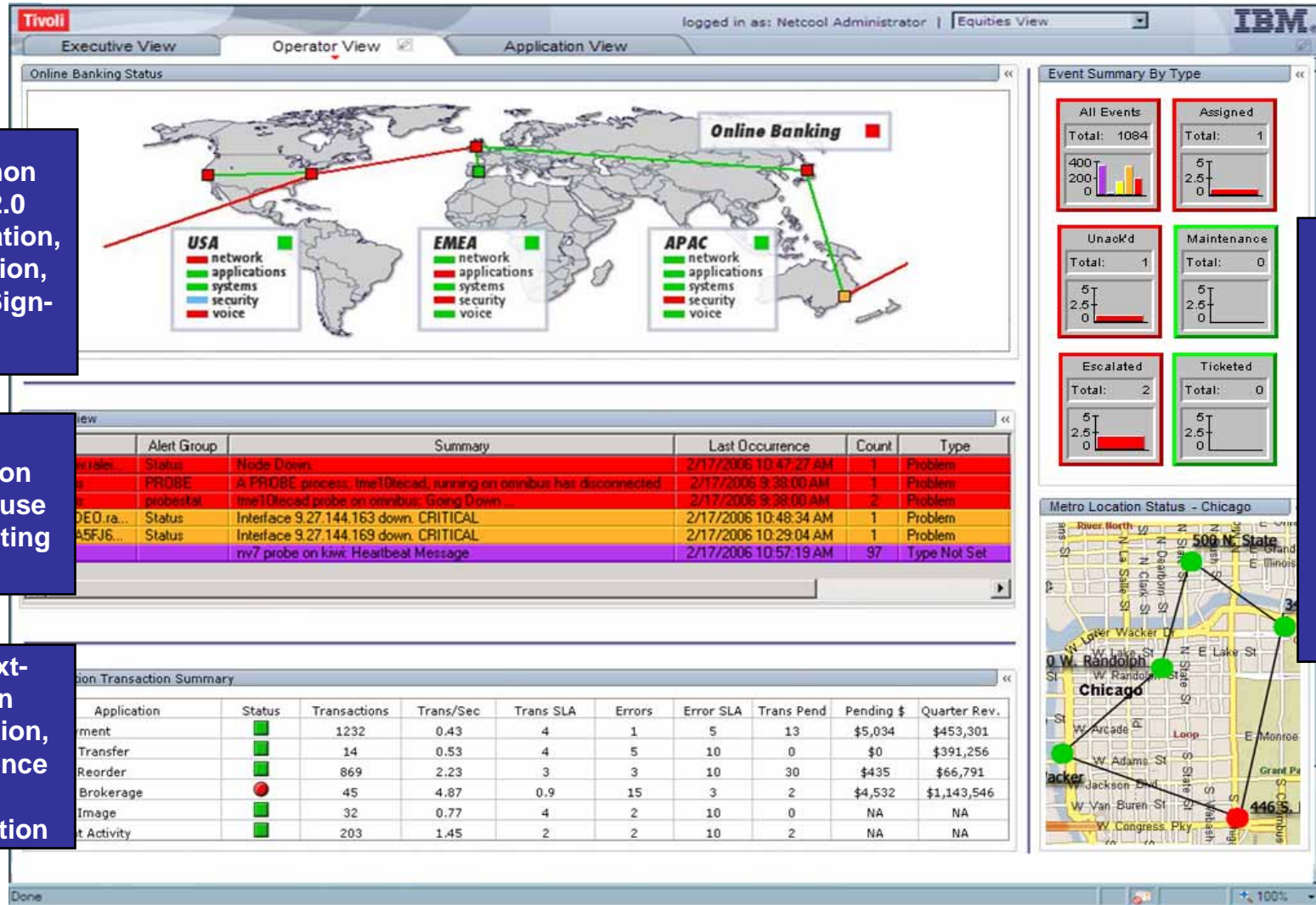
- Raw Events
 - How do I integrate and consolidate for improved end-to-end management?
 - How do I reduce the number of raw events & alerts?
- Problem Identification
 - Where is the problem across domains?
- Diagnosis
 - How do I prioritize between problems?
 - What caused the problem?
- Resolution
 - How do I resolve the problem?
 - How do I automate the process?



Operations Workflow



Consolidated Operations Management: Single Pane of Glass



Common Web 2.0 Visualization, Navigation, Single Sign-on

Common Warehouse & Reporting

Context-driven Correlation, Intelligence & Automation

Integrated drill down from end-to-end views to targeted intelligence: Event Views, Maps, Topology Views, KPIs, Charts, Graphs



Consolidated Operations Management: Datacenter view

Tivoli
logged in as: Netcool Administrator | Equities View

Executive View Operator View Application View

Event View

Node	Alert Group	Summary	Last Occurrence	Count	Type
warsnrv.rab...	Status	Node Down	2/17/2006 10:47:27 AM	1	Problem
omnibus	PROBE	A PROBE process, time10ecad, running on omnibus has disconnected	2/17/2006 9:39:00 AM	1	Problem
omnibus	probeStat	time10ecad probe on omnibus: Going Down	2/17/2006 9:39:00 AM	2	Problem
EAPVIDEO.ra...	Status	Interface 9.27.144.163 down. CRITICAL	2/17/2006 10:48:34 AM	1	Problem
IBM-YIA5FJ6...	Status	Interface 9.27.144.169 down. CRITICAL	2/17/2006 10:29:04 AM	1	Problem
kiwi		rv7 probe on kiwi: Heartbeat Message	2/17/2006 10:57:19 AM	97	Type Not Sel

Application Dependency Map

CPU Usage

Disk Space

Server Room Hot Spots



Consolidated Operations Management: NOC View

Tivoli logged in as: Netcool Administrator | Equities View IBM

Executive View **Operator View** Application View

Event View

Node	Alert Group	Summary	Last Occurrence	Count	Type
waotermw.ra...	Status	Node Down.	2/17/2006 10:47:27 AM	1	Problem
omnibus	PROBE	A PROBE process, line10tecd, running on omnibus has disconnected	2/17/2006 9:38:00 AM	1	Problem
omnibus	probestat	line10tecd probe on omnibus: Going Down	2/17/2006 9:38:00 AM	2	Problem
EAPVIDEO.ra...	Status	Interface 9.27.144.163 down. CRITICAL	2/17/2006 10:48:34 AM	1	Problem
IBM-YIA5FJ6...	Status	Interface 9.27.144.169 down. CRITICAL	2/17/2006 10:29:04 AM	1	Problem
kiwi		rv7 probe on kiwi: Heartbeat Message	2/17/2006 10:57:19 AM	97	Type Not Sel

Network Topology View

Path Availability & Latency

Path	Availability		Latency	
	min	avg	avg	max
ACME	100.00	100.00	108.02	1.51K
BaCo	100.00	100.00	108.02	1.51K

MPLS Backbone

Tunnel	Availability	Error	Transitions
	avg	max	sum
ACME	100.00	0.00	0.00
BaCo	100.00	0.00	0.00

Traffic (Flow Per Application)

Inbound Throughput (bps)	
avg	max
2.46K	13.53K
2.41K	10.38K
2.11K	5.30K
282.42	2.51K
8.00	8.00

