



## **An iBIT Whitepaper:**

# **Operational Management Provides Better Results**

## **Overview**

The application lifecycle ends with the deployment of an application into a production environment. Oftentimes, the operational management of these applications has not been considered in the overall planning and design process and is relegated to being managed using common IT monitoring tools. Based on the criticality of the application to the business, there needs to be a disciplined approach to address operational management of the application. It is part of the “IT Factory” and therefore must be monitored and managed to deliver the performance required to meet the business objectives and goals documented during the application Planning phase. Operational management needs to address both IT and business performance jointly in order to get a “single version of truth” when determining operational management issues. Without addressing operational management, the business sees the end result of the business and technical performance of applications but does not have the visibility to know whether business performance issues were due to business or IT problems. Both issues are equally important to the business and result in the same outcome – unacceptable business performance.

Not all applications<sup>1</sup> are critically important to the business. During the Planning process, the application being planned should be categorized as non-critical, critical or business critical. Critical or business critical applications contribute a major part of the company's business performance and can be cost-justified to provide better management systems.

## **Understand the Organization and Information**

As part of the Planning process, organizational roles are addressed and their information requirements are documented. Information requirements are determined from the information needed by the organizational stakeholders that have an operational or functional interest in the application. The application is the focal point for operational decision making. Monitoring business and technical information associated with the application gives greater visibility and faster information which results in better decision making. In general, the operations disciplines that have an interest in the information being generated from an application runtime perspective are:

- ⤴ business operations
- ⤴ application operations
- ⤴ middleware operations

✧ infrastructure operations

Each of these operations disciplines have a set of common information, some that overlaps operational environments and provides the information linkage across the disciplines to facilitate understanding the performance of the application. Each discipline also has their own specific set of metrics to information visibility appropriate to the operational discipline.

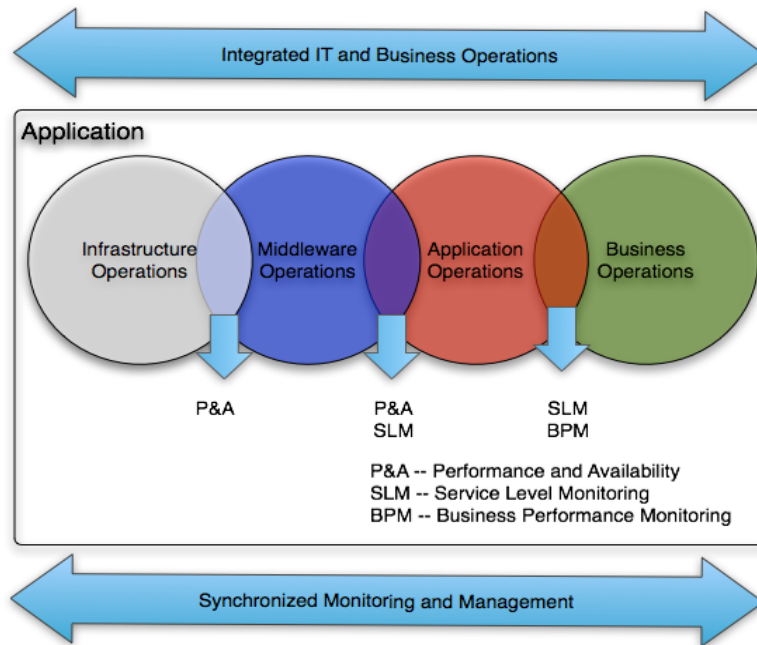


Figure 1. Integrated Monitoring and Management

Figure 1. shows operations as an integrated function within the organization. It also indicates that monitoring and management must be synchronized in order to accomplish this integration. IT typically requires near real-time views of information associated with performance and availability of shared infrastructure resources. Business, however, normally has access to information that is normally hours to days old. In order to integrate business and other technical operations teams, business performance information needs to be provided in a near real-time manner as with IT operations teams in order to synchronize and compare business results with technical results. Today's modern application architectures, such as SOA, give the ability to monitor at a different level, treating "services" as real business services that includes both technical and business information. This is especially critical where SaaS or cloud services are used since service level agreements will be based on transaction flow and not just aggregate performance and availability information associated with the service. With a focus on the application, the common denominator is the transaction. Monitoring transaction flow through SOA-based composite business applications gives both technical and business information to the operational teams. Table 1. shows the transaction properties that must be measured in order to integrate operations teams. Not all operational teams require the same common information. For example, infrastructure operations teams would have no need for transaction state or value information. Application and business operations teams should have access to the same information although different roles within the application operations teams would not have access to performance

information.

