Microsoft Hybrid Cloud using Azure Stack

Hamed Barghout
Senior Systems Engineer
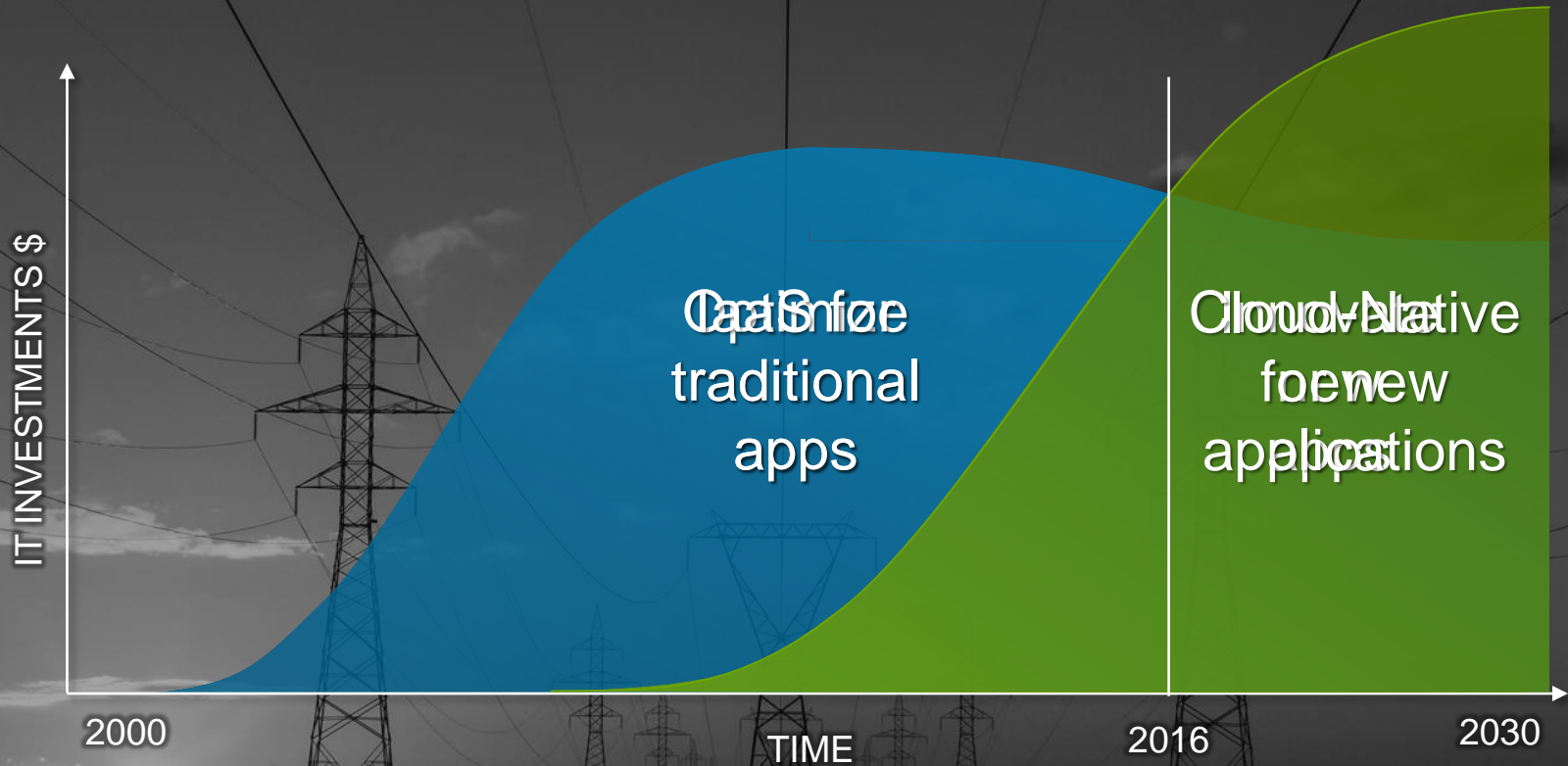
DELLEMC /Forum
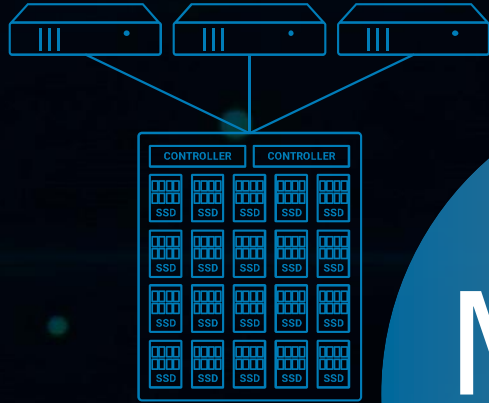
Strategy for IT transformation
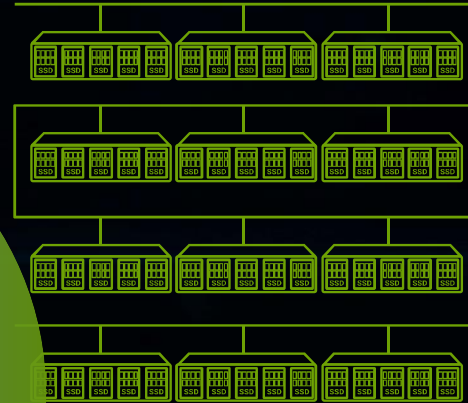
IT INVESTMENTS $

CaaS for
traditional
apps

Cloud-Native
for new
applications

2000

TIME

2016

2030

DELL EMC
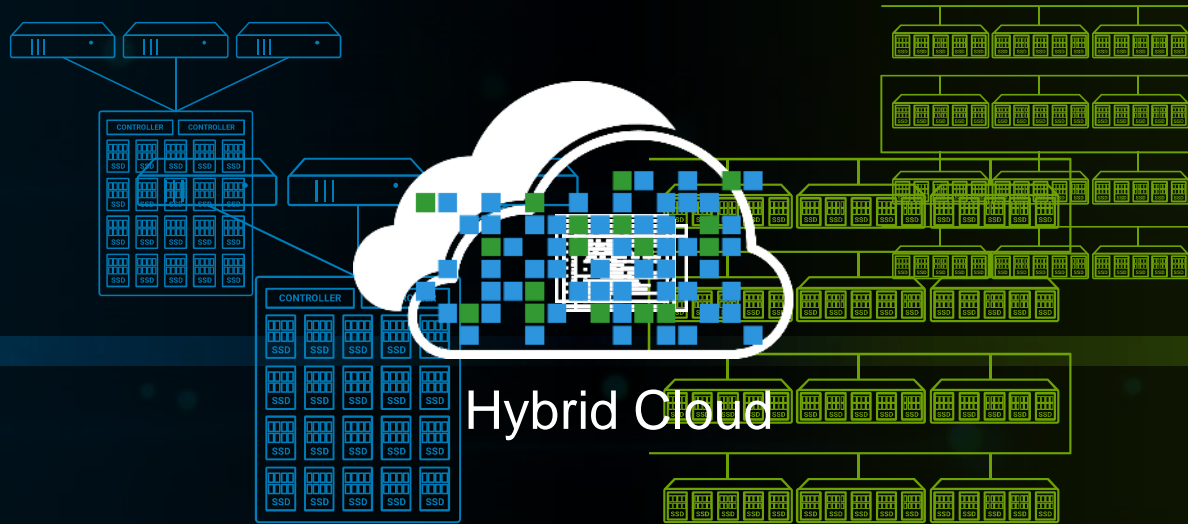
Hybrid Cloud Industry Definition

