

Ensuring Service Levels for Enterprise Content Management Applications

A Unique Problem That Requires a
Unique Solution



Abstract

Enterprise Content Management (ECM) applications are an important component of many critical business processes within global enterprises. Therefore it is critical that these applications deliver consistent and excellent service levels to the users and other IT processes that rely upon them. While most organizations have a variety of monitoring tools that are used to instrument the network, server, and systems software that supports these applications, most enterprises still rely upon “application babysitting” by skilled applications support professionals to ensure consistent service levels and to rapidly respond to issues.

This paper defines the requirements that ECM customers look for in a monitoring solution, explains what each category of infrastructure monitoring tools does and the extent to which each addresses the requirements, and makes recommendations on what the “ideal solution” should include. Reveille Software is then introduced as a vendor of a solution that specifically addresses not only the requirements of the ideal solution but also the issues that are un-addressed by the infrastructure monitoring vendors.

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ECM Applications and Critical Business Processes

Enterprise Content Management (ECM) applications play a critical role in the automation and management of a wide variety of important business processes in global enterprises today. Some examples of the roles that ECM applications play are:

- A global provider of insurance services uses EMC® Documentum® D5 and EMC Captiva® InputAccel® to support its Claim Processing and Order Fulfillment processes.
- A global air freight company uses Documentum D5 and D6, as well as Kofax Capture and Microsoft SharePoint in its aviation repair and operations processes.
- A global semi-conductor manufacturer uses Documentum D5 and Microsoft SharePoint to support all of its compliance initiatives and processes.
- A global airline uses Documentum D5 and D6, as well as Captiva InputAccel and Microsoft SharePoint, to manage the documentation of all maintenance operations.
- A global pharmaceutical company uses Documentum D5 and D6 as well as Captiva InputAccel and Microsoft SharePoint to manage the submission documentation for all products under development to regulatory authorities worldwide.

In all of the above cases, as well as in thousands of other examples worldwide, enterprises rely upon the effective and efficient operation of ECM applications to support or automate business critical processes.

As these applications continue to grow in deployment and their uses become increasingly mission-critical, ensuring a consistent level of application performance and end-user experience is becoming a more demanding part of IT infrastructure support. Application failure or performance degradation can have a significant,

immediate, and at times irrecoverable, impact on business metrics. Without the proper tools and processes in place, organizations can easily find themselves in the difficult and costly position of relying on “application babysitting” by trained support staff to avoid these costly issues. Implementing a comprehensive application monitoring strategy, backed by the right monitoring toolset, can help companies identify and often avoid reliance on manual problem identification and resolution.

Requirements for Effective ECM Application Monitoring

Since ECM applications are used to automate and support critical business processes, these applications need to be monitored with focused solutions that ensure that committed and required applications service levels are met. An effective ECM monitoring solution should meet the following requirements:

1. **Monitoring should focus upon the application itself** - This includes the processes and application interfaces that comprise the application, not just the infrastructure for the application. There are plenty of solutions available that monitor the networks, servers, and systems software that support these applications - and most enterprises already have such infrastructure monitoring solutions in place.
2. **The application should be monitored from end-to-end** - All ECM applications have modules that interact with users (typically with a web server), modules where business logic is implemented (typically in an applications server), and modules that interact with back-end file and data stores. An effective application monitoring solution should understand all of the modules that comprise the supported ECM applications, and also understand (and monitor) all of the linkages between the modules.
3. **Business metrics should be included** - There is also great value in monitoring how the business activity supported by the application is being impacted by

the application itself. For example, monitoring the number of completed orders per hour, the number of active scanning workstations, or the number of active users, provides administrators with critical context to the nature of a problem and facilitates faster diagnosis and remediation.

