

# Azure: The Cloud On Your Terms

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# Business & Government are powered by the cloud

"Cloud is a given. CIOs no longer ask *whether* they should use cloud, but rather *how*."\*

## Improve efficiency

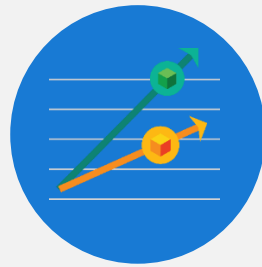
"Traditional on-premises data storage is **four times the cost** of cloud storage."\*\*



Reduce costs and inefficiencies

## Enable innovation

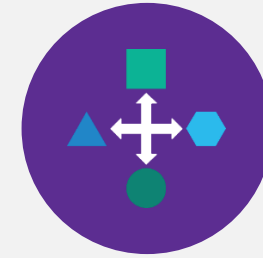
"55% of CIOs indicated they would source **all their critical apps in the cloud** by 2020."\*\*\*



Increase revenue with existing assets

## Transform your business

"Seventy percent of CIOs will embrace a **cloud-first strategy** by 2016."\*\*\*\*



Create new business models

\*"Cloud Evolves From Point Solution To Strategic Enabler Of The New Connected Economy," Forrester, Liz Herbert, January 2015

\*\*Forrester, 2014

\*\*\*Smith, David Mitchell et al. Predicts 2014: Cloud Computing Affects All Aspects of IT. Gartner, Inc. December 4, 2013.

\*\*\*\*IDC, CIO webinar, 2014

Is the Cloud really all about  
Cost Savings?

# Cloud also brings...

1. New, emerging and disruptive service models
2. Global market expansion and reach
3. Business agility and accelerated innovation
4. Enhanced customer / citizen experience and satisfaction
5. Risk mitigation
6. Cost Reduction

# New Business Models

- Mobile connected citizen digital services
- Wearables and medical devices connected to activity tracking and health services
- Vehicle and asset tracking
- Unlock insights





# Tax Authority of Mexico

Tax authority improves interaction with taxpayers through cloud computing services

“We chose Microsoft Azure because it was the most suitable option and addressed nearly all of our methodology, research, and technology requirements.”

**Juan Manuel Galarza**  
Tax Authority of Mexico  
General Administrator of Communications and Inform



 [Learn more](#)

- Ability to process higher volumes of information
- Increased tax collection
- More intelligent data management
- Positive impact on citizens
- Cost savings

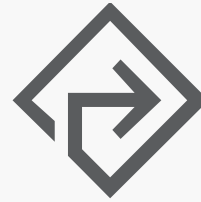
*"Since we started using Microsoft Azure services with the SAT, we have processed close to 4 billion documents with the peace of mind that Microsoft Azure helps keep the information secure, which is fundamental for the organization."*

Juan Manuel Galarza  
CIO SAT

# Power decisions & apps with insights



Data-Driven Intelligence



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Support business  
strategy with  
any data

Predict and  
respond  
proactively

Learn and engage  
with artificial  
intelligence

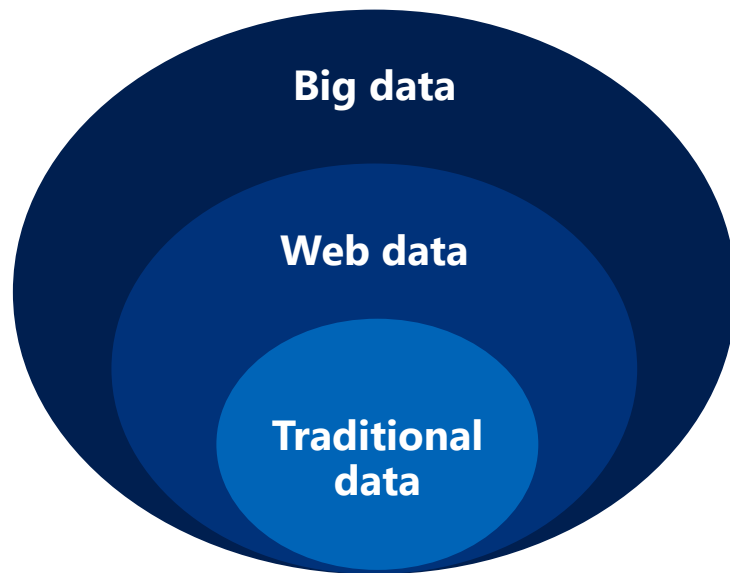


# Support business strategy with any data



Data-Driven Intelligence

## Back-end power



## Front-end insights



# Predict and respond proactively



Data-Driven Intelligence

## Azure machine learning templates

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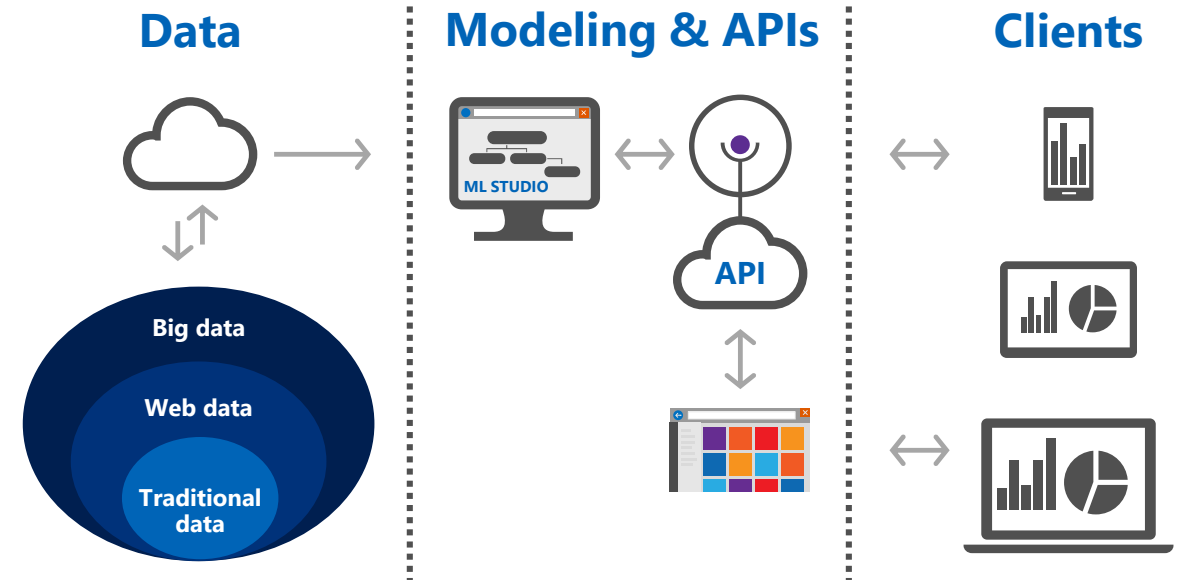
Demand forecasting

Predictive maintenance

Vehicle telemetry

## Azure machine learning service

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# Learn and engage with artificial intelligence



Data-Driven Intelligence



## **Interact in personal, natural ways**

Smart Recommendations,  
personalization, immersive  
experiences

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## **Infuse processes with intelligence**

Dynamics CRM

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## **Capitalize on hidden insights beyond your data**

