A Custom Technology Adoption Profile Commissioned By Cisco

Application Delivery Controllers For Virtual Applications

June 2012

Introduction

Over the past few years, business executives have driven fundamental business practices into IT to contain costs. So it's no surprise that infrastructure and operations (I&O) teams have responded by making virtualization and consolidation top priorities. Both provide I&O with the ability to demonstrate cost savings while achieving new infrastructure capabilities. But new expectations from customers and business stakeholders are causing tectonic shifts in IT. Whether it's IT personnel, customers, or users of IT services, the new platforms have to react to the needs of the "have-it-my-way" market who expect instant gratification. As a result, I&O must be flexible, dynamic, and agile to cater to these demands.

The initial answer to balance cost and speed was to virtualize servers; however, IT teams have come to realize that investment in server virtualization must be accompanied by an equal investment in networking — in particular, by balancing network investments with virtual appliances. This profile will examine how it is critical for IT organizations to leverage virtualized application delivery controllers to:

- Bridge the gap in efficiency and cost reductions that server virtualization started.
- Effectively create a hybrid cloud platform leveraging internal and external data center resources.
- Enable the creation of portals to empower infrastructure and operation professionals such as application developers.
- Improve the speed of deployment and experience of new services and applications.

Speed, Agility, And Cost Drive IT Priorities And Strategy

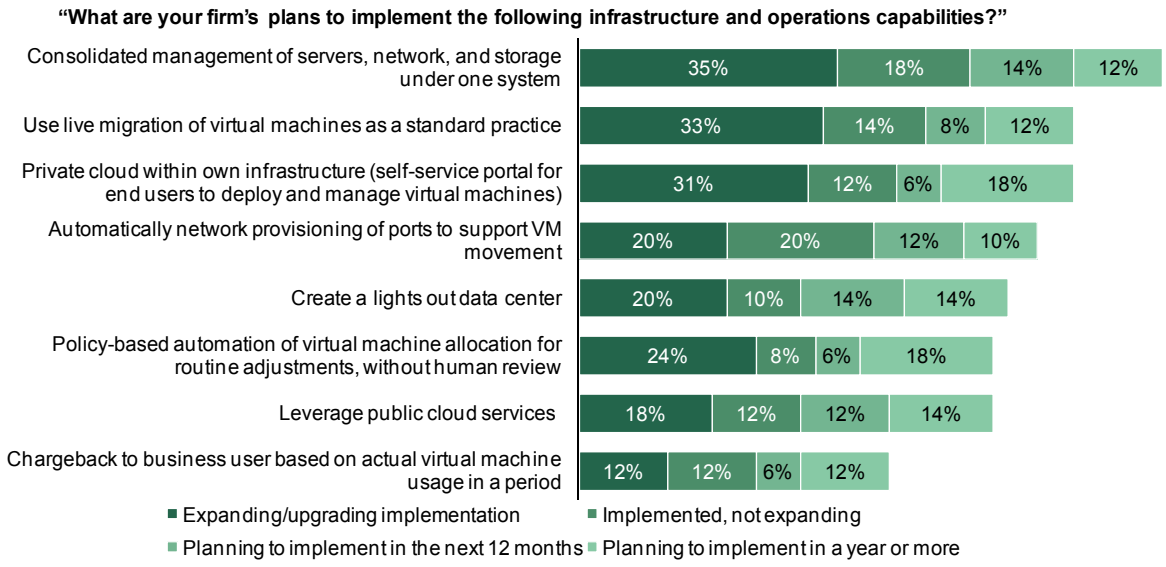
As businesses continue to rein in costs in recognition of the current global economic situation, IT decision-makers are looking to virtualization to help drive manageability and flexibility within the IT infrastructure, improve efficiency, and lower the total ownership of servers. In a recent survey, IT decision-makers at US organizations with more than 1,000 employees were asked to state what percentage of their x86 server OS instances were operated as virtual servers today (2011) and what percentage they expect to be virtual in two years' time (2013). Today, half of all x86 server instances are operated as virtual servers, with the expectation that this number will grow to 75% by 2013; most organizations plan to be fully virtualized in the next couple of years. The motivations for investment are clear; organizations are trying to extract as much ROI from their environments as possible. Server virtualization has now hit the mainstream in the modern data center, and organizations are looking to other tools and services to support the business and improve their efficiencies.

In the next step to drive waste and inefficiency out of the data centers, I&O teams have made consolidation and automation their top priorities. They plan to:

- **Standardize the infrastructure to ignite automation.** Henry Ford's assembly line standardized the hardware and, ultimately, the operations to enable repeatable actions that then can be measured and automated. Almost 80% of organizations want to minimize the number of variables and are seeking to consolidate to a single platform (see Figure 1).
- **Increase the efficiency of the infrastructure.** With 68% of respondents moving toward migration as a standard practice, idle server resources get eliminated.
- **Empower infrastructure and operations personnel.** By creating self-service portals employees can grab the resources they need, at the time they need it, to get their jobs done. This speeds up business agility and customer responsiveness.

