

# Service-Driven Data Centers: Stepping Stones to the Cloud

**A**t some level, every major industry trend is simply a natural, inevitable response to pain—a new idea for relieving pressure and eliminating barriers that slow organizations down and cost them extra money. The current trend toward service-driven data centers and enterprise cloud computing is no exception. In practical terms, it's nothing more or less than our industry's latest attempt to fix a long list of problems and inefficiencies that have plagued traditional data centers for years.

We're all familiar with the issues. Today, data center service delivery models are simply too slow, inefficient, inflexible and error prone to keep up with the current pace of business. In a traditional data center environment, it typically takes more than 90 days to purchase, deploy and provision the hardware and software needed for a new business service. Vendor lock-in issues often make it difficult or impossible to leverage best-of-breed tools. Slow, inefficient manual workflows tend to be unproductive and error prone, which often translates into unacceptable service delays and disruptions. And even though virtualization can dramatically reduce the cost and complexity of provisioning infrastructure, it can also hide the true costs of service delivery, which often leads to serious "infrastructure sprawl" problems.

Of course, these challenges are not limited to the realm of pure infrastructure management. Business services inevitably require the involvement of many different teams, from business service managers to application owners. These teams often bring different objectives and priorities to the table, and traditional data center environments often struggle to provide the flexibility and visibility needed to reconcile their interests and achieve their varied (and occasionally competing) goals.

## > Exploring a Practical Approach to Cloud Computing

Businesses are turning to cloud computing in growing numbers, because it offers a new approach for solving these long-standing data center problems. As with any new trend, cloud computing also raises its own set of issues and questions, many of which revolve around the obvious security, protection and auditing implications associated with moving enterprise business services to public clouds. As a result, many organizations are asking whether it makes more sense to move their enterprise to the cloud—or bring cloud

computing into their enterprise. A surprising number are discovering that the best, most practical answer may be "both."

Making your own internal data center environment more "cloud like" allows you to immediately tap into many of the advantages of cloud computing, leverage existing infrastructure investments and avoid the current questions and risks associated with public clouds. This incremental approach also makes it easier to transition to a hybrid public/private cloud model in the future—after security, auditing and other public cloud issues have been addressed. In other words, many organizations view the creation of internal clouds and service-driven data centers as important stepping stones to a more full-blown private and public cloud computing model.

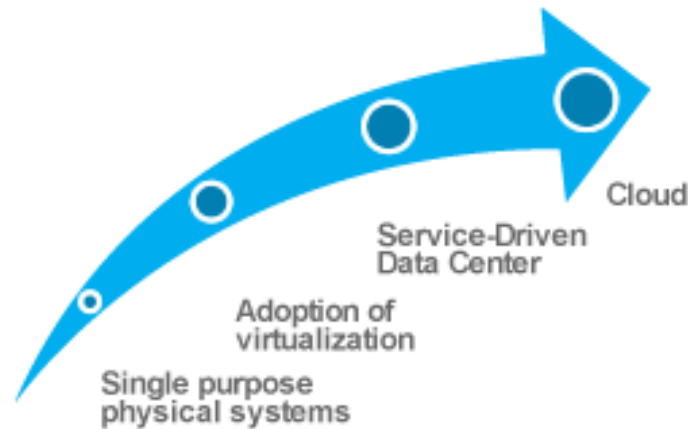
## A Smart, Practical Path to Building an Internal Cloud

1. Build a Service-Driven Data Center that simplifies, accelerates and automates the deployment and management of business services
2. Create, publish and deploy standard infrastructure offerings
3. Add visibility and accountability to current and future capacity needs
4. Keep your infrastructure options open
5. Provide advanced business service management capabilities

## > Finding Your Stepping Stones to Successful Cloud Computing

What does it mean to bring cloud computing into your data center? And exactly how do you go about creating and managing a data center infrastructure that provides all the advantages and benefits of internal cloud computing? Basics like virtualization and workload management are certainly important. But building an internal cloud is also about incorporating a "business services" layer of abstraction to your traditional data center infrastructure. In traditional data centers, computing power and storage capacity are combined into workloads, which are then used to run enterprise applications. Adding this new business services layer logically groups these server workloads based on the

*Figure 1: Adding a new “business services” layer of abstraction to your data center enables it to operate like—and interact with—private and public clouds .*



business services they support. This shifts the management focus to full business services—and away from the individual underlying components. The exact nature of this new business services layer may vary depending on the unique requirements of your organization, but it needs to include a few core characteristics and capabilities. Here are a few of the non-negotiable functions every service-driven data center should be able to perform:

**1. Simplify and accelerate the deployment of business services**

Effective service-driven data centers dramatically simplify the provisioning process and reduce the time and effort required to deliver new business services. This includes automating every step of the deployment process, so your infrastructure team spends less time on manual, repeatable processes. It also involves giving business service managers and application owners more opportunities to perform certain management tasks themselves. This important self-service component translates directly into higher service levels, more efficiency and fewer distractions for your infrastructure team.

