

Automation and Orchestration Drive Virtualization into Private Clouds

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Without automated provisioning, orchestration, and self-service capabilities that address all of the IT operational challenges created by today's highly complex technology infrastructures, no amount of virtualization will produce the full spectrum of private cloud payoffs.

Your virtualized data center has no hope of running cost-effectively if it relies on only traditional approaches to provisioning, performance monitoring/management, and change/configuration management.

That's because traditional processes, tools, and techniques – many of them manual and labor-intensive – were designed for a much more static IT world and simply will not scale, in scope nor speed, to the volume and pace of change typical in today's extremely complex and dynamic IT environments.

After Virtualization

Persisting with a traditional IT environment carries what might best be characterized as cultural risks, too.

Line-of-business stakeholders who use and benefit from public cloud services already understand the virtues of agile and rapid services provisioning, and have bypassed corporate IT groups for public cloud alternatives. This “shadow IT” may put certain applications at risk – compromising security, privacy, and compliance – and undermine IT governance in terms of cost, performance, and resiliency issues.

Why? Because too many of your data-related resources and services have yet to be automated and orchestrated. Until this is accomplished, your journey to the private cloud isn't done yet.

Private Cloud: A Key Strategic Differentiator

Four capabilities inherent in a private cloud make it a key strategic differentiator:

- 1 *Standardization*, which enables the efficient use and maintenance of technology resources;
- 2 *Agility*, which accelerates the creation and provisioning of services;

3 *Superior performance and resiliency*, which ensures the availability and reliability of services; and

4 *Resource optimization*, which reduces both operational and capital costs.

These capabilities enable you to quickly build and provision resilient business services that deliver solid performance while maximizing resource use in today's highly complex data center environments.

A Glance at Private Cloud Models

"Pure" Private Cloud

You own and manage the cloud infrastructure, which is located at your site or a co-location facility of your choosing.

Managed Private Cloud

You own the cloud infrastructure used (which, as with a pure private cloud, is located wherever you want) – but you elect to have a third party provide ongoing management and support.

Hosted Private Cloud

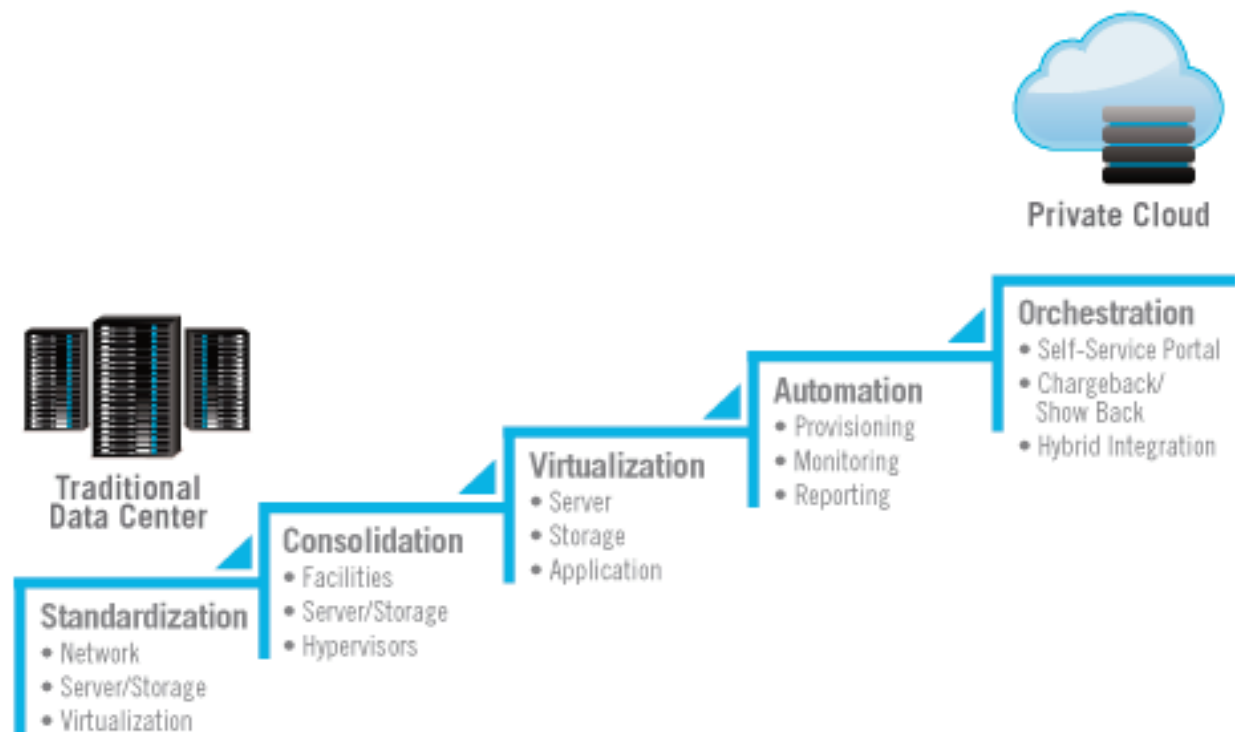
You buy no cloud infrastructure. Instead, you employ a cloud provider that hosts your infrastructure in dedicated facilities at its site.

