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Patrick Michael
Director of Storage, US
CGI

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CGI Builds Successful Federal Cloud Services on Hitachi UCP Select for VMware vSphere With Cisco UCS

As a premier full-service hosting and cloud provider, CGI is in the business of delivering results that matter. CGI is built for enterprise and government cloud solutions, and was the first major cloud provider to obtain federal authorization (FedRAMP) for delivering secure cloud services to U.S. federal agencies. The innovative company credits its success to a complete cloud approach and a converged, robust IT solution from Hitachi Data Systems, VMware and Cisco. CGI now standardizes many of its data centers on this converged infrastructure.

The people who work at CGI could be called dreamers. Going beyond classic vision and mission statements, the CGI constitution spells out the dream of having its 69,000 employees create a work culture of which they can all be proud. That same ethos applies to how CGI cultivates customer relationships in 40 countries around the globe. CGI is a world-class IT and business process services leader, with more than 38 years in business and a roster of prominent customers, including 23 of the top 25 banks in the Americas, 6 of the top 10 global telecom service providers, 3 of the top 6 oil companies, and over 2,000 government organizations in 15 countries.

CGI is also one of the first companies to provide cloud services to federal agencies. The CGI Federal division has long partnered with government agencies to provide solutions for defense and civilian missions. In 2010, the U.S. government mandated a “Cloud First” policy to accelerate cloud computing at a national level in order to save billions of dollars per year. CGI responded to this call for cloud providers in spite of the need to meet a long list of stringent IT and service requirements for receiving FedRAMP authority to operate (ATO). The ATO dictates standardization measures for key aspects of cloud services.



CGI Group, Inc.

INDUSTRY

Services: Information Technology

SOLUTIONS

Hitachi Unified Compute Platform Select for VMware vSphere With Cisco Unified Computing System

HARDWARE

Hitachi Virtual Storage Platform

SOFTWARE

Hitachi Dynamic Provisioning
Hitachi Command Suite
Storage Manager for VMware vCenter (plug-in)

Benefits at a Glance

- Rapid provisioning.
- Simplified infrastructure.
- Self-service consumption model.

SUCCESS STORY

Today, chief information officers at some of the world's largest organizations rely on CGI cloud computing. With a unique "complete cloud" approach and sustainable savings up to 50%, CGI delivers automated service management, certified enterprise-strength security, on-demand flexibility, and easy access to services and support via several contract vehicles¹. One of the contracts is a blanket purchase agreement (BPA), valued at \$76 million, from the U.S. General Services Administration (GSA) to offer government agencies virtual machines and Web hosting services in the cloud environment². GSA is a leader in implementing cloud computing solutions.

The Challenge: Define a Technology Stack to Meet Federal Criteria for Cloud

Cloud computing promotes IT efficiency and agility by allowing users to consume only what they need, to grow or shrink their usage as needs change, and to only pay for what they actually use. The GSA created the cloud.cio.gov storefront for agencies moving to cloud. For cloud providers, the GSA mandates included a minimum scalability to 10,000 virtual machines, with 1CPU, 2GB RAM and 50GB disk. The IT architects at CGI knew it was important to develop a converged solution capable of much more than minimum requirements.

"There is probably no other organization in the world that handles the magnitude of disparate activities that the U.S. government undertakes on a daily basis. And since each agency's cloud strategy may vary, we wanted to ensure we created a cloud solution dynamic and flexible enough to address customer needs. And, of course, we wanted to be able to scale to accommodate new cloud clients," explains Patrick Michael, CGI's director of storage in the U.S.

The Solution: Converged Technologies

The IT team at CGI had researched, tested and validated its technology stack for the federal cloud, and believed it was a win-win. The CGI stack is based on technologies from VMware, Hitachi Data Systems and Cisco. Specifically, it chose Hitachi Unified Compute Platform (UCP) for

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Tom Kramer, Director of Alliance Management, CGI

VMware vSphere Select With Cisco Unified Computing System (UCS). The solution includes:

Compute

- **Cisco Unified Computing System (UCS)** is a cloud-ready infrastructure with a unified fabric to unite computing, networking and access to storage in a single platform, and supply high-volume connectivity and optimization of virtualized environments.

Networking

- **Cisco Nexus Family** includes a virtual services appliance, a virtual switch and choice of physical switches. Nexus Switches deliver standards-based multilayer, multiprotocol support for transitioning to 10Gb/sec Ethernet and unified fabric. Nexus Switches extend the network edge to the hypervisor and virtual machines (VMs), and scales for cloud networks.
- **Cisco MDS 9xxx Series Switches** provide 3 times more bandwidth than other SAN directors. With fault-tolerant design, multiprotocol flexibility and a rich set of intelligent features, they accommodate mission-critical applications and cloud environments.

Storage and Storage Software

- **Hitachi Virtual Storage Platform** is based on superior storage architecture and legendary reliability for enterprise performance, capacity and multivendor storage. It delivers dynamic 3-D scaling – up, out and deep – to handle optimal infrastructure growth for all data types in all dimensions.
- **Hitachi Command Suite** provides a shared management framework with advanced tools that centralize, automate and expedite IT requirements. Its features

enable personalized management for users through self-service customization and business policy alignment.

- **Hitachi Dynamic Provisioning** is one of the technologies under the Command Suite umbrella, which provides dynamic thin provisioning for virtual storage capacity, delivering improved storage utilization, faster provisioning of new storage, and better application availability.

VMware

- **VMware vSphere and VMware vCenter Server** proactively manages virtualization platforms.

