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Azure vs. AWS Best Practices: What You Need to Know

Panelists

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Webinar recording and slides will be emailed to all registrants

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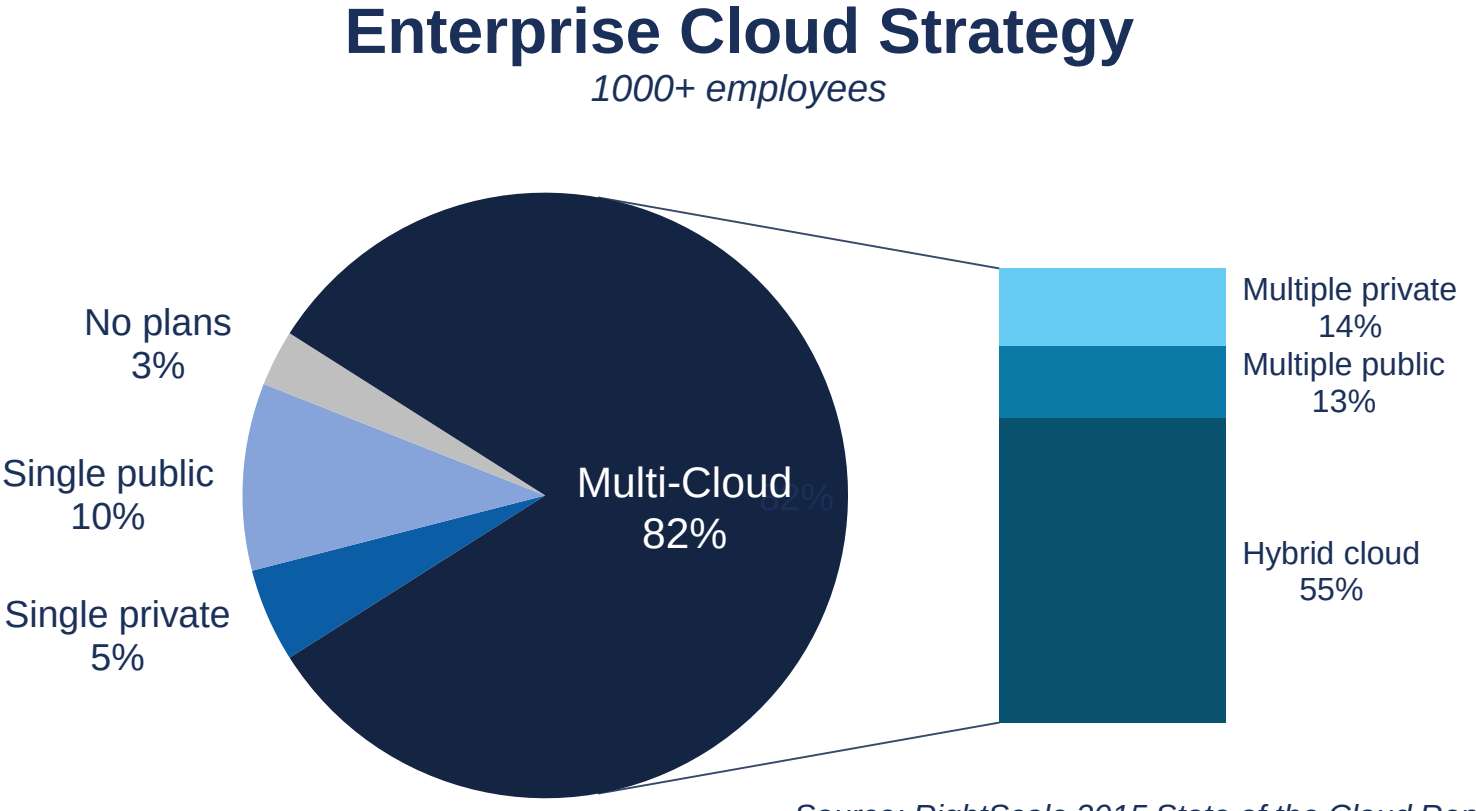
Polling Questions

Agenda

- AWS and Azure Adoption Trends
- Comparing IaaS Resources & Key IaaS+ Services
- High-Availability
- Network Topology
- 3-Tier Application Best Practices
- On-Premises Integration
- Multi-Cloud Management