4. **Applications are compound** - Since no application is an island, and since ECM applications are typically themselves part of larger compound applications that are stitched together via web services, the monitoring solution should be able to monitor not only the interfaces where the ECM application receives work or transactions from upstream applications, but also the interfaces where it delivers completed work to downstream applications. In cases where the ECM application relies upon other products like Exchange or Blackberry services, the solution should be easily extensible to cover these as well.
5. **Actual end-user experience is critical** - An appropriate end user monitoring solution should capture real end user transactions as they hit the presentation layer of the system (the web server), in order to be able to “cover the waterfront” of all transactions generated by all users. The use of scripts to simulate end user activity represents only a partial solution for end user monitoring.
6. **Business and IT should be supported** - An application monitoring solution must at the minimum support two constituents - the team that supports the application, and the line of business managers whose key processes are supported by the application. Therefore both SLA and business level dashboards, as well as reports are needed to support both of these stakeholders.
7. **Monitoring should include diagnoses and repair capabilities** - Monitoring alone is not enough. In order for an ECM application management solution to pay for itself via a hard dollar ROI, it must allow expensive application architects to be deployed out of “application babysitting” roles, and into roles

that deepen and broaden the impact of the ECM application upon the enterprise. Therefore, the ideal solution should include logic to determine the root cause of issues found via monitoring, the ability to configure who should receive problem notifications, automated escalation procedures, and in many cases the ability to execute scripts (upon approval of authorized administrators or automatically) that fix these problems once their cause is isolated.

8. **Implementation should be easy** - A cost-effective ECM monitoring solution should be easy to implement and easy to maintain. Instead of taking months or years to complete an implementation, such a solution should be easily implemented in a week or less. It should not require the installation of agents upon servers or end user workstations, and should come with templates or profiles that are pre-configured for popular ECM applications to simplify the construction of the monitoring scripts or tests.

The Role of Existing Infrastructure Monitors

Every enterprise has many different types of monitoring products already in use. These products come from a large variety of vendors, some focused on the entire infrastructure and some focused just on one aspect of it. However, all of the products that are in use within a typical enterprise generally have the following elements in common:

1. **IT Focus** - These tools are focused on teams in IT Operations who support one or more aspects of the infrastructure that IT is responsible for. These tools range from broad frameworks like products from IBM, CA, HP, and BMC, to products that support a specific aspect of the infrastructure. like tools from Quest and Oracle. that are focused on database servers.
2. **Infrastructure Centric** - Infrastructure tools are focused on the availability and performance of the infrastructure components that they monitor.

Frameworks look at networks and servers end-to-end. Server-focused products look at the availability of resources like CPU, memory, disk, and network on a server, and generally only monitor applications as processes running on one or more servers.

3. **Broad Network View** - Network-focused tools either look broadly at the availability of the network end-to-end or look deeply into how applications are using the network from a bandwidth and latency perspective.

Reville Solution Overview

Reville Experience and Performance Manager (EPM) is a comprehensive system designed to monitor the key components, processes and actual end-user experience that comprise ECM applications to automatically diagnose the root cause of issues, and then either automatically run remediation scripts or notify the appropriate personnel.

Unlike traditional infrastructure monitoring tools, Reville EPM provides monitoring, diagnostics and remediation for ECM applications, components, processes and actual end-user activity. Reville EPM is typically implemented in combination with an infrastructure monitoring tool and the resulting combination provides an end-to-end picture to the IT operations team.

Reville has developed Management Consoles that include pre-built wizards that support a wide variety of popular ECM applications, including EMC Documentum D5 and D6, EMC Captiva InputAccel, IBM Content Manager, Kofax Capture and Microsoft SharePoint. Reville monitoring for 'out-of-the-box' applications, such as Microsoft Exchange and Blackberry Enterprise Server, and non-packaged custom applications is also available.

An architectural overview of Reville is depicted in Figure 1.

