Extend the Reach of Business-Defined IT With the Most Flexibility and Control for Your Cloud

*Increase Business Agility With Integrated Microsoft® and VMware Clouds on Hitachi Unified Compute Platform*

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Introduction

The true value of enterprise IT is its ability to provide the services a business needs to grow, increase profitability and satisfy customers. To remain agile and cost-conscious in the face of skyrocketing data storage requirements and increasing user demand, IT is taking a close look at 2 cloud deployment models: public and private cloud.

There is no mistaking the appeal of a public cloud to IT organizations under pressure to lower costs and launch new initiatives. The public cloud promises low entry costs going in and an opportunity to launch new projects without building out new infrastructure or overprovisioning storage to meet peaks in demand. Cloud service providers usually employ a usage-based pricing model that shifts portions of a company’s IT investment from a capital expense (capex) to an operating expense (opex) model. Unlimited elasticity ensures businesses can quickly ramp up and ramp down to meet changing levels of demand in different geographies and markets.

What the public cloud fails to deliver is enterprise control over who can access your data, where it resides and how it’s secured. In an increasingly regulatory environment, an inability to gain deep transparency into a cloud provider’s operations often limits the uses enterprises are willing to make of the public cloud. If your mission-critical application requires no downtime and an auditable way to determine the exact location of your data at any time, then the public cloud is probably a poor choice. However, the public cloud can be good choice for temporary or low-sensitivity applications.

In a private cloud, you define how your infrastructure functions based on your standards, your applications and your users. The private cloud can fulfill your need for control, but the tradeoff is usually a lack of flexibility in aligning costs with use. The enterprise shoulders a big infrastructure investment and a lengthy transformation while gambling that it can pay off that investment by correctly predicting the future.

When a public cloud provider builds out its infrastructure based on anticipated demand, it takes on the inherent risk, while the enterprise buys only what it needs. When the enterprise builds out infrastructure, it risks being stuck with less-than-optimal equipment when business needs change. Without a crystal ball, a private cloud can be a risky venture.

In this paper, we take a close look at what’s driving cloud adoption and what enterprise executives need to consider when making cloud decisions. Finally, we profile a private cloud solution that incorporates the best attributes of public and private clouds without the disadvantages of either option. At Hitachi Data Systems, we believe it is possible to achieve the best of both cloud worlds today: the control of a private cloud with the resource and financial flexibility of a public cloud.

Figure 1. Your cloud should not be a compromise between public cloud flexibility and private cloud control.
Cloud Infrastructure: What Do Enterprises Want, and Why?

The world of cloud computing is changing rapidly, and IT executives are weighing their options with an eye to consumption-based pricing, speedy transitions to new cloud models and managed services. Despite concerns about security, privacy and control, enterprises have found great value in the public cloud and have deployed about 20% of their workloads there. In their infancy just a few years ago, private cloud deployments are also growing, spurred by IT’s need to respond more quickly to business needs.

The public cloud frees enterprises from buying and managing infrastructure, but it does so at the cost of enterprise control over privacy, data sovereignty and security. The private cloud gives enterprises the control they seek, but has traditionally required a large capital outlay and specially trained staff. As enterprises search for ways to resolve this dichotomy, they are exploring new private cloud options that marry the most compelling features of public and private cloud computing together.

Use Consumption-Based Cloud Models

Tight budgets and rapid changes in cloud technology are making enterprises rethink their approach to cloud deployment. Consumption-based pricing models that align usage with cost are in demand. Until recently, such models were only available in the public cloud. Today, many enterprises want to be free from buying and managing infrastructure while retaining the control of a private cloud that resides in their own data center. Solutions are quickly emerging to fill this void: consumption-based, on-premises and managed private clouds.

In this new deployment model for private clouds, the supplier usually places its hardware and software in the customer’s data center. The supplier can also manage these assets for the customer using some combination of remote and on-premises resources. The arrangement goes a long way toward alleviating concerns over privacy, data sovereignty and security. It also imitates to a large degree the flexible pricing of a public cloud. Because customers pay for what they consume and contract for services rendered, they not only avoid capital expenditure, they avoid expensive miscalculations about future needs for infrastructure and IT talent.

Integrate Popular Clouds With Internally Delivered Services

As the cloud gains center stage in IT, rather than being relegated to the position of exotic add-on, enterprises seek streamlined solutions for integrating popular public clouds, like Microsoft® Azure™ and VMware vCloud Air, with internally delivered IT services. Solutions most in demand use single-pane-of-glass management to simplify applying common management and security tools and policies to applications operated from either a public or private cloud.

