Business-Driven IT Management: A Guide to Oracle Enterprise Manager 11g
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The IT Management Challenge

With information technology playing such a critical role in business, systems and applications have evolved into sophisticated tools that make organizations more responsive, efficient, and competitive. But one aspect of IT hasn’t kept pace in that evolution: the ability to effectively manage IT applications and infrastructure to drive business value.

Over time, various tools have been created to manage specific technologies and layers of the IT stack, leaving IT organizations with an array of disparate tools and point solutions. These have worked well enough in their respective areas, but overall, this fragmented approach has made it difficult to develop a single view of operations and manage the infrastructure as an integrated whole, which ultimately causes IT management costs to soar. In a very real sense, management has been an afterthought, a capability bolted on to technologies in a piecemeal fashion.

“Traditional systems management products don’t address the complexities of modern data centers. They create islands of automation but do not provide a holistic, integrated picture of the health of the entire IT stack,” says Richard Sarwal, Oracle senior vice president, Product Development. That challenge continues to grow, as infrastructures become more complex, and the advent of service-oriented architectures and cloud computing creates the need to track operations across shared resources and makes it harder to pinpoint problems.

The traditional, fragmented approach to management means that IT departments must devote significant amounts of resources and manpower to overseeing systems. Costs go up, flexibility goes down, and IT professionals spend too much time putting out fires, as opposed to planning ahead and pursuing more strategic value-added activities. “The traditional approach to IT management is very reactive. You are on your own trying to react to issues that pop up around you, and sometimes you are at the mercy of these issues,” says Mervyn Lally, who is responsible for technology deployments at Ingersoll Rand.

Perhaps worse, this traditional approach to IT management aggravates the historic disconnect between IT and the business. Management tools have tended to track technology-oriented activities, without providing visibility into how system performance is actually affecting specific business transactions and user experience. As a result, IT struggles to deliver on business needs. This fragmented approach to management also creates disconnects between IT and technology vendors, making it difficult for them to collaborate and move quickly to address systems problems.

Overall, the traditional approach to IT management impairs efforts to increase uptime, performance, and the quality of enterprise services to end users—and ultimately, to use technology to provide the critical support the business needs.
A Fundamentally Different Approach

To address such problems, Oracle offers Oracle Enterprise Manager 11g, which represents a significant departure from the traditional methods of managing IT applications and infrastructure. Oracle Enterprise Manager 11g takes an integrated approach that encompasses IT management processes, business processes, and the Oracle community to enable true business-driven IT management.

Oracle’s approach starts with management capabilities that are built right into applications and infrastructure. Oracle Enterprise Manager then provides an integrated console that gives IT departments business visibility and comprehensive IT management across the stack. In short, Oracle Enterprise Manager integrates management with business applications and systems. This integration enables IT to gain unobstructed views of business transactions and the business-user experience. As a result, IT professionals can focus their efforts where they will have the greatest positive impact on the business.

Today, the evolution of IT and Oracle’s strategy have put Oracle in a unique position to provide this integrated, comprehensive approach to business-driven IT management. With an expanding portfolio of solutions and a number of acquisitions, including the recent purchase of Sun Microsystems, Oracle now supplies a complete range of business applications, software, and hardware—a lineup that encompasses the full IT stack. That means that the company has been able to build manageability into all tiers and technologies involved in the infrastructure, making an integrated approach to centralized management possible.

Oracle Enterprise Manager has been available for some time, and it has been widely adopted by Oracle users. Today, 77 percent of Oracle’s customers use it to manage more than 1.5 million servers. But the most recent release of the solution—Oracle Enterprise Manager 11g—takes full advantage of Oracle’s “ownership” of the full IT stack. Thus, the management of systems is no longer an afterthought, and no longer dependent on disparate, fragmented tools.
IT departments can manage their infrastructure from one point of control. “From one central console, our team can now see the entire IT infrastructure and the health of our systems. Everyone is working from and looking at the same information,” says Ingersoll Rand’s Lally. “This seems very simple, but there is a tremendous value and benefit to us in managing large geographically dispersed teams.”

Oracle Enterprise Manager 11g is the only IT management solution that combines the essential capabilities needed to drive business value. It encompasses three key capabilities in a single console.

- **Business-driven application management**, which combines industry-leading capabilities in real user experience management, business transaction management, and business service management to improve application users’ productivity while enhancing business transaction availability.