Hybrid Cloud

Private Cloud

Public Cloud

Microsoft Azure Stack

Microsoft Hybrid Cloud

Public Cloud

Microsoft Azure

The future of all workloads is Public Cloud, but that alone will not satisfy Enterprise requirements
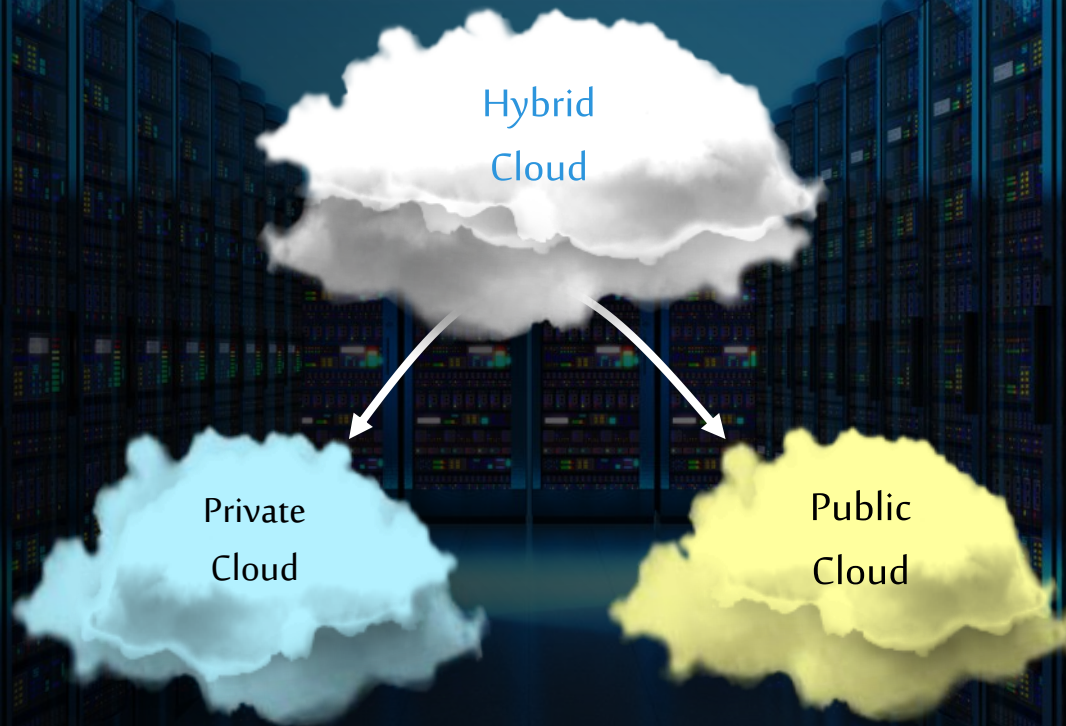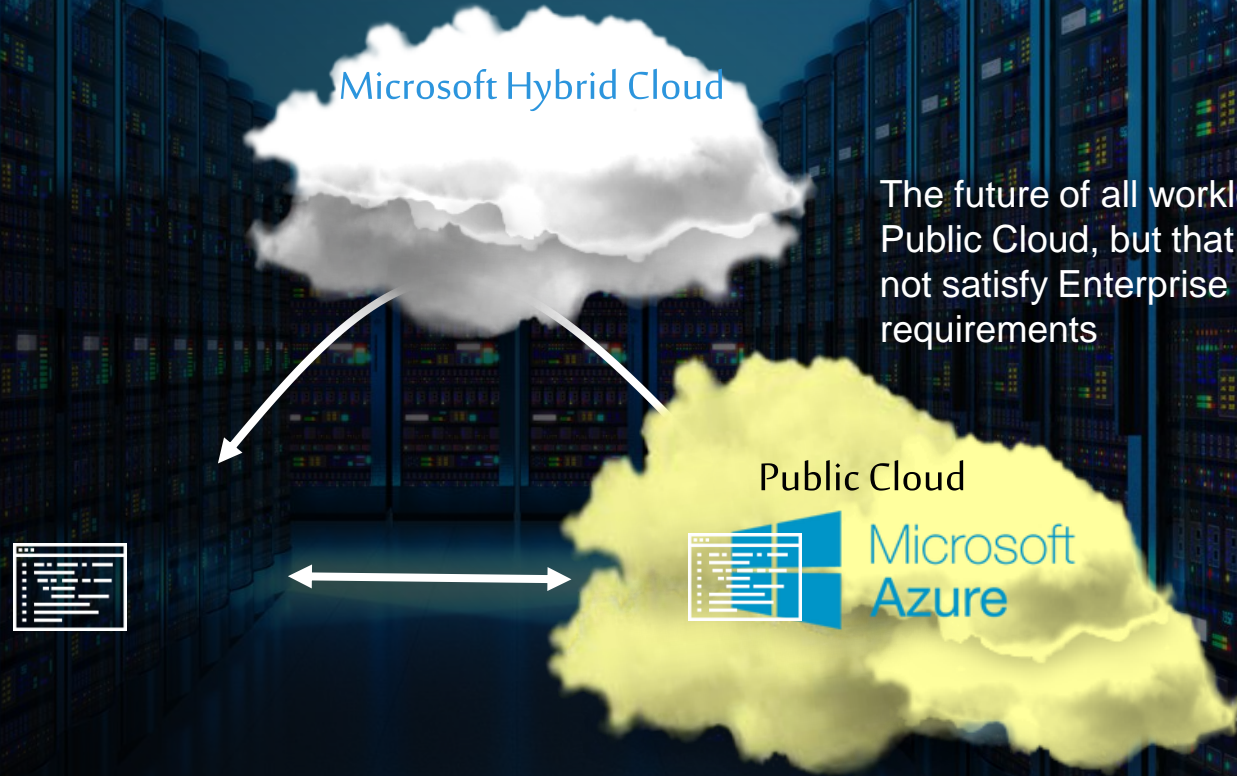
What is Microsoft Azure Stack

What is Azure Stack

What it is

First Consistent Hybrid Cloud Platform

Integrated System with IaaS and PaaS

Regularly Update for Azure-Consistency

Truly Open and Flexible (like Azure)