The ideal management interface will be the one that IT already knows. A company with a predominantly Microsoft environment will operate most efficiently if it can operate both Microsoft Azure and the rest of its Microsoft applications from Microsoft System Center. Likewise, a predominantly VMware environment may seek a solution that allows the joint operation of vCloud Air and the rest of its VMware environment from the familiar vCenter interface. IT departments are looking for vendors and 3rd-party integrators who can provide this new and important level of operational flexibility.

Accelerate Transition to New Cloud Models

As companies move from traditional IT models to private clouds or some kind of “hybrid” cloud deployment, they generally find they need to revamp their infrastructures. This usually involves virtualizing all their applications and possibly replacing dedicated servers with a software-defined number of servers. To streamline this move to more cost-efficient, scalable and responsive cloud models, companies are taking a close look at converged infrastructure (see Figure 2).

A converged infrastructure prepackages data center components to streamline system deployment and ensure all layers of the infrastructure work together without the usual integration and testing. Convergence centralizes the management of
IT resources and breaks down the barriers between isolated islands of infrastructure. It consolidates network, storage, compute and hypervisor virtualization layers onto a single platform. This consolidation improves storage utilization and allows IT staff to dynamically pool, allocate and secure resources for an agile infrastructure or platform as a service.

Convergence avoids the time and effort involved in deploying infrastructure in the traditional way, but convergence is not an approach an IT department would undertake on its own. When enterprise requirements match up with a cloud service provider’s offering, companies will have the fastest route to a more efficient cloud infrastructure. However, enterprises with specialized infrastructure requirements or security needs will need to 1) find a service provider who can build out a converged system on their floor or 2) buy a converged platform from a reputable developer and install it themselves using IT talent already in their organization.

**Figure 2.** Whether you are an enterprise beginning your cloud journey or a cloud service provider seeking a way to grow your customer base, Hitachi Unified Compute Platform can help you quickly capitalize on emerging needs.

**EXTEND BUSINESS AGILITY**

- Control and manage physical and virtual infrastructure from a single pane of glass.
- Gain flexibility with native integration with VMware vCenter or Microsoft® System Center.
- Optimize your investment with access to VMware vCHS or Microsoft Azure™.
- Adapt to changing business needs.

**Cloud Infrastructure: Sort Out Hype From Reality**

Your IT department delivers services to a business environment that is in constant flux. You can expect change in where you sell, whom you sell to, the mix of products and services you sell, and the state of the art for efficient manufacturing and distribution. As these elements change, it’s the responsibility of IT to help business stakeholders sort through technology capabilities that align with corporate objectives.

We call this process “Business-Defined IT.” The concept brings together IT and business stakeholders for the purposes of achieving an aligned set of business outcomes. To sort through the hype, complexities and realities of public, private and hybrid clouds, and achieve Business-Defined IT, executives need to ask some tough questions.

**Once You Check in, Can You Check Out?**

Most enterprises want the flexibility to move application workloads from one infrastructure platform to another. For example, you might want to move applications to Azure or vCloud Air to make temporary room for business-critical SAP applications you need for a quarter-end close. Then 2 weeks later, you may need to move everything back in-house. This level of integration and convergence, known as a hybrid cloud, is difficult to achieve with some public clouds. For
example, if you put your application in Amazon Web Services (AWS), you need to be prepared to keep it there for the life of the application.

Consider an organization that creates an application to support employee collaboration. The application requires the global reach of AWS and does not carry sensitive information. This makes it a prime candidate for AWS, as long as the organization is comfortable keeping the application there for its life. Where integration points do not exist into a cloud provider's management system, the public cloud becomes a place best suited for temporary uses, such as building a proof of concept or application development and testing.

**What’s the Real Cost of a Public Cloud?**

Where you place your workloads will have a lot to do with how you plan to use them, the service levels you require for any given application, and your tolerance for risk. In the enterprise-grade public cloud, additional services come at a cost, so you’ll need to read the menu closely.

The consumption-based pricing model that looked so attractive going into the public cloud can take on a new dimension when you start adding upcharges. There are separate charges for high availability, dedicated circuits or any operations performed against the data, such as encryption, data services, reads and writes.

**Will My Private Cloud Simply Become Another Silo?**

Many vendors make the claim that they can provide a hybrid cloud when in actuality they are giving you a way to manage a public cloud resource and a private cloud resource. When all is said and done, some of your applications went to the public cloud and others stayed in-house. In a real hybrid cloud, the public cloud becomes a fluid extension of the private cloud, and workloads can move easily across cloud choices.

To gain this fluidity requires the ability to reallocate resources. You can have a single management layer that helps you operate equipment in your various silos and still have a capacity management problem for each island of equipment. To break down silos and create a true hybrid cloud requires the consistency that comes from a unified infrastructure with a converged approach.

