

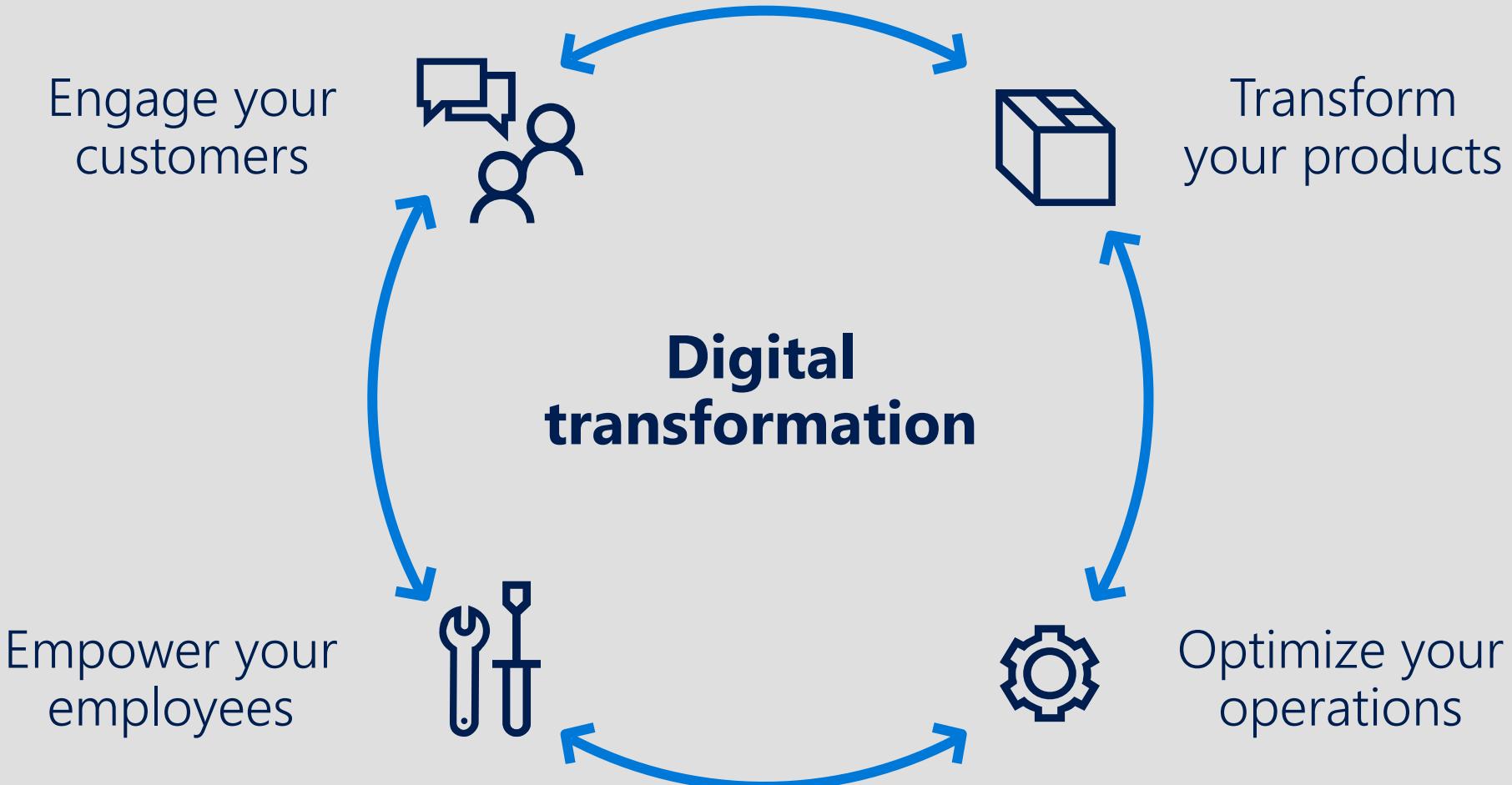
The background image is a wide-angle aerial photograph of a city skyline during either sunrise or sunset. The sky is filled with warm, golden-orange hues on the left, transitioning to cooler blues and purples on the right. Numerous skyscrapers of various heights are scattered across the landscape, with some buildings appearing darker due to the lighting. In the foreground, there are lower buildings, some with flat roofs and others with more complex architectural details. A few construction cranes are visible on the right side, indicating ongoing development. The overall atmosphere is one of a bustling urban environment.

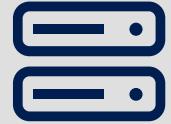
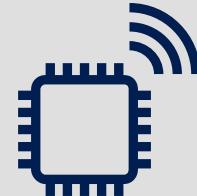
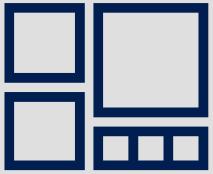
Microsoft Azure

**The cloud platform for
digital transformation**

Kenneth Teo
Premier Field Engineer

Microsoft





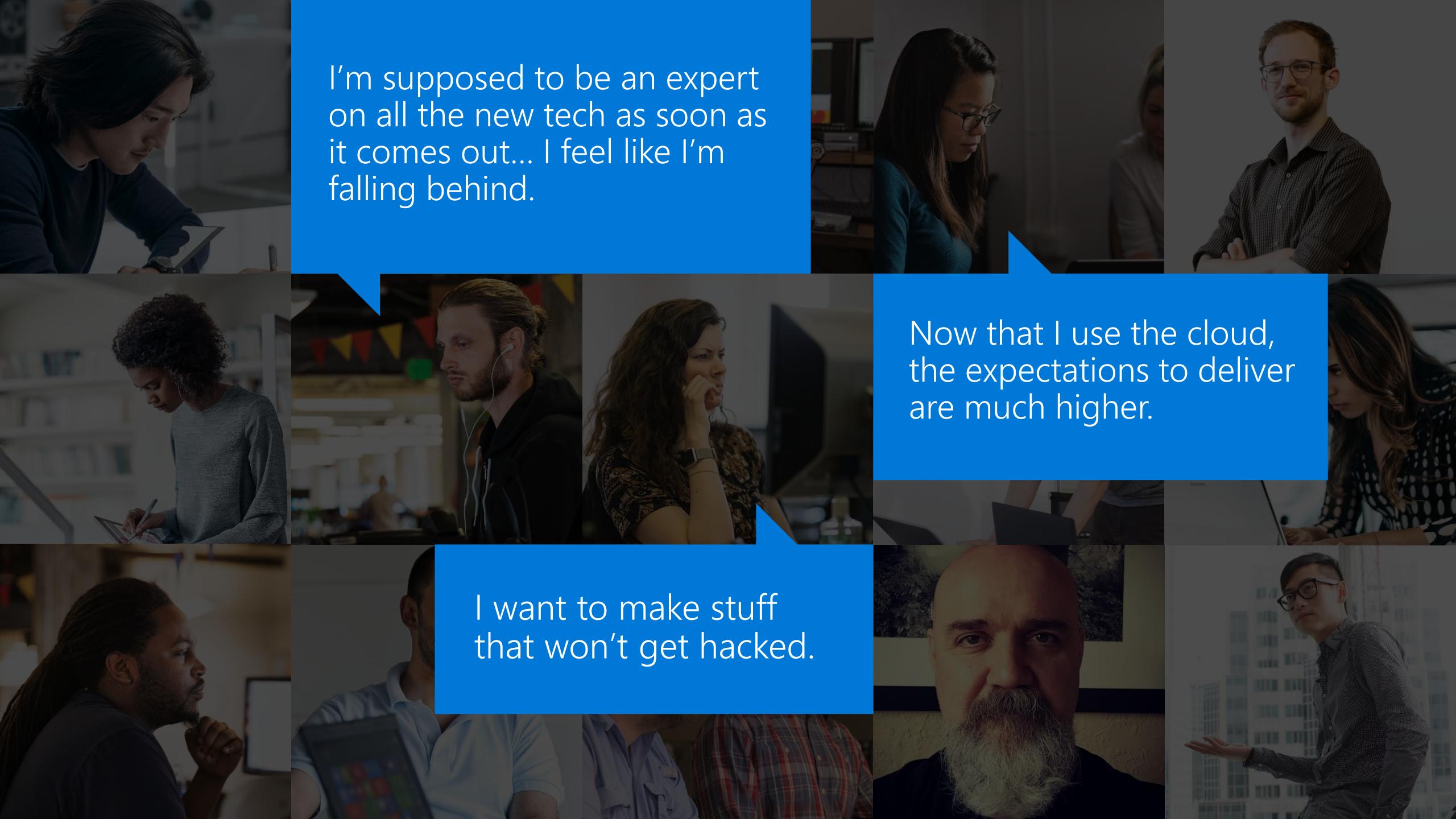
Going digital

1 million/hour
new devices coming
online by 2020

12 years average
age of S&P 500
corporations by 2020

60% computing
in the public cloud
by 2025





I'm supposed to be an expert
on all the new tech as soon as
it comes out... I feel like I'm
falling behind.

Now that I use the cloud,
the expectations to deliver
are much higher.

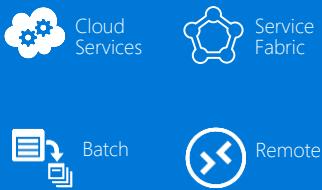
I want to make stuff
that won't get hacked.

Security & Management

-  Portal
-  Azure Active Directory
-  Multi-Factor Authentication
-  Automation
-  Key Vault
-  Store / Marketplace
-  VM Image Gallery & VM Depot

Platform Services

Compute



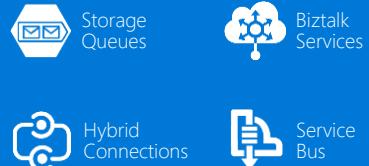
Web and Mobile



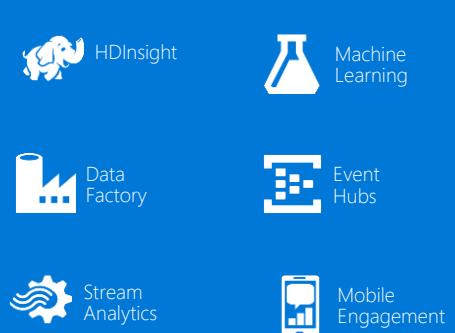
Developer Services



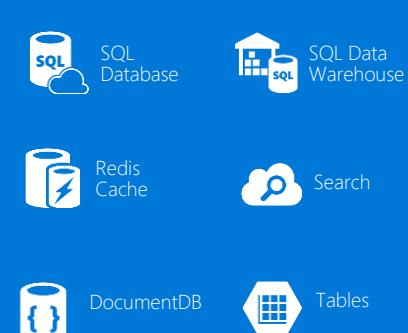
Integration



Analytics & IoT



Data



Media & CDN



Hybrid Operations

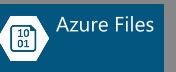
-  Azure AD Connect Health
-  Azure AD Privileged Identity Management
-  Backup
-  Operational Insights
-  Import/Export
-  Site Recovery
-  StorSimple

Infrastructure Services

Compute

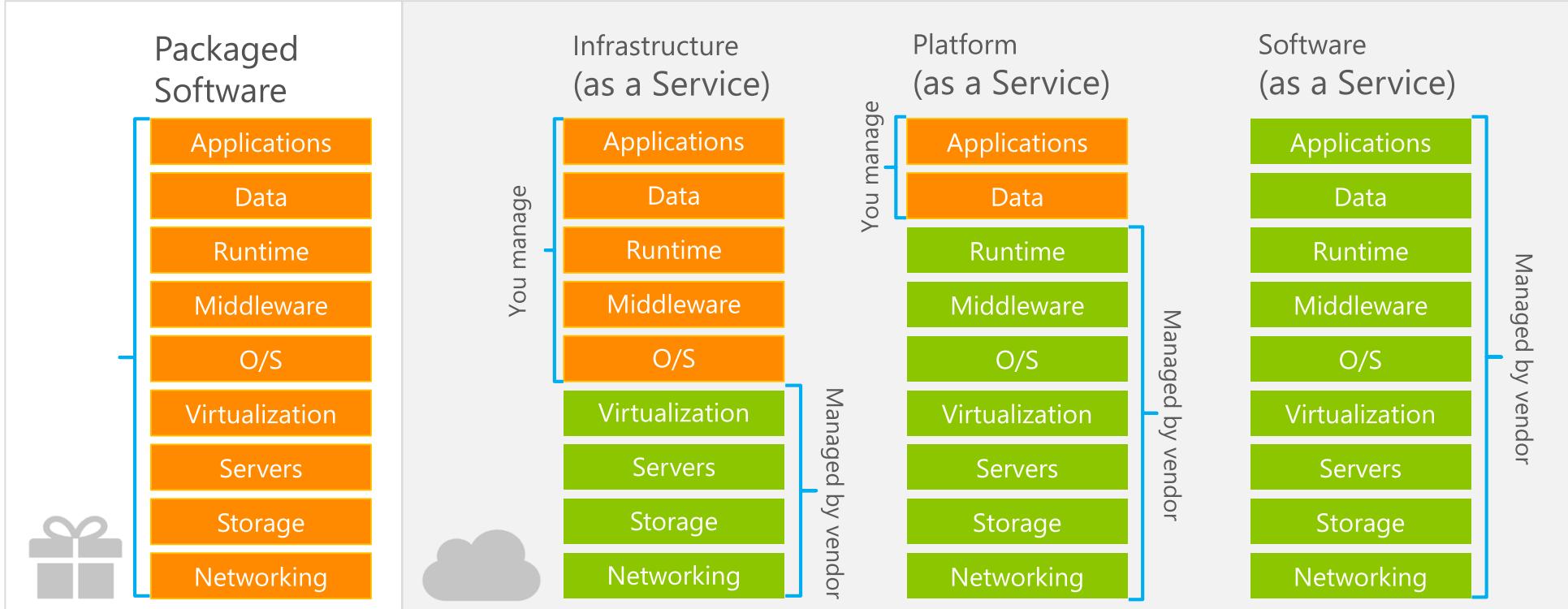


Storage



Networking



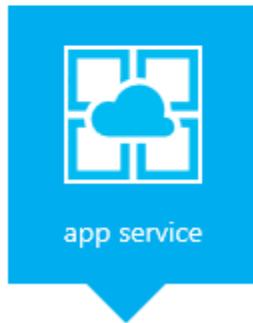


Estimating Cloud Costs

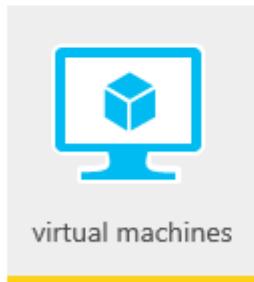
No up-front costs. Pay only for what you use.



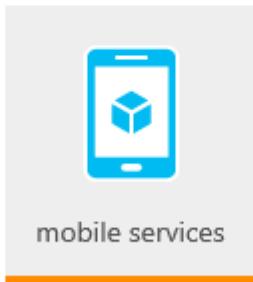
Note: Prices on the calculator do not include variations by region. To see prices for a specific region, please go to the individual service [pricing pages](#) and select the region.



app service



virtual machines



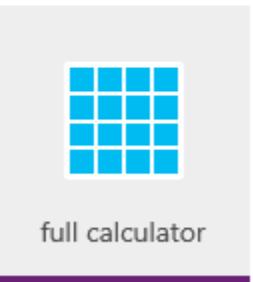
mobile services



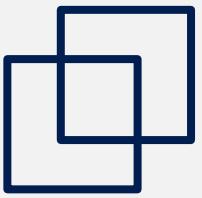
cloud services



data management



full calculator



Hybrid



Productive

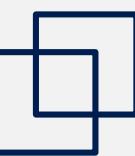


Intelligent



Trusted

Microsoft Azure



Hybrid



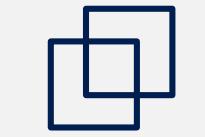
Productive



Intelligent



Trusted



Hybrid



Productive



Intelligent



Trusted

Azure Active
Directory



Common
Identity



Active
Directory

Azure
Data Services



Data
Platform



SQL
Server

Azure
Services



Unified
Development



Azure
Stack

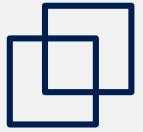
Azure Security
& Management



Security &
Management



On-premises
Infrastructure



Hybrid



Productive



Intelligent



Trusted

Azure Stack: an extension of Azure



At the edge and
disconnected



Meet every regulatory
requirement



Cloud application
model on-premises



Hybrid



Productive



Intelligent

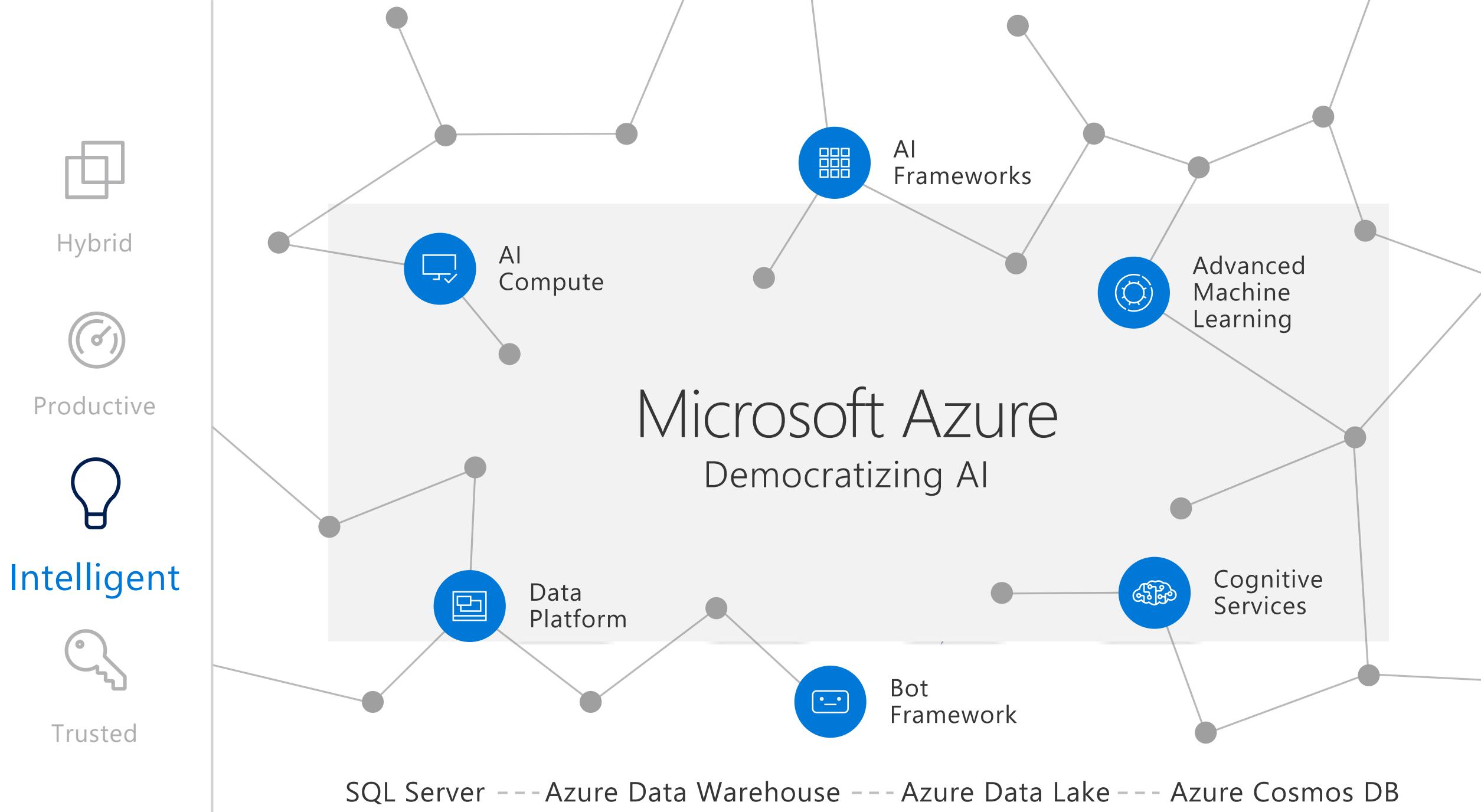


Trusted



Visual Studio + Microsoft Azure







Hybrid



Productive



Intelligent



Trusted



ISO 27018



ISO 27001



ITAR



Cloud Controls Matrix



FedRAMP



DISA Level 2



CJIS



HIPAA/HITECH



EU Safe Harbor



European Union
Model Clauses

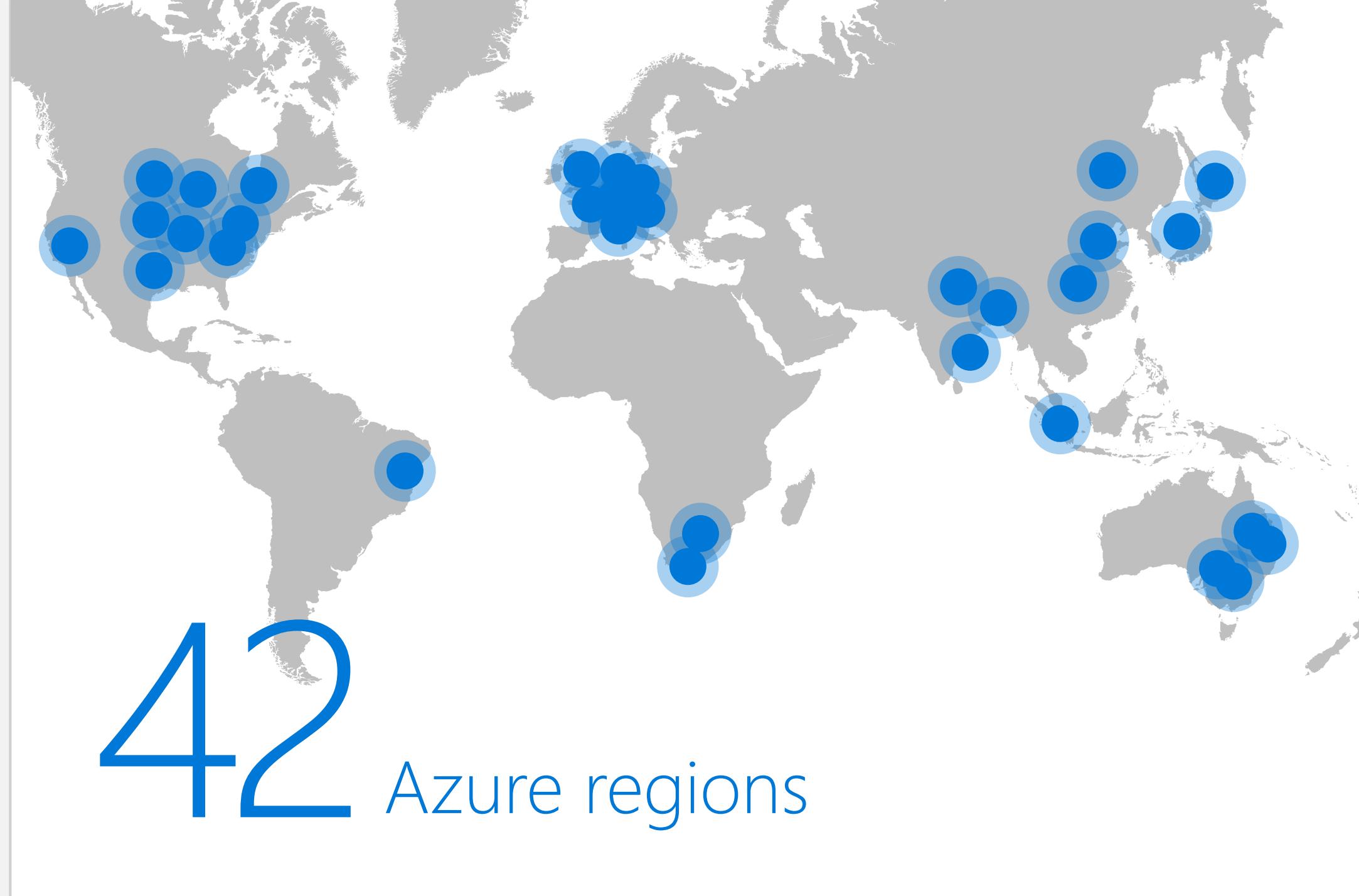


United Kingdom
G-Cloud



China Multi-Layer
Protection Scheme

-  Hybrid
-  Productive
-  Intelligent
-  Trusted





Hybrid



Productive



Intelligent

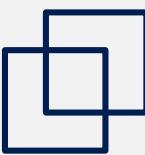


Trusted

Microsoft.com/datacenter

The Microsoft Global Datacenters page on a browser. The URL in the address bar is microsoft.com/en-us/cloud-platform/global-datacenters. The page features a dark header with the Microsoft logo and navigation links for Cloud platform, Products, Solutions, Support, Partner, and About. The main content area has a heading "Microsoft global datacenters" and a sub-section titled "Move your datacenter to a cloud you can trust". It includes a callout about moving to a reliable and scalable infrastructure without sacrificing security or compliance needs, mentioning over 200 services across 100+ datacenters worldwide. A "Watch video" button is present. Below this is a large image of a server room. A section titled "WHY GLOBAL DATACENTERS FROM MICROSOFT" lists three pillars: Trust, Global, and Innovation. Each pillar has a corresponding icon (a building, a cloud with a checkmark, and a lightbulb). Descriptions for each include: Trust (relying on security and privacy policies based on industry-leading standards), Global (choosing a deployment option tailored to business, compliance, and global needs), and Innovation (benefiting from investments in research, partnerships, and unique approaches to global infrastructure). A "Download the fact sheet" button is located at the bottom right.

