COST VS. ROI

Is There Value to Virtualization and Cloud Computing?

Featured Author:
Rob Carter
Director of Windstream Hosted Solutions
Product Marketing
OVERVIEW

Cloud computing affords a number of service, cost and performance benefits that can improve organizational efficiency, agility and productivity. Yet, as more businesses take advantage of cloud services, an important question remains: Does the value provided by cloud computing services exceed the cost of purchasing them?

According to a survey of enterprise decision makers conducted by IDC, the number one factor that would accelerate an organization’s use of public cloud services is “if a provider could demonstrate that using cloud services would provide a return on investment (ROI) in less than two years.”

Done correctly, organizations should gain several advantages from server virtualization and cloud computing that will improve their overall ROI.

VIRTUALIZATION BENEFITS & SAVINGS

Businesses are always looking for ways to tighten their spending, and virtualization has a number of cost-saving benefits, including a reduction in hardware costs along with the associated power, cooling and space savings. In fact, these virtualization-based savings have driven one of the most common and important IT initiatives in recent years: server consolidation. With server consolidation, IT organizations consolidate many under-utilized machines to virtual machines (VMs) running on a single shared resource that’s much more highly utilized.

Virtualization not only lowers expenses and enables IT to do more with less, it also simplifies and accelerates IT infrastructure management. For example, provisioning new physical servers requires first getting approval to order the hardware, then submitting a purchase order. After waiting for the equipment to arrive, someone still needs to rack and cable it. With virtualization, VMs can be provisioned in minutes through an automated interface, typically using existing hardware.

EXECUTIVE TAKEAWAYS

You will learn the following from this white paper:

1. Consolidating applications within a virtualized environment by moving machines from under-utilized servers to virtual machines on a shared server will improve data center efficiency.

2. Utilizing personalized cloud services from Windstream allows businesses to no longer need to make incremental CAPEX investments in IT infrastructure.

3. Considering the patterns of resource consumption in your organization will aid in your determination as to whether cloud services will provide a greater ROI than traditional IT methods.

4. Choosing a CSP like Windstream that specializes in enterprise-class data center solutions to provide consistent performance and availability is critical to your success.
Availability and uptime can also be dramatically improved through server virtualization. Software-defined virtualization solutions include capabilities not available from physical servers. For example, features like live migration allow virtual servers to be moved off physical servers that are exhibiting signs of potential failure. This can be done while all applications remain running, preventing downtime and loss of data if the underlying server fails.

**CLOUD COMPUTING BENEFITS & SAVINGS**

**OPEX vs. CAPEX**

While virtualization alone is highly beneficial, cloud services provide the same benefits plus additional advantages that are exclusive to cloud environments. For example, consider the shift from capital spending (CAPEX) to operational spending (OPEX) that happens when using public cloud services. Expanding the compute capacity in an existing onsite data center requires a large initial investment in servers, storage and network equipment. In contrast, expanding the compute capacity in a public cloud simply requires increased operational spending to cover additional resource usage.

With cloud services, customers no longer have to make incremental investments in IT infrastructure. Instead, cloud services providers (CSPs) take on the responsibility of maintaining shared data centers for all their clients and keeping facilities filled with operational equipment. These providers specialize in delivering infrastructure services in the most efficient way possible, not only to reduce costs for their customers, but also to reduce their own operational costs. This dual incentive motivates service providers to invest in the most efficient, secure and reliable data center solutions.

**Flexibility & Scalability**

The flexibility and scalability of cloud infrastructures can also reduce operational costs for businesses. Pricing for cloud service can be based on consumption rather than up-front commitments. This means that customers pay only for the storage and compute power they actually consume. In contrast, businesses that purchase their own IT equipment must accommodate peak demands even though this maximum capacity is used infrequently. Because they have to purchase for peak capacity, companies must often buy far more equipment than their average workload requires, forcing them to let these investments sit idle for the majority of the time.

Cloud infrastructures overcome this by letting customers scale out their resource consumption to meet peak demands and scale back to reduce spending when demand subsides. Cloud providers enable this through resource pooling and elasticity. Resource pooling makes unused resources available to any customer that needs them. Elasticity lets customers utilize resources for short time periods, returning them to the free pool when no longer needed.

**Hybrid Cloud**

Businesses concerned with specialized security requirements once had no choice but to keep sensitive data in onsite data centers; however, today hybrid cloud solutions provide the flexibility and cost benefits of a public cloud with the security and control of a private cloud. In other words, applications with unique security requirements can use the private portion of the hybrid cloud, while other applications use the public portion to optimize costs.

