



Bimodal IT Conquered:

What to Look for in an IT Infrastructure Solutions Provider

WHITE PAPER

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Executive Summary

Choosing the Right IT Infrastructure Solutions is Critical to Enabling Today's Bimodal Approach to IT Delivery

In today's business world, the mantra, "do more with less," reverberates within every business unit of every enterprise. Within the IT organization, there's an amplified effect, as this mission-critical, shared service must support every other business unit's growth targets while also trimming its own costs. At the same time, expectations for steady acceleration in *time-to-value* ratchet up pressure on IT to deliver on the more-for-less promise evermore quickly. How can the enterprise IT organization not only withstand these competing forces that threaten to tear the data center asunder, but actually thrive in the increasingly pressurized environment?

To stay responsive to the business while addressing the expanding security, scalability and integration challenges introduced by shadow IT, enterprises need a modern IT architecture that can support both traditional and cloud-based applications. Research firm Gartner has introduced the term *Bimodal IT* to describe "the practice of managing two separate, coherent modes of IT delivery, one focused on stability and the other on agility. Mode 1 is traditional and sequential, emphasizing safety and accuracy. Mode 2 is exploratory and nonlinear, emphasizing agility and speed." [Gartner IT Glossary, Bimodal IT] The typical enterprise should be planning on maintaining a dual approach to delivery of IT services in the near term, while also planning strategically for the eventual migration of all workloads to a robust and agile cloud-based platform. Enterprises need IT infrastructure solutions that enable seamless management, integration and scalability, as well as robust security, between on-premise and cloud data centers.

Enterprises today need an IT infrastructure solutions partner offering a *family of solutions* that all speak the same language but take different approaches to achieving the desired objectives – providing private cloud capabilities with the right capacity, availability, security, flexibility and ease of management. In this way, IT can implement an IT services *delivery and migration* strategy that both maintains the mission-critical and supports the new and agile, all while allowing for the Bimodal state to play itself out, ultimately ceding to the cloud-first, IT-as-a-Service model.

Top 3 Selection Criteria for Choosing Your Bimodal IT Infrastructure Solutions Partner

1. Look for a broad family of Bimodal IT solutions inclusive of traditional IT systems alongside integrated systems such as converged and hyper-converged infrastructure.
2. Seek solutions that provide the agility needed to scale capacity quickly and offer new services on demand.
3. Demand simplicity and flexibility – choose a family of solutions with robust management and orchestration capabilities to allow for easy creation and elimination of workloads, as well as automated migration of workloads from one platform to another, as changing business requirements demand.

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Bimodal IT Defined

The Cloud Continues to Drive Shadow IT

Today's IT organization is caught in a confusing eddy of contradictory currents, all swirling around the everpresent pressure to deliver a wider range of services in support of increasingly demanding workloads with fewer resources. On one hand, IT needs to maintain delivery of core applications and processes, supported by numerous traditional IT platforms pieced together through many budgeting cycles over the course of years. On the other, as businesses continue to evolve at a rapid pace, each looking to develop the disruption that will fundamentally reshape its market landscape and establish it as a major landmark on the newly redrawn map, IT needs to cater to new cloud-based realities too.

Meanwhile, end users aren't willing to wait for IT solutions that are too slow in coming. Instead, they are tapping an ever-increasing number of shadow IT options ranging from the most benign applications to the most business-critical. The introduction of these cloud-based applications comes fraught with myriad security, scalability and integration challenges. And while the average number of cloud apps used by enterprises has declined from 511 to 483 in 2015 (Source: [Netskope](#)), 89 percent of these apps are not enterprise-ready, and 90 percent of data loss prevention violations occur in cloud storage apps. The rise of shadow IT not only undermines whatever level of operational efficiency exists within the IT organization; it threatens the ability of IT to maintain security of business-critical applications and data.

