The Journey to Private Cloud

EMA™

*IT & DATA MANAGEMENT RESEARCH,
INDUSTRY ANALYSIS & CONSULTING*

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The Journey to Private Cloud

Based on a recent Enterprise Management Associates® (EMA™) research study, the main reasons for adopting cloud computing, mentioned by 52%-62% of respondents, were as follows:

a) **Agility:** Accelerating service creation and provisioning

b) **Performance and resiliency:** Improving the performance and resiliency of business services

c) **Resource optimization:** Reducing operational and capital expense

Respondents mentioned a vast variety of enterprise applications – e-mail, CRM, VDI, custom applications, ERP, accounting, HR, telephony, and even mainframe-based application services – when asked what they were planning to host in the cloud. This response illustrates the importance that most companies place in the adoption of a cloud model. Organizations are looking for faster and more agile IT delivery models that help strengthen their positions in the marketplace. In today's relentlessly competitive markets, the ability to rapidly build and provision well-performing and resilient business services at a reasonable cost can be seen as an essential strategic differentiator for the entire enterprise.

If this agility is not offered by the company's internal IT organization, business stakeholders and developers look for the resources they require outside of the corporate data center. Growing corporate credit card bills for Amazon EC2 and other public cloud services are unambiguous evidence of this fact. These public cloud solutions are not appropriate for every application from a compliance, security, and cost point of view. Moreover, without corporate IT governance, this new "shadow IT" may introduce performance and resiliency-related risks to business services.

To bring back users under corporate governance, the enterprise has to offer a service delivery model that is similar in speed and convenience to the one offered by the public cloud. Over time, most enterprises plan to embrace a hybrid cloud model – where IT becomes a broker of services, whether hosted in the private cloud or sourced through external cloud providers. As a first step, the majority of IT organizations today are focused on building their own private clouds.

> To bring back users under corporate governance, the enterprise has to offer a service delivery model that is similar in speed and convenience to the one offered by the public cloud.

Virtualization, a Pre-condition for Cloud

Data center virtualization was heralded as a major step toward agility and efficiency of enterprise IT. However, progress was often been not as significant as expected. In many cases, overall resource utilization remained at the same approximately 20% as before these virtualization efforts. Provisioning speed often did not increase significantly either, as the traditional challenges of building new physical servers were replaced by a new set of management challenges. Physical server sprawl decreased, but the efficiency gains often were offset by virtual machine sprawl, as it suddenly became easy to spin up large numbers of virtual servers within short periods of time. Organizations were frequently overwhelmed with lifecycle management requirements for a rapidly increasing number of servers. And while virtual servers could be created quickly, this did not address the end-to-end provisioning process associated with new applications and business services. This management deficit frequently led to virtualization stall, where the IT department was unable to cope with the myriad of virtualization-related process management challenges.

Automation and Orchestration

In most IT organizations, the provisioning process for new application environments and infrastructure resources contains numerous planning, technical, and communication steps. First, the requirements have to be relayed from the end user – whether an application developer or project manager – to the systems administrator. This process alone is often an imperfect science and requires multiple iterations and revisions. The administrator then has to identify and possibly procure suitable compute, storage, networking, and software resources. The environment has to be secured based on company policies and regulatory compliance factors. Finally, the new environment must be tested and credentials handed over to the end user. This end-to-end provisioning process of the requested business services is generally error-prone and often takes several weeks – even if the virtual machine provisioning itself can be completed within minutes.

> To be effective, automation and orchestration must go beyond provisioning virtual servers, and include the management of the entire business service.

To tackle this provisioning and management challenge – and to avoid the shadow IT emergence outlined above, where developers simply purchase resources from public cloud providers using their credit cards – organizations must look for new ways of managing data center complexity. To be effective, automation and orchestration must go beyond provisioning virtual servers, and include the management of the entire business service. IT organizations need to introduce standard provisioning options to end users and technology silos must be broken down across server, network, storage, and application stack provisioning. Only when all relevant data center resources are consistently automated and orchestrated, will the IT organization be able to improve this provisioning end-to-end process.

