



# Hybrid Cloud Best Practices

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## Corporate Overview – ValueMomentum Software Services



- Software & Services Firm
- **Financial Services & Insurance focused**
- Established in 2000 with HQ in NJ, USA
- 150+ dedicated R&D team
- Executive Leadership and Practice Heads based in the US
- Offshore centers are SSAE 16 SOC 2 certified. Clean Rooms for several clients offshore

**23%**

Compound Annual  
Growth Rate since 2000

**4**

Analysts covering  
ValueMomentum  
Software & Services

**>65**

Clients Served in North  
America

**1,850+**

Global employee strength

**Top 15**

IT Services Vendor for  
North American P&C  
Carriers by # of customers\*

**14**

> 5 Year Customer  
Relationships  
Average ~8 years

**BUSINESS  
FOCUS**



- Banking & Lending
- Capital Markets

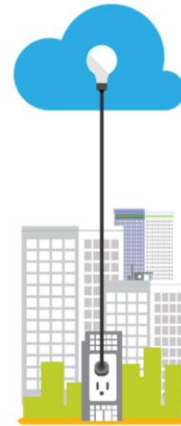


- Property & Casualty
- Healthcare
- Life & Annuities

## Agenda

- Benefits of cloud platform
- Hybrid cloud introduction
- Networking
- Azure Stack
- Recommendations
- Questions?





**Cost:** Capital Expense – Hardware / Software / Racks of Servers / Electricity / Cooling & infrastructure maintenance

**Global Scale:** Computing power / Storage / Bandwidth.

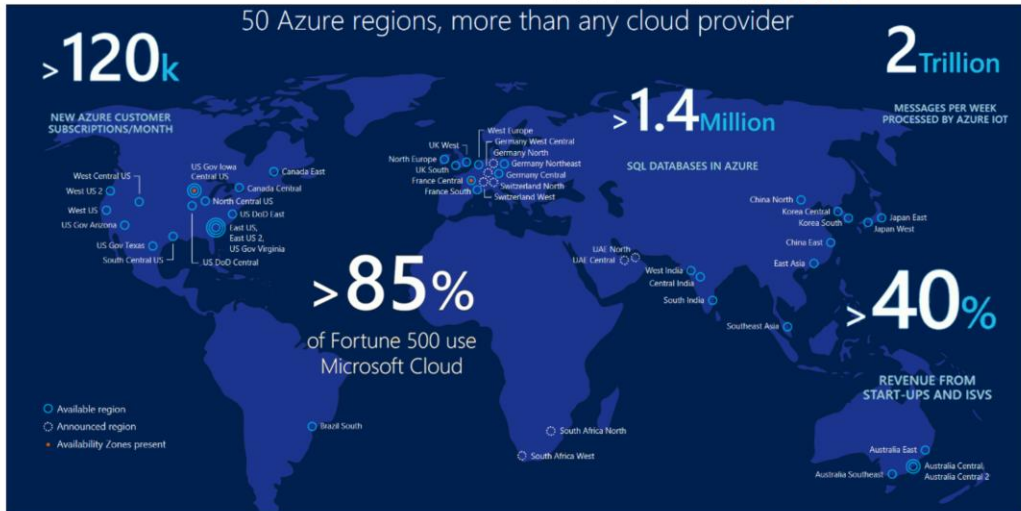
**Reliability:** Data Backup / Disaster Recovery with Redundant resources.