**2. Create, publish and deploy standard infrastructure offerings**

A service-driven data center also provides a new model for defining infrastructure offerings and making them available to business service managers. With the right management tools, you can build a flexible repository of standard infrastructure offerings, including things like standard server images, pools of storage capacity, standard network

access and so on, and then publish those services and make them available for fast, efficient deployment. This allows business service managers and application owners to browse through a list of available infrastructure services, assemble and customize the components they need, see the associated costs and then quickly deploy new workloads.

**3. Add visibility and accountability to current and future capacity needs**

Next, your service-driven infrastructure needs to include tools for managing costs and understanding current and future capacity demands on the internal cloud. All too often, virtualized environments tend to “de-couple” computing and storage capacity from underlying hardware and software costs. This often causes business service managers and application owners to treat cloud resources as a free, inexhaustible pool,

*Figure 2: Novell Service-Drive Data Center Solutions.*

Novell Service-Driven Data Center Solutions

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| Solutions                                     | Products  |
|---|---|
| <b>Business Service Management</b>            | <ul style="list-style-type: none"> <li>• Novell Business Service Manager™</li> <li>• Novell myMO™ Executive Dashboard</li> <li>• Novell myCMDB™</li> <li>• Novell Business Service Level Manager™</li> <li>• Novell Business Experience Manager™</li> </ul>     |
| <b>Virtualization and Workload Management</b> | <ul style="list-style-type: none"> <li>• PlateSpin® Migrate</li> <li>• PlateSpin Recon</li> <li>• PlateSpin Protect</li> <li>• PlateSpin Forge®</li> <li>• PlateSpin Orchestrate</li> <li>• PlateSpin “Atlantic” (Available 2010H1)</li> </ul>                  |
| <b>Enterprise Linux Servers</b>               | <ul style="list-style-type: none"> <li>• SUSE® Linux Enterprise Server</li> <li>• SUSE Linux Enterprise for System z</li> <li>• SUSE Linux Enterprise for SAP</li> <li>• SUSE Linux Enterprise Real Time Extension</li> <li>• SUSE Studio &amp; JeOS</li> </ul> |

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which leads directly to underutilization of resources and cost overruns. Attaching concrete costs to specific cloud resources eliminates this problem and encourages responsible usage and deployment practices.

Your service-driven environment should also help you accurately predict future demands on your internal cloud. This includes providing a “pipeline tool” that gives business service managers the ability to enter basic information about future capacity needs without actually deploying new workloads. By collecting all this current and future usage and capacity information in one place and analyzing it carefully, infrastructure managers can gain a deeper understanding of how cloud resources are being used and how demands will change over time.

#### **4. Keep your infrastructure options open**

Growing demand inevitably leads to the need for new servers, storage hardware, operating system and other underlying physical infrastructure components. As you build your internal cloud, you should always look to avoid the dangers of vendor lock-in. This typically involves being aware of—and steering clear of—too much vertical integration and choosing a business service management solution that’s designed to support a heterogeneous cloud environment. This gives you the freedom to implement best of breed infrastructure components that make the most sense for your organization. It also simplifies the process of moving to a hybrid cloud computing model that leverages a diverse range of internal and external computing resources.

#### **5. Provide advanced business service management capabilities**

Finally, a successful internal cloud environment has to offer relevant insights, deep visibility and efficient management capabilities to everyone with a vested interest in specific business services, including business service managers, business service owners, application owners and infrastructure teams. This includes providing the ability to integrate and unify different silos of information; gather, normalize and correlate all the information about your internal cloud infrastructure; and map a wide range of physical, virtual and logical components onto a simple, meaningful service model dashboard. You should also be able to create custom dashboards for people with different roles, responsibilities and interests.

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### **What About Cloud Security?**

Even if you’re considering a mostly internal cloud deployment, you may still need to outsource some applications to an external cloud vendor. But in these software-as-a-service (SaaS) situations, how can you make sure your vendor is leveraging your existing systems and security policies—without exposing sensitive information like user identities and passwords in the public cloud?

Novell is tackling this difficult issue head on with a new Cloud Security Service that essentially “annexes” a segment of a public cloud. This unique solution holds enterprise identity information securely behind your firewall while still making it safely available to cloud applications, cloud identity providers and other cloud assets.

The next issue of *Novell Connection* will feature a detailed, full-length article on the capabilities and benefits of the Novell Cloud Security Service. In the meantime, you can visit

[www.novell.com/products/cloud-security-service/](http://www.novell.com/products/cloud-security-service/) for more information about this important new offering.

Learn More about Novell and Cloud Computing  
Visit [www.novell.com/cloud](http://www.novell.com/cloud)

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### **> Creating Successful Internal Clouds with Novell Solutions**

Novell is ready to help you create a service-driven data center environment that brings all these capabilities together to deliver the full promise and potential of cloud computing and sets the stage for more extensive hybrid internal/external cloud computing solutions in the future. This includes fast and proven SUSE Linux Enterprise Server offerings that are ideal for cloud computing environments, a complete range of PlateSpin virtualization and workload management products and a variety of advanced Novell Business Service Management solutions. Together, these technologies can transform your traditional data center into a more efficient, agile and automated service-driven environment—and provide all the stepping stones you need to reach your most ambitious cloud computing goals.