Microsoft Azure



Hybrid



Productive



Intelligent



Trusted

Microsoft Azure

TOOLS

Visual Studio + Visual Studio Code + Visual Studio Team Services

ADVANCED WORKLOADS

Web + Mobile

Internet of Things

Microservices

Serverless

Identity Management

Data + Analytics

Cognitive Services

High Performance Compute

CORE INFRASTRUCTURE

Compute Storage Networking Security

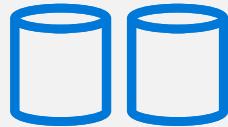
Core infrastructure

Leverage a secure and well-managed infrastructure



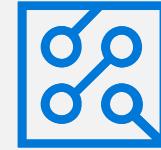
Compute

Virtual machines
Availability zones
VM scale sets



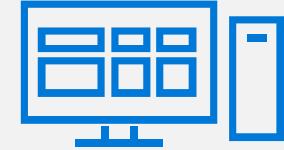
Storage

Disks
Blob storage
Files



Networking

Virtual networks
VPN, ExpressRoute
Load Balancer
DNS, Traffic Manager



Management

Log analytics
Backup
Site Recovery
Security Center

RECENT ANNOUNCEMENTS

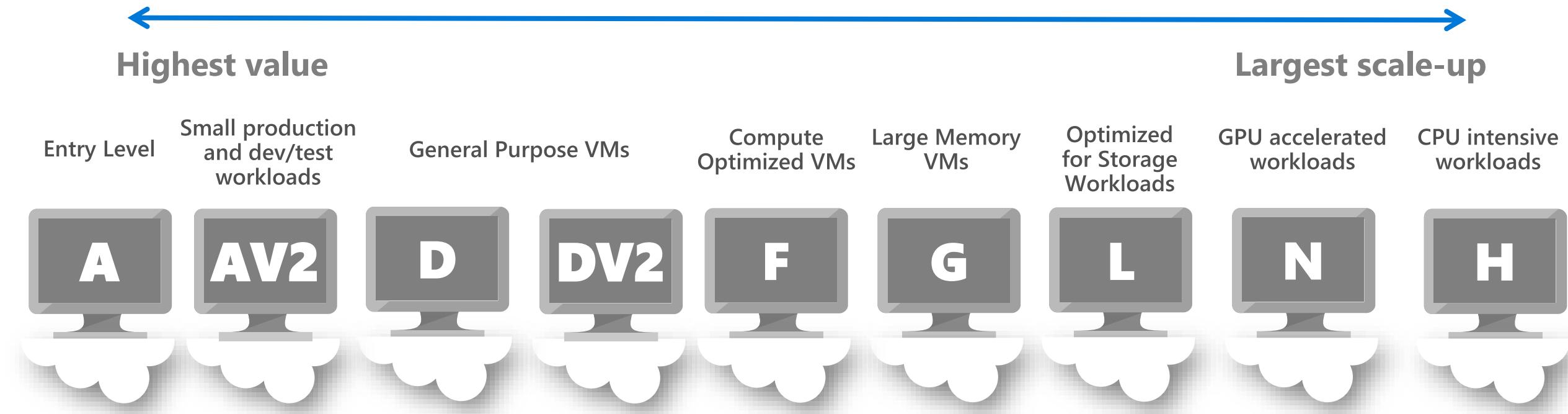
Azure Site Recovery now supports Managed Disks

Increased disk size to 4TB on Azure VM's

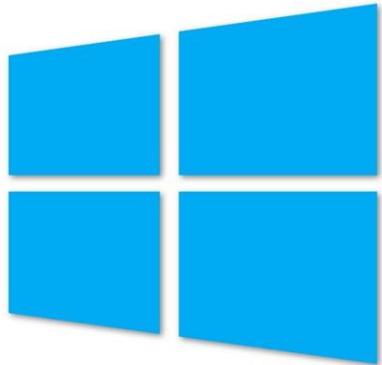
Public preview of disaster recovery for IAAS VM's

Azure Compute

VM Series and Scale-up options



Marketplace Images Available



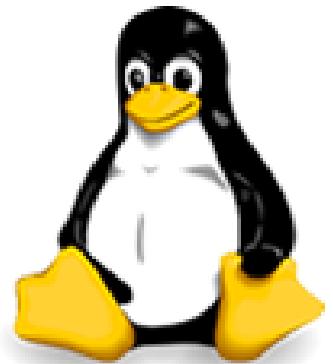
Microsoft

- Windows Server 2008 R2 / 2012 / 2016
- SQL Server 2012 / 2014 / 2016
- BizTalk Server 2013 / 2016
- SharePoint Server 2013
- Visual Studio 2013 / 2015

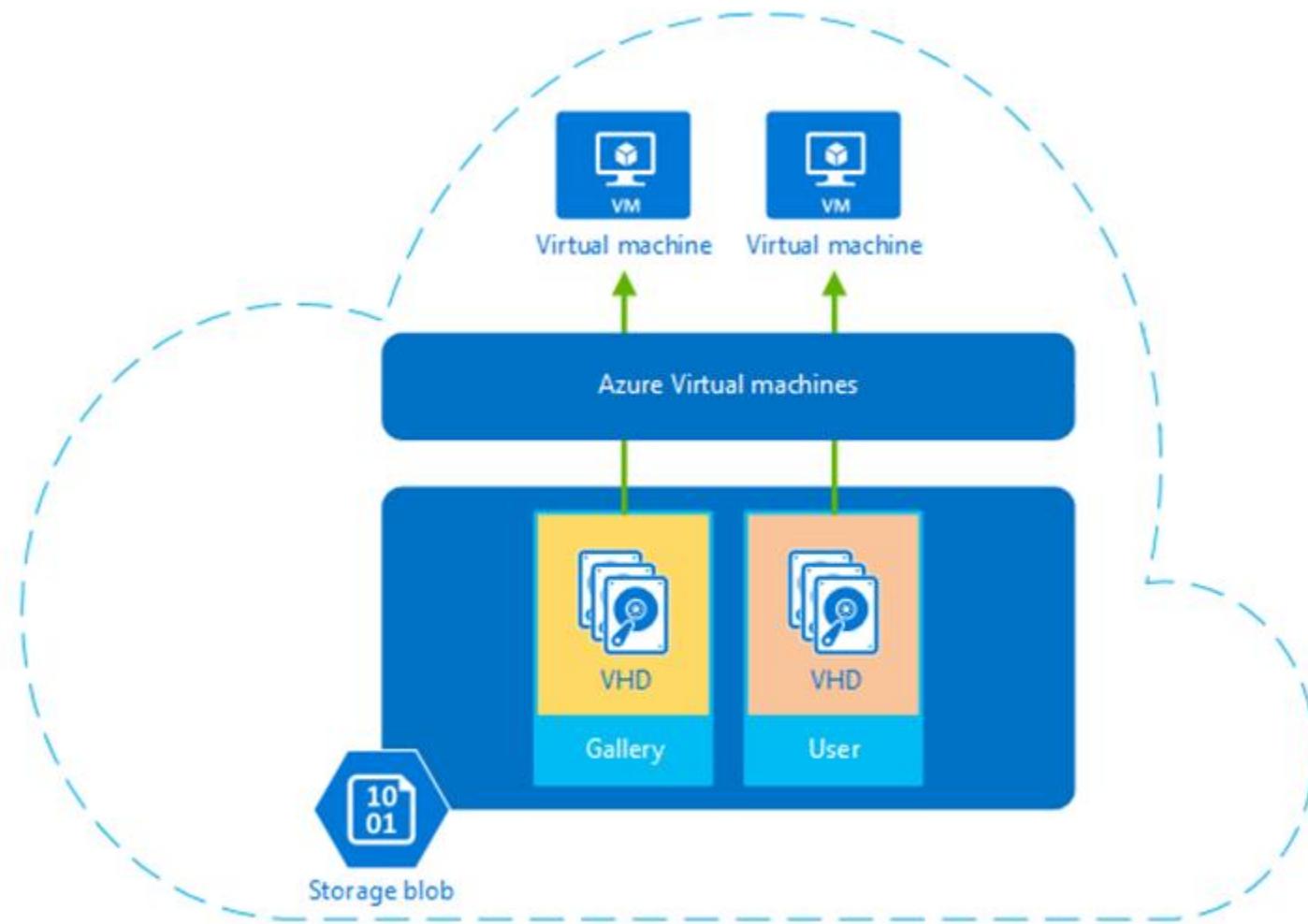


Open Source

- OpenSUSE 13.2
- CentOS 6.5 – 7.2
- Ubuntu 12.04/ Ubuntu 14.04 LTS
- SUSE Linux Enterprise Server 11 / 12
- Red Hat Enterprise Linux



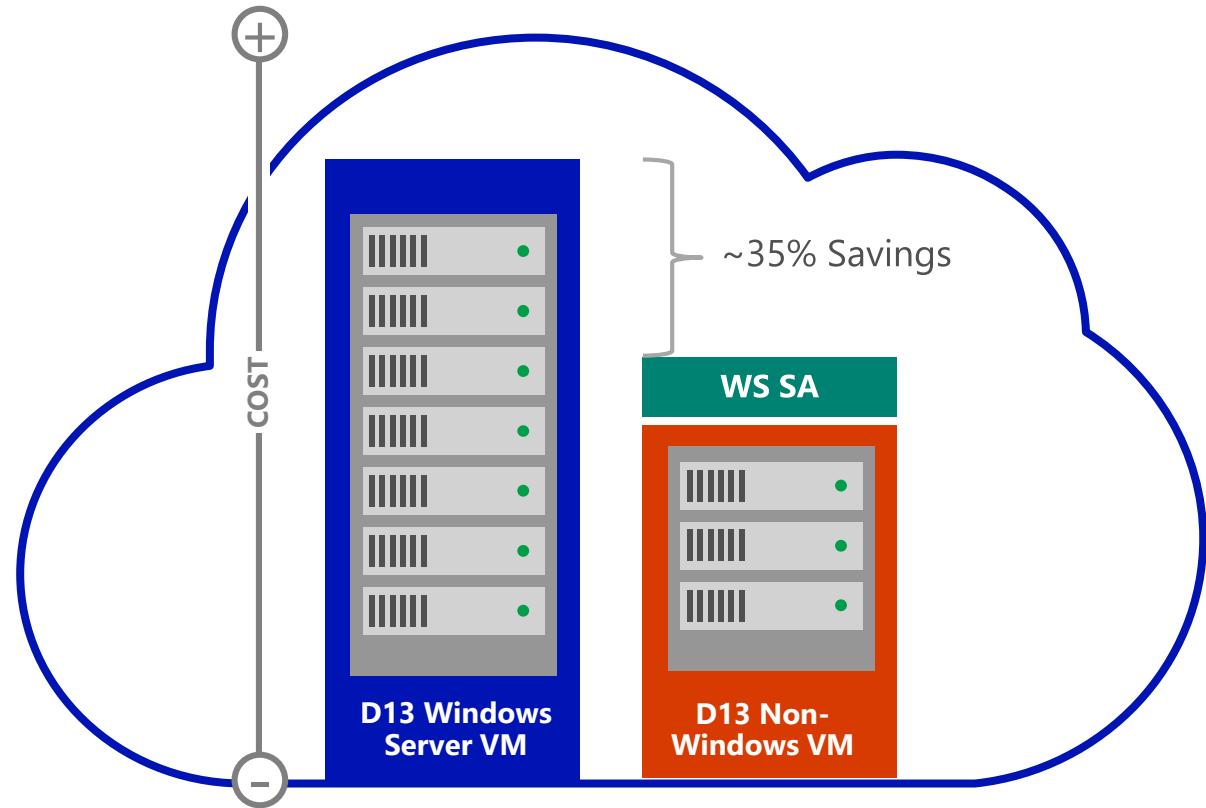
Bring Your Own Server/VHD



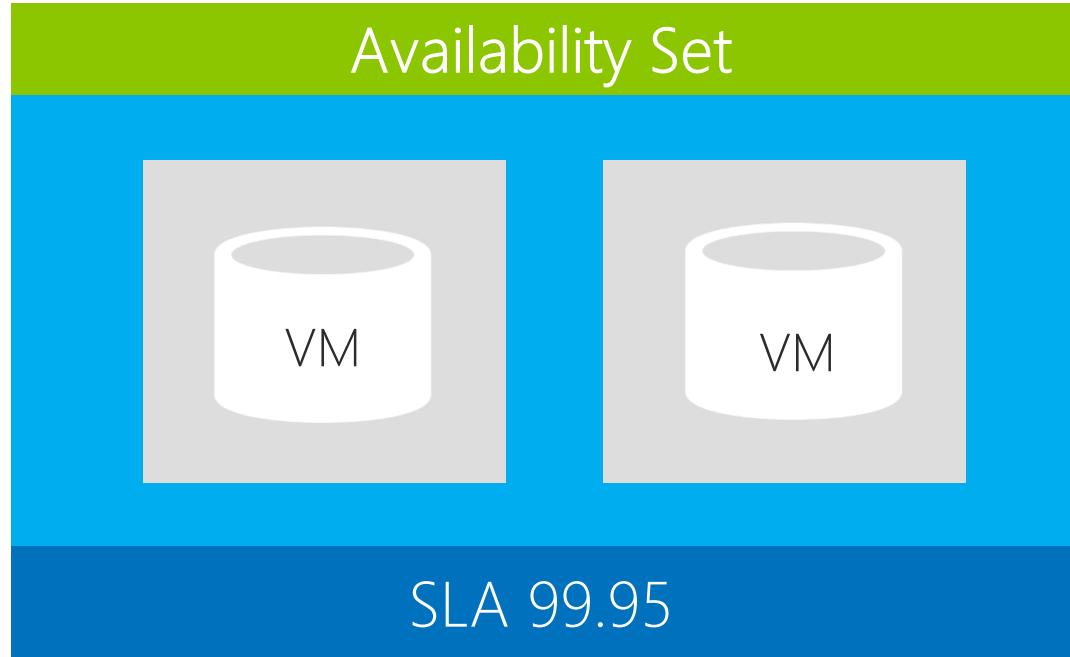
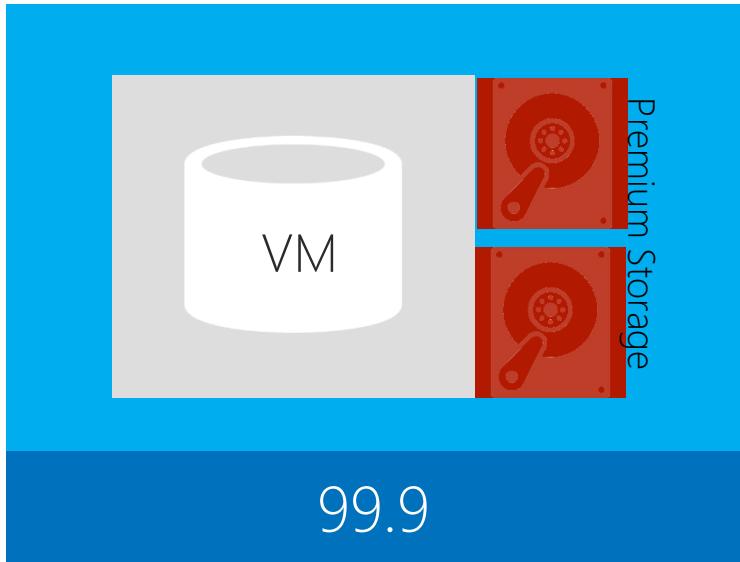
Azure Hybrid Use Benefit

- What is the feature?
- Software Assurance customers
- Only pay for the core infrastructure (similar to Linux rate).
- For each Windows Server 2 processor license with Software Assurance, customers may run two virtual machines up to 8 cores each or one virtual machine up to 16 cores, at the lower price point.

- Estimated Availability: February CY2016



VM Availability Sets and Service Level Agreements (SLA)



Azure Storage

Azure Storage Services

IaaS



Storage



Virtual
machines



Networking

PaaS



Existing
frameworks



Web
and mobile



Microservices



Serverless
Compute

Disks

Persistent disks for Azure IaaS VMs

Premium Storage Disks option: SSD based, high IOPS, low latency

Files

Fully Managed File Shares in the Cloud

SMB and REST access
“Lift and shift” legacy apps

Objects

Highly scalable, REST based cloud object store

Block Blobs: Sequential file I/O

Cool Tier Available

Page Blobs: Random-write pattern data
Append Blobs

Tables

Massive auto-scaling NoSQL store

Dynamic scaling based on load

Scale to PBs of table data

Fast key/value lookups

Queues

Reliable queues at scale for cloud services

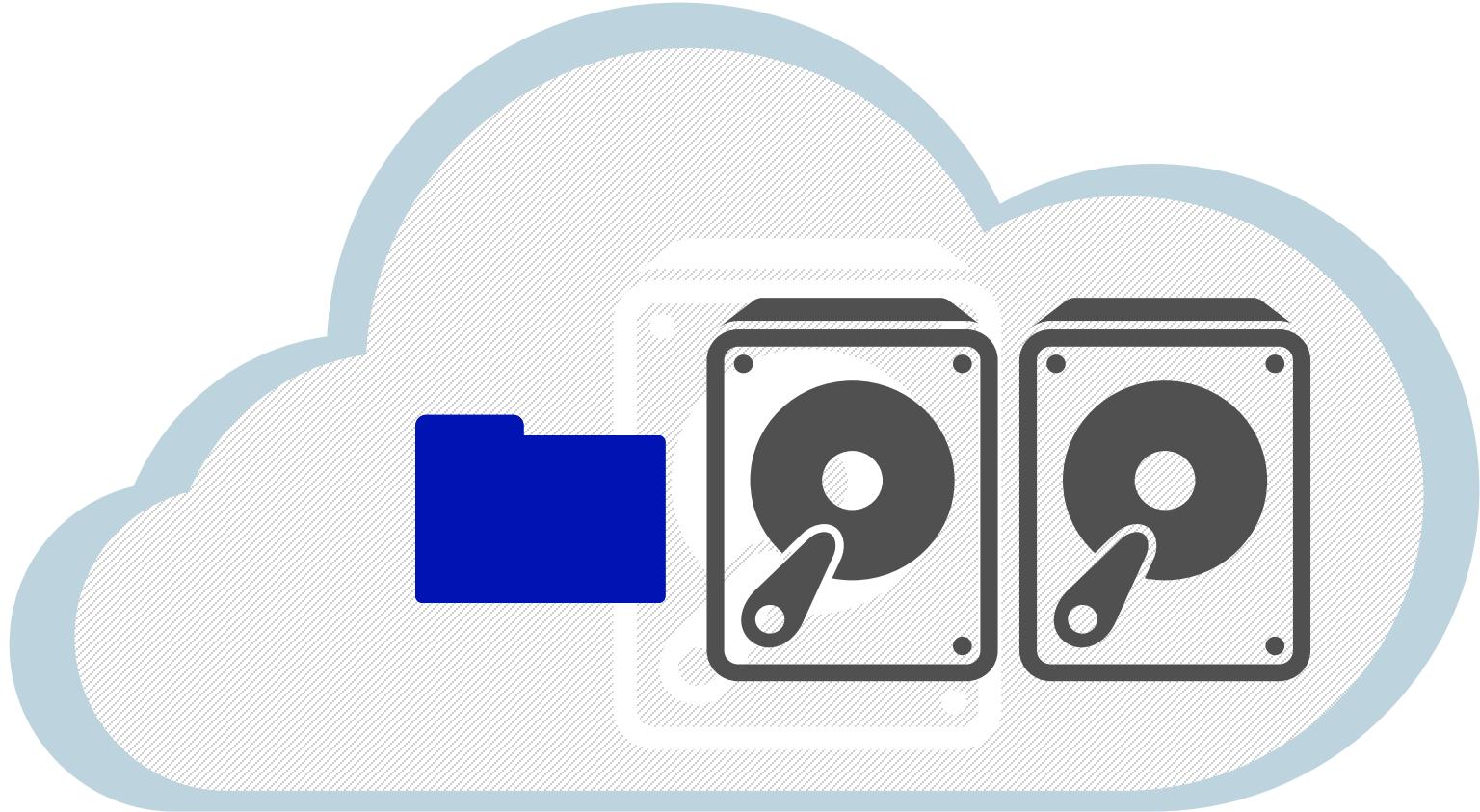
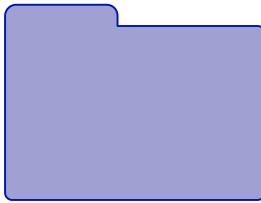
Decouple and scale components
Message visibility
timeout and update message to protect against unreliable dequeuers

Built on a unified Distributed Storage System

Durability, Encryption at Rest, Strongly Consistent Replication, Fault Tolerance, Auto Load-Balancing

Microsoft Azure Storage

- Highly durable and scalable
- Multiple copies of your data
- Financially backed SLAs

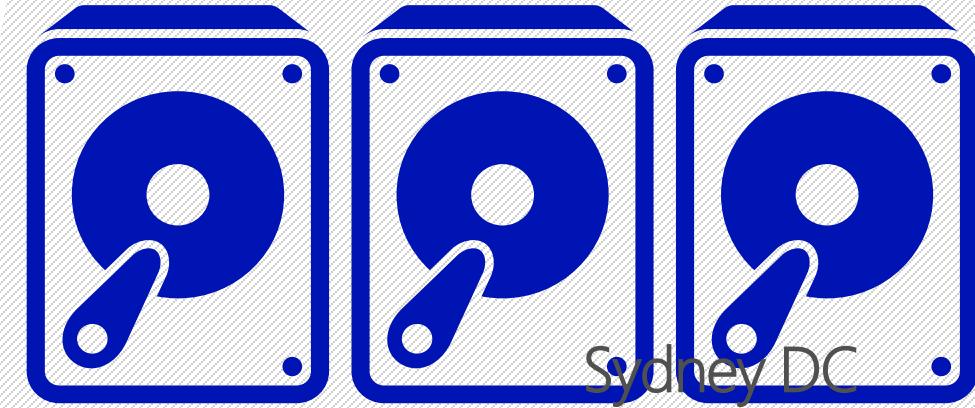


Automatic Storage Redundancy

Windows Azure Storage
Defend against regional disasters



Melbourne DC



Sydney DC

> 600 KM

Geo replication enabled by
default

Managed disks

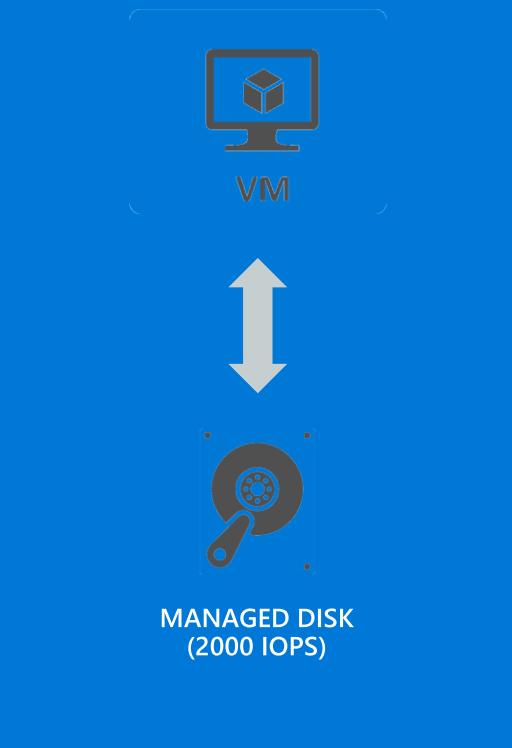
Simplified management for performance & scale

Overview

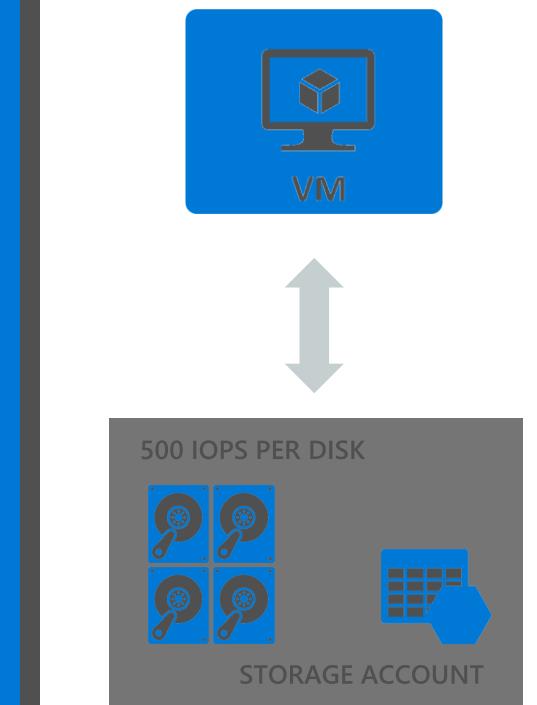
- Admins no longer have to create 'Storage Accounts'
- Integrates with VM Scale sets & Availability sets
- Create time-based backups (snapshots)
- Increased security through RBAC

Generally Available

WHAT THE ADMINISTRATOR SEES



BEHIND THE SCENES



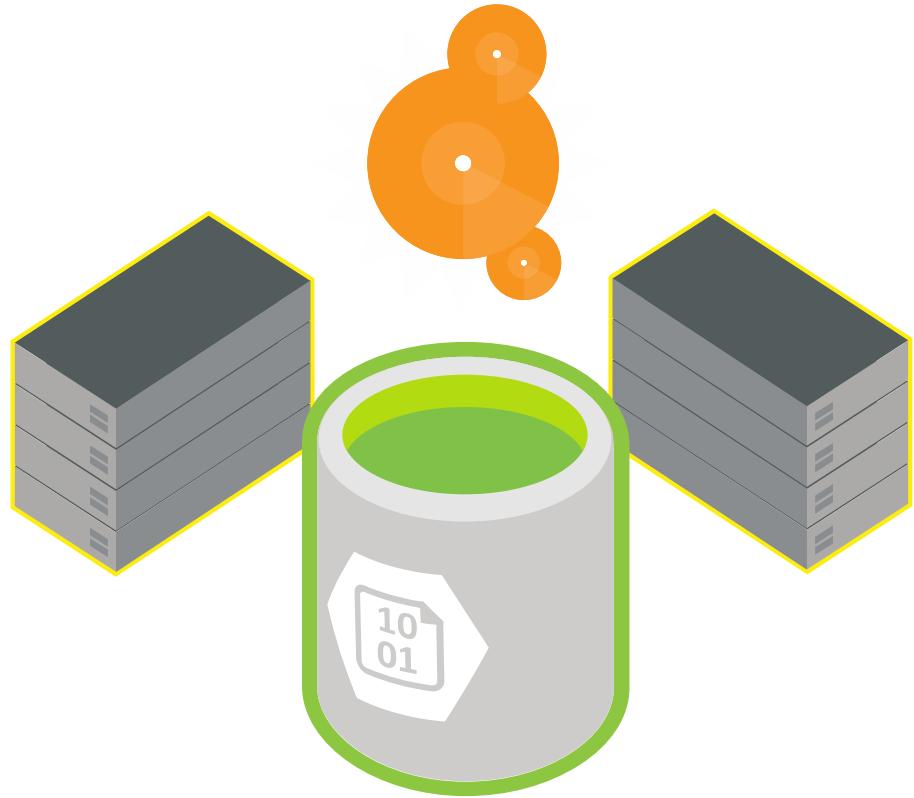
Managed disks

Simple scalability and high resiliency

Overview

- Managed disks honor fault domains within an Availability Set
- Will deploy disks into storage accounts in same fault domain as the VMs for additional physical redundancy





Premium Storage

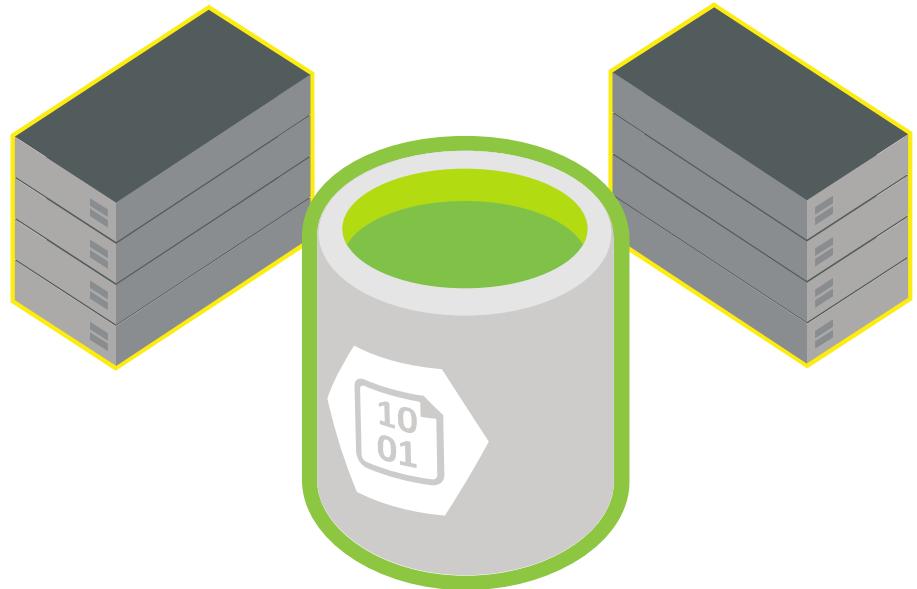
SSD based storage

Add up to 64 TB of storage per VM

Capable of >80,000 IOPS per VM

Less than 1ms read latency

Cool Storage



Generally Available
Low-cost Blob storage
As low as \$0.01 per gigabyte

“Failure is ALWAYS an option.”