**Overall Savings**

Cloud computing may not always appear to be the least expensive option. However, if the total cost per hour of running a server in an on-premises data center is lower than the hourly costs of running an equivalent server in a public cloud environment, the cloud option could still be less expensive overall. While it may sound counter-intuitive, there are three key ways that cloud computing can do this:

1. **Short-term Needs**—Businesses often need resources for only a short duration such as when they perform testing. Having access to additional capacity on demand lets customers avoid purchasing hardware for these tasks.
Instead, they can pay a higher per-hour price for a few days or weeks of cloud usage, resulting in far less total spending.

2. **Periodic Needs**—Organizations sometimes need resources only periodically, for instance to support applications that run only at night or on a monthly basis. In this case, cloud resources are allocated only when their applications are running. Once again, higher per-hour spending in a cloud environment is financially justified for IT activities that occur on a less-than-full-time basis.

3. **Demand Spikes**—Businesses also have short-term spikes in demand and need to scale to accommodate these needs, for example to support holiday commerce. It’s typically much less expensive to use cloud resources during times of peak demand than to purchase, manage and maintain additional hardware that will sit idle during times of slow and even normal demand.

By using cloud services, businesses can improve their agility in a number of ways:

- **Resource Availability**—Cloud services make extra IT resources available and affordable for short amounts of time. This opens up new opportunities for businesses to inexpensively pursue innovative activities that might have otherwise been outside of their IT budget.

- **On-demand Flexibility**—In the age of social media, a coupon or other program could unexpectedly go viral, leading to a surge in demand. Cloud services can be expanded quickly, helping capture sales while excitement is still peaking.

- **Unmatched Efficiency**—Cloud computing reduces the time burden of basic infrastructure management, freeing IT staff members to innovate and develop new services that produce financial benefits for the business.

**CLOUD COMPUTING DRIVES AGILITY**

Financial benefits such as cost savings and ROI are important considerations for making optimal IT purchase decisions. However, not all financial benefits are as easy to quantify. One of the greatest benefits of cloud computing is agility, a combination of flexibility and speed, which often yields financial benefits—and when a company gains the flexibility to add an additional line of products or services. The same is true with speed. When a company gets new products to market more quickly, their competitive position improves, likely driving increased revenue.
CONCLUSION

Server virtualization simplifies IT infrastructure management and can mitigate the cost of purchasing and provisioning physical servers to meet performance requirements. The ability to consolidate applications within a virtualized environment by moving machines from under-utilized servers to VMs on a shared server improves data center efficiency. In addition, increased uptime and reduced deployment times are both benefits of virtualization that aren’t available using physical servers. Windstream customizes data center solutions to meet customers’ specific needs and service objectives.

By utilizing personalized cloud services from Windstream, businesses no longer need to make incremental CAPEX investments in IT infrastructure. Rather than expand compute capacity in an existing data center of their own, organizations can easily provision servers from a CSP to meet their peak demands. Resource pooling and scalability also gives customers greater flexibility within a cloud environment, and the combination of commodity and enterprise resources makes cloud environments suitable for most organizations.

While hosting an onsite data center with virtualized servers can seem like the most economical solution, purchasing these services from a provider yields benefits you wouldn’t normally receive. At Windstream, we specialize in maintaining our infrastructure to reduce spending, which further reduces costs for our customers. Even if the per-hour cost of operating on-premises servers is lower than running them in the cloud, customers can still see a greater ROI from cloud pricing models that account for actual resource consumption.

To determine whether cloud services will provide a greater ROI than traditional IT methods, you should consider the patterns of resource consumption in your organization. You must also understand how cloud services features will affect the costs of operating in the cloud.

Capabilities such as elasticity, scalability, pooled resources and usage-based pricing can all dramatically reduce both capital and operational expenditures. It’s also important to choose a CSP like Windstream that specializes in enterprise-class data center solutions to provide consistent performance and availability. Team with a provider like Windstream who is personally invested in your success and can offer you the best of public and private clouds with a hybrid cloud. Together, we win.
About the Author
Rob Carter is director of data center and cloud marketing at Windstream. He is responsible for the planning and development of data center, managed services and cloud computing product lines. Carter works closely with Windstream’s customers and partners to ensure personalized service and enterprise-class products are the standard. Carter is a veteran of the United States Air Force and is completing his Bachelor of Science from Colorado State University.

Endnotes