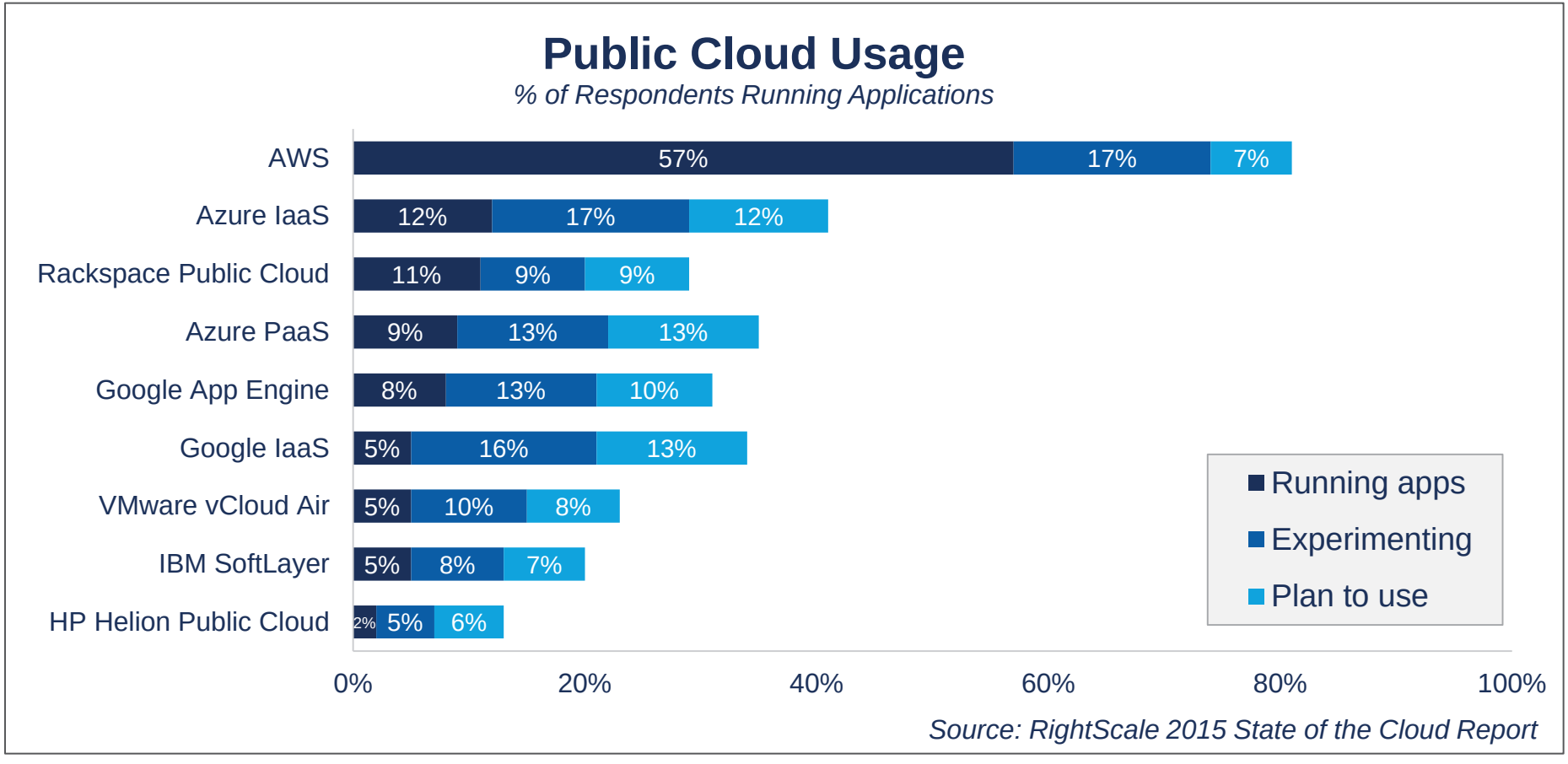
82% of Enterprises Want Multi-Cloud



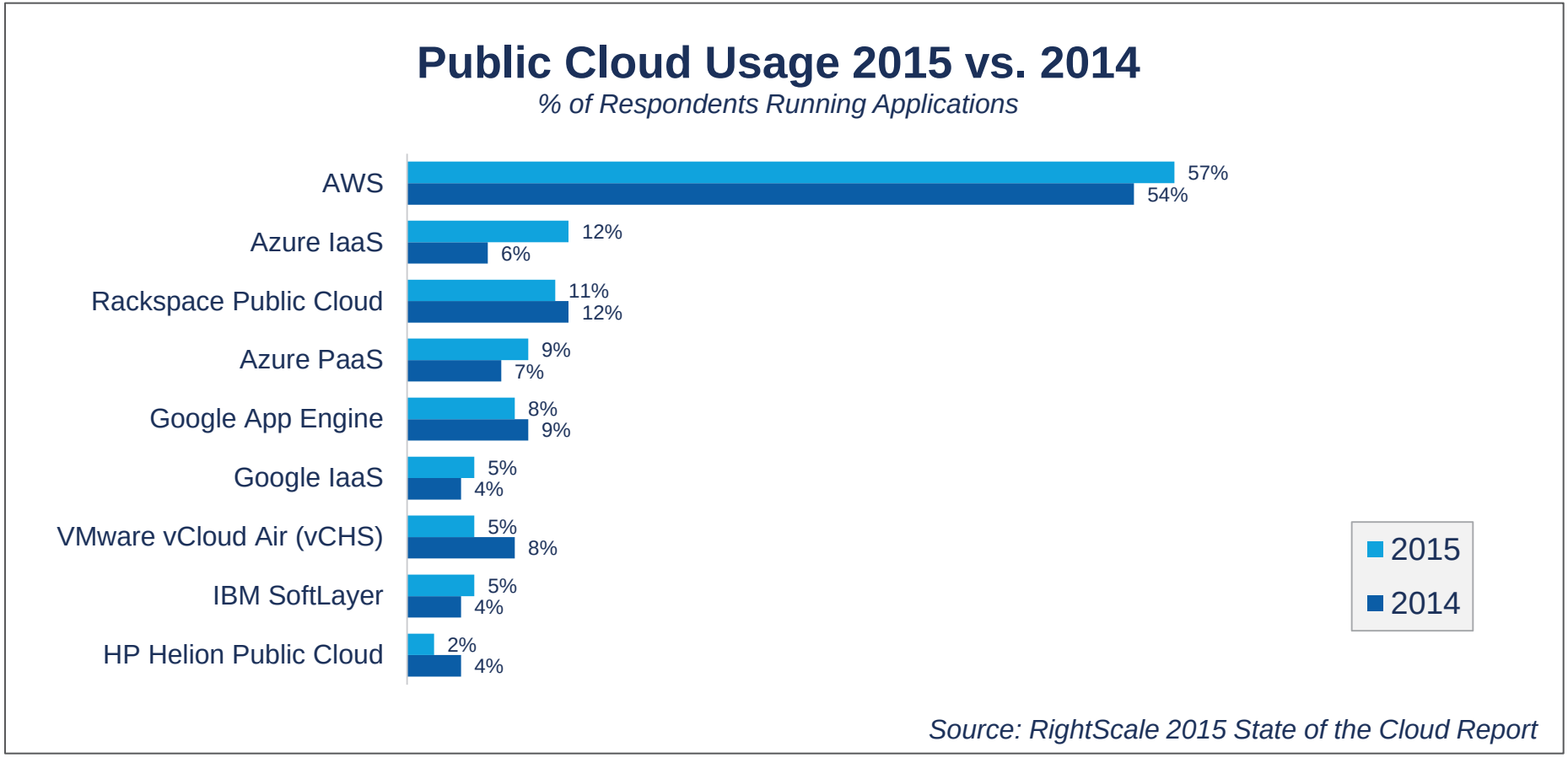
The Multi-Cloud Drivers

1. Operate anywhere
2. Leverage existing investments
3. Optimize costs
4. Access unique capabilities
5. Create resilient architectures
6. Maintain vendor leverage
7. Future-proof your cloud strategy
8. Multi-cloud happens

