The Business Case for IaaS

Seamless interoperability and unified management unlock the business benefits of infrastructure as a service (IaaS), including efficiency, agility, and control

WHITE PAPER

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Talking the Language of Business Value

When it comes to virtualization awareness, business executives fall into two camps. Among IT professionals, virtualization is a fact of life. More than 50 percent of all enterprise workloads run on virtual machines today, a number which is projected to grow to an astonishing 86 percent by the end of 2016[1]. It's not an overstatement to say that virtualization technology is critical to the success of the modern enterprise.

However, when IT leaders discuss virtualization with executives from other disciplines, eyes tend to glaze over. Utilization rates, self-service portals, pooled resources—these concepts are not part of their vocabulary. As a result, CIOs and other IT leaders seeking peer support for investments in infrastructure as a service (IaaS) need to learn a new language: the language of business value.

This business brief is intended to help IT professionals communicate the business value of IaaS to non-technical decision-makers. Winning mindshare in the boardroom is a skill that CIOs and other IT leaders must master to fulfill their mandates to help advance the enterprise's strategic goals. While the brief focuses primarily on private cloud implementations, it also includes considerations for hybrid cloud architectures.

Why Business Leaders Should Consider IaaS

When discussing the business value of IaaS, a good place to start is to review the most pressing pain points for enterprises today, including operational inefficiency, infrastructure inflexibility, lost productivity due to downtime, and security and compliance[2].

Operational inefficiency in the IT infrastructure translates into increased CapEx and OpEx, which affects the budget of every group within the organization. The primary culprits, including data center complexity, high equipment costs, and resource-intensive management, are all factors that are addressed by IaaS.

As business units demand the ability to quickly deploy new applications that enhance competitiveness, inflexible infrastructure make it difficult for IT to fulfill these needs. IaaS overcomes these problems by automating resource provisioning and making it easier to scale as application usage fluctuates

As the infrastructure becomes more and more complex, it becomes difficult to configure and manage, leading to human errors that cause downtime. In a recent survey, 81% of IT professionals reported network downtime caused by configuration errors. The centralized management and automation capabilities of IaaS help to reduce human errors and therefore costly downtime.

Thanks to recent high-profile breaches, security and compliance are a concern for every enterprise executive. By consolidating resources and integrating security and compliance technologies into a single environment, IaaS helps IT managers coordinate and manage security and compliance activities more effectively.

[1] Gartner, will include full citation in next draft.

[2] "Casualties of Cloud Wars: Customers Are Paying the Price," Enterprise Management Associates white paper, June 2014.

How IaaS Addresses the Needs of the Business

IaaS offers a number of business benefits that directly address the pain points discussed earlier. By automating the delivery of IT services and delivering fast, agile service lifecycle management, IT moves in sync with other functional departments and helps the organization to take full advantage of emerging marketplace opportunities. IaaS enables IT to act as a strategic partner with the business units, empowering them to succeed while maintaining the level of control needed to ensure security, compliance, and operational efficiency.

Efficiency: Virtualization economics and increased productivity

Favorable economics were one of the prime motivators that drove adoption of virtualization technology across the server infrastructure in the data center. IaaS extends those economic advantages across the entire data center and even among interconnected data centers. The automated operations capabilities of IaaS have been shown to reduce CapEx by 49 percent[3] and OpEx by 56 percent[4]. Proactive analysis and smart alerts help optimize resource utilization and increase staff productivity by 67 percent[5]. Most importantly, the ability to predict potential problems allows IT to respond proactively, before they compromise service-level agreements, ensuring a high-quality user experience and optimizing employee productivity.

Agility: Infrastructure, applications, and services at business speed

Legacy architectures may be able to do the job for which they were designed, but often are too rigid and inflexible to be easily adapted to changing business requirements. Companies that migrate to IaaS gain agility in a number of ways. Since the underlying hardware is abstracted, it can be upgraded and expanded as needed without requiring changes to the applications. Also, automated provisioning means that new applications can be brought online much faster—in days rather than weeks or months—providing a competitive edge. When IT moves at business speed, the entire organization can quickly redirect resources to high-value activities that drive innovation.

Control: Business-aware control for unique IT environments

The ability to maintain effective control of the IT environment goes hand in hand with agility: after all, moving quickly is only an advantage if you're going where you want to go. The operational analytics in IaaS provide rapid discovery and root-cause analysis of IT issues, driving substantial reductions in downtime. Policy-based automation of key IT processes and compliance standards streamlines administration and optimize the efficiency of IT staff. The hardware abstraction inherent in IaaS simplifies and enables greater control of disaster recovery efforts by making it easier to move workloads and replicate data between dissimilar physical environments while lowering disaster recovery management costs.

