**Service description**

**IDS Microsoft – Implementing Windows 2008 Hyper V - Comprehensive**

**Introduction to your service agreement**

This packaged service provides for the installation and configuration of a Dell Equallogic™ storage area network (SAN) integrated with up to 3 Dell PowerEdge™ servers (depend on service purchased) and two iSCSI PowerConnect™ Ethernet switches into rack. This service also includes the implementation of Windows 2008 Hyper-V on the three host, implementation of SCVMM on a physical or virtual server, configuration of vMotion, HA (High Availability).

Configuration of up to 1 virtual machine template (Windows Operating System), creation of up to 2 virtual machines and the Physical to Virtual migration of up to 5 Windows servers (depend on service purchased - with a total data of up to 900GB for 2 node/3P2V or 1500GB for 3 node/5P2V) into the virtual environment, as required. At the conclusion of this Service, Dell will conduct a brief Supported Product orientation session and provide a configuration guide documenting the implementation.

A Dell representative will contact the customer to schedule this Service, allowing for at least a ten business day lead time prior to the start of the Service, based upon a mutually agreed to resource availability. This Service will be provided during normal Dell business hours, Customer local time, Monday through Friday, excluding holidays, unless other arrangements have been made through the Dell sales team and the project manager.

This Service Description ("Service Description") is entered among you the customer ("you" or "Customer") and the Dell entity identified on your invoice for the purchase of this Service. This Service is provided in connection with Customer’s separate signed master services agreement with Dell that explicitly authorizes the sale of this Service (as defined below) or, in the absence of such agreement, Dell's terms of sale applicable to commercial customers, which is available at www.Dell.com (you can access this at www.Dell.com/terms in the United States) or your local Dell.com website and incorporated by reference in its entirety herein.

By placing your order for the Services, utilizing the Services or associated software, or by clicking/checking the "I Agree" button or box on the Dell.com website in connection with your purchase or within a Dell software interface you agree to be bound by this Service Description and the agreements incorporated by reference herein. If you are entering this Service Description on behalf of a company or other legal entity you represent that you have authority to bind such entity to this Service Description, which case “you” or “Customer” shall refer to such entity.

**Service expires 1 year after purchase.** EXCEPT TO THE EXTENT APPLICABLE LAW REQUIRES OTHERWISE, YOU MAY USE THIS SERVICE ONE TIME DURING THE 1 YEAR PERIOD FOLLOWING THE DATE OF ORIGINAL PURCHASE ("EXPIRATION DATE"). THE ORIGINAL PURCHASE DATE IS DEFINED AS THE EARLIER OF THE DATE OF THE INVOICE FOR THE SERVICE OR ORDER CONFIRMATION FROM DELL. DELL'S DELIVERY OF THE SERVICE WILL BE DEEMED SATISFIED AFTER THE EXPIRATION DATE EVEN IF YOU DO NOT USE THE SERVICE.
The scope of your Service agreement

Service SKUs
See Appendix A

The key Service steps include

Planning and Design:
1. Verify that the existing configuration meets the minimum hardware and software requirements.
2. Discuss storage design, partitioning planning and logical layout based on provided information and best practices.
3. If applicable, outline image templates that will be used during the VM deployment.
4. If applicable, outline detailed information about VMs that will be deployed.
5. Identify Virtualization Candidates for P2V (Windows only).
6. Discuss online /offline conversion process.
7. Consult and document the cluster configuration.
   a. Domain structure (Public IP addressing, Node name)
   b. Heartbeat infrastructure (IP addresses, Node names)
   c. Identify shared resources (Disks, Services, Virtual IP addresses)
   d. Virtual Machine configuration.
8. Design the cluster resources:
   a. One Quorum resource.
   b. Up to 1 resource group per node.
9. Review this document with the Customer to ensure the understanding of the scope of work.

Implementation and Testing:

Installation of Dell PowerEdge servers:
1. Depend on the service purchased – installation up to 2 or 3 Dell PowerEdge servers
2. Unpack new Supported Product and inspect all hardware prior to installation.
3. Mount rack related hardware (such as rails, brackets and tray) onto the rack.
4. Mount the Supported Server into the rack.
5. Install and route power cables to the Supported Server.
6. Connect the Customer-provided cables to the Supported Server (such as network, keyboard, mouse, and video).