What it is NOT

Virtualization-replacement Play

DIY Infrastructure

Static System you deploy and forget

.NET/Windows Only

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One hybrid cloud platform for all apps

Dell EMC Cloud for Microsoft Azure Stack

Microsoft Azure Stack
Behind the firewall | Hosted

Portal | PowerShell | DevOps tools

Azure Resource Manager

Azure IaaS | Azure PaaS
Compute | Network | Storage App Service | Service Fabric

Cloud-inspired infrastructure

Developers

One Azure ecosystem

Unified app development

Azure services in your data center

IT

Microsoft Azure
Public

Portal | PowerShell | DevOps tools

Azure Resource Manager

IaaS | PaaS

Cloud infrastructure

Manage with a consistent experience

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Consistent application development experience
Dell EMC Cloud for Microsoft Azure Stack
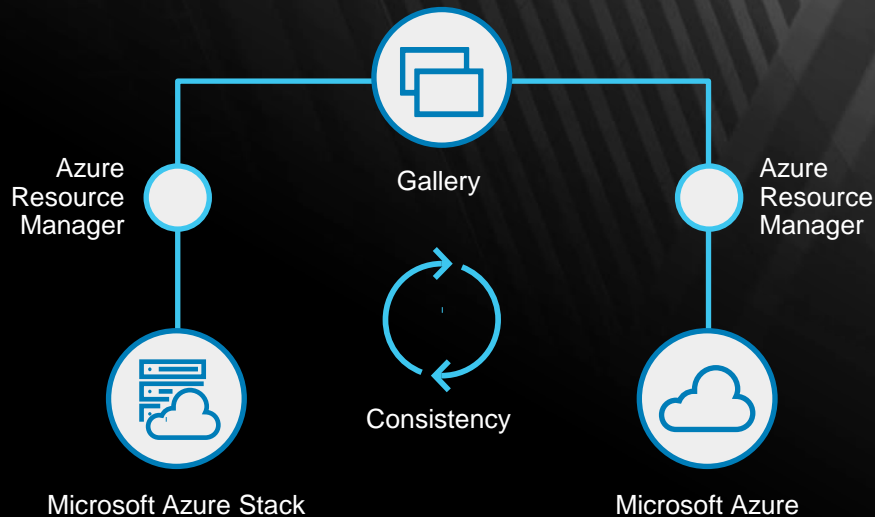
DESCRIBE | DEPLOY | CONTROL

Gallery

Azure Resource Manager

Azure Resource Manager

Consistency

Microsoft Azure Stack

Microsoft Azure
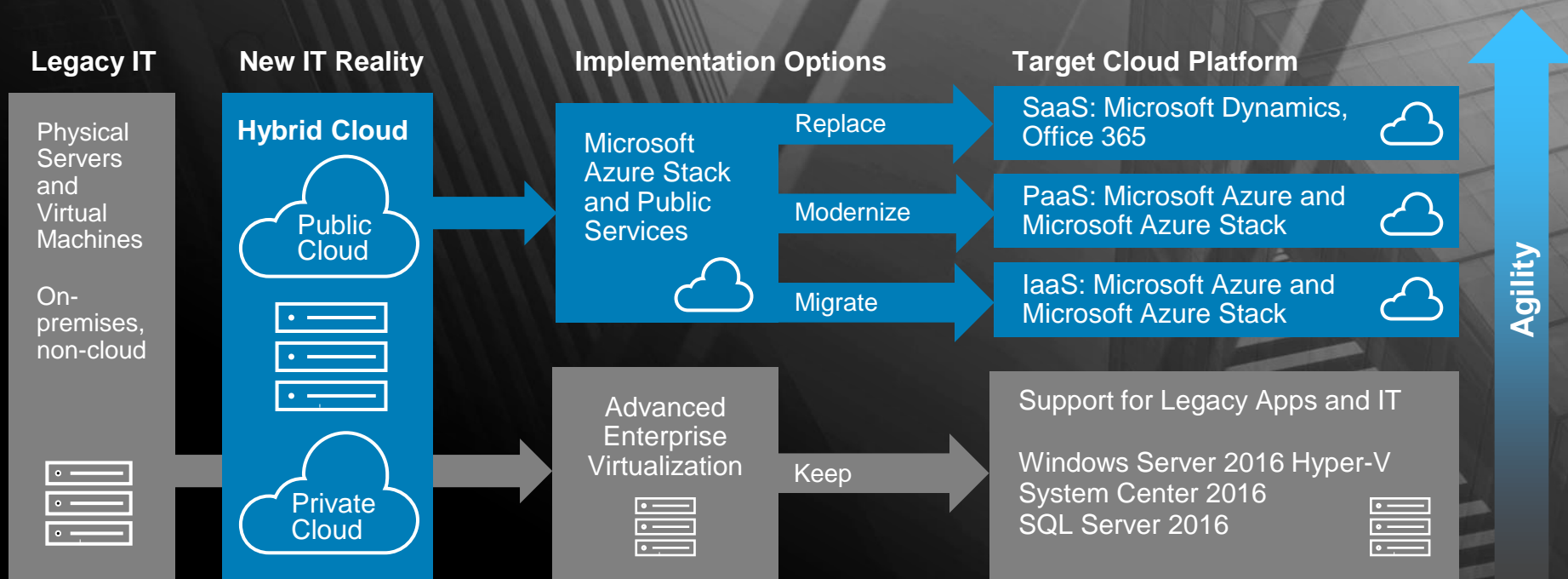
Write once, deploy to Azure or Azure Stack

Identical application model with same APIs

Role-based Access Control (RBAC)

Service definition

Choice of open-source application platforms, languages and frameworks

Developing a Microsoft hybrid cloud strategy

Legacy IT

New IT Reality

Implementation Options

Target Cloud Platform

Physical Servers and Virtual Machines

On-premises, non-cloud

Hybrid Cloud

Public Cloud

Private Cloud

Microsoft Azure Stack and Public Services

Replace

Modernize

Migrate

Advanced Enterprise Virtualization

Keep

SaaS: Microsoft Dynamics, Office 365

PaaS: Microsoft Azure and Microsoft Azure Stack

IaaS: Microsoft Azure and Microsoft Azure Stack

Support for Legacy Apps and IT

Windows Server 2016 Hyper-V
System Center 2016
SQL Server 2016

Agility

Azure IaaS on-premises: beyond traditional virtualization

Virtual Machines (VM) VM Scale Sets	Containers with Docker	Networking	Storage
Rapid deployment with automated scaling	Linux and Windows Server containers	Virtual network, load balancer, VPN gateway	Blobs, tables, queues

Above services will be available at GA. We will deliver additional Azure services through frequent updates to Azure Stack.

