Choose the cloud platform that beats the competition

Citrix CloudPlatform wins with 3 key elements.
Server virtualization introduced the concepts of automation and agility to servers and applications. Now, as enterprises seek to achieve ever-higher levels of business agility, IT efficiency and cost control, they are exploring private clouds as a way to extend those benefits to the entire datacenter.

There are many private cloud platforms in the market today, yet most fail to address key cloud design requirements that are critical to success, notably compatibility, scalability and flexibility. When choosing a private cloud platform, enterprises should carefully consider these and other private cloud attributes.

The typical enterprise has invested significantly in virtualization and server consolidation over the past several years. If your enterprise participated in this trend, chances are it has been able to significantly reduce CAPEX and direct OPEX—such as power, cooling and datacenter floor space—by reducing the need for servers and storage.

Yet, from an operational perspective, the challenges of managing the virtualized datacenter remain daunting due to ever-increasing demand for its resources coupled with a manual delivery model inherited from the days of physical server provisioning. In many “virtualized” IT shops, users open service tickets just as before, the same approval workflows are followed and administrators provision virtual machines (VMs) as they always have, though without the inconvenience of physically racking servers for each new application.

It is no surprise that service delivery in these enterprises is suffering despite the virtualized datacenter. Delivery times remain long, rework levels remain high, customer satisfaction remains low and, as a result, users are flocking to unmanaged relationships with third-party public cloud providers. This so-called “shadow IT” scenario exposes enterprises to significant risk of data loss or leaks and a compromised regulatory compliance posture.

To address these critical IT challenges, private clouds have emerged as a top priority for enterprise CIOs, CFOs and chief security officers. Like public clouds, private clouds offer a variety of benefits to users, including highly elastic, on-demand, self-service provisioning of resources; a high degree of automation; and programmatic (API-based) access, while providing the visibility, manageability and control that enterprises require.
However, not all private cloud deployments are successful. The software used to build and manage a private cloud—often called cloud platform software, cloud management software or cloud orchestration software—is perhaps the most important determinant of success. Yet intrinsic shortcomings prevent many of these solutions from delivering on the full potential of an enterprise private cloud.

Private cloud solutions may fall short in several ways:

• Traditional systems management vendors are pushing solutions designed in a completely different era, which lack the level of automation, usability and agility required today.

• Legacy virtualization vendors are promoting server virtualization as the answer to enterprise clouds, even when their solutions lack self-service interfaces, orchestration capabilities and support for other cloud services.

• Some open source offerings require expensive consulting projects simply to achieve a basic production-level deployment.

Regardless of their origin, many cloud solutions have fundamental architectural gaps that prevent enterprises from reaching the full potential of their clouds. The good news is that when these gaps are closed, enterprise clouds are far more likely to succeed.

Enterprise cloud success factors

A cloud platform solution with the right architecture goes a long way toward ensuring success. The three key elements—compatibility, scalability and flexibility—are particularly helpful when building an enterprise cloud offering rapid and accurate service delivery, economic efficiency and business agility.

Compatibility

Enterprise clouds provide greater value when they support interoperability with other clouds, including public clouds. For example, an application may need to migrate from one cloud to another at some point in its lifecycle, such as when moving from testing to production. Hybrid clouds—formed by integrating multiple clouds to enable more-seamless resource sharing—also demand some level of compatibility between the individual component clouds. An open, extensible API is a key architectural element that provides interoperability for enterprise clouds.

Scalability

An important benefit of cloud computing is scale. Large quantities of servers, for example, are pooled and shared among users when needed, increasing both efficiency and utilization. However, enterprise clouds do not support large-scale environments by accident. They achieve scalability through well-designed architectures. Massively scalable cloud architectures not only support tens of thousands of servers, they support them across multiple datacenters in separate geographic locations.
Flexibility

The selection of a cloud platform can have a significant impact on the types of workloads and applications you can deliver through your enterprise cloud. This is because most cloud platform architectures support either traditional workloads or cloud era workloads, but not both. Table 1 provides a quick synopsis of the fundamental differences between these workloads. Rather than trying to force fit applications on the wrong type of cloud, you should choose a flexible architecture that supports both traditional and cloud era workloads.

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<tr>
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<th>Traditional workload</th>
<th>Cloud era workload</th>
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<tr>
<td>Scale</td>
<td>Tens of thousands of users</td>
<td>Millions of users</td>
</tr>
<tr>
<td>Reliability</td>
<td>Provides 99.999 uptime</td>
<td>Assumes failure</td>
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<tr>
<td>Infrastructure</td>
<td>Proprietary</td>
<td>Commodity</td>
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<tr>
<td>Applications</td>
<td>SAP, Microsoft, Oracle</td>
<td>Web content, web apps, social media</td>
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Table 1. Traditional vs. cloud era workload attributes

Introducing Citrix CloudPlatform

Citrix CloudPlatform—as its name implies—is a solution for building and managing public, private and hybrid cloud environments. It orchestrates the datacenter resources that make up a cloud infrastructure. With CloudPlatform, you can easily establish a highly automated, on-premises enterprise cloud for use by employees, customers or partners.

Rather than provisioning datacenter resources using the same laborious approach previously taken with physical machines, your IT organization can use CloudPlatform to offer self-service VMs to users. Instead of supporting only automated provisioning of VMs, like some cloud solutions, CloudPlatform also orchestrates storage and network resources. This approach reduces the burden on the IT department and enhances service delivery, while enforcing compliance with enterprise policies and industry and government regulations.