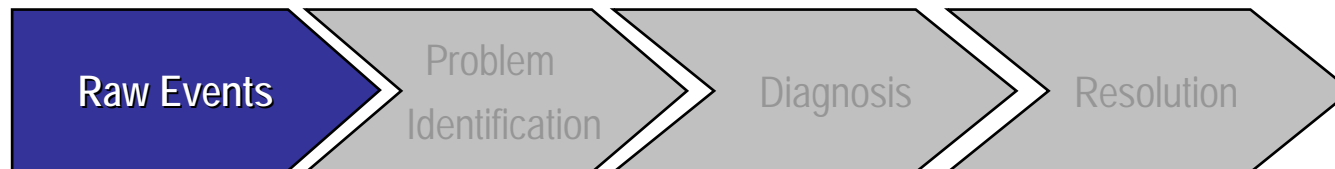
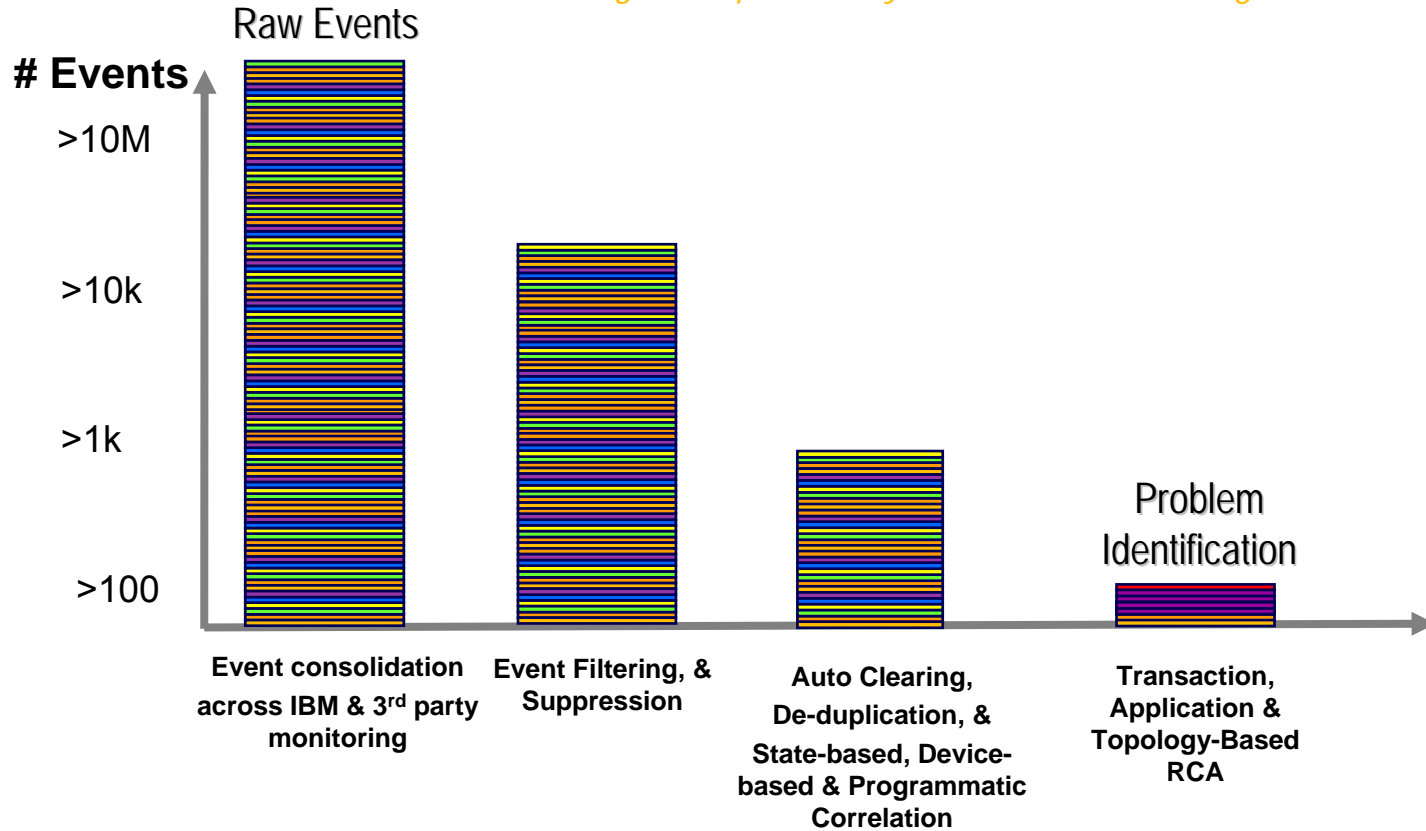
Service Baseline

Done 100%



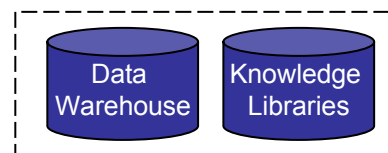
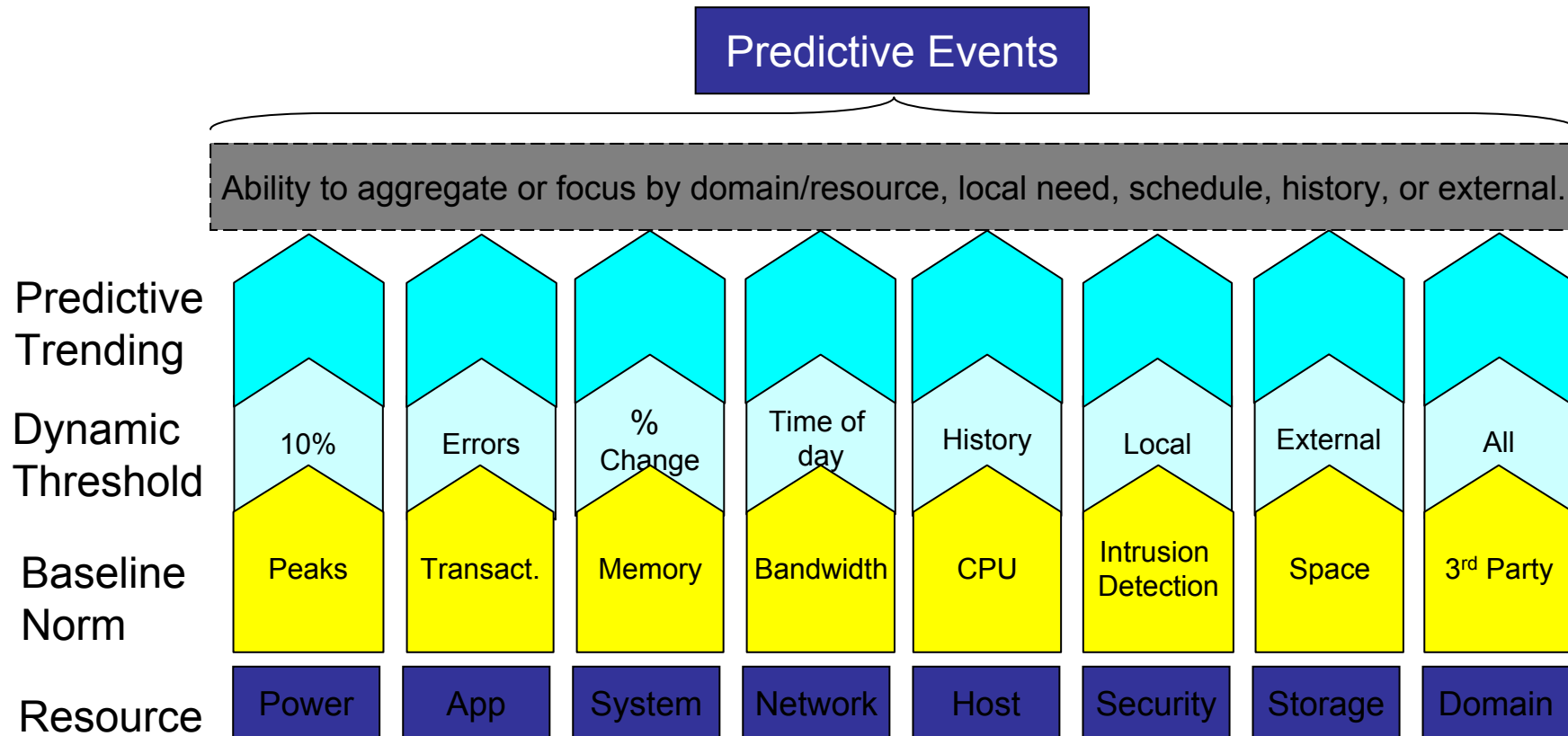
COM: How do I reduce the number raw events & alerts?

Event & Incident volumes continue to grow exponentially, but resources & budget do not!