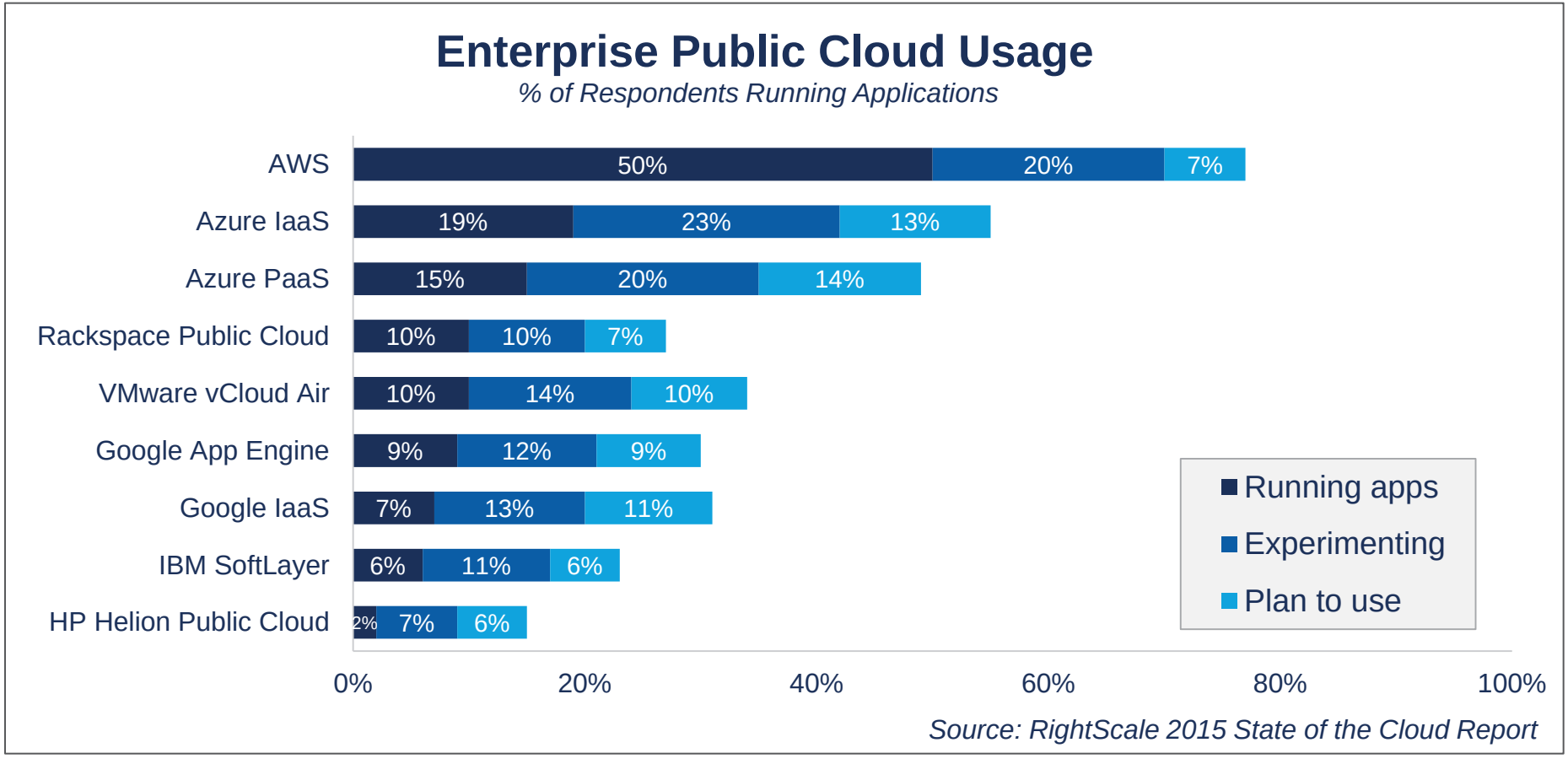
Public Cloud Usage – All Respondents



Public Cloud Usage YoY – All Respondents

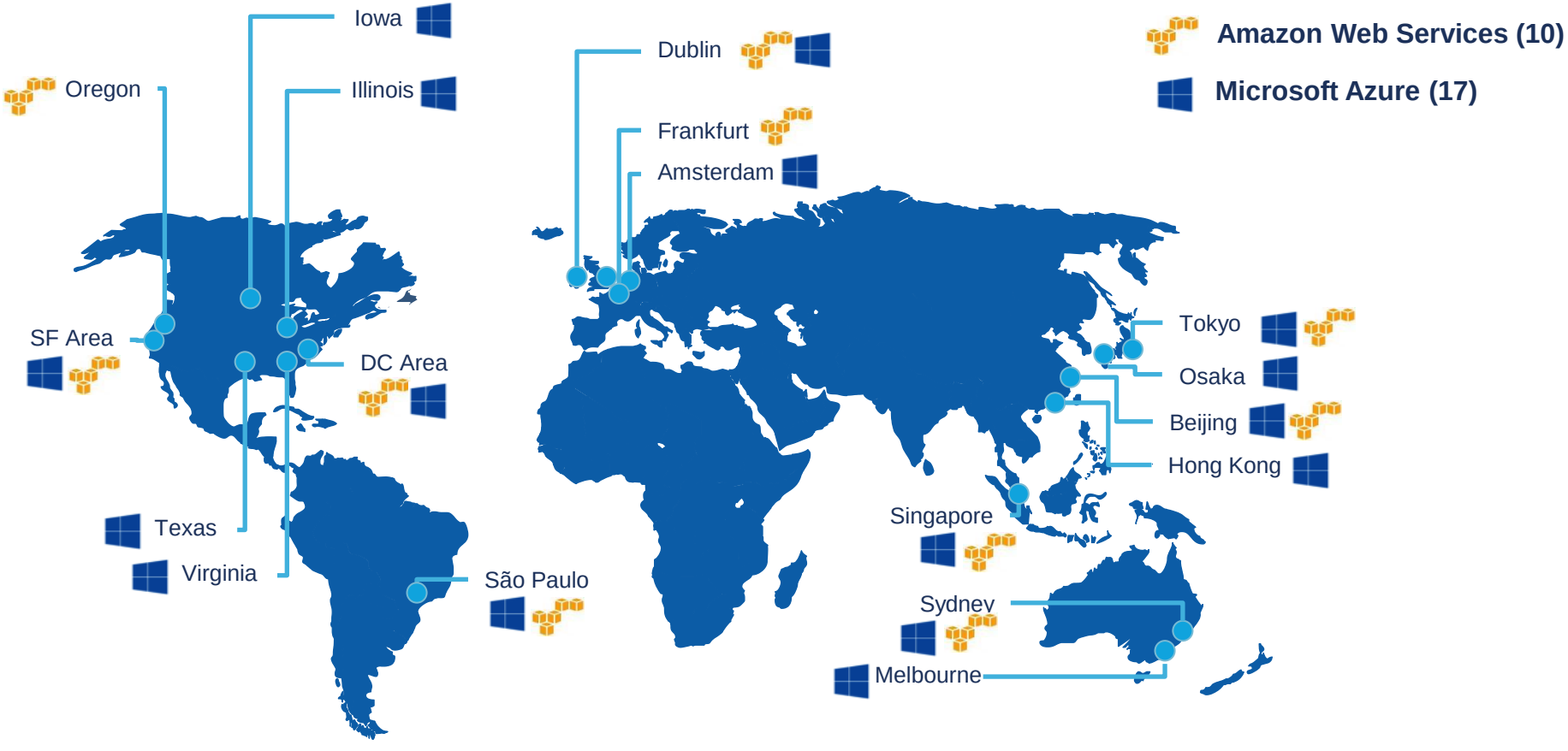


Public Cloud Usage – Enterprises



Azure vs. AWS: IaaS Resources and IaaS+ Services

AWS and Azure Global Regions



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Source: AWS and Azure documentation

IaaS Resources: Compute

Amazon Web Services	Microsoft Azure
General Purpose (T2, M3)	General Purpose (A-series)
Compute Optimized (C3, C4) • 36 vCPU x 60 GB	Compute Optimized (A11) • 16 vCPU x 112 GB Network Optimized (A9) • 16 vCPU x 112 GB x 40Gb Infiniband
Memory Optimized (R3) • 32 vCPU x 244 GB	Compute Optimized (D-series) • 16 vCPU x 112 GB
Storage Optimized (I2) • 32 vCPU x 244 GB x 6.4TB SSD	Storage Optimized (DS) NEW • In Preview
Dense Storage (D2) NEW • 32 vCPU x 244 GB x 48 TB	Performance Optimized (G-series) NEW • 32 vCPU x 448 GB

IaaS Resources: Storage

Amazon Web Services	Microsoft Azure
S3 Object Storage • 11-9s durability (FAQ) • 3-9s availability • Reduced redundancy option • Geo-redundancy option	Standard Storage Account • Blob, Table, Queue Storage • File Storage NEW • Local, Zone, Geo redundancy option • 3-9s availability
EBS Block Storage (Volumes) • Magnetic • SSD • Provisioned IOPS • Encryption option	Premium Storage Account NEW • In preview • 50K IOPS per VM, < 1ms latency • Locally Redundant
Glacier Archival	Azure Backup
Import / Export Methods	Import / Export Methods

IaaS Resources: Network

Amazon Web Services	Microsoft Azure
Virtual Private Cloud (VPC)	Virtual Network
VPN	Point-to-Site, Site-to-Site
Direct Connect	ExpressRoute
Elastic Load Balancer	Traffic Manager / Azure Load Balancer
Route 53	Bring your own

IaaS+ Services: Databases / Data Warehouse

Amazon Web Services	Microsoft Azure
RDS	Azure SQL
DynamoDB	Azure Tables
ElastiCache	Azure Cache
Redshift	SQL Server Data Warehouse
Aurora 	

IaaS+ Services: Other Key Services

Amazon Web Services	Microsoft Azure
Identity and Access Management (IAM)	Azure Active Directory
CloudWatch	Azure Monitoring

Workload Placement Concepts

Amazon Web Services	Microsoft Azure
Availability Zones	Availability Sets • Fault Domain • Update Domain
Placement Group	Affinity Group

Continuous Delivery

Amazon Web Services	Microsoft Azure
CodeDeploy CodeCommit CodePipeline	Visual Studio Online (VSO) Team Foundation Server (TFS)

Pricing Models (Compute)

	Amazon Web Services	Microsoft Azure
On-Demand Pricing	• Free Tier • Per Hour • No charge for “Stopped” • Pay for EBS volume	• Free Trial • Per-Minute • “Stopped (Allocated)” bills for VM, not SW • No charge for “Stopped (De-Allocated)

Discount Options	• Reserved Instances
	  • All upfront (largest discount)
	  • Partial upfront
	  • No upfront
	• RI Volume Discounts
	  • $500K-$4M = 5%
	  • $4M-$10M = 10%
	  • >$10M = contact AWS
	• Spot Instances
	• RI Marketplace
		• Through Resellers
		• Enterprise agreement
		  • Upfront monetary commitment to Azure.
		  • Consumed throughout the year by using any Azure services
		  • Billed for overages at EA rate
		• MSDN (per month credit)
		• BizSpark

Network Topology

AWS VPC: Basics and Definitions

- VPC: Virtual Private Cloud
- Subnets: Range of IP addresses in your VPC
- Network ACLs: Network Access Control Lists applied to subnets
- Route tables: Applied to subnet(s) specifying routing rules
- Security groups: Specifies inbound/outbound access policies for EC2 instance
- AZ: Availability Zone
- IGW: Internet gateway, provides access to the Internet
- VPC Peering: Private routing between two VPCs
- VGW: Gateway to enable customer connection

When to use VPC?