Virtualization – Automation – Self-Service … Cloud

A private cloud requires the above-described automation and orchestration elements for end-to-end provisioning. It also must include a self-service portal, including a catalog of standardized IT services. Data center virtualization is a pre-requisite, but private cloud requires the management of more than just virtual machines. The ultimate goal of a private cloud is to make available standardized offerings –entire application stacks or sets of consistently provisioned raw resources – in a self-service manner to authorized end users. This standardized provisioning approach allows corporate IT to enforce enterprise-wide governance, ensuring the security, consistency, cost tracking, and compliance of application environments across the organization. Every environment that is used for a certain purpose will look the same, cost the same, and be as secure as the previous one.

The successful deployment of a self-service portal for end users in a private cloud may also be extended to request and provision resources hosted by public cloud service providers. Public cloud services are then controlled by the same management framework, enforcing the same kind of governance as when ordering resources from the private cloud. As cited previously, this type of hybrid cloud environment is the ultimate goal for many organizations, as it allows harnessing the scalability and elasticity of the public cloud, alongside the private cloud provided by enterprise IT.

How to Get Started

Companies are often faced with the following four key challenges when embarking on their first private cloud deployment:

- **Cloud knowledge and experience:** Every private cloud project has to begin with a planning effort and the creation of a core team. The goal of this effort is the identification of an approach that minimizes the risk of getting started, while forming a team with the training and expertise to guide the initial project, as well as to further expand the cloud deployment over time.

- **Legacy environments:** "Rip & replace" of existing systems management tools is not an option, as these systems often have organically grown over decades and contain significant management capacities that are still relevant today. An ideal cloud approach can be seen as establishing a cloud management framework that works together with the existing legacy IT environment to provide "services on tap."

- **Speed:** Once the project team is formed and the cloud management solution is selected, it is important to demonstrate positive results quickly, ideally within the first 30 to 45 days. Therefore, it often makes sense to start with a limited-scope deployment that allows end users to order simple, but standardized and well-managed, infrastructure resources in a self-service manner.

- **Phased approach:** "Start small, think big" is the ideal mantra of most initial private cloud deployments. The journey to the cloud is a gradual one, passing many milestones along the way. It typically begins with offering a limited set of resources on-demand through Infrastructure-as-a-Service (IaaS) in a private cloud. Once this environment is well integrated with existing management systems and corporate best practices, the organization can consider offering more complex and comprehensive use cases, such as Platform-as-a-Service (PaaS). And over time, this private cloud may be extended to a hybrid cloud model.

Cisco Intelligent Automation for Cloud "Starter Edition"

Cisco Systems provides a cloud management software solution to help customers on the journey to the cloud: Cisco Intelligent Automation for Cloud. And to facilitate a phased approach, Cisco introduced a new starter edition for this solution in April 2012. The core value proposition of the Cisco Intelligent Automation for Cloud "Starter Edition" is to allow organizations to rapidly create a private cloud, offering IaaS for simple use cases like application development and testing. The core advantages of this software are:

- **Fast:** A configurable self-service portal and service catalog, together with comprehensive lifecycle management and automation capabilities, can be stood up quickly.

- **Scalable:** After a successful initial deployment, a private cloud based on the "starter edition" can be upgraded to the full Intelligent Automation for Cloud solution for more advanced use cases and an enterprise-scale private cloud.

- **Ease-of-use:** The out-of-the-box self-service portal allows end users to easily order basic infrastructure resources from a catalog of standard options, with automated provisioning in minutes.

- **Virtual and physical:** With the same speed and agility, users can provision physical servers from the Cisco Unified Computing System (UCS) blade server environment, as well as virtual machines using VMware's ESXi hypervisor.

- **Pre-defined, simple user roles:** The software includes three simple user roles for end users, organization administrators, and cloud administrators.