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Azure PaaS available on-premises: fully managed platforms for high productivity development

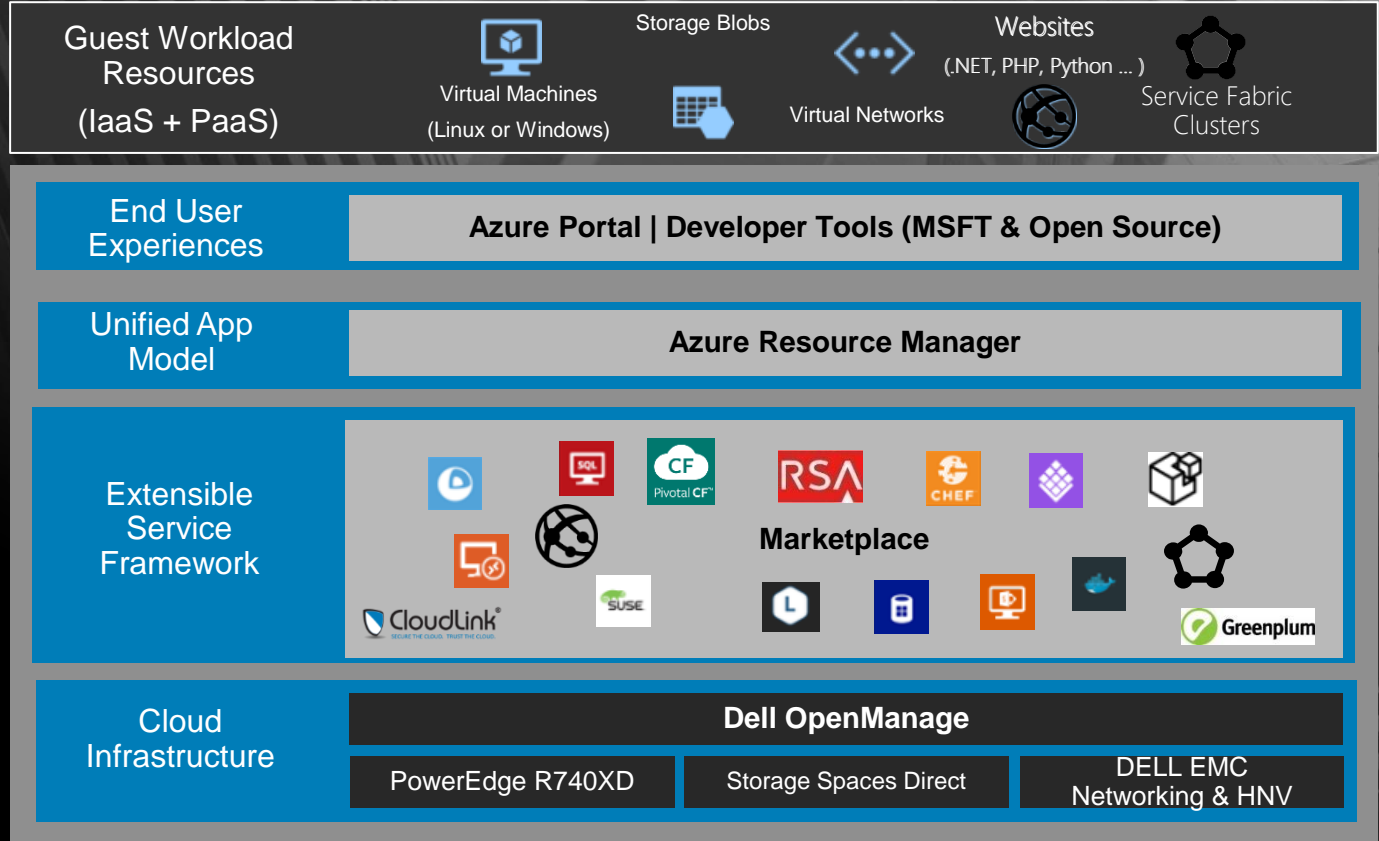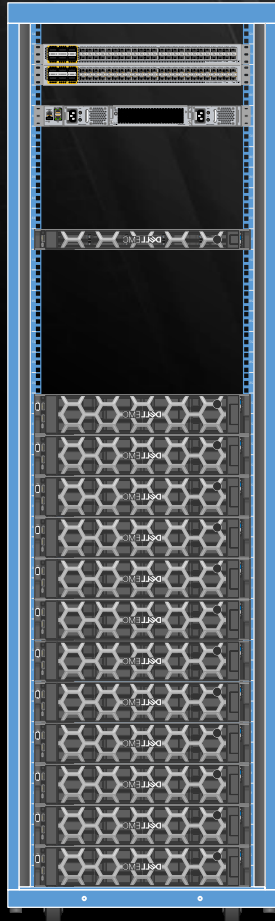| Azure App Service	Azure Functions	Azure Service Fabric	Azure Container Service	Cloud Foundry
Web, mobile, and API apps	Serverless computing	Always-on, scalable distributed applications	Robust container management	Open source platform

Azure Service Fabric and Azure Container Service will be available post-GA. Other services will be available at GA. We will deliver additional Azure services through frequent updates to Azure Stack.

What is Dell EMC's Microsoft Hybrid Cloud based on Azure Stack

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What is the Solution?

Guest Workload Resources (IaaS + PaaS)
- Virtual Machines (Linux or Windows)
- Storage Blobs
- Virtual Networks
- Websites (.NET, PHP, Python ...)
- Service Fabric Clusters

End User Experiences — Azure Portal | Developer Tools (MSFT & Open Source)

Unified App Model — Azure Resource Manager

Extensible Service Framework — Marketplace

Cloud Infrastructure
- Dell OpenManage
- PowerEdge R740XD
- Storage Spaces Direct
- DELL EMC Networking & HNV

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Dell EMC hybrid cloud @ GA

ANNOUNCING
POWEREDGE
14G SERVERS
The bedrock of the modern data center

DELLEMC /World

Note: VM sizes based on Azure D1 V2 VMs assuming 4:1 VCPU:CPU ratio
Note: Capacities based on Raw

DELLEMC

The Dell EMC 14G Server Intel "Purely" CPU Advantage

Scale Unit Configuration options

Dell EMC PowerEdge 13th Generation vs. 14th Generation Server Comparison for Dell EMC Cloud for Microsoft Azure Stack

PowerEdge 13G Sizes				
Size	Total Cores	Memory (GB)	SSD Cache (GB)	HDD Capacity (GB)
Small	20	256	960	4000
Medium	24	384	1920	8000
Large	28	512	1920	8000

PowerEdge 14G Sizes				
Size	Total Cores	Memory (GB)	SSD Cache (GB)	HDD Capacity (GB)
Small	24	384	960	4000
	32	576	1920	8000
Large	48	768	1920	10000

Run more workloads using the same number of nodes

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The Dell EMC 14G Server Intel "Purely" CPU Advantage