Always! It's the default

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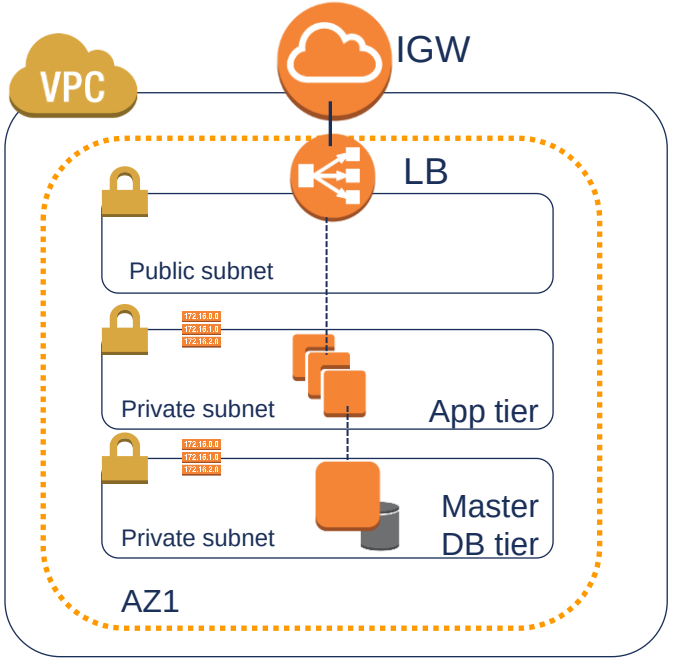
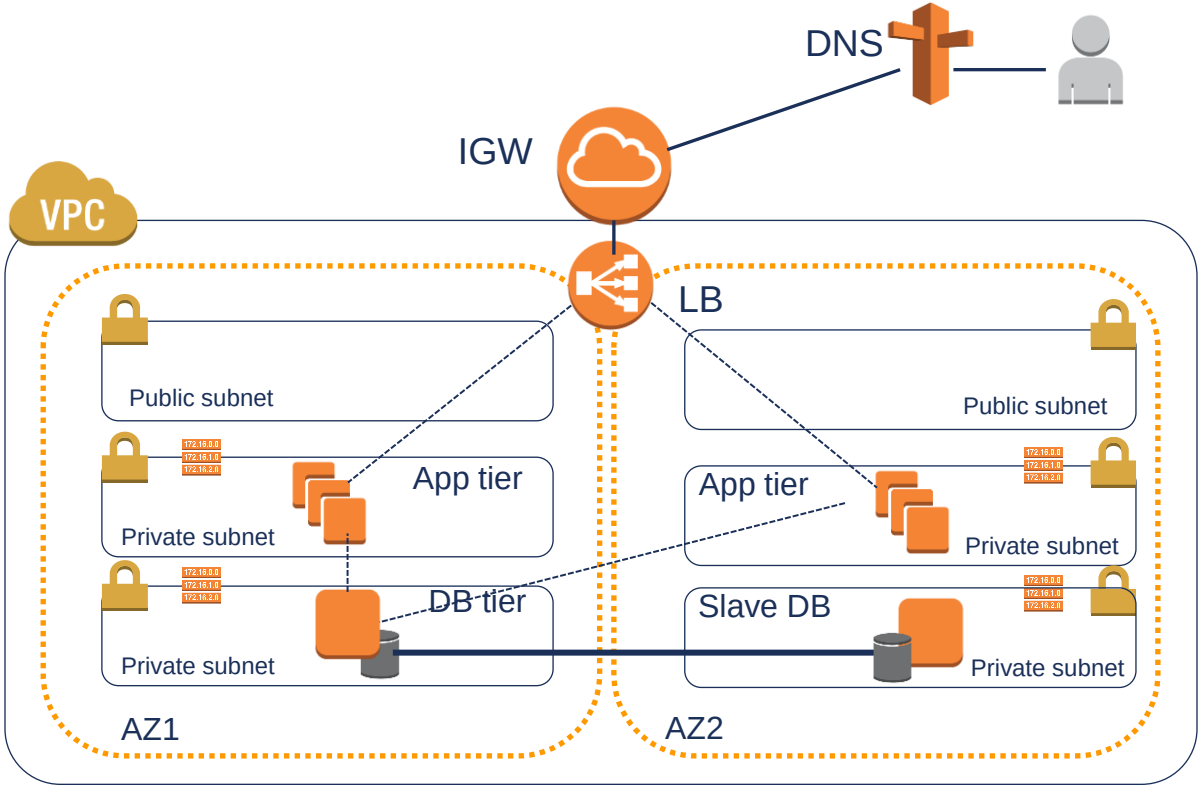
Anatomy of AWS VPC



Steps to Create an N-Tier Architecture

- Create a VPC
- Create one or more Subnets in AZs
- Create Route Tables and Network ACLs for these subnets
- Create Security groups that can be used with VM launch
- Route the public Subnet to an IGW
- Launch VMs in these Subnets + Availability Zones + Security group

AWS: Highly-Available 3-Tier application



Azure Virtual Network: Basics and Definitions

- Virtual Network: Virtual Private Cloud
- Traffic Manager: DNS level load balancing
- Azure Endpoints: Port-forwarding rules for Azure VMs
- Load-balanced sets: Applied to subnet(s) specifying routing rules
- Network Security groups: Specifies inbound/outbound access policies for VMs
- IP addressing: Instance level PIP, VIP, Reserved Private IP
- Virtual Network Gateway

<u>When to use Virtual Networks?</u>

- For On-Premises or VNET-to-VNET connectivity
- Your VMs need to communicate directly with each other on private network