- **Integrated application-to-disk management**, which provides deep management across the entire Oracle stack to reduce IT management complexity and eliminate disparate point tools.

- **Integrated systems management and support**, which utilizes industry-first technology to bring support services into the IT management console, enabling proactive IT administration, increased application and system availability, and improved customer satisfaction.

These three areas are discussed in more detail later in this paper.

This integrated, business-driven approach can have a tremendous impact on the IT department, allowing IT professionals to work more proactively and efficiently in managing IT. Indeed, a 2010 study by the Crimson Consulting Group found that organizations could achieve a 149 percent return on investment over three years with Oracle Enterprise Manager. Study participants reported a range of benefits, such as

- 30 to 90 percent reduction in downtime
- 40 to 75 percent reduction in the length of downtime incidents
- 50 to 95 percent reduction in time to resolve IT problems
- 10 to 30 percent increase in the number of systems supported per full-time employee
- 10 to 20 percent decrease in the frequency of purchasing new infrastructure to support database and application growth
• 30 to 100 percent increase in the number of IT projects completed each year

Such improvements in IT can quickly translate into benefits for the business as a whole. With IT’s greater flexibility and stronger focus on things that matter to the business—that is, its business-driven approach to IT management—companies can be in position to see improved productivity and efficiency. “Oracle Enterprise Manager has helped us raise visibility of best practices across the company, improving quality of service,” says John Young, systems architect at Enterprise Rent-A-Car.

Learn More

- Oracle’s Integrated IT Management Strategy (video, with Charles Phillips, president, Oracle)
- Say Farewell to IT Management 1.0 (video, with J.P. Garbani, vice president, Forrester Research)
- Business-Driven IT Management with Oracle Enterprise Manager 11g (video, with Richard Sarwal, senior vice president, Product Development, Oracle)
- Oracle Enterprise Manager 11g Overview
- Oracle Enterprise Manager ROI Study
- Crimson Consulting Group
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Business-Driven Application Management

Today, the performance of a company’s applications is often closely tied to the performance of the business. Not so long ago, the management of these applications was relatively straightforward. An application was typically run on a single server or a few servers, and the IT department used metrics such as CPU utilization and I/O statistics to monitor the overall health of an application.

Now, however, a given application or business process is likely to span many systems. In this world, the traditional IT metrics are not adequate for determining the overall health of the application. Such metrics also fall short in helping IT professionals understand the real business impact of any infrastructure-related problems. Thus, while IT looks at metrics such as application uptime and server utilization, business people are more concerned with factors such as the number of sales orders received and the time it takes to process orders. In a sense, the two groups are not speaking the same language. Thus, IT professionals often have difficulty prioritizing their activities so that they will have the greatest positive impact on the business. The IT metrics simply do not help IT understand the problems being experienced by the business.

To help bridge that gap, Oracle Enterprise Manager provides business-driven application management capabilities that enable IT to better understand which technology-related actions will have the greatest business impact. “We look at using Oracle Enterprise Manager as a single source of truth, if you will, of what our applications look like, and the way they are behaving on our infrastructure, on our platform,” say Raymond Payne, principal architect at the Johns Hopkins University Applied Physics Laboratory. “Having all that information there on a single unified console helps us more readily identify problems.”

Business-driven application management enables three fundamental capabilities: user experience management, business transaction management, and business service management.

User Experience Management

According to industry experts, more than 70 percent of user issues are reported by end users, as opposed to being identified by system-monitoring tools—which is inefficient and means that IT is reacting to problems after the fact, rather than heading them off early on. Oracle Enterprise Manager 11g provides a more proactive approach with Oracle Real User Experience Insight, which lets the IT department identify and resolve user-experience issues before they affect business users. “Now that we have Oracle Real User Experience Insight, we can see precisely where a problem occurs in our digital supply chain and who needs to resolve it,” says Jean-Pierre Miani, technology officer at infinitas...
learning. “This ability is a necessity when it comes to monitoring the quality of digital provisioning, being able to guarantee the service-level agreements, and above all, complying with those SLAs.”

Traditional IT metrics fall short in helping IT understand the business impact of infrastructure problems. Business and IT are not speaking the same language.

A customizable dashboard can display both business and IT-based key performance indicators, and provides high-level information such as the location of users who are having problems. Real-time charts that show user satisfaction rates and transaction abandonment rates can be used to accurately pinpoint when customers began having application experience issues—information that can be used to drive the appropriate changes to the underlying infrastructure. In the event of an application problem, IT staff can replay actual user issues to better understand the issue without having to involve the end users. The solution also includes integrated diagnostics for Oracle Siebel CRM, Oracle E-Business Suite, and Java technology-based applications.