Advanced Analytics, Machine Learning,  
Data Enrichment

# Learn and engage with artificial intelligence



Data-Driven Intelligence

## VISION

Computer Vision

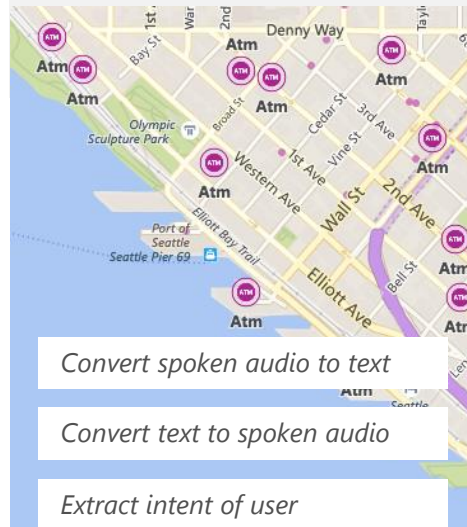
*What is in the image?*



## SPEECH

Speech-to-Text and  
Text-to-Speech Service

*Give me  
directions to  
the closest ATM*



## LANGUAGE

Natural Language  
Processing

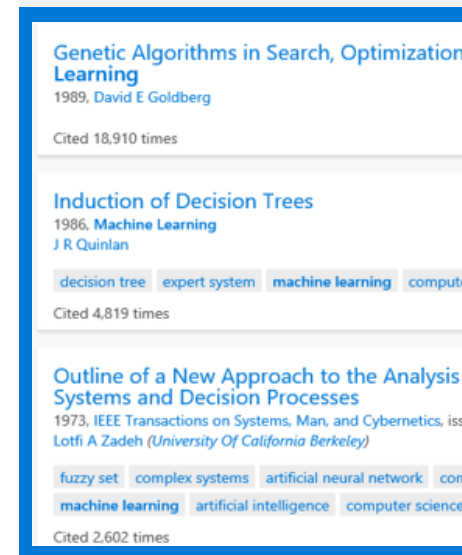
*Play today's  
Daily Show*



## KNOWLEDGE

Knowledge  
Exploration Service

*Top  
publications  
in AI?*



## SEARCH

Bing Search

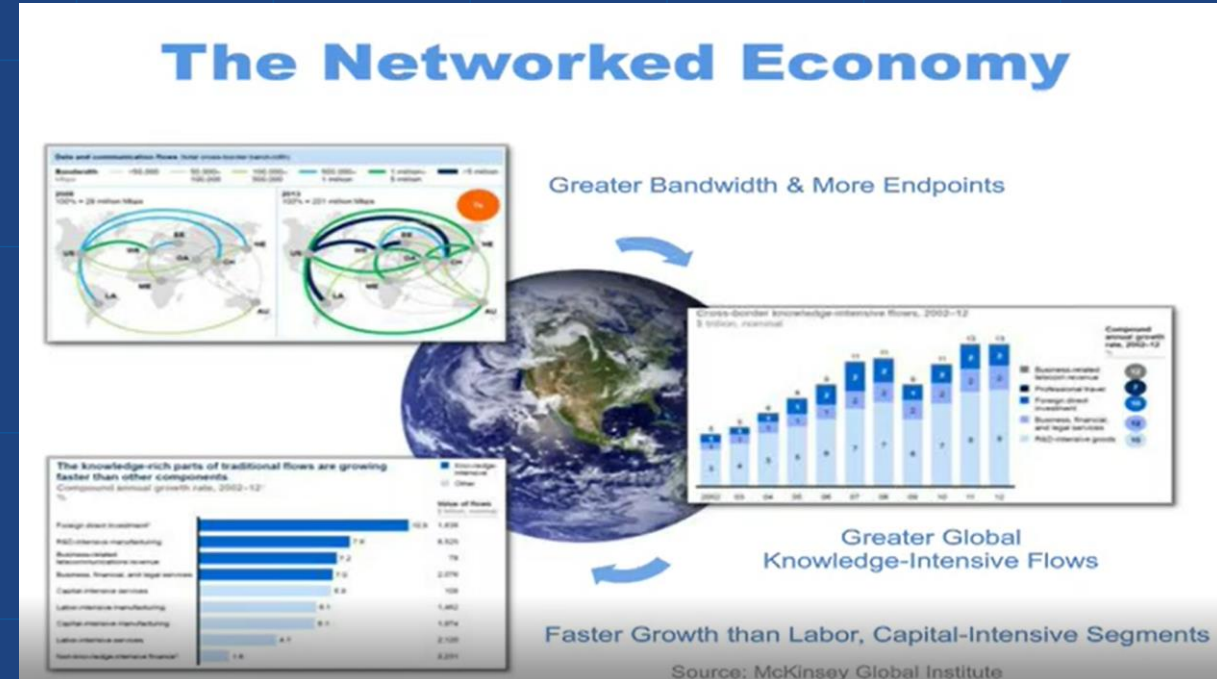
*Search for  
'cute kittens'*



# Global Expansion

According to the McKinsey Global Institute, global flows, i.e., international trade, now account for almost **a third of the global economy**, and “knowledge-intensive” flows, such as business communications and smart products, make up **over half of global flows** and are growing faster than capital-intensive or labor-intensive flows.

- Global collaboration
- Global commerce and services networks
- Reaching out to OFW and the diaspora where they are