RightScale recommends use of Virtual Networks for all use-cases

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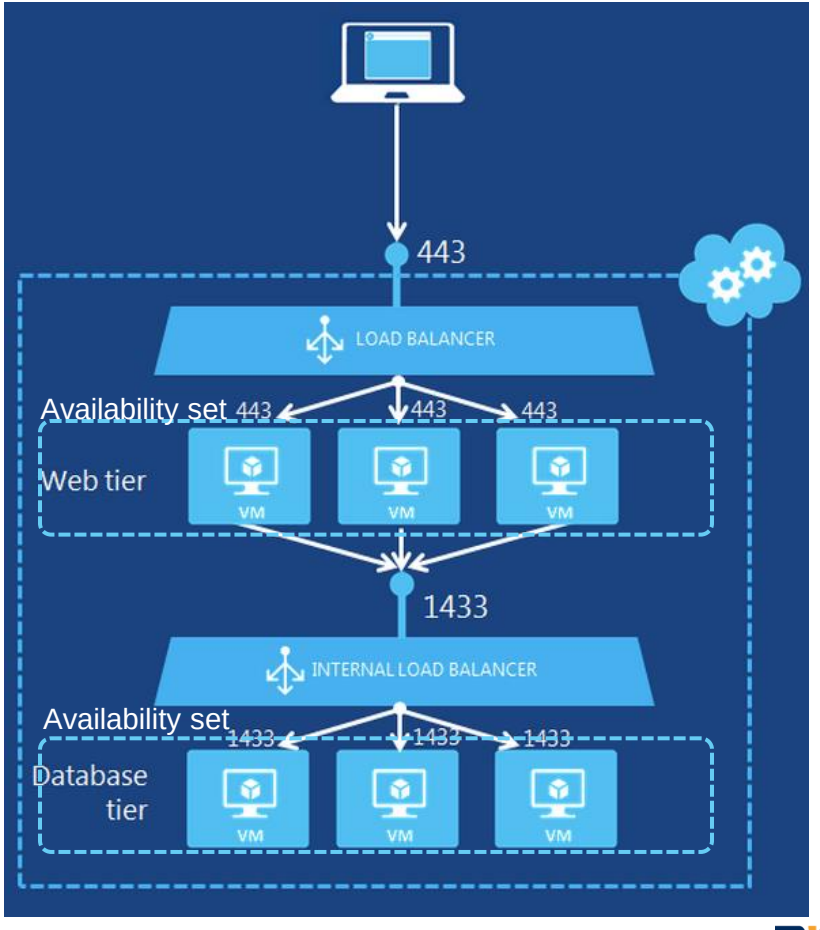
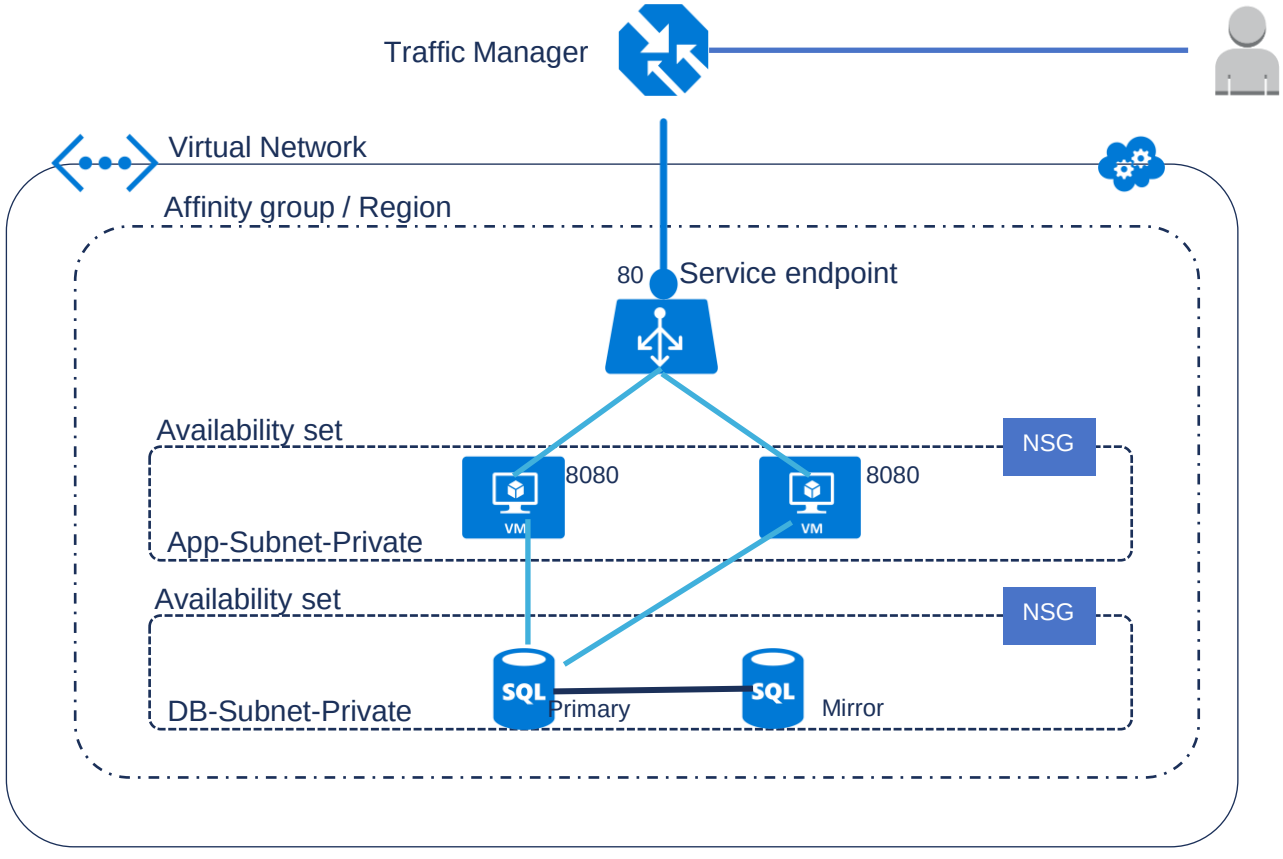
Anatomy of Azure Virtual Networks



Steps to Create an N-Tier Architecture

- Create a Virtual Network
- Define Availability Sets
- Create one or more Subnets
- Launch VMs in these Subnets + Availability sets
- Define Endpoints for public access
- Create Load-balanced sets for VMs in various tiers and assign them to endpoints
- Create Traffic Manager profile for geo-distributed workloads

Azure: Highly-Available 3-Tier application



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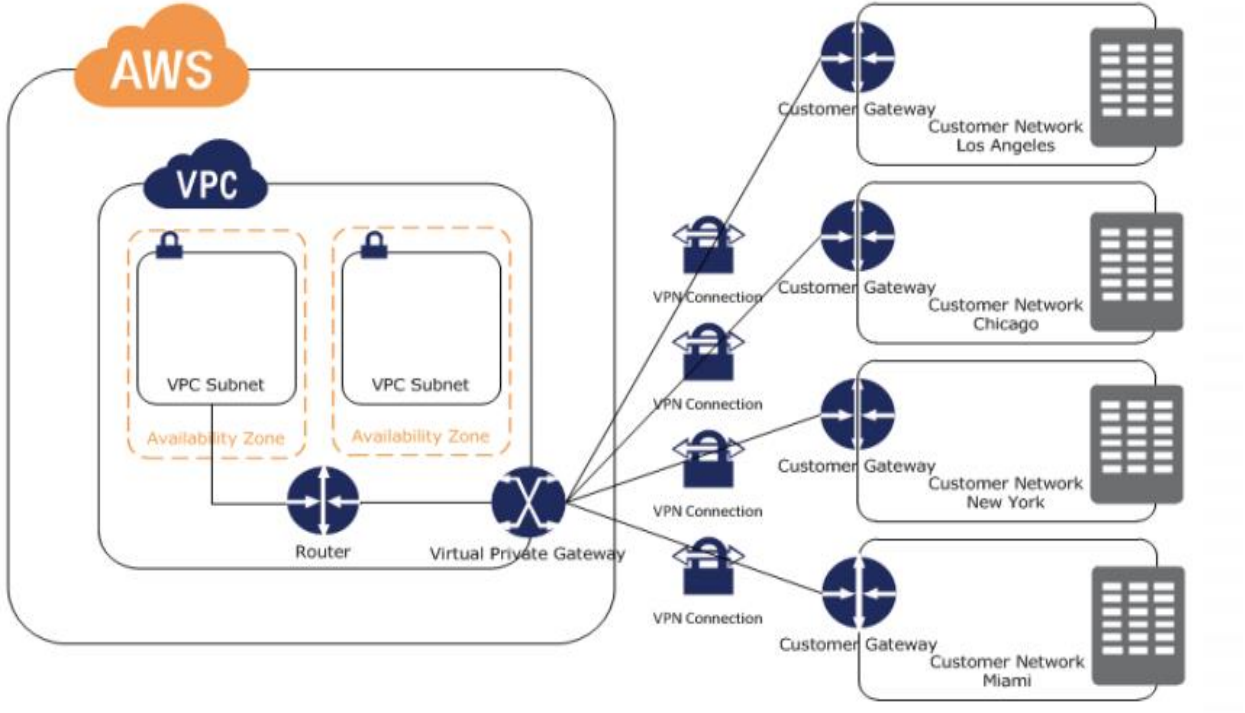
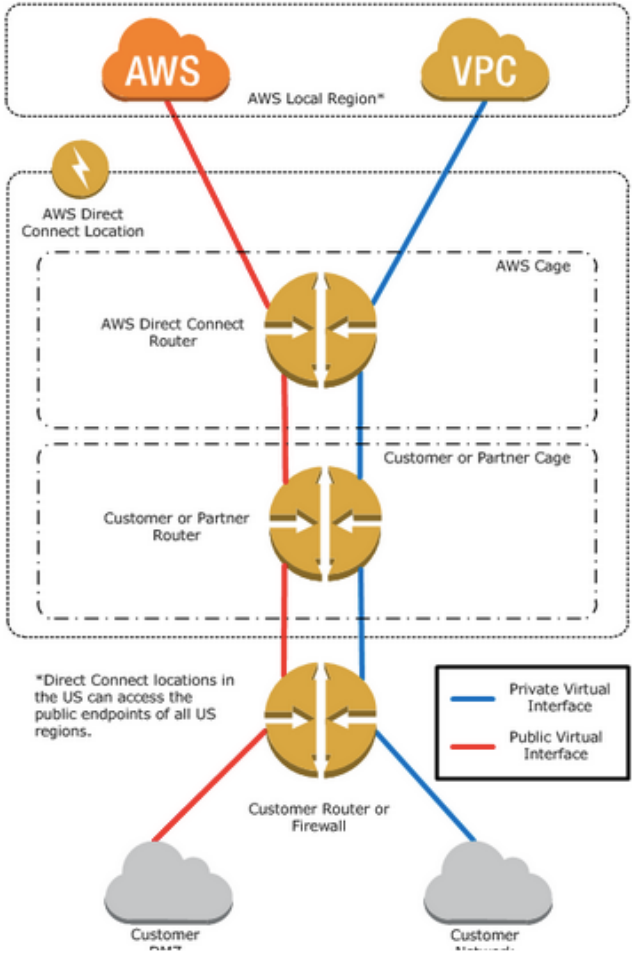
Integration to On-Premises