Reducing False Positives & Noise Through Predictive Analytics

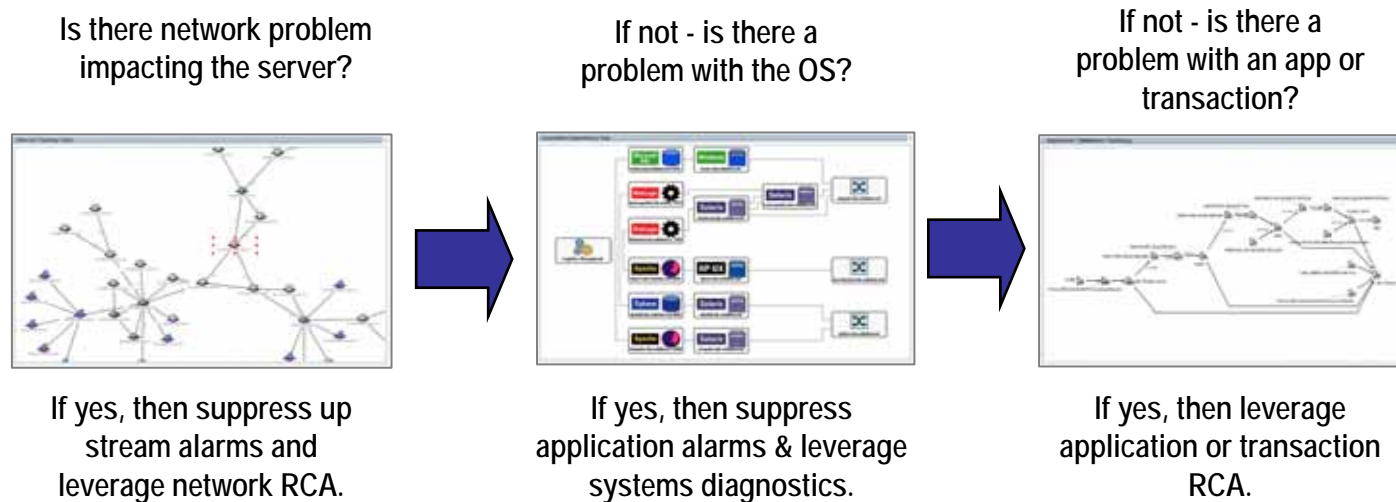




Problem Identification: Where is the problem across domains?

Application A

- Challenge: How do I isolate the problem across silos/stack?
- Solution: Leverage context from external tools.
 1. access dependency info from discovery tools or CMDB
 2. identify source of problem across domain
 3. suppress symptomatic & sympathetic events
- Potential Time Savings: 10 minutes across 3 staff = 30 min





Diagnosis: How do I prioritize between multiple problems?

Operations staff need to know:

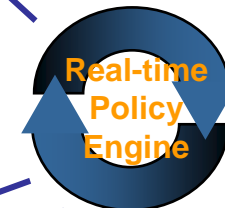
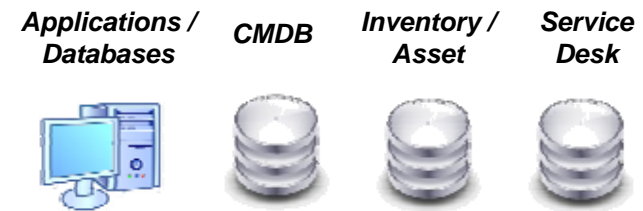
- Is it service effecting?
- Is it a key business service?
- How many users/customers are impacted?
- Is there an SLA for this service?

Event Enrichment with Context:

- Service, customer or business impacted
- Service level agreement (SLA) details
- CI location
- CI owner & contact details
- Vendor support details

Normal Event

CI	Summary	Last Occurance
WinSvr-2301	CPU @ 90%	2/10/2009 10:35



CI	Summary	Service	Location	Contact	Last Occurance
WinSvr-2301	CPU @ 90%	Equities Trading	NY01, 34th Fl, Rack 5, Slot 3	Mike Smith 410-555-0987	2/10/2009 10:35

Enriched Event



Diagnosis: What caused the problem?

- **Up to 80% of problems are caused by change**

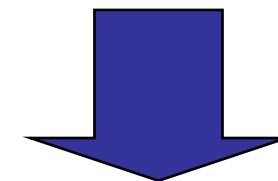
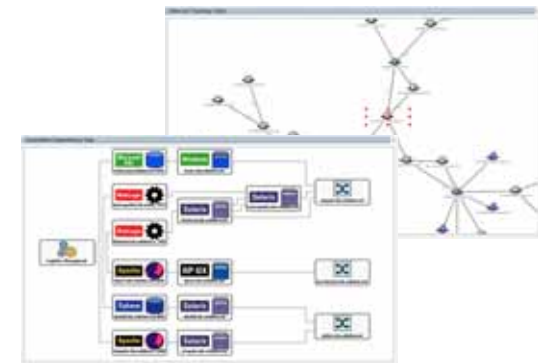
- Has a configuration change occurred?
- What is the Change Record # and details?
- How do my changes relate to my problems?

- **Contextual-Correlation**

- **Time-based correlation of change to status/performance events**

- *Automatically compare state and performance events to recent change events to create a new event or incident ticket that includes all the details needed for resolution*

Monitor for changes in
CMDB, Discovery, Asset tools



Generate new change event

CI	Summary	Service	Location	Contact	Last Occurance
WinSvr-2301	Change Record: CR 1184 - CPU Allocation	Equities Trading	NY01, 34th Fl, Rack 5, Slot 3	Mike Smith 410-555-0987	2/10/2009 9:05

Correlate health events with changes & create new enriched event as probable cause

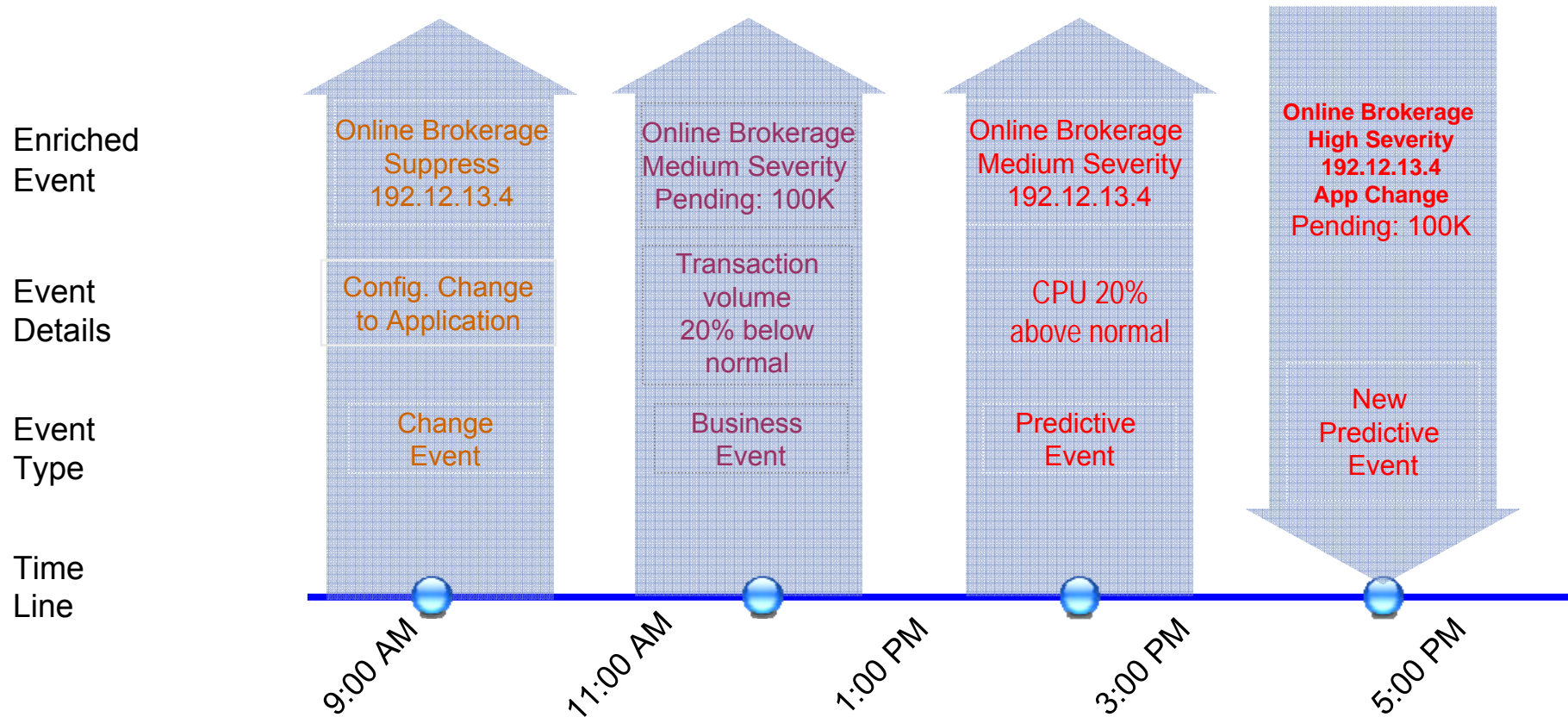
CI	Summary	Service	Location	Contact	Last Occurance
WinSvr-2301	CPU @ 90%; See Change Record: CR1184	Equities Trading	NY01, 34th Fl, Rack 5, Slot 3	Mike Smith 410-555-0987	2/10/2009 10:35



