BY DAVID BAUM

Is for Cloud

Oracle Enterprise Manager 12*c* launches business–driven   IT management into the cloud.

Designed to manage data center and cloud environments, Oracle Enterprise Manager has consistently focused on business–driven IT management. The latest release, Oracle Enterprise Manager 12*c*, continues this focus and expands its cloud management capabilities to deliver a complete solution for setting up, managing, provisioning, and charging back for Oracle technology—based enterprise clouds.

Organizations using Oracle Enterprise Manager 11*g* are already seeing the benefits of Oracle Enterprise Manager's commitment to applications–to–disk management, and are looking forward to even better control in the cloud with Oracle Enterprise Manager 12*c*.

PAULINA MCFARLAND

"We see Oracle Enterprise Manager 12*c* as a major step forward."

—Anton Topurov, IT Professional, CERN

Anton Topurov, an IT professional on the database and middleware administration team at CERN, says CERN's IT specialists rely on Oracle Enterprise Manager to monitor CERN's Oracle infrastructure, which includes single-instance databases, Oracle Real Application Clusters databases, Oracle VM, and Oracle WebLogic Server.

MANAGEMENT AS A SCIENCE

Since the 1950s, some of the world's leading physicists have converged at the European Organization for Nuclear Research (CERN) to study the properties of subatomic particles. Today these researchers—who are located throughout the world—process a staggering amount of information. All told, CERN's four big-particle detectors produce more than 15 million gigabytes of data per year.

In addition to obvious business functions, Oracle databases are essential for management of these particle detectors, as well as for the Large Hadron Collider accelerator. For years CERN's IT specialists have used Oracle Enterprise Manager to monitor the associated database infrastructure, which includes Oracle WebLogic Server and Oracle VM.

"We rely on Oracle Enterprise Manager 11*g* as a monitoring tool for our Oracle infrastructure, including single-instance databases and Oracle Real Application Clusters databases," says Anton Topurov, an IT professional on the database and middleware administration team at CERN. "The core value of Oracle Enterprise Manager is proactive monitoring."

Oracle Enterprise Manager 11*g* lets Topurov and his colleagues monitor the physical hardware and software assets, as well as the quality and availability of the associated services that rely on those assets. His team has grouped databases, hosts, listeners, and application servers together so they can monitor them as a unit. This lets them gauge the performance and availability of complete business services rather than individual IT components.

During 2011, CERN evaluated a beta version of Oracle Enterprise Manager 12*c*. IT professionals there determined that the new software will make it easier to maintain database and middleware services in a virtualized environment for several hundred developers in the U.S., France, Russia, Switzerland, and other locations.

Overall, CERN's IT professionals found Oracle Enterprise Manager 12*c* to be more developer friendly because it lets them handle many debugging, performance testing, and tuning exercises on their own. "The improved Automatic Workload Repository feature, with its Active Session History statistics, is a good example of this enhanced usability," Topurov says. "In addition, the new named credentials are a real game changer because they provide more flexibility for authorizing access to hardware and software resources and provide a clean separation between security officers and operators."

Topurov also likes Oracle Enterprise Manager's new functionality for consolidation management, which analyzes usage patterns and loads on a hardware infrastructure and makes recommendations for consolidating databases. As in most large IT shops, some of CERN's servers are underutilized and others are maxed out. "The consolidation management functionality of Oracle Enterprise Manager 12*c* looks quite attractive to us, because it also addresses our electricity and cooling shortage," he explains. "We plan to continue to virtualize more resources in the computer center, and this functionality of Oracle Enterprise Manager will accelerate the rollout. We can select a set of production machines on the one hand, and propose a set of new machines as a destination. Oracle Enterprise Manager analyzes the existing usage levels and proposes a consolidation plan."

The result of the collected new features and improvements is not an incremental product release. "We see Oracle Enterprise Manager 12*c* as a major step forward," concludes Topurov.

MANAGING BUSINESS SERVICES

According to Richard Sarwal, senior vice president of product development at Oracle, consolidating and virtualizing an IT infrastructure are important activities, but they are just the starting point for creating an enterprise cloud environment. "The long-term goal is to manage cloud resources as business services rather than just a collection of technical components," he explains. "This lets you relate those resources to users and monitor the performance of their applications to make sure they are receiving adequate service levels."

Such was the motivation for Cerner, one of the world's largest healthcare IT companies. The Kansas City, Missouri–based company currently depends on Oracle Enterprise Manager 11*g* to manage more than 1,000 client databases associated with its Millennium healthcare applications—about 18 petabytes of healthcare data in all. Customers can install Millennium at their own premises or access the functionality on demand through the CernerWorks hosting facility.

