Infosys AVS solution

Infosys Azure Practice Overview

**Satya Nadella,
CEO Microsoft**

Azure
Infosys

**Salil Parekh,
CEO Infosys**

Long-term partnership view

Setting up the foundation for larger transformation and invest in the future. A sentient partnership focused on delivering business outcomes.

Cost & outcome accountability

Committed gains and outcomes; noiseless operations with Integrated Operating Model for better accountability and ownership.

Innovation/out-of-the-box thinking

Innovation ecosystem with SAP and Azure , bringing in service assurance.

8 years of Azure Practice , 50+ Global Client with 150+ engagements

55000+ Trained & 6000+ certified Azure experts

Joint solution development for SAP S/4HANA powered by Azure

Enterprise Apps on Azure — The Coca-Cola Company, Continental, SHISEIDO, SULZER, SOUTHERN CALIFORNIA EDISON, COFCO INTL, THE BODY SHOP, nielsen, Mercedes-Benz

Datacenter Transformation — KraftHeinz, Bristow, McDonald's, GAP, SPS SELECT Portfolio SERVICING, inc., bp, BJ's, MOLINA HEALTHCARE, Johnson Controls

Native Cloud App Development — TOYOTA, Coca-Cola CONSOLIDATED, Telstra, SOUTHERN CALIFORNIA EDISON, Walmart, GAP, Bank of America, Microsoft

Emerging Areas — STARBUCKS, Telstra, 3M, bp, Dŵr Cymru Welsh Water, Walmart, bpost, aps, BOEING, Johnson Controls

Awards

- Country Partner of the Year in Philippines & SAP on Azure Award – APAC - 2020
- SAP on Azure – Finalist in 2019 and 2020
- Global Alliance SI Partner of the Year 2019
- SI & Azure growth partner of the year 2018
- MS certified Azure MSP - 2018, Microsoft Platform Modernization Award -2017
- Azure platform partner of the year award for 3 successive years

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Why Infosys?

	Differentiators	Value Proposition

Drive & sustain migration velocity with maximised value

Azure accelerators for reliable at-scale migration

End to end Accountability with User & Region Centric Engagement

Always on Business' powered by continuity plans during migration

Invest in Reskilling & enabling the current team in cloud & digital tech

End to End Cloud Transformation Partner

- Our clients trust and rely on us to **Think Cloud, Design Cloud, Migrate to Cloud and Run Cloud**
- **We are Cloud agnostic** – our interests are fully aligned with yours!
- **We bring proven best practices** based on **learning from 100+ engagements**

Business Enabling not Technology Outsourcing

- With a true **partnership mindset** we bring a business transformation approach by focusing on **business process & application modernization** in the journey to cloud

Cloud Expertise & Premier Partnerships

- We are **AWS premiere Partner** with 2nd largest certified talent & consumption **& Azure premiere partner** with 1st in US and 2nd largest worldwide
- These partnerships enable **a) faster project execution** through experts, utilities & methodologies, **b) Investment** and **Funding** for POC's and joint solutions and **c) discounted cloud service pricing** for Infosys clients

Extensive tools & accelerators

- Proven **Cloud strategy models and frameworks**
- Proven **Cloud Migration factory (WLM)** to mitigate transformation risk & challenges
- Infosys Infrastructure Management Suite **(IIMS)** for **Hybrid cloud management**
- **Several IPs and accelerators** for cloud native development, automation etc.

Proven Talent from other Cloud Engagements

- **Business and Domain aware team**
- **Day 1 readiness** with identified and proven **Cloud consulting resources**
- Trained pool of talent **for quick deployment and guaranteed success of Program**

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# Expand innovation with Infosys Cobalt cloud community

200 industry cloud-first solution blueprints, curated from 14,000 cloud assets

Platforms, solutions, services, industry blueprints focusing on industry verticals and sub verticals, horizontal business capabilities, cross-industry business assets

- *Infosys Genome – Data mgmt. solutions*
- *Skava Commerce*
- *Telco on Tap*
- *Transaction Reconciliation System*

Learning modules as videos, playgrounds, quizzes, assignments and assessments on technology, Hyperscalers and business solutions delivered through LEX

- *Internally created and managed content*
- *Content sourced from Hyperscalers*
- *Content from providers like Udacity, Coursera, etc.*
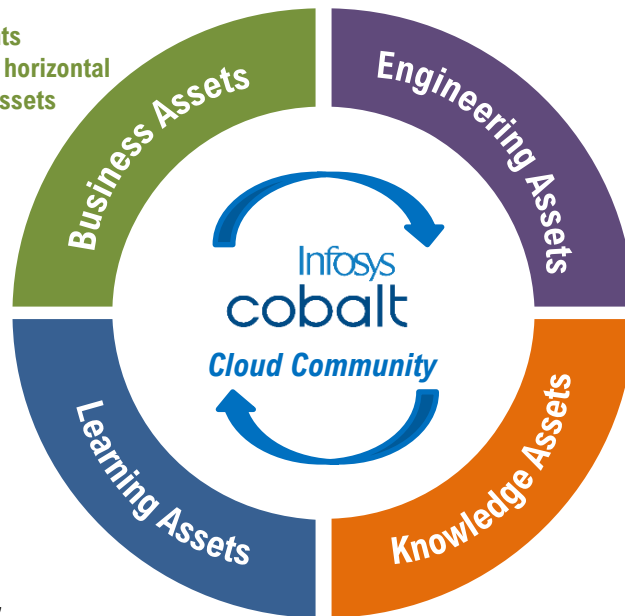
Reference architectures, frameworks, solutions, services in the technology domain which can be utilized to create a higher-level solution on a cloud ecosystem

