IBM ECM System Monitor
Maximizing Service Quality for your ECM applications to ensure Competitiveness

Agenda

- The Business Challenge – ECM is essential

- How do I maximize my ECM Service Quality?

- What is the Business Value?

- How do I get there?

- Live Demo

So what is it all about?

By providing your ECM administrators a best in class tool to manage their ECM ecosystem!

ECM Applications are essential for customer satisfaction and Line-of-Business productivity = your competitiveness

Higher customer-service-level expectations, e.g. eStatements

Greater demands for productivity amid complex decisions

Cost pressure in operating ECM platforms 24/7

Compliance and auditing requirements – business continuity

Full insight ECM stack to prevent negative user impact – today N/A

Consequences

More than

70%

of problems reported by user due to lack of insight into ECM platform

→ No fault prevention
→ Business suffering from outages or performance degradation

Lost productivity and revenue in LOB

Customer satisfaction down

Brand reputation damaged

Firefighting in ECM administration

High costs for problem determination and resolution

Average cost of downtime approx. $5,600 per minute!

(Gartner, Uptime Institute Symposium 2014)

How do I assure ECM Service Quality?

IBM ECM System Monitor for proactive ECM application health monitoring
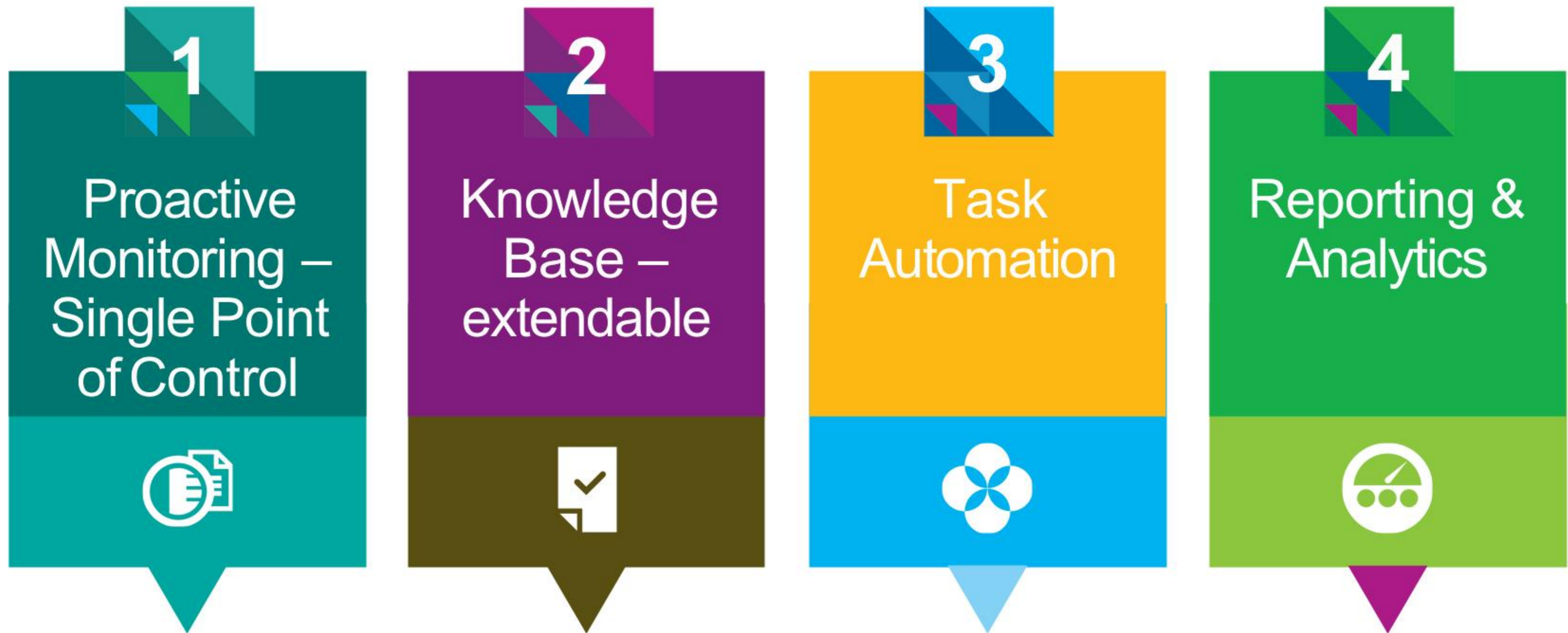
ServiceTracer® supplementary solution to monitor service quality from end user perspective

Integration into IT Service Management to enable IT Operations managing ECM platform 24/7

- Event Management

- Service Level and Compliance Reporting

IBM ECM System Monitor — four pillars of value

1

Proactive Monitoring – Single Point of Control

2

Knowledge Base – extendable

3

Task Automation

4

Reporting & Analytics

Single Point of Control – entire ECM business service

- **Repositories & Capture** – FileNet, Content Manager, Content Manager On Demand, Datacap

- **Case** – Case Manager, Case Foundation, BPM

- **ILG** – Content Collector, Enterprise Records

- **Middleware** – Databases, J2EE Application & Web Servers, LDAP, Tivoli Storage Manager, Storage

- **Custom Monitoring** – 3rd Party and custom-built applications, e.g. input and output management

Monitoring KPI and Events of ECM Applications

Availability & Status of ECM engines and components, e.g. CPE or Library Server

Accessability of ECM applications

Performance Metrics, e.g. for document searches or logon

Capacity Metrics, e.g. for ObjectStores or Queues

Errors and Log file Entries of ECM components, middleware and infrastructure

Analytics in ECM Platform Operations

Service Level Analysis – availability and quality, e.g. search and queue performance or throughput KPI

Trend Analysis – forecast future growth patterns, e.g. for storage, queues, cases, ..

Charge Back – accounting for ECM services, e.g. based on storage usage

Architecture

Dedicated Management Server & Event Database processing events, analytics, integration with ITSM

Agent on Managed Systems performing local monitoring, log file analysis and task execution

**Remote Monitoring** for databases and z/OS based components (no agent)

ITSM Integration for central Event Management / IT Operations and Incident Management / Service Desk