Adam Savage, MythBusters

Azure Backup

Protection everywhere

Your data and applications are everywhere—on servers, on clients, and in the cloud. Azure Backup can protect your critical applications including SharePoint, Exchange, SQL, files and folders, Windows Servers, Windows Clients, and Azure IaaS virtual machines.

Alternative to tapes

Traditionally, tape has been used for long-term retention. Azure Backup provides a compelling alternative to tape with increased reliability and agility, significant cost savings, shorter recovery times, and up to 99 years of retention.

Simple and consistent management

Azure Backup aims to provide a simple, consistent management experience delivered directly from the cloud. As an example, you can enable protection in three simple steps: choose the scenario, choose the retention period, and enable backup.

The Backup service is Microsoft's born-in-the-cloud backup solution to backup data located on-premises and in Azure.

It replaces your existing on-premises or offsite backup solution with a reliable, secure, and cost competitive cloud backup solution. It also provides the flexibility of protecting your assets running in the cloud.

You can back up Windows Servers, Windows Clients, Hyper-V VMs, Microsoft workloads, Azure Virtual Machines (Windows and Linux) with its in-built resilience and high SLAs.



Azure Site Recovery

Disaster recovery

Tested and proven disaster recovery solution for a wide range of workloads, including Microsoft workloads such as Exchange, SharePoint, and SQL Server.

Migration

Seamlessly move individual applications or entire heterogeneous environments to Azure with minimal cutover times or business impact.

Dev / Test

Test new versions of applications by quickly spinning up copies of production workloads in Azure, with no impact to production users.

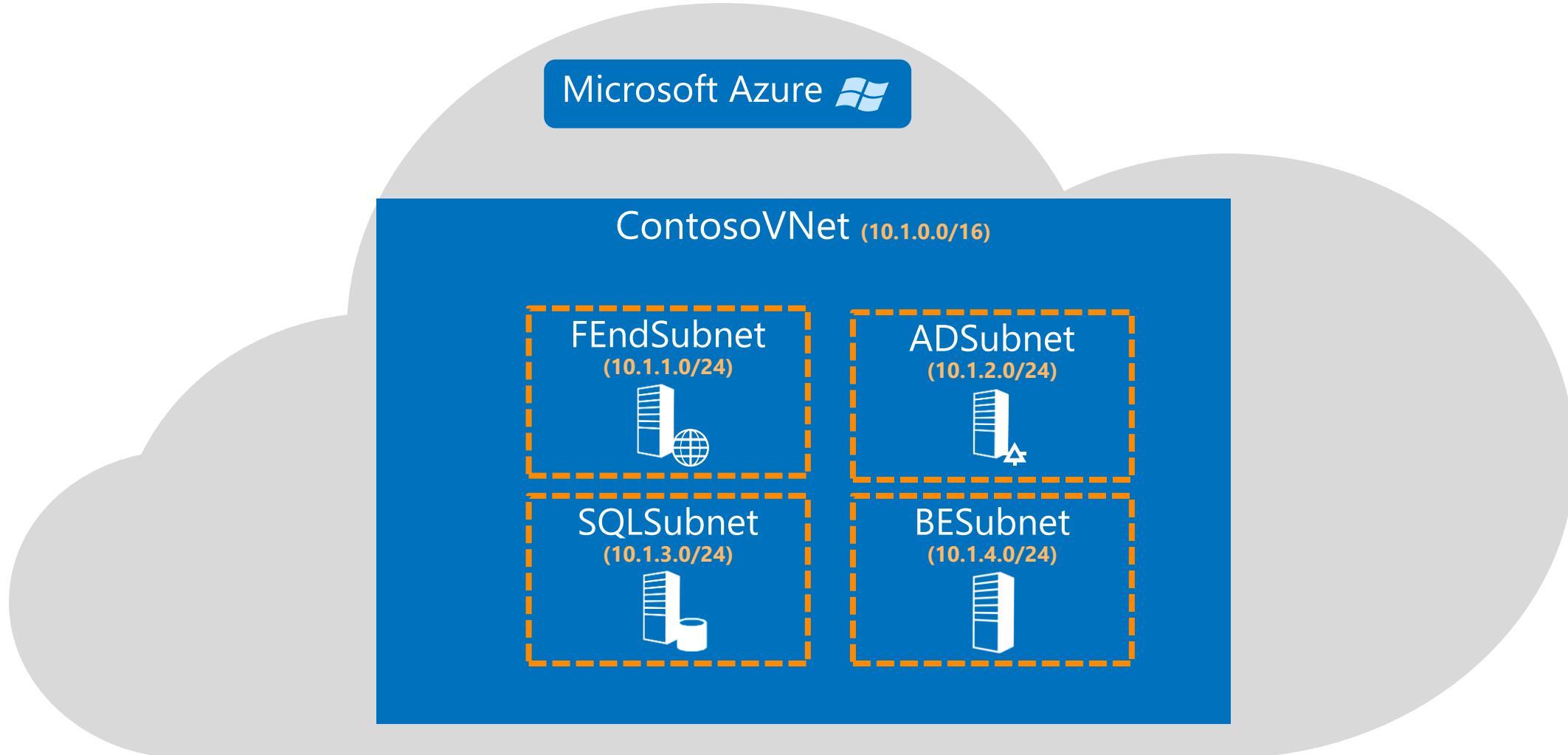
The Site Recovery service ensures your servers, virtual machines, and apps are resilient by replicating them so that when disasters and outages occur you can easily fail over to your replicated environment and continue working.

When services are resumed, you simply failback to your primary location with uninterrupted access. Site Recovery helps protect a wide range of Microsoft and third-party workloads.



Azure Networking

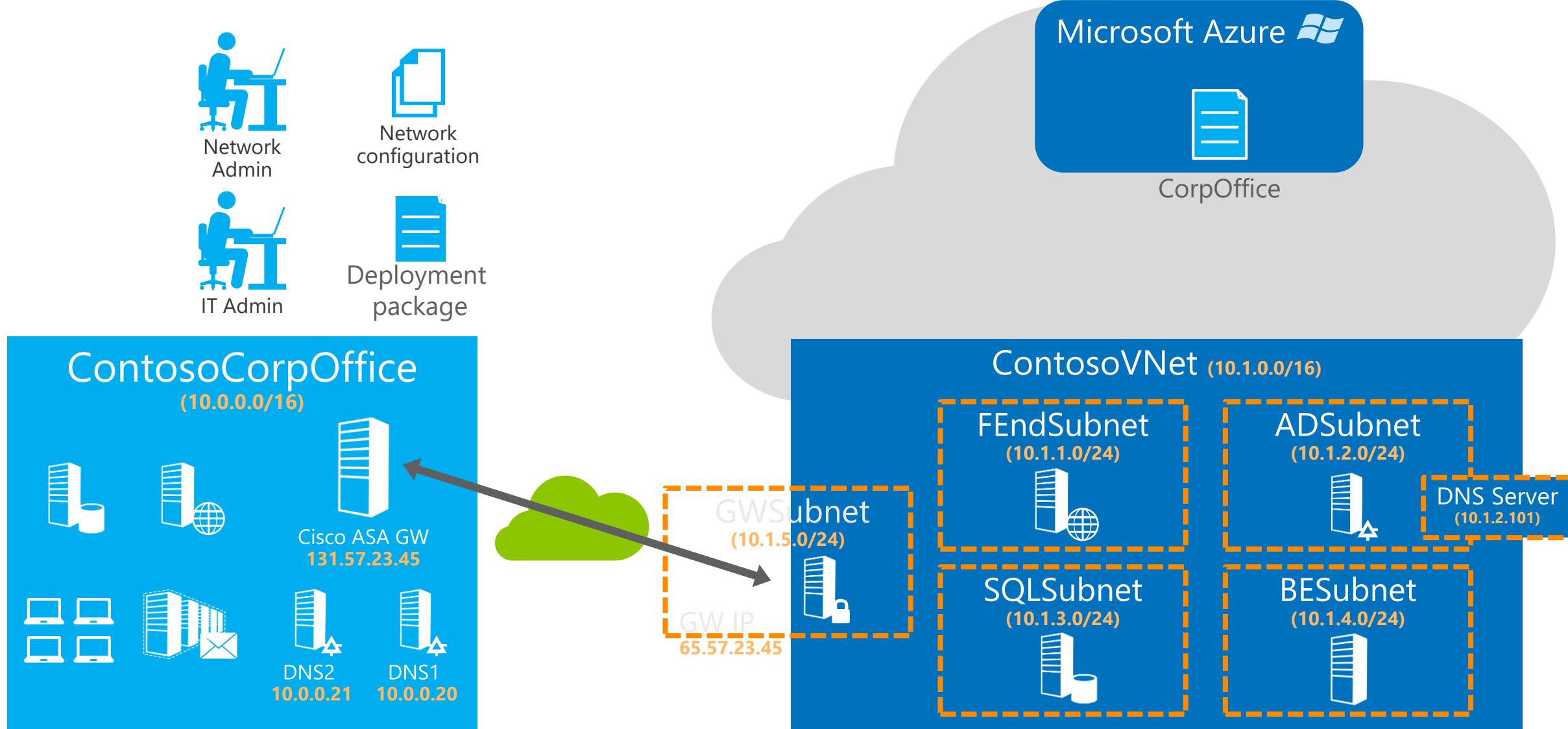
Start Here -> Azure Virtual Networks (VNET)



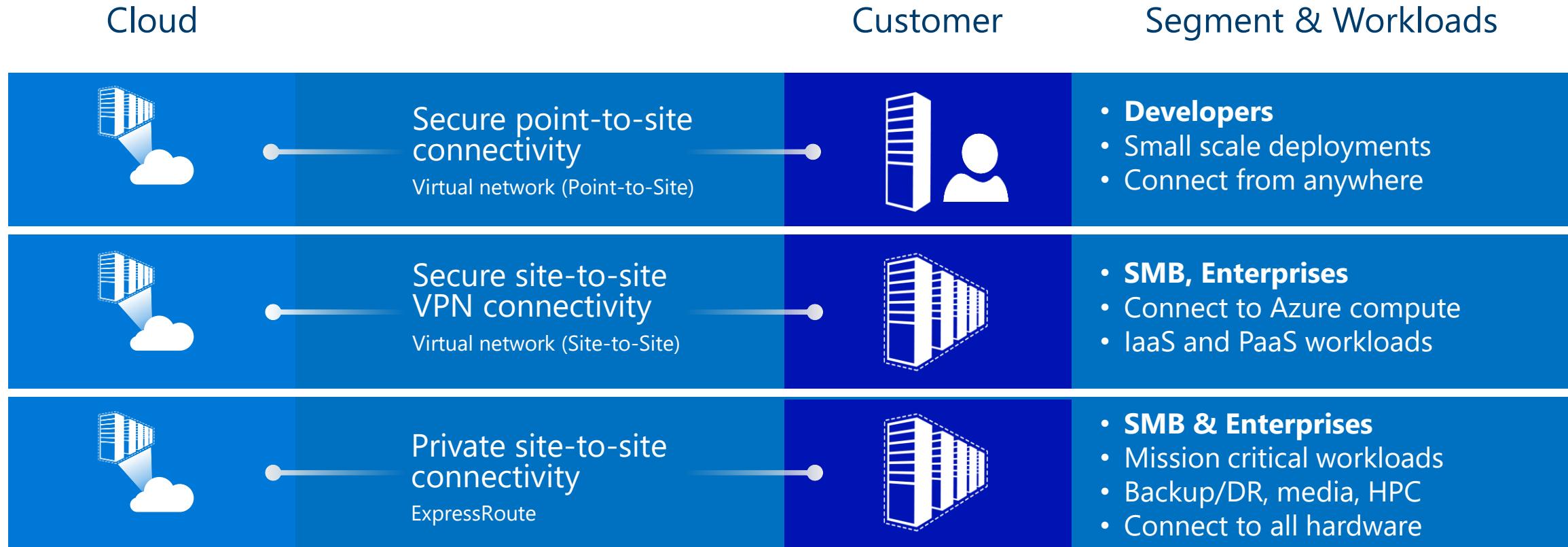
Azure Virtual Networks- Usage Scenarios

- Option 1: As a protected private virtual network in the cloud
 - Allows customers to set up secure private IPv4 networks fully contained within Microsoft Azure
- Option 2: As a virtual data center/Branch office extended in the cloud
 - Allows customers to extend their Enterprise Networks into Microsoft Azure
 - Networking on-ramp for migrating existing apps and services to Microsoft Azure
 - Allows customers to run hybrid apps that span the cloud and their on-premises setup

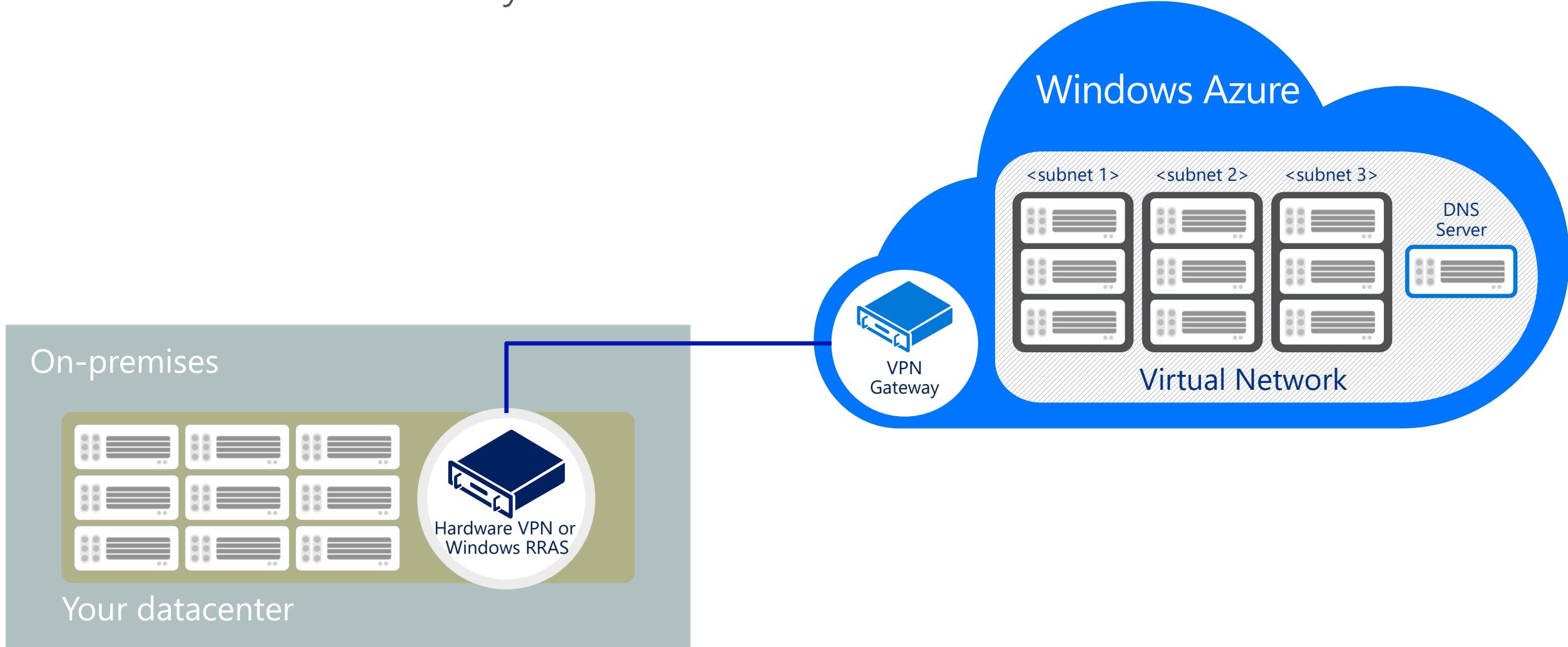
Hybrid Cloud -Virtual Networks



Hybrid Networking Scenarios

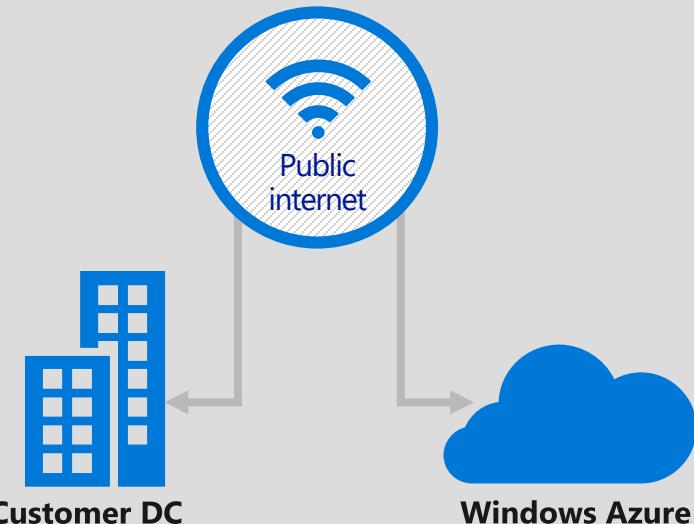


Site-to-Site Connectivity



Virtual Network and ExpressRoute

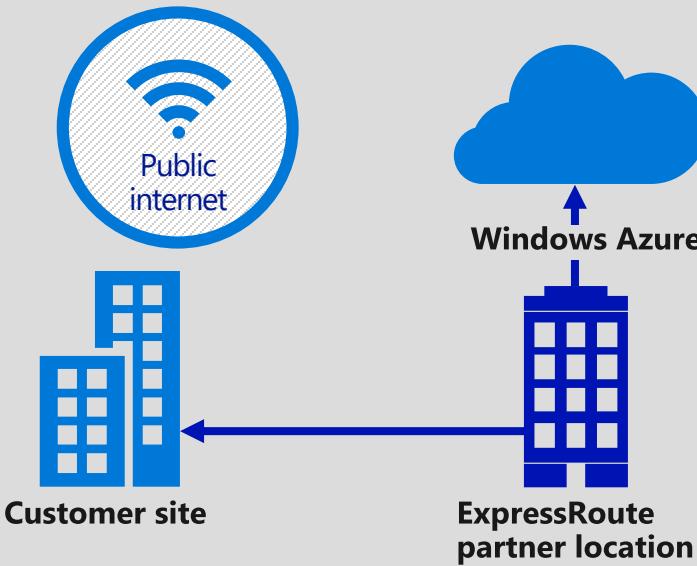
Scenario 1: IPSec VPN over internet



Connect via an encrypted link over public internet

Virtual Network - Compute only.

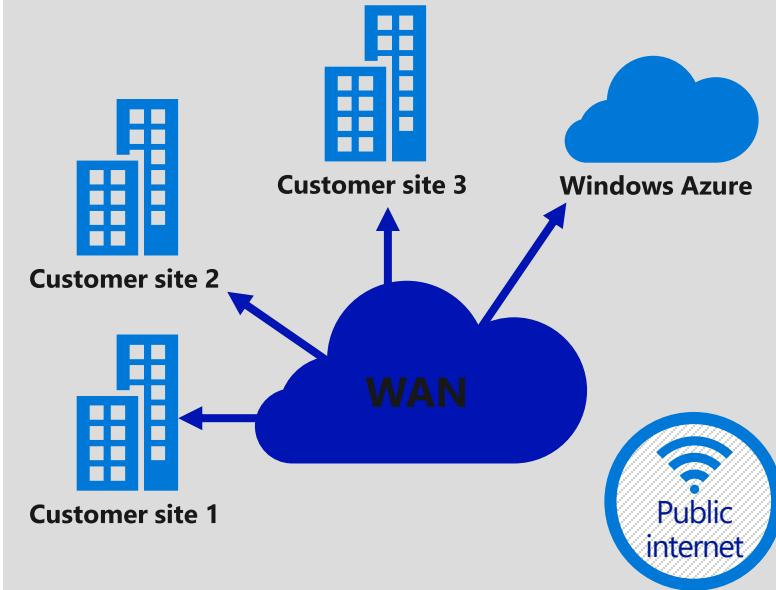
Scenario 2: Exchange Provider



Peer at an ExpressRoute location, an Exchange Provider facility

ExpressRoute - Provides customer choice and include access to compute, storage, and other Azure services.

Scenario 3: Network Service Provider



Connection from a WAN provided by Network Service Provider.
Azure becomes another site on the customer's WAN network.

What is ExpressRoute?

ExpressRoute provides organizations a private, dedicated, high-throughput network connection between Windows Azure datacenters and their on-premises IT environment.