- *Infosys Polycloud Platform*
- *Infosys Wingspan*
- *Infosys CyberSecurity Platform*
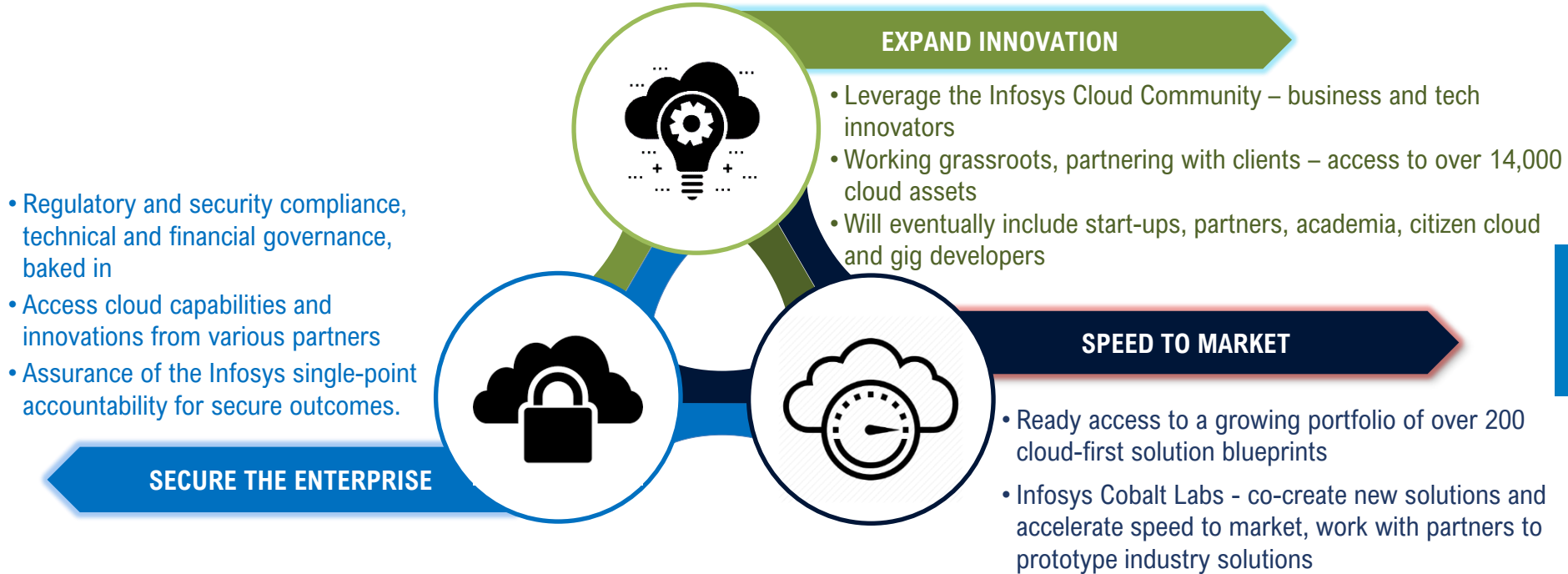- *Infosys Cloud workload migration suite*

Frameworks, solution capability models, reference architectures, process models which can be utilized for project implementation

- *Project documents*
- *Proposals Templates*
- *Large deal submissions*
- *Case studies*

Business Assets / Engineering Assets / Learning Assets / Knowledge Assets

Infosys cobalt — *Cloud Community*

Assets will be continuously made available on the **Infosys Cobalt Cloud Store**

*Over time, this **cloud community engine** will expand to include clients (and their organizations), partners, academia, startups, gig workers and citizen cloud developers.*

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What differentiates Infosys Cobalt?

EXPAND INNOVATION

- Leverage the Infosys Cloud Community – business and tech innovators
- Working grassroots, partnering with clients – access to over 14,000 cloud assets
- Will eventually include start-ups, partners, academia, citizen cloud and gig developers

SPEED TO MARKET

- Ready access to a growing portfolio of over 200 cloud-first solution blueprints
- Infosys Cobalt Labs - co-create new solutions and accelerate speed to market, work with partners to prototype industry solutions

- Regulatory and security compliance, technical and financial governance, baked in
- Access cloud capabilities and innovations from various partners
- Assurance of the Infosys single-point accountability for secure outcomes.

SECURE THE ENTERPRISE

Infosys Cobalt also taps into a rich ecosystem of startups and over 30 leading providers of public and private cloud infrastructure, SaaS, PaaS, applications and enterprise security

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Speed to Market

CLOUD FIRST BUSINESS SOLUTIONS

DISRUPT THE NORM

- Cloud-First
- Business Solutions
- Technology Solutions
- Platforms
- Services

INFOSYS COBALT LABS AND PLAYGROUND

PROTOTYPE AND CO-CREATE

- Leverage Design Thinking
- Ideate & Experiment
- Incubate ideas
- Co-create prototypes
- Establish frameworks

VIBRANT PARTNER ECOSYSTEM

TRANSFORM INDUSTRIES

- Leverage Partner Ecosystem
- Preconfigure partnerships
- Transform specific domains

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200+ Business Assets

Oil & Gas
- Infosys Vision Analytics Platform
- Critical Remote Equipment Monitoring System
- IoT based Field Service*
- Urban Grid*

Banking & Finance
- Mortgage as a Service
- Recon in a Box
- Business Banking – Virtual CFO
- Anti-money laundering

Telecom, Media
- Telco on Tap
- Sentient Telecom Operations
- Infosys Media Platform
- Open Network Automation Platform

Health Care & Insurance
- Life Science Insights
- Payer Platform
- Drug Repurpose Platform
- Correspondence Generation Solution

Manufacturing
- Digital Agriculture
- Blockchain Based Supply Chain
- Digital Factory – IoT*
- Auto Factory Automation*

