There’s no question that data center environments are getting more complex by the day and that the IT resources to manage that complexity are growing tighter and tighter. It’s also the case that business and market requirements continue to evolve at a high rate and the ability of even the most well-intentioned IT departments to respond to these changes is diminishing.

One cause of this complexity and change is the rising use of virtualization technologies, which can bring IT organizations cost savings and agility that supports business growth. Yet virtualization also brings about additional management requirements related to dynamic resource allocation, an increase in overall systems to provision and support, and unpredictable workloads. Consider the fact that virtualization enables an environment of 100 physical servers to expand quickly to 400 physical and virtual servers. All 400 machines, virtual or not, must be configured, maintained, monitored and, when necessary, decommissioned.

Virtualization also blurs the lines between IT management responsibilities, making it less clear who handles storage, security, connectivity and support when the server operating system is no longer tied to a unique hardware resource.
Finally, virtualization may cause increased security risks to data centers by introducing a new “threat surface,” according to Nemertes Research.

Yet virtualization is just part of the mushrooming challenge with core infrastructure management. Green IT initiatives, business M&A activity and consolidation strategies require time for strategic planning and the ability to execute on the plan.

Systems management tools have been available for many years to help IT automate some of the processes related to monitoring and managing the infrastructure. The question is not a lack of automated tools — but a matter of having too many of them that are disconnected, causing greater confusion, duplicate processes and errors. The plethora of point tools for individual systems, including networks and storage, may increase instead of lessen IT complexity. A majority of IT managers expect double-digit growth in the number of hardware, firmware, software and related change events they will need to deal with in the next year, according to a 2010 IDC report. Traditional, ad hoc change management strategies can no longer effectively scale to support these increasing demands.

AN INTEGRATED APPROACH TO HARDWARE AND INFRASTRUCTURE MANAGEMENT
To operate data centers efficiently, organizations need to automate and integrate management activity across physical and virtual domains and up and down the applications and infrastructure stack. By doing so, IT can resolve the following issues:
- disconnected processes and tools
- doing more with limited resources
- the hassle of managing multiple automation scripts
- lack of a complete, cost effective solution for managing storage, servers, networks and operating systems

Without a more streamlined, centralized approach to infrastructure management, business users suffer from incomplete or slow problem resolution while IT struggles with rising costs. However, with a holistic, end-to-end understanding of the status of physical and virtual server, storage, OS and networking resources, and the workloads they support, IT can gain the upper hand.

INTRODUCING ORACLE ENTERPRISE MANAGER OPS CENTER
In response to these challenges, Oracle developed the industry’s first converged hardware management solution for Sun environments. Oracle Enterprise Manager Ops Center (Ops Center) is a key product in the Oracle Enterprise Manager family and provides a comprehensive solution that merges the management of Sun infrastructure assets (firmware, operating systems, servers, storage, network fabrics and virtualization) into a single unified console. This helps streamline tasks and reduces system downtime.

This solution enables full lifecycle management from initial provisioning to decommissioning and automates many routine provisioning, patching and compliance management processes. Ops Center helps system administrators better manage the sprawl of virtual systems and integrate physical and virtual environments more effectively, versus configuring and managing systems individually. Ops Center also provides deeper visibility and integrated monitoring across the infrastructure stack, helping system administrators quickly isolate the source of problems, a task that comprises more than half of the time spent resolving an issue, according to the 2010 IDC report.

Here are a few highlights of Oracle Enterprise Manager Ops Center:
- Automates complete process of deploying new systems in a single step, from hardware configuration and firmware updates, to operating system and virtual machine provisioning.
- Integrates with My Oracle Support for automated service requests and access to the Oracle knowledge base and community for optimal problem resolution.
 Enables rich new integrated application-to-disk management capabilities within Oracle Enterprise Manager, which helps IT quickly detect changes in system health and troubleshoot issues across the entire environment.

Increases system utilization by automatically pooling and dynamically allocating resources to workloads as needed.

The end result for organizations taking advantage of Ops Center is that IT can more consistently deliver high performance of mission-critical application workloads to the business. From an IT perspective, a company can gain greater value and return from Sun hardware investments. Ops Center supports Windows and Linux operating system environments as well.

MAJOR RETAILER REDUCES UPDATE AND PROVISIONING TIME BY 50%

Companies today are looking for ways to grow and improve IT operations to support user needs, yet are often constrained by budget and resources. For a major multichannel retailer, embarking on a major SAP consolidation effort highlighted the need for better automation to help manage the fivefold increase in total Unix physical and virtual instances it needed to deploy. The company’s two full-time employees assigned to Unix system engineering tasks were using ad hoc tools and manual processes to manage OS, firmware and hardware inventory, and provisioning updates. As a result, the processes related to finding, verifying and provisioning updates were particularly time consuming.