Predictable performance



Security



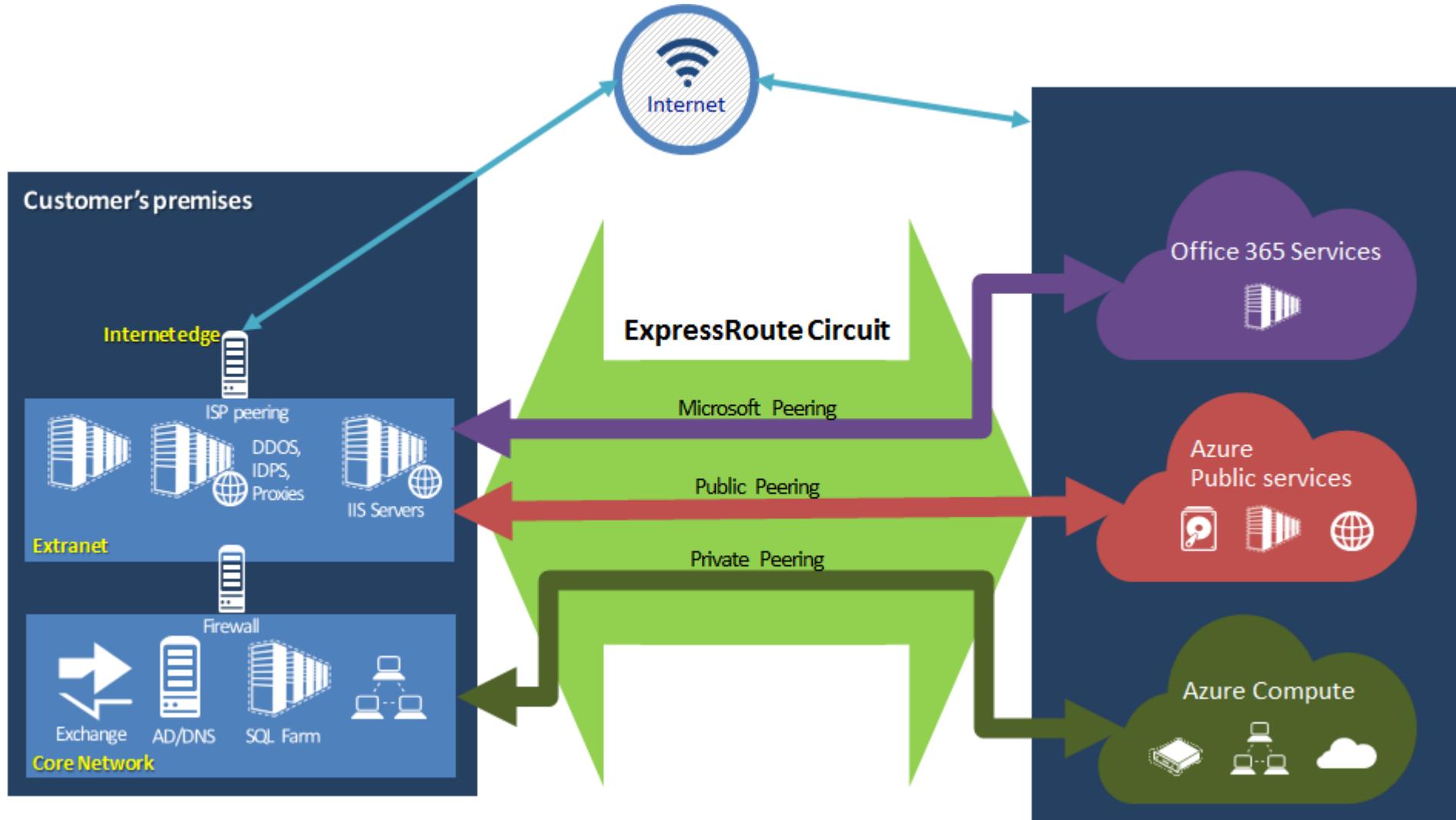
High throughput



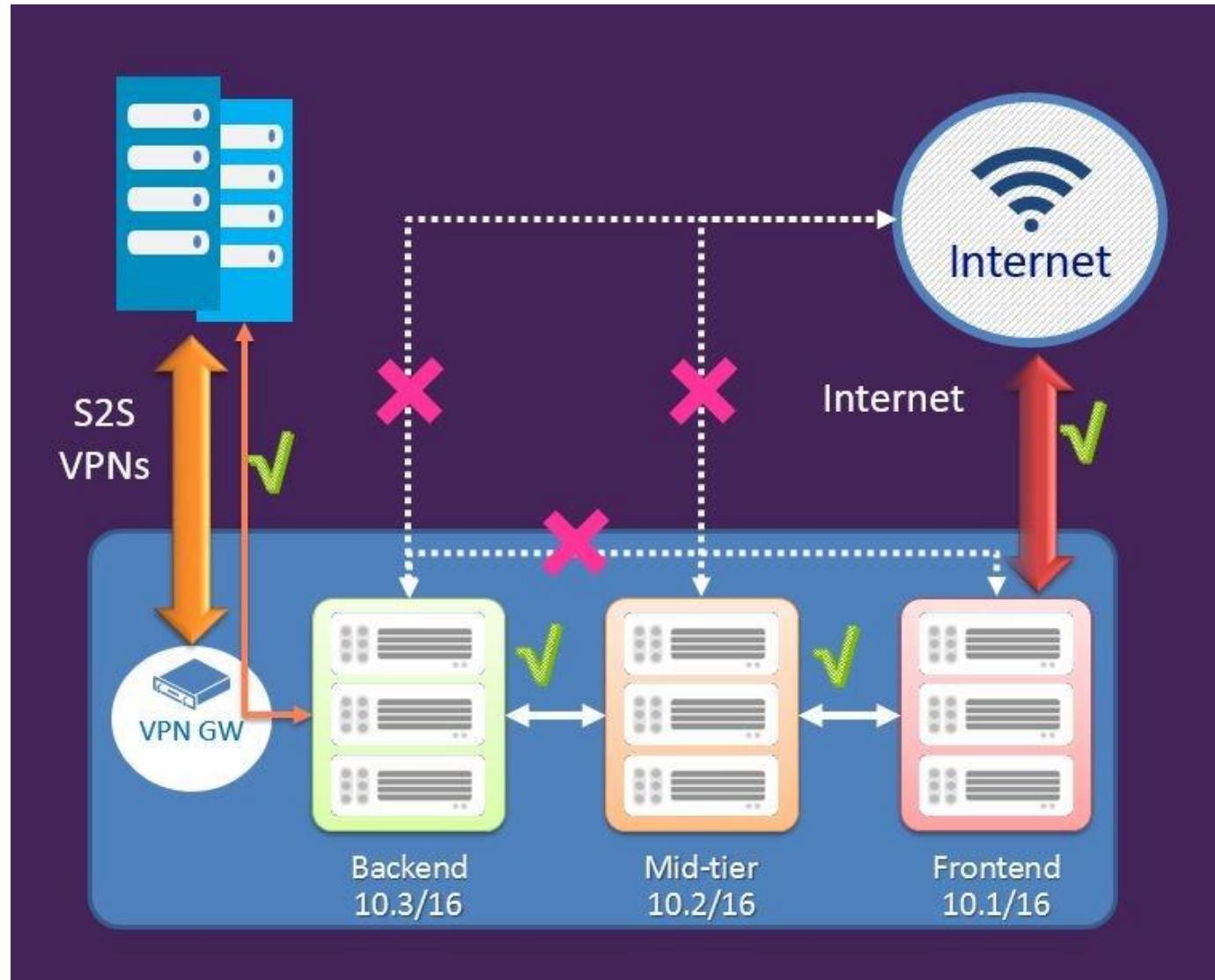
Lower cost



Public, Private and Microsoft peering



What about Security? - Network Security Groups (NSG)



- Very similar to Firewall – NSG's lets you define
 - Inbound rules
 - Outbound Rulesfor traffic to a VM or group of VMs
- NSG can be associated with:
 - A single NIC/ VM in a VNet
 - A subnet in a VNet
 - A VM and a Subnet together for added security
- Rules are based on 5-tuple (source/dest IP/port, protocol)

Network Security Groups (NSG)

NAME

NSG_Filter_Inbound_Internet_Acc... ...

SETTINGS

- Inbound security rules
- Outbound security rules
- Network interfaces
- Subnets
- Properties
- Locks
- Automation script

MONITORING

- Diagnostics logs

Location
Australia Southeast

Subscription name
[Azure Pass](#)

Subscription ID
7dd11ba2-a09e-4a4c-994f-0d68c51013ea

Associated with
1 subnets, 1 network interfaces

3 Inbound security rules

| PRIORITY | NAME | SOURCE | DESTINATION | SERVICE | ACTION |
|----------|-------------------------|------------|------------------|------------------|--------|
| 100 | Allow_RDP_Inbound | Any | 192.168.250.0/24 | RDP (TCP/3389) | Allow |
| 110 | Allow_OnPrem_Network... | 10.0.0.0/8 | 192.168.250.0/24 | Custom (Any/Any) | Allow |
| 120 | Deny_all_Inbound | Any | Any | Custom (Any/Any) | Deny |

0 Outbound security rules

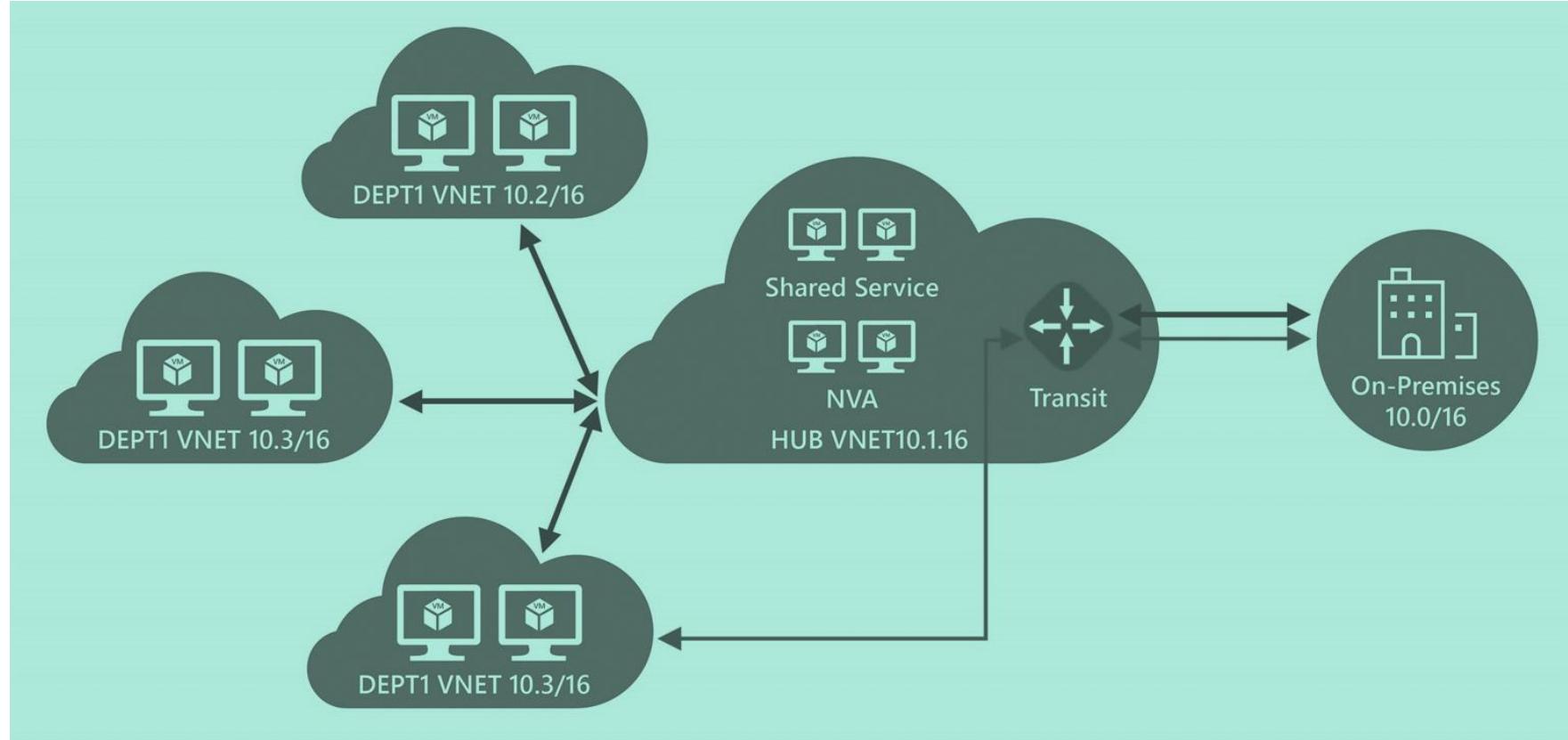
| PRIORITY | NAME | SOURCE | DESTINATION | SERVICE | ACTION |
|-------------|------|--------|-------------|---------|--------|
| No results. | | | | | |

VNet Peering

Hub and Spoke configuration

High bandwidth,
Low latency

Virtual DMZ



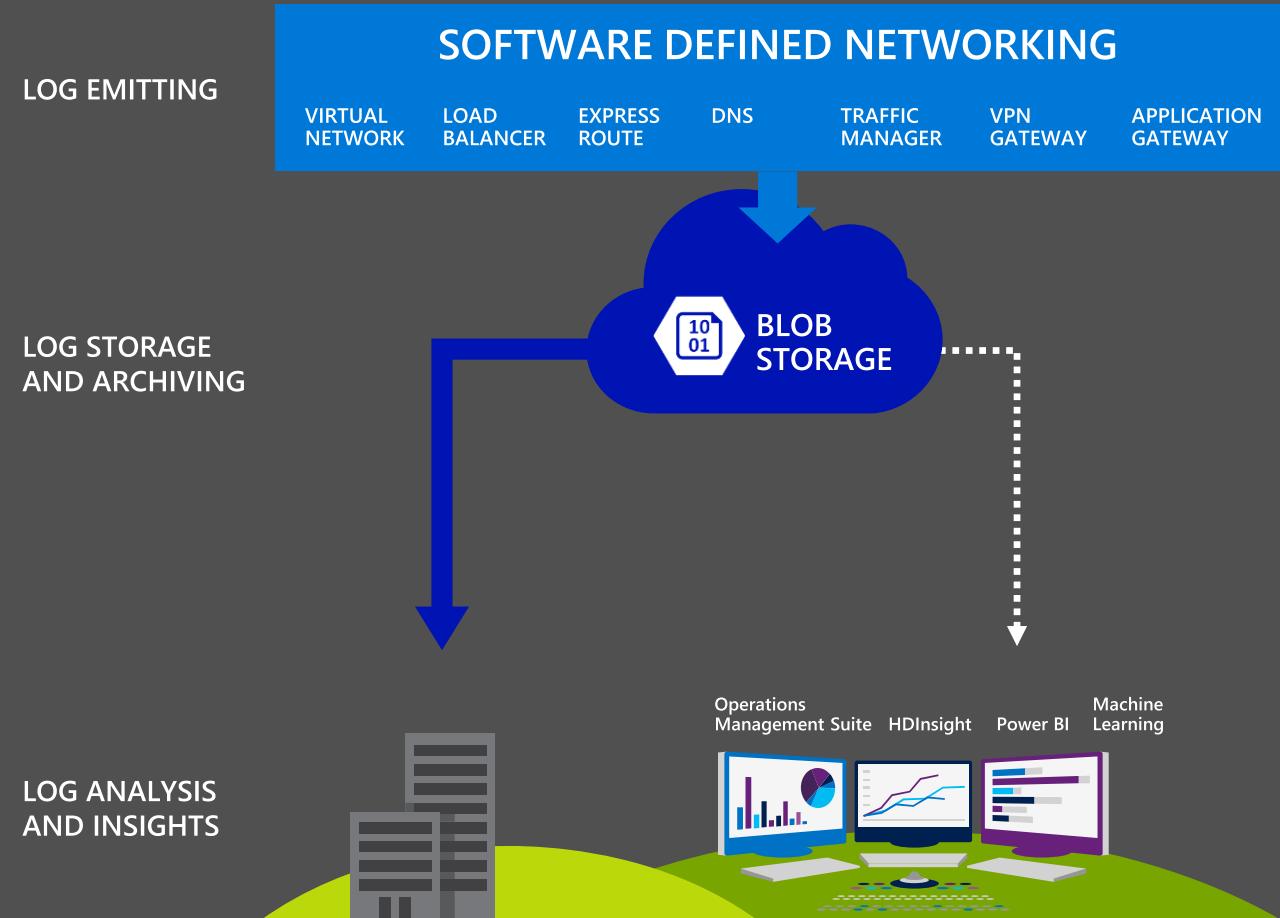


Network Watcher

Network Monitoring service for network diagnostics & analytics

Overview

-
-
-
-
-
-
-
-



Networking

Reserved IPs

Multiple NIC's

Forced Tunneling

Network Security Groups

Virtual Network Appliances

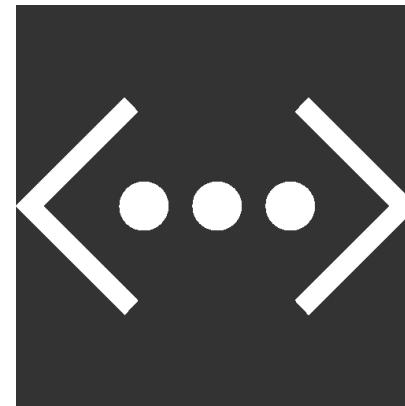
Multiple load balanced IPs per VM

Create virtual networks with private or public IP ranges

IPv6 in most regions

Accelerated Networking (Preview)

High performance S2S VPN gateways (200Mbps vs 100Mbps)



Network Virtual Appliance Ecosystem



Advanced workloads

Demo //Core Infrastructure

Let's see it in action...

Build with a platform designed for future growth



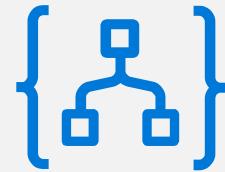
App service

Web, mobile,
and API apps



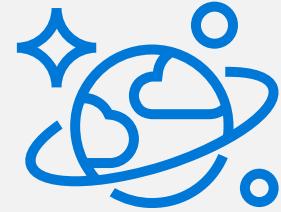
Azure Function

Serverless application in
the cloud



Logic apps

Workflow &
integration



Cosmos DB

Globally distributed,
multi-model database service

RECENT ANNOUNCEMENTS

Data Lake Storage
and Analytics

[Azure Container
Instances service](#)

Visual Studio
for Mac

Demo

//Advanced Workload

Let's see it in action...

Add a natural, human touch with Cognitive Services

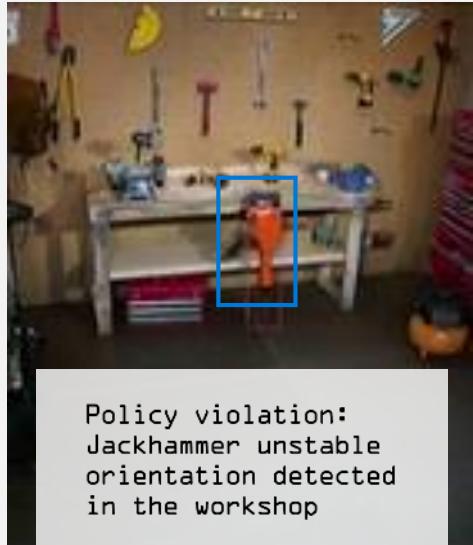
Vision

Computer Vision

Listening...



Object
recognition...



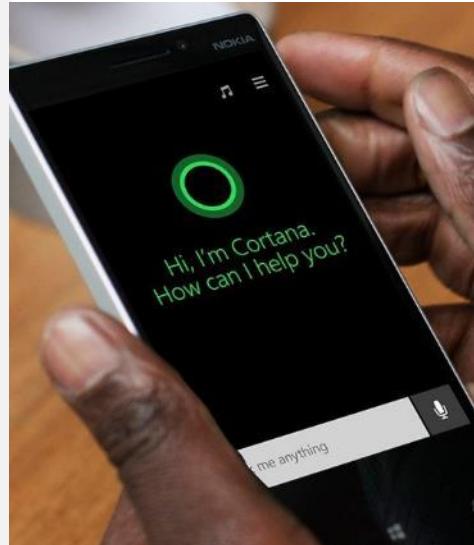
Speech

Speech-to-text and
text-to-speech service

Listening...



Convert this text to
speech please...



Language

Natural Language
Processing

Listening...



Play today's
conference call...

Natural Language Processing

Intent: PlayCall
Content: Customer#
DateTime.date: today



Now Playing

11/29/2016 Customer Call

Knowledge

Knowledge
Exploration Service

Listening...



Top publications
in AI...

Genetic Algorithms in Search, Optimization
Learning
1989, David E Goldberg

Cited 18,910 times

Induction of Decision Trees
1986, Machine Learning
J R Quinlan

decision tree expert system machine learning compute
Cited 4,819 times

Outline of a New Approach to the Analysis
of Complex Adaptive Systems and Decision Processes
1973, IEEE Transactions on Systems, Man, and Cybernetics, issue 1
Lotfi A Zadeh (University Of California Berkeley)

fuzzy set complex systems artificial neural network com
machine learning artificial intelligence computer science
Cited 2,602 times

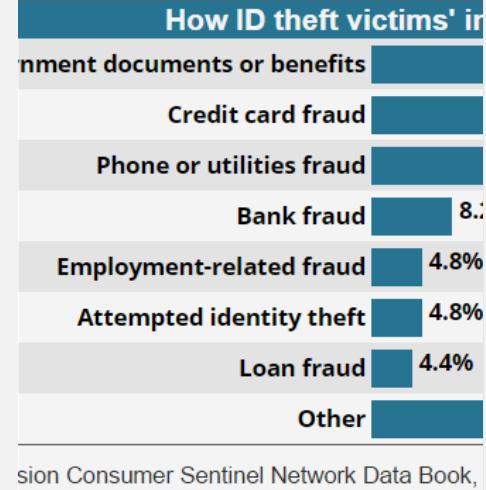
Search

Bing Search

Listening...



Fraud prevention
results...



Source: Consumer Sentinel Network Data Book, Q3 2016

Simplify IoT with preconfigured solutions



Azure IoT Suite

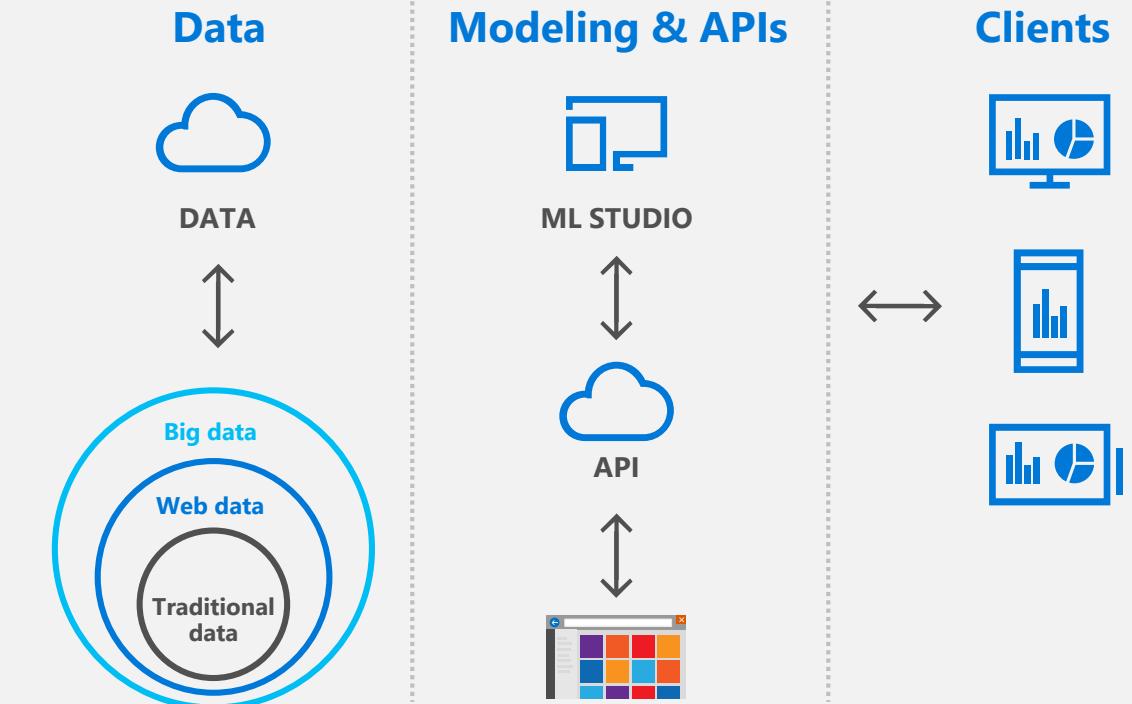
-
- Device connectivity & management
 - Data ingestion and command & control
 - Stream processing & predictive analytics
 - Workflow automation and integration
 - Dashboards and visualization
 - Preconfigured solutions
 - Remote monitoring
 - Predictive maintenance
 - Connected factory (new)

Predict customer needs with powerful tools

Azure Machine Learning templates

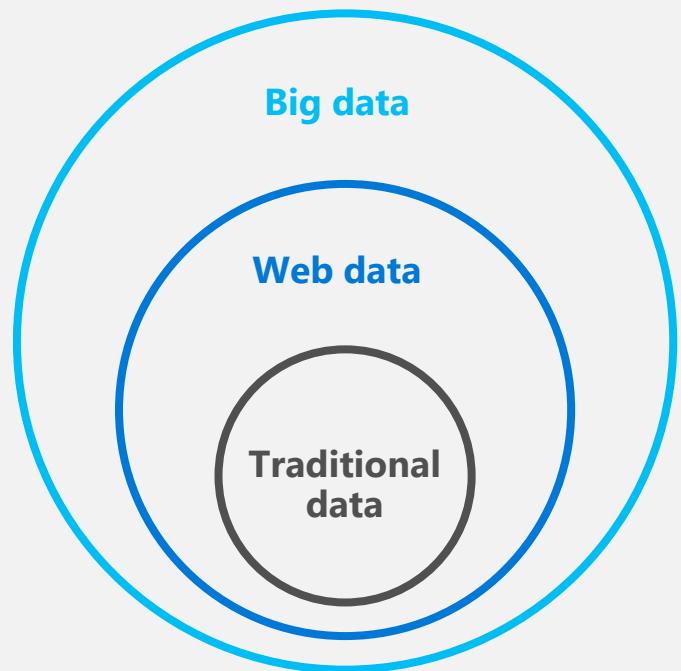
- ↗ Demand forecasting
- 🔧 Predictive maintenance
- 🚗 Vehicle telemetry

Azure Machine Learning services



Empower your decisions with business insights

Back-end power



Front-end insights

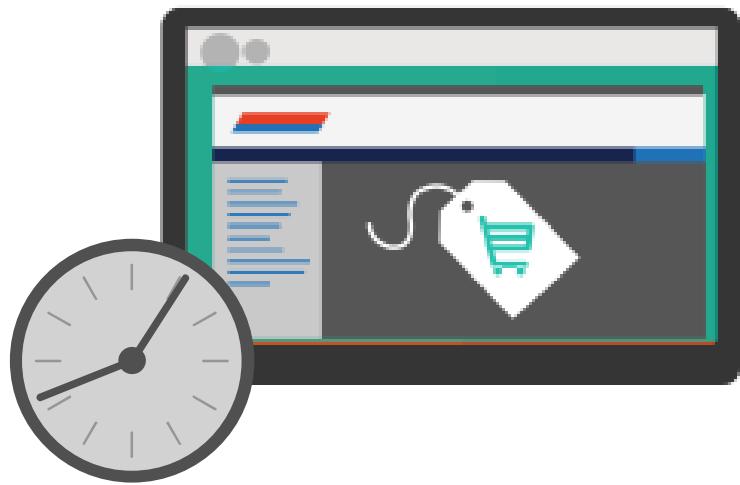


Identity and Security

Azure Active Directory

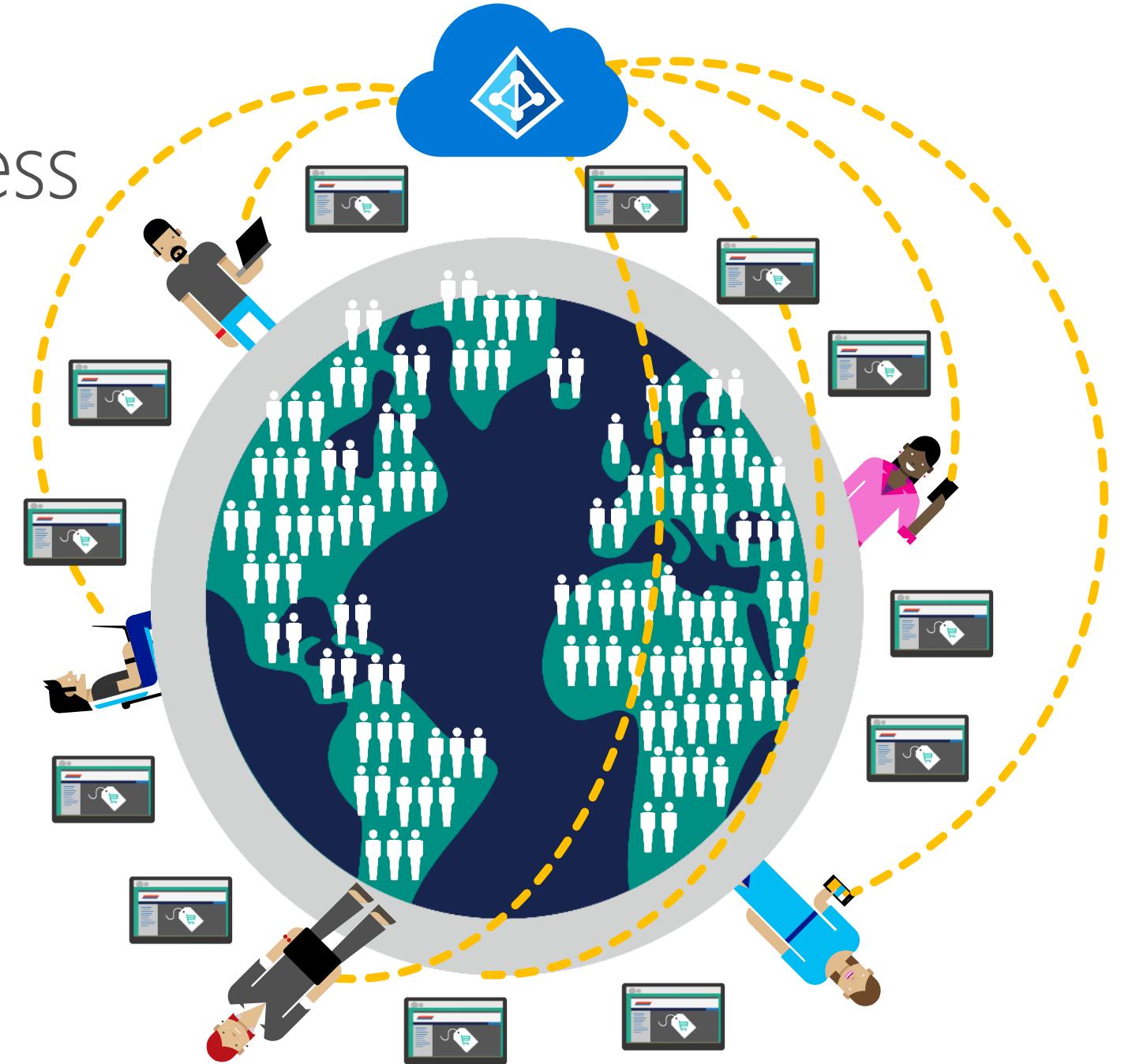
B2C | B2B

Your customers want around-the-clock access



Are you ready?