# Achieve global scale, in local regions



Trust

# 38

Azure regions

## RECENTLY LAUNCHED:

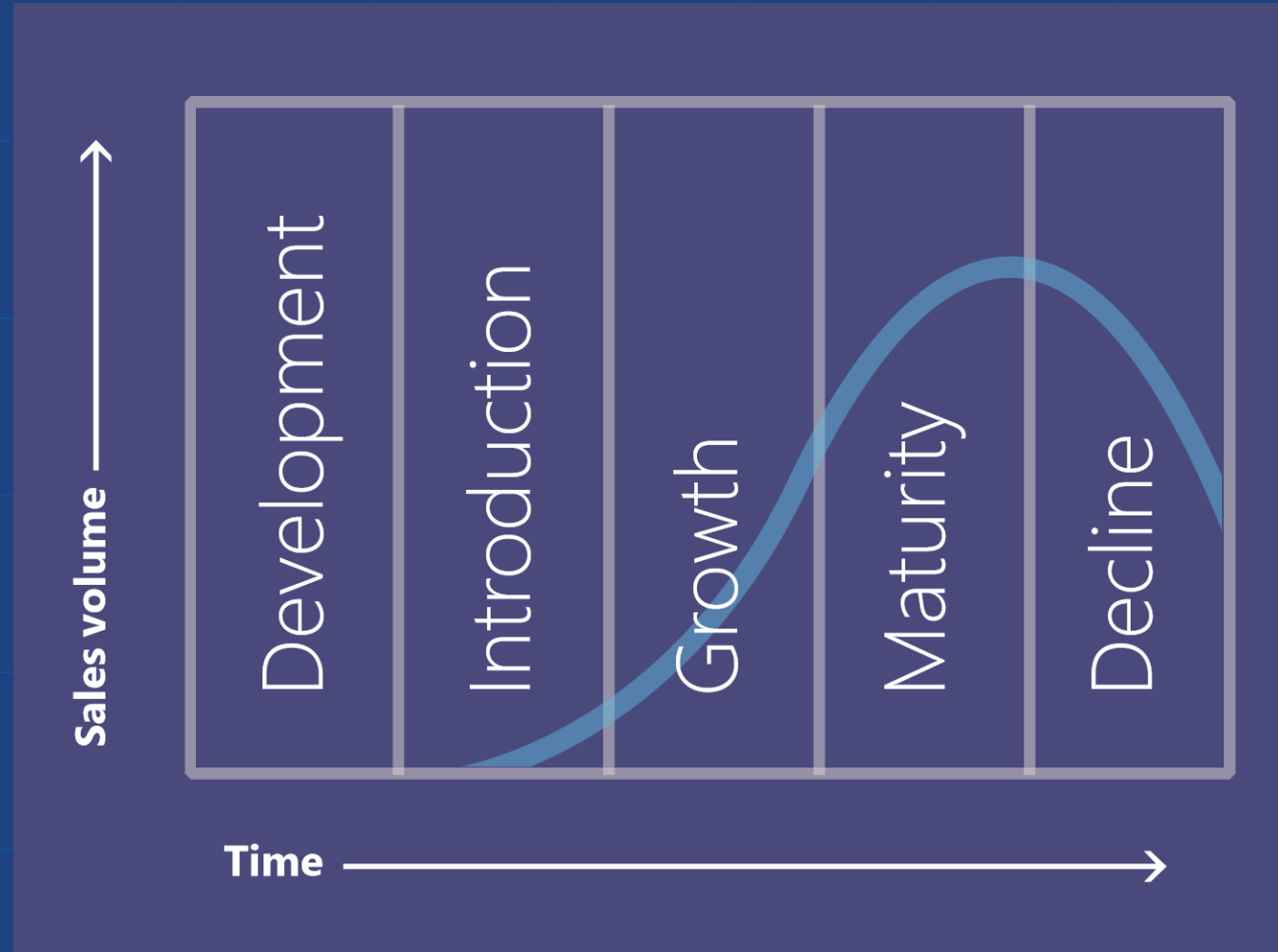
US Regions: West US 2 and West Central  
Germany – Launched in Sep 2016  
United Kingdom – Launched in Sep 2016

## NEWLY ANNOUNCED:

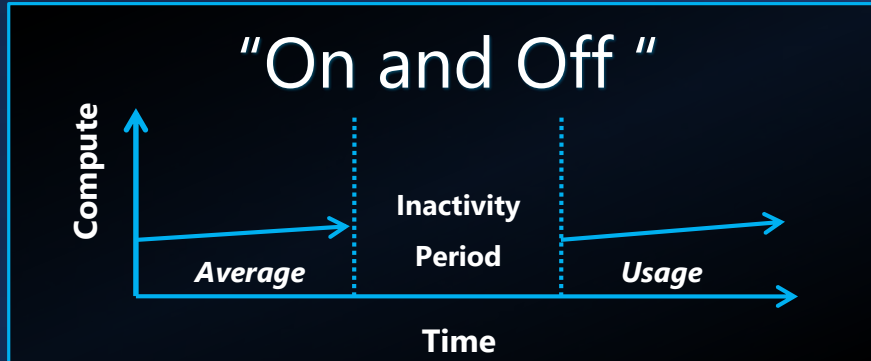
France: France Central and France South  
Korea: Korea Central and Korea South  
DoD East and Central

# Business Agility

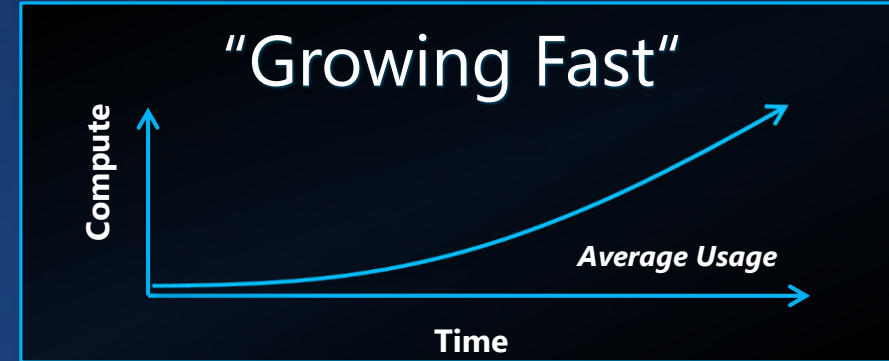
- **Time to Market** – *the interval between conception and product launch*
- **Time to Volume** – *the interval between product launch and production at scale*



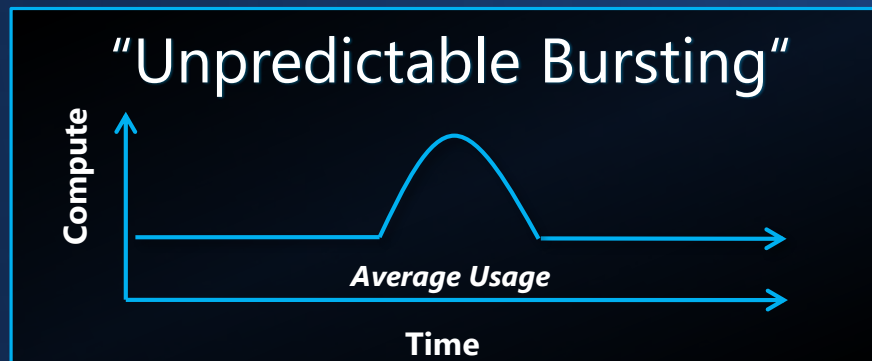
# What are today's Real World IT patterns ?



- On & off workloads (e.g. batch job)
- Over provisioned capacity is wasted
- Time to market can be cumbersome



- Successful services needs to grow/scale
- Keeping up w/ growth is big IT challenge
- Cannot provision hardware fast enough



- Unexpected/unplanned peak in demand
- Sudden spike impacts performance
- Can't over provision for extreme cases



- Services with micro seasonality trends
- Peaks due to periodic increased demand
- IT complexity and wasted capacity

# Introducing Azure Cosmos DB

Globally-distributed, multi-mode, multi API, elastic, blazing-fast NoSQL  
with enterprise level SLAs



Run your mission-critical  
applications at global scale



Globally Distributed



Limitless scale of  
throughput & storage



Single digit  
millisecond latency



Comprehensive SLAs

# Enhanced User Experience

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- Rich and responsive interactions
- User proximity
- Greater interactivity = greater usage, less frustration





# Accelerate innovation with the cloud



**App Innovation**



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Build apps  
faster and  
easier



Manage  
applications  
proactively



Deliver native  
mobile apps  
seamlessly

# Build apps faster and easier - IAAS



App Innovation



VM



Containers



Service Fabric



Other

Legacy applications,  
no change

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Lift and shift

Efficiency and speed

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Improved  
DevOps

Always-on, scalable,  
distributed  
applications

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Hyperscale  
(e.g. IOT)

Cloud Foundry,  
OpenShift, Apprenda,  
Jelastic, etc.