**Performance:** Upgrade to latest gen of Hardware and software

**Productivity:** Focusing Business & Reducing Costs.

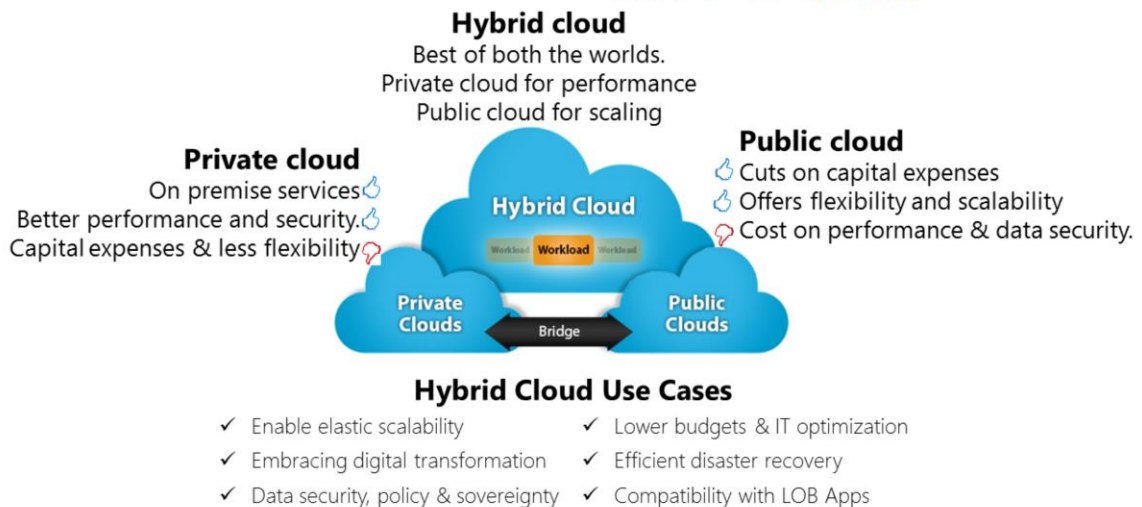
**Speed:** On demand, within minutes, Quick Turnaround Tim.

## Microsoft Azure in numbers...



# Hybrid Cloud

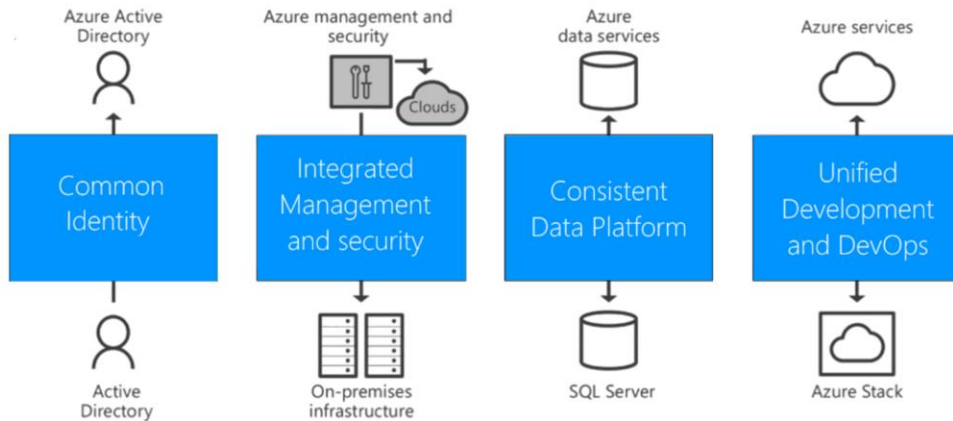
## Use cases for Hybrid cloud



**Public cloud** Pay-As-You-Go lowers Capital Expenses, Flexibility & Scalability. Cost on Performance & Data Security.

**Private cloud** Services On-Premises with Performance and Security. Capital Expenses / Less Flexibility.

**Hybrid cloud** Bridge this Gap / Best of Both Worlds - Private Cloud for Performance & Security, Public Cloud for Cost Reduction / Scaling / Flexibility.



**Conventional hybrid deployments** Connect you to the cloud but won't provide **Unified DevOps platform**

## Questions

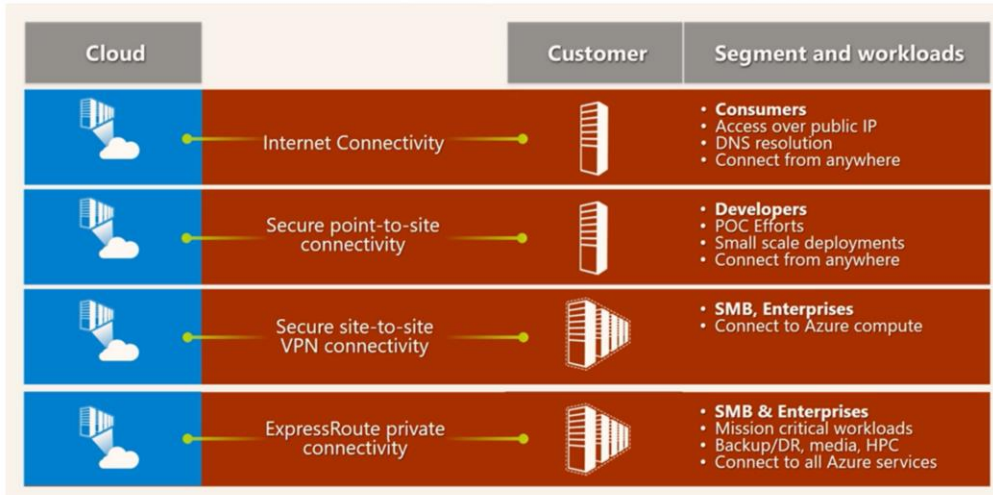
1. What is the meaning of Azure?
2. How many regions Microsoft Azure is spread across?
3. Who are the competitors of Azure?  
(IBM BlueMix, AWS, Google Cloud, Rackspace, VM Ware)
4. What are SaaS, IaaS, PaaS?