Diagnosis: What caused the problem? Predictive Pattern Recognition

Pattern Recognition

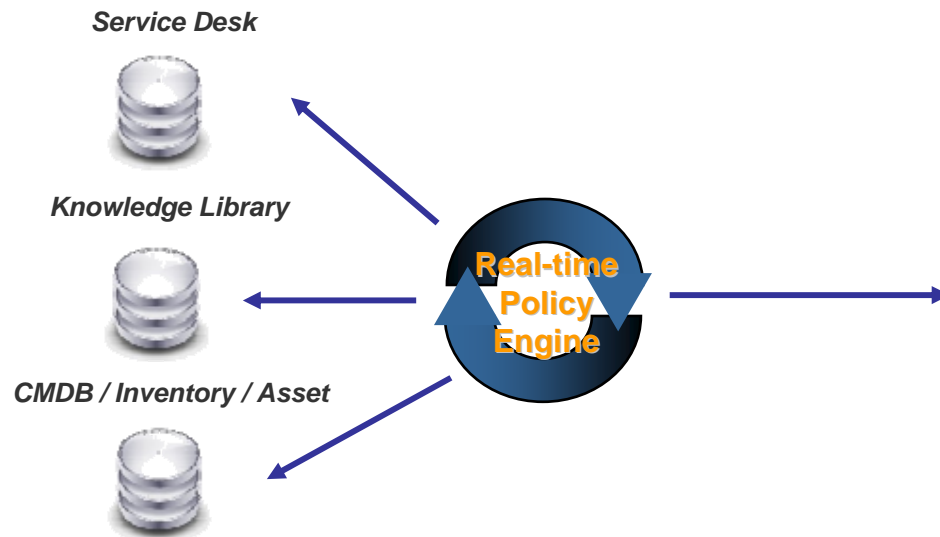
Policy engine checks for related events for prior known problem. If all three are present, it then creates a new high severity event flagging as probable service impacting root cause.





Resolution: How do I resolve the problem?

- *Operational tools may hold the clue...*
 - Have there been any related incidents recently?
 - Is this a 'known problem'?
 - What was the resolution?
- View contextual intelligence from anywhere



Operator View

The screenshot shows the Operator View interface with several data tables. The top table is "Comprehensive Development" with columns: Service, Type, Operating System, IP Address, Name, Subsystem, Location. The middle table is "Change Management" with columns: Record Changes, Risk, Scheduled Start, Scheduled End, Approval. The bottom table is "Knowledge Library" with columns: Knowledge Number, Service Impact, Impact Statement, Element Code, Customer. Below these is a "Summary" section with columns: Issue, Summary, Fully Severity, Customer, Last/By/Comment.



Access Valuable Information with Context-Driven Intelligence

Collects Data From Any IBM & 3rd Party Source: Databases, Flat Files, Message Busses, SOA, CMDBs...

Access Knowledge Libraries, Trouble Tickets, Config, Details and more.

The screenshot displays the Tivoli Netcool Administrator interface with the following sections:

- Configuration Management:** A table showing server details for d02rdb108.
- Change Management:** A table listing recent changes with risk levels and scheduled times.
- Contact Details:** A table listing contact information for staff members like Ima Loof and Kevin Morris.
- Knowledge Library:** A detailed view of a service impact for ManageNow Number 2972127.
- Events:** A table listing system events such as 'DVC Failed - Pings Complete: Timed out'.

Launch in context and trigger automations in context.

How do I automate this? Context-driven Automations

Identify Service Impacting Events

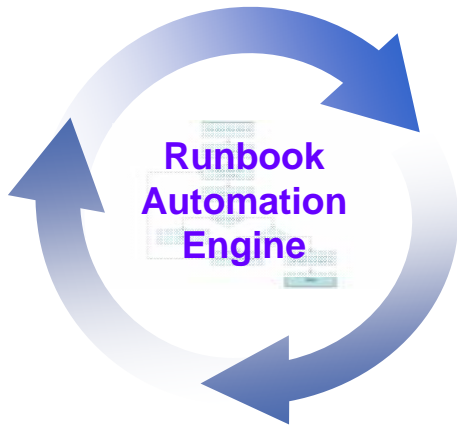
Node	Summary	Last Occurance	
144.124.108.101	Abnormal	05/12/2008 01:06:06:29 PM	Service Impacting
jdp-sec-mon2	Database Error	05/12/2008 01:06:06:29 PM	Non Impacting
144.124.108.032	License terminal	05/12/2008 01:06:06:29 PM	Maintenance
Leoben_4	Link down	05/12/2008 01:06:06:29 PM	Maintenance
Klgtf8	Card out	05/12/2008 01:06:06:29 PM	Maintenance

Add contextual information

Service Name	Device Location	Contact Details	SLA Details
E-Com-1 Inc	San Jose down	Call Mike Smith 410-777-0987	10:35
(App)	(Inventory)	(Service Desk)	(CMDB)

Automate steps in workflow/processes

Right click to execute external actions



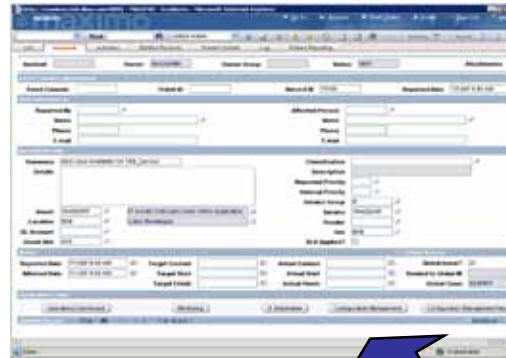
- Assign Owner
- Email/Page/Message
- Restart App Service
- Restart Server
- Provision
- Open Trouble Ticket