Retail
- Boundless Store
- Shopping Analytics Solution
- Location Based Solutions*
- Infosys Voice Solutions*

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Securing the cloud ecosystem by design

Regulatory and security compliance

Technical and financial governance

Single point accountability for outcomes
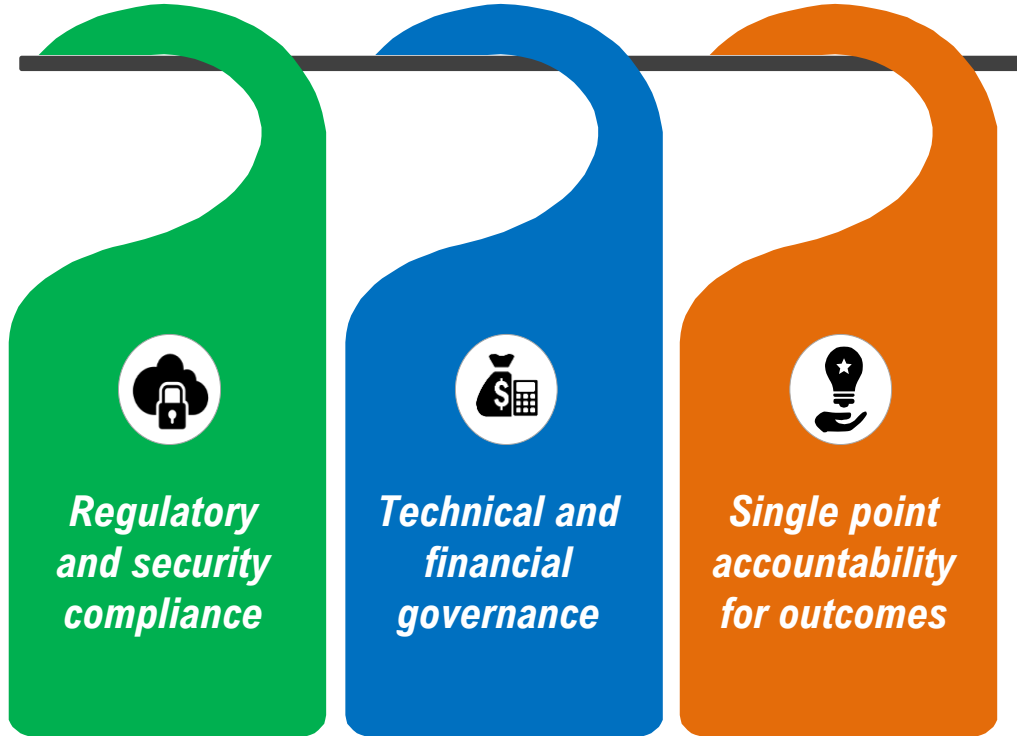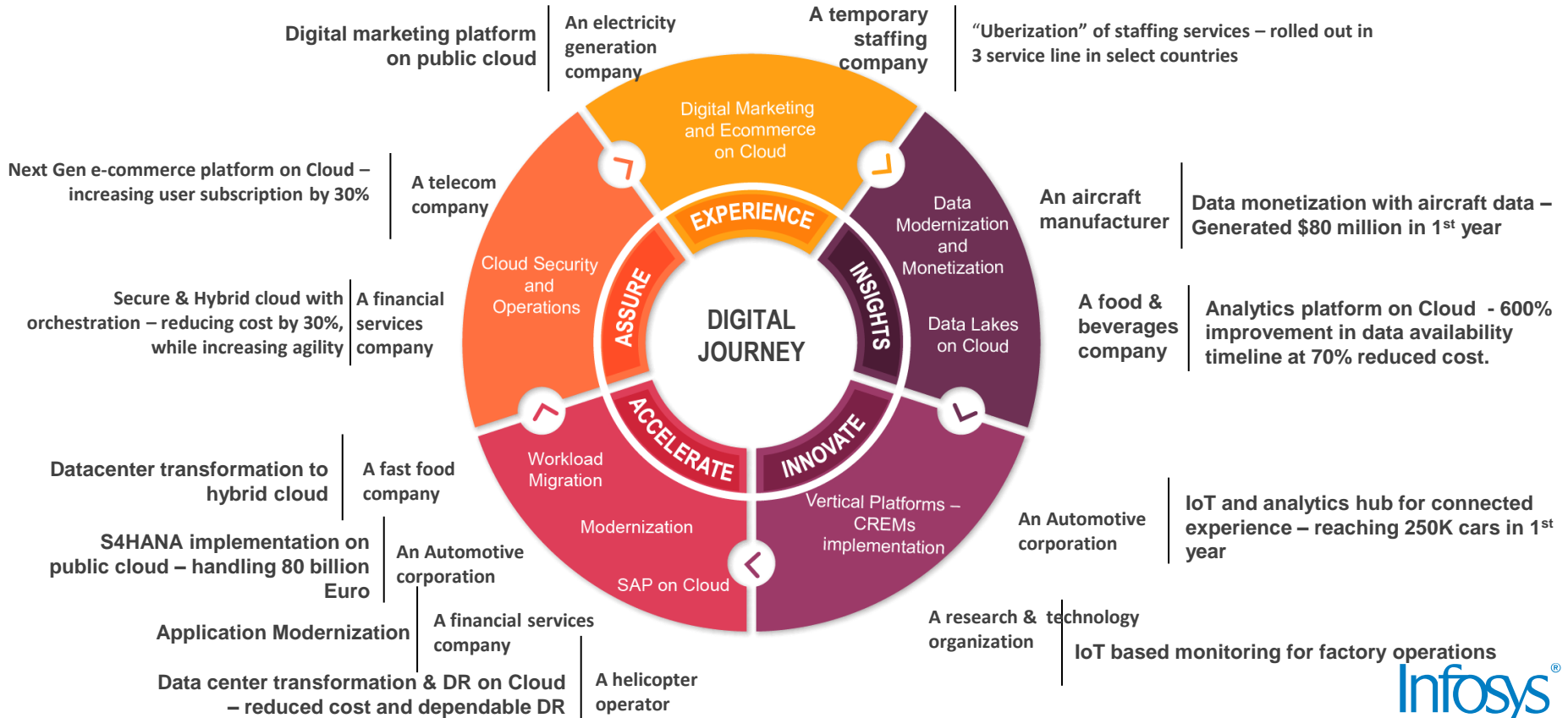
Data Privacy & Protection
Improve visibility and control of sensitive data in compliance with regulatory and business requirements

