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# Open Up New Possibilities for Your SAP Landscape

## VMware's Virtualization Offerings Help You Optimize Your Software Investments

The benefits of virtualization are clear: By running several operating systems and applications at the same time on a single computer, you can dynamically rebalance applications while increasing system resource utilization across test, development, quality assurance, training, and production environments. You can also save money on hardware, space, and power needs. So how can you start taking advantage of these benefits?

VMware Infrastructure is a flexible and cost-effective industry-standard hardware virtualization suite for SAP solution implementations. With it, your SAP solutions-based environments can cost less and be more productive than they can within a purely physical infrastructure. VMware Infrastructure helps companies apply the full range of virtualization benefits – from server consolidation and containment to business process and data center automation – to all sizes of SAP deployments. SAP customers are already using VMware's solutions to:

1. Optimize data center resources
2. Ease system upgrades, implementations, and platform migrations
3. Meet service-level agreements (SLAs)
4. Support service delivery to the business

Let's look at each of these opportunities in more detail.

### Optimize Data Center Resources

In a typical SAP deployment, every layer of the environment is hosted on dedicated physical servers, which are often underutilized. By enabling companies to run multiple applications on virtual machines, VMware Infrastructure helps companies cut back on the number of physical servers they need. This virtualization technology also addresses one of the increasingly painful costs of underutilized hardware resources: high energy consumption. Energy costs are on the rise, and many data centers simply lack

the power or space to continue supporting large numbers of physical servers.

In fact, industry analysts estimate that the annual cost of powering a server will soon exceed its acquisition cost. By enabling server consolidation and reducing server sprawl, VMware virtualization solutions allow users to dramatically cut hardware and energy costs while increasing hardware utilization.

### Ease System Upgrades, Implementations, and Platform Migrations

Upgrades present a golden opportunity to move system landscapes from older, proprietary platforms to cost-effective, industry-standard servers and operating systems. But these upgrades must be thoroughly planned and tested to ensure the smoothest and least disruptive transition possible.

An important task in any upgrade project is setting up environments – whether it's the initial environment setup or ad hoc deployments of new environments for test or development purposes. Providing new environments is especially important if the project includes a migration or an operating system upgrade. In a traditional native deployment, this process tends to be time consuming and can cause project delays, especially if the available hardware is not sufficient.

VMware virtual machine templates allow you to enforce consistency among application instances. You can build an archive of development and test environments that you can deploy at a moment's notice, eliminating time-consuming, manual tasks associated with setting up system configurations. This also makes it easier to clone environments for ad hoc or production purposes.

Using VMware software, you can also take snapshots that capture the state of a virtual machine before applying and testing changes to SAP code or the operating system. You can then roll back to a known good state in minutes, allowing more tests cycles in a shorter time window.

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SAP provides full support for its solutions in 64-bit Windows-based and Linux-based production environments that are running on VMware ESX.

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With these snapshots, you can also make platform migrations easier. These migrations can take several hours and involve extensive testing and tuning to minimize risk of failure. VMware snapshots can capture the state of an application at multiple intermediate points during the process, making it easy to test sub-phases of the upgrade under multiple scenarios.

In case of problems, snapshots also enable a quick rollback to the pre-upgrade state, providing worst-case insurance that your environment can be rapidly returned to a functional state, limiting any potential downside to the business.

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### Meet Service-Level Agreements

SAP application owners, Basis administrators, and IT staff are responsible for meeting service-level agreements that guarantee availability and performance targets for solution users. VMware has several virtualization solutions that work alongside SAP-provided functionality to deliver high availability for critical business functions and improved infrastructure and application performance:

- In the event of physical server failure, **VMware High Availability** automatically restarts virtual machines on servers that have spare capacity, minimizing downtime and service disruption and eliminating the need for dedicated standby hardware. It also provides high availability benefits for SAP environments without the complexity of setting up cluster configurations.
- **VMware Distributed Resource Scheduler** dynamically balances computing capacity across hardware resources that are aggregated into logical resource pools. It monitors utilization and intelligently allocates available resources among virtual machines based on predefined rules that reflect business needs and priorities. When load increases on an SAP virtual machine, the VMware Distributed Resource Scheduler automatically redistributes virtual machines across physical servers to ensure resource availability so applications can continue to perform at expected levels.
- **VMware VMotion** enables the live migration of virtual machines from one physical server to another with minimal downtime. With VMotion, you can perform hardware maintenance without scheduling system downtime that disrupts business operations. Your IT staff can do

maintenance work during regular business hours, rather than during late-night or weekend shifts.

- With **VMware Site Recovery Manager**, you can implement a unified disaster recovery process without investing in an exact replica of the hardware. This solution integrates with storage replication software from third-party storage vendors to eliminate complex manual recovery steps and enable nondisruptive testing of recovery plans, making failover and recovery rapid, reliable, affordable, and manageable.

### Support Service Delivery to the Business

VMware Infrastructure enables companies to deploy service-oriented architecture (SOA) rapidly and cost effectively. Consider a system that operates within set business parameters – at a certain number of SAP transactions per second, for example. The system can use VMware Infrastructure capabilities to move resources dynamically into the application resource pool as load increases, or to shift resources away from the pool as load diminishes.

Mergers and acquisitions, for example, can present a host of challenges to IT organizations, particularly when it comes to maintaining the integrity of data and transactions in financial, customer, and other operational systems, building communication among application systems, transitioning data and users from one application to another, and so forth. VMware virtualization software reduces the cost and complexity of merging disparate IT environments by converting legacy applications and database environments to virtual machines. These virtualized workloads can run on the latest industry-standard servers and are easily incorporated into the existing landscape. Furthermore, as you integrate the acquired company's data and processes into the existing SAP systems, the virtualized architecture provides flexibility to effectively address the increased load on the systems.

### Learn More

With rising power costs, shrinking budgets, and increasing pressure to do more with less, IT organizations would be well served to consider virtualization. Many companies are already using VMware virtualization tools and solutions for their SAP environments.

Visit [www.vmware.com/sap](http://www.vmware.com/sap) to read case studies, download white papers, and learn more about the benefits of VMware Infrastructure. ■