From UI, right-click to view data from any source in integrated views

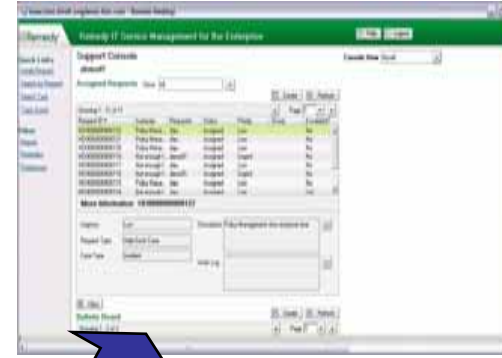


Resolution: Auto-population of context into Incidents

IBM
Service
Desk



3rd Party
Service
Desk

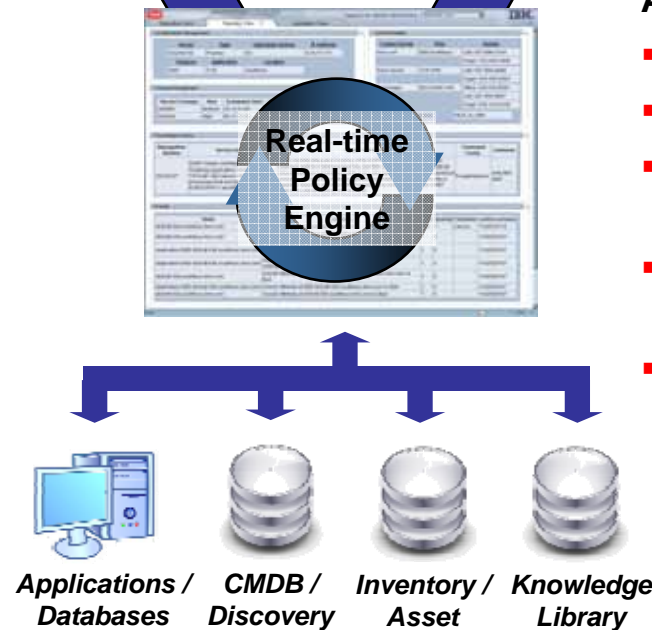


Support staff can:

- Leverage the same contextual intelligence & views as Ops staff
- Log in once and access additional information, from specialized tools.
- Select from their own set of in-context automations.

Automations can include:

- Log in to configuration items
- Run tests on configuration items
- Trigger automated corrective actions
- Automate change requests or provisioning steps
- Close incidents & autoclear events

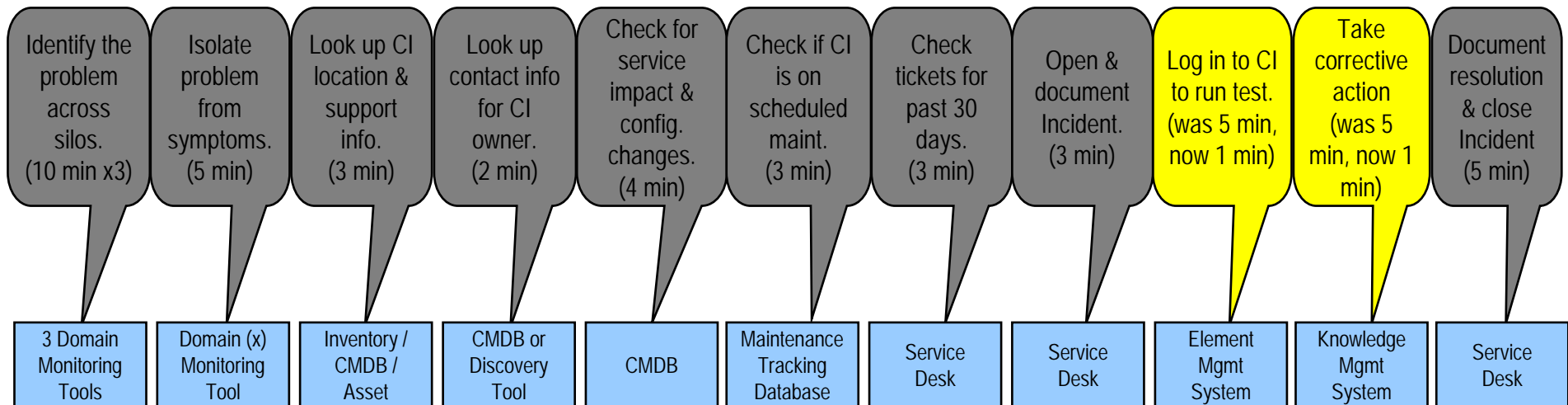


Note: Automations can be defined in a way that enforces an organizations specific workflow policies.

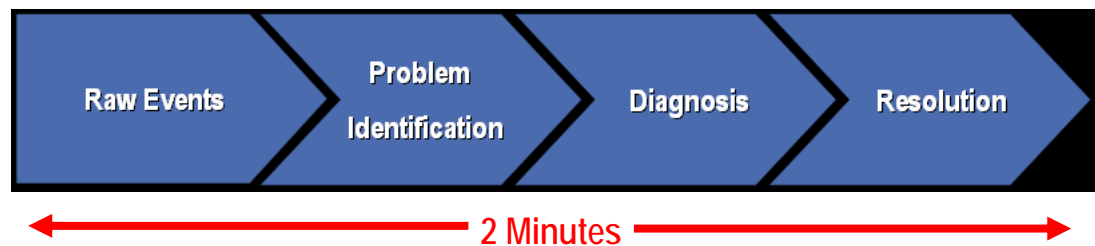


MTTR Example: Quantifying the impact on Operations

■ Manual Steps ■ Operational Tools ■ Operational Impact



- # Manual Steps: ~ 2
- # of Tools: 2
- Operator Time: ~5 Minutes
- MTTR Time: ~2 Minutes
- Customer Satisfaction & Revenue: Not Affected





Common examples of realized value

US-based bank:

“Now we immediately see everything from the ATMs low on cash; highest transaction frequency; location density to the diverging activity or service level trends”

- 60% reduction in time spent investigating and managing incidents



**Labor Efficiency
& Cost Reduction**

Improved MTTR

European Cable Provider:

“Prior to Tivoli Netcool, manual searches took eight to 12 minutes per alarm and one hour of staff time per day to calculate the impact. With this step alone, we achieved a time reduction to one minute per alarm.”

- Can roll out new services to gain a competitive advantage, using the same headcount



US-based airline:

“We can now trace root causes quickly and easily; transfer information across related systems, including help desk”

- Saved over \$300K in outage avoidance in 1st three months



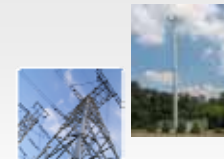
**Improved Asset utilization
& planning**

**Event/Incident/Call
Volume Reductions**

Large US Telco:

“Technicians were troubleshooting one-hundred to four hundred trouble tickets a day, only to find out there was no issue with their equipment”

- Reduced ticket volume by 50% from advanced correlations

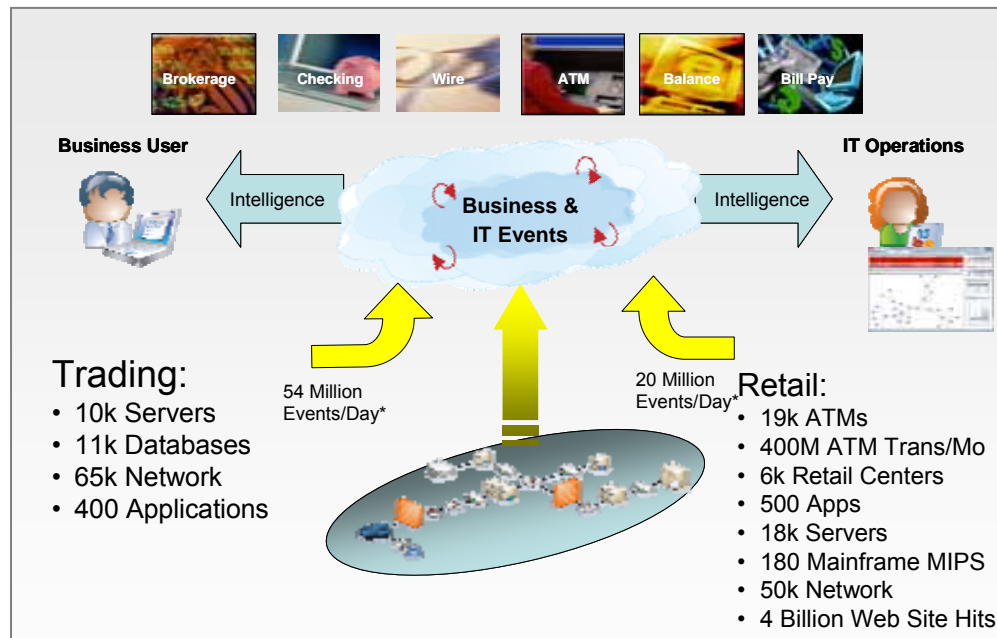
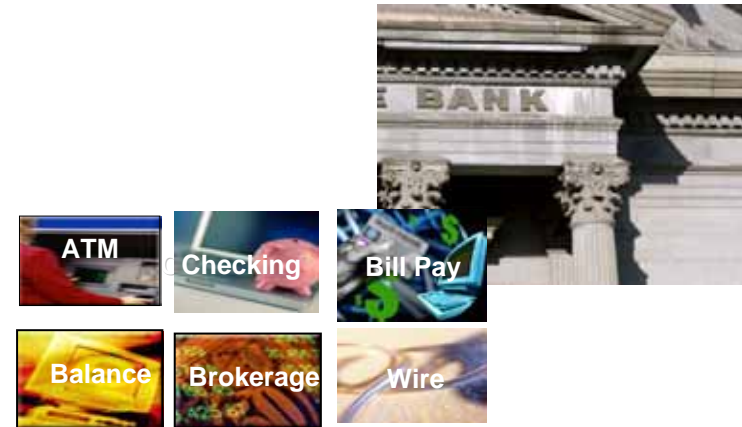