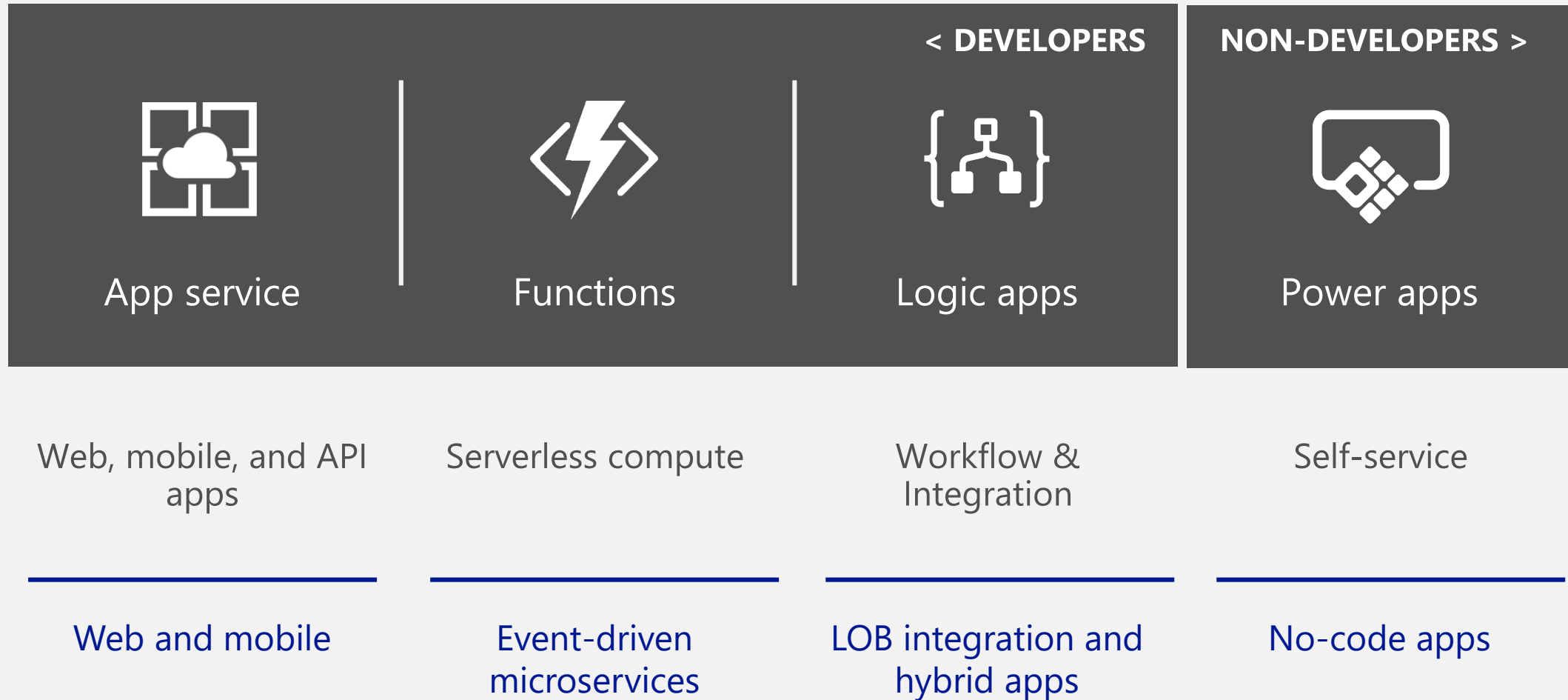
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Third-party  
frameworks