[3] VMware SDDC: Faster Time to Value, October 2014.

[4] Taneja Group, Transforming the Datacenter with VMware's Software-Defined Data Center vCloud Suite, June 2014.

[5] Forrester, Total Economic Impact of VMware vCenter Operations Suite, Dec 2012.

Cloud Management Platform Unlocks IaaS Benefits

While automated provisioning is a prominent feature of IaaS, IaaS is more than just provisioning. A full IaaS implementation includes monitoring and analytics tools that allow IT managers to develop a complete understanding of the operational characteristics of the IT infrastructure. Having this comprehensive visibility is essential to help the organization make better business decisions about infrastructure investments that drive revenue growth and create competitive advantage.

Surveys of both successful and unsuccessful cloud deployments reveal that the lack of effective cloud management tools is one of the predictors of success. It isn't that individual tools lack the needed capabilities, but rather the fact that they are not integrated with each other makes it difficult for infrastructure managers to get a unified, real-time, end-to-end picture of datacenter operations.

The solution is a cloud management platform (CMP) that provides automated delivery, intelligent operations, unified management, and business insight.

Automated Delivery

The ability to deliver infrastructure and applications across multiple hypervisors, private and public cloud with both speed and control is vital to a successful IaaS deployment. Administrators, developers, and business users initiate the provisioning of resources via a self-service portal. Policy-based governance identifies the services that users are allowed to request and the amount and type of resources they can consume. Intelligent resource management assures that resources are allocated based on their business and service-level requirements in a way that optimizes capacity utilization.

Intelligent Operations

A cloud management platform allows IT staff to manage infrastructure and applications in physical, virtual, and cloud environments with integrated capacity, performance and configuration management. Intuitive dashboards and reports provide full application-to-storage visibility. Predictive analytics and smart alerts identify potential issues and enable proactive remediation to ensure service quality, improve performance and avoid downtime. Policy-based automation of key IT processes and compliance standards empowers admins and optimizes efficiency of IT staff. IT teams use analytics to plan capacity requirements and stay ahead of demand.

Unified Management

As noted earlier, the proliferation of discrete tools can be a barrier to effective management of IaaS deployments. CMP addresses this problem with a common set of tools across private and public clouds to provide a consistent management experience. This integrated platform delivers shared services across automation, operations and business functions to break down operational silos and streamline administration of the IaaS environment. To ensure interoperability, CMP includes out-of-the-box integrations with major public cloud vendors such as VMware vCloud® Air™, Amazon Web Services, and Microsoft Azure.

Business Insight

When IT organizations adopt an IaaS model, they essentially become an internal service provider, and in many cases, a profit-and-loss center. Running IaaS as a business requires business insight, for example, the ability to measure and compare the costs of investments in private and hybrid models. Using IaaS capabilities such as showback and chargeback, IT managers help business units monitor and manage their consumption of scarce IT resources. Data from automation and operations combined with business insight ensures intelligent placement and optimal sourcing decisions.

Interoperability is Key for Hybrid Clouds

No discussion about IaaS would be complete without considering hybrid cloud models. Many organizations start with a private cloud and on-premises infrastructure, then extend to hybrid cloud to expand their automation capabilities and scale to accommodate business growth. As one analyst puts it, "Through 2020, the most common use of cloud services will be a hybrid model combining on-premises and external cloud services.[6]"

Hybrid cloud is a cloud computing environment which uses a mix of on-premises, private cloud and public cloud services with orchestration between the platforms. IT administrators can move workloads between private and public clouds in response to changing needs and pricing, giving businesses great flexibility and control over cost, security, and other parameters[7].

To realize the full benefits of a hybrid model, infrastructure managers must be able to move workloads seamlessly between private and public clouds. This workload portability creates a highly agile infrastructure that can accommodate fluctuations in usage by drawing on public cloud resources to boost the capacity of applications when they experience increased demand.

Many cloud providers make it far easier to move workloads to the public cloud than it is to move them back. The issue is platform compatibility: When the private and public clouds use different hypervisors, moving workloads between them is anything but straight-forward. The original migration involves modifying the application to run on the public cloud's hypervisor, a time-consuming exercise that also makes it difficult to move the application back to the private environment. Support staff must learn the tools and processes specific to the public cloud hypervisor, an additional time and resource drain.