North American Bank

Challenges:

- What ATMs are low on cash?
- Which have the most frequency of transactions?
- How many other ATMs are in the area.



Major Accomplishments:

- Highlight ATMs low on cash; highest transaction frequency; location density
- See diverging activity or service level trends
- Notify LOB, stakeholder 30 minutes before service affecting.
- Event reduction of 1000:1
 - automated aggregation, filtering correlation
- 60% reduction in time spent investigating and managing incidents
 - improved handling procedures and integrated investigation tools



Global Airline

Challenges:

- Which kiosks and ticket readers are in the highest traffic areas?
- Dispatch my support staff according to usage volume.
- 10,000 network devices, 600 servers, over 1,500 workstations, 730 electronic ticketing kiosks and thousands of other business-related devices in airports around the world



"Whether it's a kiosk out of paper at LAX, or virtually all the airports in the Northeast Corridor losing power at once, Netcool gives you the ability to get on top of outages before they get on top of you,"

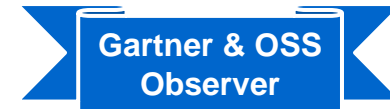


Major Accomplishments:

- Correlate business impact of alerts from affected systems
 - Gate boarding pass printer out of paper at Dallas-Ft. Worth at 11 AM will affect upcoming boarding procedures, needs immediate service
 - US NE Blackout of 2003: received 'power supply affected' alerts before knowledge of the blackout
- Trace root causes quickly and easily; transfer information across related systems, including help desk
- Over 80% of alerts either suppressed or auto-closing



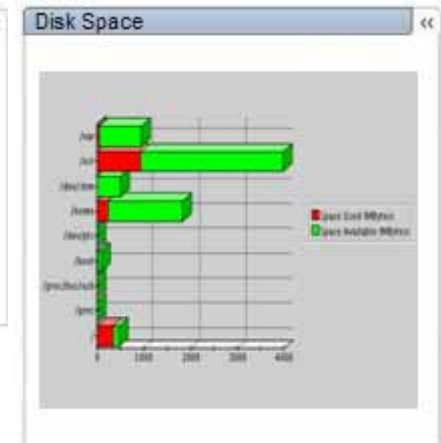
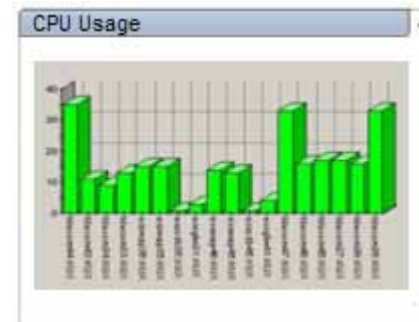
Best of Breed Monitoring & Intelligence



- **Transactions:**
 - Internet, FTP, DHCP, Windows...
- **Applications:**
 - SOA, J2EE, ERP, CRM, Email...
- **Systems:**
 - Virtualized servers, Windows, Linux, Unix, Oracle, DB2, Sybase...
- **Networks:**
 - MPLS, VPN, OSPF, Transmission...
- **Storage:**
 - SAN, Backup & Recovery...
- **Mainframe & Midrange:**
 - IBM z-series, p-series, i-series...
- **Security:**
 - Intrusion Detection, Firewalls, Physical, Desktop, Logs, Wireless...
- **Voice:**
 - IP, PBX, circuit-switch
- **Business Activity:**
 - Application logs, database changes, business events, event bus messages

Slowest Transaction Times

Rank	Transaction	Average Response Time (ms)
1	/payt/web/servlet/login	68,546
2	/payt/web/servlet/lookup	64,433
3	/payt/web/address.jsp	56,207
4	/payt/web/servlet/auth	51,409
5	/payt/web/redirect.jsp	45,240

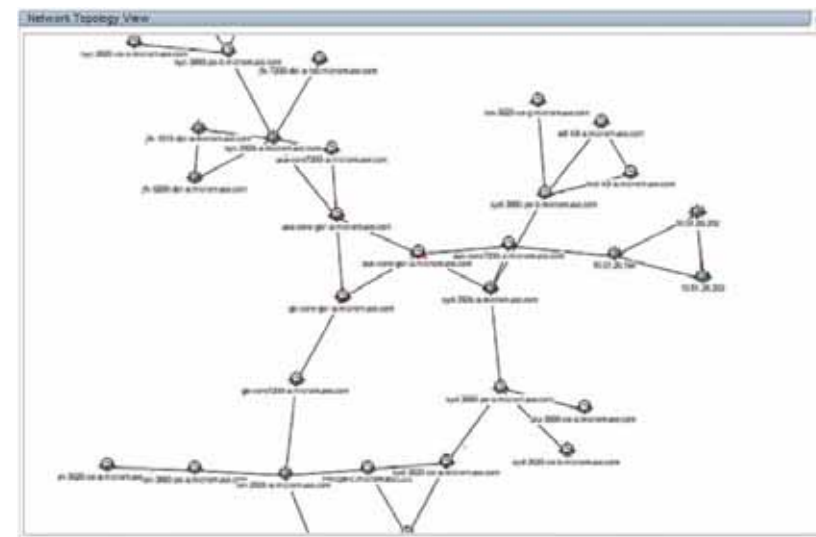
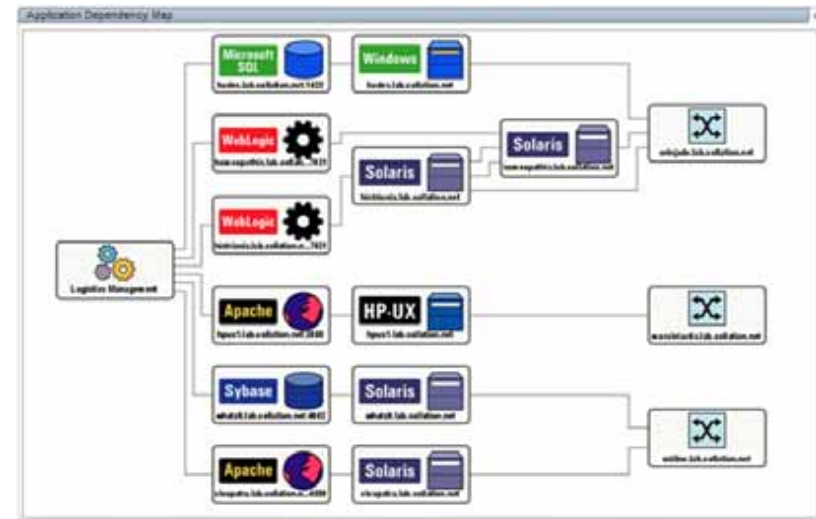


- ✓ **Broadest scope**
- ✓ **Leverage existing tools**
- ✓ **Extend monitoring for new domains**
- ✓ **Replace Ineffective tools**



Broadest Discovery & Mapping Across Domains

- Broadest Discovery
 - Layer 1 – 7
- Robust Dependency Views
 - Application, system, network, mainframe...
 - More than any other vendor
- Deep configuration details
- Change tracking & reporting
- ***“80% of problems are caused by IT changing something”***
- Integrated with event management for faster MTTR





Why IBM?

