Validate your solution on HPE ProLiant for Microsoft Azure Stack!

Mark Evans, Senior Technical Marketing Engineer

Microsoft Inspire 2019 – Las Vegas
Expertise and try before you buy
Joint HPE-Microsoft Azure Stack Innovation Centers (ASIC)

**Experience: State-of-the-art technical engagement facility**
- Customers immersed in Azure Stack technology with comprehensive programs from discovering, planning, designing, and producing proof-of-concept implementations
- Workshops tuned to your customer’s needs
- Goal of customers being 100% committed to further Azure Stack collaboration

**Access: HPE ProLiant for Microsoft Azure Stack**
- Azure Stack ASDK and Multi-nodes
- Azure Stack subject-matter experts from Microsoft and HPE

**Locations: Multiple options**
- Workshop in-person at the ASIC: innovationcenters@hpe.com
  - Microsoft Technology Center in Bellevue, WA, USA
  - HPE Customer Innovation Centers in Geneva and Singapore
- Customer site and remote options available

asic@hpe.com
ASIC integrations and demos

Cloud Migration

BC/DR

BC/DR, Migration

Load balancing across stamps

Multi-cloud management

Monitoring with OneView Global Dashboard and Azure Log Analytics

BC/DR, Migration

More information at azurestackinnovationcenters.com/solutions
# New Hardware Options

<table>
<thead>
<tr>
<th>Component</th>
<th>Default</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Environmentals</strong></td>
<td>Rack, cables, PDU, factory build</td>
<td></td>
</tr>
<tr>
<td><strong>Server</strong></td>
<td>HPE ProLiant DL380 Gen10</td>
<td>4-16 nodes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4-8 DL380 Gen10 All-Flash</td>
</tr>
<tr>
<td><strong>Processor¹</strong></td>
<td>Intel Skylake CPUs</td>
<td>10 – 28 cores</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.0 – 3.0 GHz</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>24 DIMM Slots 256 GB minimum</td>
<td>256GB², 384GB, 576GB, 768GB, 1.5TB</td>
</tr>
<tr>
<td><strong>Storage</strong></td>
<td>12 HDD per server</td>
<td>4TB, 6TB, 8TB, or 10TB</td>
</tr>
<tr>
<td></td>
<td>6-SSD per server</td>
<td>800GB, 1.6TB, or 3.2TB, or 6.4TB (total capacity up to 102TB)</td>
</tr>
<tr>
<td><strong>Network</strong></td>
<td>25 GbE SFP28</td>
<td>FlexFabric 5950 48SFP28</td>
</tr>
<tr>
<td></td>
<td>1 GbE RJ45 (OOB Management)</td>
<td>FlexFabric 5900 AF-48G-4XG-2QSFP+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arista 7160 / 7020RA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cisco C93180YC / C9348GC</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>110V and 220V HPE Power Advisor</td>
<td></td>
</tr>
<tr>
<td><strong>OOB server</strong></td>
<td>HPE ProLiant DL360 Gen10 8SFF</td>
<td>Higher performance HLH</td>
</tr>
<tr>
<td><strong>Factory Build</strong></td>
<td>Rack, Stack, Cable, Load FW and</td>
<td></td>
</tr>
<tr>
<td><strong>Onsite</strong></td>
<td>SW, System Test and Validation,</td>
<td></td>
</tr>
<tr>
<td><strong>Installation</strong></td>
<td>Connect to customer network,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>install Microsoft Azure Stack,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Integrate with Azure AD</td>
<td></td>
</tr>
</tbody>
</table>

1. Processors must be identical pairs
2. 256 GB memory option results in 33% less memory bandwidth as compared with other options

HPE, Arista and Cisco switch options

Same HLH Management server for both solutions

DL380 physical nodes are “hyper-converged”

All nodes within an Azure Scale Unit must be homogeneous so hybrid and all-flash nodes can’t be mixed

120TB RAW cap 16 Hybrid nodes

102 TB RAW cap 8 All Flash nodes

HPE Foundation Care for Azure Services running on Azure Stack

HPE Datacenter Care

DC care specialist advice / services

HPE GreenLake Flexible Capacity
# Native Azure Stack Data Protection and High Availability Features

<table>
<thead>
<tr>
<th>Native Azure backup</th>
<th>No Azure Stack Native High Availability</th>
<th>Snapshots and replication</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Does not allow VM-level backups through hypervisor APIs</td>
<td>- Does not provide HA for Azure Stack Stamp, Tenant VM, Tenant Data, Application, or Workload</td>
<td>- Not available in Azure Stack</td>
</tr>
<tr>
<td>- Lacks the enterprise capabilities of on-premises data protection solutions</td>
<td></td>
<td>- Are primarily used for disaster recovery in Azure Public</td>
</tr>
<tr>
<td>- Backs up data directly to Azure public cloud with no option to keep backed up data on-premises; high risk of missing SLAs (RTO)</td>
<td></td>
<td>- Are not integrated with each application to ensure application-consistent recovery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Do not provide a viable long-term retention option</td>
</tr>
</tbody>
</table>
Migrate VMs and workloads to Azure Stack