Integration based on standards – log file, SNMP, command line and API-integration (Tivoli, HP) as well as SMTP
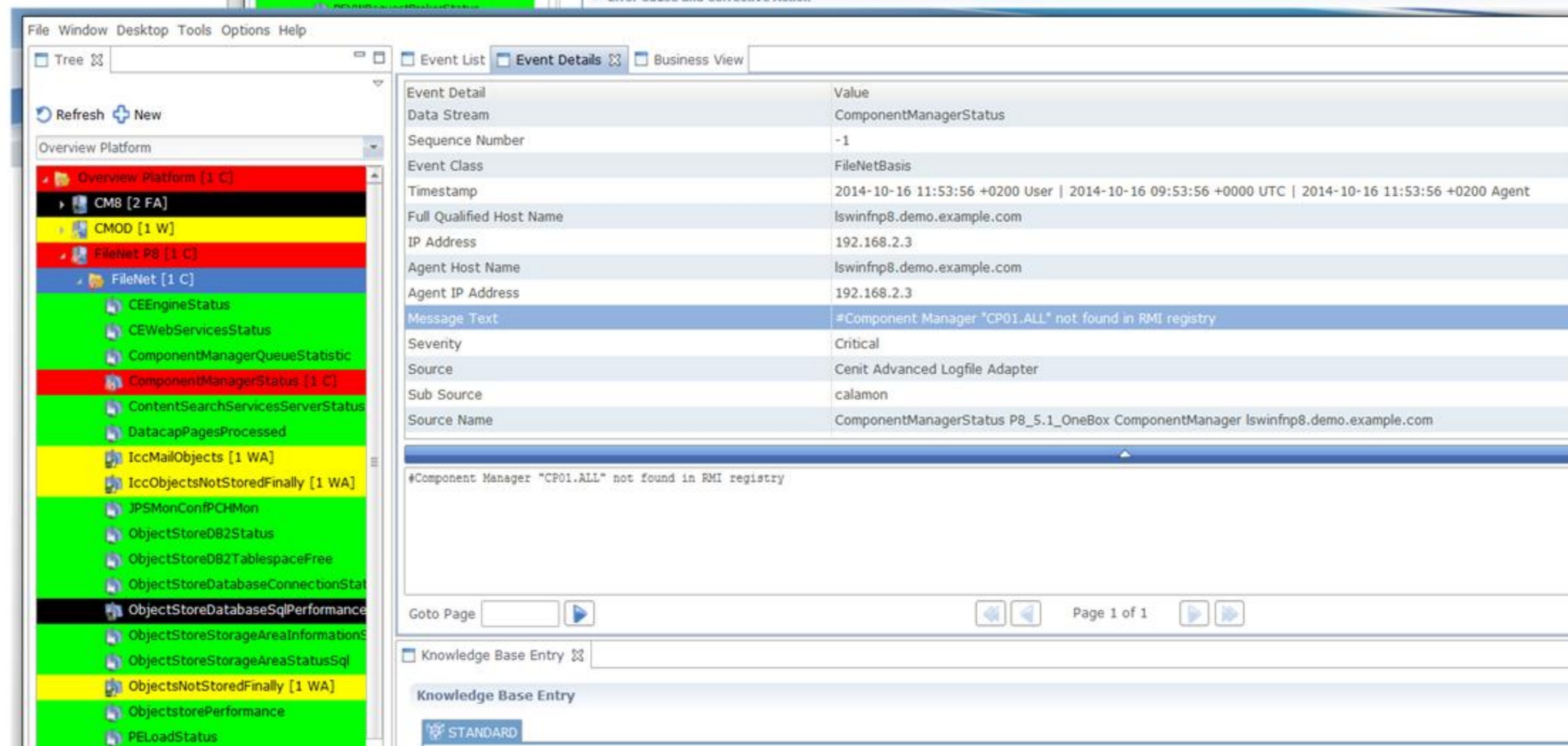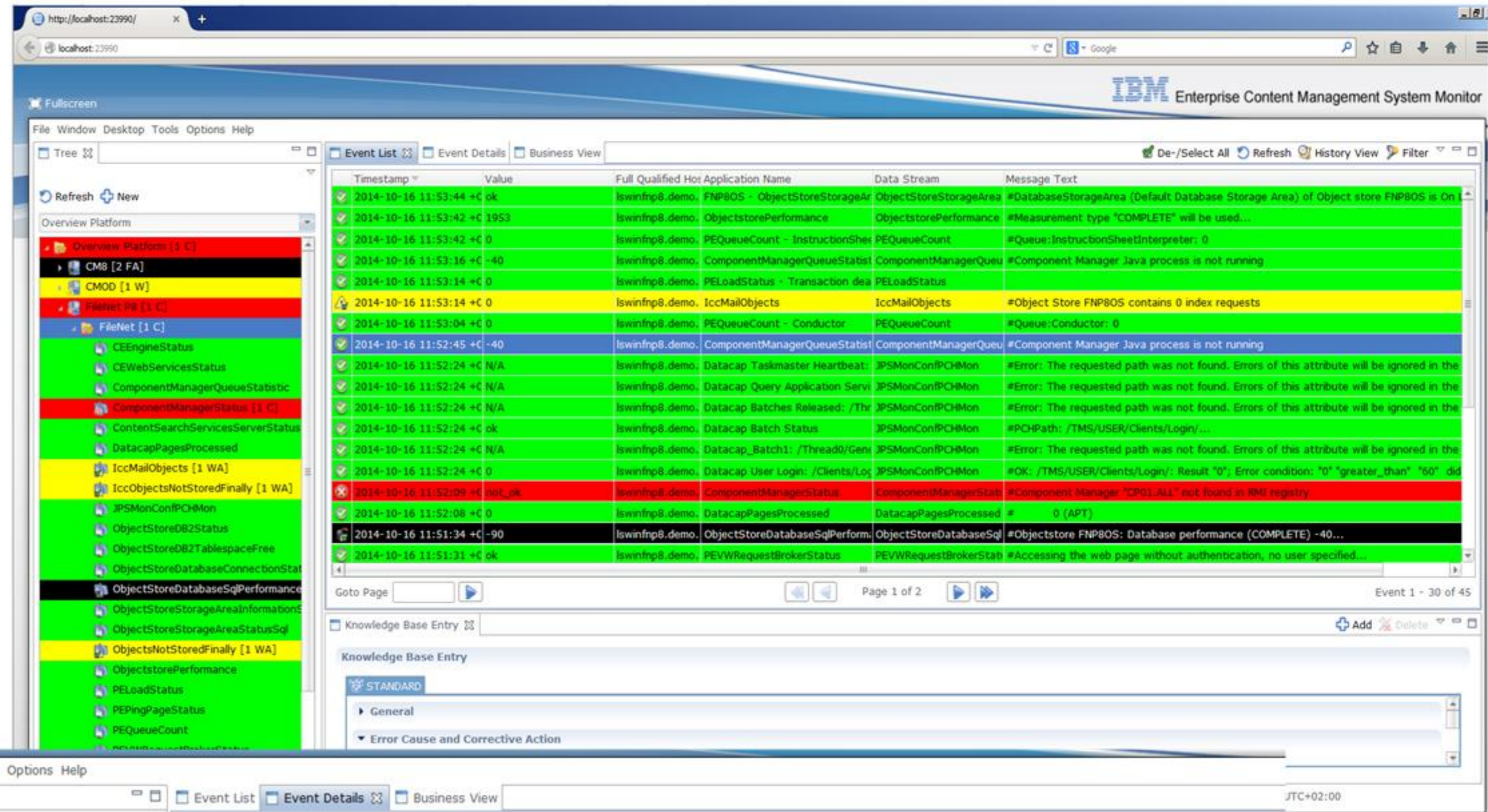
Multiple Consoles for multiple roles – 1