# Networking

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## Azure connectivity options



## Site-to-Site VPN (Single/Multi)

VPN appliance: Hardware (or) RRAS Service for external connectivity on-premises

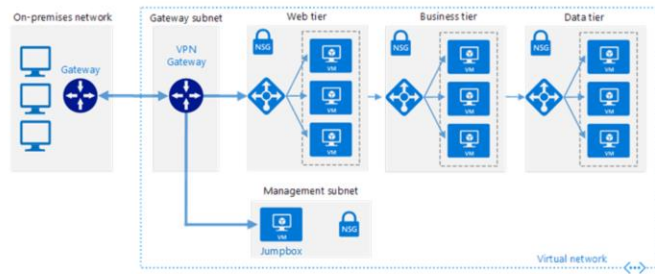
Virtual network (VNet): Network comprising the cloud application and Azure VPN gateway.

Azure VPN gateway: The VPN gateway enables on-premises VNet connectivity through VPN appliance.

Cloud application: The application hosted in Azure

Internal load balancer:

Network traffic from the VPN gateway is routed to the cloud application through an internal load balancer



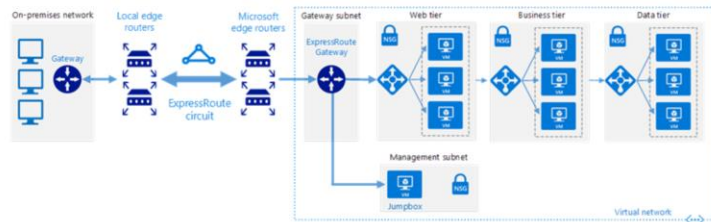
## Routing and Remote Access Service (Windows Server 2016 Service)

## Express Route

Dedicated private connection circuit b/w Microsoft & your local or co-location infrastructure  
These connections are more secure, faster and more reliable than a typical internet connection.

These are offered in 2 ways:

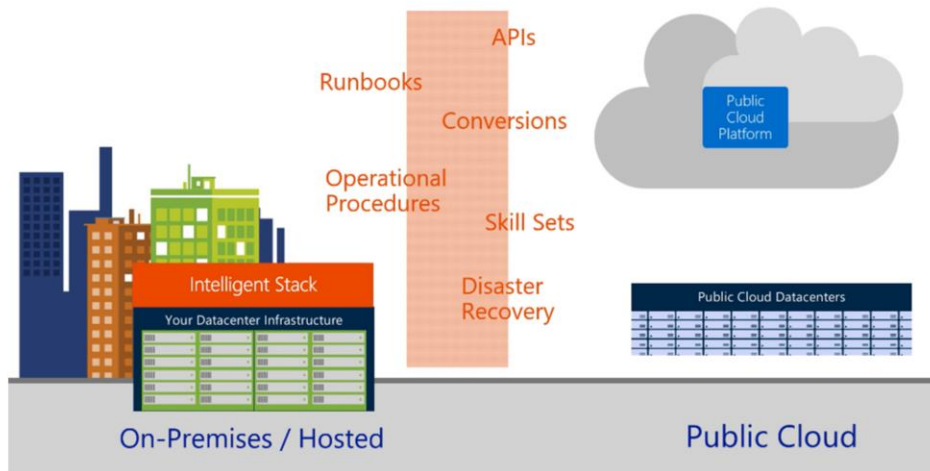
- Connect to partner co-location facility and this facility has a private connection with Microsoft
- You can connect directly from your WAN to Azure using MPLS provided by network provider.