CloudPlatform was specifically architected to support the enterprise cloud success factors of compatibility, scalability and flexibility. Table 2 compares CloudPlatform with other solutions.
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<table>
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<th>Citrix CloudPlatform</th>
<th>Other solutions</th>
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<tr>
<td>Open</td>
<td>Open API for seamless Amazon Web Services integration</td>
<td>AWS compatibility may not be standard</td>
</tr>
<tr>
<td>Scalable</td>
<td>Single-pane-of-glass management for tens of thousands of physical and virtual servers</td>
<td>Limited number of physical hosts</td>
</tr>
<tr>
<td>Flexible</td>
<td>Supports both cloud workloads and legacy enterprise workloads</td>
<td>May only be optimized for traditional workloads</td>
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Table 2. Benefits of CloudPlatform vs. other solutions regarding the three cloud architecture requirements

Each of these fundamental architectural elements built into CloudPlatform produces significant benefits and puts competing solutions further behind. Let's take a closer look at each one:

**AWS compatible.** CloudPlatform implements industry-standard APIs on top of a low-level Apache CloudStack API with its own unique and innovative features. In addition to the CloudStack API, CloudPlatform supports the Amazon Web Services (AWS) API. Future cloud API standards from bodies such as the Distributed Management Task Force (DMTF) will be implemented as they become available. Strangely, some competing solutions lack any form of programmatic API, raising the question: Are they really clouds at all?

**Massively scalable.** CloudPlatform can orchestrate tens of thousands of physical or virtual servers in multiple, geographically distributed datacenters, allowing the resultant cloud(s) to be easily managed via a user-friendly single-pane-of-glass interface delivered by a single management server. No individual component is a single point of failure, and periodic maintenance of the management server can be performed without affecting the VMs running in the cloud. Some virtualization-heavy solutions from competitors make it easy to launch new VMs but not easy to control them, creating unmanageable VM sprawl.

**Highly flexible.** CloudPlatform is, in fact, the only cloud orchestration solution built from the ground up to address both traditional and cloud era workloads. With CloudPlatform, an enterprise private cloud can support any business application right out of the gate. Or, the private cloud may be designed for one style of workload and later expanded to include support for additional application styles. Other solutions, such as those provided by VMware, are strongly biased toward traditional applications.

CloudPlatform has additional unique benefits:

**Proven.** With hundreds of successful enterprise and service provider deployments at companies ranging from Autodesk to Zynga, CloudPlatform has been battle hardened in real-world production environments. On the other hand, solutions such as OpenStack have seen very few production deployments.
Platform agnostic. CloudPlatform works with a variety of hypervisors, even within a single cloud deployment. You have complete freedom to choose the right hypervisor for your workload. CloudPlatform works with the community-supported Xen and KVM hypervisors, as well as commercially supported hypervisors such as Citrix XenServer, VMware vSphere and Oracle VM (OVM). For workloads whose needs are not met by today’s hypervisors, CloudPlatform can also orchestrate bare-metal servers as part of the private cloud.

Supported by a strong ecosystem. CloudPlatform is the center of a vibrant ecosystem spanning over 1,000 certified Citrix cloud applications, hundreds of CloudPlatform Certified Partners and hundreds of contributing members of the Apache CloudStack open source community. Jointly developed and supported integrations allow customers to take advantage of complementary solutions from vendors such as:

- **Cisco:** Integration with Cisco Unified Computing System, Cisco Nexus Series switching and Cisco Open Network Environment helps enterprise and service provider customers deliver highly efficient public, private and hybrid clouds.

- **NetApp:** Integration with NetApp storage solutions provides a fully integrated cloud orchestration and storage solution that addresses storage automation, resource allocation and VM backup and recovery.

- **CA:** Integration with CA Technologies’ management solutions provides in-depth insight and control of public and private clouds.

Part of a complete solution. CloudPlatform is part of an end-to-end solution from a single vendor that includes XenServer, Citrix XenCenter, Citrix NetScaler, Citrix CloudGateway and Citrix CloudBridge. Customers choosing the Citrix platform experience streamlined purchasing, a single support contract and features that complement one another across the stack, each in an open, hypervisor-agnostic way. Solutions from start-up vendors offer little ecosystem support and present risks regarding the future of the product and company.

Conclusion

Private clouds have emerged as a top priority for enterprise IT organizations because they offer CIOs, CFOs and CSOs a concrete solution for achieving greater levels of business agility, IT efficiency and regulatory compliance. By automating datacenter operational processes and eliminating manual bottlenecks from the delivery of key IT services, private clouds promise to dramatically reduce operational costs while increasing user satisfaction.

Many enterprises have begun designing and building private clouds. Yet to have any hope of significantly impacting the bottom line, private cloud deployments must be based on well-architected solutions. Successful enterprise cloud deployments demand compatibility, scalability and flexibility—elements that cannot simply be added as an afterthought. CloudPlatform incorporates all these architectural features and more. Competing solutions do not.
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As the best management platform for your enterprise cloud, nothing beats CloudPlatform. Built from the ground up on an open API and powered by Apache CloudStack, CloudPlatform gives you the compatibility you need to integrate with public clouds such as AWS. It also supports tens of thousands of physical and virtual servers through a single-pane-of-glass interface.

CloudPlatform is the only cloud orchestration solution to incorporate an open and flexible architecture, allowing it to support both emerging and legacy workload types. In doing so, it allows enterprises to quickly deploy private clouds that can orchestrate and automate existing workloads and infrastructure, while providing a path to the future via its best-of-breed support for next-generation commodity cloud architectures.

For technical details on how CloudPlatform fits in your datacenter strategy, read the CloudPlatform deployment reference architecture document. To get started using CloudPlatform today, download the 90-day trial at http://www.citrix.com/products/cloudplatform/try.