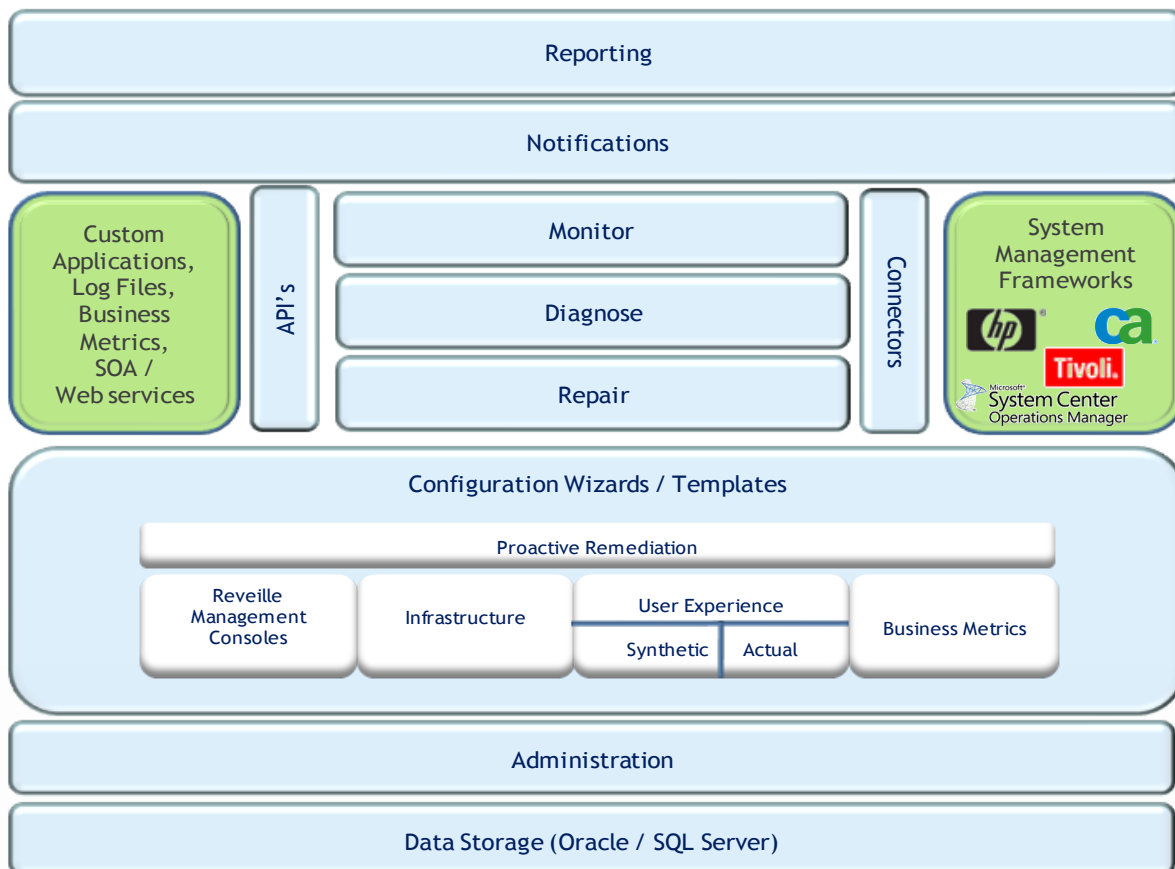


Figure 1 - Reville Architecture

Reveille EPM is unique to all other monitoring solutions in the following respects:

1. Due to its tight integration with individual ECM applications, Reveille EPM provides detailed monitoring of the key processes that comprise these applications - functionality that is not present in infrastructure monitoring tools.
2. Reveille EPM has the ability to monitor actual-user experience in real-time without having to deploy agents to end-user PC's / laptops.
3. Reveille EPM not only monitors the ECM application, it also provides for automated diagnostics and repair for issues that impact applications performance or availability.
4. Reveille EPM provides a rapid time-to-value because of its ease and speed of implementation,

configuration wizards and robust diagnostics, repair, notifications and reporting capabilities.

Reveille Management Console for Documentum - A Detailed Example

Reveille EPM has developed a number of Management Consoles that are architected with and include pre-packaged wizards for many popular ECM applications. The wizards are “application aware” and contain a deep understanding of how the application actually functions.