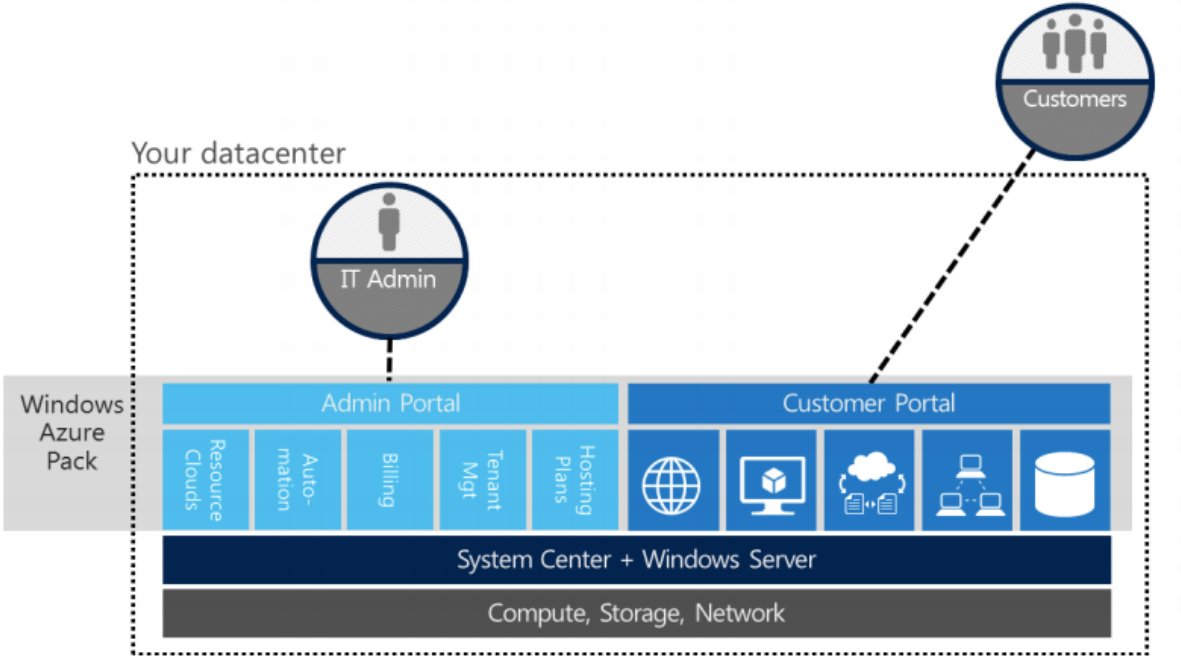
AWS: On-Premises Integration over VPN



AWS Direct Connect: On-Premises Integration



Azure Pack / Cloud Platform System (CPS)



- Benefits
- Azure compatible on-premises cloud
- Portability to Azure public cloud
- Ease of connectivity to public

- Who should use it?
- MSFT System Center users managing Hyper-V fleet

- CPS is all-integrated hardware-based solution

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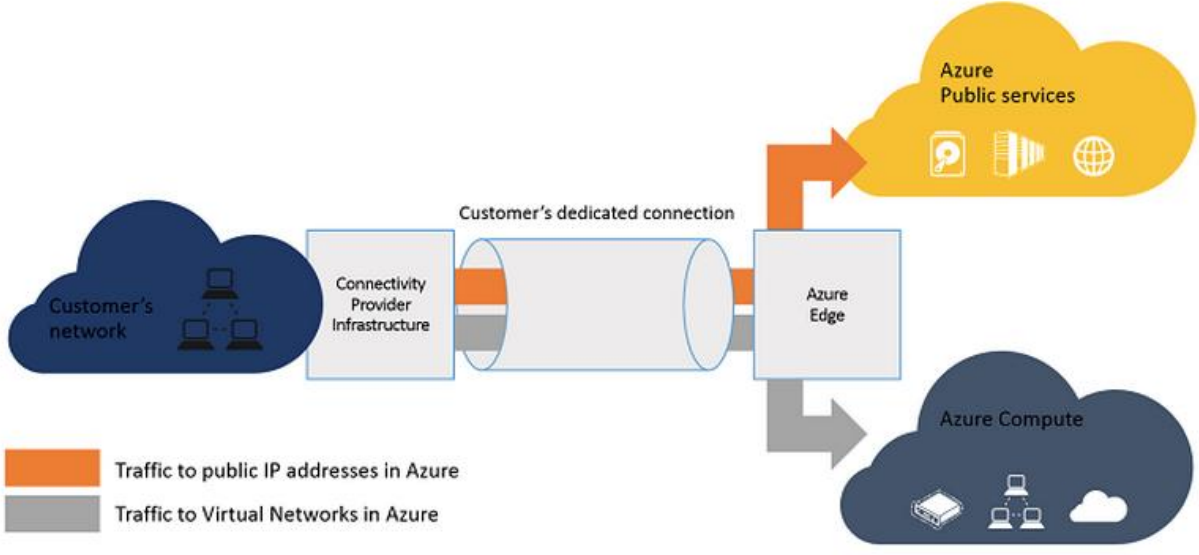
Azure ExpressRoute: On-Premises Integration