7. Power up the Supported Server, perform initial system boot and ensure that there are no visible fault indicators.

Implementation and testing of Dell EqualLogic solution

1. Install the storage array components:
   a. Unpack and inspect all hardware prior to installation.
   b. Mount the storage array components into the rack/rails.
   c. Install Customer-provided power distribution units (PDUs) onto the rack, as needed for the proper power configuration of the product.
   d. Install and route all power and interconnect cables to the storage components.
   e. Attach any management ports to the Customer-provided network drops.
   f. Power on the product and verify basic functionality ensuring that there are no fault indicators.

2. Configure the storage, as set forth in the design:
   a. Confirm that the Storage Controller firmware level is at the approved version; update as necessary.
   b. Create Storage Pools.
   c. Create Volumes.
   d. Configure host access restrictions.

3. Configure new Dell PowerConnect™ switches, as per the design.
   a. Confirm that the switch firmware is at the approved version; update as necessary.
   b. Configure recommended iSCSI switch settings.

4. Configure each iSCSI server, as per the design:
   a. Validate that the host firmware and software is at the approved versions:
   b. Install the iSCSI HBAs or NICs and driver as necessary:
      i. Power cycle the host to ensure a proper boot cycle.
      ii. Install the iSCSI HBA(s) or NICs into the host.
      iii. Ensure that the iSCSI HBA firmware is at the approved levels; update as necessary.
      iv. Install the iSCSI HBA driver into the host operating system.
   c. Install the iSCSI initiator.
   d. Configure the iSCSI NIC internet protocol addresses.
e. Install and/or configure the failover software included with the storage hardware, as needed.

f. Configure Volume path policies as necessary.

5. Configure the iSCSI parameters on the array, as applicable:
   a. Configure iSCSI initiators on the storage device.
   b. Register servers and confirm connectivity.

6. Configure challenge handshake authentication protocol (CHAP), as needed:
   a. Disconnect and clear iSCSI initiator settings on all servers.
   b. Configure the CHAP user and enable it on the storage array.
   c. Configure iSCSI initiator with CHAP on all servers.

7. Verify server to storage connectivity:
   a. Partition and format the storage, as per the design.

8. Install SANHQ on Customer designated management station as set forth in the design:
   a. If creating a new VM for SANHQ, obtain Windows® media and Product Key from customer.
   b. Discover/add applicable Dell EqualLogic members to manage.

9. Configure and test email notification, if available, as per the design.

**System Center Virtual Machine Manager SCVMM**

10. Install the System Center Virtual Machine Manager.

11. Install the Windows Automated Installation toolkit.

12. Install the VMM server components.

13. Install the administrator console.

**Hyper-V**

14. Set up Hyper-V™ and the Failover Clustering feature, if required:
   a. Verify and ensure Software requirements for using Hyper-V and Failover Clustering.
   b. Install “Heartbeat” NICs onto each cluster node, if required.
   c. Cable the heartbeat infrastructure, as needed.
   d. Install MS Hyper-V: (Install latest major code release, unless otherwise advised):
      i. Check firmware of DELL servers is latest and supported, update if necessary.
ii. Configure Virtual Infrastructure to Microsoft best practice standards.

iii. Apply patches if necessary.

e. Configure the Windows Server Failover Clustering:
   i. Cluster IP addresses.
   ii. Services.
   iii. Create cluster resource groups.
   iv. Assign resources to cluster resource groups:
      v. Services.
      vi. IP Addresses.
      vii. Disks.
      viii. Shares
   ix. Cluster Shared Volumes (CSV)

15. Virtual Machine setup configuration:
   a. Create a virtual machine with Windows operating System and configure the automatic start action.
   b. Make the virtual machine highly available.
   c. Configure the virtual machine.

16. Test the cluster for proper functionality and failover capabilities:
   a. Soft fail a node and validate resource group transfer.
   b. Hard fail a node and validate resource group transfer.

17. P2V Migration to Virtual Infrastructure:
   a. Verify that the customer has the required hardware and software revisions.
   b. Run Convert Physical Server Wizard in VMM or invoke New-P2V cmdlet from Windows PowerShell.
   c. Migrate identified physical servers using the tool. (Windows only).
   d. Choose Online Conversion or Offline Conversion process as required.
   e. Remove any unnecessary vendor-specific hardware utilities and drivers from the virtual machine after P2V is complete.