Using Ops Center, the retailer cut in half the time required to deliver a provisioned instance. The Unix team has now extended the solution to manage and deploy custom system configurations automatically, to track and improve system utilization, and to generate compliance reports. Down the road, the retailer also plans to use Ops Center to automatically standardize new system builds on a single Solaris image.

BUSINESS AND IT BENEFITS FROM ORACLE ENTERPRISE MANAGER Ops CENTER

IT managers in large organizations are accustomed to working in divisions organized by unique system expertise — and changing behavior takes time. While it might be a challenge to convert all the infrastructure teams into a single system with one set of processes, in the end the effort pays off. Consider the value of a platform-converged hardware management solution to automate discovery, provisioning, configuring, patching, monitoring and compliance activities across hardware, firmware and virtual infrastructure layers.

Lower TCO: Now more than ever, IT departments need to operate with laser-like efficiency. According to the 2010 IDC report, systems management tools that can centralize and automate time-consuming, error-prone processes — including provisioning and decommissioning across complex environments — can save IT teams thousands of dollars and hundreds of man-hours. Not only can such automation make IT more efficient, but it also supports standardization as it relates to updates and configurations. This in turn keeps systems optimally tuned and reduces support incidents.

As well, converged hardware management gives IT managers a more holistic view of the infrastructure so staff can optimize hardware resources for maximum utilization and energy management. That can save an organization from unnecessary IT purchases and gargantuan utility bills.

Reduced downtime: Performance and availability are two of the primary goals of the enterprise IT department; keep users of mission-critical applications productive at all costs. Ops Center provides operators with a graphical Web browser interface for real-time system health status and centralized alarm management to help speed incident resolution and reduce downtime. Integration with My Oracle Support also helps resolve problems faster through automated service requests, proactive fixes and the latest advice from the Oracle community. Built-in intelligence reduces potential problems from human error, and automated patching means that systems are updated and back online quickly.
Improved risk management and compliance:
Maintaining proper security of the infrastructure remains a critical need within the enterprise. Inadequate change management and monitoring tools don’t have to hamper those efforts. With Ops Center, IT has a single console from which staff can easily and accurately apply updates and monitor compliance across all systems. In particular, when it comes to patching, IT can suffer from incomplete information leading to the wrong patch or patch conflicts that wreak havoc on system performance if not detected prior to the update. With Ops Center, IT can view compliance reports that identify machines requiring updates, and then leverage built-in analytics and automation to apply only the appropriate patches to each machine. To lower risk, IT staff can also model the impact of changes an update will incur and receive notifications of any conflicts. All changes made to any system are tracked by Ops Center and available in comprehensive compliance reports for auditing and regulatory requirements.

IT productivity: Getting more done faster means providing better service to business users. Ops Center is unique in the industry for delivering advanced server lifecycle management capabilities from discovery through all management phases. Ops Center enables rapid system provisioning that includes hardware configuration, firmware updates, virtual machine (VM) and operating system deployment, and patch updates packaged into a single deployment plan. IT can save this plan for future standardized deployments.

Enhanced virtualization capabilities include management and monitoring of VM utilization, resource pools and workload migrations for Solaris Containers & Oracle VM Server for SPARC. Given the dynamic and amorphous nature of virtual environments, sophisticated monitoring and management tools are critical to deliver true ROI to the business. Finally, beyond servers, IT can also monitor and manage storage systems and network fabrics from the same console. This applies to Oracle’s ZFS Storage Appliances (7000 series) and Oracle’s Infiniband & Ethernet switches.

Integrated application-to-disk management:
Organizations using Oracle Enterprise Manager can gain the complete applications-to-disk view of their IT environment from a single management framework. Oracle Enterprise Manager leverages Ops Center instrumentation, allowing application teams to view infrastructure status and be aware of any potential issues and save time when troubleshooting user complaints. From within Oracle Enterprise Manager, staff can see status information on servers and networks, and also set up alerts on key metrics. Conversely, systems administrators gain application awareness from within Ops Center, to understand and predict the impact of transaction volumes on the infrastructure, for instance. IT gains the value of comprehensive compliance reporting across all systems, instead of having to manually compile the data from several systems.

MEETING THE NEEDS OF THE NEW DATA CENTER
Over the past several years, data centers have undergone a transformation on many levels. Virtualization, cloud computing, astronomical growth in transaction volumes and applications, significant growth in unstructured data, greater storage needs, demands for energy-efficiency and high-performance computing needs are a few of the typical requirements of the modern data center. In a positive light, data center managers have an exciting opportunity to change the way companies view infrastructure, from a cost center to a profit center that is tightly aligned with business objectives. To fulfill this vision, however, they need the right tools and methods to reliably deliver cutting-edge services and applications to business users, without stretching IT resources to the limit. Converged hardware management, within the broader trend of integrated systems management from a single console, is an approach that makes sense in today’s high-stakes IT environment.