Connect On-Prem or Co-Lo to Azure public cloud

Does not go over public Internet

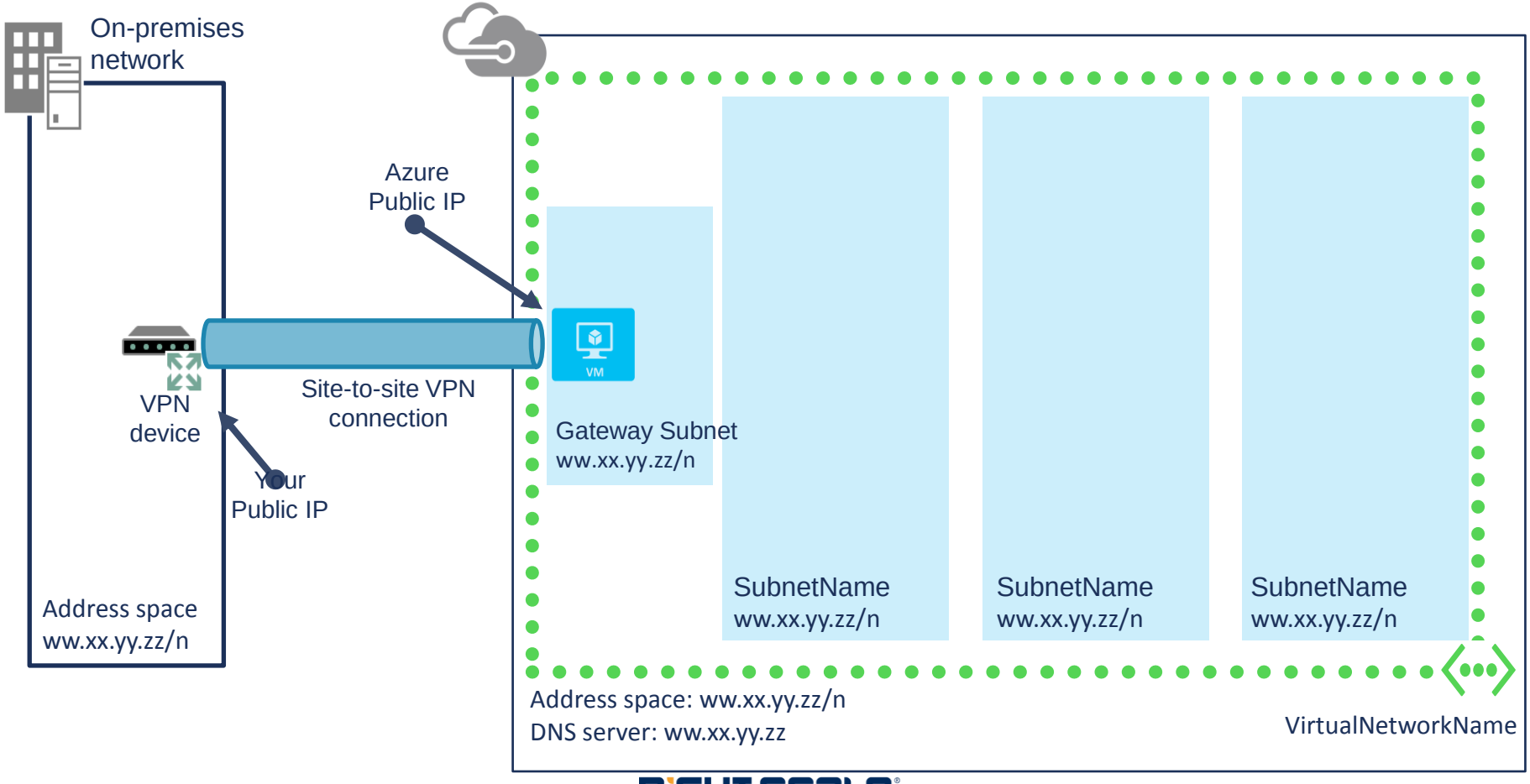
Better security, speed

SLA is 99.9%

Network Service Providers can offer up to 1Gbps

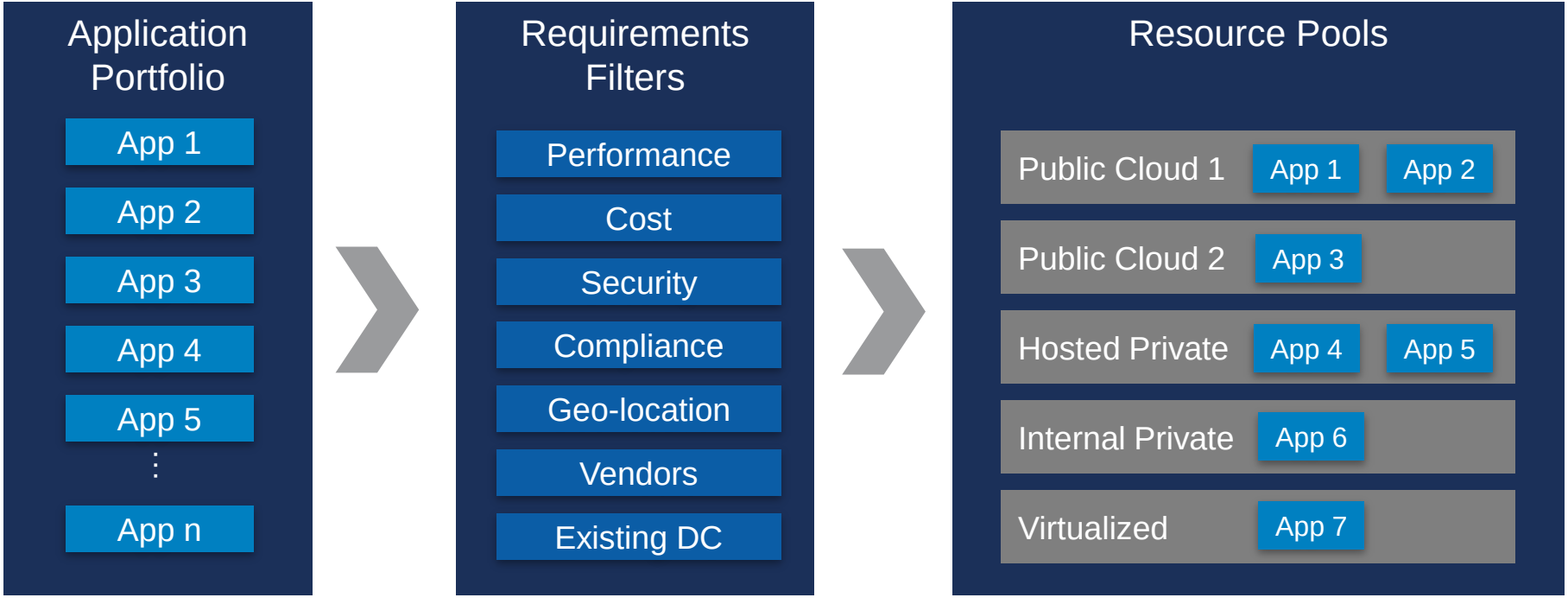
Exchange Service Providers can offer up to 10Gbps