- Provides a quick overview of the ECM health
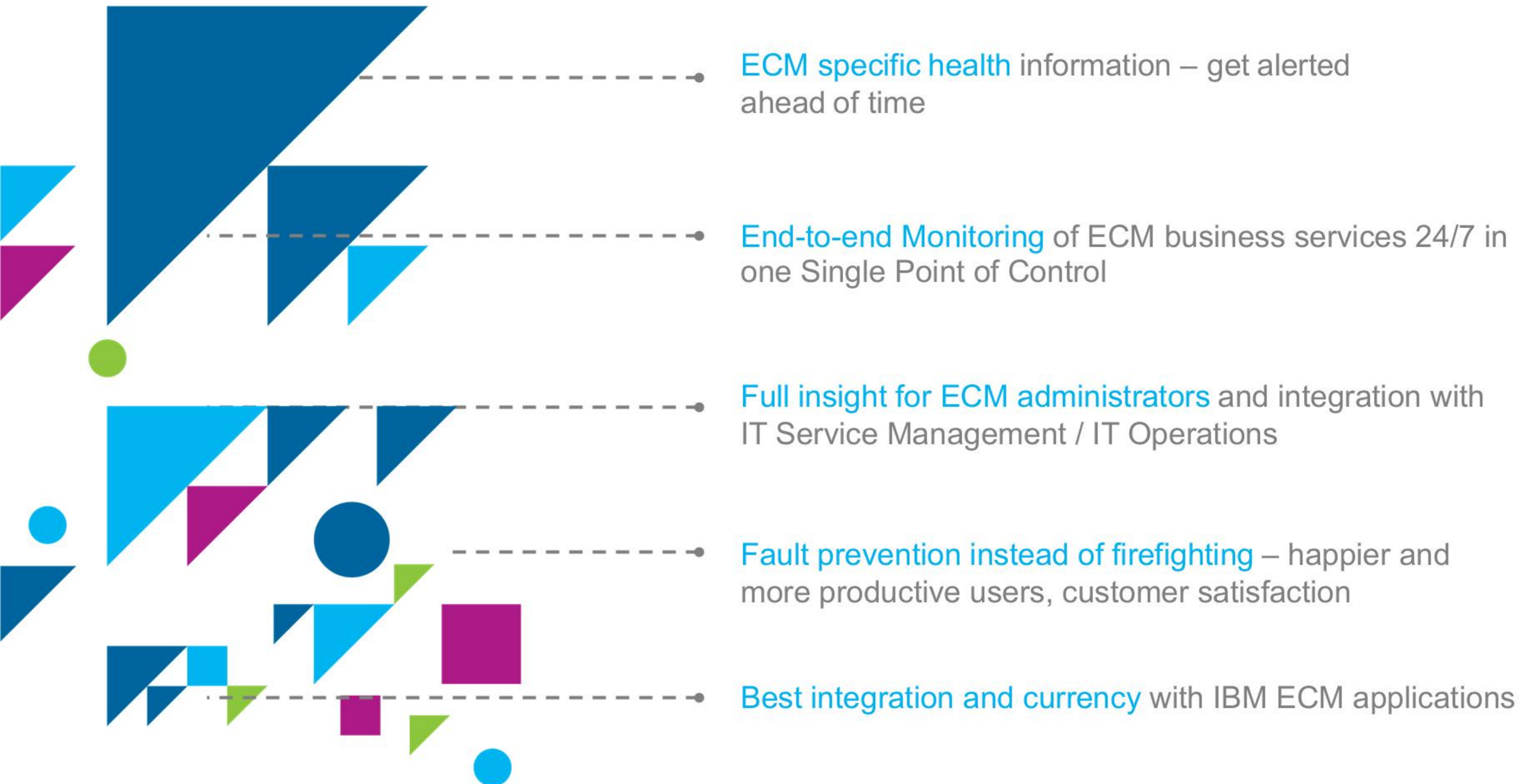- Plug-In for IBM Content Navigator
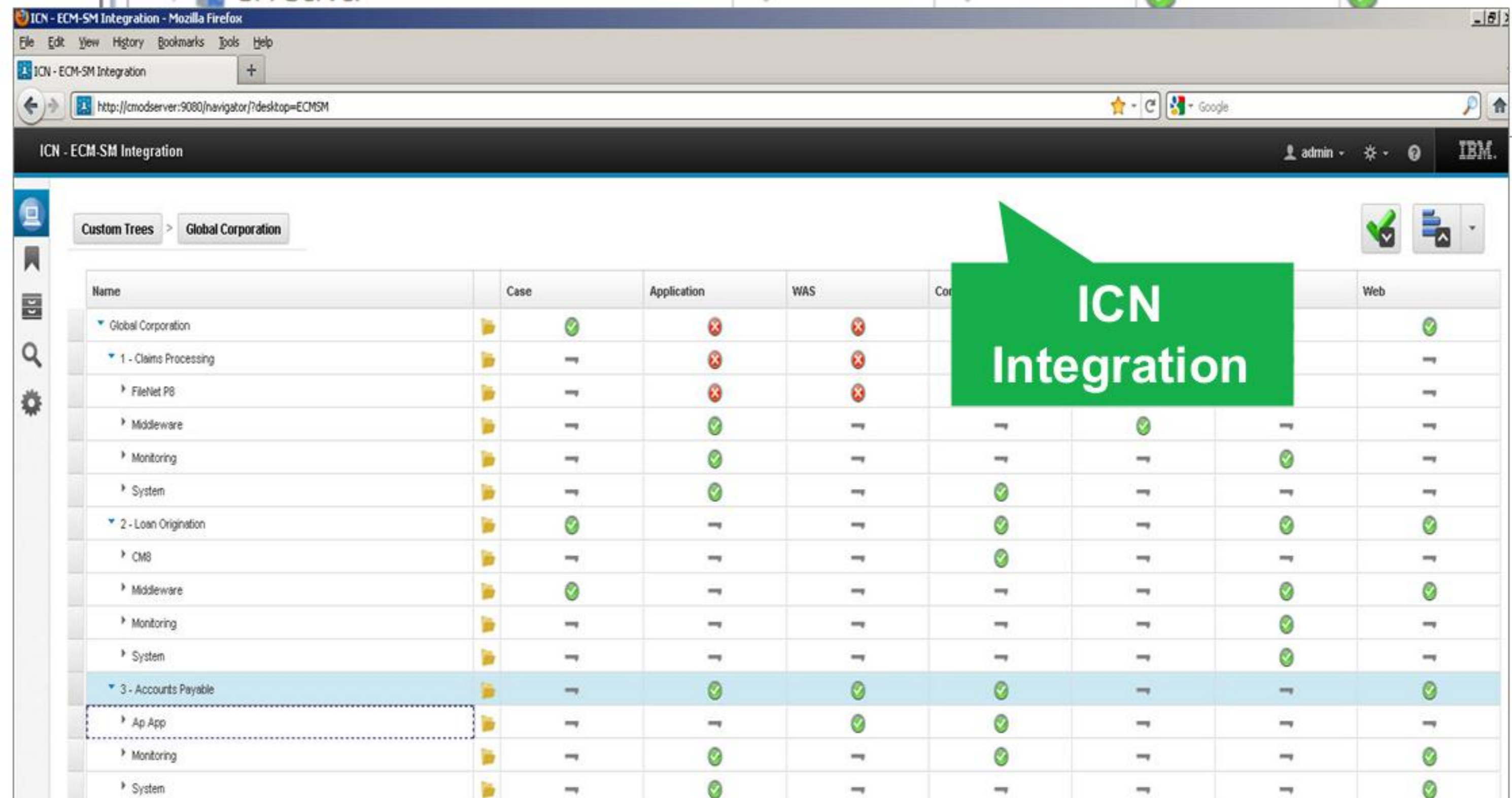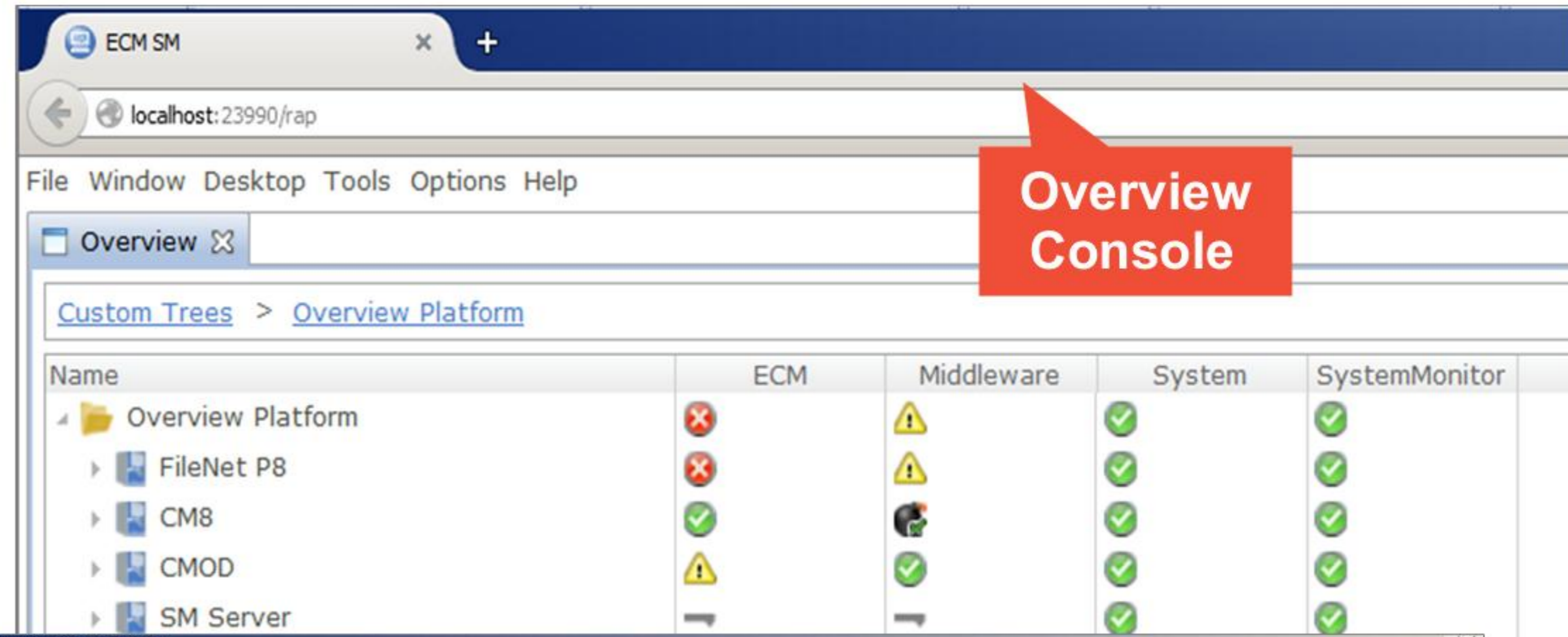
Multiple Consoles for multiple roles – 2