- ☑ **MARKET LEADER:** Gartner 'magic quadrant' leader for event management and OSS Observer market leader
- ☑ **FLEXIBLE VISUALIZATION:** single-pane-of-glass with customizable role based views filters, charts, graphs and topological displays across IBM Tivoli & 3rd party tools for improving return on investment
- ☑ **INTEGRATION:** Delivers the only solution with common visualization, navigation, security, data warehouse & reporting
- ☑ **INTELLIGENCE:** Broadest breadth of IT coverage – thousands of probes and monitors - for reducing mean time to resolution with automated analysis
- ☑ **EXTENSIBILITY:** Trusted scalability for growing environments – millions of events per day -- with extensions for Business Service Management & Service Management initiatives
- ☑ **PROVEN:** Proven technology with thousands of customer implementations worldwide - used by Enterprises, Utilities, Financial Services, Service Providers and Governments.





धन्यवाद

Hindi

多謝

Traditional Chinese

ขอบคุณ

Thai

Спасибо

Russian

Gracias

Spanish

شكراً

Arabic

Thank

English

You

多谢

Simplified Chinese

Obrigado

Brazilian Portuguese

Danke

German

Grazie

Italian

Merci

French

நன்றி

Tami Tamil

ありがとうございました

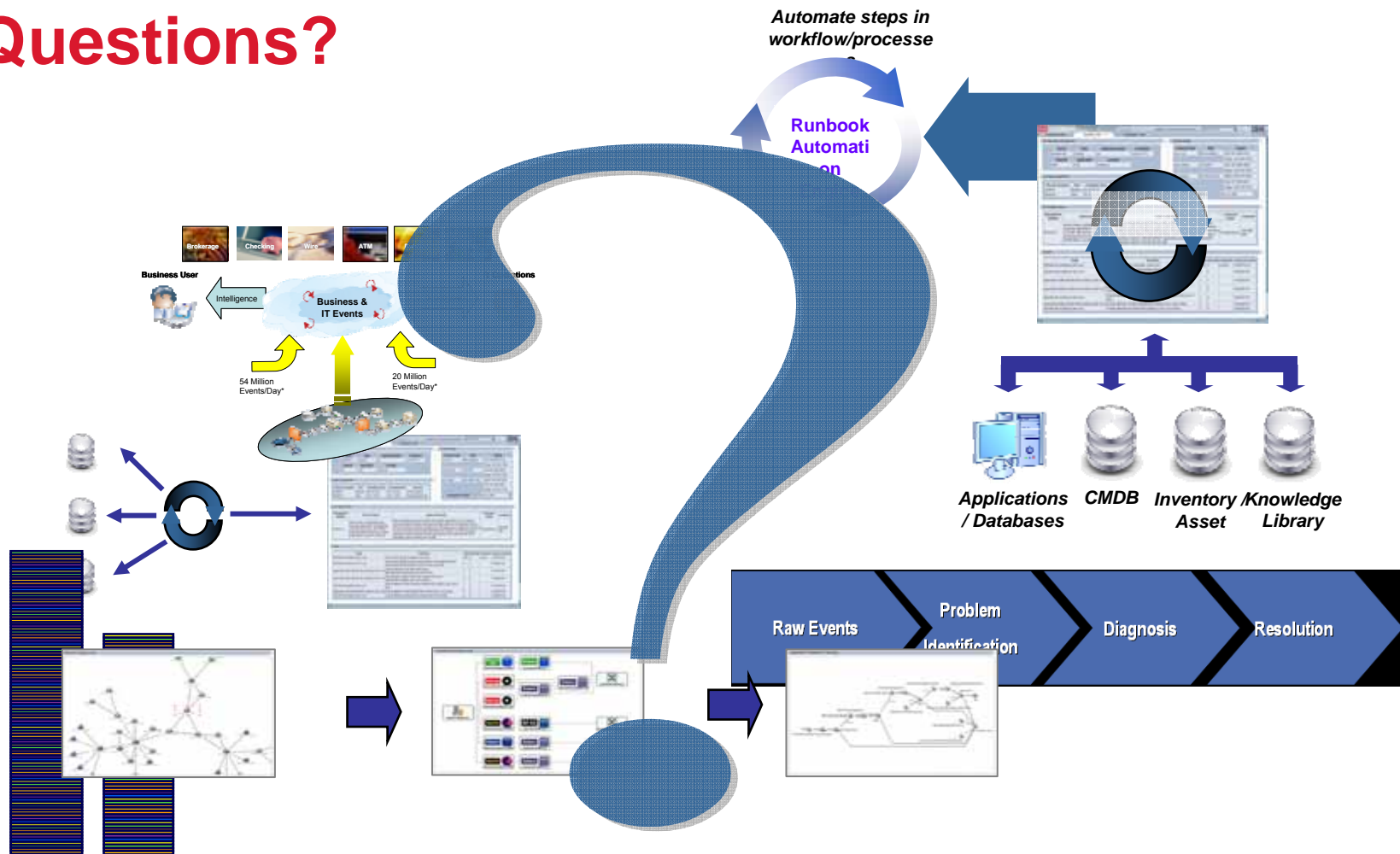
Japanese

감사합니다

Korean



Questions?





IBM Tivoli Netcool/Impact v5.1.0 – Release Highlights

- **Enhanced usability**
 - **Enhanced Operator View** - Real-time, dynamic web interface enables view-based commands including:
 - New Ajax smart tags, Authentication, Failover
 - Tivoli Integrated Portal and Tivoli Enterprise Portal integrations
 - Easier to set up and maintain automated actions
 - **Policy editor enhancements**
 - Ajax-based editor replaces applet
 - Auto-save, color coding, line numbers, function auto-complete
 - **Enhancements to Web Services/SOA capability**
 - Upgraded Web Services libraries to ensure compliance with latest standards
 - New Web Service and XML Wizards streamline policy creation
- **Added Flexibility and Time to Value**
 - **Data access enhancements**
 - new “ready-to-apply” integrations including ITM, TEC, TSM; Netview for zOS, Webtop; new Omnibus Event Listener, and Web Services enhancements
- **Performance**
 - **Policy Engine enhancements**
 - Process events 3.5x faster than previous versions
 - Autonomic thread tuning
 - SQL filter optimizer add efficiency
- **Added platform support**
 - Linux on z, Windows 2008, AIX 6.1, Native 64-bit, VMWare, Solaris Zones

Filter Range Overlap Analysis Result:

NOTE: Your current event matching choice is "Stop testing after first match".