Product Awareness:

1. Conduct a brief product orientation session and review the associated documentation. This overview does not replace any available Customer education courses for this product.
Project Closeout:

1. Provide documentation to reflect the Services performed.
2. Obtain Customer acknowledgment of Services performed.

Deliverables

1. Installation and implementation of a Dell EqualLogic Storage Array environment with two iSCSI Ethernet switches and up to three PowerEdge™ Servers into rack.
2. Installation and Configuration of a two (2) or three (3) nodes Hyper-V Clustering environment with SCVMM (depend on service purchased).
3. Physical to Virtual (“P2V”) server migration of up to three (3) or five (5) physical servers into the newly implemented virtual environment (depend on service purchased- with a total data of up to 1500GB).
5. Documentation.

Pre-requisites

1. An appropriately sized and configured hardware platform onto which to implement the Virtual Infrastructure.
2. Completed Hyper-V Server Virtualization Infrastructure Design (Resulted from project kick-off white board session).
5. Functioning TCP/IP Network with adequate Gigabit Ethernet Ports available.
7. Fully Functioning DNS infrastructure, with both forward and reverse zones correctly configured.
8. SQL or Oracle database is available for installation of SCVMM.
9. Customer must have a complete and current backup of any existing data on affected servers and storage systems. Dell will have no liability for loss or recovery of data or programs.
10. Appropriate outages to commence the installation and P2V migrations for offline P2V.
11. Ensure that all Windows operating Systems are at the correct patch levels.
12. Customer has to ensure that all servers in the LAN environment (that are part of the Hyper-V server setup) are preconfigured into the same domain.
13. Provide all necessary installation parameters for the Virtual environment, including: node names, Domain names/types, IP addresses (public/private/cluster/virtual Service), user accounts, etc.
14. System administration experience on Microsoft windows or Linux operating systems (as appropriate).

Assumptions

1. Customer has provided all the relevant information to Dell Services in the context of this project.
2. The servers for the Physical to Virtual Migrations do not have OEM licences and are supported by Converter.
3. Dell Servers and Dell Storage are installed and available for the implementation.
4. Customer’s IT infrastructure associated with this project does not currently have any known problem or issue/s.
5. Customer has copies of valid licenses for the S/W and / or applications needing to be installed, applicable to this quotation.
6. Dell reserves the right to re-price service should quantity or scope change.
7. All pricing is based on work being completed during business hours. If a requirement exists for these services to be delivered outside of business hours, please notify your account representative who will arrange for the proposal / rates to be amended. The Dell definition of business hours are Monday to Friday, 9:00am to 5:00pm excluding national and state based public holidays;
8. Dell reserves the right to re-price service should quantity or scope change.

**EP2V Specific Guidelines**

9. This service does not include assessment services of any kind, such as Virtualization Readiness Assessment, etc.
10. These limits are in place for the Physical Source Servers involved in the P2V portion of this service:
11. Cannot be a member of a Cluster.
12. Operating Systems needs to be supported by the P2V conversion tool.
13. Source servers need to adhere to pre-requisites for the Physical Server Wizard in VMM.
14. Hardware issues which prevent P2V with source servers which are non-Dell or not covered under warranty may be excluded.
   a. This includes any connectivity issues to external storage.
15. Servers which fail a P2V migration after two attempts via up to two tools/methods will be reverted back to the physical server.

**Exclusions**

1. Installation or configuration of additional VMs, VM templates unless specified in the scope.
2. Network troubleshooting or Tools-based Remediation. The Existing Networking Infrastructure and its Supporting Services (such as DNS and WINS) are considered “Healthy” for the duration of this project.
4. Multiple site configurations.
5. Performance tuning, system optimization, teaming/load balancing of NICs or other similar Services.
6. Upgrading of any existing firmware or applications not listed in this document.
7. Installing or configuring any applications, such as Exchange, or SQL.
8. Routing of interconnect cabling through walls, ceilings, or between rooms.
10. Upgrading of any existing firmware or applications not listed in this document.
11. Any integration with any non-Dell branded hardware.
12. P2V services noted in the P2V Specific Guidelines section of this Service Description.
13. Application or Operating System compatibility testing.
14. Any activities other than those specifically noted in this Service Description.