Business Transaction Management
Oracle Enterprise Manager’s business transaction management capabilities provide real-time detection, alerting, and remediation of various types of unexpected business or technical conditions—and help IT manage the technology from a true business perspective. The solution provides an end-to-end view of individual transactions as they move through different IT services, enabling IT to quickly isolate the root cause of issues. In essence, it leverages business data to help IT understand the business context and make decisions based on business criteria rather than technical criteria.
The solution lets IT look at in-flight transactions, as opposed to providing reports after the fact, a day or a week later. It can track synchronous, or short-term, transactions, as well as longer-running asynchronous transactions, giving IT a complete view of what is happening with business activity. IT professionals can also search transactions based on message content and context—information such as revenue amount, customer name, product identifier, time of arrival, and so forth. This helps them manage application performance based on business factors such as customer segment. For example, if there were performance problems affecting high-value “platinum” customers, IT professionals could reallocate resources away from “silver” customers to maintain the right service levels for platinum customers.

With Oracle Enterprise Manager, IT departments can trace transactions across different tiers and different applications—which can be critical. “When we’re looking at a complex transaction that occurs in a business system, and we have all the tiers that we have to look at and analyze, the ability to have a tool that can quickly isolate a problem down to a particular discrete unit of the application or a particular discrete tier of the application becomes invaluable to us,” says Johns Hopkins University’s Raymond Payne.

Business Service Management
Traditionally, IT groups have devoted a significant amount of effort to localizing and triaging problems. That’s largely because traditional tools are simply inadequate for managing today’s composite and service-oriented architecture applications. In general, they are not effective at identifying performance bottlenecks in multidomain environments or for reporting on end-to-end requests being executed in production.

Oracle’s business service management capabilities help IT determine which services are performing suboptimally, and enable IT to visualize the complex and dynamic dependencies that exist between the components that make up these services. The solution also provides resource management tools that let IT administrators diagnose and remediate issues.

The solution automatically discovers dependencies and relationships in composite applications, and shows how the individual components relate to high-level business services such as portals and Web services. This allows IT professionals to understand the foundation for end-to-end business services, such as billing or shipping. The solution also automatically detects changes that occur in composite application topologies, eliminating the need to manually maintain the dependencies.

Overall, the business-driven application management capabilities in Oracle Enterprise Manager let IT organizations directly monitor and manage the experience of business users, their business transactions, and application interactions. As a result, IT can
better support business priorities and significantly enhance the end user experience and customer interactions, which can potentially lead to opportunities to increase revenues.
Integrated Application-to-Disk Management

Today, service-oriented architectures, cloud computing, and virtualization technologies provide a flexible foundation for business applications, but they have brought increased complexity to the data center. By abstracting multiple tiers and technologies, they have made it difficult to manage applications with conventional management tools. As a result, many companies have found that the cost of managing such applications can be a significant drain on IT budgets, and a distraction to IT.

Oracle Enterprise Manager 11g’s integrated application-to-disk management capabilities simplify management by eliminating the need to use multiple point tools to address different tiers and technologies. These capabilities encompass integrated management for physical, virtual, and shared environments; comprehensive lifecycle management for cloud computing; and complete management for Oracle technologies. They enable IT organizations to monitor the entire IT stack, quickly identify root causes, and in many cases, automatically resolve issues.

From Top to Bottom
Oracle Enterprise Manager can be used to manage every layer of the stack, from packaged applications through middleware, database, operating system, virtualization, and hardware. “I can span from my Oracle E-Business Suite down to my storage layer, through one console, through a streamlined process,” says Naveen Garg, manager of Global Database and Internet Infrastructure at Colorcon.

Oracle Enterprise Manager offers Oracle Application Management suites, which are comprehensive, integrated management solutions for Oracle Applications that provide insight into application-specific components and the underlying infrastructure components supporting the application.
Application management suites are available for Oracle E-Business Suite, Siebel, PeopleSoft Enterprise, and JD Edwards Enterprise One solutions as well as Oracle Communications Billing and Revenue Management.