Emerging Technologies
Minimize the risk surface in IoT, OT, Blockchain, RPA and other emerging technological initiatives

Threat Detection and Response
Strengthen ability to detect and manage security incidents with a robust and integrated architecture and automated process

Managed Security Services
Continually improve cybersecurity maturity by leveraging Infosys Cyber Defense Centers powered by advanced security platforms

Governance, Risk and Compliance
Effectively and efficiently govern risk, maintain compliance and improve decision making in a constantly evolving business and regulatory environment

Infrastructure Security
Enhance cyber defense by bringing cybersecurity skills-at-scale and deploying best in class ilities

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We have helped clients across industry segments to navigate their digital transformation with cloud

Digital marketing platform on public cloud | An electricity generation company — Digital Marketing and Ecommerce on Cloud

A temporary staffing company | "Uberization" of staffing services – rolled out in 3 service line in select countries

Next Gen e-commerce platform on Cloud – increasing user subscription by 30% | A telecom company — Cloud Security and Operations

An aircraft manufacturer | Data monetization with aircraft data – Generated $80 million in 1st year — Data Modernization and Monetization

Secure & Hybrid cloud with orchestration – reducing cost by 30%, while increasing agility | A financial services company

A food & beverages company | Analytics platform on Cloud - 600% improvement in data availability timeline at 70% reduced cost. — Data Lakes on Cloud

Datacenter transformation to hybrid cloud | A fast food company — Workload Migration

S4HANA implementation on public cloud – handling 80 billion Euro | An Automotive corporation — Modernization

Application Modernization | A financial services company — SAP on Cloud

Data center transformation & DR on Cloud – reduced cost and dependable DR | A helicopter operator

An Automotive corporation | IoT and analytics hub for connected experience – reaching 250K cars in 1st year — Vertical Platforms – CREMs implementation

A research & technology organization | IoT based monitoring for factory operations

EXPERIENCE · INSIGHTS · INNOVATE · ACCELERATE · ASSURE · **DIGITAL JOURNEY**

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Azure VMware Solution

The Azure VMware Solution is an Azure service to bring VMware-based environments to Azure. Its allows to run VMware workloads natively on Azure. Below is the Logical Design of the Solution and its key features:

A self-service, automated **VMware-as-a-Service** experience running on a dedicated, isolated and hosted private cloud in Azure.

Management systems, networking services, operating platform, and backend infrastructure required to run VMware environments at scale in Azure are supported by Microsoft.

Seamlessly move VMware-based workloads from on-premise datacenter to Azure.

Manage environments with the same VMware tools while modernizing applications with Azure native services

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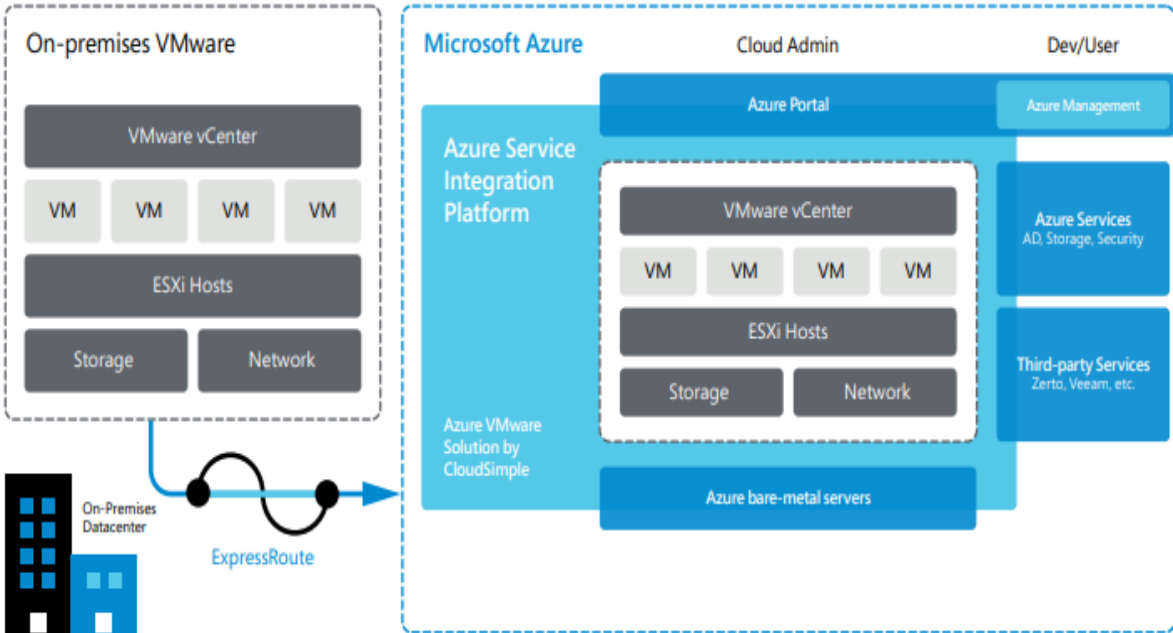
Azure VMware Solution Components

Compute:

The underlying infrastructure features Azure bare-metal servers equipped with Intel Xeon processors.