Unlike infrastructure monitors that look at how much CPU, memory, disk, and network an application is using, Reveille EPM looks at the user experience, key processes and components that comprise the application itself. In the case of Documentum D6, shown in Figure 2, specific monitors included with Reveille EPM ensure that each of the key functions of D6 is working properly. Similar consoles are available for Documentum D5, Captiva, Kofax, IBM Content Manager and Microsoft SharePoint.

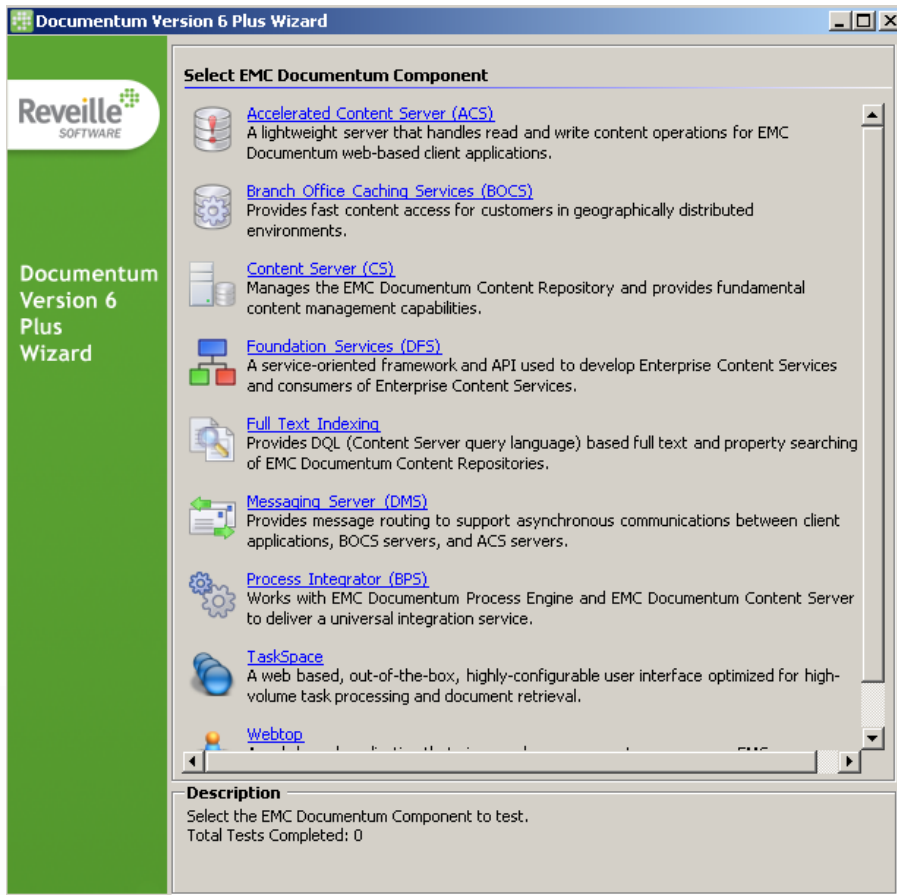


Figure 2 - Reveille Wizard for Documentum D6

The application-aware wizard has the ability to automatically generate pre-configured monitors that consist of multiple resources (e.g. components) that contain numerous application-specific tests. These delivered tests are aimed at areas of Documentum known to need monitoring, and they are designed in such a way as to aid in the rapid configuration of monitors for Documentum. Figure 3 shows a graphical representation of a Documentum monitor that consists of multiple components with tests for the Documentum Content Server illustrated to the below.

Reveille EPM integrates with Documentum D6 to provide a real-time dashboard that actively displays the health of the actual user experience, application processes and components of the D6 implementation. Reveille EPM monitors each key component to proactively and automatically diagnose and repair the cause of a

problem. This continuous monitoring leads to an enhanced end-user experience and a continuous, uninterrupted operation of the business processes supported by the D6 implementation.