# Build apps faster and easier - PAAS



App Innovation

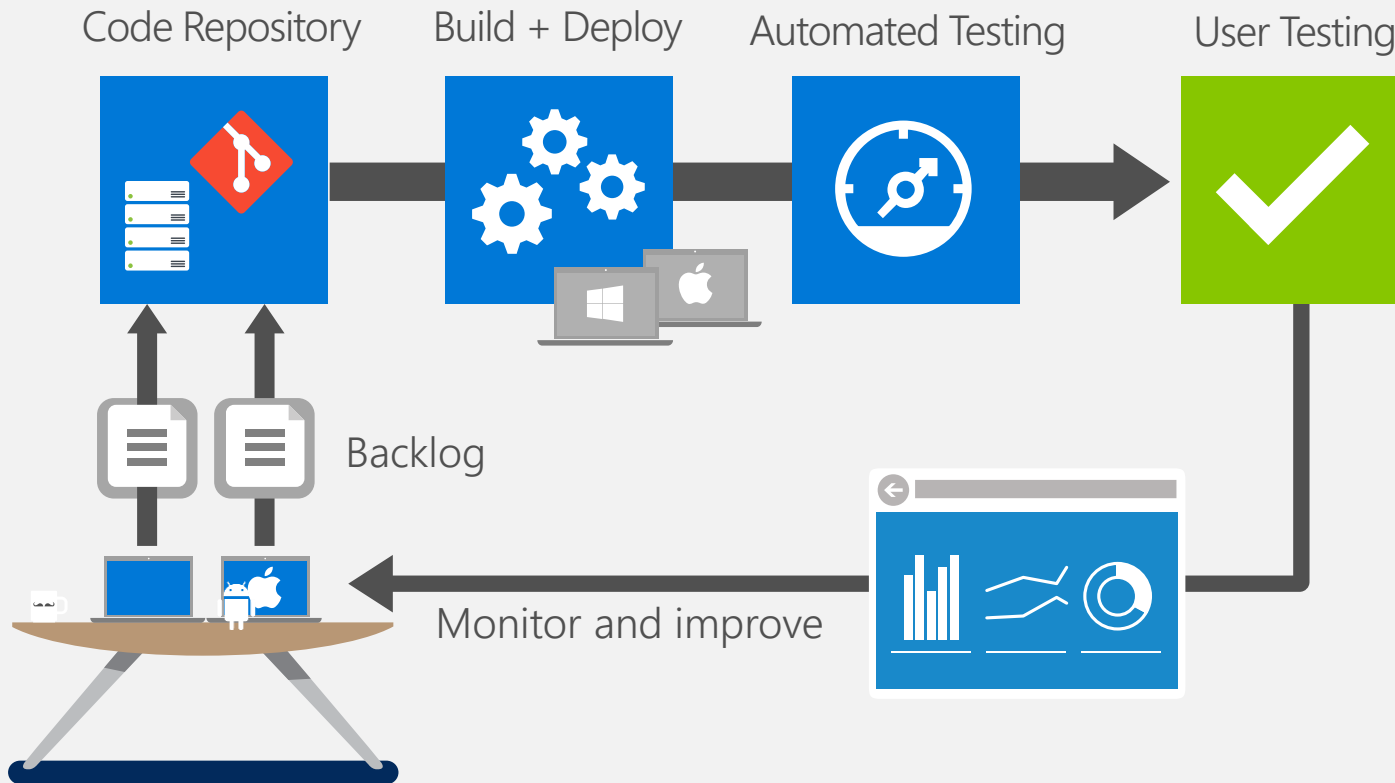


# Deliver native mobile apps seamlessly



App Innovation

## Mobile DevOps



## Mobile Back-end Services

Cloud and  
Offline Data

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User  
Authentication

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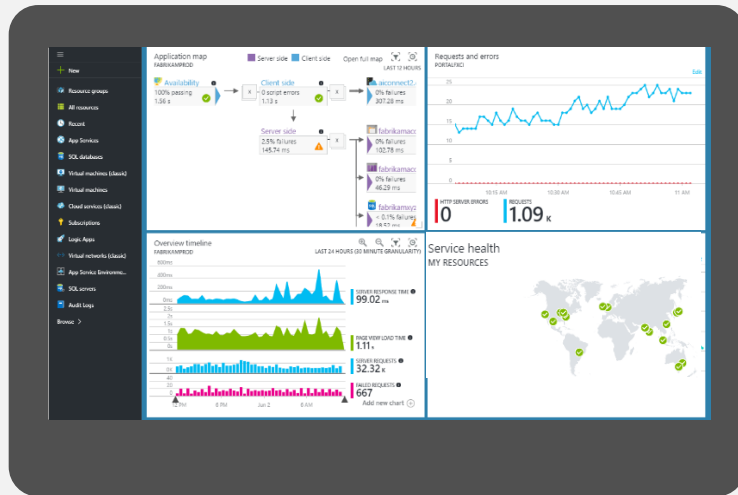
Push  
Notifications

# Manage applications proactively

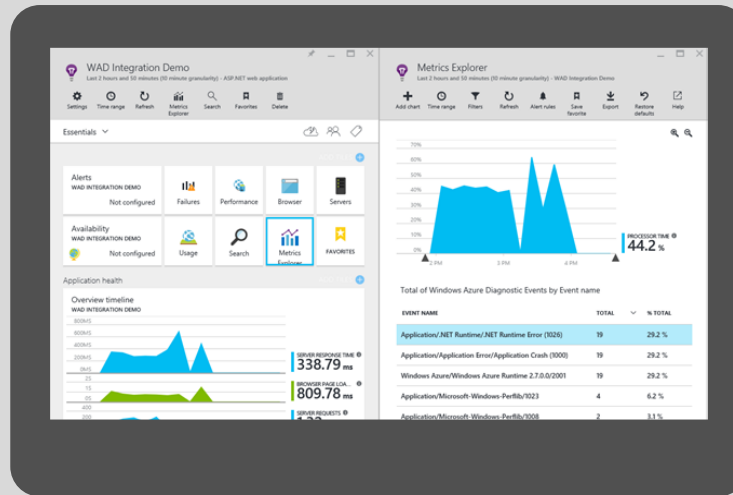


App Innovation

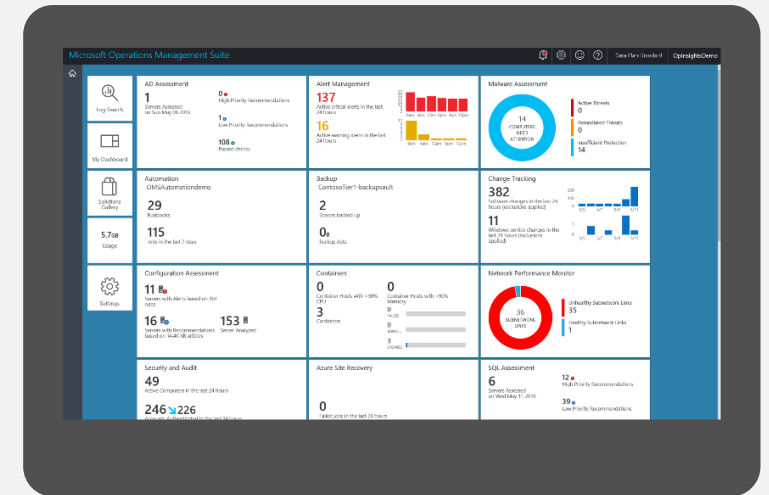
## Azure Portal



## Application Insights



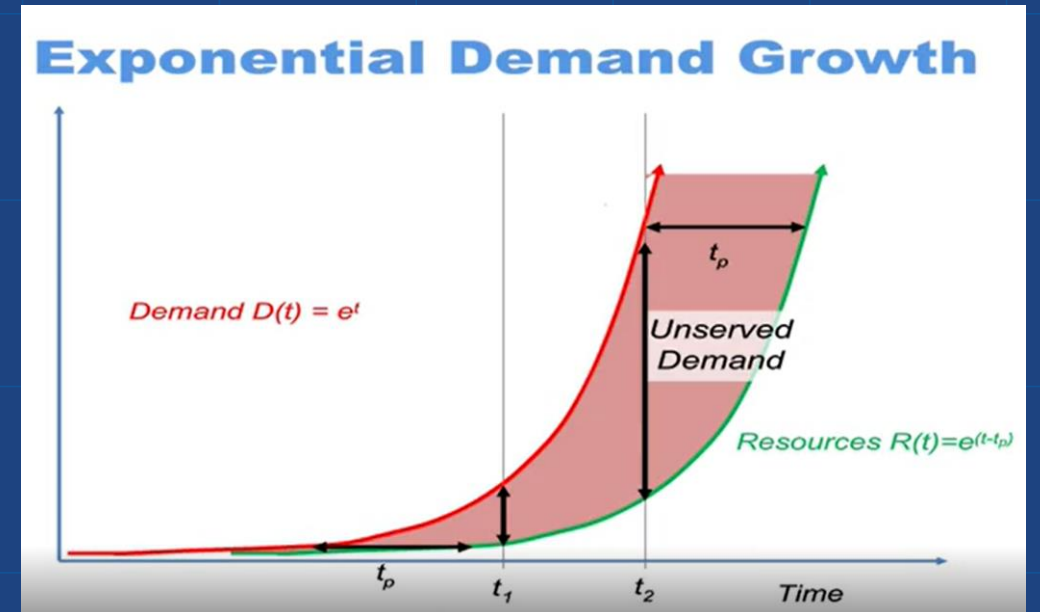
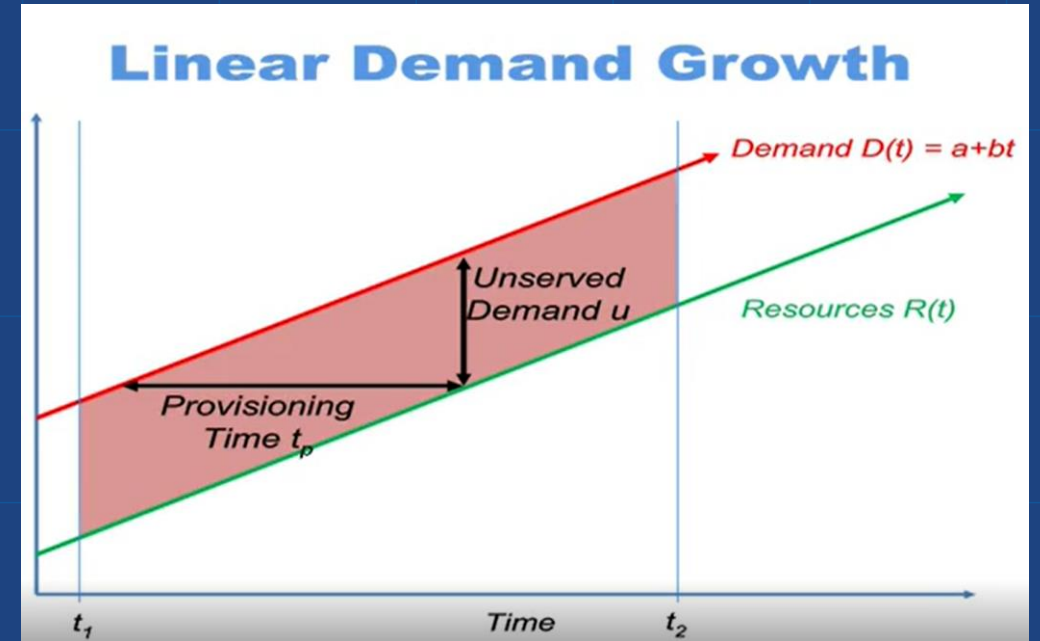
## Operations Management Suite