Is your identity system
ready and secure ?



Improve your connection with customers

A consumer identity and access management system needs to be:



Consumer-centric and flexible

- Every customer experience needs to be a positive one
- Customizable consumer interactions
- Choice of social & local accounts



Secure and reliable

- Multiple levels of security controls
- Security reporting
- High availability—SLA



Ready for every business

- Cost-effective
- Scalable
- Global



Faster speed to market

- Standards-based
- Innovative
- Flexible policy framework

Challenges with on-premises consumer IAM

- ▶ Security and privacy risks

Storing credentials and PII in application DBs

- ▶ Total Cost of Ownership (TCO)

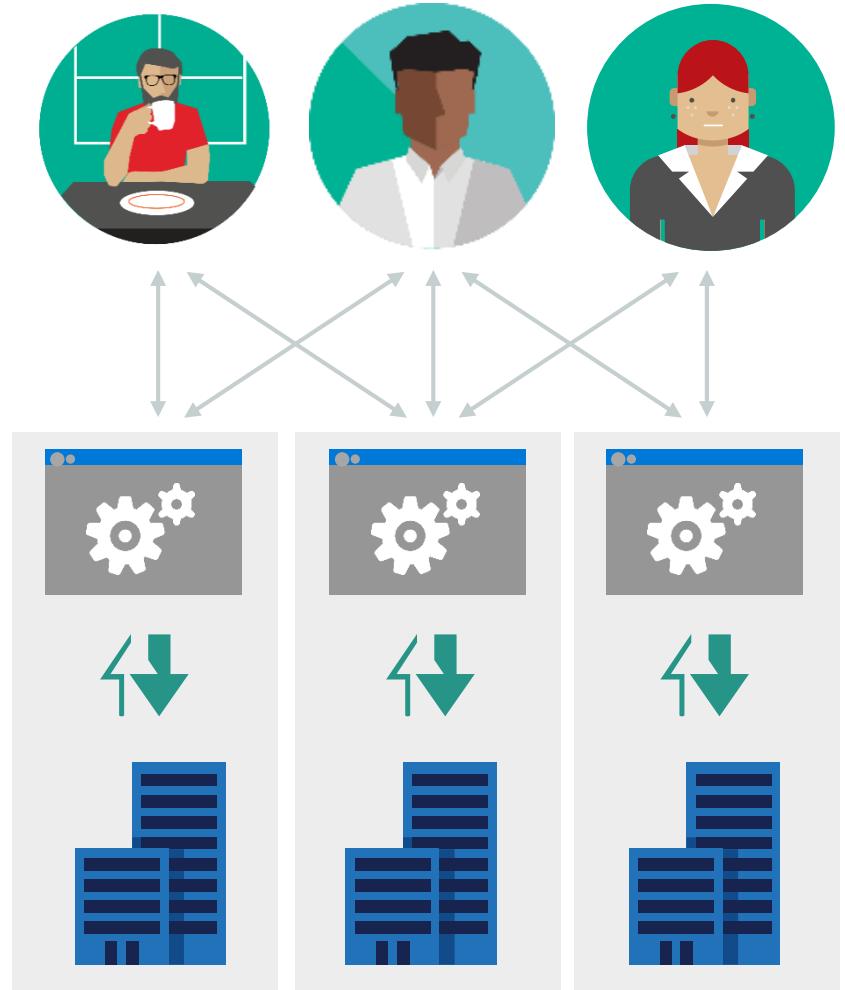
Software licensing, maintenance, and upgrade costs
24x7 operations and support staff

- ▶ QoS challenges

High-availability and disaster recovery infrastructure
Scalability (up to millions of consumers)
Elastic response to demand spikes

- ▶ Heterogeneous systems

Unified view of the consumer across apps



Azure Active Directory B2C

A comprehensive cloud-based consumer directory and IAM service

- ▶ For enterprises and ISVs building consumer-facing mobile, web, and PC apps
- ▶ Global service that scales to hundreds of millions of consumers
- ▶ Highly available, geo-redundant service
- ▶ Superior cloud economics compared to on-premises
- ▶ Easy-to-integrate consumer self-service capabilities
- ▶ Enterprise-grade information security and data breach protection



Suitable for every business

- ▶ Smart, scalable pricing with a free tier
(per user + per authentication)
- ▶ Easily import existing customer databases
- ▶ Scale up to hundreds of millions of users
- ▶ Provides SSO to various applications /sites of the same vendor



Protect your consumers' identities

- ▶ Users only have visibility into their own accounts and profiles
- ▶ Additional security layers (MFA)
- ▶ Security reports and auditing
- ▶ SLA 99.9 percent
- ▶ High availability guaranteed by presence in 12 regions all over the world

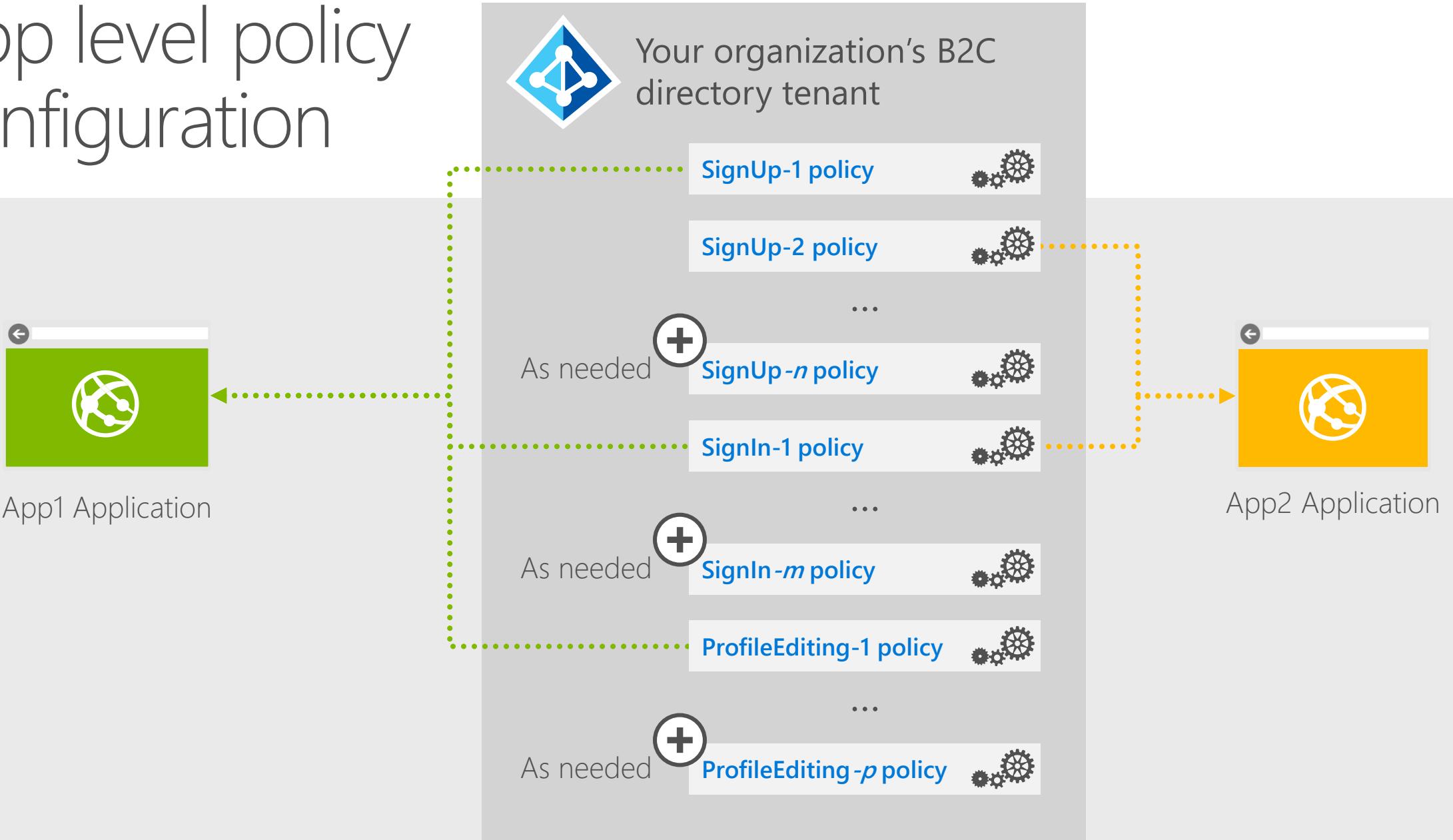


Friction-free consumer experience

- ▶ User-friendly self-service user sign-in and sign-up experience
- ▶ Self-service profile management/password reset
- ▶ "Bring-your-own-identity" using social ID or create a new, local account set of credentials
- ▶ Match your identity experience to your application branding

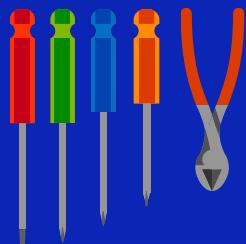


App level policy configuration

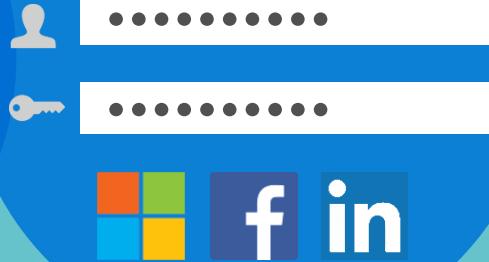


Azure Active Directory: B2C features

Sign up, Sign in,
Password reset &
other policies



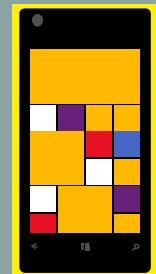
Social & Local
Accounts



Seamless User
Experience



Multi-Factor
Authentication



Protocol support
(OIDC, OAuth2)



Azure AD
Graph API



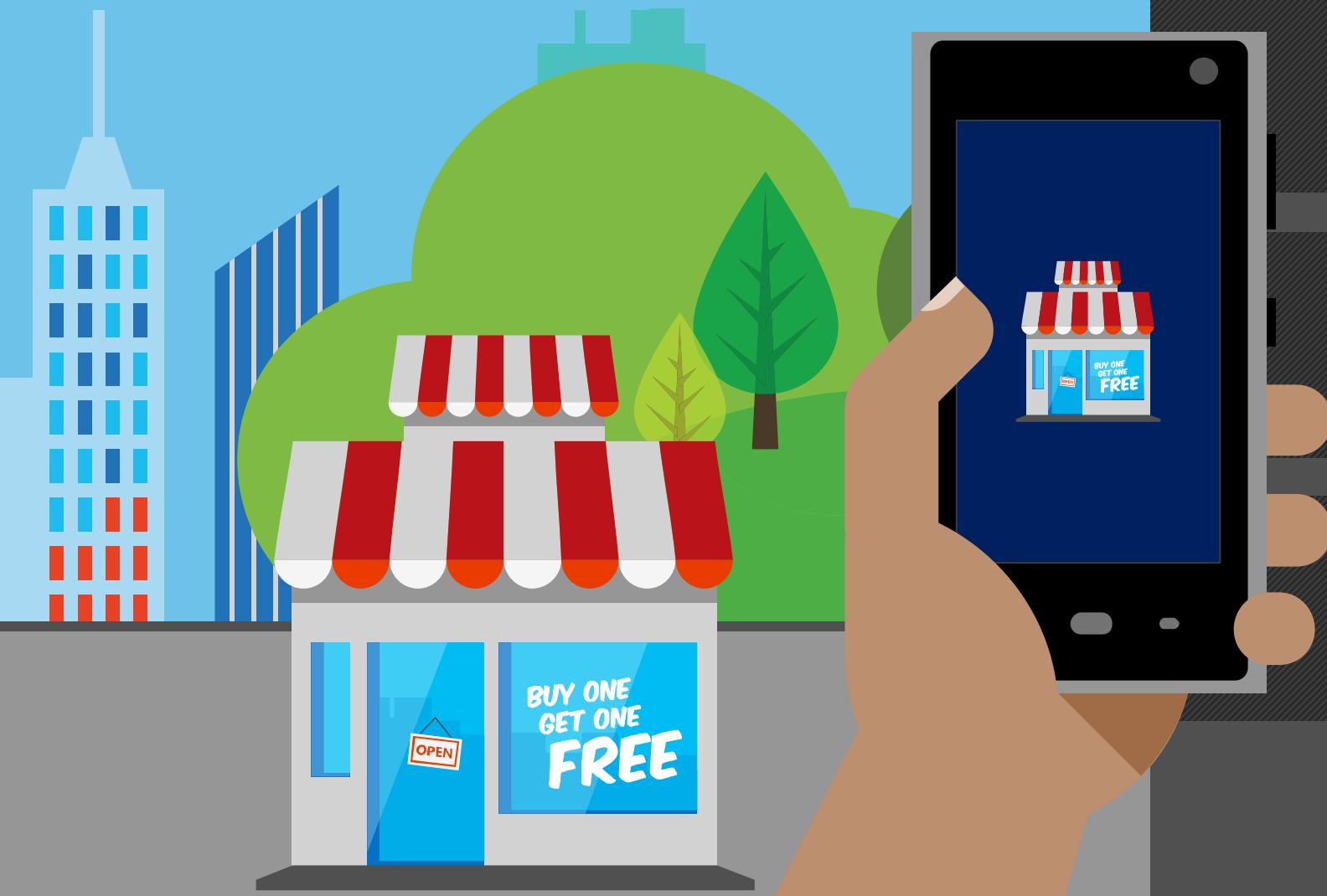
Demo

//Azure AD B2C

Let's see it in action...

Tools for DevOps

It's tough out there ...

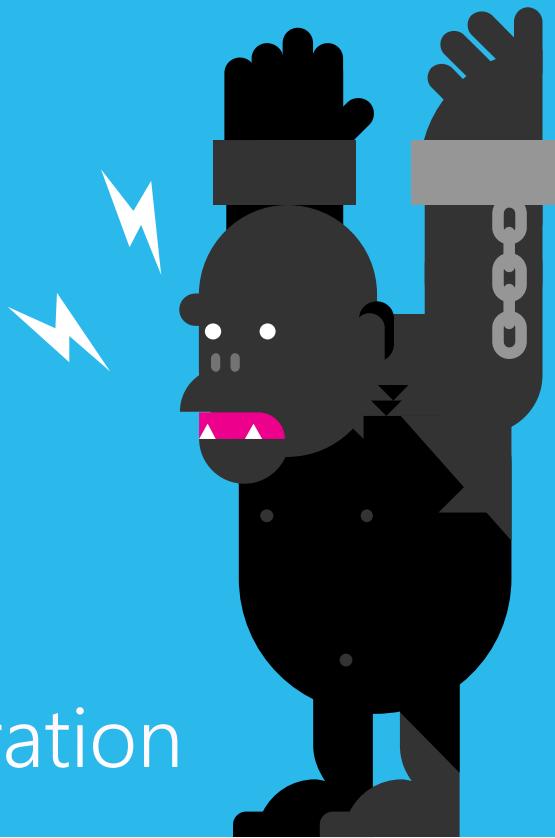


Business is faster

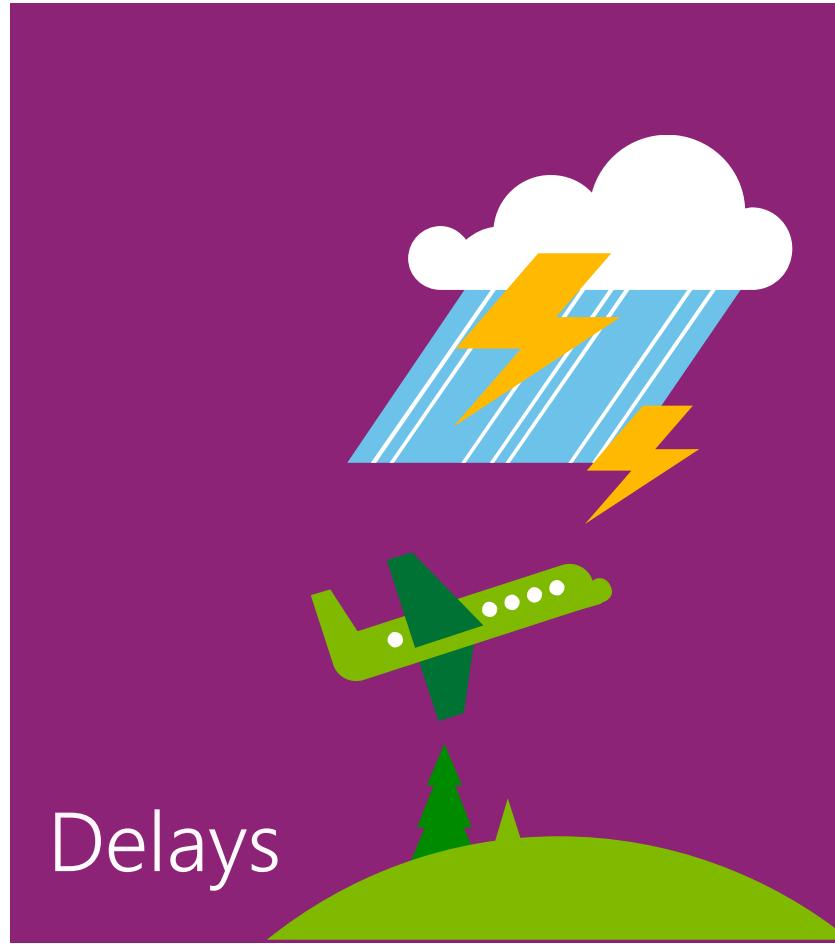
Competition is fiercer

Time-to-market is key

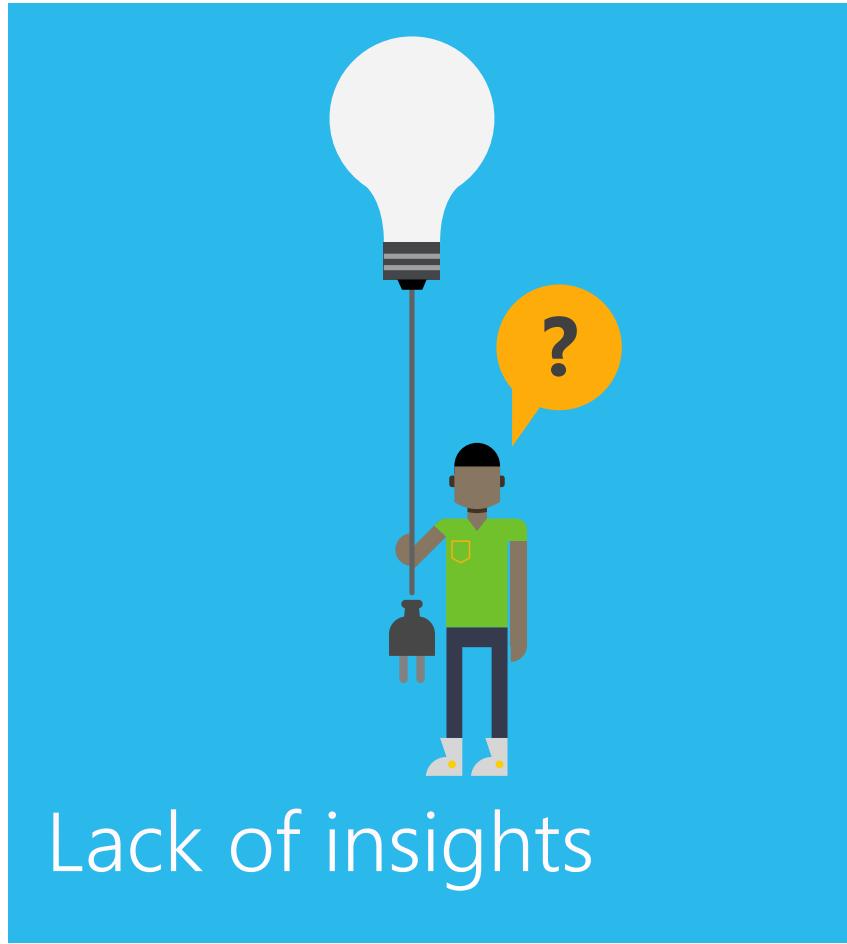
Software delivery challenges



Frustration

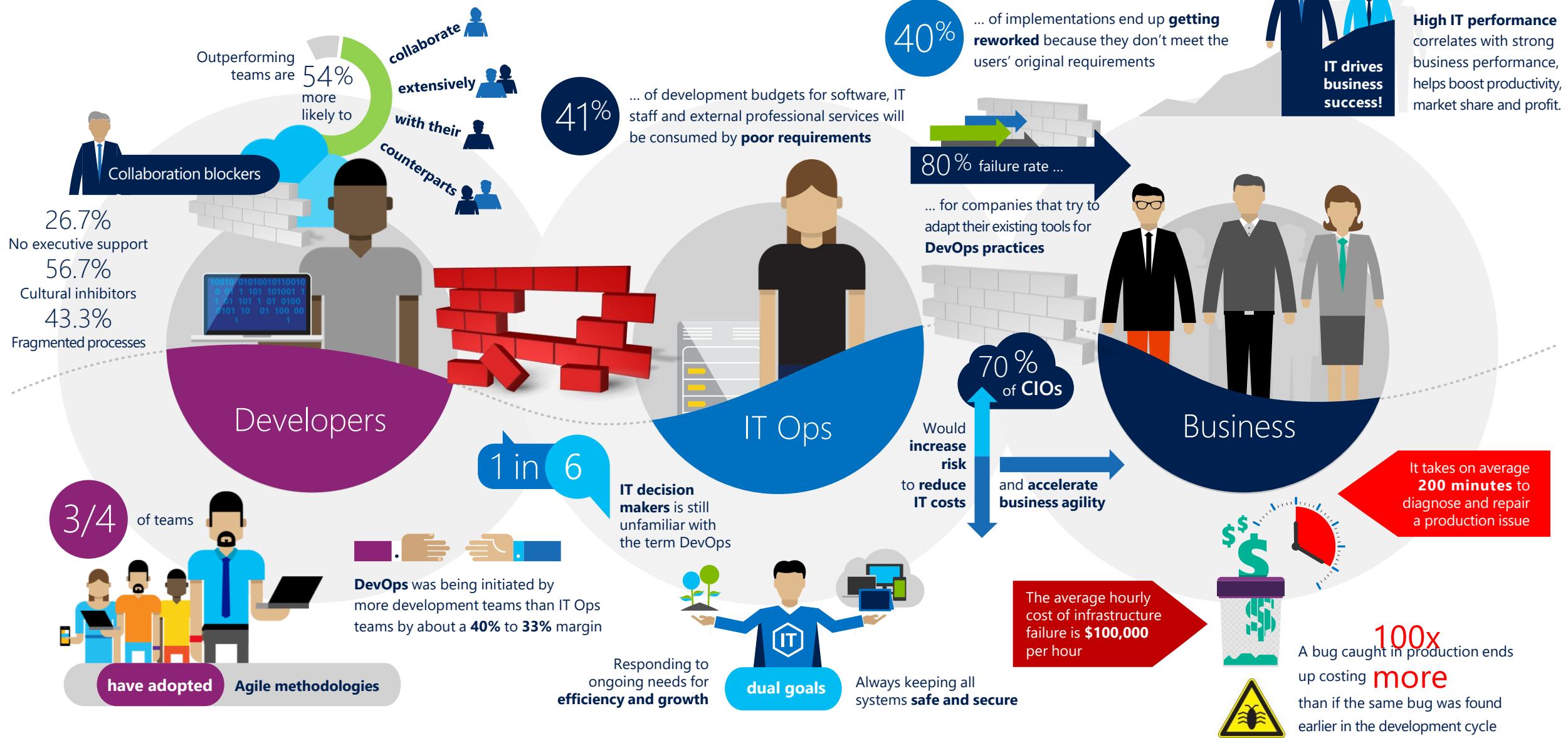


Delays



Lack of insights

The consequences of inefficiency



Our own journey

How we used to work

We did ask for feedback after each milestone – but we could not really react to it
For the most part, we would tell everybody “sorry” - and push things to the next release
We did find and fix bugs – without really knowing if we built the right thing in the first place
We had closed silos of information across different organizations, hurting collaboration



Where we are today

How we work now

We ship frequently with minimum friction

Build>Deploy>Test reliably, hundreds of times a day

We continue to meet a rigorous on-premises quality bar

We build confidence through staging, exposure control & rich telemetry



Visit <http://stories.visualstudio.com> to get the full story!