Hypervisor:

Microsoft managed hypervisor with no host access to VMware or any third party. Supports vSphere 5.5. and earlier.

VMware HCX is included as a part of service.

Storage:

The storage infrastructure is based on hyperconverged vSAN, can be easily expanded by adding more nodes. Use of Azure storage for various purposes.

Network and Security:

Built in NSX-T, including full support for microsegmentation. Underlay network segmentation is provided via vLAN and network security groups.

Edge services for access are available via VPN, public IP, and internet.

Management:

VMware standard suite can be used for management.

Azure key features are supported, such as access control, audit logging, alerting, and metrics management, as well as Azure Monitor.

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Azure VMware Solution (AVS) Deployment Approach

Plan & Design → **Deploy** → **Connect to On Premise** → **Deploy & Configure VMware HCX**
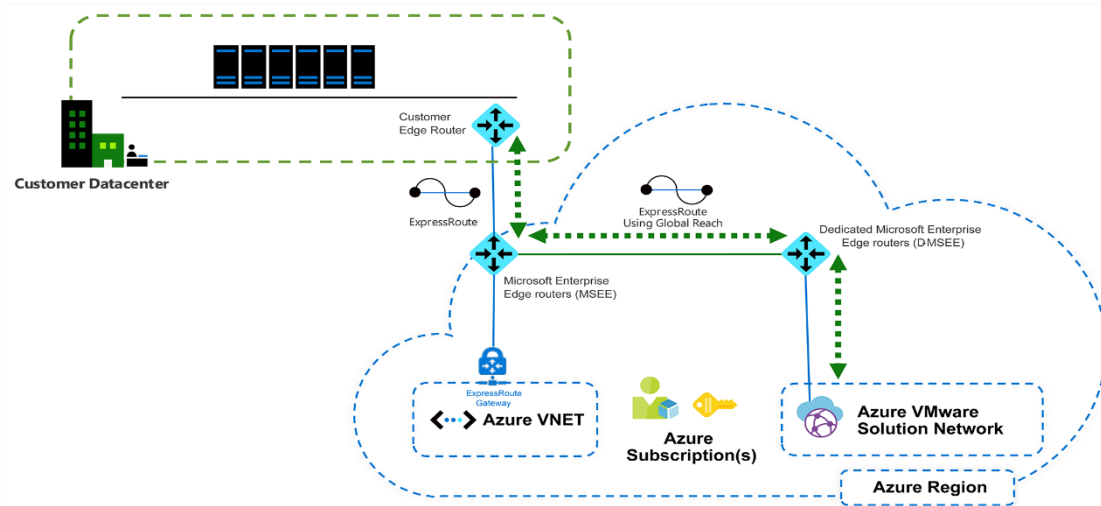
- IP Segmentation
- Host Sizing
- Define VMware HCX Network Segments

- Create AVS private Cloud
- Connect VNet with Express Route

- Establish ER Global Reach
- Verify On Prem Connectivity

- Deploy the on-premises VMware HCX OVA
- Pair with HCX Connector with your Azure VMware Solution HCX Cloud Manager.

- ExpressRoute Global Reach connection between on-premises environment and Private Cloud.
- Firewall configuration on the on-premise servers
- HCX and application ports & protocols
- Gateway CIDR from RFC 1918 space with address range /28
- vSphere/vSAN CIDR with address range /22 or higher
- Public IP for peer identification for on premises gateway

No IP Change Required   No Downtime   Large Scale Bulk Migration   Mobility Groups – Logical grouping

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Azure VMware Solution - Migration Approach