# Risk Mitigation

- Load uncertainty and variability
- Downtime – natural or human caused
- Poor user experiences
- Economic loss due to excess capital costs
- Technology Obsolescence



# Protect your business



Trust



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Detect and  
mitigate  
threats



Achieve global  
scale, in local  
regions



The most trusted  
and compliant  
cloud

# Detect and mitigate threats

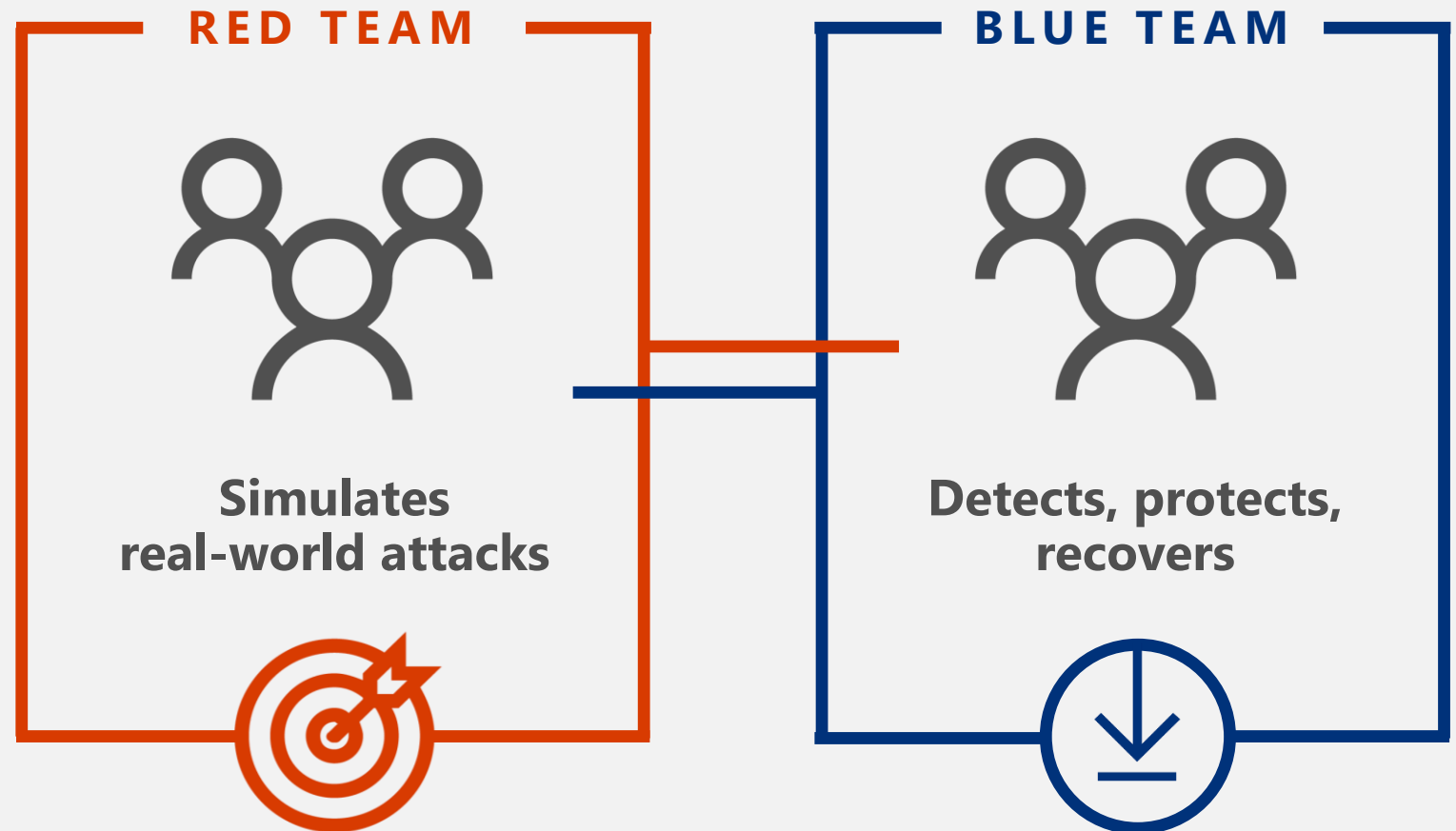


Trust

**Assume Breach**

**Identify Attacks**

**Restore  
Environment**



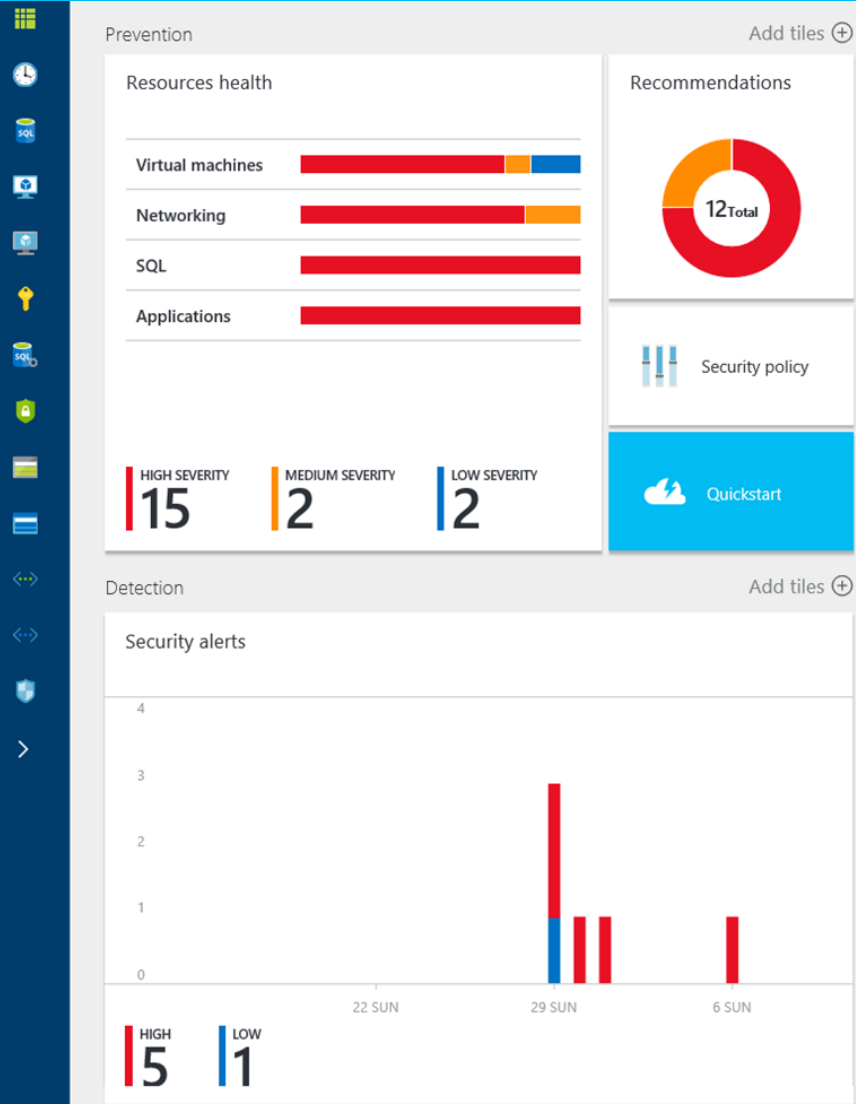
# Detect and mitigate threats



Prevent

Detect

Respond



## Status breakdown

### ONBOARDING STEPS

### TOTAL

No onboarding steps required.

### PREVENTION STEPS

### TOTAL

Antimalware not installed	7 of 11 VMs	<div><div></div><div></div><div></div></div>
Baseline rules mismatch	1 of 11 VMs	<div><div></div><div></div><div></div></div>
Missing system updates	10 of 11 VMs	<div><div></div><div></div><div></div></div>
Restart pending	1 of 11 VMs	<div><div></div><div></div><div></div></div>

## Virtual machines

NAME	ONBOARDING	SYSTEM UPDATES	ANTIMALWARE
VM-W6	✓	!	!
VM-W5	✓	!	!
VM-W4	✓	!	✓
VM-W2	✓	⚠	✓
VM-L3	✓	●	●
VM-CL-W1	✓	!	✓
node14	✓	!	!
node13	✓	!	!
node12	✓	!	!

# The most trusted and compliant cloud



Trust

## GLOBAL



ISO 27001



ISO 27018



ISO 27017



ISO 22301



SOC 1  
Type 2



SOC 2  
Type 2



SOC 3



CSA STAR  
Self-Assessment



CSA STAR  
Certification



CSA STAR  
Attestation

## US GOV



Moderate  
JAB P-ATO



High  
JAB P-ATO



DoD DISA  
SRG Level 2



DoD DISA  
SRG Level 4



SP 800-171



FIPS 140-2



Section  
508 VPAT



ITAR



CJIS



IRS 1075

## INDUSTRY



PCI DSS  
Level 1



CDSA



MPAA



FACT  
UK



Shared  
Assessments



FISC  
Japan



HIPAA /  
HITECH Act



HITRUST



GxP  
21 CFR Part 11



MARS-E



IG Toolkit  
UK



FERPA



GLBA



FFIEC

## REGIONAL



Argentina  
PDPA



EU  
Model Clauses



UK  
G-Cloud



China  
DJCP



China  
GB 18030



China  
TRUCS



Singapore  
MTCS



Australia  