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## Multi-Protocol Label Switching

## Challenges: On-premise (vs) Public Cloud

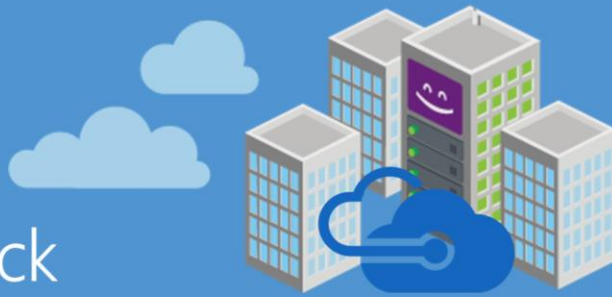


In a [computer system](#) or [network](#), a **runbook** is a compilation of routine procedures and operations that the system administrator or operator carries out. [System administrators](#) in [IT](#) departments and [NOCs](#) use runbooks as a reference. Runbooks can be in either electronic or in physical book form. Typically, a runbook contains procedures to begin, stop, supervise, and debug the system. It may also describe procedures for handling special requests and contingencies. An effective runbook allows other operators, with prerequisite expertise, to effectively manage and troubleshoot a system. Through runbook automation, these processes can be carried out using software tools in a predetermined manner.

1. What is the Hybrid cloud platform offering from Microsoft?
2. What's the latest offering Azure has for end-to-end mobile computing?
3. What's the largest RAM that you can create in an Azure VM today? (2TB)
4. When was Azure initially released? (Feb 1, 2010)

# Azure Stack

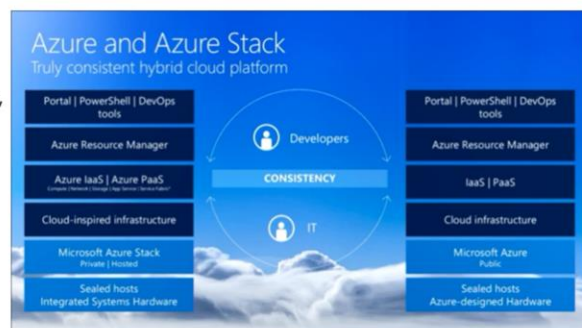
An extension of Azure



Hybrid cloud platform from Microsoft that enables organizations to achieve more by delivering Azure services in their own data center.

Azure Stack transforms data center resources into cloud services.

- Self-service IaaS – Virtual Machines, Virtual Networks, Storage, Docker-enabled containers
- Self-service PaaS – App Service, Service Fabric, Azure Functions
- Flexible service delivery with Azure based management and automation tools



## Consistent DevOps

Develop with Azure API, ARM, Marketplace  
CI/CD with VSTS – On Premises / Cloud.



## Integrated Management And Security

Patches / Updates  
Monitoring - SCOM/OMS, Log Analytics  
Azure Backup & Site Recovery  
Detect threats faster



## Hybrid Identity

AAD manages hybrid identity  
Pass-through Authentication  
Multi-tenant access with MFA.

## Azure IaaS and PaaS On-Premises

VM Scale Sets - Rapid Scaling  
PaaS and Serverless Azure Functions  
SQL Stretch DB / Data Analytics (Hybrid)



**Hybrid Identity:** Azure Active Directory (AAD) in combination with on premise domain controller / AD / AD FS – to provide common identity for hybrid cloud.

**Azure B2C** integrates with 3<sup>rd</sup> party identity providers using OAuth/Open ID Connect protocols and

**Azure B2B** integrates with partner organizations providing federated identity to consume partner services like SaaS applications.



The screenshot displays the Microsoft Azure Stack portal interface. The browser window shows the URL `https://portal.zurich.azurestack.it/etb.ch/#dashboard/private/94928cde-26c6-4eec-bf70-b70008fe900f`. The dashboard layout includes a left-hand navigation menu with options like 'New', 'Dashboard', 'Virtual machines', 'All resources', 'Resource groups', 'Recent', 'Virtual machine scal...', 'Virtual network gat...', and 'More services'. The main dashboard area features a 'Marketplace' tile, a 'Get a subscription' tile, and a 'Quickstart tutorials' section. The tutorials section lists 'Windows Virtual Machines' (Provision Windows Server, SQL Server, SharePoint VMs), 'Linux Virtual Machines' (Provision Ubuntu, Red Hat, CentOS, SUSE, CoreOS VMs), 'App Service' (Create Web Apps using .NET, Java, Node.js, Python, PHP), and 'Functions' (Process events with a serverless code architecture).