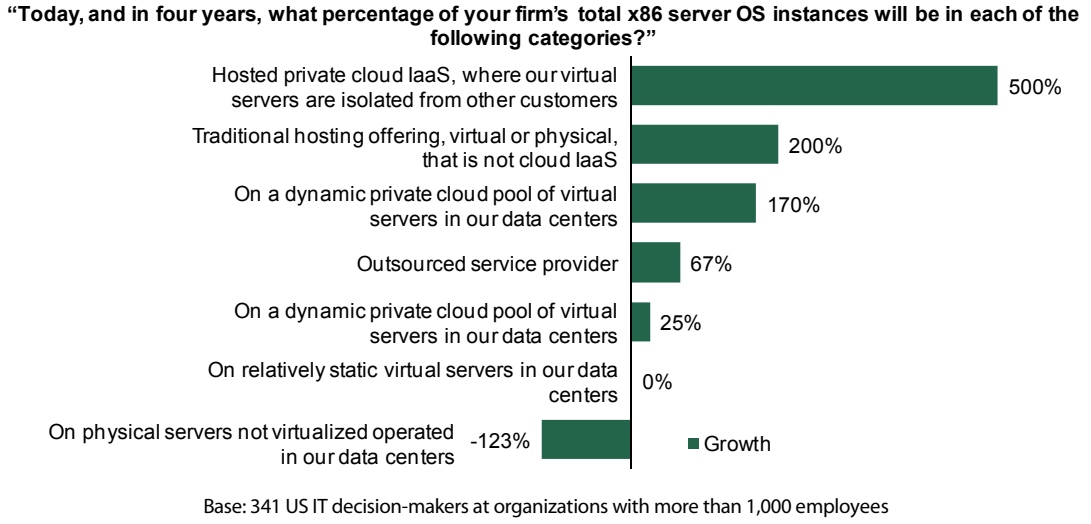
Consolidation must also be balanced with the creation, promotion, and delivery of new services in a swiftly changing market. Since it is too expensive and time-consuming to on-board new hardware internally, IaaS platforms are proving very popular with forward-looking business units and enterprise divisions. IaaS platforms are ideal for highly elastic and transient applications. Thus, workloads such as websites, service-oriented architecture (SOA) services, high performance computing (HPC), and real-time business analysis programs are often perfect applications to host on public clouds. Consequently, hosted private cloud IaaS implementations are expected to grow 500% from 2012 to 2016 (see Figure 2).

Figure 1
Organizations Focus On Increased Standardization



Base: 51 IT decision-makers at US organizations with more than 5,000 employees and that currently leverage virtual appliances
Source: A commissioned study conducted by Forrester Consulting on behalf of Cisco, June 2012

Figure 2
Organizations Plan To Leverage Private And Public Infrastructures



Base: 341 US IT decision-makers at organizations with more than 1,000 employees
Source: Forrsights Hardware Survey, Q3 2011

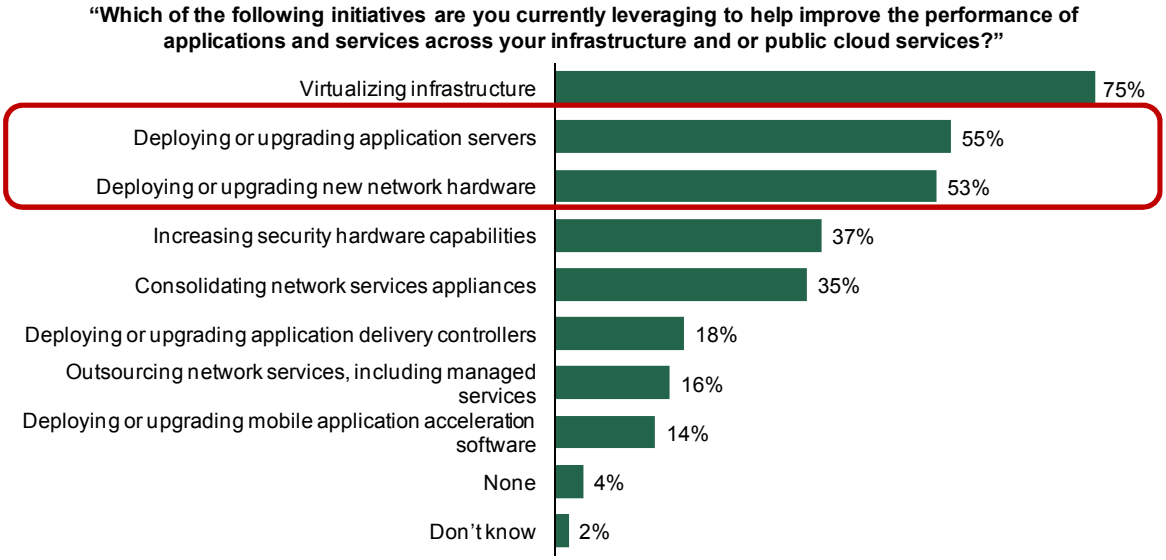
Overlooking Virtual Appliances Negates Private And Public Cloud Investments