**Project Coordination**

**Deliverables**

1. Coordination and facilitation of “kick-off” session via phone between customer representatives, Dell SC, Dell SA and Dell Account Executive. Session to address:
   a. Confirmation of engagement scope.
   b. Introduction of stakeholders.
   c. Communication of dependencies.
   d. Confirmation of customer readiness to commence engagement.
   e. Development of deliverable acceptance criteria.
   f. Implementation schedule development.
2. Minutes for “kick-off” session provided in Dell standard documentation template.
3. Coordination of site attendance for Dell resources.
4. Communication of task completion and scheduled activity via email weekly.
5. Coordination and facilitation of a “close-out” session via phone between customer representatives, Dell SC, Dell SA and Dell Account Executive. Session to address:
   a. Review of completed works against delivery scope.
   b. Review of any outstanding technical issues.
   c. Provision of “Customer Acceptance Form”.
6. Provision of minutes for “close-out” session provided in Dell standard document template.

**Assumptions**

1. Customer will appoint a single point of contact for coordination of all customer deliverables, dependencies, environment information, site access and staff scheduling.
2. On-site meetings can be conducted at additional cost;
3. Written minutes will undergo a single acceptance review by the customer for addendum of customer input within 24 hours of minutes being sent/distributed.
4. The “close-out” session will be conducted within 5 business days of Dell completing in-scope deliverables, extension of this timeframe may incur additional coordination fees.
5. The “Customer Acceptance Form” will be signed and returned to Dell within 5 business days of submission. Extension of this timeframe may incur additional coordination fees. Failure to return the signed form within 10 business days of submission will deem acceptance and trigger invoicing.
Terms and conditions about your Service

1 Supported products

This Service is available on select Dell Compellent storage solutions, which are purchased in a standard configuration. Supported Products are added regularly so please contact your Dell sales representative to for the most up-to-date list of which Services are available on your Dell products.

Each Supported Product is tagged with a serial number (the "Service Tag"). A separate service agreement must be purchased by the Customer for each Supported Product. For example, a printer purchased with a laptop system is not covered by the laptop system's service contract; the printer and the laptop will each need their own service contract. Please refer to the Service Tag on your Supported Product when contacting Dell for this Service.

2 Term of service

A This Agreement commences on the date you place your order and continues through the Term of Service. The "Term of Service" begins on the purchase date and extends for the term indicated on the Order Form. The number of systems, licenses, installations, deployments, managed end points or end-users for which Customer has purchased any one or more Services (defined below), the rate or price, and the applicable Term of Service for each is indicated on Customer's order form or other mutually-agreed upon form of invoice, order acknowledgment or purchase order (collectively, "Order Form"). Purchases of Services under this Agreement shall be solely for Customer's own internal use and not for resale or service bureau purposes.

3 Customer responsibilities

A Authority to grant access. Customer represents and warrants that it has obtained permission for both Customer and Dell to access and use the Supported Product, the data on it, and all hardware and software components included in it, for the purpose of providing these Services. If Customer does not already have that permission, it is Customer's responsibility to obtain it, at Customer's expense, before Customer asks Dell to perform these Services.

B Cooperate with phone analyst and on-site technician. Customer agrees to cooperate with and follow the instructions given by Dell phone analyst and its on-site technicians. Experience shows that most system problems and errors can be corrected over the phone as a result of close cooperation between the user and the analyst or technician.

C On-site obligations. Where Services require on-site performance, Customer must provide free, safe and sufficient access to Customer's facilities and the Supported Product(s). Sufficient access includes ample working space, electricity, and a local telephone line. A monitor or display, a mouse (or pointing device), and keyboard must also be provided (at no cost to Dell), if the system does not already include these items.

D Maintain software and serviced releases. Customer must maintain software and Supported Product(s) at Dell-specified minimum release levels or configurations as specified on PowerLink for Dell | EMC Storage or EqualLogic™, or as specified on www.support.dell.com for additional Supported Products. Customer must also ensure installation of remedial replacement parts, patches, software updates or subsequent releases as directed by Dell in order to keep the Supported Product(s) eligible for this Service.

E Data backup. Complete a backup of all existing data and programs on all affected systems prior to the delivery of this Service by Dell. DELL WILL HAVE NO LIABILITY FOR LOSS OR RECOVERY OF DATA OR PROGRAMS or loss of use of system(s)
arising out of this Service or related support activities or any act or omission, including negligence, by Dell or a third-party service provider.

4 Important additional information

A Commercially reasonable limits to scope of service. Dell may refuse to provide Services if, in its opinion, providing the Services creates an unreasonable risk to Dell or Dell’s Service providers or is beyond the scope of Services. Dell is not liable for any failure or delay in performance due to any cause beyond its control. Service extends only to uses for which the Supported Product was designed.