Virtual Private Cloud

You buy no cloud infrastructure. Instead, you employ a cloud provider that hosts your infrastructure in its secured multi-tenant facilities.

Achieving Private Cloud Benefits Involves a Journey

Many organizations have invested in the first three steps of the five-step journey to a private cloud: standardization, consolidation, and virtualization. These investments mean they've forsaken traditional siloed IT for a data center platform such as the Cisco/NetApp FlexPod[®], which integrates standardized components into a single, flexible architecture that can scale up and out and be optimized for a range of mixed (virtual and nonvirtual) workloads.



As a result, these enterprises have fielded a future-proofed, private cloud-ready unified architecture that leverages traditional infrastructure (compute, networking, and storage). And they've benefitted from reductions in application deployment time, total cost of ownership (of up to 50%), and business disruptions.

Virtualization: A Necessary But Not Sufficient Condition for a Private Cloud

Unquestionably, server virtualization – which puts multiple workloads on a single physical machine – is one of cloud computing’s foundational technologies. IDC has estimated that the average number of workloads per server increased from three in 2005 to 6.6 in 2011, and by 2014 it will reach 8.5.* Thus, server virtualization has reduced physical server sprawl.

But virtualization also makes it very easy to quickly spin up lots of virtual machines. So despite your virtualization investments, chances are you’ve seen only minimal improvements in operational productivity, and you now may be suffering from virtualization sprawl.

*[*http://www.morganstanley.com/views/perspectives/cloud_computing.pdf](http://www.morganstanley.com/views/perspectives/cloud_computing.pdf)*

Yet without taking the final two steps of the cloud journey – automation and orchestration – even environments like FlexPod cannot deliver the real power of a private cloud. So let’s take a closer look at what automation and provisioning actually do.

Why Automation, Orchestration, and User Interface Matter

Cloud automation accomplishes two things:

It transforms the provisioning (as well as migration and deprovisioning) of workloads, resources, and applications. What once required days or weeks is accomplished in minutes, thanks to standardized service menus and templates that speed service delivery and better enforce compliance mandates while reducing human error.

Cloud automation also transforms end-to-end monitoring of performance and service-level agreements — so now provisioning is policy-driven, reporting and analytics are built in, and the stage is set for self-service capabilities.

Cloud orchestration powers the self-service portals that allow end users to employ a browser interface to rapidly provision services and resources available from a catalog of standardized offerings.

The right cloud orchestration software enables you to customize the self-service portal your end users see to make it less complex and as user-friendly for them to operate as well-known public cloud services like Amazon's.

Orchestration also facilitates the consumption-based metering and capacity planning that can track who uses which resources, thus improving resource optimization and permitting usage chargeback/showback.

Finally, orchestration powers the cloud integration that spans applications and infrastructures, including public clouds, so workflows and configurations can be standardized, corporate policy (including security) can be consistently applied, and the entire service/resource lifecycle (compute, virtualization, network, storage, and apps) can be managed.

Together, cloud automation, cloud orchestration and the user interface pay off by:

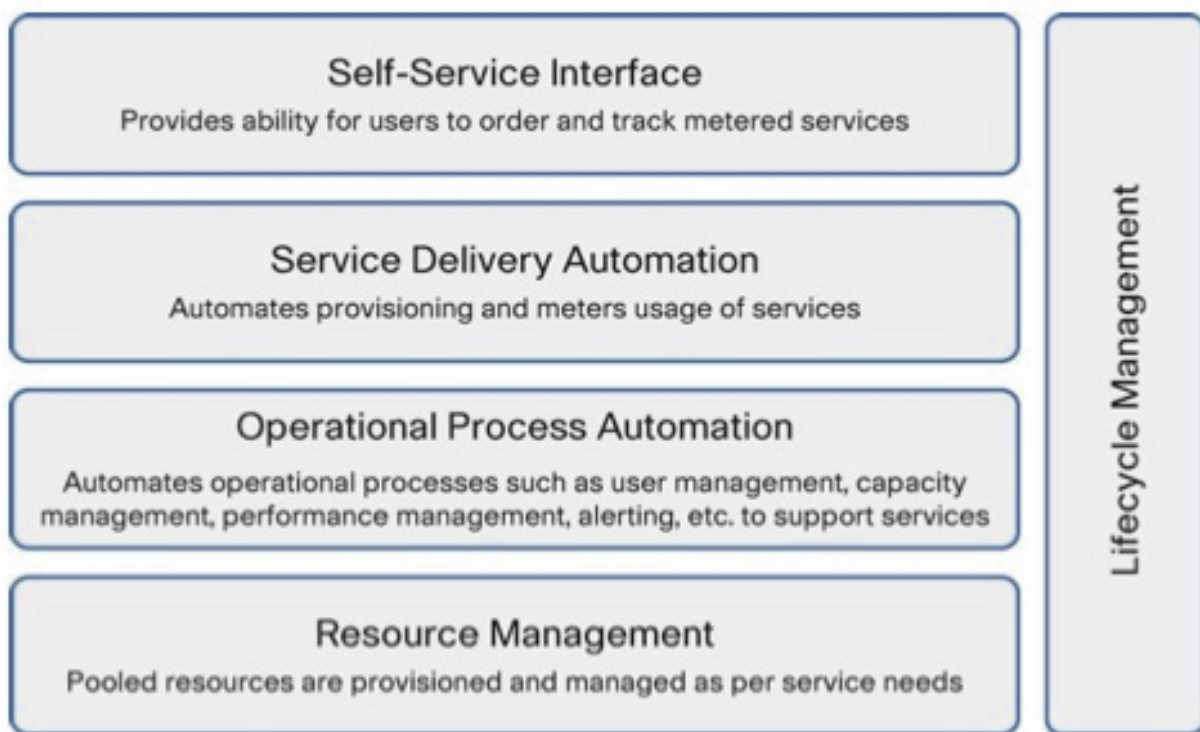
- Bringing application and resource self-service to end users;
- Speeding provisioning, making the business more agile and responsive as well as freeing IT staff to manage proactively rather than reactively;
- Managing virtual machine sprawl with automated, policy-based monitoring and tools that can schedule reclamation of underutilized resources as well as consistently track resource requests and their fulfillment;
- Enabling use of chargeback/showback;

- Enforcing security policy consistently; and
- Implementing utility-based resource consumption.

Private-Cloud Automation and Orchestration Solutions That Work

While there are several cloud automation/orchestration solutions available, two stand out:

Cisco Intelligent Automation for Cloud (CIAC) delivers an advanced, integrated software stack that provides the key elements of cloud automation and orchestration in a single unified solution.



CIAC includes:

- **Cisco Cloud Portal:** A comprehensive service catalog with service design and lifecycle management capabilities, a Web-based self-service portal, and built-in policy enforcement and tracking.
- **Cisco Tidal Enterprise Orchestrator:** A process orchestration engine, an interactive automation design studio, and a reporting and analytics module.
- **Cisco Tidal Enterprise Orchestrator Integration Framework:** A rich set of pre-built integrations that connect cloud infrastructure elements and boundary IT service management tools into streamlined, comprehensive automated processes. .
- **Cisco Tidal Server Provisioner:** Provisions operating systems, hypervisors, and applications to remote, unattended, native installations on virtual and physical servers..
- **Cloud Automation Packs:** Preconfigured workflows for both common and complex computing tasks that span multiple domains..

VMware's vCloud Director offers a cloud automation/orchestration solution that pools compute, storage, and network resources into virtual data centers to simplify the building of secure, multi-tenant hybrid clouds.

VCloud Director separates the consumption and delivery of IT services so IT can manage resources more efficiently. It uses open standards and a customizable API to preserve deployment flexibility between private clouds or with a hybrid cloud – so you can extend your data center capacity to include secure and compatible public clouds that you can manage as easily as your own private cloud.

VCloud Director includes virtualization-aware security, fast provisioning, a self-service portal, a vApp catalog of preconfigured services, and organization-oriented policy controls.

Both CIAC and vCloud Director deliver cloud automation/orchestration capabilities that:

- Increase IT agility;
- Boost employee productivity;
- Accelerate business-IT alignment;
- Provide more consistent IT governance;
- Enhance asset utilization;
- Improve service levels and consistent implementation of best practices; and
- Reduce service delivery costs.

Getting Started: The Difference Insight Makes

The journey to a fully realized private cloud does not have to be daunting.

As a premier IT solutions partner with a broad technical scope, a far-reaching supply chain, and deep cloud expertise (including certification as a Cisco Cloud Builder), Insight can help you achieve the powerful efficiencies and cost savings of a private cloud with the leading-edge solutions that are right for your business.

What's more, Insight will be there to manage your entire private cloud lifecycle.

Our commitment to your success starts with our initial conversation with you, during which we take the time to truly understand your business, your pain points, and your goals. It continues through pre-sales support, product procurement, and deployment – and it incorporates any additional services you may choose so your private cloud is uniquely effective for your business.

Because Insight wants to make your journey to your private cloud as smooth and painless as possible.