Early on in the virtualization revolution, organizations focused solely on servers and assumed that virtualizing them would increase their infrastructure and operational efficiencies. However, I&O organizations soon came to realize that the full benefit from virtualization and private cloud implementations requires transformation of other infrastructure components. When looking at improving performance of application and services, most respondents now balance investment in both upgrading and deploying networking infrastructure with servers (see Figure 3). Seventy-five percent of respondents believe that virtualizing infrastructure is the top priority. The virtual world needs security, application acceleration, and networking technology to fulfill the promises of server virtualization and deliver the best application and services experience to the end user.

In conjunction, applications loaded onto hosted infrastructures are still expected to deliver consistently excellent service levels even though I&O doesn't have full control of the infrastructure or the connection, in particular, application delivery controllers (ADCs) that optimize traffic for the data center, improve customer experience, and connect the private data center hosted internally and private data center hosted on public infrastructure. When asked about their challenges with the network supporting virtualization, 33% of respondents stated that they have difficulty integrating public services with internal virtual infrastructure (see Figure 4). This was followed closely by the types of hurdles keeping data centers from realizing their efficiency goals; 24% of respondents indicated frustration with the capability, agility, and flexibility of traditional ADCs.

Figure 3

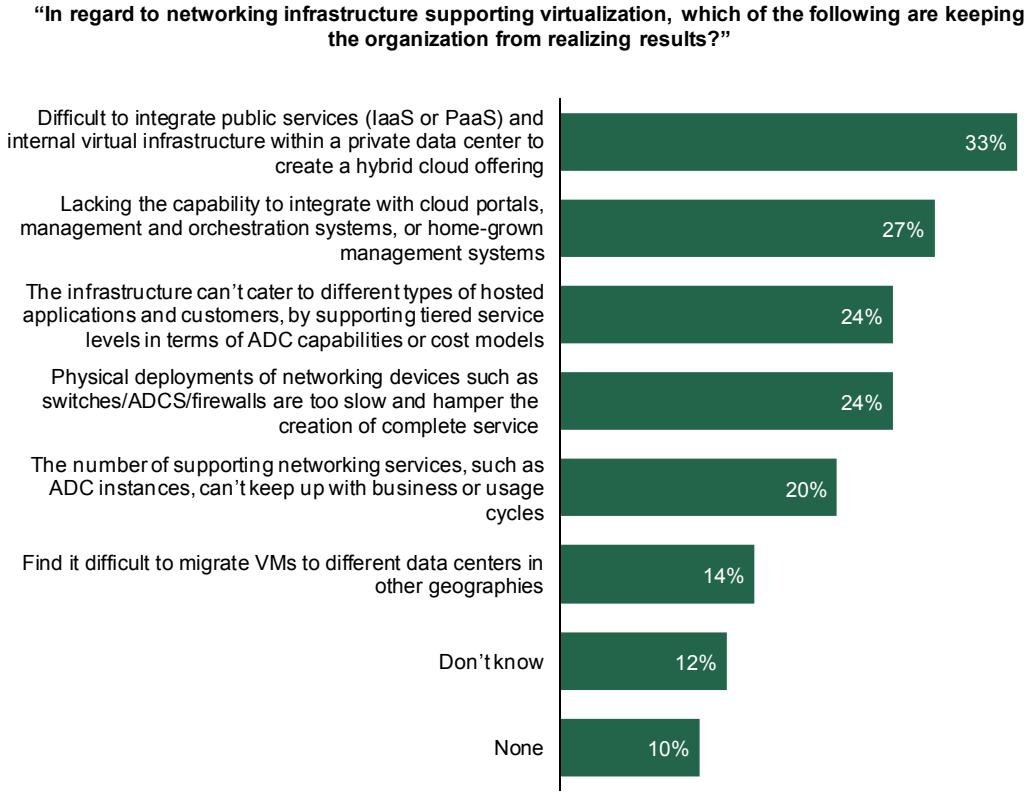
Investment In Data Center Infrastructure Requires A Balanced Network Approach



Base: 51 IT decision-makers at US organizations with more than 5,000 employees and that currently leverage virtual appliances
Source: A commissioned study conducted by Forrester Consulting on behalf of Cisco, June 2012