- Event List and Details for root-cause analysis
- Knowledge Base to speed up troubleshooting

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Why IBM ECM System Monitor?

ECM specific health information – get alerted ahead of time

End-to-end Monitoring of ECM business services 24/7 in one Single Point of Control

Full insight for ECM administrators and integration with IT Service Management / IT Operations

Fault prevention instead of firefighting – happier and more productive users, customer satisfaction

Best integration and currency with IBM ECM applications

Higher value for ECM investment

Leading Events
Discovery
Outage
Troubleshooting
Resolution
Service Confirmation

Users impacted – Service Level breached
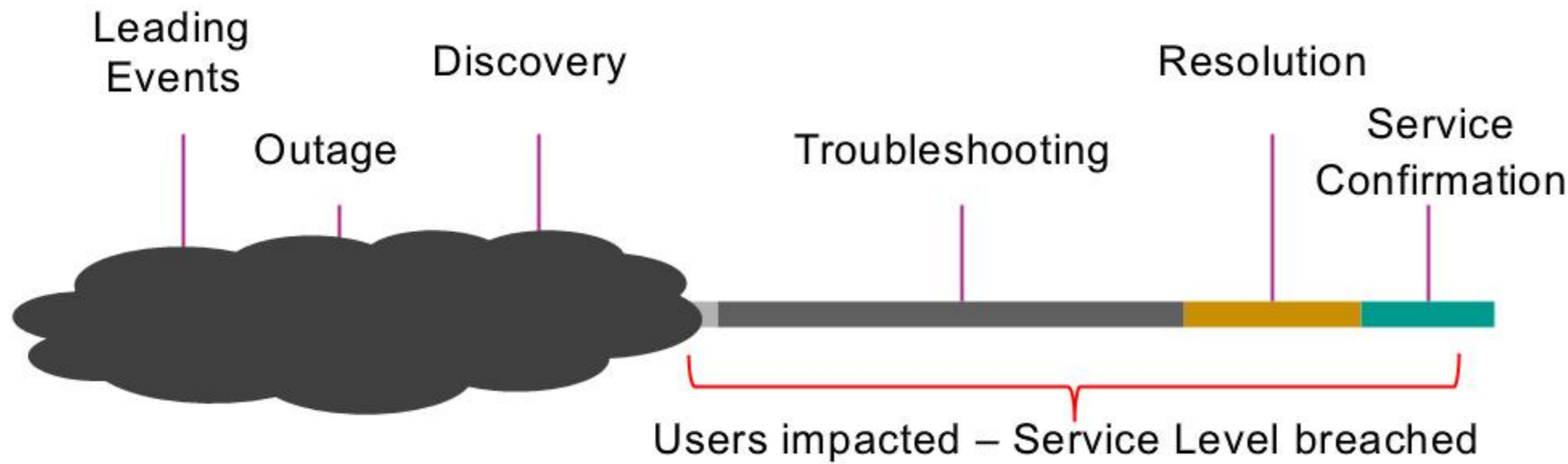
Without ECM health monitoring

- No visibility until end users report problem
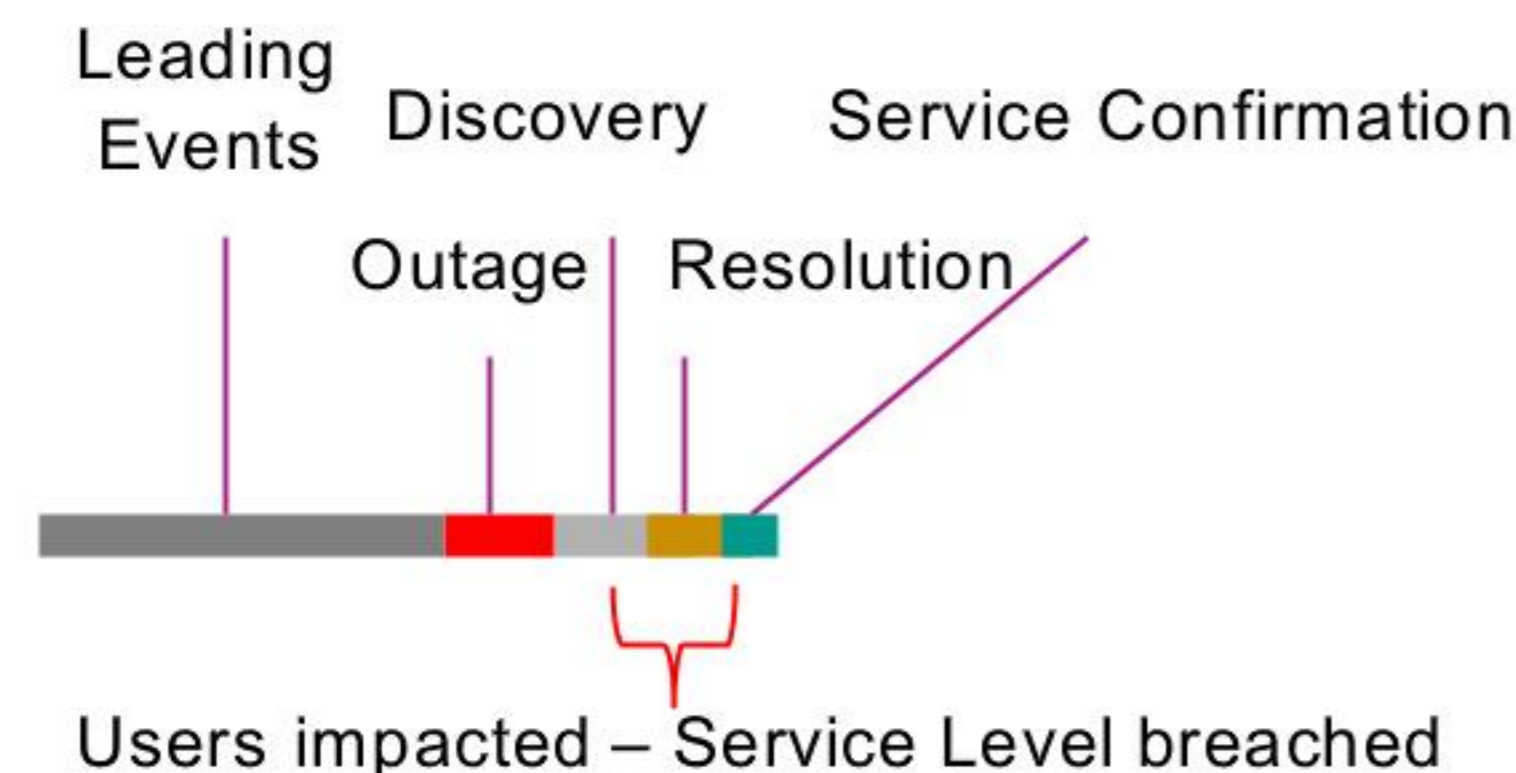- Time-consuming troubleshooting
- Significant impact on end user productivity