**Look Under the Hood Before Buying Into Hybrid Cloud Technology**

There’s no doubt about it – both the public cloud and the private cloud hold value to enterprises. That’s why many vendors claim they can offer you a hybrid cloud. However, it’s best to take a close look under the hood when it comes to “hybrid” claims. Just having the ability to use a public cloud and a private cloud is not the same thing as driving both at the same time. Breaking down the silos between public and private clouds is an emerging technology that requires a deep integration between public and private cloud architectures.

Consider this scenario: You have an electric-powered car and a gasoline-powered car in your garage and can choose to drive one or the other. Whichever one you pick, you are making a compromise: one is efficient but has a limited range; the other uses lots of gas, but it’s roomy and safe. Now, consider the Prius, which fluidly moves from electric to gas power. A hybrid cloud should be more like a Prius, an integrated solution with one management interface, and a skilled technician under the hood.

**Best of Both Worlds: 5 Steps to Achieving the Flexibility of Public Cloud and the Control of Private Cloud**

To run your business effectively in a rapidly changing marketplace, you need the advantages of public and private cloud computing without the downsides of either one. You need flexibility, predictable monthly operating costs, pricing that
coincides with consumption, the right compute resources available at the right time, less equipment to buy and manage. And you need control over security, access, performance and service levels. The following characteristics can help you evaluate the best cloud solutions to meet your needs.

1. **Shift Risk and Responsibility to a Trusted Supplier**

Consider the freedom of handing over the design, installation and management of a private cloud to a trusted supplier. IT describes to the supplier the applications the business runs, the capacity and the growth they’ve experienced in the past. The supplier installs its own equipment on your premises and enters into a contract based on outcomes. This means your monthly charges are based on how much you consume, how fast your applications run, the quality of services you require, and the security measures you need.

Your supplier should respond to changing business needs with exactly the right compute resources and deliver the highest levels of security and control. You won’t need that elusive crystal ball to help you decide what infrastructure serves your best interests now or in the future. You can pass technological and financial risk on to your supplier. Ideally, this supplier brings in trained personnel to manage the IT environment for you and take on labor-intensive tasks associated with architectural design and technical refresh. The supplier also shoulders the responsibility of staffing numbers and training levels.

2. **Align Costs With Business Use**

The ideal managed cloud solution should free you from buying equipment and incurring a capital expense. Rather than paying an upfront charge for the solution or subsequent upgrades, you should pay only for the resources you consume. It should be possible to align resources quickly to meet unpredictable demands. Costs should be transparent, with hardware, software, support, administration and management all included in the per-unit pricing.

You can expect to pay more than a public cloud, where you don’t incur a charge if you don’t use the service. However, you should pay far less than you would to buy, manage and maintain your own infrastructure. In fact, you should be able to calculate an overall reduction in total cost of ownership based on a number of cost efficiencies. These efficiencies include paying only for what you use, reduced maintenance and support costs, no hardware expense, and no software licensing expense. By linking fluctuating consumption with billing, you can also encourage usage-based behavior from lines of business.

3. **Choose the Cloud That Is Right for You**

Your environment should allow you to easily move workloads across cloud choices as a way to temporarily increase capacity or experience the best pricing options. For example, assembling a private cloud to handle a standard workload with burst compute offloaded to a public cloud can be a long-term, budget-friendly arrangement.

The most efficient way to accomplish this level of agility is through a converged infrastructure that tightly integrates popular clouds with the prevailing environment. For example, by integrating Microsoft Azure with a converged Microsoft environment or VMware’s vCloud Air with a converged VMware environment, companies can use hybrid cloud efficiency to leverage the benefits Microsoft and VMware are providing in the public cloud space. Over time, the enterprise can select which cloud platform is best suited for any given application and retain an exit strategy should conditions change.

4. **Manage Converged Infrastructure From a Familiar Single Pane of Glass**

It is common for a company to use one dominant management interface. In a predominantly Microsoft environment, Microsoft System Center would be a logical choice, while a VMware environment would be well served by vCenter.

By converging all Microsoft Hyper-V or VMware vSphere applications and managing them through a single pane of glass, enterprises and the cloud providers who serve them can streamline operations to provide maximum efficiency with minimum staffing.
5. Choose the Cloud Model That's Right for Your Business

The best solution is the one that closely matches current business requirements and adapts to meet future needs. Cloud technology will continue to move forward, further breaking down the silos between public and private clouds.

To best prepare for the future, select a supplier who is at the leading edge of cloud technology with solutions that can flex to take advantage of cutting-edge breakthroughs. Your supplier should be able to advise you on your options and implement a custom-designed solution that precisely meets your current requirements. When your business needs change, your supplier should be able to make the necessary changes (see Figure 3).

Figure 3. With infrastructure installation and managed services from Hitachi Data Systems, you don't have to sacrifice public cloud flexibility for private cloud control. You can have both.