- Virtual Server Agent (VSA) provides agentless migration of VMware and Azure VMs to Azure Stack VMs
- Workloads can be migrated from any source supported by Commvault® via client agent
- Commvault automation can ease provisioning of Azure Stack VMs for workload migrations

https://www.commvault.com/why-commvault
Disaster Recovery of Azure Stack VMs

- Virtual Server Agent (VSA) provides agentless DR of Azure Stack VMs
- Live Sync replication automatically propagates changes to destination after each backup at the source
Veeam Data Protection: Architecture

Tenant 1
- Agent
- Veeam Backup Server VM
- 7-30 days of backups

Tenant 2
- Agent
- Veeam Backup Server VM
- 7-30 days of backups

Backup Copy Job

Cloud Stack

Veeam Backup & Replication Server with Cloud Connect

Tenant 1

Tenant 2
From here you have many choices where to store data. Since data can be moved or copied any time you can always fine-tune. The media format makes sure you swap any device with another without losing payload or meta-data.

The number of VMs you can backup in parallel will depend on available network bandwidth and method used (data dedupe, compression or original data). You can add a Media Server any time to solve bandwidth/load issues. Any DP client can be a Media Server!

Start at 2 Media Servers for redundancy and load balancing. Systems should be hosted outside of the Stack to work independant. Physical systems allow FC SAN access to Backup devices.

From here you have many choices where to store data. Since data can be moved or copied any time you can always fine-tune. The media format makes sure you swap any device with another without losing payload or meta-data.
Veritas
Veritas NetBackup

Veritas 360° approach has all routes covered

Whether you’re looking to protect data, lower costs, or enable the transformation of your digital business, you can rely on Veritas to meet your information needs. We offer one of the most comprehensive multi-cloud data management solutions in the industry, 360 Data Management.

Data Visibility
Data Protection
Digital Compliance
Data and Workload Portability
Business Continuity
Storage Optimization

https://www.veritas.com/
# High Level comparison of Azure Stack Data Protection ISV’s

<table>
<thead>
<tr>
<th></th>
<th>Azure Backup Server</th>
<th>Azure Site Recovery</th>
<th>Commvault</th>
<th>Veeam</th>
<th>Veritas</th>
<th>Micro Focus Data Protector</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Official Azure Stack Support</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Azure Stack Data Protection Architecture</strong></td>
<td>Uses agent to protect Azure Stack VM</td>
<td>For BC/DR and migration</td>
<td>Uses Azure Stack API with or without Agent-in-Guest</td>
<td>Uses Azure Stack API with Agent-in-Guest</td>
<td>Uses agent to protect Azure Stack VM</td>
<td>Uses agent to protect an Azure Stack VM</td>
</tr>
<tr>
<td><strong>Backup and Restore of full VM using Azure Stack APIs</strong></td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Application and File level backup (Agent-in-Guest support)</strong></td>
<td>Only supports SQL, SharePoint, and Windows OS</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Migration of VM</strong></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Disaster Recovery of VM</strong></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Azure Stack Blob storage backup and recovery</strong></td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
F5 Application High Availability:

**Internal Self IP:** 10.1.220.104

**Virtual Server:** 10.1.220.111

**Pool Members:**
- 10.11.25.40
- 10.12.25.40

**Load Balancing Method:** Least Connection

**Health Monitor:** http:
ZeroDown
Application High Availability:

Microsoft Azure Stack

ZeroDown® BCaaS Software

Deploy a simple, Business Continuity as a Service solution for Azure Stack.

ZeroDown® BCaaS can also be purchased per application per month and consumed on a pay as you need basis through the Microsoft Azure Stack Marketplace.

Note: Obtaining ZeroDown Software for Azure Stack first requires that you have an Azure Stack Stamp with a Cloud Service Provider or hosting service. BYOL, or “bring your own license,” is the process used to purchase and deploy the software.

http://www.zerodownsoftware.com/
Azure Stack in HPE Demonstration Portal

https://hpedemoportal.ext.hpe.com/

- Recorded Demo
- Download Demo Guides
- Access Live Demo Now
- Book Live Demo
Next steps

Learn
http://www.hpe.com/cloud/azure-stack

Visit online or in Person
Visit the HPE and Microsoft Azure Stack Innovation Center
https://www.hpe-microsoftazurestack.com/

Try It Out
Single Node PoC
Thank you

Marcus.evans@hpe.com