To realize the full potential of IaaS, especially agility, requires full interoperability between the cloud environments, which in turn requires that both the public and private cloud use the same hypervisor. And that's exactly what VMware offers.

Unifying Private, Public and Hybrid Clouds with VMware

As the premiere provider of server virtualization software, VMware has more experience in virtual computing than any other vendor today. However, implementing a successful cloud initiative—public or private—takes much more than virtualization experience alone. Given the fast-moving world of datacenter technology, CIOs and other IT executives must continually challenge their vendors: "What have you done for me lately?"

When it comes to the cloud, VMware's answer is "quite a lot." The combination of VMware vCloud Suite® and VMware vRealize™ Suite offers the enterprise an integrated approach for implementing and managing the full range of cloud options available today. Leveraging the power of the VMware vSphere® hypervisor, VMware cloud solutions empower IT architects to design and adjust the mix of private and public cloud resources to meet the organization's constantly changing needs.

VMware vCloud Suite is an integrated offering for building and managing a VMware vSphere-based private cloud that can dramatically improve efficiency, agility and control for IT organizations. The key to realizing these benefits is vCloud Suite's cloud management platform, which offers intelligent performance, capacity, and configuration management; self-service and policy-based provisioning; and automated costing, usage metering and service pricing of virtualized resources.

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[6] Gartner, "Cloud Computing Innovation Key Initiative Overview," April 24, 2014.

[7] http://searchcloudcomputing.techtarget.com/definition/hybrid-cloud

Real-world Deployments of vCloud Suite

As noted earlier, interoperability is central to the full realization of the benefits of IaaS, particularly in hybrid cloud architectures. In addition to vSphere, vRealize Suite supports most popular hypervisors, including Red Hat KVM, Microsoft Hyper-V, and Citrix XenServer. vRealize Suite includes out-of-the-box integration with VMware vCloud Air, Amazon Web Services, and other vCloud service providers, enabling integrated management of public and private cloud environments.

A particularly good solution for many enterprises is a hybrid architecture consisting of a private cloud based on vCloud Suite and vCloud Air public cloud. With both clouds operating on the vSphere platform, the goal of seamless interoperability becomes a reality. Infrastructure managers can easily migrate workloads between the public and private environment. For even more complex architectures, vRealize Suite offers a single management interface that spans multiple private clouds, vCloud Air, and public cloud services from VMware partners.

Case Study: SAIC Drives Innovation with VMware Hybrid Cloud

Ever-increasing customer demands, shrinking development times, and a raft of aggressive competitors: Welcome to the world of the high-tech system integrator. To respond to these business pressures, Science Applications International Corporation (SAIC), a systems integrator based in McLean, Virginia, needed to find ways to deliver services and solutions more quickly and cost-effectively to its governmental and commercial clients around the world.

With its eye on cloud technologies, the company realized that IaaS was the best approach to allow its global workforce to access development tools and other resources, shortening service delivery times and reducing labor costs. SAIC had an existing private cloud environment based on VMware vSphere software, so interoperability between its public and private clouds was essential to meeting its goals.

SAIC proceeded in logical steps, first deploying VMware vCloud Suite and VMware vRealize Operations™ Manager to provide the needed IaaS capabilities as well as multicloud management tools. Then the company turned its attention to choosing a public cloud provider. A thorough evaluation showed that VMware vCloud Air was a natural fit, enabling SAIC to migrate workloads and data sets between public and private clouds with very little administrative or engineering overhead.

Rolling out the VMware-based IaaS infrastructure has paid off handsomely for SAIC. Coby Holloway, SAIC's vice president, puts it this way: ""It provides us with a mechanism for tightly coupling the delivery of IT services with the infrastructure elements that make up those services. Now we can respond rapidly to customer requests, and we can create unique, differentiated solutions more cost-effectively, which means we can bring those solutions to our customers cost-effectively."

Not content to rest on its laurels, SAIC is already planning improvements, including enterprise resource planning (ERP) as a service and expanding its service offerings to include software-defined networking (SDN) and software-defined storage SDS). In Holloway's words, SAIC is pushing to "integrate [SDN and SDS] into a seamless IT service delivery framework. That's where the software-defined data center is really going to shine in the future."

Next Steps

The decision to deploy IaaS can have profound advantages for the typical enterprise, but unlocking those potential benefits requires the right tools. Building the private cloud foundation with vCloud Suite and the VMware vRealize cloud management platform can be the key difference between a valiant—but failed—effort and a successful IaaS implementation.

To learn more about how IaaS can drive success today in your business, visit http://www.vmware.com/it-outcomes/it-outcomes/delivery-automation.html.

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