Enhancing Continuous Operations and Data Integrity for Critical Microsoft® Applications

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Enhancing Continuous Operations and Data Integrity for Critical Microsoft Applications

Evaluator Group will review their analysis of the value of Hitachi Virtual Storage Platform (VSP) G1000 for Microsoft applications. This solution addresses customers requirements for:

- Business-critical Microsoft Hyper-V® environments
- Nondisruptive storage operations and data mobility for Microsoft applications
- Simplified data migration that spans enterprise data centers
- Enabling IT to provide cloud-based services

By attending this webcast, you will:

- Understand the challenges of storage and associated requirements for Hyper-V environments.
- Review requirements for workload mobility, data migration, and cloud deployments
- Learn how VSP G1000 addresses requirements for Microsoft applications
Agenda

- Hitachi and Microsoft Partnership Overview
- Evaluator Group Findings
- Summary
- Q&A
Hitachi Data Systems - Microsoft Partnership
Hitachi-Microsoft Alliance

Mission-Critical Solutions Made for Microsoft
Hitachi-Microsoft Relationship

- Strategic partners since 1989
- Microsoft Gold Certified partner
  - Joint road maps and development
  - Participation in developer programs, pre-testing, validation, and certification

- Hitachi Data Systems maintains presence at Microsoft HQ
  - Hitachi equipment for demonstrations, development, and benchmarking
  - Technical personnel, project managers, systems engineers, and architects
  - Alliance management
PARTNER PROGRAM

- Program initially announced November 2010; Hitachi participated since inception
- Offers building blocks for private cloud deployments
- Partner reference architectures as a platform, combining
  - Compute, storage, and network
  - Microsoft Windows Server® 2012 R2 with Hyper-V 4.0
  - Microsoft System Center 2012 R2 management and integrations

DEPLOY QUICKLY
REDUCE YOUR RISK
Microsoft Workloads and Applications Validated
Customer Challenges: Virtualizing Microsoft Applications
Microsoft Customer Challenges

Mission-Critical Applications

UCP for Microsoft | Hyper-V Cloud

- Banking Transactions
- Retail OLTP
- Government Agencies
- Financial Data

E-Commerce CRM
Healthcare Data Warehouse
Utility Services
Manufacturing ERP

Need to Maintain Availability, Agility, Automation

- **High availability** for Microsoft applications
- **SLAs** to be maintained while moving workloads across virtual machines in a Microsoft Hyper-V environment
- **Management complexity** to be reduced

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**Major Challenges in Mission-Critical Virtualized Environments**

- **Agility challenges**
  - Workload mobility
  - VM density and I/O performance
  - Storage management
- **Availability challenges**
  - Nondisruptive migration
  - Nondisruptive data access
  - Nondisruptive application operation
  - Multitenancy

**Diagram:***
- Site A: QA, Tier 2 Apps, Tier 1
- Site B: VM and App Migration
- Server Virtualization
- Data Migration
- ODX Local or Metro Distance
- HDLM Enables Preferred Path
Evaluator Group
Findings
Hitachi Virtual Storage Platform G1000: Value for Microsoft Environments
Storage Virtualization - Advanced Capabilities

• Global storage virtualization
  • Across multiple sites
  • Across physical storage systems

• Virtual Storage Machines
  • Maximize storage resource utilization
  • Multi-tenancy for storage – isolation of access
  • Advanced features
    • Non-disruptive migration
      • Data and remote copies
    • **Global Active Device**: active-active stretched clusters
    • High Availability operations
Software-based Technology

• Going forward, consistent across HDS platforms and generations
• Eliminates complex migrations
  • Providing transparent technology updates
  • Enabler for extending system lifespan
• Consolidated management
  • Reduce complexity
  • Provide foundation for automation
• Base for cloud infrastructure
  • Private clouds – Hitachi Unified Compute Platform
  • Public clouds – Global Storage Virtualization
Hardware-based Technology

• Continued advances
  • Scale
    • Cache – 2x
    • Capacity
    • Ports – 2x FCoE
  • Performance – 3x compared to previous VSP
  • Continued reduction in power and cooling requirements
• Flash only configuration
• Unified Block and File configuration
• Continued Mainframe advances
• Extended lifespan for system
Improves Hyper-V and Systems Center Environments

• Current Problem: Workload mobility capability is inconsistent depending on circumstance
  • Moving workload (application processing and data) to less busy systems to meet SLA requirements or for availability (service actions on hardware for example)
    • Hyper-V uses Live Migration
    • Moves virtual machine
    • Repoints storage access
    • Can be automatic or orchestrated by SCVMM
Improved Live Migration with Clusters

• Permits migration across metro distances with active-active stretched clusters
  • Totally transparent to Microsoft environment

• Enables Disaster Recovery without disruption of services
  • Designed to eliminate downtime
  • Appears as the same storage device on both sites
  • The same data, log files and indices are on both sites
Hyper-V Workload Mobility Example

VMs are live migrated between Site A and Site B.
HDLM enables preferred path.
Path Access.
Active - Active Stretched Cluster.