B Optional services. Optional services (including point-of-need support, installation, consulting, managed, and professional, support or training services) may be available for purchase from Dell and will vary by Customer location. Optional services may require a separate agreement with Dell. In the absence of such agreement, optional services are provided pursuant to this Agreement.

C Assignment. Dell may assign this Service and/or Service Description to qualified third party service providers.

D Cancellation. Dell may cancel this Service at any time during the Service term for any of the following reasons:

- Customer fails to pay the total price for this Service in accordance with the invoice terms;
- Customer refuses to cooperate with the assisting analyst or on-site technician; or
- Customer fails to abide by all of the terms and conditions set forth in this Service Description.

If Dell cancels this Service, Dell will send Customer written notice of cancellation at the address indicated on Customer’s invoice. The notice will include the reason for cancellation and the effective date of cancellation, which will be not less than ten (10) days from the date Dell sends notice of cancellation to Customer, unless state law requires other cancellation provisions that may not by varied by agreement. IF DELL CANCELS THIS SERVICE PURSUANT TO THIS PARAGRAPH, CUSTOMER SHALL NOT BE ENTITLED TO ANY REFUND OF FEES PAID OR DUE TO DELL.

E Geographic limitations & relocation. This Service will be delivered to the site(s) indicated on the Customer’s invoice. This Service is not available at all locations. Service options, including service levels, technical support hours and onsite response times will vary by geography and certain options may not be available for purchase in Customer’s location. Dell’s obligation to supply the Services to relocated Supported Products is subject to local service availability and may be subject to additional fees, and to inspection and recertification of the relocated Supported Products at Dell’s then current time and materials consulting rates. Customer will provide Dell with sufficient and safe access to Customer’s facilities at no cost to Dell for Dell to fulfill Dell’s obligations.

F Transfer of service. Subject to the limitations set forth in this Service Description, Customer may transfer this Service to a third party who purchases Customer’s entire Supported Product before the expiration of the then-current service term, provided Customer is the original purchaser of the Supported Product and this Service, or Customer purchased the Supported Product and this Service from its original owner (or a previous transferee) and complied with all the transfer procedures available at www.support.dell.com. A transfer fee may apply. Please note that if Customer or Customer’s transferee moves the Supported Product to a geographic location in which this Service is not available (or is not available at the same
price) as Customer paid for this Service, Customer may not have coverage or may incur an additional charge to maintain the same categories of support coverage at the new location. If Customer chooses not to pay such additional charges, Customer’s Service may be automatically changed to categories of support which are available at such price or a lesser price in such new location with no refund available.

For more information about any of our service offerings, please contact your Dell representative or visit www.dell.com/services.

Availability varies by country. To learn more, customers and Dell Channel Partners should contact your sales representative for more information.

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Appendix A
Service SKUs

<table>
<thead>
<tr>
<th>ANZ SKU</th>
<th>Description</th>
<th>Partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>872-10062</td>
<td>IDS Hyper-V - 2 Node Comprehensive Implementation 3p2v Service</td>
<td>EDT</td>
</tr>
<tr>
<td>872-10067</td>
<td>IDS Hyper-V - 3 Node Comprehensive Implementation 5p2v Service</td>
<td>EDT</td>
</tr>
</tbody>
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Appendix B
Exceptions to Dell business hours

<table>
<thead>
<tr>
<th>Country</th>
<th>Dell business hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Kitts, St. Lucia, St. Vincent, Trinidad, Virgin Islands, Rest of English speaking Caribbean</td>
<td>7:00 AM to 4:00 PM</td>
</tr>
<tr>
<td>Barbados, Bahamas, Belize, Costa Rica, El Salvador, Grand Cayman, Guatemala, Honduras, Jamaica, Panama, Puerto Rico, Rep. Dominicana, Suriname, Turks and Caicos</td>
<td>8:00 AM to 5:00 PM</td>
</tr>
<tr>
<td>Australia, Bermuda, China, Haiti, Hong Kong, Japan, Korea, Malaysia, Netherland Antilles, New Zealand, Singapore, Taiwan, Thailand</td>
<td>9:00 AM to 5:00 PM</td>
</tr>
<tr>
<td>Argentina, India, Paraguay, Uruguay</td>
<td>9:00 AM to 6:00 PM</td>
</tr>
<tr>
<td>Bolivia, Chile</td>
<td>9:00 AM to 7:00 PM</td>
</tr>
</tbody>
</table>