Leading Events
Discovery
Resolution
Outage
Troubleshooting
Service Confirmation

Users impacted – Service Level breached
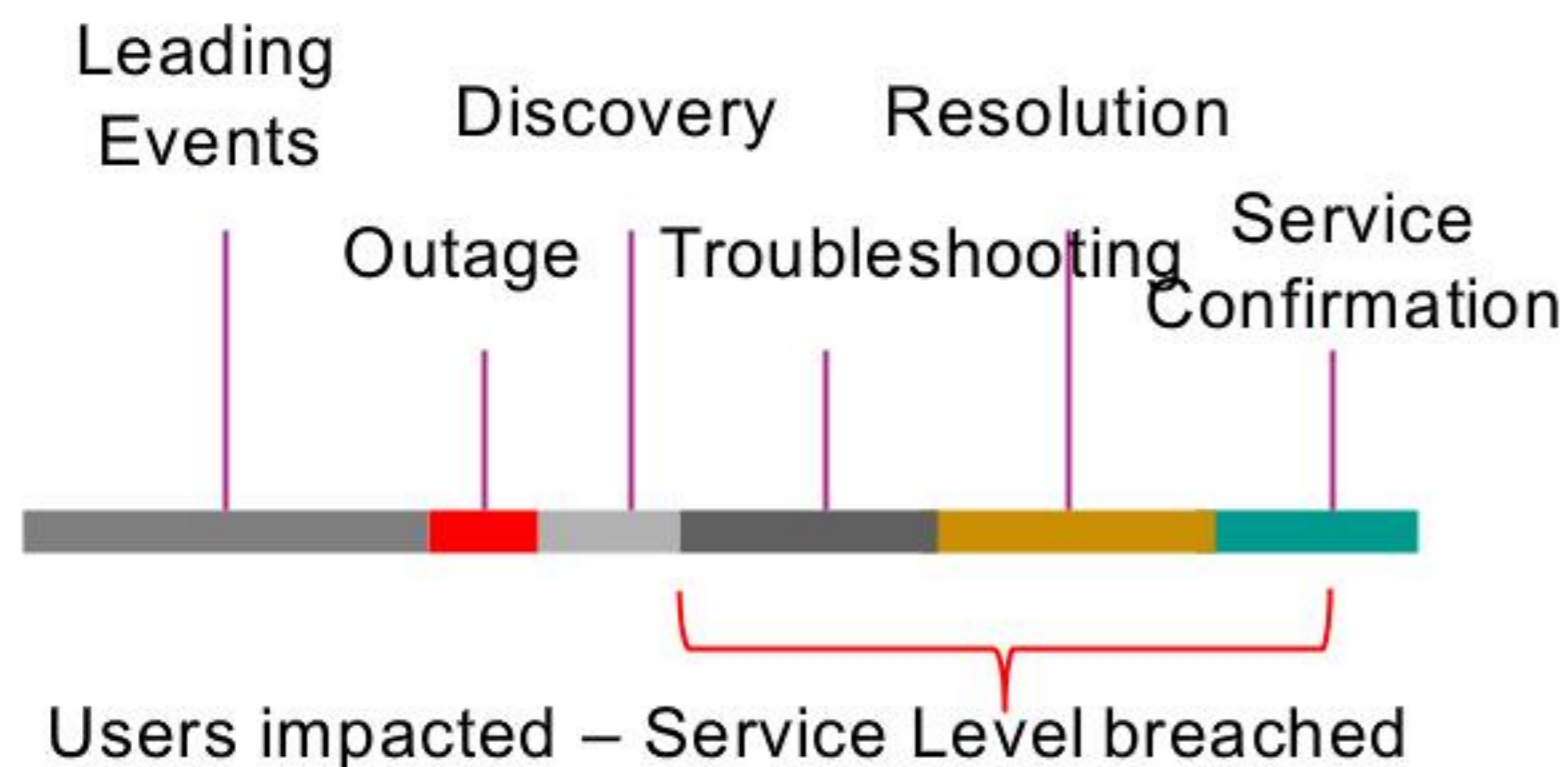
With ECM System Monitor

- Faster detection of incidents, even before outage → prevention of outage possible
- Faster identification of root-cause and corrective action
- Reduced impact on end user productivity

Leading Events
Discovery
Service Confirmation
Outage
Resolution

Users impacted – Service Level breached

With ECM System Monitor automated response

- Faster detection of incidents , even before outage → prevention of outage possible
- Fast resolution due to automated response
- In best case no impact on end user productivity

IBM ECM System Monitor and IT Service Management

ECM specific application health monitoring using IBM ECM internal API and tools – not available in generic monitoring solutions

Value-Add solution targeting ECM Administrators and L2/L3 Support

Integration with enterprise IT Service Management / IT Operations tools

Currency with ECM applications – supported by IBM ECM Support

Protects Investment in ECM and ITSM Technologies

The Benefits – Better Service Quality for ECM users

Assure better business outcomes with IBM ECM System Monitor

Assures ECM Service Quality due to automated fault detection and prevention ☑

Higher productivity in business, better customer service and experience, risk mitigation ☑

Simplified and accelerated problem analysis and resolution – less cost in operations ☑

Reduces number of trouble tickets significantly – cost savings in Service Desk and Administration ☑

Is a standard solution – currency with ECM platforms, integrated into IT Service Management ☑

Enables IT Operations to manage ECM services 24/7 ☑

Large US Insurance Company

IBM ECM System Monitor improves uptime and reduces operations costs

ECMSM is monitoring the health of more than 200 FileNet and ICC servers.

At a glance view of ECM applications from end user perspective.

Business challenge:
- Very large ECM environments supporting multiple business units
- Meet key internal service level agreements (SLAs) – 24/7
- Reduce costs of operating ECM platform by automating mundane routine work
- Improve business user perception

The solution:
- ECMSM helped to reduce ECM incidents by 55% - increase uptime to 99.99%
- Critical alerts are forwarded to central command center using BMC – 24/7
- Response time to incidents is significantly improved
- Reporting for SOX Compliance and Corporate Audits is automated
- ServiceTracer® automates daily function testing and simplifies QA testing

Large US Bank

IBM ECM System Monitor improves uptime and reduces operations costs

ECMSM is monitoring the health of more than 80 FileNet, Datacap, Case Manager, Lombardi and 3rd Party servers. Monitoring of 20+ custom apps.

Task Automation and Analytics

Business challenge:
- Business critical ECM applications, e.g. consumer loan and lease operations
- Meet service level agreements (SLAs) – 24/7
- Reduce costs of operating ECM platform by automating mundane routine work
- Protect positive perception of internal users and customers
- Replace labor-intensive custom-built monitoring of ECM platform

The solution:
- ECMSM helped to reduce ECM incidents and increase uptime
- Critical alerts are forwarded to central event management using CA – 24/7
- Response time to incidents is significantly improved
- Reporting of service levels and performance is automated
- ServiceTracer® automates performance monitoring and simplifies QA testing

IT Service Provider for German Cooperative Banks

IBM ECM System Monitor improves uptime and reduces operations costs

ECMSM is monitoring the entire document processing chain – IBM Content Manager, Tivoli Storage Manager, WebSphere AS and DB2.