Scale Unit Configuration options
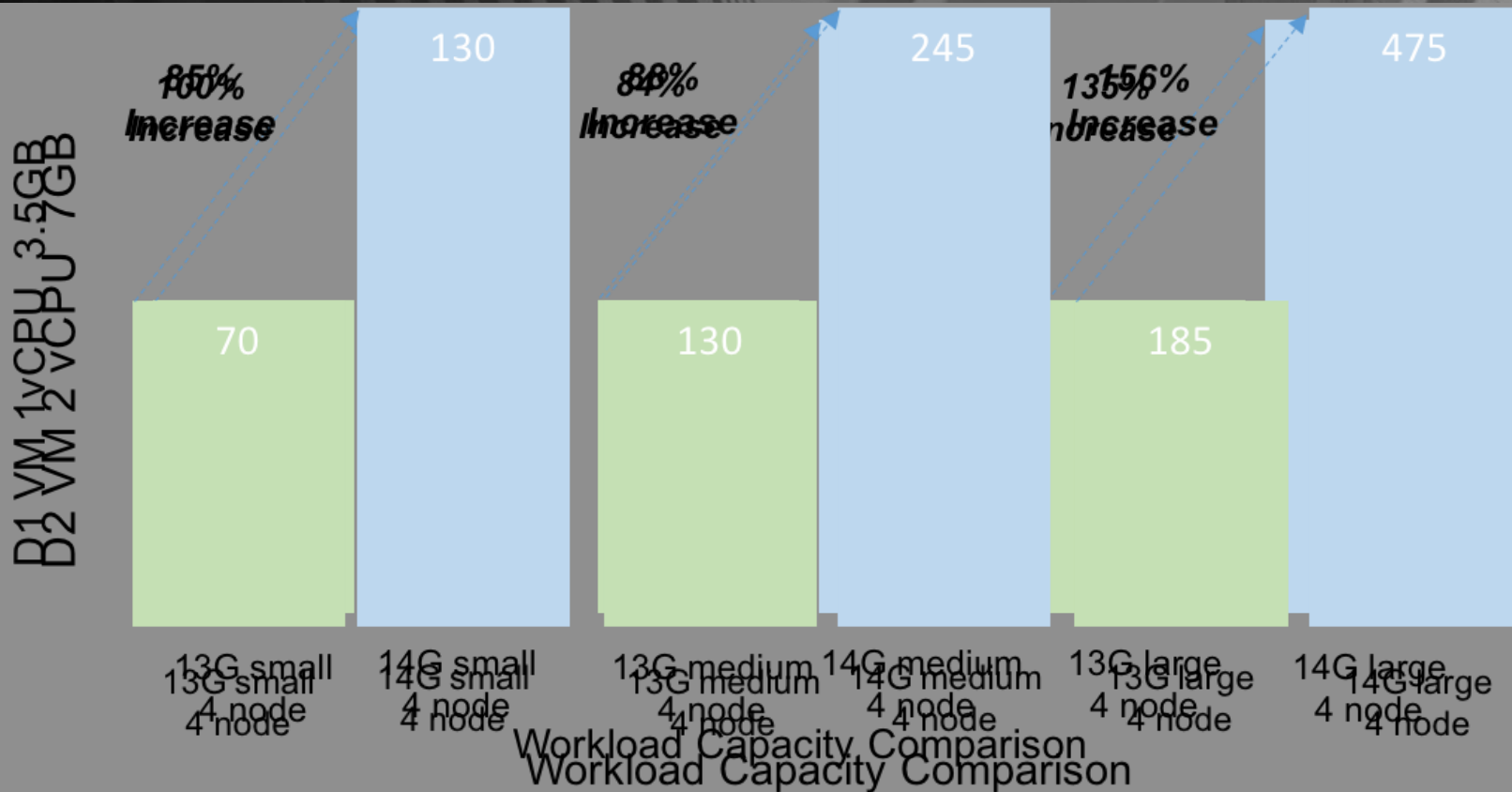
Initial Azure Stack VM Sizes

Initial Azure Stack VM sizes

VM sizes in Azure are varied and many

Not all sizes will be possible initially Azure Stack (very small or very large)

Align VM sizes to allow for mobility of templates (much like fault domains)

Instance	Cores	Ram (GB)	Temp Disk Sizes (GB)
D1	1	3.5	50
D2	2	7	100
D3	4	14	200
D4	8	28	400
D11	2	14	100
D12	4	28	200
D13	8	56	400

Instance	vCPU	Ram (GB)	Temp Disk Sizes (GB)
A0	<1	.75	20
A1	1	1.75	70
A2	2	3.5	135
A3	4	7	285
A4	8	14	605
A5	2	14	135
A6	4	28	285
A7	8	56	605

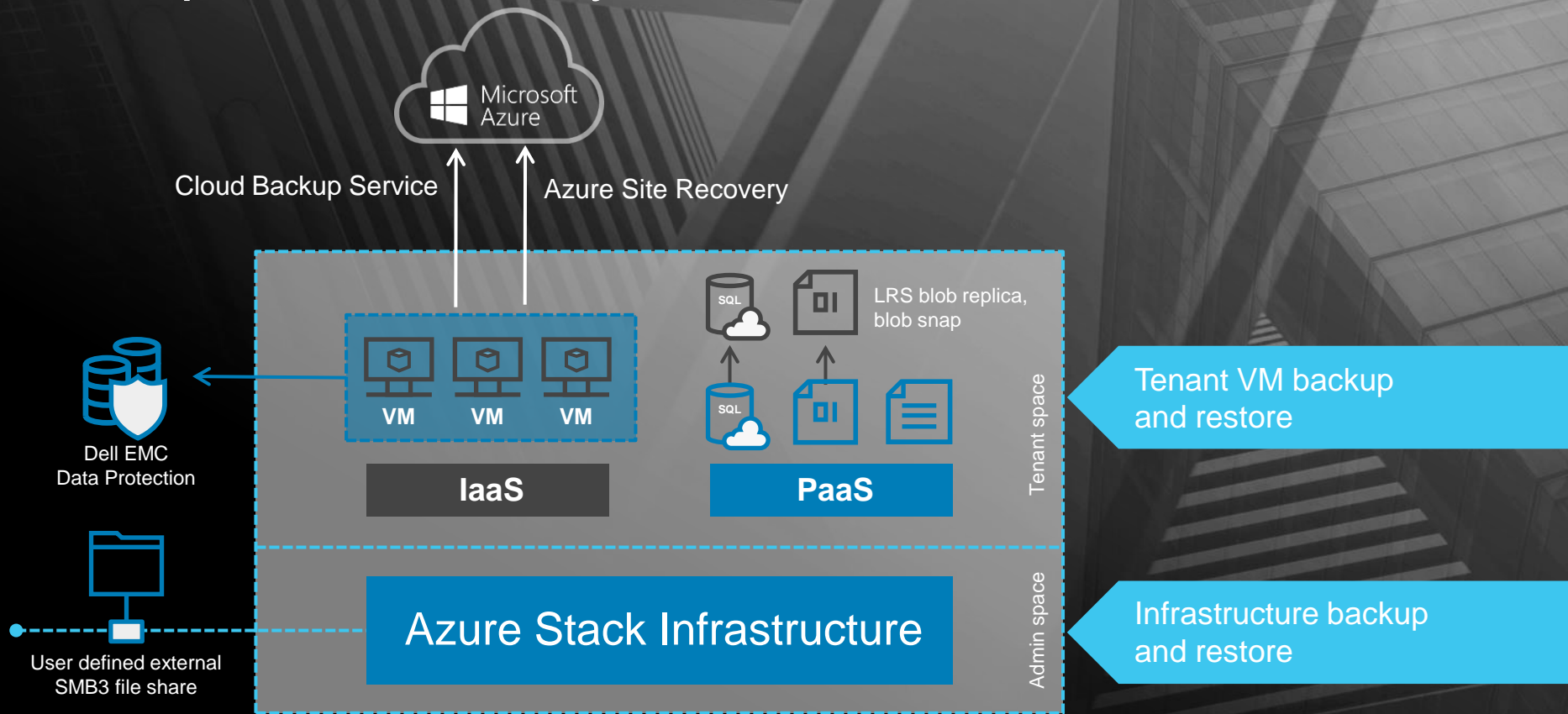| Instance	Cores	Ram (GB)	Temp Disk Sizes (GB)
D1 v2	1	3.5	50
D2 v2	2	7	100
D3 v2	4	14	200
D4 v2	8	28	400
D11 v2	2	14	100
D12 v2	4	28	200
D13 v2	8	56	400