In Figure 4, a Documentum administrator can track actual user response time by location (e.g. Dallas & Atlanta). If an issue exists, such as slow response time, additional checks could also include the specific processes and components of the Documentum implementation. As shown in Figure 4, if the active session on one of the Content Servers is above a defined threshold (75), it is indicated with a warning (yellow) status condition. The current load on the server is most likely contributing to the slow application response time for the Atlanta office. The ability to quickly pinpoint and resolve application issues is essential for enterprises

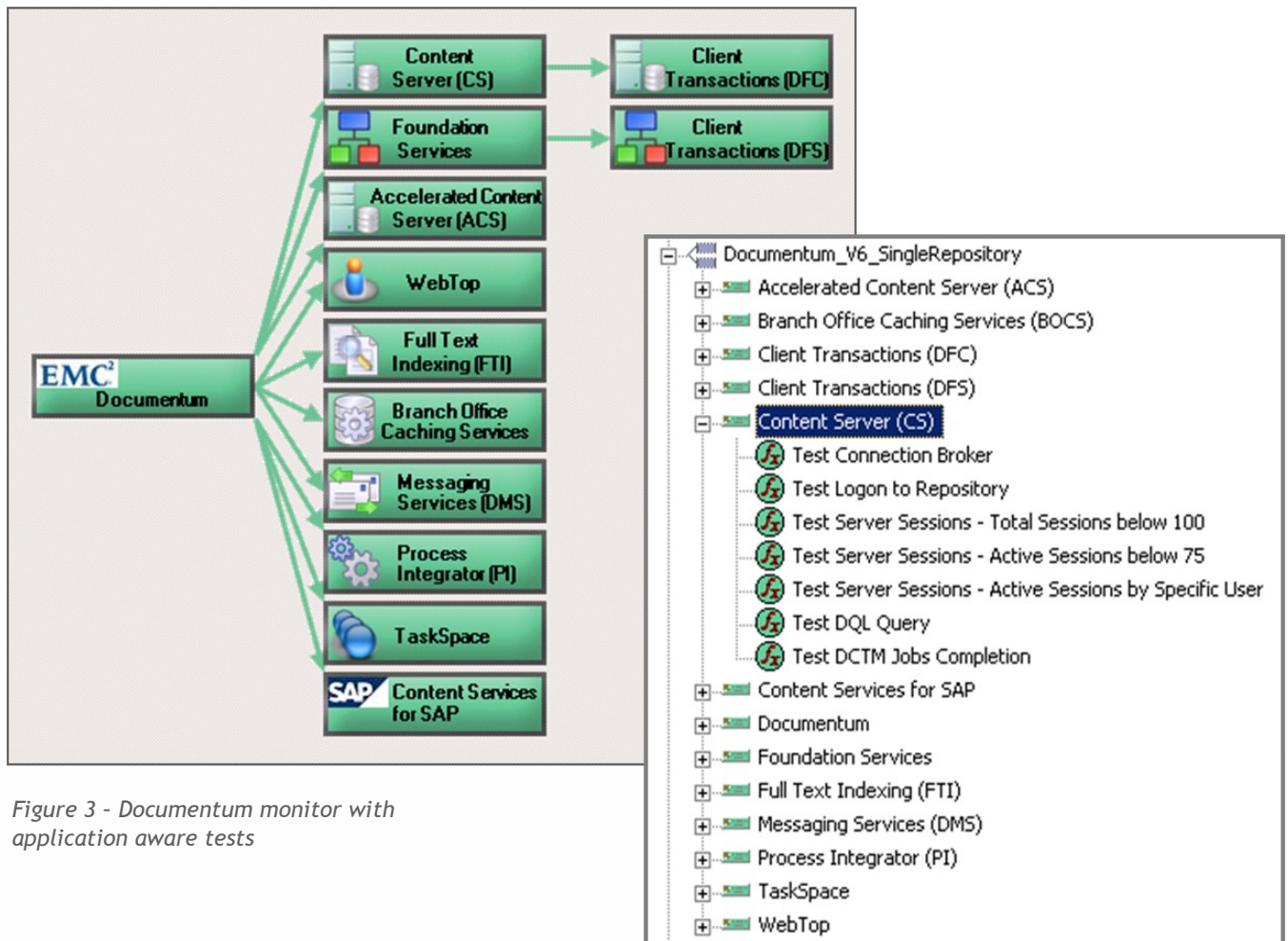


Figure 3 - Documentum monitor with application aware tests

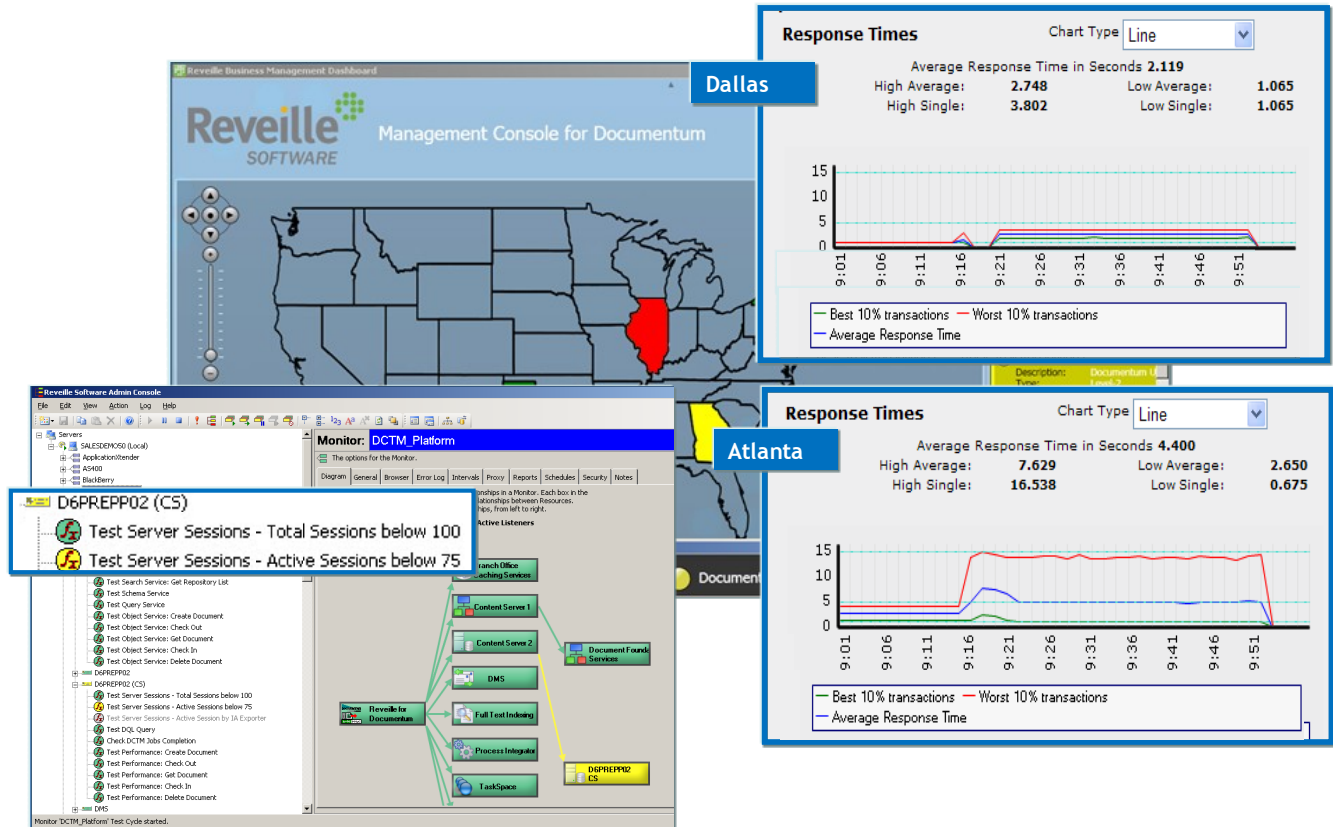


Figure 4 - Reveille Management Console for Documentum

that rely on their content management systems for business-critical applications.