Figure 4

Integrating Virtual And Physical Environments Challenges DC Teams



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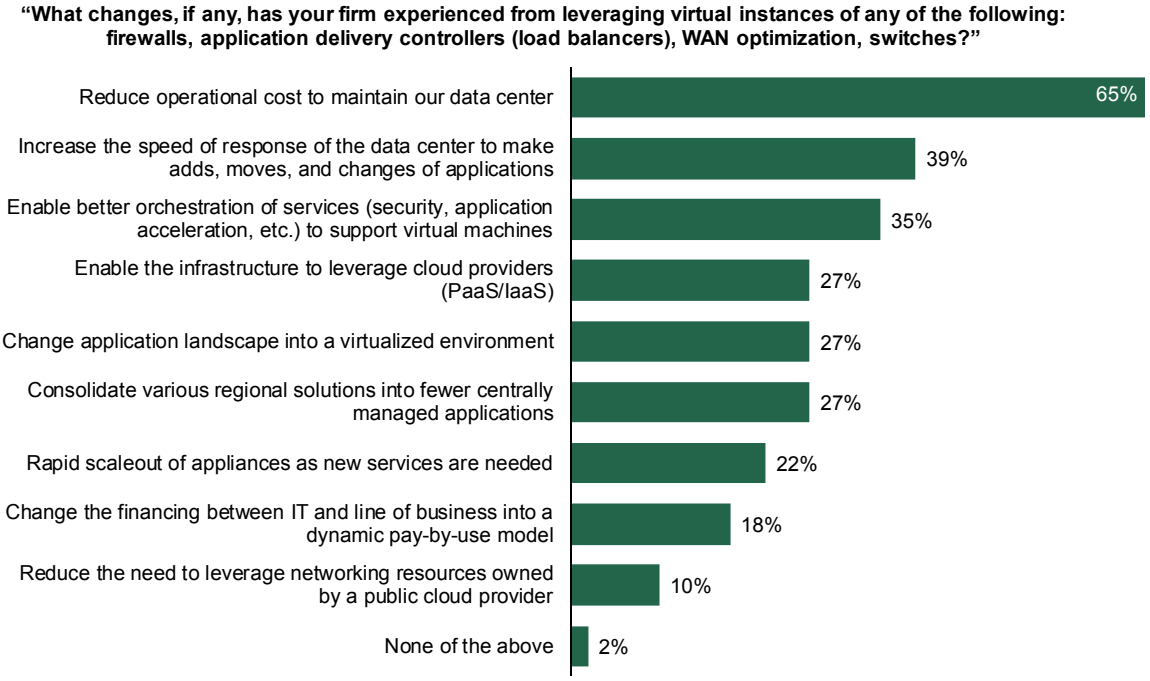
Virtual ADCs Catalyze The Transition Of Infrastructure To Self-Service And Cost-Effective Platforms

To support the drive toward self-service, cost reductions, and automation, the challenges that organizations encounter can be overcome by introducing and leveraging virtual instances of firewall, ADCs, and WAN optimizers. Sixty-five percent of respondents indicated that virtual appliances helped with reduction of operation costs within the data center. Forrester research has found that virtual appliances:

- Are less expensive to deploy than a hardware-based appliance.
- Enable organizations to recoup their costs faster since the time to deployment is reduced.
- Empower organizations using IaaS to leverage their own tools instead of the ones provided by the cloud provider.
- Standardize processes since the soft form factor is often identical to the physical one.
- Can improve collaboration with application development and testing teams and lead to a faster and smoother rollout of critical applications to production.

Consequently, virtualized application delivery controllers (vADCs) must be one of the fundamental products in any infrastructure toolbox. Since physical application delivery controllers are the closest entity to the application and improve a user's application experience, virtualized application delivery controllers will allow data center teams to deploy IaaS. vADCs can easily follow the application in order to replicate the VM's networking environment in its new location. In addition, they encourage better collaboration because it is much easier and quicker to put a virtual appliance into the hands of a developer than it is to give that developer access to an expensive piece of hardware that is sitting in a production environment. Network engineers can allow developers to spin up a virtual application delivery controller right on their laptops or lab servers.

Figure 5
Virtualized Appliances Help Decrease Cost, Increase Responsiveness, And Drive Integration



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Methodology

This Technology Adoption Profile was commissioned by Cisco. Forrester leveraged its Forrsights Hardware Survey, Q3 2011. It isolated responses of US IT decision-makers at enterprises with more than 1,000 employees. Forrester Consulting supplemented this analysis with custom survey questions asked of 51 IT decision-makers. The respondents were asked about their firm's plans to implement consolidated management of their infrastructure, virtual machines, and automatic network provisioning. They were also asked what changes would have to take place to improve the performance of applications across their physical and cloud-based infrastructure. This supplementary survey was conducted in June 2012. For more information on Forrester's data panel and Tech Industry Consulting services, go to www.forrester.com.

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