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Hardware Lifecycle Host
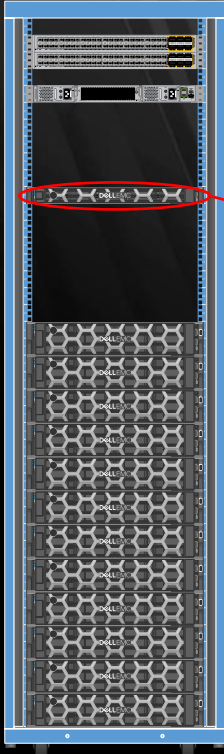
Serves 3 Functions

- Initial software deployment of Azure Stack cluster

- Subsequent patch and update orchestration and deployment

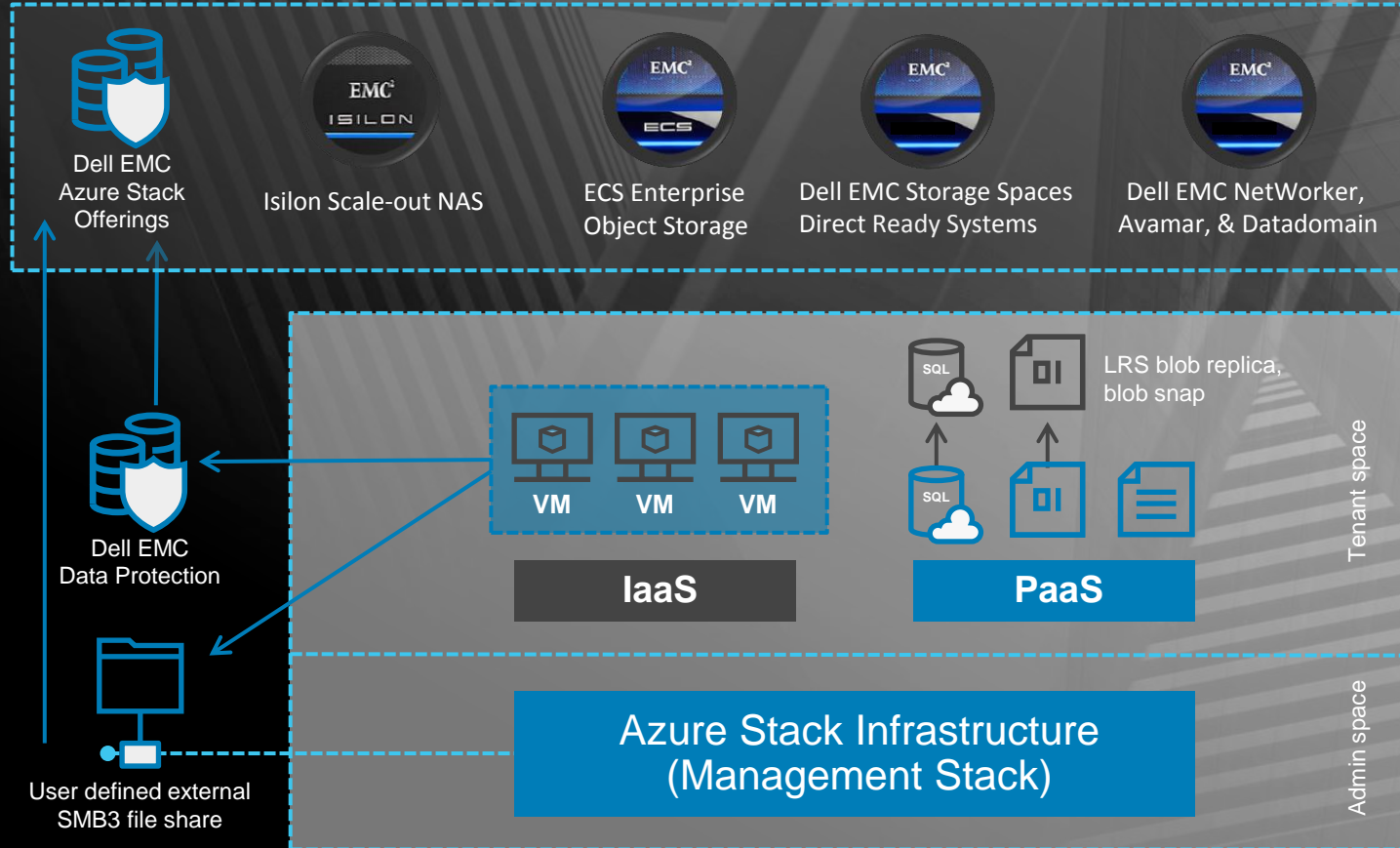- Hardware monitoring via Dell EMC Open Manage Essentials and Network Manager

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Backup and Recovery

Microsoft Azure

Cloud Backup Service

Azure Site Recovery

LRS blob replica, blob snap

SQL

VM VM VM

SQL

IaaS

PaaS

Tenant space

Dell EMC
Data Protection

Tenant VM backup
and restore

Azure Stack Infrastructure

Admin space

User defined external
SMB3 file share

Infrastructure backup
and restore
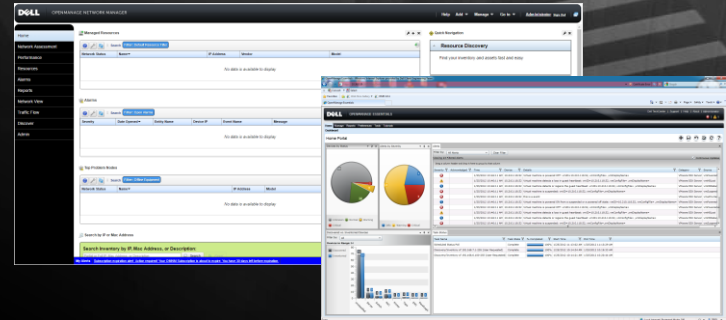
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Dell EMC Offerings with Azure Stack