Cerner solutions are licensed by approximately 9,000 facilities around the world, including more than 2,600 hospitals; 3,500 physician practices covering more than 30,000 physicians; 500 ambulatory facilities, such as laboratories, ambulatory centers, cardiac facilities, radiology clinics, and surgery centers; 800 home health facilities; and 1,600 retail pharmacies.

"Our data center hosts applications that support more than 150,000 beds, which equates to 17 percent of U.S. hospital capacity," says Tony Myers, Oracle strategist for the CernerWorks hosting facility. "Oracle Enterprise Manager plays an important role by helping us keep an eye on that vital data."

By providing integrated applications-to-disk management capabilities for its public and private clouds, Oracle Enterprise Manager has enabled Cerner to increase its return on investment and pursue new business opportunities without incurring incremental IT costs. This success is partly what motivated Cerner to offer a new cloud-based service supported by Oracle Enterprise Manager. Cerner had already created a multitenant version of Oracle Enterprise Manager for use internally within its private cloud. It simply extended that architecture to enable a secure and private management layer for external clients as well. The database-as-a-service offering is now part of an on-demand software suite called SkyBox that includes cloud-based messaging, storage, and virtual desktop functionality.

Oracle Enterprise Manager allows Myers and his team to monitor and manage the experience of their clients—including all business

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SNAPSHOTS

European Organization for Nuclear Research (CERN)
cern.ch
Industry: Scientific research
Employees: 2,500 employees plus 10,000 visiting scientists
Oracle products and services: Oracle Database 11*g*, Oracle Enterprise Manager, Oracle WebLogic Server, Oracle JRockit Virtual Edition, Oracle Streams, Oracle Active Data Guard, Oracle Real Application Clusters, Oracle Advanced Compression, StorageTek tape libraries, Oracle E-Business Suite, Oracle VM

Cerner
cerner.com
Industry: Healthcare
Employees: 8,000
Revenue: US$1.85 billion in 2010
Oracle products and services: Oracle Database, Oracle Enterprise Manager, Oracle Real Application Clusters

Epsilon
epsilon.com
Industry: Marketing services
Employees: 3,000
Revenue: US$613 million in 2010
Oracle products and services: Oracle Database 11*g*, Oracle Enterprise Manager, Oracle Exadata Database Machine, Oracle Active Data Guard

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Total Cloud Control with Oracle Enterprise Manager 12*c*

Creating Oracle Enterprise Manager 12*c* was a three-year project that represents 2 million developer hours. Oracle's goal with this foundational product was to automate operations for traditional data centers, virtualized environments, and cloud computing environments.

"For years Oracle has been enhancing its integrated technology stack with an integrated management stack," says Richard Sarwal, senior vice president of product development at Oracle. "We build manageability into each product and expose it in a meaningful way through one integrated management environment. This philosophy has driven the creation of total cloud control embodied in Oracle Enterprise Manager 12*c*: one holistic tool that helps you set up and manage the entire cloud lifecycle."

The cloud lifecycle has three basic phases: planning/setup, deployment, and optimization. To assist with planning/setup, Oracle Enterprise Manager 12*c* features new discovery capabilities to identify all the elements of an IT environment, as well as capacity-planning tools to advise IT professionals on how to combine that environment into a shared infrastructure. Oracle's new management software also helps administrators determine what types of services they want to offer—infrastructure as a service, with basic computing, memory, and storage capabilities, or higher-level offerings such as platform as a service.

To streamline cloud deployment, developers can provide a complete suite of applications as virtual assemblies that can be uploaded into Oracle Enterprise Manager's software library. Users have self-service access to those resources through a modern cloud management portal, according to their predefined levels of authorization.