Key Components of Cisco Intelligent Automation for Cloud Starter Edition

Cisco Intelligent Automation for Cloud Starter Edition consists of the following three core components that allow the rapid deployment of a private cloud:

- **Cisco Cloud Portal:** Cisco Cloud Portal is the self-service portal, service catalog, lifecycle management and tracking software based on Cisco's acquisition of newScale in 2011 (see user interface in Figure 1).

- **Cisco Process Orchestrator:** Cisco Process Orchestrator, formerly Tidal Enterprise Orchestrator, provides the backend automation and orchestration required to enable the provisioning of services requested through the self-service portal (see Figure 2.)

- **Pre-built "content":** Cisco provides out-of-the-box portal and service catalog templates as well as orchestration processes, workflows, and integration adapters to get started with a basic private cloud for IaaS.
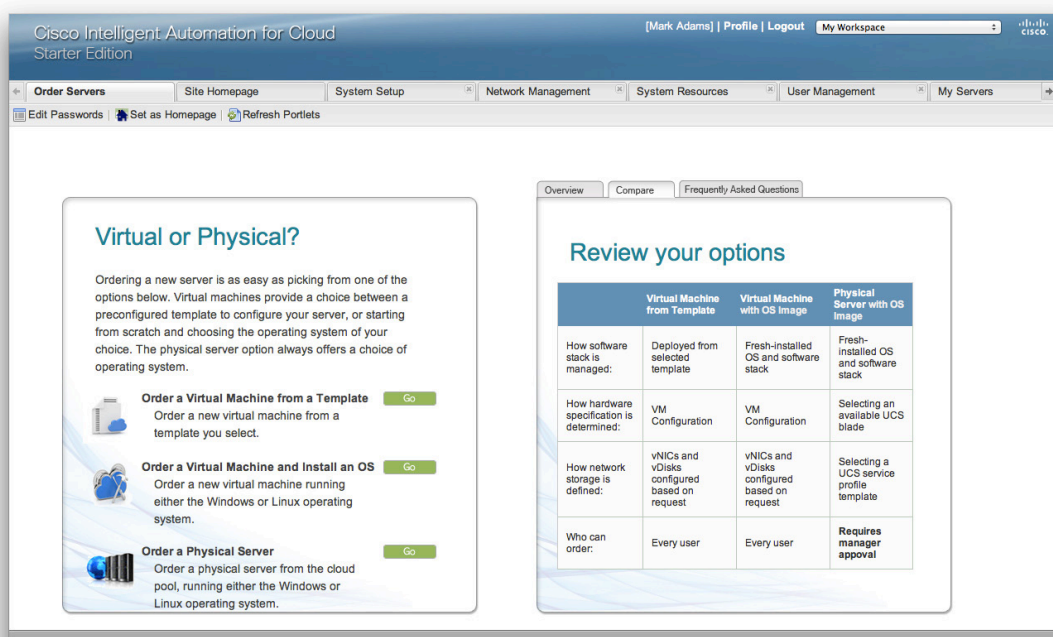
Figure 1 - Self Service Portal
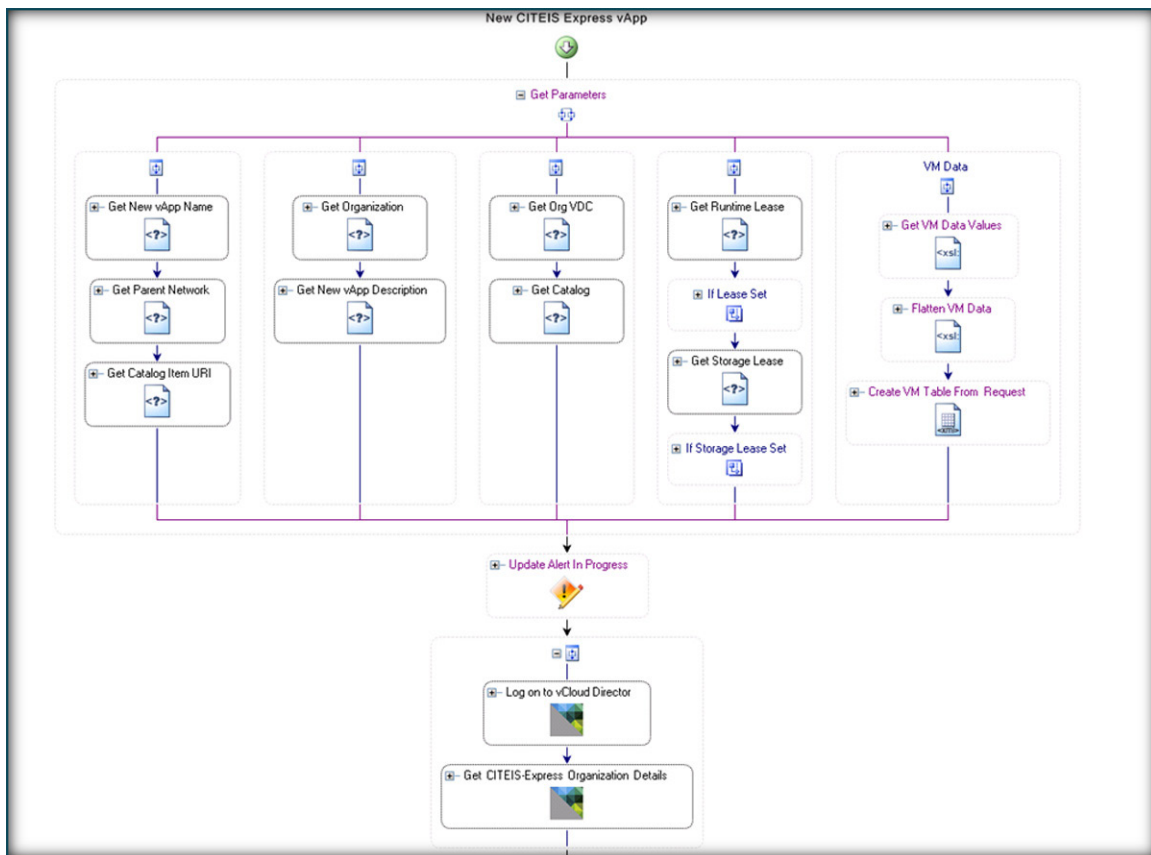
Figure 2 - Provisioning Process