DevOps

1 Plan

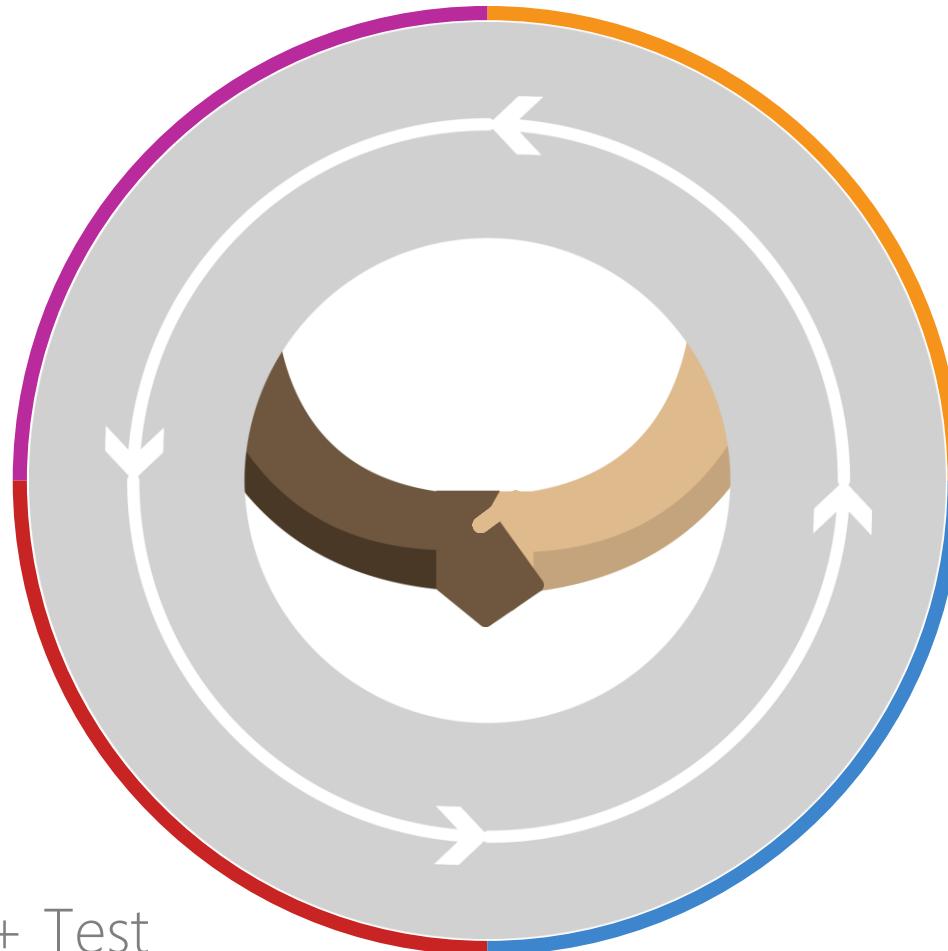
4 Monitor + Learn

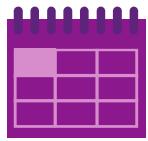
Development

Production

2 Develop + Test

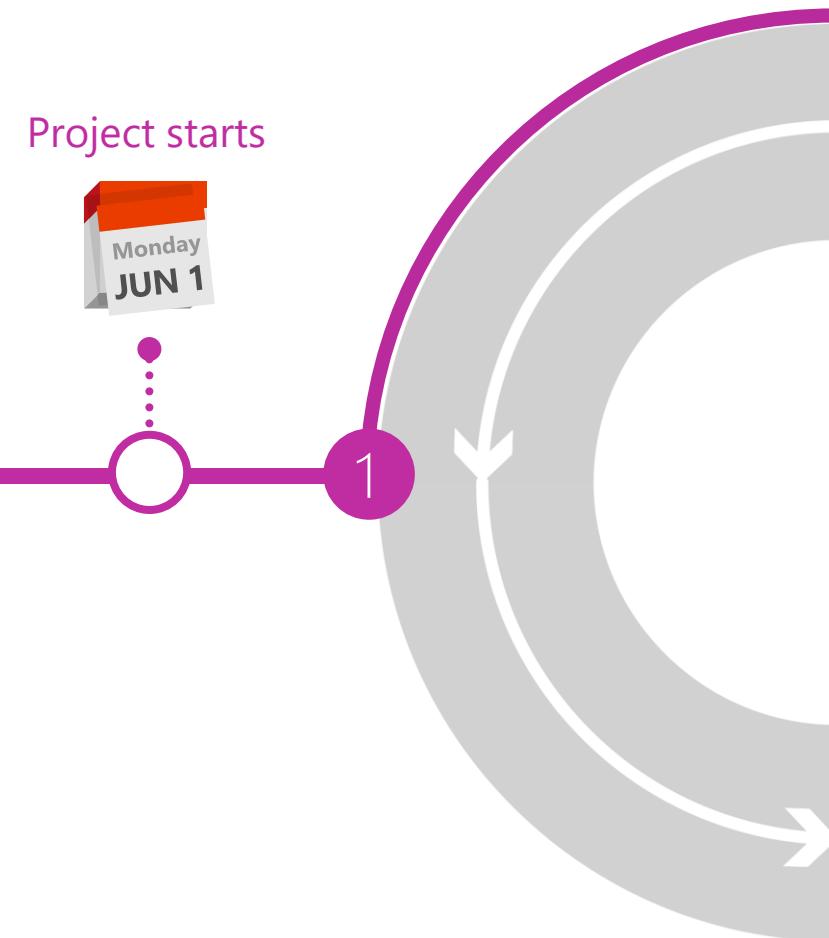
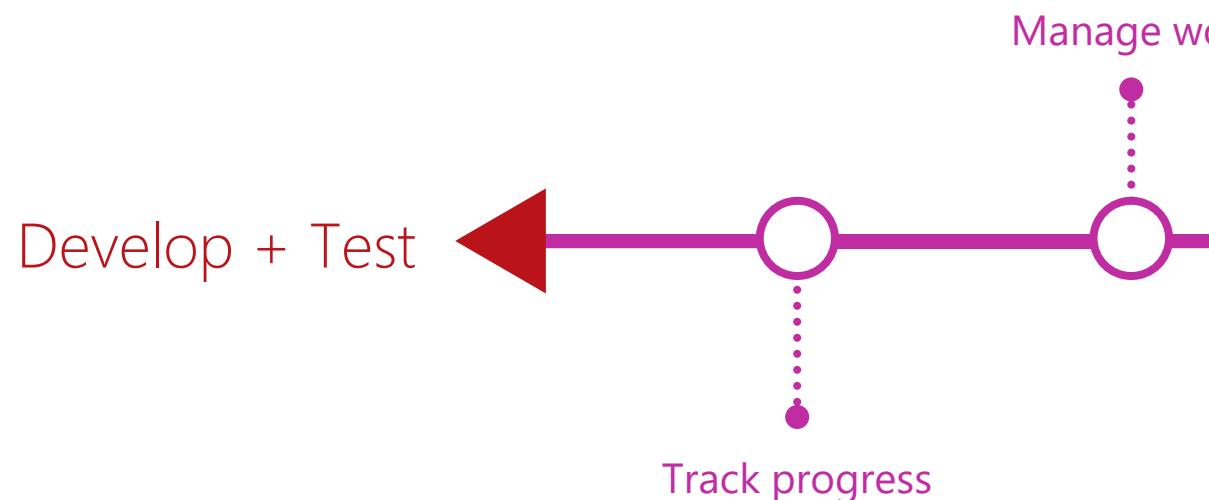
3 Release





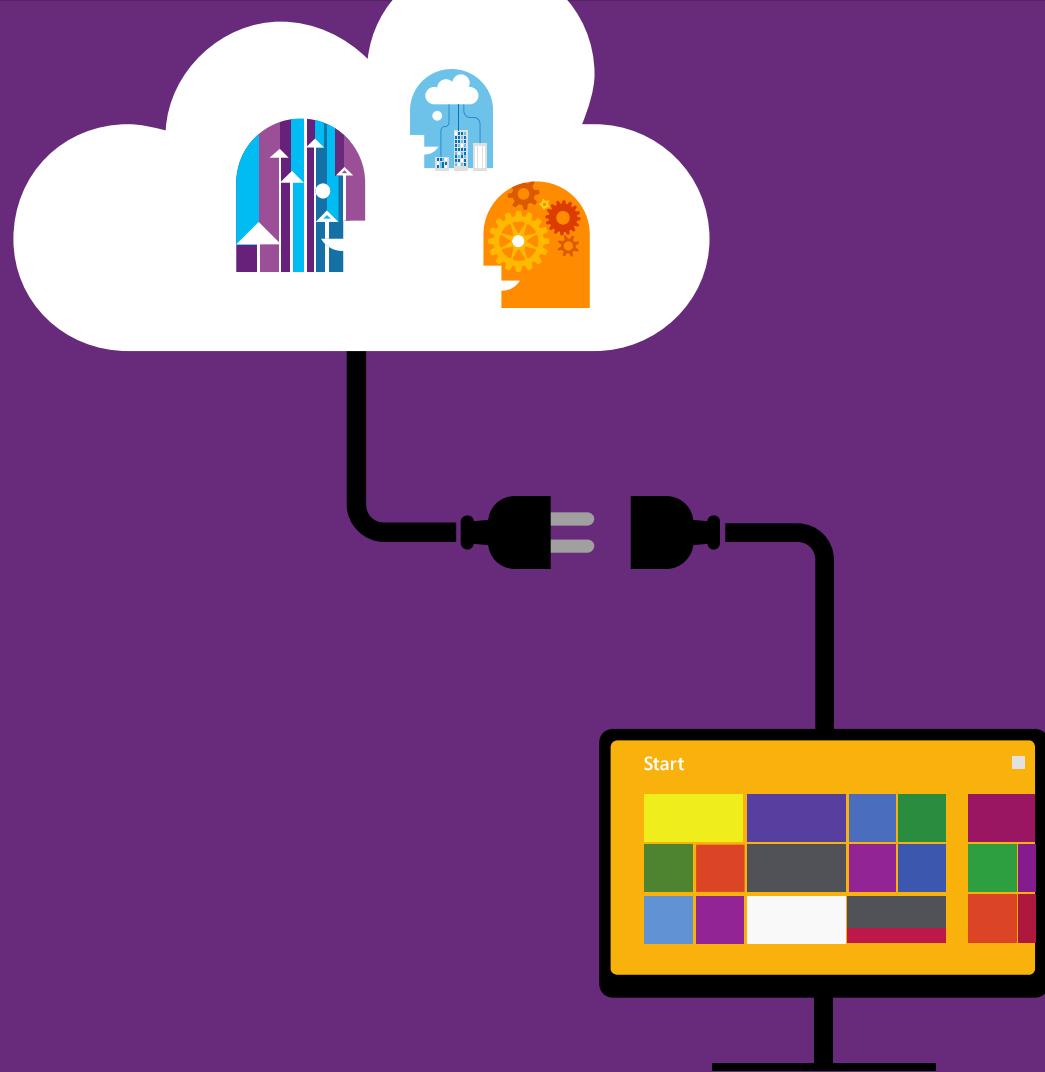
Plan

It starts with an idea – and a plan
how to turn this idea into reality ...



DEMO

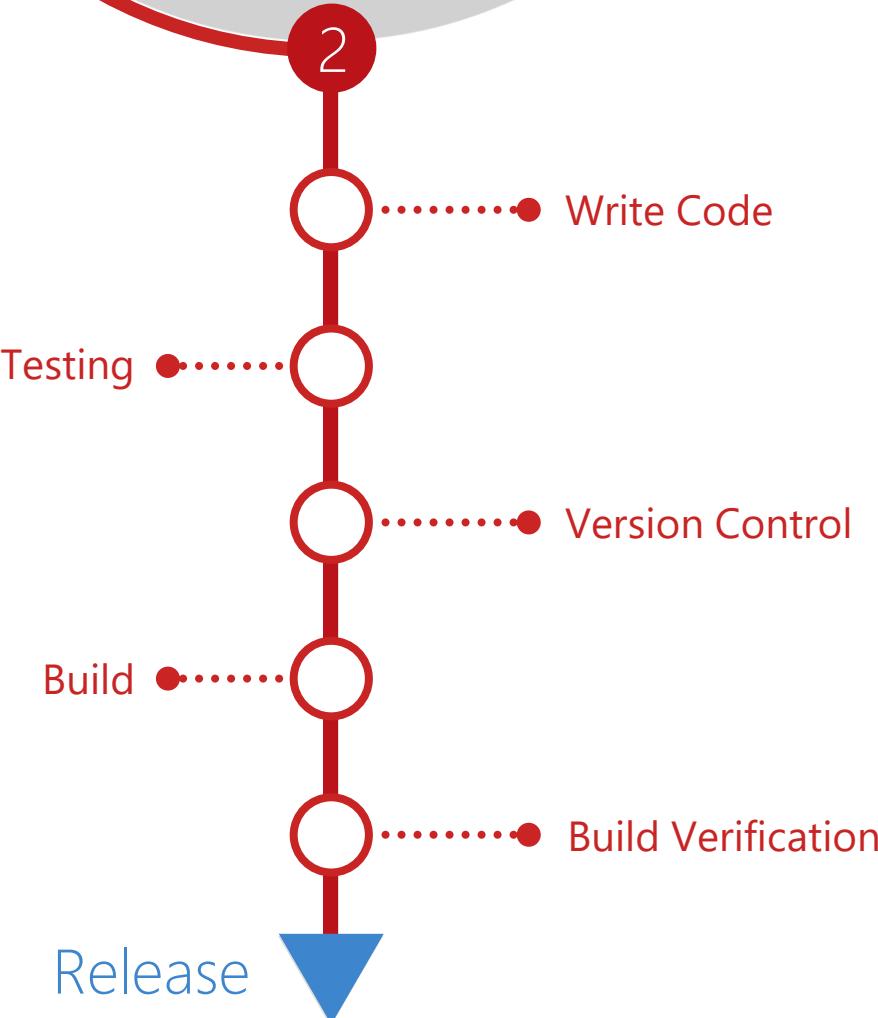
Plan





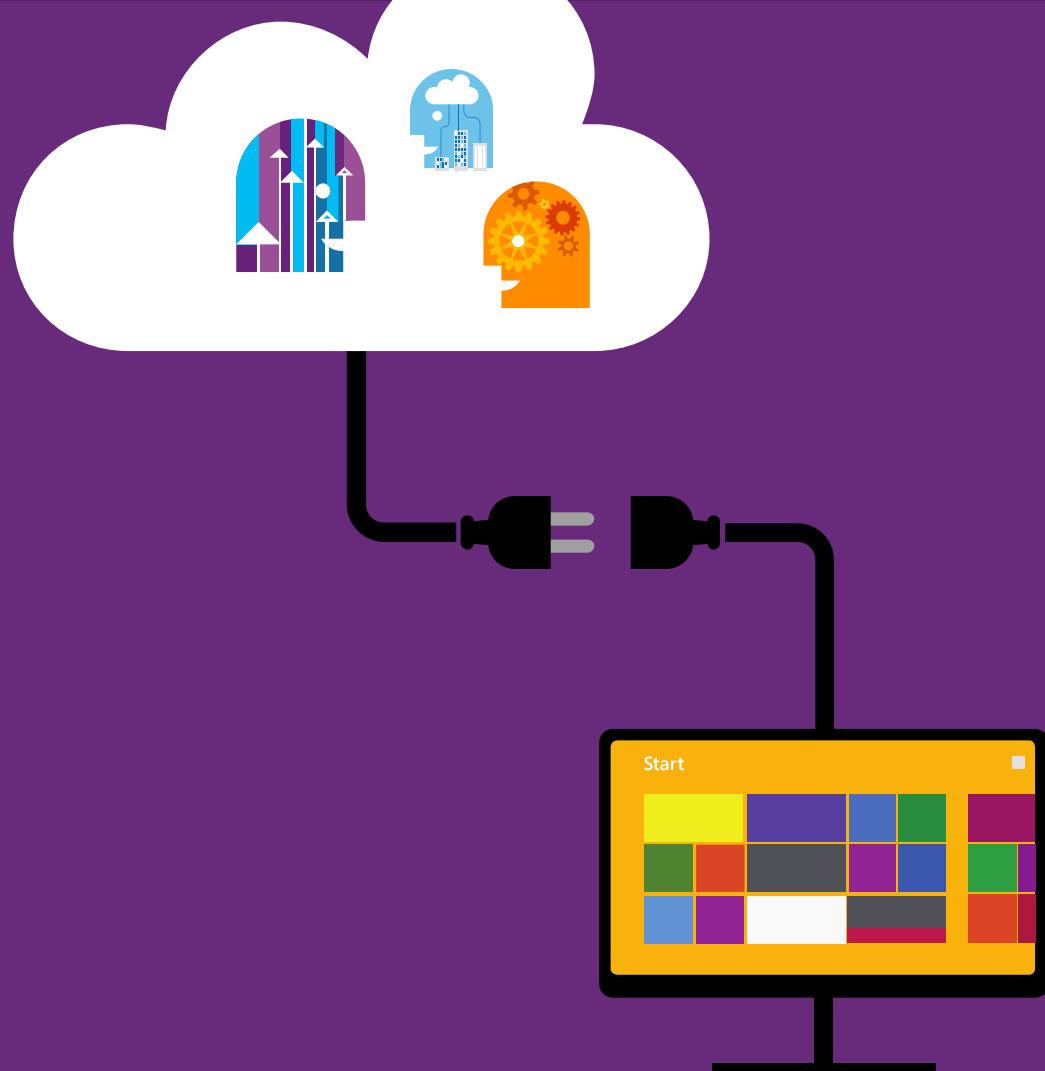
Develop + Test

Once the iteration starts, developers turn great ideas into features ...



DEMO

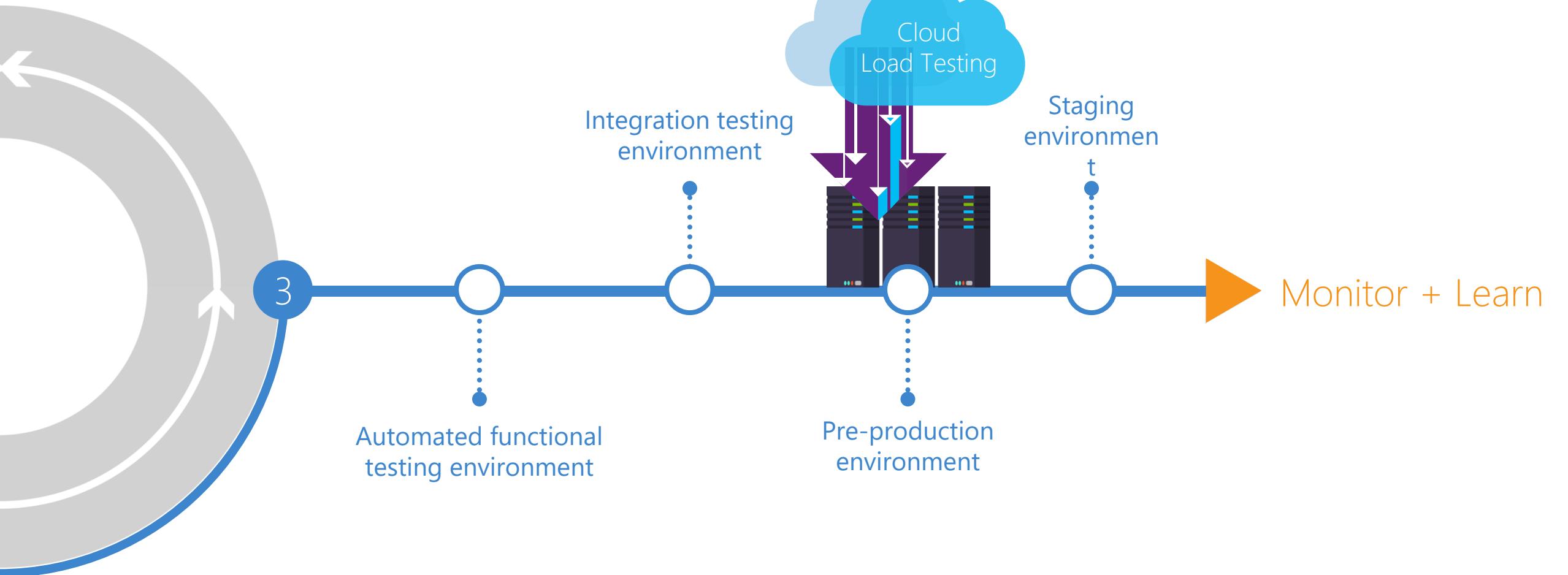
Develop + Test





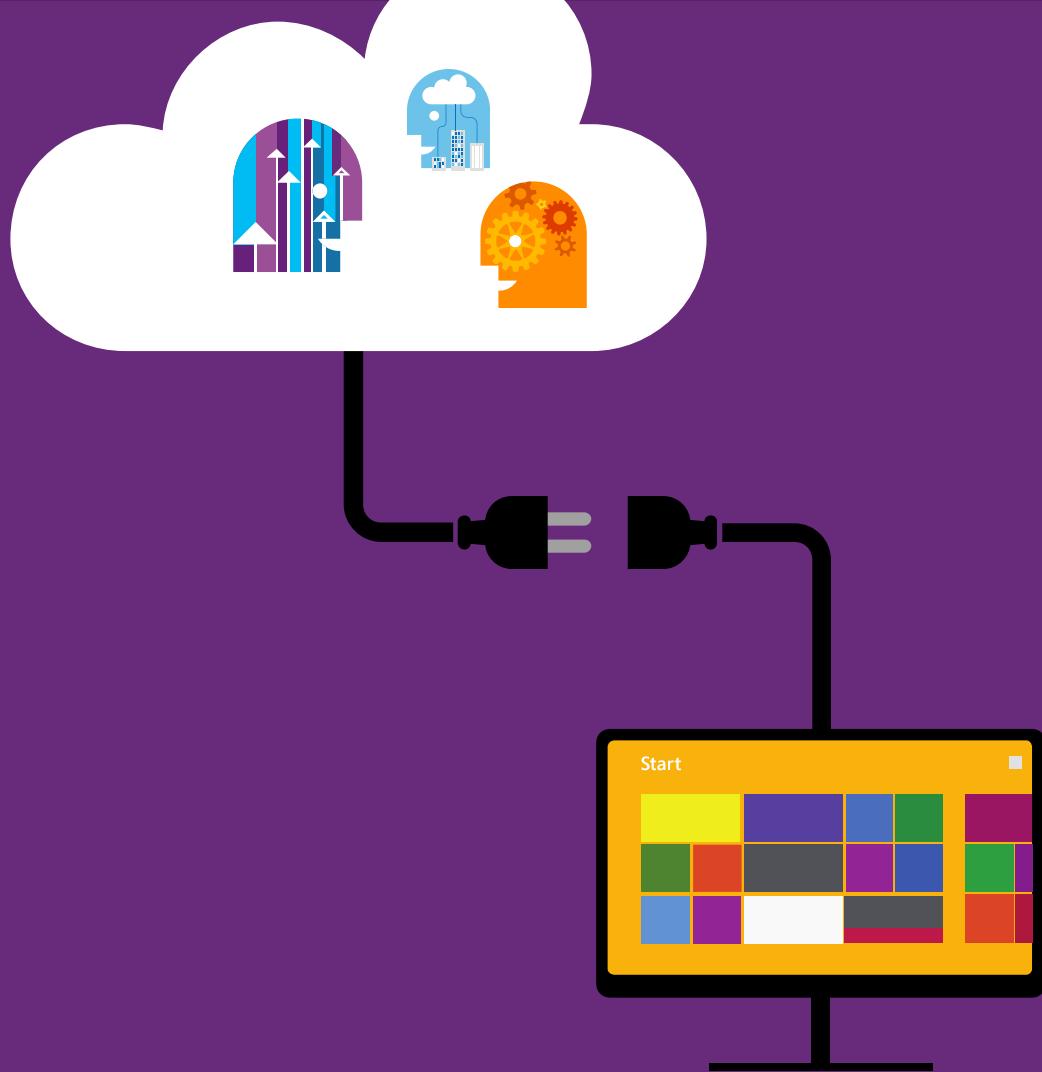
Release

When all tests pass, the build is deployed to testing environments for each stage in the release process