Azure Site-to-Site

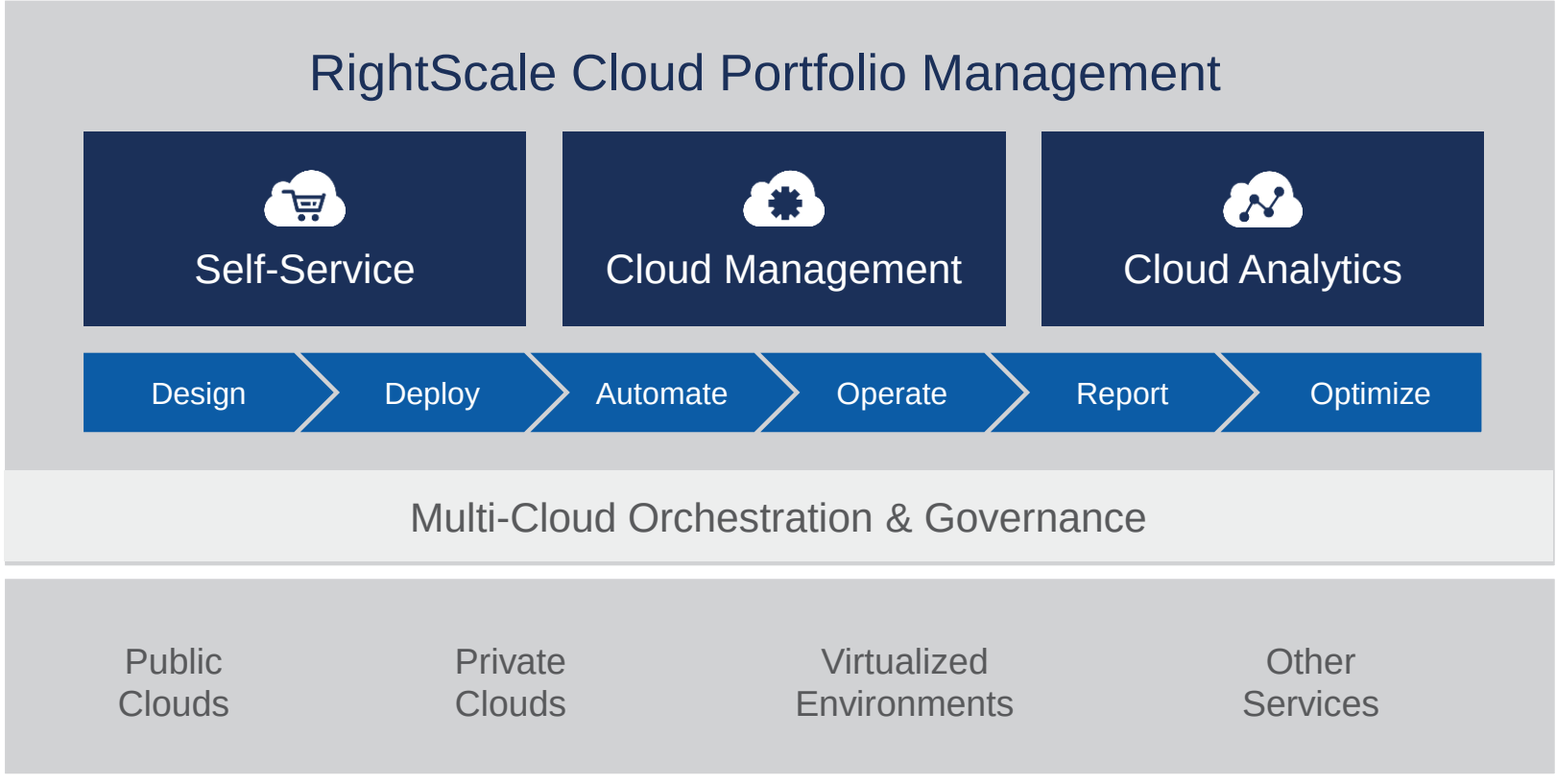


Multi-Cloud Management

Match Application Requirements to Clouds

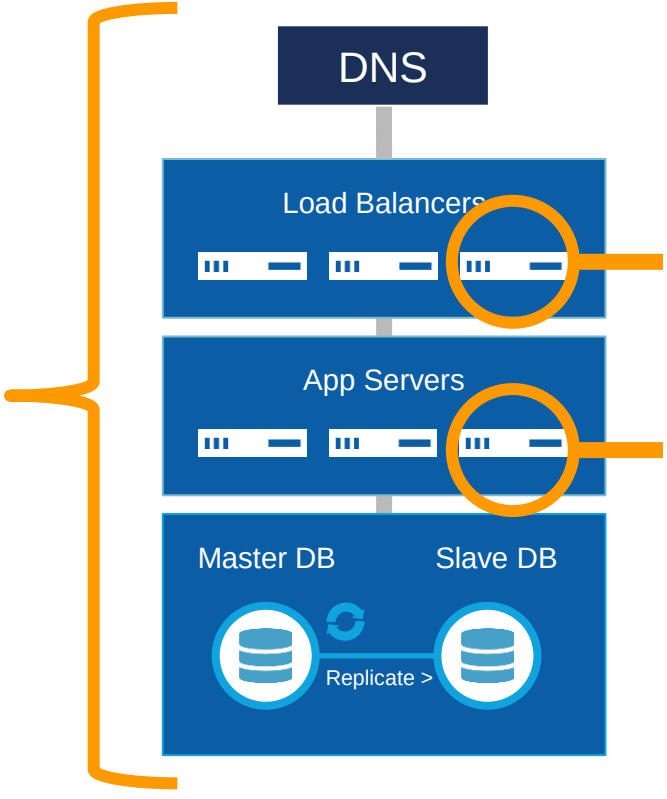


Broker Cloud Services with RightScale



Configuring Complete Cloud Systems

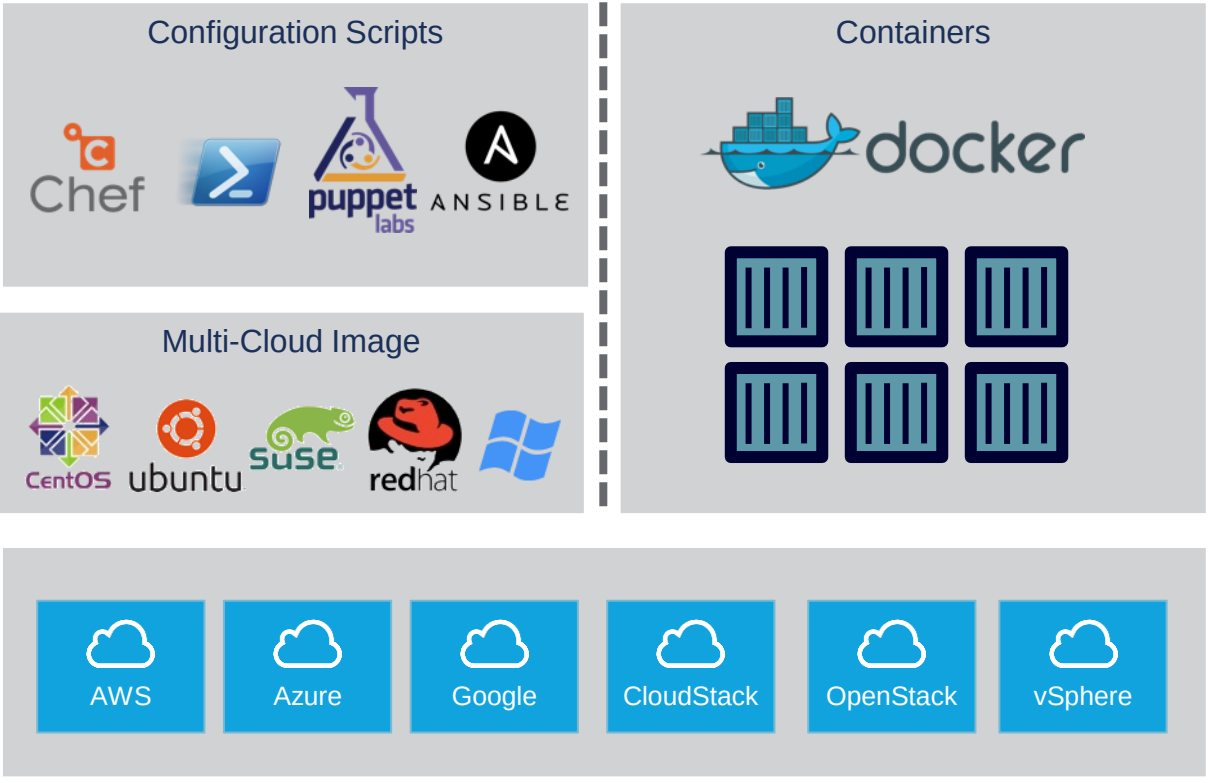
Configure a system:
Cloud Application Template (CAT)



Configure a server:

- ServerTemplates *(portable)*
- Docker container *(portable)*
- AMI
- CF
- VM template

Configuring Servers for Portability



Q&A

- Definitive Guide to Cloud Portfolio Management
  - www.rightscale.com/cloud-portfolio-management-guide

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