IRAP/CCSL



New  
Zealand  
GCIO



Japan  
My  
Number  
Act



ENISA  
IAF



Japan CS  
Mark Gold



Spain  
ENS



Spain  
DPA



India  
MeitY



Canada  
Privacy  
Laws



Privacy  
Shield



Germany IT  
Grundschutz  
workbook



# Trusted Cloud Principles

A set of foundational beliefs that guide the way we do business in the cloud.

## Security



**Strong security protects data** and safeguards from hackers and unauthorized access by using state-of-the-industry technology, processes, and certifications.

## Privacy & Control



**Customers control their data**, as well as permissions. They can always access their data, take it with them when they terminate an agreement, and delete it upon request.

## Compliance



**Customers can store and manage** their data in compliance with their obligations, applicable laws, regulations, and key international standards.

## Transparency



**Customers know what is happening** with their data. Microsoft explains in clear, plain language how the cloud provider uses, manages, and secures data.

# Industry Validation



## Gartner Magic Quadrants

- Microsoft is a leader in all 6 Gartner Magic Quadrants on cloud technology
- Microsoft is a leader across IaaS, PaaS, Private and Public Cloud technology

x86 Server Virtualization<sup>1</sup>

Public Cloud Storage Services<sup>2</sup>

Cloud Infrastructure as a Service<sup>3</sup>

Disaster Recovery as a Service<sup>4</sup>

Enterprise Application Platform as a Service<sup>5</sup>

Identity and Access Management as a Service<sup>6</sup>

Magic Quadrant for Cloud Infrastructure as a Service Worldwide (May 2015)

LEADER



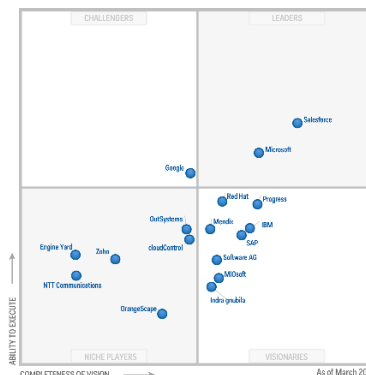
Magic Quadrant for Public Cloud Storage Services (June 2015)

LEADER



Magic Quadrant for Enterprise Application Platform as a Service (March 2015)

LEADER



Magic Quadrant for Business Intelligence and Analytics Platforms (Feb 2015)

LEADER



Magic Quadrant for X86 Server Virtualization (July 2015)

LEADER



Magic Quadrant for Operational Database Management Systems (Oct 2015)