In the middleware arena, the solution provides a single and comprehensive solution for discovery, modeling, monitoring, central administration, configuration management, provisioning, patching, and service-level management of Oracle Fusion Middleware 11g components including Oracle Business Intelligence, Oracle WebCenter Suite, Oracle WebLogic Server, and Oracle SOA Suite. Meanwhile, comprehensive database management capabilities address all aspects of Oracle Database 11g Release 2 administration, such as performance management, change and configuration management, testing, provisioning, and patching. These capabilities can help drive a threefold increase in database administrator productivity, compared to alternate solutions.

With the addition of Oracle Enterprise Manager Ops Center (formerly Sun Ops Center), Oracle Enterprise Manager also provides solutions to centralize and automate discovery, provisioning, updating, and monitoring of physical and virtual systems. Companies using Oracle’s virtualization technologies can monitor virtualized entities alongside the physical infrastructure and perform complete lifecycle management of guest virtual machines. Automated discovery enables systems administrators to determine which servers have been provisioned and what virtualization software and operating systems are deployed, and access detailed information about the configuration of each system. Using automated procedures, systems administrators can provision Oracle Solaris and Linux onto bare metal or virtual servers, and even provision firmware updates. Companies can also ensure that those systems stay up-to-date with intelligent patch and configuration management tools and robust compliance reporting.

Working Across the Stack
In addition to supporting management up and down the IT stack, Oracle Enterprise Manager enables management across the stack with four management solutions that include comprehensive capabilities for heterogeneous environments.

- **Application performance management**, which helps ensure that applications are meeting performance and availability objectives. Application owners can proactively monitor end user performance and quickly track down the causes of performance problems.

- **Configuration management and compliance**, which enables IT to establish and maintain software configurations. IT professionals can discover, track, analyze, implement, and report on changes and track compliance, which helps simplify management, improve service, and enforce compliance.
• **Application quality management**, which lets IT professionals test applications prior to production deployment, helping to ensure that any problems are found and fixed before they affect application users.

• **Lifecycle management**, which uses a unique lifecycle approach for physical, virtual, and cloud environments. Administrators can automate management tasks starting with bare systems through all stages of the lifecycle including setup, rollout, administration, testing, provisioning, patching, and change management. IT organizations using Oracle’s cloud platform offering can easily prepare, deploy, and manage their environments across the entire lifecycle. The solution has out-of-the-box support for the management of cloud technologies, including Oracle Real Application Clusters, Oracle Application Grid, Oracle VM Server for x86, Oracle VM Server for SPARC, Oracle Solaris Containers, Oracle Exadata Database Machine, and Oracle Exalogic Elastic Cloud.

Together, Oracle Enterprise Manager’s integrated application-to-disk management capabilities help organizations reduce the cost and lower the complexity of managing IT. For example, a Crimson Consulting Group study found that a logistics company “avoided new hardware purchases for approximately 20 percent of new systems by identifying and repurposing existing resources using application performance management. This resulted in $650k–$750k in annual savings.” Similarly, Crimson found that a Fortune 500 retailer freed up 15 percent of existing server capacity by identifying incorrect deployments in systems. “By using the capabilities in configuration management and lifecycle management to identify variations in systems configurations and ensure patches were up to date,” Crimson reported, “the company was able to improve existing performance and utilize fewer physical resources, achieving approximately $500k in server expenditure savings.”

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**Learn More**

- **Oracle Enterprise Manager: Managing Applications to Disk** (video, with Richard Sarwal, senior vice president, Product Development, Oracle)
- **Oracle Enterprise Manager: Managing the Cloud** (video, with Richard Sarwal, senior vice president, Product Development, Oracle)
- **Oracle Enterprise Manager Ops Center Enables Data center Lifecycle Automation**, IDC
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Integrated Systems Management and Support

Often times IT administrators need the assistance of the vendors who supply them with hardware and software. To manage this process, the vendors usually offer support services and portals that allow customers to consult knowledgebases, download patches and updates, and raise service requests.

While this approach is the norm, it has a number of shortcomings, because systems management and support are essentially treated as two different worlds. That is, the IT department’s management tools and the vendor support portals are not connected and provide different views of operations, even when there is considerable duplication between these two environments. When raising service requests, the IT department often has to manually copy configuration information into the support portal. This usually starts with high-level information such as product version numbers and platform, but as the process continues, it can require more detailed information such as patches that have been applied, configuration files, and log files.

What’s more, the routine application of patches can also be complicated, for similar reasons. Before applying a patch, the IT department needs to check with the vendor for dependencies and conflicts between various patches, which can take a considerable amount of work and is prone to error.