## Two ways to purchase Azure Stack

### As an integrated system

Customer controls management and operations

Two contracts: one for Azure services and another for hardware

Typically hosted at customer premises

Example: Customer purchases Azure services from Microsoft, integrated systems from Dell EMC/HPE/Lenovo

### As a fully managed service

Managed service provider does management and operations

Single point of purchase, one contract

Typically hosted at managed service provider premises

Example: Customer purchases a complete solution from itnetX

One integrated support experience 

# Recommended Best Practices

1. What's the number of Azure services that are available to public? (~600)
2. How many languages Microsoft Azure provides support in? (9 -> English, Spanish, French, German, Italian, Portuguese, Traditional Chinese, Korean and Japanese)
3. What are the deployment models of cloud? (Private, Public, Hybrid and Community)
4. What's the projected revenues for Microsoft in cloud computing business? (~\$20bn)

- ❖ Hybrid Identity - Single identity management for SaaS applications & on premise systems.
- ❖ Reduction of capital expenditure by extending data center into public cloud
- ❖ Backup / restore, automate policies, data encryption
- ❖ Business agility and expansion strategy for large deals with Azure workloads
- ❖ { 80% of applications (Departmental, LOB, DMS) to public cloud }  
    { 20% mission-critical applications on premises }
- ❖ Leveraging Azure PaaS services such as App Services, Mobile Services, CDN etc. for developing internal or client applications
- ❖ File/Blob storage, Azure Site Recovery - Migration strategies
- ❖ Adopting DevOps integrated pipeline across hybrid cloud and investing in emerging & cutting-edge digital technologies.



LOB – Line of Business (ERP/CRM/Mainframe/Supply Chain Management)

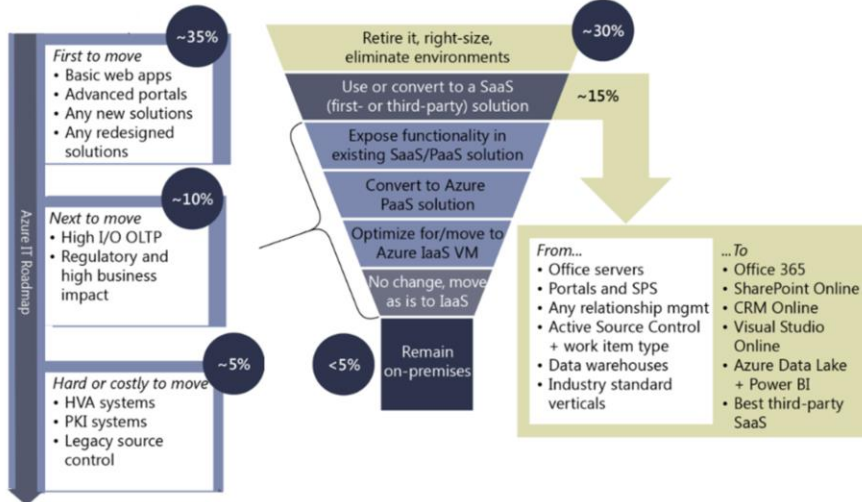
DMS – Document Management Solutions

Departmental – HR / Finance / Quality Assurance / Audit

- ❖ Data - Manage huge data (Audit/historical data) on premises and running analytics on cloud
  - SQL Server 2016 Stretch DB (Pushing lot of historical data to Azure)
  - File system / Storage (StorSimple) - Inexpensive storage on Azure
  - Data analytics (big data)
- ❖ Scalability - managing very high peaks of loads (hyper scale) is the key (Cloud Bursting)
- ❖ Production quality infrastructure for Development environments (Dev/Test workloads) within minutes
- ❖ Federated identity - Azure Active Directory (AAD) and Single Sign-On to all the enterprise applications inside or outside of the organization as well as partner network including support for various devices / form-factors along with Multi-Factor Authentication



# Hybrid cloud strategy







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