Reveille EPM not only monitors the D6 environment, but also can be expanded to monitor the extended business system built around the D6 implementation. This includes the ability to monitor partner Documentum Web Development Kit (WDK) applications, custom DFS (SOA) applications, and the ability to monitor business systems with which D6 is integrated via direct database interaction, loosely coupled file movement, or WSDL-based Web Services - providing a complete service level view of the entire business process.

Infrastructure Monitor Integration

Since Reveille is focused upon ECM applications and the processes that comprise those applications, and since Reveille EPM is not an infrastructure monitor, Reveille EPM integrates with popular infrastructure monitors in order to provide the IT Operations team with an end-to-end solution. Reveille EPM integrates with popular infrastructure management products via SNMP and Web Services API's. Integrations for the following infrastructure monitors are available:

- IBM Tivoli
- HP OpenView
- CA Unicenter
- BMC
- Microsoft System Center Operations Manager

In addition, any product that accepts SNMP alerts or integrates with Microsoft Web Service API's is a candidate for integration.

Infrastructure Monitor Differentiation

The table below, Figure 5, summarizes how an ECM-focused monitoring solution like Reveille EPM compares to the infrastructure monitoring tools that are typically installed within enterprises.

Requirements	Reveille	CA/Wily	Tivoli	HP & Mercury
<u>Experience and Performance Management</u>				
• End-To-End Application Support Including monitoring of:				
❖ Specific Application Processes	✓	✓	No	No
❖ Linkages with File/Data Stores	✓	No	No	No
❖ Interfaces Among Applications	✓	No	No	No
❖ Business Metrics	✓	No	No	No
❖ Proactive Remediation	✓	No	No	No
• SOA/Web Services Monitoring	✓	Agent	No	Agent
• Actual User Experience Monitoring	✓	No	No	No
• Real-time Business Dashboard / SLA Reporting	✓	No	No	No
<u>Implementation & Ongoing Support</u>				
• Agentless	✓	No	No	No
• Automated Notifications and Escalation	✓	✓	✓	✓
• Automated Diagnostics and Repair	✓	No	No	No
• Packaged ECM Wizards	✓	No	No	Agent
❖ EMC Documentum V5/ V6	✓	No	No	No
❖ EMC Captiva Input Accel	✓	No	Agent	No
❖ SharePoint	✓	No	No	No
❖ IBM FileNet Content Manager	✓	No	No	No
❖ Kofax Capture	✓	Agent	Agent	Agent
• Wizards for Web Services, Web, Windows Apps, Blackberry, etc...	✓	No	No	No
• Rapid Implementation (3-7 days)	✓	No	No	No
<u>Traditional Systems Management / Infrastructure Monitoring</u>				
• Server Monitoring	No	✓	✓	✓
• Operating System Monitoring	✓	✓	✓	✓
• Network Monitoring	No	✓	✓	✓
• Application Discovery	No	✓	✓	✓
• Root-Cause Analysis/Correlation	No	✓	✓	✓
• Hardware Monitoring	No	✓	✓	✓

Figure 5 - Criteria Checklist

Case Study

Leading Provider of Legal and Financial Services

Background

A leading provider of legal and financial services for many of the world's largest companies and law firms with more than 1,000 employees. The company has branch and agent offices in all 50 states, as well as Canada and Europe.

Each office is equipped with a scanning station running EMC® Captiva® InputAccel® data capture software. When an office receives a service of process (SOP) document, it is logged and scanned into the system and automatically uploaded by InputAccel into the EMC Documentum repository. Through a series of lifecycles controlled by Documentum, the SOP is electronically routed to a processing team for completion. When the document is ready for delivery to the customer, the final lifecycle triggers a “close” function that enables delivery according to the client preferences. At the same time, Documentum retrieves the approved SOP and automatically adds it to the client's web account. The client then receives an e-mail notification that the document is ready for viewing. Each SOP is stored in the Documentum repository for a defined period of days, and then another lifecycle triggers an archiving function that moves the document to an EMC Centera™ storage system.

The Challenge

As the company became more heavily dependent on its ECM systems, it became clear that any interruption in service would be costly and significantly impact company operations. Without an automated method of monitoring the performance of the ECM systems and applications, the company relied on various identification and reporting methods for application issues.