Virtual Machines (Workloads) Migration from OnPrem VMware datacenter to AVS can be achieved by :
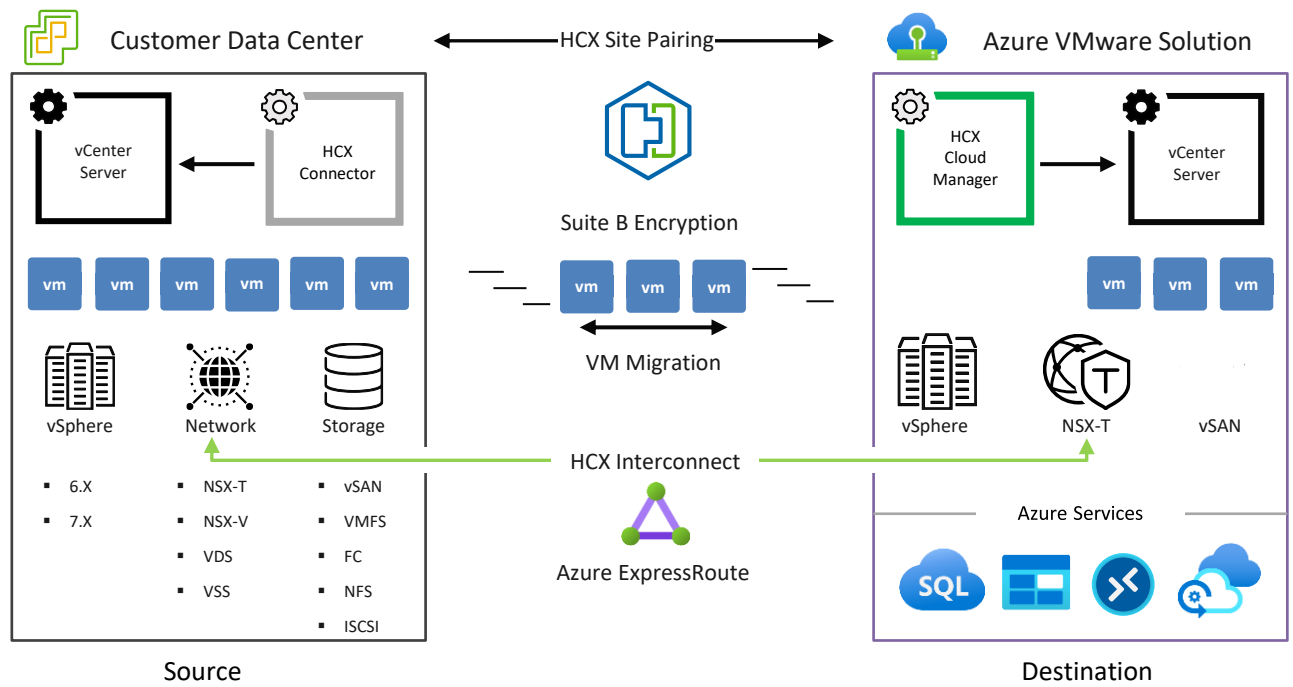- HCX vMotion Bulk Migration by changing IP of VMs and creating new vLANs in AVS
- Extending existing On-premise vLAN to AVS, without changing IP of VMs
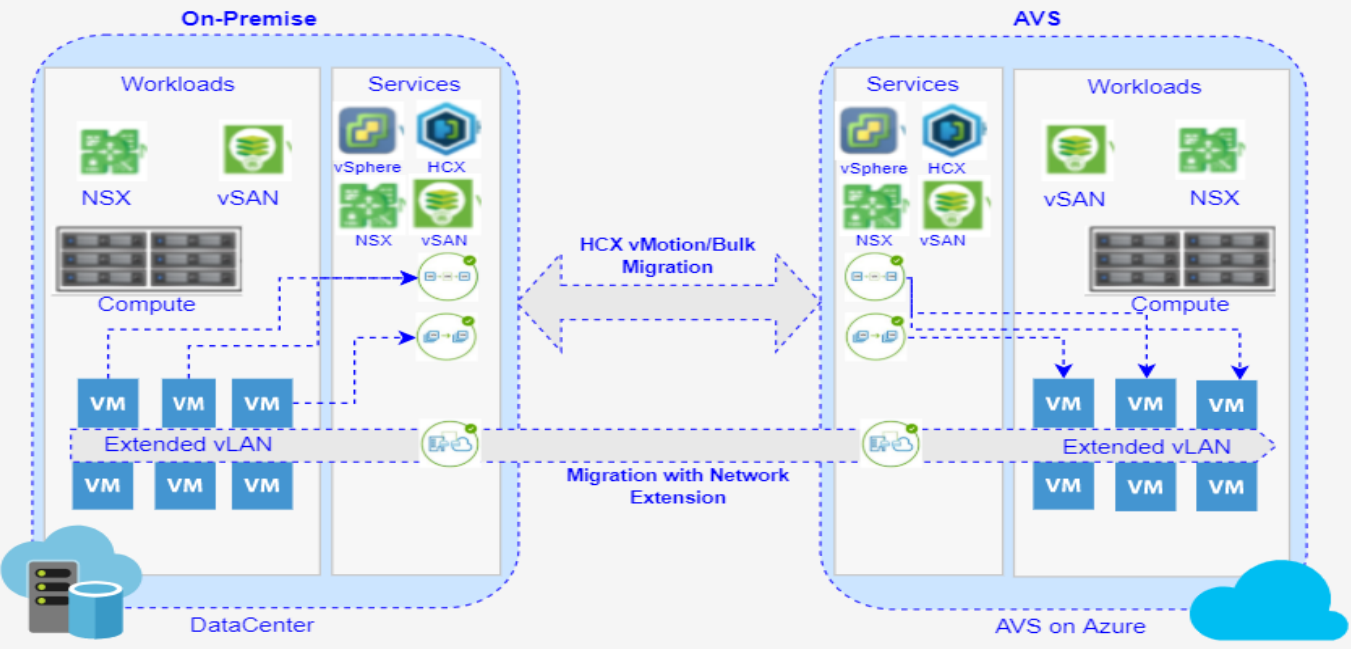

Key Highlights

- Azure VMware migration with Layer2 stretch, network extension provides optimal ingress and egress connectivity for virtual machines at destination.

- IP addresses can be retained by migrating with Network Extension.

- Existing VMware tools and products, including vCenter, vSphere Client, vMotion, vRealize Operations, Power CLI, etc. can be leveraged

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VMware HCX Connectivity across On-Premise and Azure