Site A
Metro Distances
Site B
Workload Mobility Example

• Current situation
  • Two sites at metro distances for continuous business operations
  • VSP G1000-based systems at both sites with critical application volumes using Global Active Device (active-active stretched cluster)

• Administrator needs to move critical app Virtual Machine to second site to balance workload of for failover condition
  • Hyper-V Live Migration with Windows Server Failover Clustering moves running virtual machines to another physical server
  • VSP G1000 allows the movement over metro distances transparently

• Data access automatically switches through multi-pathing
  • No data migration required
  • No application interruption
  • No administrative action for storage
Implements Microsoft Applications Operations

- Current problem: applications are tied to underlying storage systems (with or without Hyper-V)
  - Changes to storage systems can impact applications such as Exchange and SharePoint – require restart, involve multiple administrators and operational complexity
  - Hesitancy to do upgrades/changes to storage – inherently creates a linkage to application update
  - Benefits from new storage technology are delayed
VSP G1000 Value with Microsoft

- Enables independent change of storage technology transparent to application execution
  - Virtual Storage Machines enable storage transition
    - Transparent to application – with or without Hyper-V
    - Does not require application owner or administrator involvement
      - Reduces scheduling problems
      - Reduces operation expenses incurred
      - Reduces complexity and risk

- Results – Benefit to applications and IT
  - Improved technology over earlier hardware generation – performance, reliability, scale
  - Environmental improvements – space, power, cooling from physical hardware reduction with VSP G1000
  - Reduced management points with storage virtualization
Application Independent Update Example

VM Application
VM Application
VM Application
VM Application
VM Application
VM Application

Applications: Exchange, SharePoint, Etc.

Hyper-V

Virtual Storage Machine

VSP G1000

Active-Active

Stretched Clusters
Application Independent Update Example

- Current situation
  - Applications direct linkage to storage create issues with updating storage systems – causes impact to application availability
  - VSP G1000 installed
    - Can be local only or a metro cluster with active-active stretched cluster
- Updates can be performed transparently to applications or systems – no restart, reboot required
  - Virtual Storage Machine isolates application from specific device characteristics
  - Updates can be performed with true virtualized storage – Decoupling storage and application
• Cloud deployments create persistent applications that need periodic updates
  • Current problem: updating includes application, Hyper-V, and storage, resulting in cloud approach: complete re-install of application
    • Coordination of update is difficult – driven by application changes
    • Benefits of other areas such as Hyper-V and storage may have to wait until next major application refresh – Result is a delay in the economic benefits achieved with new storage
    • Change becomes complex process with many players and moving parts
VSP G1000 Value with Microsoft

• Allows cloud type environments to be independently updated – applications, Hyper-V, or storage
  • Virtual Storage Machines enable independent updating
  • Results – Benefit to applications and IT
    • Cost reductions from new storage advances can be quickly applied to the cloud environment
      • Immediate economic benefits that come with new storage
    • Improved technology – performance, reliability, scale
    • Environmental improvements – space, power, cooling from physical hardware reduction
Cloud Deployment Example

Re-install of Cloud-Based Application

VSM – Isolated Updating / Access
Cloud Deployment Example

• Current situation
  • Similar to independent storage updating – Hypervisor, application, and storage are linked for updating due to potential impacts
  • VSP G1000 system currently installed
    • Can be local only or a metro cluster with active-active stretched cluster

• Updates can be done independently – Virtual Storage Machine isolates applications
  • Typical complete re-install of application does not affect other applications, virtual machines, or storage
  • Economic benefits from decoupling storage and application updates/changes
Hitachi Unified Compute Platform for Microsoft Private Cloud
Hitachi Unified Compute Platform (UCP) for Microsoft Private Cloud

Integrated with System Center and designed for Microsoft Private Cloud and Azure

- Scale server, network and storage on demand
- Automate end-to-end operations with one orchestration software
- Deploy in < 5 days
- Run virtualized or non-virtualized (bare metal) applications on one platform
- One source for all hardware support
- Full data protection
Virtualizing Microsoft with Hitachi

Business Apps

Validated for Microsoft Applications and Workloads

Virtualize business apps with ease and confidence

Converged Infrastructure

UCP for Microsoft Private Cloud
• Predictable, repeatable, reliable
• Ease of deployment

Enterprise Storage

VSP G1000: Best-in-class enterprise storage
• Storage virtualization
• Highest density and performance
• Nondisruptive VM migration
Maintains secure multitenancy with storage virtualization

- Workload mobility across locations
- Nondisruptive application operation
- Nondisruptive migration to expand environment or technology update even across metro distances
- Active-active stretched clusters enables hybrid cloud between customer and service provider
Proven Success

“Hitachi Data Systems products combine best-in-class architecture, reliability and excellent technical support, and have enabled us to have 100% availability.”

Jitendra Sangharajka, Associate Vice President and Head Enterprise Platform Management, Information Systems, Infosys

CHALLENGES

- Faster time-to-market and ability to better react to the changing needs of customers is critical
- Wanted multitenancy and multi-site disaster recovery
- Adding new user accounts

RESULTS

- Able to bring applications and users online in real time
- Improved performance, multitenancy and multi-site DR
- Infosys turned deployment into a service model for their customers
Questions and Discussion
Upcoming WebTechs

- **WebTechs**
  - *Integrated User Interface for Hitachi Command Suite, Hitachi Device Manager, and Hitachi Storage Navigator*, June 4, 9am PT, 12pm ET
  - *What’s New in Hitachi Command Suite v8*, June 4, 9am PT, 12pm ET

- **Check** [www.hds.com/webtech](http://www.hds.com/webtech) for
  - Links to the recording, the presentation, and Q&A (available next week).
  - Schedule and registration for upcoming WebTech sessions.
  - Questions will be posted in the HDS Community:
    [http://community.hds.com/groups/webtech](http://community.hds.com/groups/webtech).
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