To optimize production clouds, Oracle Enterprise Manager 12*c* provides a new centralized console called Oracle Enterprise Manager Cloud Control. This wizard-driven, role-based management platform helps administrators manage the entire cloud lifecycle, including consolidation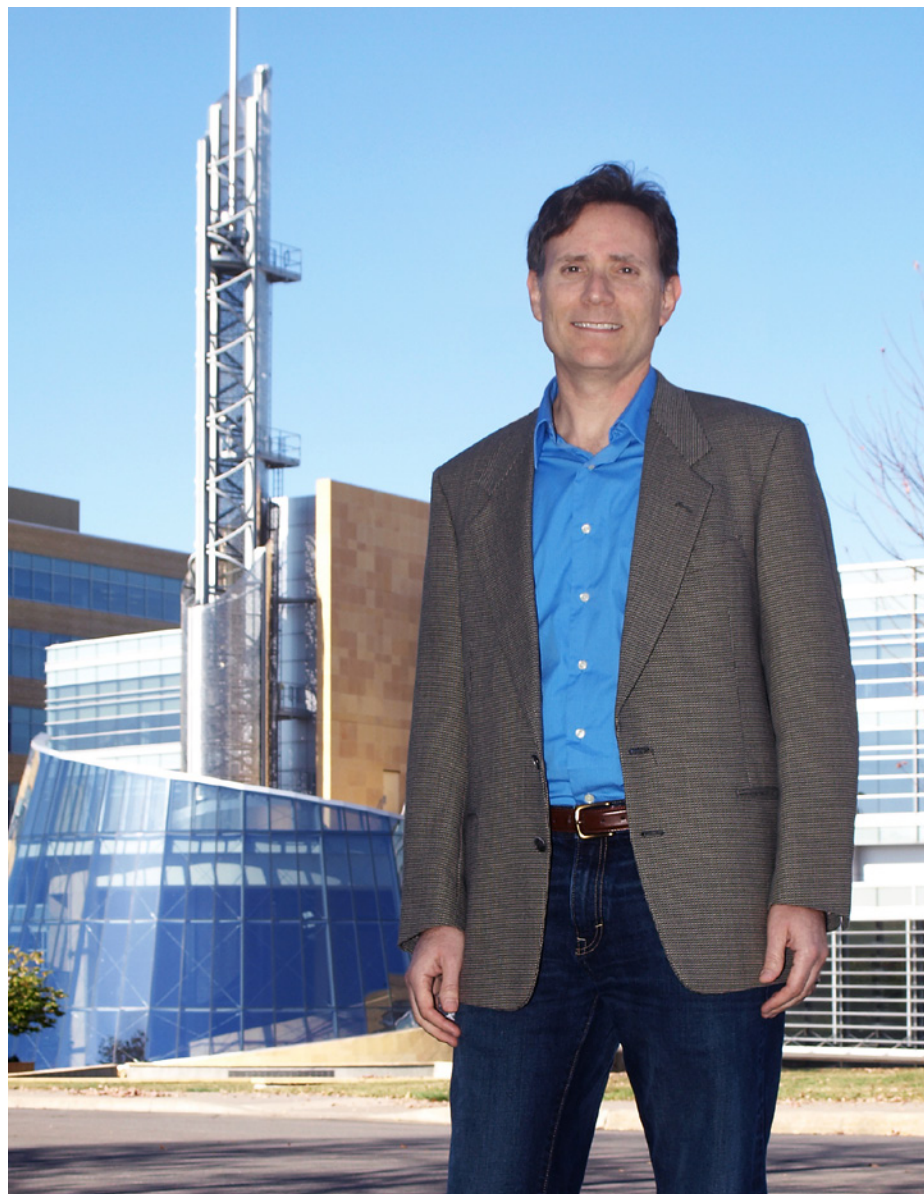 and capacity planning, self-service, testing, monitoring, and metering and charge-back. The software can monitor resource use at a discrete level and charge back for that usage based on common metrics such as CPU consumption and storage consumption, as well as by the types of technologies being utilized.

"Enterprise customers are struggling to develop more-comprehensive cloud management strategies that go beyond today's self-service provisioning and VM [virtual machine] control projects," says Tim Grieser, program vice president, enterprise system management software, at IDC. "Oracle has raised the bar by including mission-critical database, middleware, and application self-service provisioning and dynamic scaling in the corporate cloud management discussion. They have laid out a comprehensive cloud lifecycle approach, and—especially for those customers who deploy Oracle engineered systems or a complete Oracle technology stack—Oracle has been remarkably clear on the steps needed to plan, implement, operate, and manage clouds to derive business value from increasingly complex application deployments."

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transactions and application interactions—from one management console. By adopting a proactive philosophy of prevention rather than constantly reacting to incidents, the team has reduced database incidents by 50 percent; 17 percent of problems are now identified without DBA intervention. According to Myers, fine-tuning

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> —Tony Myers, Oracle Strategist, Cerner

AN EVOLVING STANDARD
As vice president, technology, Strategic Database Services, at Epsilon, Jeff White values Oracle Enterprise Manager for its standard processes, procedures, and consolidated interface. "We looked at other solutions, but for integrated monitoring, configuration, and management, Oracle Enterprise Manager was the best," he states. "The majority of DBAs are familiar with Oracle Enterprise Manager, and we heavily utilize templates to standardize common tasks and actions. This standardization allows us to save time that we would have spent writing, maintaining, and deploying scripts, so we can focus on higher-value tasks that provide ROI such as application system performance and tuning that enhances the customer experience."