Core Library Servers run on z/OS Mainframes, Resource Managers and other components on UNIX servers.

▲FIDUCIA
Ihr IT-Partner

Business challenge:
•ECM platform for 66,000+ users in 350+ cooperative banks – customer-facing applications with strict service level agreements (SLAs) – 24/7
•Protect brand reputation
•Understand health of entire document management process end-to-end

The solution:
•ECMSM helped to reduce ECM incidents and increase uptime
•Critical alerts are forwarded to central event management using LeuTek – 24/7
•Response time to incidents is significantly improved
•Single pane of glass improves administrators' productivity
•Better understanding of underlying middleware and TSM

"Now we can see the entire ECM production chain, including TSM. The CM8 administrators have insight into their platform as never before. "

The Implementation Approach

Tailored turnkey implementation

Analysis & Conception – Best Practices and customer-specific requirements

Installation & Configuration – of management servers & agents in production & non-production environments

Administrator Training – how to use and maintain solution, delivered in your environment

Fine Tuning – tweaking of monitor thresholds and log file filtering – collect as many events as needed, but as few as possible

Optional – implementation of custom monitoring or end user quality measurement

Live Demo

- ECM Managed in a console?

- Videos of an ECMSM live demo can be found in the IBM YouTube channel

Summary

- **Maximize Business Outcomes** – Protect LOB productivity and brand, maximize customer experience

- **One Single Point of Control for ECM administrators** – full insight into entire ECM platform

- **Functional Monitoring** – from business perspective, not IT components and silos

- **Integration** – into enterprise-wide IT Service Management

- **Risk mitigation** – meeting IT compliance and auditing requirements

Next Steps
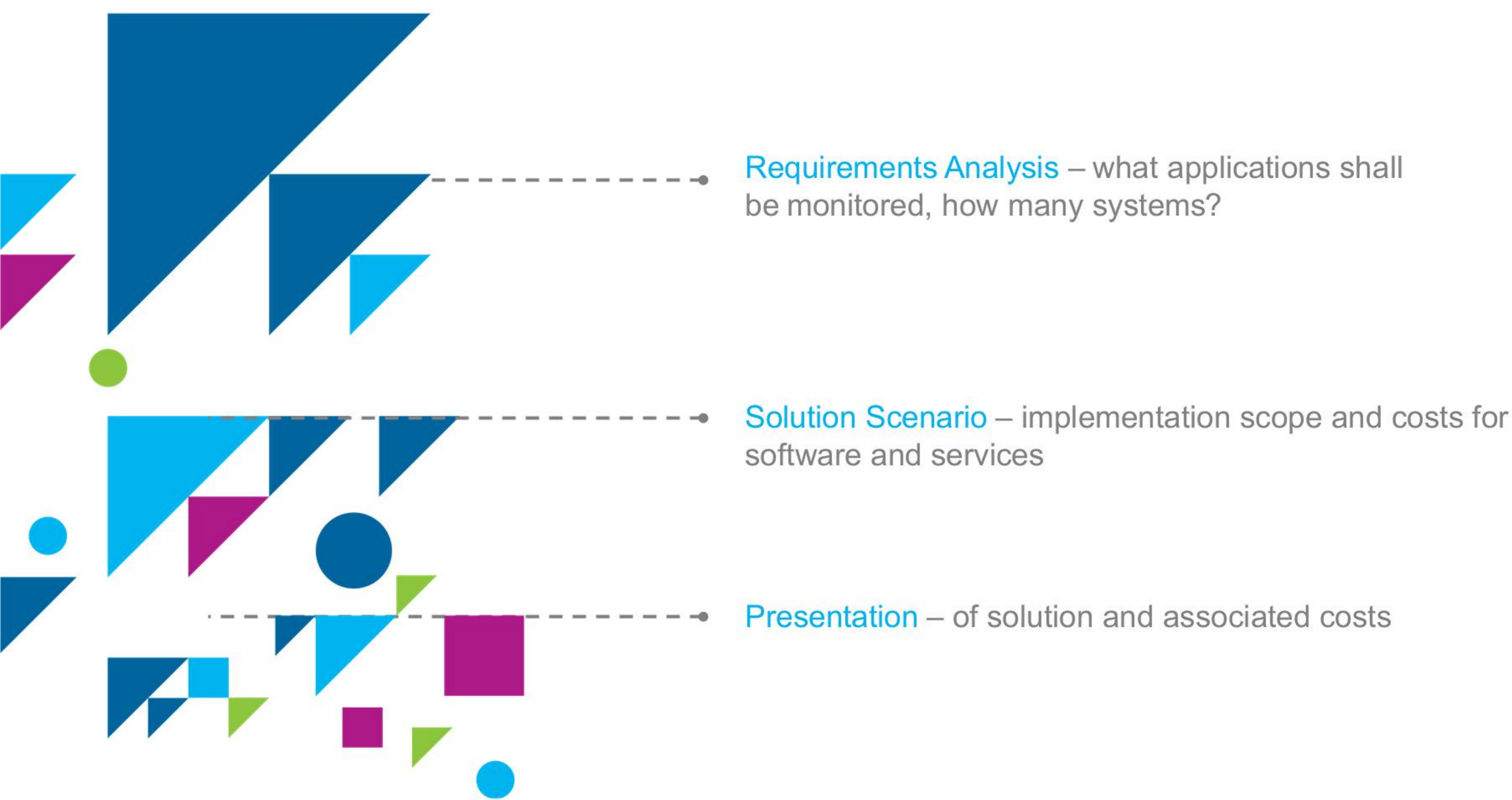
Requirements Analysis – what applications shall be monitored, how many systems?

Solution Scenario – implementation scope and costs for software and services

Presentation – of solution and associated costs

Thank you!

sbass@us.ibm.com

Backup Slides

Generic Monitoring Methods of IBM ECM System Monitor

Basic methods are
- Running Monitoring scripts (>500 monitoring scripts for functional monitoring)
- Log file / DB-Tables / Event Log / Syslog – permanent reading and analysis of logging sources

Monitor scripts leverage the following tools / API's (overview)
- IBM System Manager Listener API
- Command Line Tools (OS, other applications, etc)
- Database (DB specific tools as well as JDBC)
- P8, CM8, OnDemand and other IBM ECM API's
- Generic JMX monitoring (Java Management extension / MBeans)
- HTTP / HTTPS Webpage monitoring
- Web Services
- LDAP (JAAS) Monitoring
- Windows Management Instrumentation (WMI)
- SNMP (Simple Network Management Protocol)

Monitoring of IBM FileNet / Case Manager

Content Engine
- Availability & Status
- Object Store Performance & Statistics
- File Store
- CFS-IS
- Publishing Queue Entries
- J2EE Application Server
- Web Server

Content Search Services
- Availability & Status
- Number of CSS index requests of an Object Store
- Indexing errors
- CBR Queue Monitoring & Statistics

Application Engine/Workplace/WPXT
- Availability & Status
- AE – CE Communication and Connectivity
- J2EE Application Server

Component Manager
- Status
- Queue Status & Statistics

Process Engine
- Availability & Status
- Statistics
- Queues & Roster

Process Analyzer / Case Analyzer

Rendition Engine

Case Manager
- Case Manager Status
- P8 components connected
- Case status for all or a list of defined cases

Content Navigator

Listener – AE/CE/PE/Case Manager

Log files – AE/CE/PE/Case Manager

Monitoring IBM FileNet Image Manager

IM System Status

IM Processes

MKF Databases
- Availability
- Status
- Details

Index Database
- Availability
- Status
- Details

Cache
- Percentage
- Sectors
- Statistics

PPMOI

Storage
- xSAR
- Integral-SDS

IM Listener

Log files

User Information

ServerLink

Workflow Queues

Print Queues

Application Connector for SAP

ImageImport (HPII/MRII)
- Errors
- Processes
- Statistics

Web Services

Capture

Content Services

Monitoring Datacap and ILG

IBM Datacap Taskmaster
- Datacap Status
- Datacap Database Status and Thresholds
- Datacap Listener Metrics
- Datacap Log Entries (Log files and Windows Eventlog)