Transaction Property/Operational Role	Infrastructure	Middleware	Application	Business
Latency	X	X	X	X
State		X	X	X
Value			X	X

Table 1. Common Information Metrics Across Operational Disciplines

The overlapping information helps different operations teams link the “information chain” from discipline to discipline. More importantly, the operations teams, whether technical or business, needs information that is synchronized by time in order to understand appropriate cause-effect relationships whether the cause of or result of business or technical issues. Understanding and providing for the information needs of the broad group of operational users is key to providing operational excellence. The holistic application performance provides a time-synchronized view to business and IT information across the application. Information is key, however, and is the outcome of the information architecture process in the application Planning phase.

### **Use the Right Management System**

To realize the business benefits of integrated business and IT operations, the management system needs to support the operations model presented in Figure 1. Figure 2. presents a management system structure typical of a system that is found in many IT departments today. Decoupled monitoring systems, as shown in Figure 2., do not lend themselves to focus on the application which is required to provide the common linkage between business and IT.

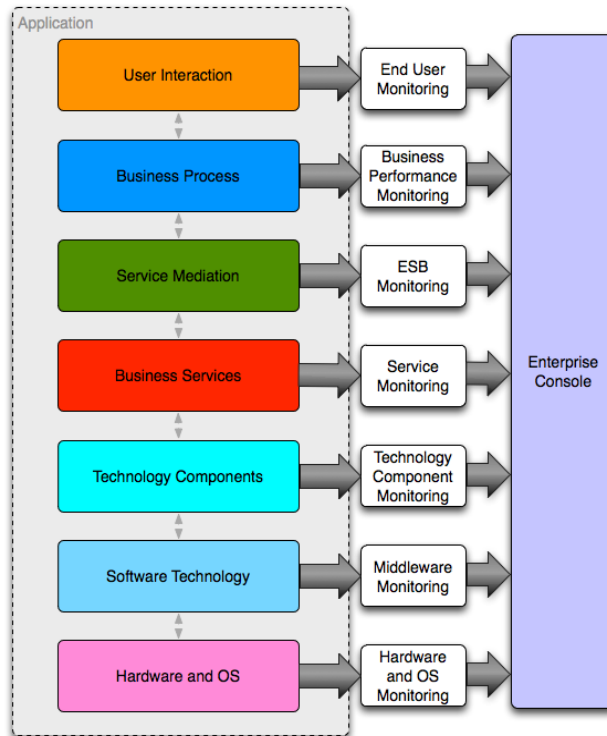


Figure 2. Typical Decoupled Management System

From Figure 2., information is not shared between operational teams to provide a focus to the application. It is typical of managing technology and infrastructure along with enterprise consoles to consolidate disparate information from monitored systems. With the advent of CMDB technology, service impact monitoring results from discovered infrastructure components and manual service modeling, but do not have the capability to provide transaction flow information. Today's modern application architectures such as SOA as well as monitoring tools to monitor these systems provide more opportunity to change this model to one where information is synchronized and all operations disciplines have appropriate information to manage the application runtime environment. Figure 3. presents this type of synchronized monitoring model.