Dell EMC Azure Stack Offerings

Isilon Scale-out NAS

ECS Enterprise Object Storage

Dell EMC Storage Spaces Direct Ready Systems

Dell EMC NetWorker, Avamar, & Datadomain

Dell EMC Data Protection

User defined external SMB3 file share

VM   VM   VM

IaaS

PaaS

SQL

LRS blob replica, blob snap

SQL

Tenant space

Admin space

Azure Stack Infrastructure (Management Stack)

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Dell EMC Consulting Services Overview

For Dell EMC Cloud for Microsoft Azure Stack

DELL EMC

Dell EMC Consulting Services

Dell EMC Cloud for Microsoft Azure Stack

Prepare
For transition to cloud

- Determine your roadmap and create a business Case

Deploy
To speed platform value

- Quickly install and configure hardware and software
- Protect your data and the infrastructure

Extend
The platform

- Integrate Azure Stack both internally and externally
- Define and manage roles, service catalogs and the infrastructure
- Design and deliver your cloud native development platform

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Customer delivery and deployment

Integrated delivery and turnkey deployment

Offsite (Dell EMC or Partner for 4-6 weeks) | Onsite (Customer for approx. 2 days)

Customer Environment Survey

- Dell EMC + Customer
- Led by Dell EMC
- Scope
- Site
- Networking
- Power
- License
- AD

Integration

- Dell EMC\Partner Integration center
- Scope
- Hardware Baselining
- Firmware Configuration and Staging
- Racking and cabling (Optional Onsite option when palletized)
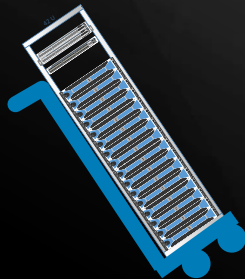- Validation
- Image copy

Delivery

- Integrated System
- Deployment Image and Automation

Customer prep

- On-Site
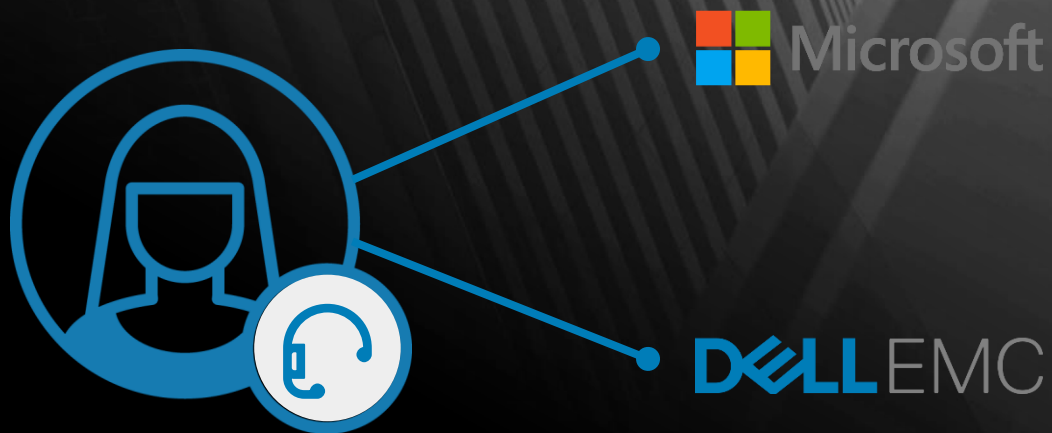- Networking
- Active Directory
- Certificates
- Licenses

Deployment

- Dell EMC led on-prem
- Integration into customer network and AD
- Run Deployment Automation to deploy and Configure Azure Stack
- Azure Integration
- Handoff
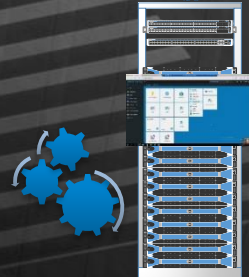
DELL EMC

Flexible Consumption Models Make It Easy

Utility

Pay-as-you-go option for Azure and Azure stack software services

+

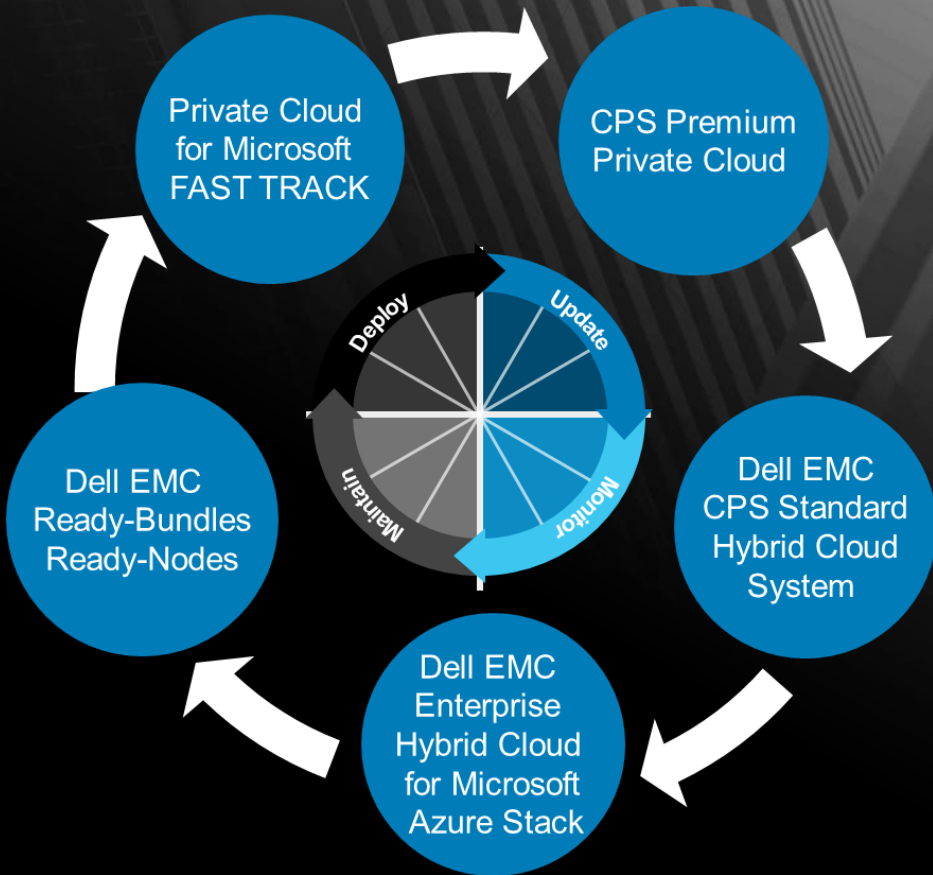## Dell EMC Hardware & Software

$ Traditional Capex

Implementation and Support Services

The choice is yours

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Why choose Dell EMC

Dell EMC & Microsoft a heritage of cloud partnership

Dell EMC first and only Microsoft partner to offer all these cloud solutions

Private Cloud for Microsoft FAST TRACK

CPS Premium Private Cloud

Dell EMC CPS Standard Hybrid Cloud System

Dell EMC Enterprise Hybrid Cloud for Microsoft Azure Stack

Dell EMC Ready-Bundles Ready-Nodes

Deploy

Update

Monitor

Maintain

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Why Dell EMC Consulting Services