IBM Content Collector for Mail
- Status & Availability
- Log files
- # of objects not indexed yet
- # of objects indexed, but not moved final location
- # of archived mail objects
- # of instances of mail objects

IBM Content Collector for Files

IBM Content Collector for SAP
- ICC4SAP Archive Status
- ICC4SAP Process
- ICC4SAP Server Status

FileNet Records Manager / IBM Enterprise Records

eDiscovery Manager
- Workmanager Status
- Taskfinder Status
- Requested Tasks Status
- CMS Connection Status (to CM8 or P8 CE)
- Task Statistics
- Total time for processing
  - # of docs in search task
  - # of docs processed
  - # of docs not processed
  - Average docs processed per second

Datacap Listener Metrics and Events

Number of processed pages per minute in a Datacap system (performance)

Number of queued pages in a Datacap system (not yet processed pages)

Statistic and status of used Datacap DB's (not supported: Access-DB)

Status Datacap TaskMaster

Status Datacap TaskMasterWeb

Status Datacap TaskMaster Server

Batches created

Batches grabbed

Batches released

Querys Application Service

Running RRS (RuleRunnerService)

TaskMasterLogin

Clients APT

Clients Connected

Clients disconnected

Databases open

TaskMaster and TaskMasterWeb CPU, Disk, Network information

Open recordset time

Execute time

Time to open

SelectXML time

Atomic selectXML

Request processed

Request processed (Concurrent requests)

Request processed/Request block time

Request processed/Request time

Released Batches

File IO (time to read)

File IO (time to write)

File IO (other FSIO time)

Monitoring IBM Content Manager 8

Library Server
- Database
  - Status & Usage
  - Details
  - NetSearch Extender Errors
  - NetSearch Extender File Systems (Working and Index Directories)
- Connectivity - Resource Manager Heartbeat
- Services & Processes
  - Library Server Monitor Service
  - NetSearch Extender Processes
- Log files
  - icmserver.log
  - ICMSTSYSADMEVENTS (Database table)
  - ICMSTITEMEVENTS (Database table)
- II4C / IICE
  - Connectivity & Status
  - RMI

Resource Manager
- Database
  - Status & Usage
  - Details
- Volume Space – 7 Device Managers
  - Filling level
  - Online Status
  - Cross-check
- WebSphere AS
  - RM Service Status
  - RM App Status (icmrm & snoop)
  - http Status
  - JMX Monitoring
- Services & Processes
  - RM File Systems
  - Migrator, Replicator, Purger and Stager → for each CM8 instance
- Log files → Migrator, Replicator, Purger and Stager Logs

Web Application → user access

Content Navigator

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IBM CM8 Listener Metrics and Events

CM8 Listener Metrics and Events of Resource Managers

- Accumulator: Requested Volume (in MB)
- Metrics
    - Object Counter for Migration / Replication Candidates
    - Number / Volume (MB) of stored Objects in Resource Manager
- Events
    - CRUD Resource Manager Operations
    - Replication and Migration Operations
    - Response Time for successfully completed Operations
    - Counter for successfully completed Operations
    - Counter for failed Operations

Requires activation of CM8 Listeners (CM8 V8.4.2 + FP and CM8 V8.4.3)

Monitoring IBM Content Manager OnDemand

OnDemand Archives
- Database (DB2, MSSQL, Oracle)
  - Status
  - Usage
  - Details (Statistics, Logspace, Rollback Segments, etc.)
- Services & Processes
- System Logging Entries - SL2 table

OnDemand Logon Status

OnDemand System & User Error

OnDemand Full Text Search (FTS) Server
- Status Server
- FTS Statistics

Knowledge Base for SL2-related log entries

OnDemand Tasks
- Status OnDemand Services / Processes
- Start and Stop OnDemand Services / Processes

OnDemand Web Applications
- WebSphere Application Server
  - Application Status (WEBi, Admin GUI)
  - JMX Monitoring (JVM parameters like HeapSize, Connections, Threads, etc)
- Log files
  - Web Application Server Status Log file
  - Web Application Server Error Log file

Listener Metrics (CMOD V9)
- Performance Metrics
- Capacity Metrics
- Events

Content Navigator

Monitoring IBM CMOD Listener Metrics and Events

CMOD Listener Metrics and Events of Resource Managers
- Accumulator: Requested Volume (in MB)
- Metrics
    - Queue duration
    - Cache retrieves / Cache stores
    - Activity
    - Login duration
    - Retrieve duration
- Events
    - Retrieves
    - User cache stores / User cache retrieves
    - Logins / Logoffs
    - Queries
    - Stores

Requires activation of CMOD Listeners (V9)

Monitoring IBM CM8 & CMOD on z/OS

Content Manager 8 on z/OS
- Library Server monitoring – as on multi-platform
- Resource Manager monitoring – as on multi-platform
- Exception: Omnifind Errors – only available on z/OS
- Exeception: Not available on z/OS
  - DB2 Netsearch Extender monitors on zOS
  - ResourceManagerService monitor against RM on z/OS
  - ResourceManagerVolumeSpace monitor against RM on z/OS

Content Manager OnDemand on z/OS
- CMOD monitoring – as on multi-platform
- Exeception: CMOD log file monitoring not available on z/OS

Event reception from z/OS tools (e.g. OMEGAMON, MainView, ..)
- SNMP Traps
- Commands
- Log file on distributed system

Architecture of remote z/OS monitoring (CM8, CMOD)

SM Agent installed on managed system (Windows, Linux or UNIX), representing a „virtual CM8 LS & RM or CMOD" system

IP connection required

Remote monitoring of CM8 & CMOD on z/OS

ECM Administrators

SM Server/s
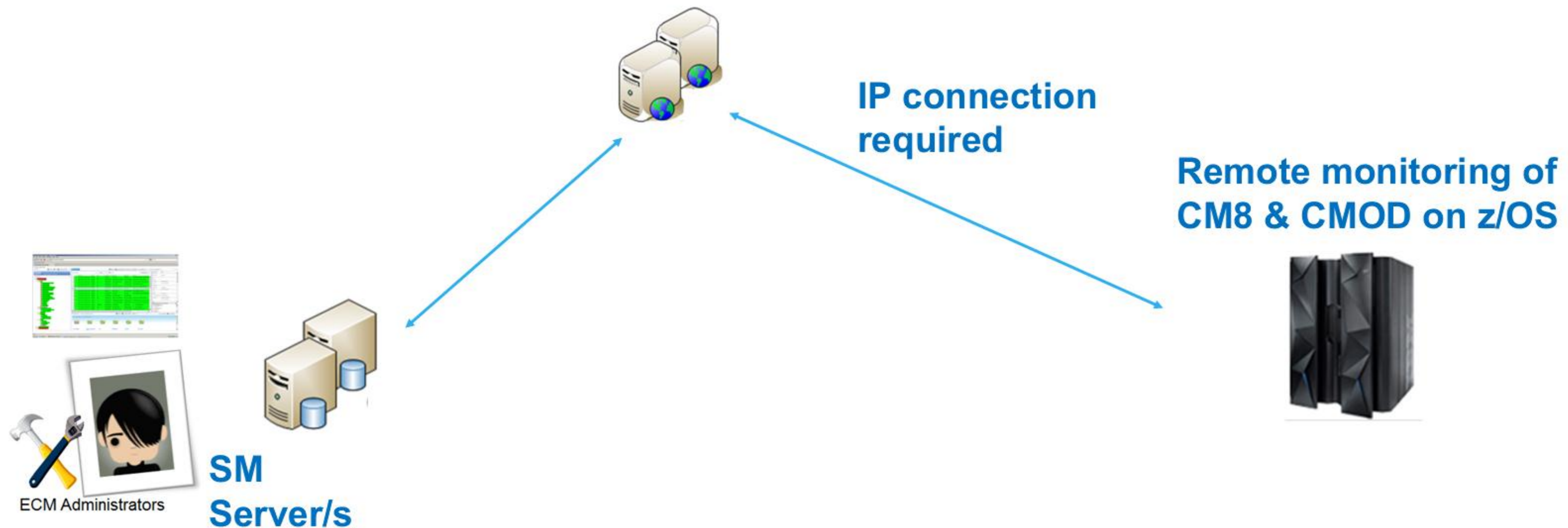
- Requires ECM SM 5.1.0 + Fixpack 2 + APAR PJ41574
- Requires an Agent (CALA + CALA_REX) on supported platform (Windows, Linux, UNIX) – called „Virtual CMOD / CM8 system"
- Requires IP communication between „virtual CMOD / CM8 system" and system with Agent
- Open ports for JDBC communication (CM8 and CMOD)
- Open ports for ODWEK communication (CMOD only)