Bridging Legacy and Cloud: The Prevailing IT Model for 2016

As a strong counterpunch, businesses in every industry have been riding the data center virtualization wave toward software-defined data center (SDDC) architectures built on integrated systems – converged and hyper-converged infrastructures – designed to deliver the optimal private-cloud environment and offer needed agility and operational efficiency. Given that steady advances in virtualization technology developed by industry leading companies like VMware and Hitachi Data Systems have pushed the IT-as-a-Service (ITaaS) model beyond the boundaries of *operationally feasible* and into the realm of *business-critical*, forward-thinking companies of all sizes and in all sectors are looking to define just the right cloud model that will best address their unique profiles of need.

The “right” cloud model depends both on a vision for the future of the business and the current state of IT operations. Over time, the typical IT organization has pieced together resource-intensive platforms designed to handle specific, mission-critical (Tier 1) workloads. Due to workload dependencies on legacy technology and the overall level of investment in these dedicated systems, the enterprise can't turn its back on these historic investments in traditional data center infrastructure. In many cases, the migration of these workloads away from the legacy platforms supporting them and to new and agile private cloud environments won't happen on a grand scale until existing SLAs expire.

Research firm Gartner has identified a trend toward dual approaches to IT service delivery, “one focused on stability and the other on agility.” Gartner refers to the practice of managing these two separate, coherent modes of IT delivery as “Bimodal IT,” wherein “Mode 1 is traditional and sequential, emphasizing safety and accuracy, while Mode 2 is exploratory and nonlinear, emphasizing agility and speed.” [[Gartner IT Glossary, Bimodal IT](#)]

Many enterprises find themselves traveling two concurrent yet divergent paths, supporting new business initiatives by moving some of their workloads now to cloud platforms running on new and flexible converged or hyper-converged infrastructure choices, while continuing to maintain the legacy systems to which their Tier 1 workloads remain tied. With careful planning and the strategic counsel of the right infrastructure solutions provider, enterprises can plan successful transitions to a single platform capable of addressing the dual nature of today's IT services delivery.

The Rise of Integrated Systems

According to research firm IDC, sales of integrated systems (converged and hyper-converged infrastructure) grew 15.5 percent year over year during the second quarter of 2015, generating more than \$1.5 billion in revenue. [IDC] Further, IDC estimates that in 2014, the hyper-converged systems market, alone, grew more than 162 percent to a market value of \$373 million. [IDC] Based on this impressive trajectory for converged and hyper-converged IT infrastructure, the foundation upon which software-defined data centers (SDDCs) and private clouds are built, it's clear that businesses in all sectors see SDDC, cloud computing, and the ITaaS delivery model as the primary solution to the problem of how to deliver more for less. This expanding investment in private cloud environments will likely continue until the preponderance of organizations has completed the migration to a cloud-first strategy.

For the enterprise looking to invest in integrated systems, the key lies in identifying an infrastructure solutions provider that can offer a single, unified platform that can support both legacy and cloud-based applications through centralized management, orchestration and automation tools. Hitachi Data Systems and VMware have partnered to offer a family of integrated systems solutions – the Hitachi Unified Compute Platform for VMware vSphere® (UCP for VMware vSphere) – engineered to address the full range of Tier 1, Tier 2 and Tier 3 workloads. Hitachi UCP for VMware vSphere is designed for maximum performance, reliability and utilization, leveraging best-in-class hardware and software technology. The platform offers a single management interface for faster provisioning and easier system monitoring of all Mode 1 and Mode 2 workloads across the entire enterprise.

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Spanning the Bimodal Divide: The Enterprise-Grade Converged Infrastructure

For enterprises seeking significant gains in operational efficiency while continuing to support applications running on legacy infrastructure, moving to an enterprise-grade converged infrastructure solution can greatly reduce OpEx over time by consolidating the overall IT infrastructure footprint, centralizing and automating infrastructure management, and offering the fastest path to a cloud-based ITaaS model for IT delivery as legacy platforms are retired.