2000+
Transformation Workshops
Benchmark and assessing current and future state
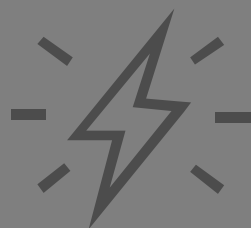
18-26%
Savings in traditional IT costs
Leverage savings to fund ITaaS

50%
Faster application profiling,
75% less resources
Based on our automated tools and methodology

2017 Microsoft Partner of the Year Award
For WW Consulting & SI Windows

10,000+
Transformations completed
Experience in migrations, consolidations, modernizations

81% ROI
For data center migrations and modernizations
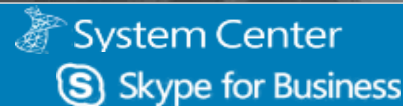
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Dell EMC: Microsoft's most competent partner

45
Microsoft Partner of
the Year awards

27
Global Microsoft
competencies

16,000
Global certified Microsoft
service professionals

E⊠ Exchange   **Windows Server**   **Office 365**   **Microsoft Azure**   **System Center**

Microsoft Dynamics CRM   **SQL Server**   **S♦ SharePoint**   **Windows 10**   **Skype for Business**

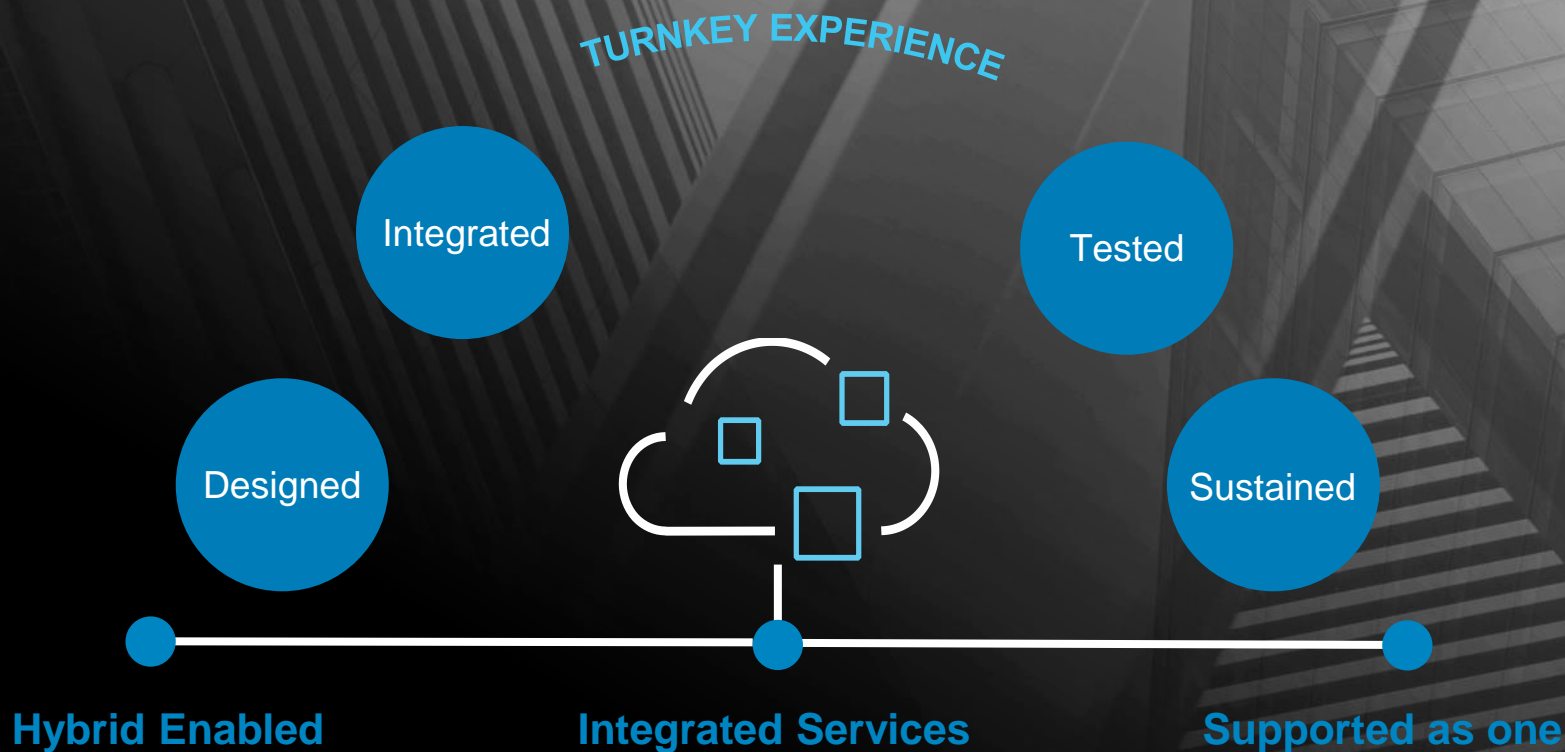| Hybrid Cloud Platforms	Client	Windows OS and Apps	Cloud-native Apps	Business Resiliency	Security
Servers, storage, converged/ hyper-converged infrastructure	Workstations, PCs, tablets, VR, gateways, VDI/EUC, peripherals	Enterprise agreement management, Windows, App store	Platforms, analytics, elastic cloud storage	Isolated recovery, data protection, backup, continuous availability	Multi-factor identity, threat and fraud protection, GRC mgmt

Broadest suite of technology to support Microsoft platforms

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Dell EMC Cloud Platforms

TURNKEY EXPERIENCE

Integrated

Tested

Designed

Sustained

Hybrid Enabled

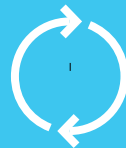**Integrated Services**

Supported as one

DELLEMC

Our approach delivers better results

For your IT and digital transformation

Accelerates business velocity
Delivering hybrid cloud services faster than build your own

Simplified upgrades
New features and components tested and validated across all components

Innovative engineered hybrid cloud platforms
Integrated and fully tested plus roadmap of new capabilities

Single source for service & support *
Unmatched global services and one contact support

Thank you

DELLEMC**/Forum**