All of this takes time and effort, preventing IT staff from working on other tasks, and ultimately affecting the quality of service for the application in question.
To bridge that vendor-IT gap, Oracle Enterprise Manager 11g is fully integrated with My Oracle Support, Oracle’s next-generation support platform. This enhances Oracle Enterprise Manager’s ability to serve as a single interface for managing and supporting the enterprise. It provides seamless access to My Oracle Support pages for managing service requests, deploying patches, and reviewing knowledgebase articles. In addition, a community-based console facilitates best-practice sharing and knowledge exchange with other members of the IT community.

The solution includes a smart configuration management feature that offers complete configuration lifecycle management with real-time change detection for compliance. This capability can simultaneously analyze millions of customer configurations and provide IT professionals with real-time notification of potential problems. Oracle Enterprise Manager can automatically upload configuration information to My Oracle Support, providing instant access to the comprehensive configuration data needed by Oracle support experts. “With [My Oracle Support], the time required for gathering information to provide details of our configurations for a service request went from hours, or in some cases days, to minutes,” says Johns Hopkins University’s Raymond Payne. “This greatly increases our ability to troubleshoot problems.”

By unifying the information in Oracle Enterprise Manager and My Oracle Support, Oracle is able to take advantage of its internal global configuration database, which contains the configuration information of all customers who opt in to the service. By combining this configuration data with service-request data, Oracle can proactively detect problems in customer environments, based on the experiences of other customers running similar configurations, and provide specific recommendations that should be applied.

“In terms of patching, the solution provides an automated workflow that enables the verification, selection, validation, and deployment of patches across the entire IT environment, helping to reduce the risk and effort needed to implement recommendations and fixes. It can check for conflicts in a given set of patches, and ensure that any patches that were previously installed on a system do not conflict with patches that need to be applied. When all of the patches have been validated, they can be applied in a single operation, helping to minimize the patching window.”
This patching capability “really helps us reduce the manual steps, along with helping us keep our environment up to the latest patch levels, which is key for our security requirements,” says Ingersoll Rand’s Mervyn Lally.

“Previously, we would only patch an environment during scheduled downtime or at the start of a new project. This would involve a lot of manual analysis, investigation of potential conflicts, and requests for merged patches if needed. Now we have an at-a-glance, up-to-date view across our systems of our patch levels and recommended patches.”

Overall, these integrated systems management and support capabilities enable IT to be more proactive and improve service level quality. They bring systems management and support together, and enhance knowledge sharing with Oracle Support and the broader Oracle community—all of which translates into more satisfied and productive users and more efficient IT operations.
Conclusion: Business Productivity, IT Efficiency

Oracle Enterprise Manager 11g enables a business-driven approach to IT management through its unique, integrated approach. Business-driven application management helps IT departments focus on the activities that will have the highest business impact by providing them with insight into complex business processes. Integrated application-to-disk management capabilities provide an end-to-end management solution for physical, virtual, and cloud environments that span all stages of the management lifecycle. And integrated systems management and support enables IT administrators to be more proactive, with accelerated problem resolution, problem avoidance, and advanced patch management for applications and underlying infrastructures.

Oracle Enterprise Manager 11g is designed to help organizations

• **Drive greater business value with IT.** The solution helps improve application users’ productivity and enhance business transaction availability. It delivers integrated user-experience management, business transaction management, and business service management in a single management console.

This enables IT to better understand user experiences, track their transactions, and relate performance issues to the underlying IT infrastructure.

• **Maximize their return on IT investment.** The solution simplifies management and lowers management-related labor costs for the entire application stack. It manages applications, middleware, database, and hardware while also providing broad solutions for application performance management, configuration management, application quality management, and lifecycle management. This integrated approach eliminates unnecessary tools and delivers true end-to-end management visibility and control.

• **Increase customer satisfaction.** The solution helps IT resolve issues quickly and proactively. Using a single console, IT departments can track systemwide performance, interact with Oracle on support-related issues, exchange ideas and learn from peers at other companies, and implement recommendations and fixes using automated workflows.
Ultimately, Oracle Enterprise Manager 11g helps overcome the traditional divide between business and IT. It can help IT work with a more strategic perspective to enable and support greater business productivity and IT efficiency—capabilities that are critical in a competitive, fast-moving world.

Learn More

To find additional information and updated reports about Oracle Enterprise Manager 11g, visit the Oracle Enterprise Manager Resource Center at oracle.com/enterprisemanager11g

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