The federal ATO for CGI was awarded only after a 3rd-party external audit and an arduous pursuit of the right IT solution to meet very specific, very substantial mandates for scalability, reliability, performance and high availability. CGI was already using VMware virtualization and Hitachi Data Systems storage architectures in numerous data center scenarios.

"The big thing for us was moving to Cisco UCS. We liked the service profiles and being able to replace hardware components on the fly and the simplicity of scalability and redundancy across the stack. Our IT stack more than met the federal cloud criteria, plus it offered us unified computing capabilities to expand our offerings to other clients," says Michael.

What CGI did not know at the time of its successful design was that their solution providers would later formalize the equivalent of the CGI solution into preconfigured Cisco Validated Design (CVD). Known as Hitachi Unified Compute Platform Select for VMware vSphere with Cisco UCS, the CVD offers a blueprint for a creating cloud-ready

¹<http://www.cgi.com/en/us-federal/federal-cloud>

²<http://www.cgi.com/en/US-General-Services-Administration-selects-CGI-multi-vendor-BPA-Cloud-Based-Infrastructure-Service-iaaS>

infrastructure that integrates compute, network and storage resources. UCP Select for VMware vSphere with Cisco UCS is a fully validated framework for speeding deployments, reducing risks and enabling administrators to scale the architecture as business needs change.

Standardization and Service

CGI completed the design phase in 2010 and the build of its new technology stack in January 2011. Since then, the company has standardized many of its data center environments on the same design.

“Our stack is the standard across the data centers. Implementing this stack changed everything for us. By standardizing on Hitachi, VMware and Cisco, we are fully equipped to handle the magnitude of client requirements, especially in dynamic, complex cloud environments. We use this reference architecture for traditional hosting too; all the activities we do for traditional hosting are handled on the UCP stack,” Michael details.

Cost savings of standardizing technology platforms can be realized in lower operating expenses (opex). Less administrative time and money needs to be spent on training, managing and licensing disparate systems. And, better operational efficiencies can be achieved as standardization allows CGI to deploy faster, scale easier and simplify support. “We saw the business value in standardizing IT as a way to quickly and more efficiently get us where we need to go for our client base. Everyone will be trained on the same technologies, manage the same frameworks: It makes good business sense while reducing complexities,” adds Tom Kramer, director of alliance management for CGI.

Standardizing on a technology reference architecture accelerates these things even more. A reference architecture generally works like a template that can be repeatedly applied to address the same or various business problems. The IT stack at CGI is based on UCP Select and UCS reference architecture. This converged infrastructure solution is validated and certified to support predictable, low-risk cloud deployment that

**UCP Select
Reference
Architecture**

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abstracts the underlying infrastructure from applications and information. It delivers ubiquitous automation, greater VM density, nondisruptive operations and error-free provisioning. Resultant cloud solutions can thereby improve agility, increase efficiency and reduce the cost of delivering IT. Hitachi Data Systems works hand in hand with Cisco to provide collaborative support for CGI. In the event an issue occurs in the data centers, CGI can contact either account team for assistance.

“What we like is having our stack supported, knowing that the interoperability is mapped out, and that I can simply call Hitachi or Cisco to ask about adding or changing up something, and the answers and support are available. These partners provide a level of expertise we really appreciate,” says Michael.

“And the ease of doing business with Hitachi Data Systems is worlds different from doing business with many other vendors. We’ve found Hitachi folks to be proactive and bring their A game every time. We feel like there’s a true partnership in place,” Kramer adds.

The Benefits

Flexibility, Performance and Scalability

At a glance, the benefits afforded CGI with its converged IT solution include rapid provisioning, simplified infrastructure, self-service consumption model and elastic resource allocation. The level of complexity that is removed allows CGI to perform rapid rollouts across multiple customer environments. CGI can move resources back and forth as those particular customers might need without creating independent vertical stacks for allocation. For multitenant environments, these features are critical.

“The flexibility of the UCP is awesome. The ability to move things around based on customer requirements and requests is significant. We can instantly swap out blades

by just moving any free box over and pick up the workload without hiccup,” Michael notes. “The ease of build between the UCP stack and how it used to be is night and day. Once we bring up the Cisco UCS, we see the benefits immediately. I mean, we’ve literally gone from days to add new devices and capacity to the environment to hours. Deployment is nothing more than zoning some disk, plugging in some blade, and we’re done.”

CGI continues to meet the stringent requisites originally mandated by the GSA for federal cloud customers. Scalability and performance of Hitachi Virtual Storage Platform in the stack allows CGI to extend beyond normal demands for meeting new client requests, such as greater I/O with solid state disks. The UCP solution is able to handle substantially dynamic workloads without bottlenecks or backup issues. CGI plans to continue building on the highly adaptable Hitachi UCP Select for VMware vSphere With Cisco UCS.

Deliver Mission-Critical Services Through the Cloud

CGI is now providing cloud services to numerous government agencies such as the U.S. Government Services Administration and Department of Homeland Security. “Mission-critical is our baseline for everything. We run the typical enterprise apps, sure, like Microsoft® SQL Server®, IBM® WebSphere®, Oracle and many of our federal customers have mission-critical apps and websites on our cloud. A national crisis or natural disaster happens, and these cloud-based sites must be up, no matter what. Customers want uptime, scale, performance, and aren’t focused on what’s running it all, as long as it meets their application and cloud requirements. We have the confidence that our technology stack, the UCP Select model, will work every time, anytime,” Michael finishes.



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