Converged infrastructure (CI) offers full configuration flexibility, allowing the enterprise to custom order a complete data-center infrastructure. Factory assembly and integration governed by validated reference architecture assures that the CI solution will power up and work seamlessly upon delivery on premises and meet the most demanding SLAs of the business. And because CI can be configured to provide the precise compute, storage and networking capacities necessary to support core business requirements (affording an opportunity to consolidate the various disjointed legacy platforms built over time), converged infrastructure options can scale up the enterprise's capacity to simultaneously accelerate application delivery and increase operational efficiency of the full range of Tier 1, Tier 2 and Tier 3 enterprise workloads, regardless of where they reside or how they are delivered within the Bimodal model.

Pay-as-You-Grow Private Cloud: The Hyper-Converged Infrastructure Appliance

For enterprises not yet looking to make a wholesale transition to large-scale private cloud architecture, the first forays into cloud environments will be made incrementally, coming in the form of modest investments in hyper-converged infrastructure (HCI). HCI features compute, networking and storage resources pooled in a software-centric design with a high degree of automation, running on commodity x86 hardware and packaged in a compact form factor (the hyper-converged infrastructure appliance). With each HCI appliance, the IT administrator knows exactly how much capacity – compute, networking, storage – the appliance can deliver. These clearly defined capacities offer fast implementation and easy, predictable scaling of new capabilities. The idea is to figure out how much capacity the intended use cases require, buy as many appliances as are needed to achieve that capacity, and then stack these appliances together like building blocks in the data center.

The beauty of HCI is that it's designed for this incremental approach – start modestly; launch quickly; pay as you grow. It can be the ideal solution to providing agile IT services in an environment where growth is anticipated, but rate of growth is difficult to predict. With its building-block approach, HCI mitigates the risk of overprovisioning and therefore not achieving optimal resource utilization, affording enterprises new ways to budget their projects, taking a multistage approach to building data-center capacity over time as ultimate business requirements become clearer.

Integrated Systems Use Cases

Agile Application Development

The launch of a DevOps initiative is a deployment scenario for which HCI can be ideally suited. DevOps teams depend on agility: They often need to start small and with little lead time, yet they may grow quickly and/or unpredictably. These teams may need to create new workloads frequently, which calls for a strong self-provisioning capability, and as the returns on their development efforts start to take shape, they may find that workloads need to be scaled, moved or torn down quickly, too.

Hyper-converged infrastructure supported by strong management and orchestration allows for easy creation, migration and elimination of workloads and their associated policies in a highly automated fashion. HCI's rapid, linear scale-out allows for quick growth when needed while also avoiding the costly trap of overprovisioning compute and storage resources that may not be needed either in the near term or perhaps ever. In short, HCI changes the way companies finance their projects: Pay only for what is needed now, scale appropriately over time, and incur costs that are predictable. And, in the event that the Application Development team delivers a successful PoC, HCI can scale quickly to support a rapid expansion of the user community, assuring application availability and performance through the application's migration to a longer term hosting environment.

Virtual Desktop Infrastructure

Consider virtual desktop infrastructure (VDI), a storage-intensive application that is experiencing widespread adoption as storage technologies have been improving both in efficiency and cost. The HCI model, with its pay-as-you-grow scalability and ability to deliver a consistent user experience with low latency, is an ideal platform for VDI, and while the variety of workloads being deployed on HCI continues to expand, VDI remains the most common use case for HCI deployments. [IDC]

In the case of storage-intensive applications like VDI, though, a converged infrastructure option that allows for scaling storage capacity disproportionately to CPU capacity is a viable alternative to HCI's building-block approach. Infrastructure solutions providers should have in their portfolio a converged offering that features HCI appliance-like simplicity but also affords the flexibility to leverage attached enterprise-grade external storage. And here, cost should be based on a mix of CPU and storage licensing usage, thereby allowing the customer to pay only for what is needed to support the workloads.

Seamless Management of Geo-Distributed Infrastructure

HCI is also an excellent choice for standing up data center services in regional offices where there may be a few hundred employees but not a large IT presence on site. In this scenario, strong centralized management and orchestration capabilities can enable effective, efficient remote support, allowing IT organizations to consolidate their staffing resources and centralize their oversight of multiple regional data centers without having to locate the same level of on-site resources in each regional office as would be required to maintain legacy infrastructures. HCI allows for easy integrating of pods – silos of capacity – to allow for unified management across multiple data centers.