Users would contact the IT staff by phone when a system would fail or an application would not be performing with the defined service level agreements (SLA). This manual method was inefficient and costly,

requiring significant time and resources. Furthermore, the manual method often could only indicate if a system was running or not. In many cases, it was more critical to determine the availability and performances of key systems on a continuous basis.

The company had system monitoring tools for monitoring ‘ping, power and pipes’ infrastructure; however, the company required a flexible monitoring approach that could adapt/tune to their specific ECM platform needs.

The Solution

Reveille's Reveille EPM met the company's criteria and offered the following differences:

- Rapid roll-out using an “agentless” implementation approach
- Direct integration with the InputAccel and Documentum platforms
- Able to support a Documentum High Availability configuration with multiple docbrokers and docbases
- A visual dashboard provides business service views of application service levels
- Support for VMware virtualized server environment
- Configurable proactive response to error conditions for automated recovery
- Integration with existing system management framework vendor

Reveille EPM's Benefits

Reveille provides improved application availability by:

- Proactively observing key process exception conditions to prevent downstream processing errors or bottlenecks
- Notifying appropriate/pre-selected individuals of error conditions at the same time or before the business community experiences an issue
- Reducing problem resolution time
- Objectively measuring application service levels

Qualitative	Enhances compliance initiatives through improved operation of business-critical systems that are compliance-oriented
	Implementation of best practices for operations that improve the quality of operations and provide audit, reporting, and management visibility into application productivity and required service levels
Quantifiable Savings	Reduces hours spent in the support function responding to system errors
	Eliminates hours spent on writing, deploying, and maintaining alternative scripts and programs that deliver related but limited functionality
	Reduces time spent generating business-centric reporting to show system availability and service levels
	Helps manage load and performance, and optimize infrastructure
	Provides relevant diagnostic component information for ECM platforms/applications that allow better problem prioritization and resolution
	Beyond conventional infrastructure management solutions, Reveille identifies process exceptions within critical ECM processes, such as delayed document index processing, sporadic document image retrieval experiences, and bottlenecked workflow processing (relevance to ECM impacting a business process solution, not simply individual components)

Figure 6 - Justification Chart

Justification and Business Returns

Reveille EPM provides IT, operations and line of business (LOB) management the ability to observe the health of an organization's business and enterprise-wide applications, understand what underlying issues may impact their operation, and proactively act to eliminate potential problems that may impact day-to-day business activity. By providing a view into both the technical service/component and real-time business-service viability, companies can better understand problem management in today's complex technology operations. The product is quick to deploy (agentless), provides a return on investment (ROI) measured in weeks, and complements existing system management investments, such as IBM Tivoli, HP Mercury, CA Unicenter, Microsoft SCOM, EMC SMARTS and others.

As shown in Figure 6, justification for Reveille can be expressed by qualitative improvements and quantitative cost savings specifically related to the operational cost of the internal systems.

Conclusion

Only Reveille provides enterprises that rely upon ECM applications with a comprehensive application-focused method to automate the monitoring, diagnostics and problem remediation of these applications. This capability is distinct from, and in addition, to the infrastructure monitoring that is widely deployed in IT operations groups within these enterprises. The unique monitors of the actual business processes within the ECM applications allows ECM applications owners and support staff to deliver significant value to both the employees that rely upon these applications to do their jobs, and to the executives that require the timely execution of critical business processes supported by these applications. Installed and in production in over 330 enterprises worldwide, Reveille EPM also is the proven safe choice and market leader in the monitoring for ECM applications.

About Reveille

Reveille Software™ is the provider of the most widely used experience and performance management (EPM) solution for enterprise content management (ECM) applications. Used by hundreds of companies, including GSK, T-Mobile and Chase, Reveille EPM helps companies ensure business-critical applications perform at peak efficiency and availability—without application babysitting. Reveille EPM proactively monitors user experience, application processes and business metrics to diagnose and repair failures before end-users experience delay. For more information, visit www.ReveilleSoftware.com.



Keeping Your Promises.

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