Color codes
 ■ Filter will be activated as specified
 ■ Filter will not be activated in overlapping range
 ■ Filter will NEVER be activated

Filter	Overlapping range	Filters that will be activated instead.
Severity > 0 Policy: [AddPolicyProcessMapping]	none	none
Severity = 3 Policy: [DiscreteOidSetTest]	Severity=3	Severity > 0 Policy: [AddPolicyProcessMapping]
Severity < 5 Policy: [AddPolicyProcessMapping]	0 < Severity < 5 Severity=3	Severity > 0 Policy: [AddPolicyProcessMapping] Severity = 3 Policy: [DiscreteOidSetTest]

```

01 log("SimpleEventEnrichment received event with Node " + @Node);
02 (/Look for the matching node in customer's database
03 OrgNodes = GetByFilter("bracke_swordfish_node", "NAME=" + EventContainer.Node + "", false);
04 Num = length(OrgNodes);
05 log("SimpleEventEnrichment GetByFilter successful. Found " + Num + " dataItem(s).");
06 if (Num > 0) {
07 (/Update Event with information found in customer's database
08 EventContainer.Location = "+" + OrgNodes[0].LOCATION;
09 EventContainer.Summary = " Node Administrator " + OrgNodes[0].Admin + ", Email " + OrgNodes[0].E;
10 /Return Event to event source.
11 ReturnEvent(EventContainer);
12 log("SimpleEventEnrichment ReturnEvent successful");
13 }
14
  
```



Account1023 Profile

Current Weather at New York, United States

HiCycle Core Inc.
 50521 5th Avenue
 New York, United States
 http://hcc.com

Customer Contact

Ticket#	Status	Priority	Summary
10000001	Open	High	Customer unable to access system
10000002	Pending	Medium	Request for new hardware
10000003	Resolved	Low	Network connectivity issue
10000004	Open	High	Security audit findings
10000005	Open	Medium	Software update required



Impact Platform Support – Available Today

Vendor	Operating System	Architecture	Version	Virtual
Sun	Solaris 8	Sun Sparc 32-bit	3.1, 4.0	
Microsystems	Solaris 9	Sun Sparc 32-bit	3.1, 4.0, 5.x	
	Solaris 10	Sun Sparc 32/64-bit	4.0, 5.x	Zones
IBM	AIX 5L v5.2	PA-RISC 32-bit	3.1, 4.0	
	AIX 5L v5.3	PA-RISC 32/64-bit	4.0, 5.x	
	AIX 6L v6.1	PA-RISC 32/64-bit	5.x	
HP	HPUX 11iv3	PA-RISC 32-bit	3.1, 4.0, 5.x	
RedHat	Linux 3.0(AS)	Intel x86 32-bit	3.1, 4.0	
	Linux 4.0(AS)	Intel x86/IA/PPC 32-bit	4.0, 5.x	VMWare
	Linux 5.0(AS)	Intel x86/IA/PPC 32/64-bit	4.0.2, 5.x	VMWare
	Linux 5.0(AS)	z/Series 31/64-bit	5.x	
Novell	SLES 9	Intel x86/IA/PPC 32-bit	4.0, 5.x	VMWare
	SLES 10	Intel x86/IA/PPC 32/64-bit	4.0, 5.x	VMWare
	SLES 10	z/Series 31/64-bit	5.x	
Microsoft	Windows 2000 Server	Intel x86 32-bit	3.1, 4.0	
	Windows 2003 Server	Intel x86 32-bit	3.1, 4.0, 5.x	VMWare
	Windows XP Professional	Intel x86 32-bit	3.1, 4.0, 5.x	VMWare
	Windows 2008 Server	Intel x86 32/64-bit	4.0.2, 5.x	

Browser Support:

- Microsoft Internet Explorer 6.x, 7.x
- Mozilla/Firefox 2.x, 3.x



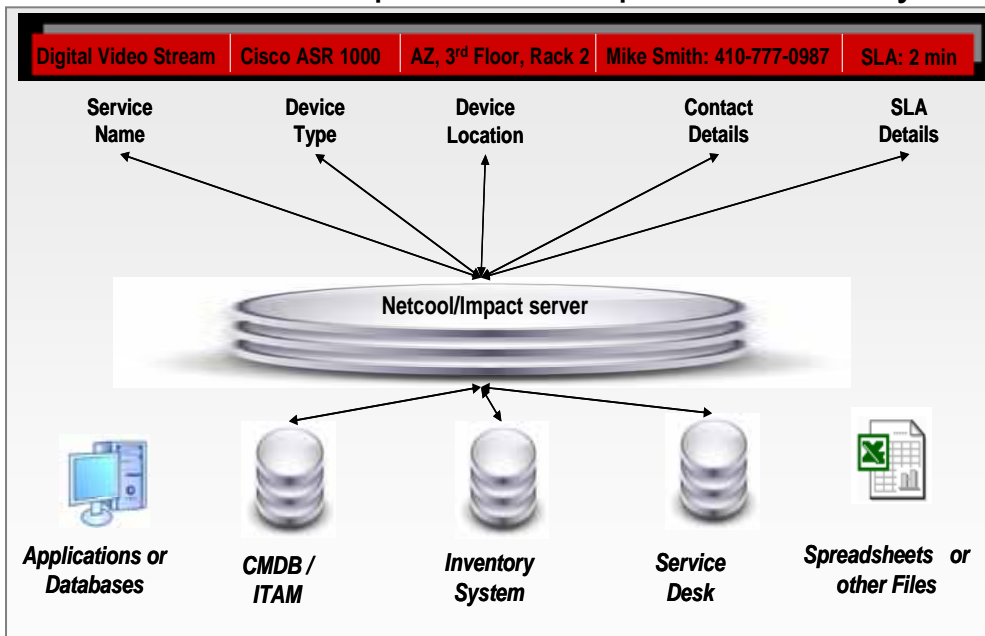
Cable Provider

Challenges:

- Increase responsiveness to network events
- Streamline manual steps required to address each event
- Increase efficiency of external service staff
- Poor service quality due to:
- Ineffective prioritization of events/alerts
- 1 system failure triggered 10 high-priority alerts.
- Manual effort required to complete fault analysis



“Prior to Tivoli Netcool, manual searches took eight to twelve minutes per alarm and one hour of staff time per day to calculate the impact. With this step alone, we achieved a time reduction to one minute per alarm.”



Major Accomplishments:

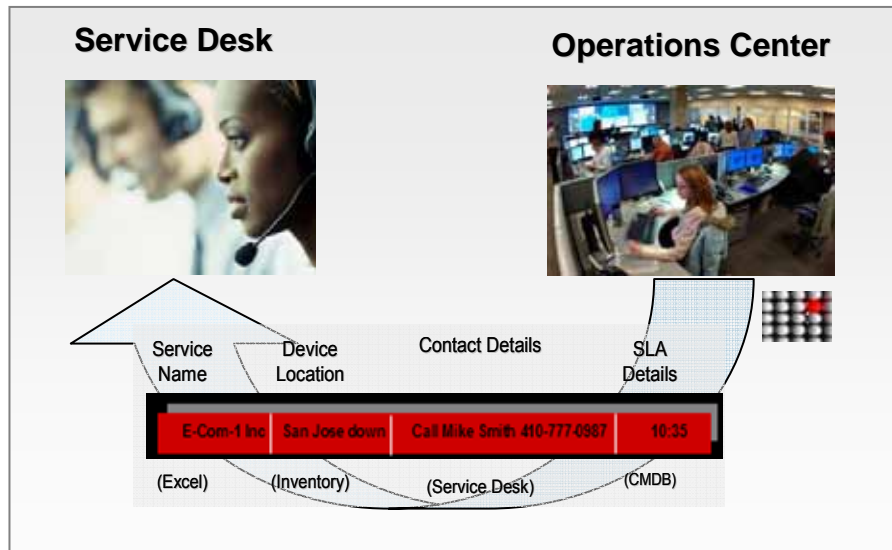
- Competitive advantage: can roll out new services, using the same headcount
- Lowered operational costs, reduced mean-time-to-repair (MTTR) problems and met service level agreements
- Reduced event volume by 10 times to cut support costs
- Rapidly respond by enriching the alert report with locations, service type information
- Automatically solve specific problems based on business policy
- Reduced service degradations experienced by end users



Large Telecommunications Company

Challenges:

- Limited, isolated event information
- Manually open and update tickets
 - Human error added confusion and delay
- Numerous technicians independently performing the same troubleshooting tasks on different circuits
- High levels of unproductive hours testing trouble tickets
 - 50% of trouble tickets are not true problems



Major Accomplishments:

- Enrich events with service level commitments and impacted customer info
- Automatically open and update tickets
 - 600 to 800 tickets opened daily
- Remove unproductive people hours with automated test and resolve
 - 100's "non-issue tickets"
 - Avoids errors and reduced MTTR
- Correlate new events with existing trouble tickets
 - Eliminates redundant work



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