DEMO

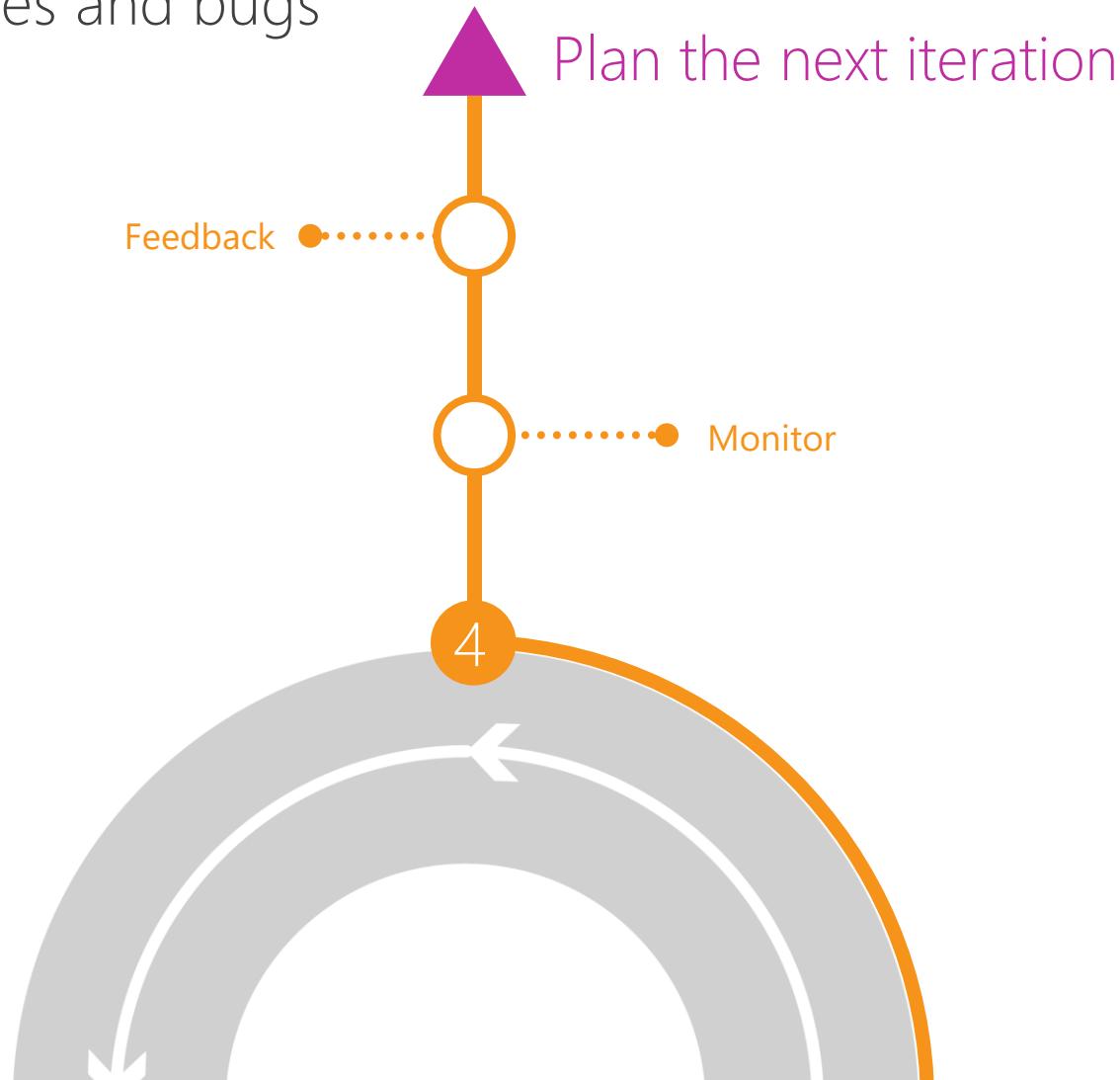
Release





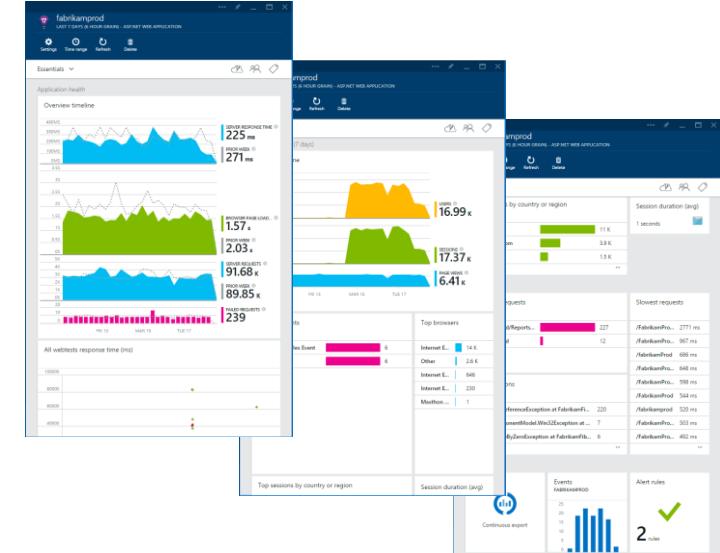
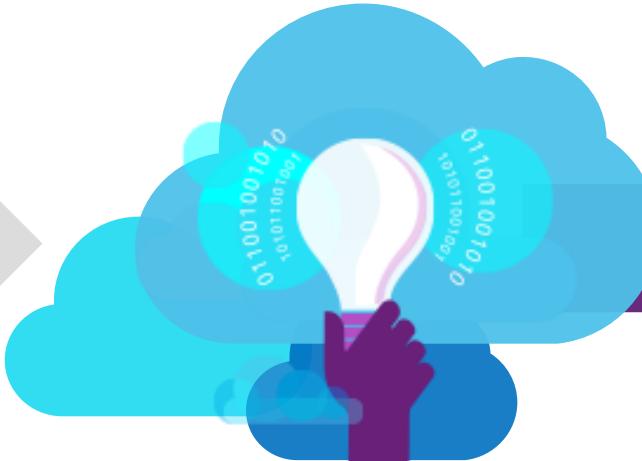
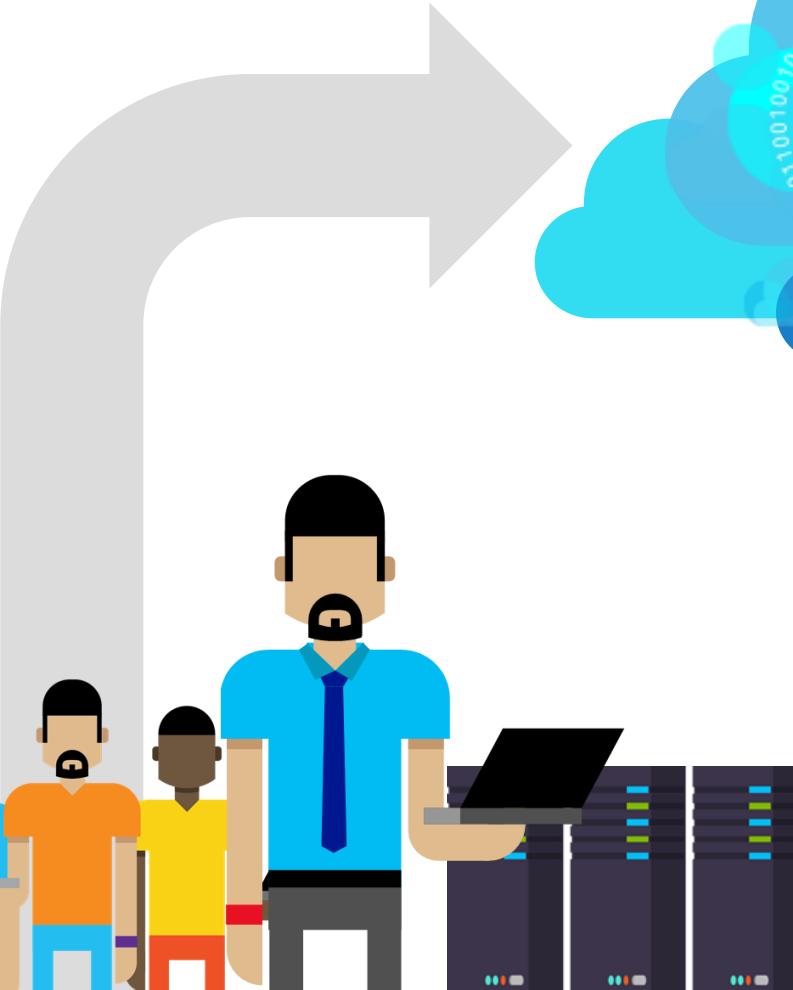
Monitor + Learn

Learn and understand how users use your app, how it reacts and quickly fix issues and bugs



Visual Studio Application Insights

Detect issues, diagnose crashes and track usage in your web and mobile apps



Announcing Public Preview on Azure Preview Portal
Monitor ASP.NET, Java and other web apps and services
Support for Android, iOS and Windows mobile apps
Pricing details available now including free tier

Check it out!

<http://azure.microsoft.com/en-us/services/application-insights>

Application Insights Progress – Jan'17



78K +200% in last 1 year

Monthly Active Users



36K +200% in last 1 year

Monthly Engaged Users



176K

Total Active Apps



1.9PB

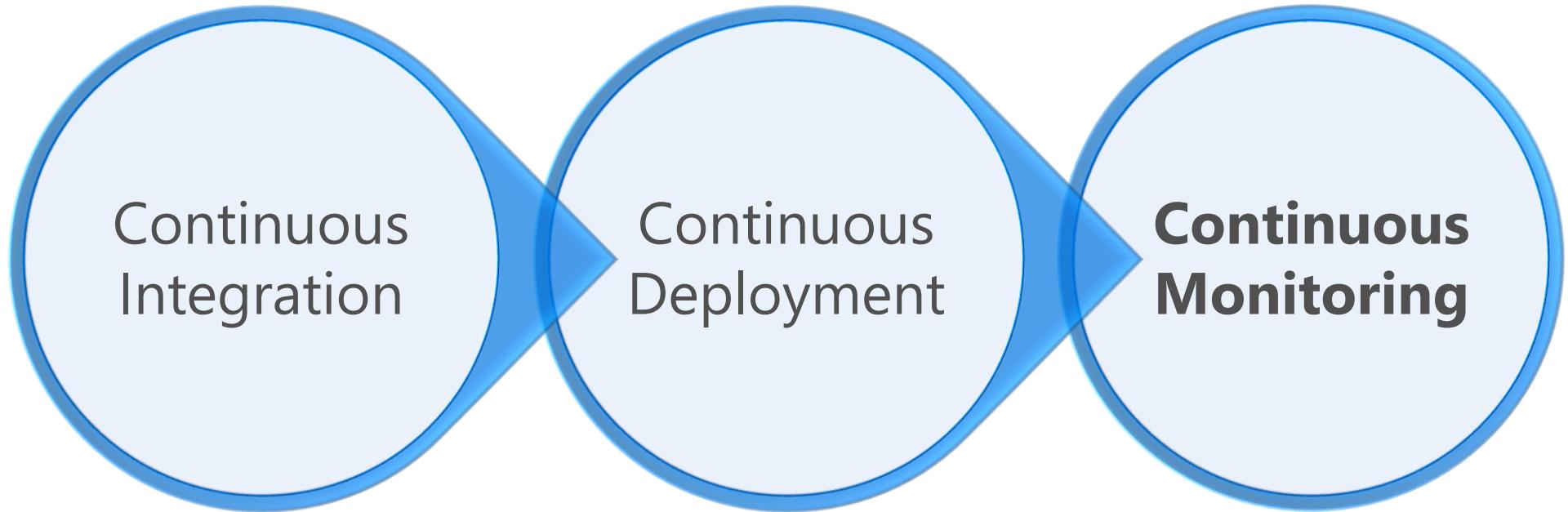
Monthly Data Ingestion



19M

Monthly Analytics Queries

Importance in DevOps



Application Insights Ecosystem

Ingestion



Application Insights
Open Source SDKs
Status Monitor
Azure Extensions

SCOM MP

collectd

LogStash

Exploration



Microsoft Azure Portal
Azure Monitor
Metrics & Search Explorer
Application Map
Application Insights
Analytics portal



Visual Studio IDE

Export & Correlation



OMS Connector



Power BI

Microsoft Azure dashboards



Blob storage



Visual Studio
Team Services

Data Access APIs

Overview Demo

Bridging the Gap Between App and Infra

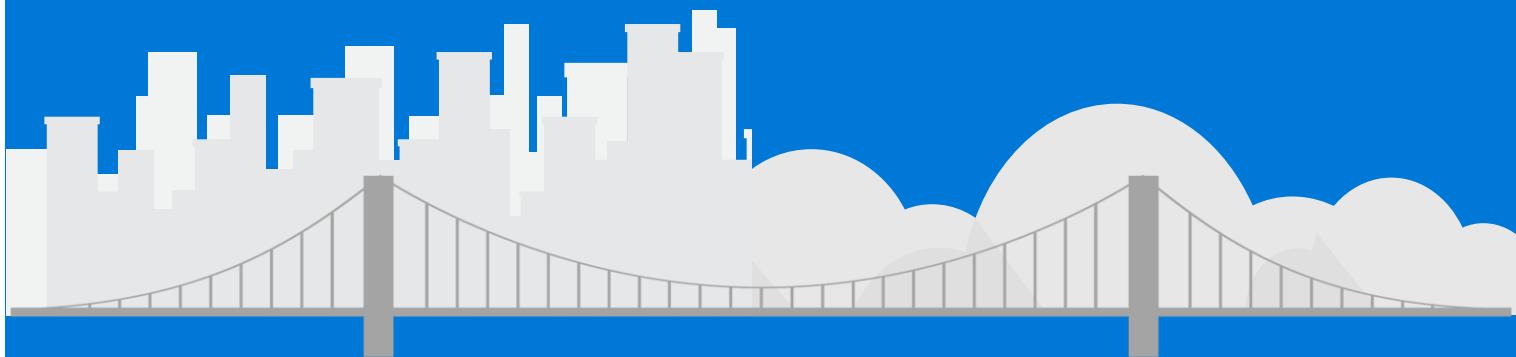
Bringing Together



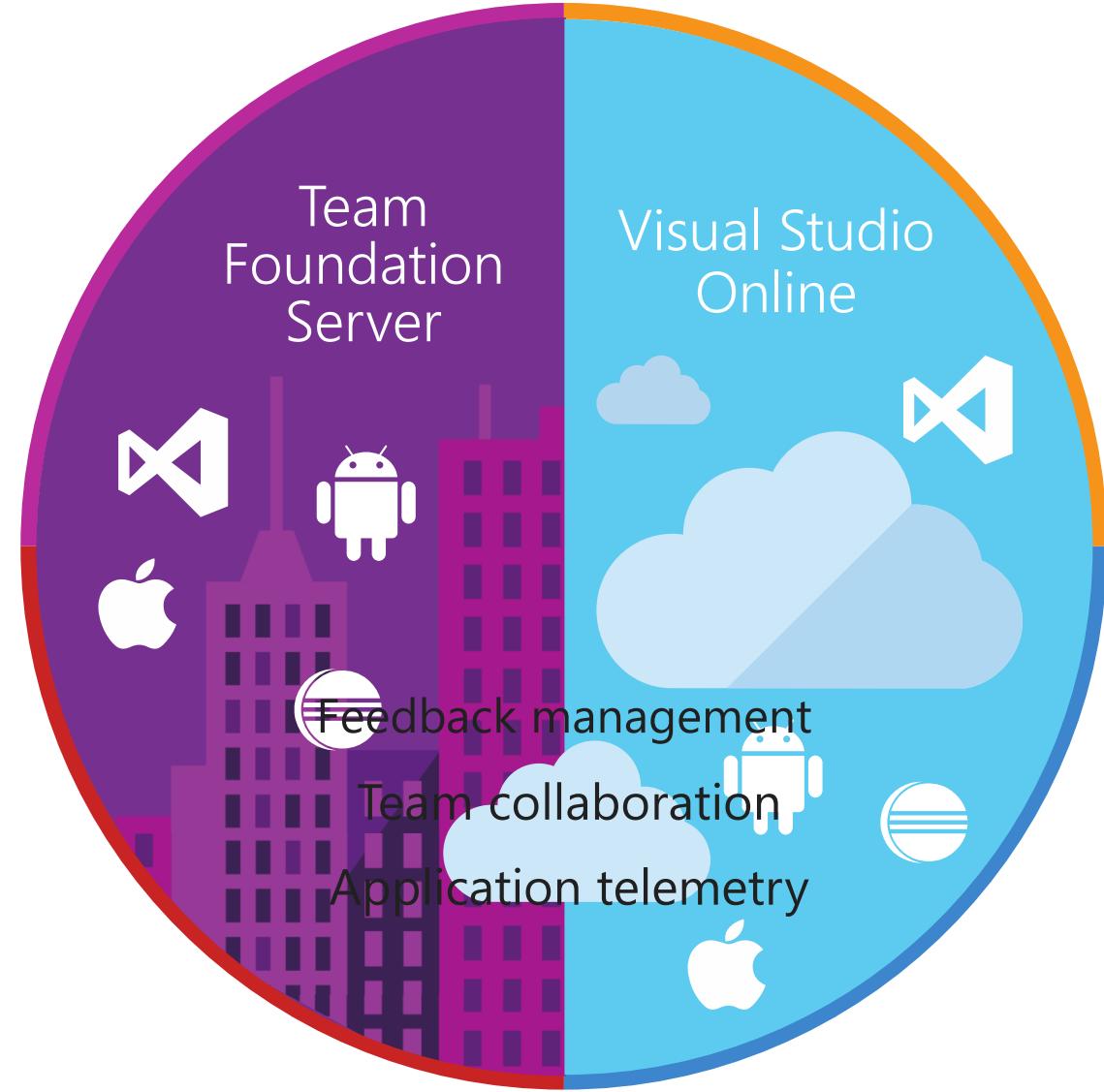
Integrated experience across Dev and Ops

Address the needs of:

- **App Teams** who need application performance monitoring, diagnostics, and analytics
- **Central IT** teams who manage the health of systems and supporting infrastructure
- **DevOps Teams** who need an integrated view to how apps are impacted by underlying infrastructure



Our solution



Office Project Server

Microsoft System Center

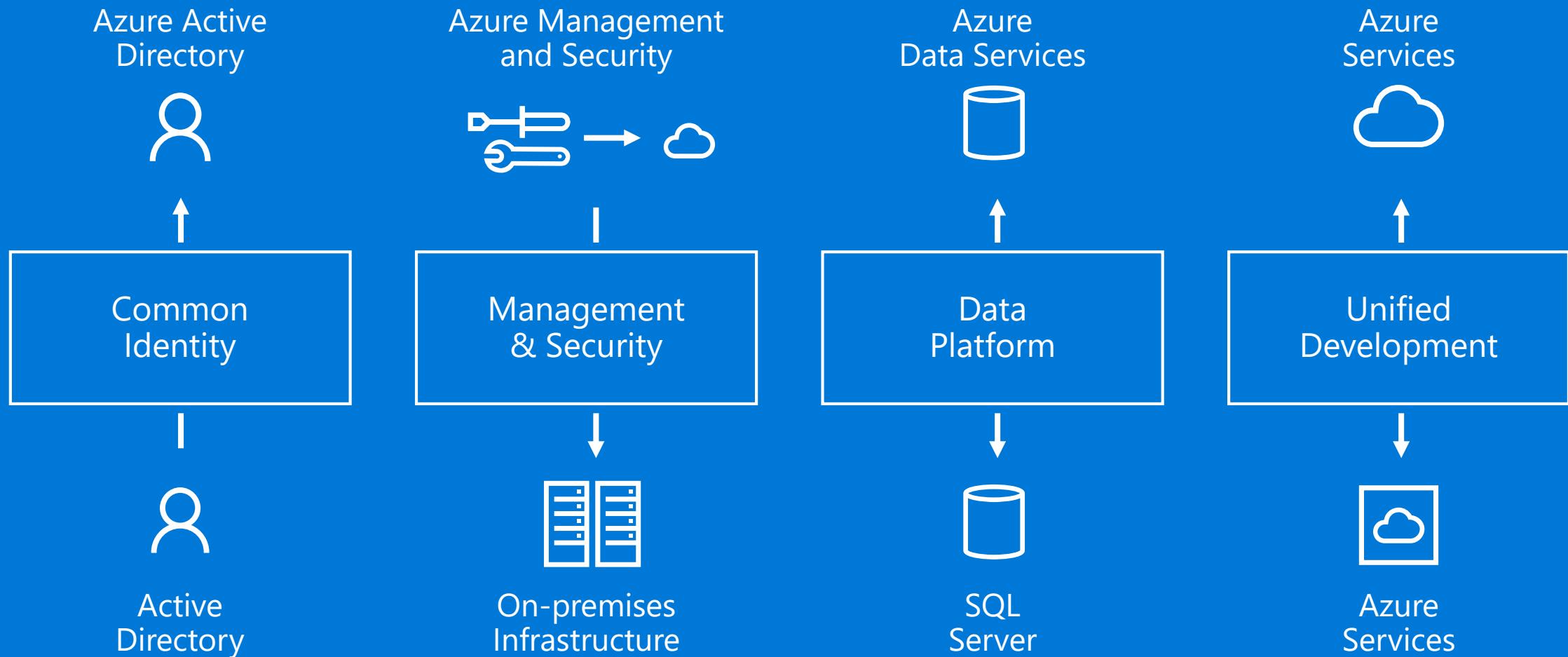
Microsoft Azure SharePoint



Visual Studio

Azure Stack + hybrid

Overcome complexity with consistent, hybrid cloud



Truly consistent hybrid cloud platform

Bring the agility and innovation of the cloud to your datacenter



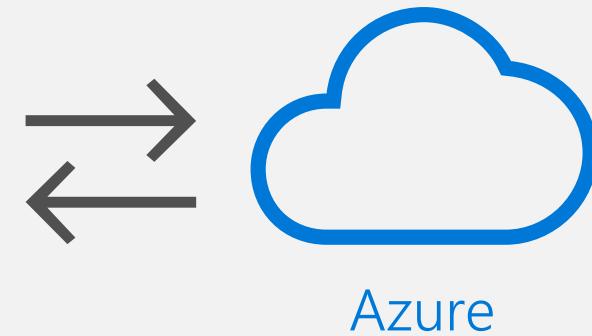
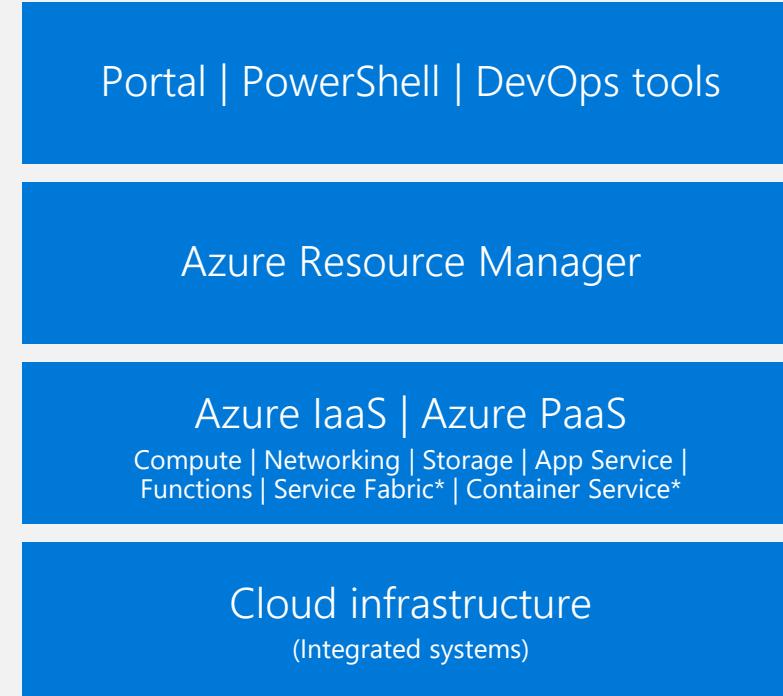
Edge and disconnected solutions



Cloud applications that meet every regulation



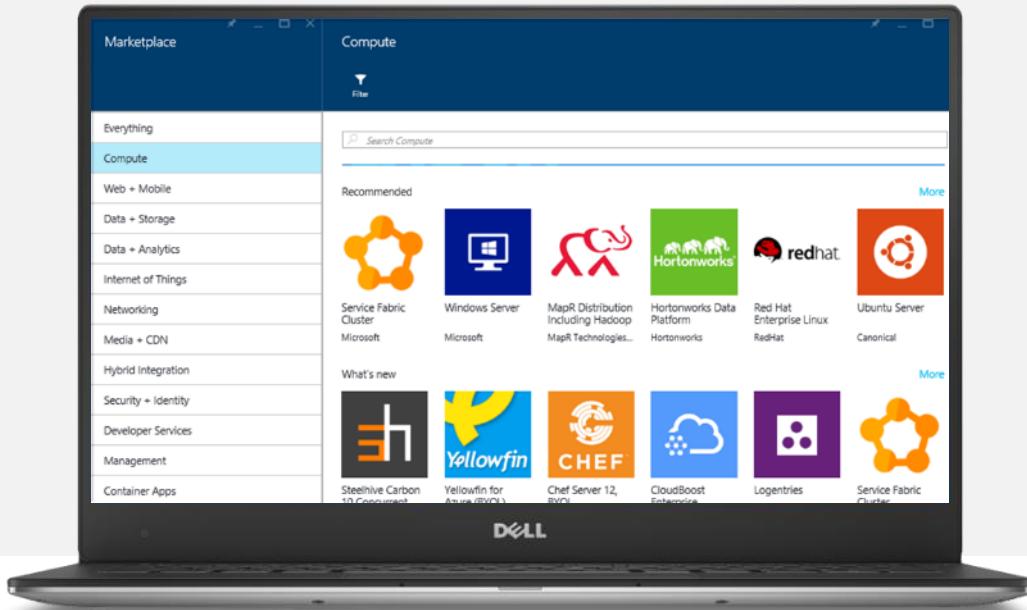
Modern applications across cloud and on-premises



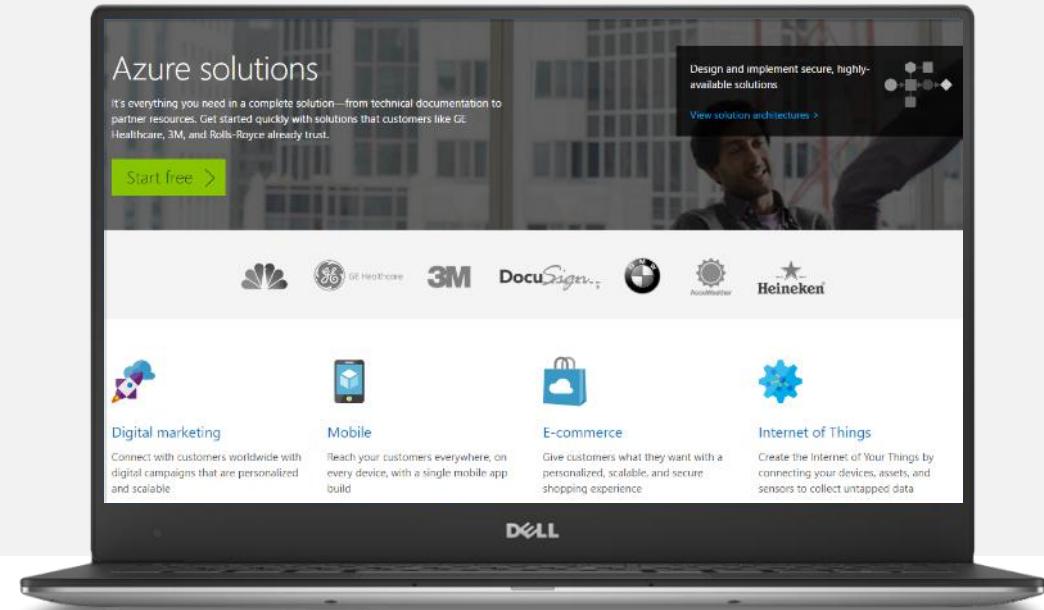
Azure Stack

Service essentials

Expand your solutions with Azure Marketplace

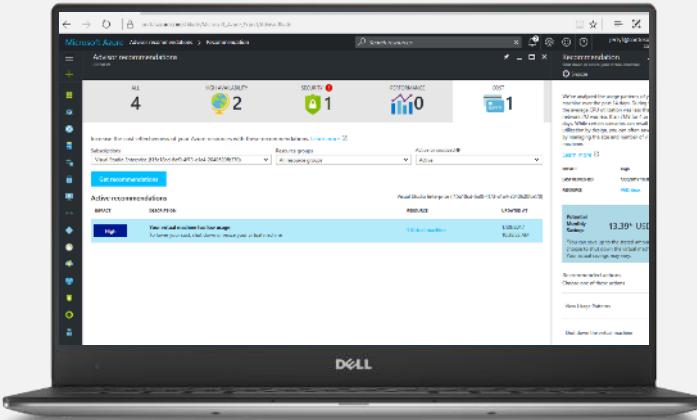


Azure Marketplace



Azure solutions

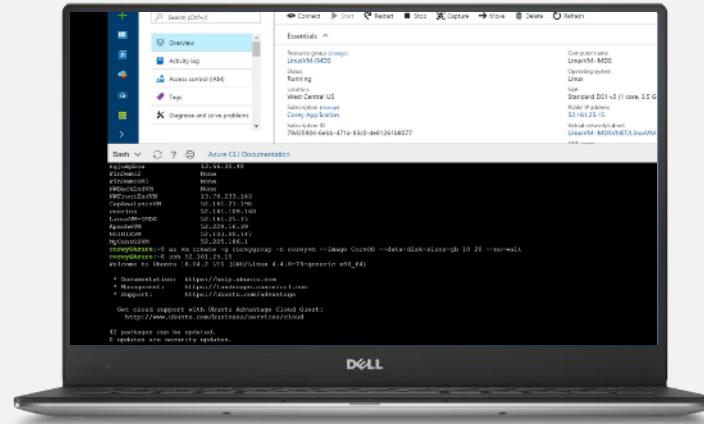
Manage and monitor with a choice of tools



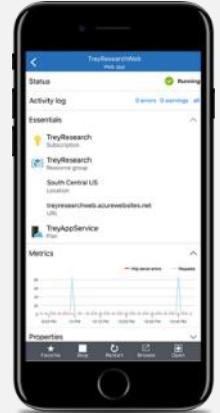
Azure
security center



Azure Advisor
and Monitor



Cloud Shell



Azure
mobile app

Azure solutions





Walmart
Save money. Live better.