Customer Data Center

HCX Site Pairing

Azure VMware Solution

vCenter Server

HCX Connector

HCX Cloud Manager

vCenter Server

Suite B Encryption

vm vm vm vm vm vm

vm vm vm

vm vm vm

VM Migration

vSphere   Network   Storage

vSphere   NSX-T   vSAN

- 6.X
- 7.X

- NSX-T
- NSX-V
- VDS
- VSS

- vSAN
- VMFS
- FC
- NFS
- ISCSI

HCX Interconnect

Azure Services

Azure ExpressRoute
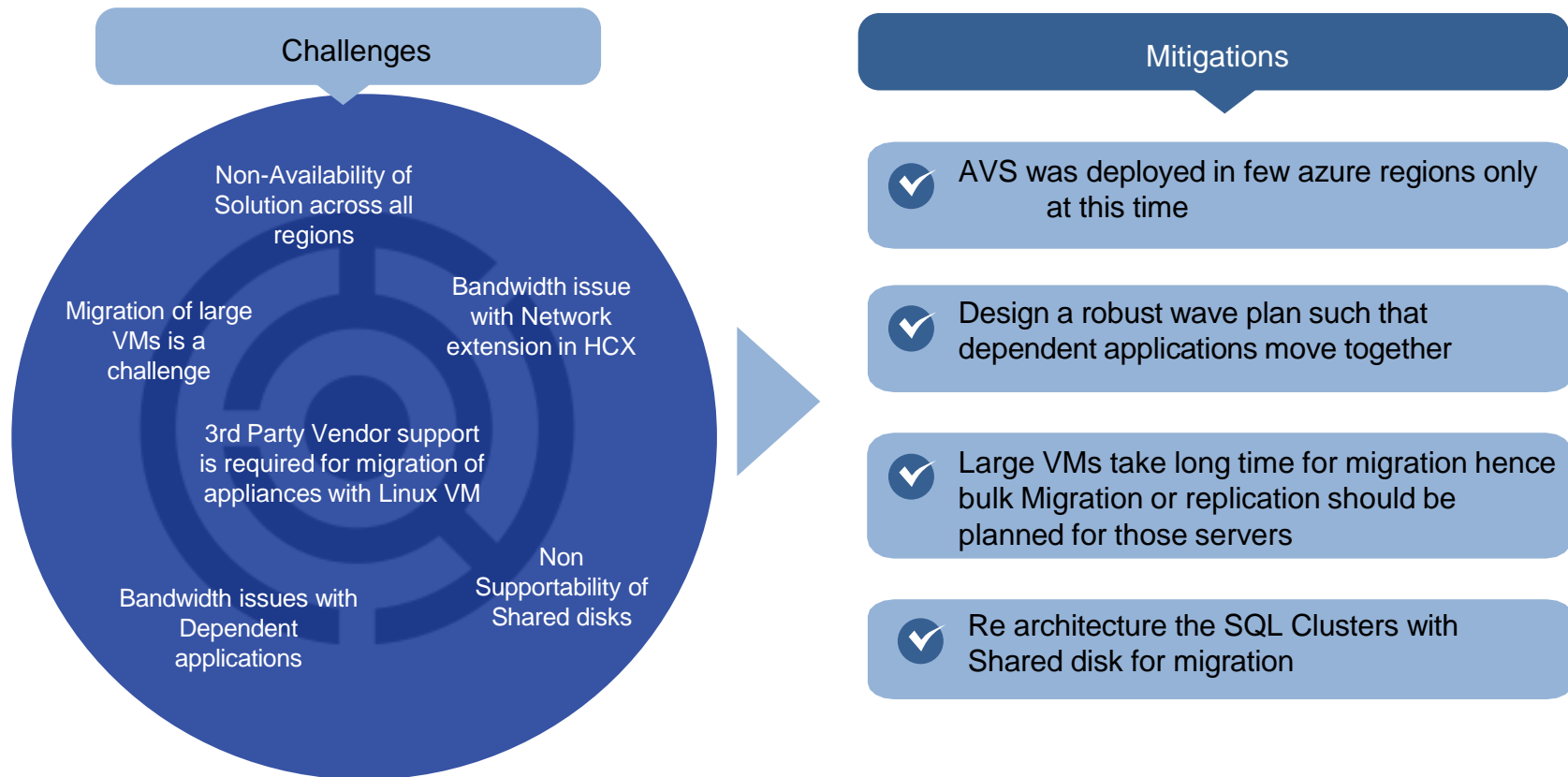
SQL

Source

Destination

Detailed Activities to Setup connectivity from On-Premise – cloud migration

- Azure ExpressRoute across On-Premise and Azure

- NSX-T connectivity across Source & Destination

- HCX Connector and HCX Cloud Manager deployed on Source and Destination

- HCX Site Peering

- Enable Hybrid Interconnect Service and Bulk Migration Service

- VM Migration via HCX vMotion/Bulk Migration

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Landing Zone Network Design
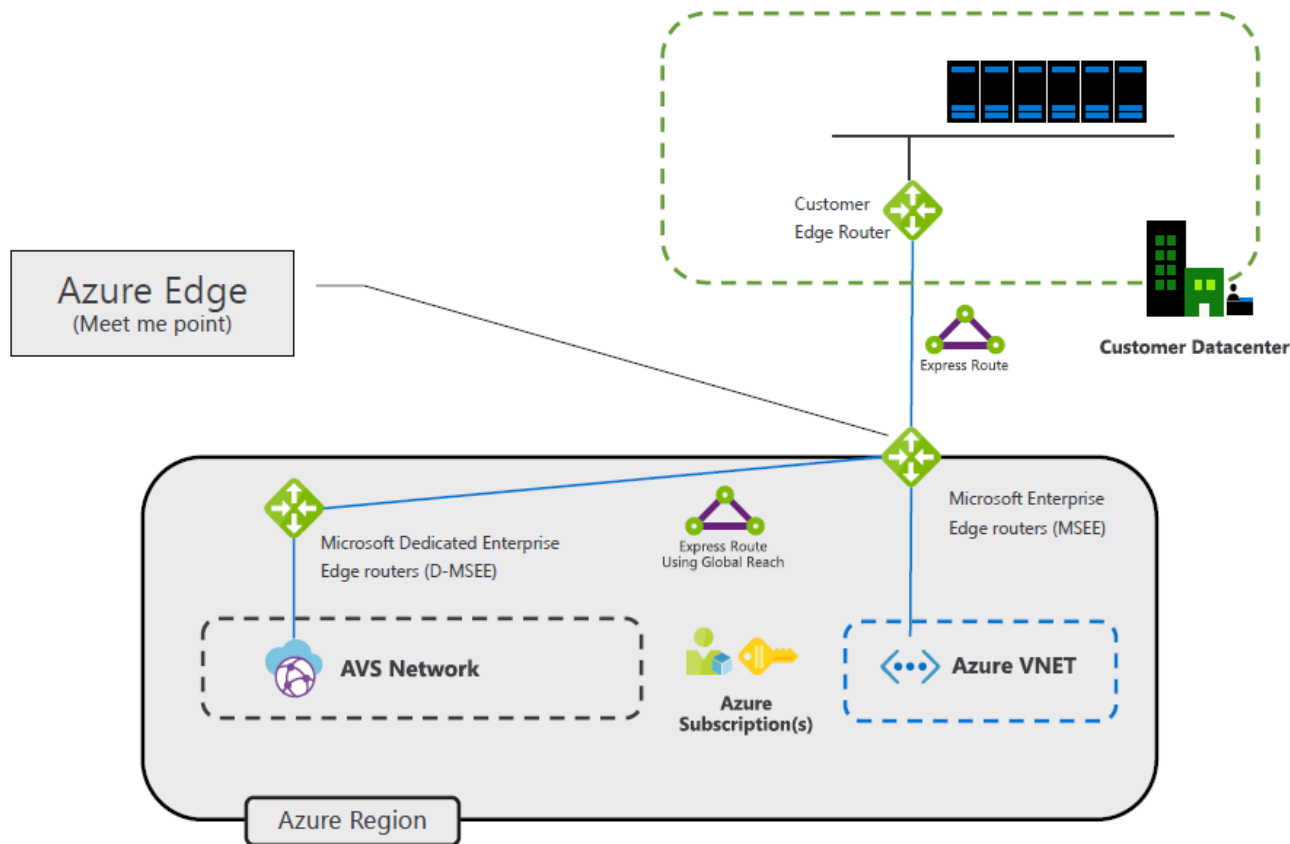
- Site-to-Site VPN connection or ExpressRoute Global Reach connection between on-premises environment and Private Cloud.

- Firewall configuration on the on premise servers

- Ports need to be open (53, 8000) on On-premise as well as Azure and (80, 443) only on premise
- Gateway CIDR from RFC 1918 space with address range /28

- vSphere/vSAN CIDR with address range /24 or /23 or /22 or /21

- Public IP for peer identification for on premises gateway

Challenges & Mitigations

Challenges

Non-Availability of Solution across all regions

Migration of large VMs is a challenge

Bandwidth issue with Network extension in HCX

3rd Party Vendor support is required for migration of appliances with Linux VM

Bandwidth issues with Dependent applications

Non Supportability of Shared disks

Mitigations

✓ AVS was deployed in few azure regions only at this time

✓ Design a robust wave plan such that dependent applications move together

✓ Large VMs take long time for migration hence bulk Migration or replication should be planned for those servers

✓ Re architecture the SQL Clusters with Shared disk for migration

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Key Features of Azure VMware Solution

Deep integration with an existing On-Prem VMware environment.

➢Continue with native VMware vSphere support in Azure without rearchitecting current setup or converting existing vSphere VMs.

➢Leverage existing VMware tools and products, including vCenter, vSphere Client, vMotion, vRealize Operations, Power CLI, etc.

➢Use built-in VMware products like VMware vSphere, vSAN, and NSX-T.