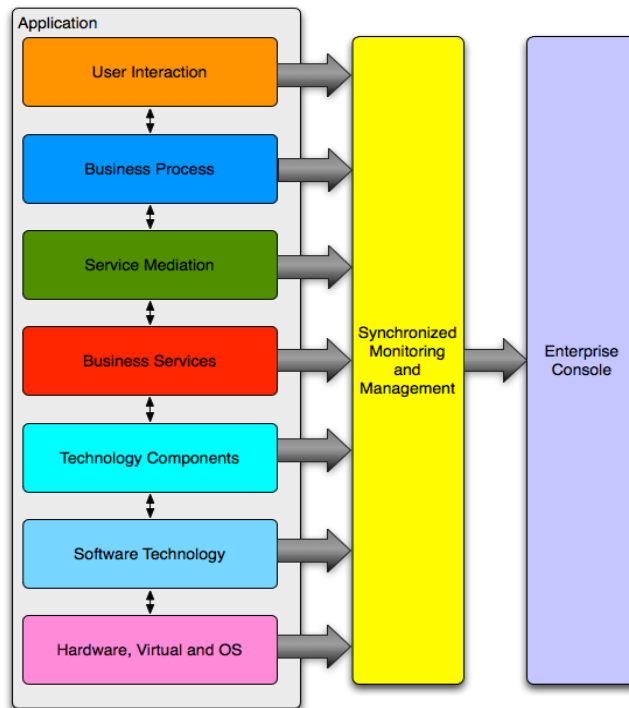


Figure 3. Synchronized Monitoring and Management System

Synchronized monitoring and management will include the individual functional monitoring components as shown in Figure 2. but will be managed under a common monitoring and management system. Management is a cross-cutting concern that should be thought of as an overlay onto the physical architecture and data flow of the application. The management architecture discipline defines these cross-cutting concerns and the information that is monitored to satisfy the information requirements of the operations teams.

## Monitoring Methods

Performance monitoring tools provide different monitoring information. From a performance monitoring perspective, there are two general methods of monitoring: 1) performance and availability monitoring (P&A), and 2) business transaction monitoring (BTM). Performance and availability monitoring can be thought of as statistical monitoring since it provides aggregate information on monitored technology component performance. Most middleware technologies that are used for application infrastructure provide API's for monitoring technology components from a statistical perspective and report information that is unique to the component being monitored such as messages per second or invocations per second. Availability information provides information about the availability of a specific technology or technology component. Business transaction monitoring is the process of monitoring individual business transactions providing information on transaction latency, state and value. While P&A monitoring provides statistical performance information, BTM provides transaction instance information that gives the status, performance and value of every transaction flowing through an application. In order to provide the operational linkages between business and IT, both P&A and business transaction monitoring is required.

## **Business Value of Better Management**

What is the value of information? Decision making requires information. There are two types of information required to make decisions: 1) quantitative information, and 2) qualitative information. If the decision making process is considered to be a binary process, that is, better decisions are made with more quantitative information and worse decisions are made with more qualitative information, rationale says that more quantitative information is better for decision making. More data is not the key but better information is the key. Appropriate information leads to greater knowledge where better, informed decisions are made and have more impact on business results. The Planning process identifies what information is important to whom and why. Business should expect the same level of operational results from IT that they expect from their factories or other value-producing activities. While true hard cost business value cannot be identified in the first iteration of a good Planning process, intuitively, better Planning will lead to better results. The business value of operational management can only be determined when business and technical performance feedback to the Planning process is compared. In order to do this, the appropriate information needs to be collected which is identified in the Planning process. Operational excellence is a key requirement for the fulfillment of business strategy and the business value can be determined through the feedback mechanisms to compare the "as is" through current operations to the "to be" that is identified during the Planning process.

A continuous cycle of application performance optimization helps to promote better results from operations and assures that the application performance is in line with the expected Planning projections for meeting business goals and objectives.

### **Summary**

Attainment of business goals and objectives is dependent on the effectiveness of the Planning process. An application focus and appropriate information visibility to stakeholders is key to attaining successful business performance, IT solution delivery and operational excellence. Strategy and operations are interrelated and cannot be disconnected. If the appropriate management systems are not in place providing the right information to the operations stakeholders including both technical and business operations teams, the original business strategy and objectives on which new application development is based cannot be attained. Planning and operational management are key to business success and need to be given careful consideration during the solution delivery process.

### **References**

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