Monitoring IBM Tivoli Storage Manager

TSM Accounting (global, per Client / Client Type / OS / Authentication Method)

- Server Session Exit Code
- Number of Archive Storage / Retrieve Transactions of a Session
- Number of Backup Storage / Retrieve Transactions of a Session
- Volume of Archive Files and Backup Files sent from Client to Server
- Volume requested (in KB) for archived objects and by stored objects
- Volume (in KB) of session transferred between Client and Server
- Completion Time and Idle Wait Time of a Session in seconds
- Active Communication Time and Wait Time for Media of a Session in seconds
- Client Session Type (1-4 for normal session, 5 for scheduled session)
- Number of 'space-managed' Storage / Retrieve Transactions of a Session
- 'Space-managed' Volume (in KB) sent from Client to Server
- Volume (in KB) requested by 'space-managed' objects

TSM Storage Pools (TSM Volume Log)

TSM Error Logs incl. Knowledge Base

StoragePoolVolumeStatus (Availability, ErrorState, AccessMode)

StoragePoolScratchVolumes

SessionStateCount (Idle, MediaWait, Sendwait)

SessionRunTime

ActivityWaitTime (Restore, Backup, Retrieve, Migration, Reclamation)

ActivityTransferVolume

ElapsedMigrationTime

ElapsedRestoreTime

CustomQueryAlphaNumeric & CustomQueryNumeric – monitoring of parameters in TSM DB

Monitoring Systems & Middleware

- SLA Monitoring (percentage of 'critical' monitor instances defined that work as expected)
- Statistics Monitoring (calculation of average, minimum, maximum or sum for selected monitors)
- LDAP Connection Monitoring
- DB Monitoring (Availability, Filling rates, Connection Status, Thresholds, etc.)
- SQL Performance Monitoring (Monitoring of DB logon and execution time of SQL queries)
- CPU usage and CPU use per process or group of processes
- Memory usage and memory use per process or group of processes
- WMI (Windows Management Instrumentation) Monitoring

- JMX (Java Management Extention) Monitoring of Application Servers and Servlet Engines
- HTTP / HTTP Status and Content monitoring of web pages
- RMI (Remote Method invocation) Server status monitoring
- Network (netstat, Port check, NFS and ping status and ping period) monitoring
- File system / Windows partition monitoring
- Process and Service Monitoring
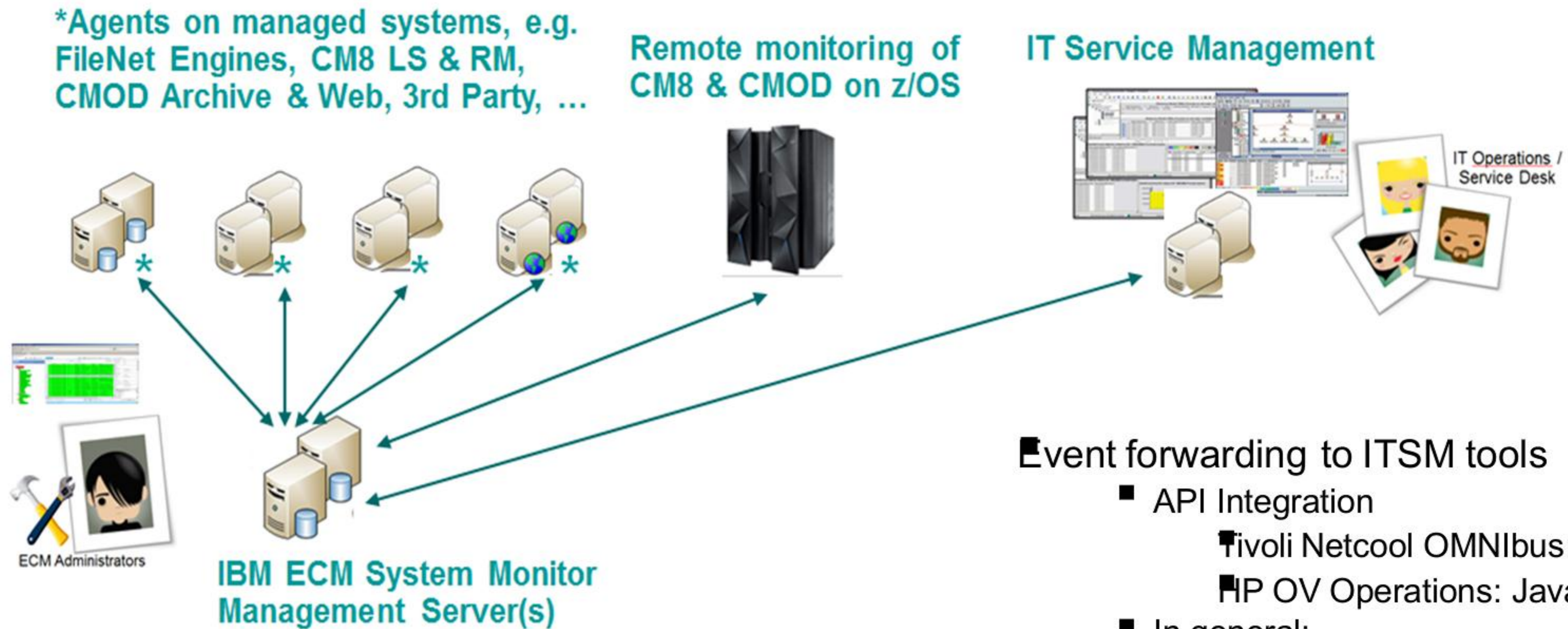- File monitoring

- Custom Monitoring
  - Numeric Monitors
  - Alphanumeric Monitors
  - Log file Adapter

- Existing Scripts used as
  - Custom monitor
  - Custom task

IBM ECM System Monitor Architecture

*Agents on managed systems, e.g. FileNet Engines, CM8 LS & RM, CMOD Archive & Web, 3rd Party, ...

Remote monitoring of CM8 & CMOD on z/OS

IT Service Management

IT Operations / Service Desk

ECM Administrators

IBM ECM System Monitor Management Server(s)

- Dedicated SM Management Server
- Local or remote SM Database
- SM Agents on managed ECM systems
- z/OS components monitored remotely
- Databases optionally monitored remotely (limited functionality, no SM agent required)

- Event forwarding to ITSM tools
  - API Integration
    - Tivoli Netcool OMNIbus: EEIF API
    - HP OV Operations: Java OVO API
  - In general:
    - Log file
    - SNMP
    - Command Line
    - JDBC, e.g. Tivoli Monitoring UA
- Event reception from z/OS tools (e.g. Tivoli OMEGAMON)
  - SNMP Traps
  - Commands
  - Log file on distributed system

42

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