Cisco Intelligent Automation for Cloud Starter Edition offers a quick way of showing results at the beginning of the cloud journey, leading the way toward greater agility and resource optimization for IT organizations.

Next Steps

Once the starter edition has been successfully deployed and adopted in a production environment, typically for 3–6 months, the customer should be ready to take the next step for the added functionality of the full Intelligent Automation for Cloud, and over time extending to capabilities such as:

- Multi tenancy support for enterprise-scale private cloud
- Tenant-created virtual data centers
- Advanced storage and network provisioning
- Automation of application delivery and PaaS
- Support for multiple hypervisors
- Integration with third-party IT infrastructure and legacy systems management tools
- Integration with public cloud services in a hybrid cloud

EMA Perspective

Based on recent EMA research, IT organizations are adopting cloud computing to achieve agility, cost savings, and increased service performance and reliability. The key components of a private cloud can be described as self-service, automation, and orchestration layers, making data center resources available on-demand and across IT silos, while providing the right controls and governance to preserve the reliability and security of IT resources.

Cisco Intelligent Automation for Cloud is a cloud management software solution that can be deployed in a heterogeneous IT environment, with on-demand provisioning across both virtual and physical resources. The new "starter edition" option is a logical cloud management solution for customers of Cisco's UCS blade server technology since it can be rapidly deployed for cloud management on this hardware platform without any customizations. VCE VBlock and NetApp FlexPod customers should also take a close look at Intelligent Automation for Cloud, as both converged infrastructure offerings are based on Cisco's UCS. Finally, organizations without any existing Cisco data center infrastructure should consider Cisco's unified software and hardware offering, as it is an easy and low-risk way to get started quickly with private cloud.

About Enterprise Management Associates, Inc.