3M



TOYOTA

**Rockwell
Automation**



**Johnson
Controls**

MCKESSON
Empowering Healthcare

Lufthansa

SAMSUNG

HEINEKEN

mazda

SKANSKA



xerox



Honeywell

Schlumberger

EY
Building a better
working world

CBC & Radio-Canada

Alaska

ThyssenKrupp

FUJITSU

TEMENOS
The Banking Software Company

**Wellmark.
BlueCross
BlueShield**

esri

HarperCollins

>90%
of Fortune 500 use
Microsoft Cloud

Azure solutions





Scenario

Deliver faster response to 16 million site visitors each month.

Move toward a Dev/Ops model in which software engineers can provision development infrastructure and accelerate the development of new digital services.

Reduce storage costs and gain scale for website images.

Solution

"Azure Storage provided effectively limitless storage with read-accessible geo-replication, so we could deliver increased capability and resilience that was cost-effective."

Generate images of different sizes on the fly, and cache them for use when needed by various consumer devices.

Modernize the site, making it 100 percent mobile-friendly, and move to a dynamic Dev/Ops development paradigm.

Impact

Tripled the number of images stored and achieved the ability to deliver the right image to the right device.

"Azure PaaS gave us access to a complete set of capabilities such as Azure Redis Cache that we didn't have to build ourselves."

"With rapid access to development resources in Azure, we can set up environments, try, fail, repeat. Our whole innovation model speeds up with Azure PaaS."



Dev/Test



Microsoft Azure

TOOLS

Visual Studio + Visual Studio Code + Visual Studio Team Services

ADVANCED WORKLOADS

Web + Mobile

Internet of Things

Microservices

Serverless

Identity Management

Data + Analytics

Cognitive Services

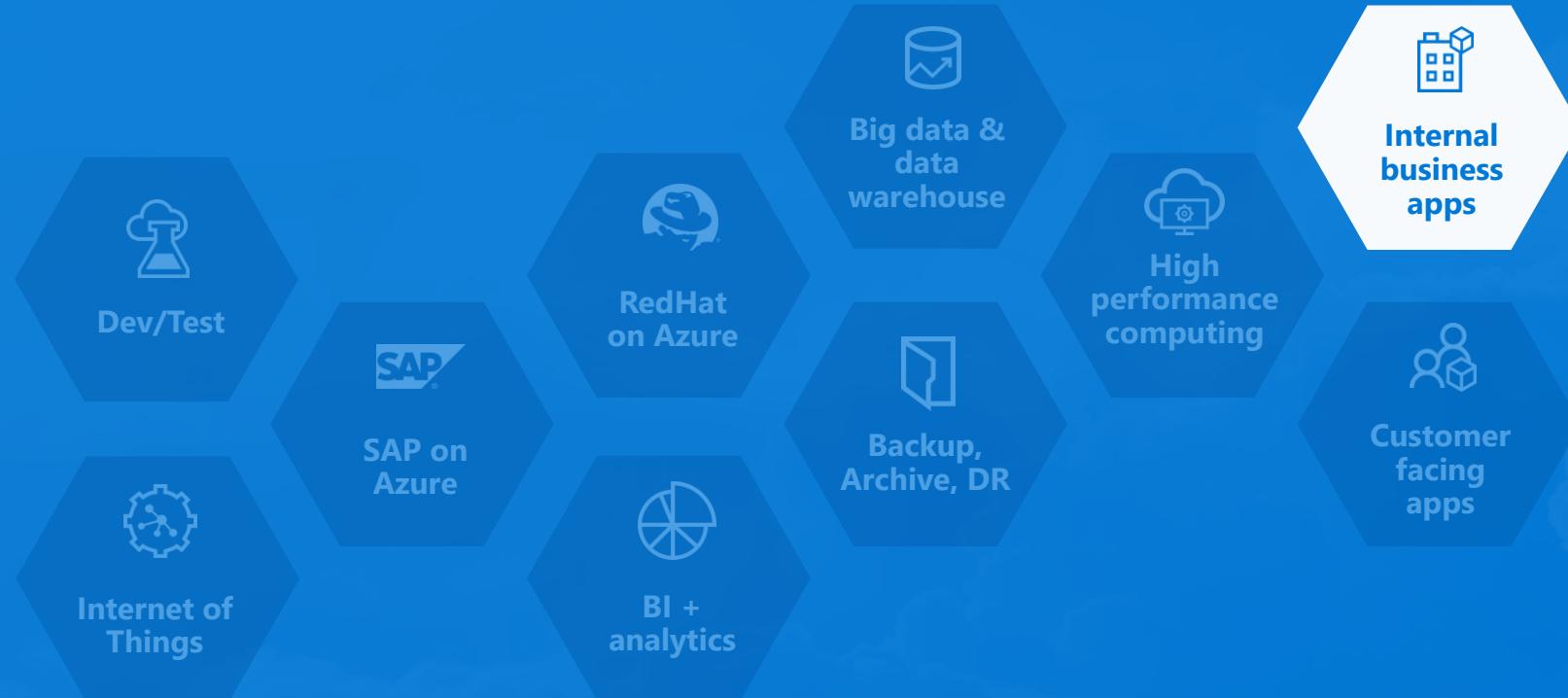
High Performance Compute

CORE INFRASTRUCTURE

Compute Storage Networking Security

Azure Stack + Hybrid

Azure solutions





Scenario

Rapidly growing video content put strain on their data center, maxing out finite storage and processing resources while adversely affecting end users.

Needed to create new and engaging sales training solutions for a mobile salesforce.

Also to gain insights into training performance and coaching opportunities.

Solution

Moved videos to Azure and immediately benefitted from adaptive bitrate streaming.

Azure Content Delivery Network increased video performance by making content closer to users.

Used augmented reality paired with machine learning to create more life-like simulations.

Data fed from simulations to Microsoft analytics.

Impact

More effective and engaging sales training.

Coaching opportunities more easily identified.

Video performance significantly improved.

Eliminated the cost of video content management and maintenance.

Microsoft Azure



SCORECARD

Topic Coverage

50/60

Engagement

18/20
Internal
business
apps

Pace & Flow

10/10

Recovery

10/10



TOOLS

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Azure solutions



URBAN REFUGE

Customer
facing
apps



Scenario

Find a way to connect 2.16 million refugees not living in camps.

Traditionally only word of mouth was the marketing.

Inform of assistance options, sanitation, shelter, food and aid locations.

Localize application to needs of customer and 160 organizations.

Solution

Developed mobile application using visual studio tools for Xamarin.

DevOps with hockeyapp out to beta testers.

Azure active directory B2C

Built for Android, iOS and windows simultaneously.

Impact

Rolled out to 650,000 refugees.

With Visual Studio Tools for Xamarin, we developed a native mobile application targeting Android, iOS, and the Universal Windows Platform, all at the same time. This significantly cut our development time and cost by half or more. Code upkeep and upgrades are also much easier.

Microsoft Azure

URBAN REFUGE

Customer
facing
apps



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ADVANCED WORKLOADS

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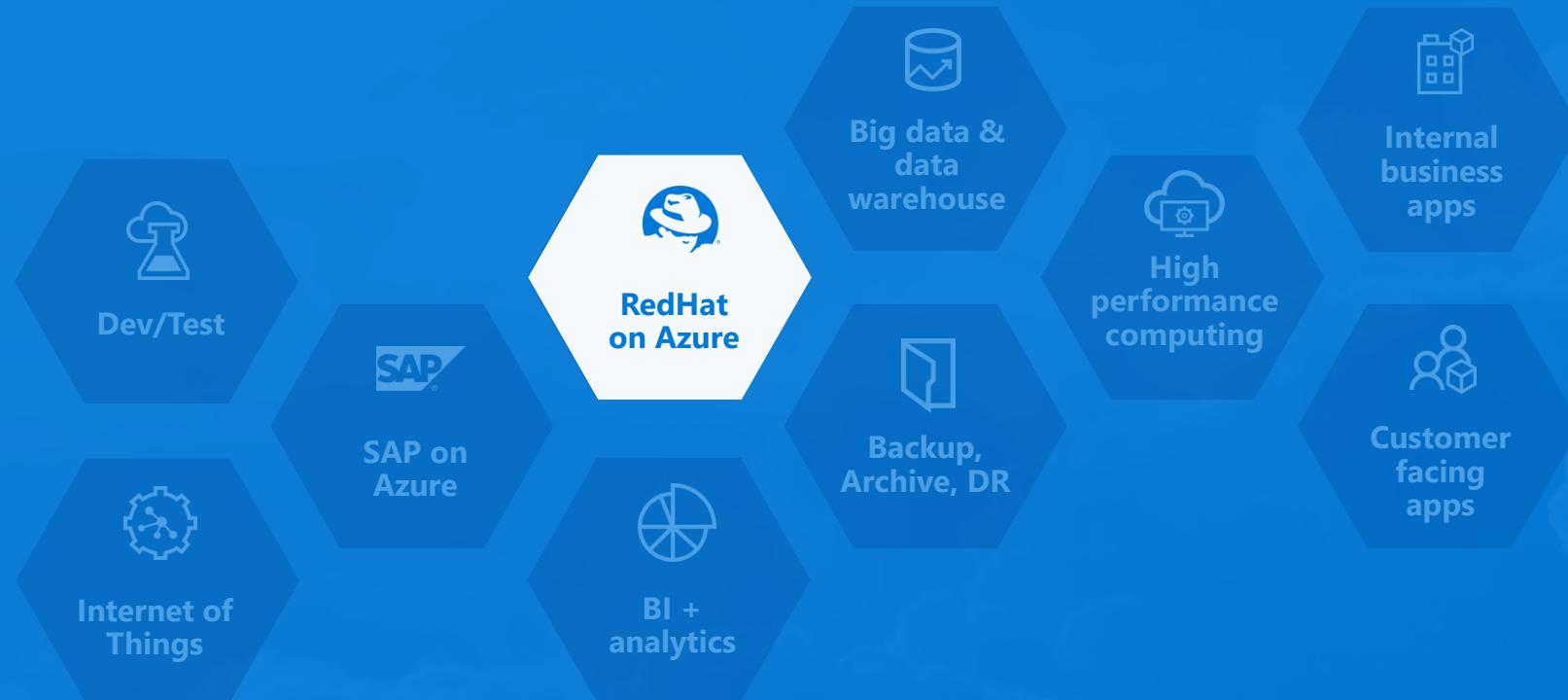
High Performance Compute

CORE INFRASTRUCTURE

Compute Storage Networking Security

Azure Stack + Hybrid

Azure solutions





Scenario

Desire to improve IT management services offered, including security, support, and service continuity.

Help fine-tune cloud customers with precision and transparency.

Leverage a platform to deploy their solutions, including openshift.

Solution

Implemented managed cloud using RedHat on Azure with tools to manage resource usage.

Enabled customers to control costs with capabilities such as scheduling when to switch on their VMs.

Deployed simplified dashboard and catalog of solutions building on top of Red Hat on Azure, such as Openshift.

Impact

Deploy Openshift on Azure, accelerate app dev.

Flexible and upgradeable.

Manage hybrid cloud.



Microsoft Azure

TOOLS

Visual Studio + Visual Studio Code + Visual Studio Team Services

ADVANCED WORKLOADS

Web + Mobile

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CORE INFRASTRUCTURE

Compute Storage Networking Security



Azure solutions





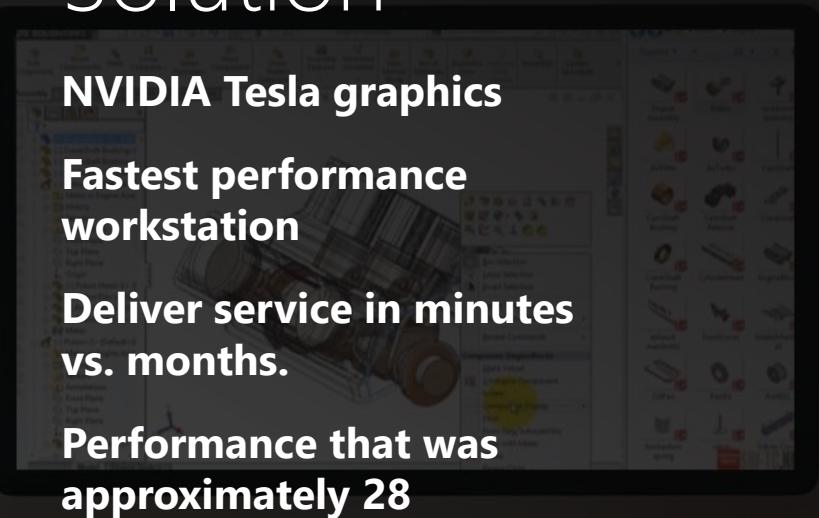
Scenario

Need to run heavy 3D applications in the public cloud from any device, with just a browser.

Typically costs 5-10k to run graphics applications.

VMs take months to set up.

Solution



NVIDIA Tesla graphics

Fastest performance workstation

Deliver service in minutes vs. months.

Performance that was approximately 28 percent faster than AWS G2.2xlarge VMs.

Can run Autodesk Revit, AutoCAD, and demanding Windows applications on a MacBook, iPad, Chromebook, or any low-performance device.

High performance computing



Impact

"Azure GPUs are faster than the AWS GPUs because Azure uses a newer-generation GPU architecture," Boitano says. "The Azure N-Series VMs also have a larger frame buffer, so customers can host larger scene sizes."

Deliver a massive online course with capacity for 1,000 students. With Frame, it took an hour to set up the environment, and the customer paid for it only as long as the team used it.



Microsoft Azure

ADVANCED WORKLOADS

Web + Mobile

Internet of Things

Microservices

Serverless

Identity Management

Data + Analytics

Cognitive Services

High Performance Compute

CORE INFRASTRUCTURE

Compute Storage Networking Security

TOOLS

Visual Studio + Visual Studio Code + Visual Studio Team Services



High performance computing



Azure Stack + Hybrid

Azure solutions





Scenario

One week lead-time for back-up restoration.

After 9/11, needed a better solution – blocks away.

68 countries and 65M customers.

Solution

**Azure Site Recovery
Coordination of VMs.**

Use Azure, their own data center as recovery site.

Can run off Azure indefinitely during disaster.

Impact

**DR cost reduced by 65%.
Easy testing**

Instead of a week, running again in minutes.

Maximum data loss of 30 seconds.



Microsoft Azure

TOOLS

Visual Studio + Visual Studio Code + Visual Studio Team Services

ADVANCED WORKLOADS

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Data + Analytics

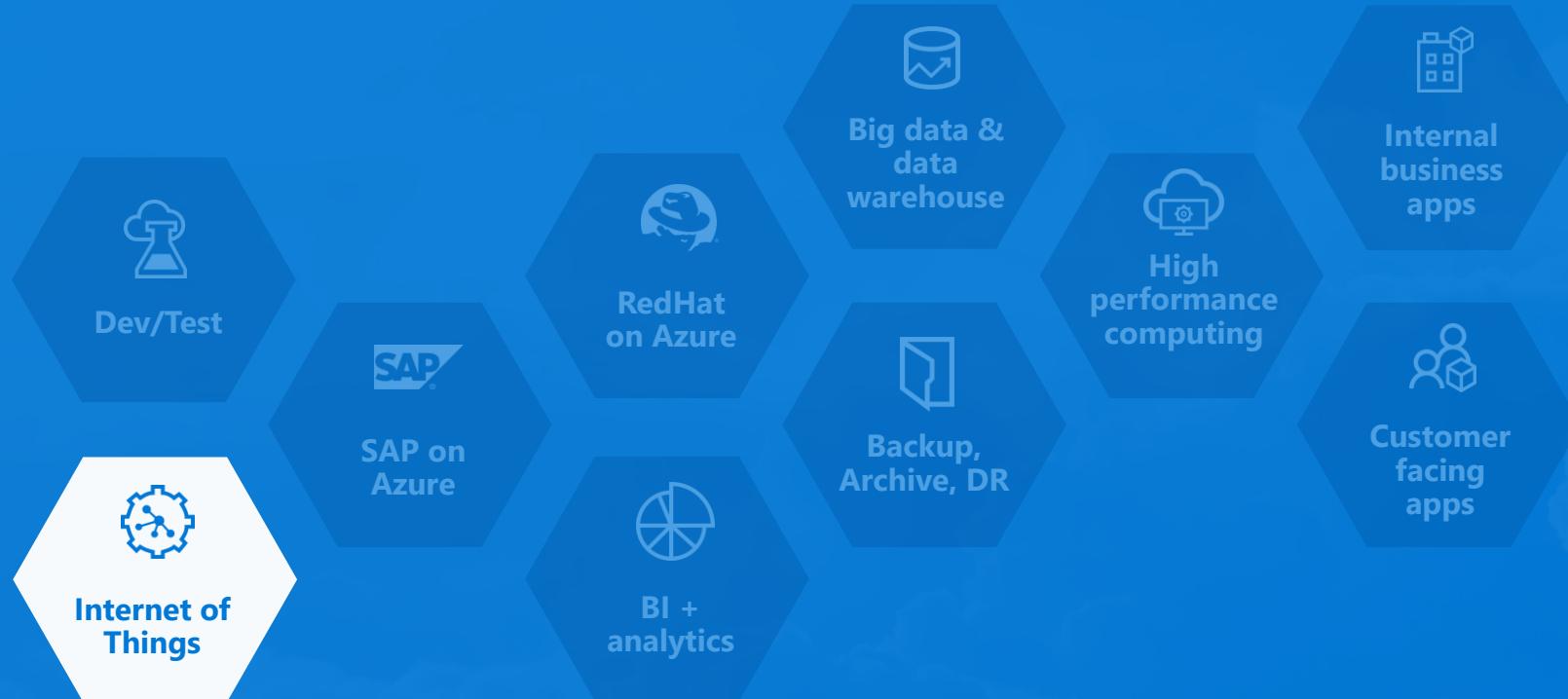
Cognitive Services

High Performance Compute

CORE INFRASTRUCTURE

Compute Storage Networking Security

Azure solutions





Scenario

High quality, precision instrument manufacturing.

In-depth knowledge of machining and tooling processes.

Desire to improve efficiency, reliability and cost-effectiveness.

Empower customers to make best possible business decisions.

Solution

Convert experience to digital knowledge and apply machine learning to provide predictive maintenance.

Leverage Azure IoT Suite to collect sensor data.

Embed intelligence with Azure Machine Learning and Streaming Analytics.

Integrate into Dynamics 365 for Field Service.

Impact

Help operators and technicians make better decisions based on objective integrated production data.

Set up predictive maintenance schedules and set alarms to take machines offline before failure.

Support resource planning and ROI decisions.

Microsoft Azure

TOOLS

Visual Studio + Visual Studio Code + Visual Studio Team Services

ADVANCED WORKLOADS

Web + Mobile

Internet of Things

Microservices

Serverless

Identity Management

Data + Analytics

Cognitive Services

High Performance Compute

CORE INFRASTRUCTURE

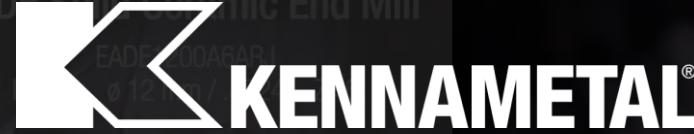
Compute Storage Networking Security



Azure solutions



EADE Solid Carbide End Mill



Scenario

**12,000 employees, customers
in 60 countries.**

**Material analytics compares
thousands of different existing
combinations.**

**Uncontrolled documents
becoming a potential security
risk.**

$V_m = 2865 \text{ mm/min}$

$n = 15915 \text{ rpm}$

Maschine max. 16000 rpm



BI +
analytics



Solution

**Already moving to Office 365
and Dynamics CRM.**

**Power BI for easy data
analytics and visualization.**

**Windows 10 tablets for mobile
access.**

**Cortana integration with
natural language search.**

Impact

**Natural language querying and
rich visualization tools make
data more straightforward and
accessible.**

***"Power BI is just way more
fun"***

**Leverage intellectual property
to introduce products up to
20% faster.**

fz = 0,03 mm
0,0019 ipt



vf = 2865 mm/min

15015

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Compute Storage Networking Security

BI +
analytics



Azure Stack + Hybrid

Azure solutions





Scenario

Integral Analytics software helps utilities evaluate costs and risks.

Workloads run up to 25 TB of data.

Original solution was on-premises SQL Server.

Data feeds taking three hours per night.

Need an end-to-end solution, including batch and real-time processing.

Solution

Moved to Azure SQL Data Warehouse.

Continued use of .Net and SQL Server skills.

Create hybrid queries that span cloud and on-premises databases.

Adopt additional related Azure services such as Blob storage and Azure Batch.

Impact

Ability to quickly pause and resume Azure SQL Data Warehouse to minimize costs.

Can scale on demand up to 6,000 data-warehouse units.

Accelerate and simplify software development.

Substantial cost savings over Amazon Redshift.

Microsoft Azure

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CORE INFRASTRUCTURE

Compute Storage Networking Security

Big data &
data
warehouse



Azure Stack + Hybrid

Azure solutions





Scenario

Want to improve elasticity, performance and costs of datacenter assets.

7,000 employees across multiple locations and time zones.

60 manufacturing facilities.

Manufacturing siloed geographically.

SAP reports taking hours to generate, delaying business decisions.

180 SAP servers.

Solution

Mixed environment of Windows and Linux moved to the cloud.

Comprehensive Azure security capabilities.

SAP HANA on Azure:

- Four regional instances of SAP ECC
- One consolidated instance of ERP suite

Impact

Moved 75% of datacenter infrastructure to cloud, planning for 90%.

Significantly lower capital and operating costs.

Consistent levels of security, more responsive when threats identified.

Reports that took 6 hours now done in 6 minutes.

Can now adopt same day planning and rush orders.

SAP on Azure





Microsoft Azure

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Compute Storage Networking Security

SAP on
Azure



Azure Stack + Hybrid

Microsoft Azure

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CORE INFRASTRUCTURE

Compute Storage Networking Security

Build and innovate with choice and flexibility

| | | | | | | | | | |
|------------------------|---|---|---|--|--|--|--|---|--|
| DevOps |  Nagios® |  VAGRANT |  ANSIBLE |  GRUNT |  Hadoop |  |  |  Xamarin |  |
| Management |  CHEF™ |  puppet labs |  ANSIBLE |  SALTSTACK |  Redis |  miste.io |  libcloud |  SCALR CLOUD MANAGEMENT | |
| Applications |  WordPress |  Joomla! |  Drupal™ |  GitHub |  APPRENDA |  Docker |  CloudBees |  Koding | |
| App frameworks & tools |  PHP |  nodeJS |  Python |  JS |  Ruby |  IntelliJ IDEA |  Eclipse | | |
| Databases & middleware |  Hadoop |  redis |  CLEARDB |  cloudera |  MySQL™ |  MongoDB |  Couchbase | | |
| Infrastructure |  Ubuntu |  Ubuntu Server |  Red Hat |  SUSE |  Debian |  bitnami |  Oracle Linux |  FreeBSD |  Docker |



Thank You!

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ευχαριστώ Salamat Po متشکرم شکرًا Grazie

благодаря ありがとうございます Kiitos Teşekkürler 谢谢

ຂອບຄຸນຄ້ວັບ Obrigado شكريه Terima Kasih Dziękuję

Hvala Köszönöm Tak Dank u Wel **дякую** Tack

Mulțumesc спасибо Danke Cám ơn Gracias

多謝晒 Ņakujem תודה ନନ୍ଦି Děkuji 감사합니다