➢Support existing VMware environment networking capabilities.

Resilient and high-performance infrastructure.

➢Use a self-service, automated service running on a dedicated, isolated, and single-tenant environment in Azure

➢Add or remove Software Defined Datacenter (SDDC) hosts with one click using integrated management with Azure Resource Manager (ARM).

➢Access a high-performance, VMware optimized infrastructure that can be rightsized to match any application requirements.

➢Support for high level of security and encryption.

Deep integration with Azure

➢Broad access to the innovation, scale, elasticity, and economies of scale that Azure offers, including the massive array of Azure services such as Azure Active Directory, AI and Analytics.

➢Leverage Azure AD as your VMware vCenter Single Sign-On identity source.

➢Highly secure, high-speed, low latency connectivity to Azure using express route and VPN services.

➢Support for the most popular DevOps toolchains (e.g., Terraform, Jenkins, Puppet, Chef, and others) to help automate IT environment.

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Benefits of Azure VMware Solution

Lower costs
- Investment protection (tools, relationships, and skills)
- Free Extended Security Updates and reservation pricing
- Azure economies of scale

Innovation
- Access to a massive ecosystem of Azure services
- Ability to modernize applications
- DevOps toolchains in VMware environments

Operational and business agility
- No application refactoring
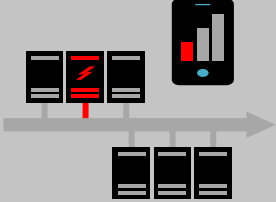- Operational continuity
- Accelerated transition to Azure

➤ Lower cost for Windows Server and SQL Server—provides major cost reductions for Windows Server and SQL Server with Extended Security Updates, including Azure reservations discounts

➤ Unified Management—enables a single pane of glass to manage vSphere-based and Azure native VMs with uniform identities, access control, and monitoring.

➤ Azure native service integrations— offers Azure AD as VMware vCenter SSO identity source. Connect to Azure services endpoints
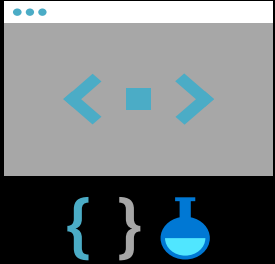
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AVS common Use Cases

Datacenter footprint expansion, reduction, or retirement

DR & Business continuity

Application modernization

| Data Center retirement or migration | Expansion on demand | Disaster Recovery | Virtual Desktops | Hosting High-Performance Apps | Hybrid Cloud |

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Thank You

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