Regional data centers imply a geo-distributed infrastructure; for the large enterprise, such a configuration is a given. Deployed together, converged and hyper-converged infrastructure solutions sharing a common management and orchestration toolset offer the flexible SDDC architecture to support all workloads across all data center locations, affording IT organizations far greater operational efficiency and agility than previously possible.

Ease and Simplicity of Management and Orchestration

In today's Bimodal reality, enterprises can achieve maximal value on their investments in integrated systems if they choose IT infrastructure solutions that offer end-to-end visibility of the entire data center infrastructure, inclusive of both legacy platforms and new cloud-based solutions. A powerful, single-point-of-management toolset offering full visibility of the entire SDDC infrastructure must be able to automate and orchestrate the administration and task workflows required to support the complete IT environment.

To help enterprises overcome the challenges of managing converged data centers and cloud infrastructures, Hitachi delivers an end-to-end management tool optimized to meet the needs of VMware environments. Hitachi Unified Compute Platform Director enables complete visibility and centralized management capability to help align IT with business processes using familiar tools. UCP Director monitors, provisions and protects all the elements of UCP for VMware vSphere and provides an overall health status of all solution elements, enables provisioning of hosts, storage and networking resources to address fluctuating demands, and easily and securely protects the converged system. This innovative approach further reduces the complexity and maintenance challenges associated with disjointed and inefficient management of underlying infrastructures, saving time and money.

Conclusion

Even though there's emerging consensus that the future of IT services delivery is not just going to be *cloud-based*, but will, in fact, be "*cloud-first*" [IDC], the need to support today's Bimodal approach is crucial and will remain relevant for the foreseeable future. For the enterprise IT organization, the key lies in finding an IT infrastructure solutions provider that can service both tracks simultaneously with a suite of cloud-ready infrastructure solutions offering the right mix of simplicity, flexibility and scalability that also facilitates the future migration of workloads across a variety of infrastructure configurations via a single management and orchestration toolset.

Ultimately, enterprises need infrastructure solutions that allow for easy management of all applications regardless of the platform on which each runs, the SLAs governing availability and performance, and the need to migrate workloads across a geo-distributed infrastructure.

Hitachi Data Systems and VMware have brought to market the Unified Compute Platform for vSphere family of solutions, anchored by the UCP 4000 enterprise-grade converged infrastructure and the UCP Hyper Converged for VMware hyper-converged infrastructure appliance. Each member of the UCP family represents the next generation of integrated systems solutions. The UCP platform provides world-class reliability, flexibility, automation and performance to support the full range of enterprise workloads running anywhere within the Bimodal model.

To learn more about how Hitachi Data Systems and VMware combine their visionary and industry-leading capabilities to deliver a full line of converged and hyper-converged infrastructure offerings, please visit www.hds.com/go/vmware.

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About Hitachi Data Systems

Hitachi Data Systems, a wholly owned subsidiary of Hitachi, Ltd., builds information management and Social Innovation solutions that help businesses succeed and societies be safer, healthier and smarter. We focus on big data that offers real value – what we call the Internet of Things that matter. Our IT infrastructure, analytics, content and cloud solutions and services drive strategic management and analysis of the world's data. Only Hitachi Data Systems integrates the best information technology and operational technology from across the Hitachi family of companies to deliver the exceptional insight that business and society need to transform and thrive. Visit us at <https://www.HDS.com>.

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VMware is a global leader in cloud infrastructure and business mobility. Built on VMware's industry-leading virtualization technology, our solutions deliver a brave new model of IT that is fluid, instant and more secure. Customers can innovate faster by rapidly developing, automatically delivering and more safely consuming any application. With 2014 revenues of \$6 billion, VMware has more than 500,000 customers and 75,000 partners. The company is headquartered in Silicon Valley with offices throughout the world and can be found online at www.vmware.com.

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01/16