Epsilon offers a broad array of data-driven, multichannel marketing solutions that help brands deepen their relationships with customers. White's group develops and manages customer loyalty programs, which

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WILBORN & ASSOCIATES

Cerner's database assets to maximize server utilization has saved the company US$9.5 million in capital expense.

"Our service-level agreements [SLAs] call for 99.9 percent uptime, but we've been able to surpass that and achieve 99.99 percent as a direct result of Oracle Enterprise Manager," says Myers. "Our DBAs are more efficient, which has allowed us to increase our client base without increasing our head count. Oracle Enterprise Manager automates many mundane tasks, which enables us to be more proactive and to focus on new technologies that improve client services."

CernerWorks has 350 Oracle Enterprise Manager users—50 of whom are external and access the management software as a cloud service. According to Myers, many of these users are intrigued by Oracle Enterprise Manager 12c, which he says will allow them "to analyze the data more closely and conduct deeper analysis" than they can do with Oracle Enterprise Manager 11g. "If the database hangs, previously you couldn't connect to it, but Oracle Enterprise Manager 12c lets you go around the database and access the data that's necessary to continue the analysis," he adds. "That's phenomenal."

Jeff White, vice president, technology, Strategic Database Services, at Epsilon, says his company uses Oracle Enterprise Manager and Oracle Exadata to provide real-time support for tens of thousands of point-of-sale terminals at a large U.S. retailer.

PAUL S. HOWELL

generate large amounts of data that require transaction processing, tracking, configuring, offer/content targeting, personalization, logging, and campaign execution. With many of its information systems seeing 40 percent growth year over year and increased demand for real-time reporting and conversation with end users, Epsilon decided to deploy an Oracle Exadata Database Machine to meet strict performance and availability requirements for some of its client programs.

"Client needs for real-time data and near-real-time reports are in high demand and growing," says White. "We deliver highly available and performing marketing solutions that adhere to strict SLAs that govern the customer experience."

White and his team used to spend considerable time architecting, configuring, and deploying high-performance computing systems. "We decided to purchase Oracle Exadata because we wanted an integrated server, storage, and network solution, so we would not have to manually select, configure, and validate hardware and software configurations," he notes.

Today Epsilon uses Oracle Enterprise Manager and Oracle Exadata to support a large U.S. retailer, including providing real-time support for tens of thousands of point-of-sale terminals, resulting in peak loads exceeding 500 Web service calls per second and reaching 200,000 IOPS [input/output operations per second]. Each Web service call can include tens to hundreds of transactions, yet these transactions average between 10 and 150 milliseconds, meeting the stringent expectations of true real-time data processing. White's team closely

monitors these information systems to ensure that they are online, up to date, and meeting customer requirements.

Oracle Enterprise Manager 11g gives Epsilon a cohesive view of all Oracle Exadata components, either individually or in a consolidated snapshot. System administrators rely on this centralized management insight to monitor many database systems and attributes, eliminating "shadow management consoles" for independent database servers. Administrators throughout the company now have a common management interface for the entire Oracle-based infrastructure.

According to Tim Grieser, program vice president, enterprise system management software, at International Data Corporation (IDC), the latest Oracle Enterprise Manager release is optimized to support highly integrated "full stack" Oracle environments and engineered systems. "While Oracle Enterprise Manager 12c can be used to coordinate the provisioning of third-party infrastructure and hypervisors supporting Oracle databases, applications, and middleware, customers can anticipate the greatest cost savings, performance improvements, and productivity increases by implementing Oracle Enterprise Manager 12c to manage full-stack Oracle environments," he says.

Epsilon's IT team is looking forward to implementing Oracle Enterprise Manager 12c in this context. White is particularly interested in the product's enhanced management capabilities for Oracle engineered systems. "Oracle Enterprise Manager 12c monitors an entire Oracle Exadata or Oracle Exalogic system, with performance and monitoring views for all hardware and software components," he says. "For example, built-in schematics let you visualize all the ports in the InfiniBand switches. That makes it easier to monitor the load and isolate throughput or latency issues." He also looks forward to using Oracle Enterprise Manager's Active Session History analytics capabilities to slice and dice tuning metrics via a GUI.

According to Oracle's Sarwal, Active Session History analytics is just one of more than 200 new features and 500 enhancements in Oracle Enterprise Manager 12c, many of which Oracle created in response to specific requests from customers. "Oracle Enterprise Manager 12c is a transformative product," he says. "It helps you do everything, from creating a cloud to deploying it and charging back for usage, along with capacity planning, self-service provisioning, and management and monitoring of all the underlying components. Oracle Enterprise Manager 12c enables organizations to view cloud resources as meaningful business services rather than isolated IT components." ◀

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NEXT STEPS

LEARN more about Oracle Enterprise Manager
oracle.com/us/products/enterprise-manager