LEADER



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# Momentum

194 billion

External Requests made  
to Azure App Service

340 billion

Azure SQL query  
requests processed/day

750 million

Azure Active  
Directory users

188 billion

Hits to websites run on  
Azure Web App Service

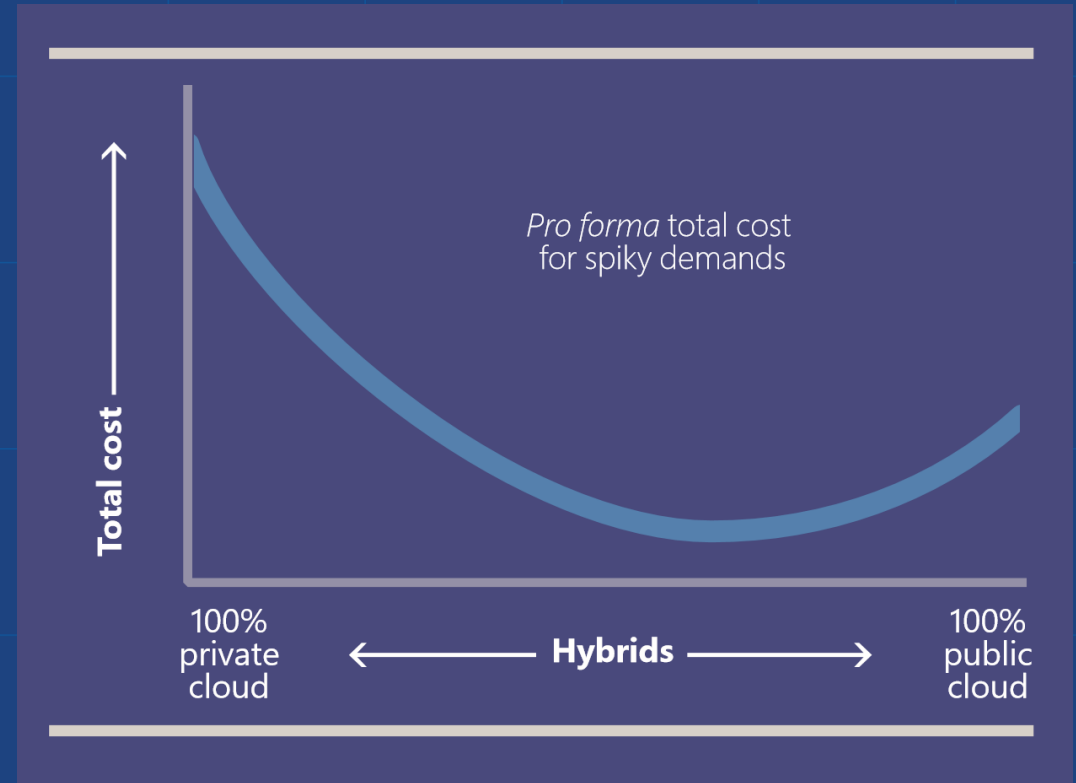
>90%

of Fortune 500 use  
Microsoft Cloud

# Cost Reduction

*All other things being equal...*

- Use Cloud IF it costs less than internal IT while ensuring required SLAs
- But if demand is "spikier" than cloud is "costly"... then cloud will cost less
- Rent? Or Buy?



# Build freely, deploy consistently



Open and Hybrid



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Build and run  
open source  
solutions



Consistent  
identity, apps,  
data &  
management



Deploy  
the cloud  
on-premises

# Build and run open source solutions



Open and Hybrid

## Applications



## DevOps



## Frameworks



## Databases & middleware



## Containers



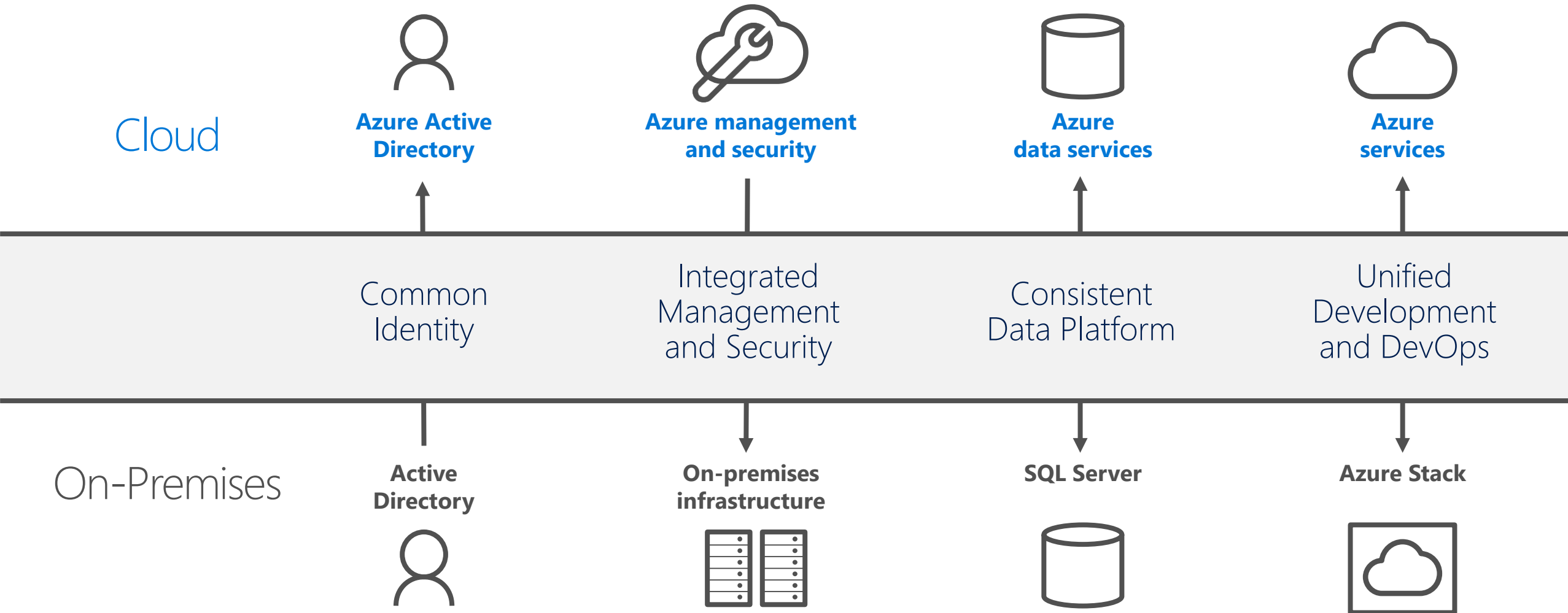
## Infrastructure



# Consistent identity, apps, data & management



Open and Hybrid





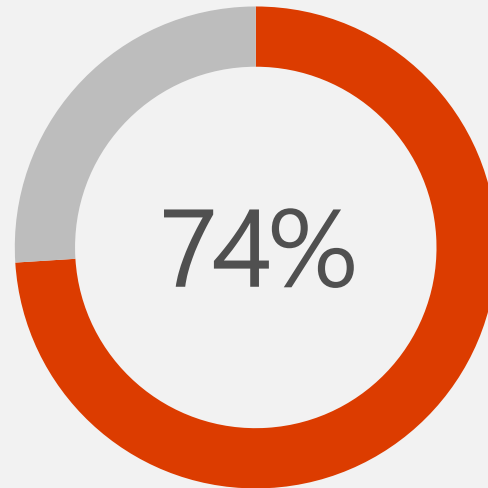
# Hybrid cloud is a reality today

"35% of organizations in Asia Pacific cited having an integrated hybrid Cloud solution"<sup>3</sup>

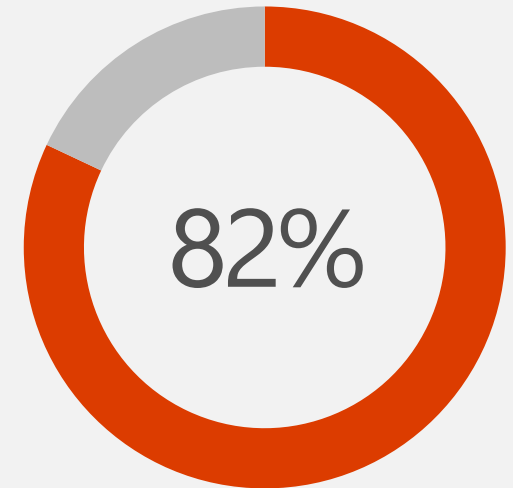
## Workload requirements



- ☒ Regulation
- ☒ Data sensitivity
- ☒ Customization
- ☒ Latency
- ☒ Legacy support



Enterprises believe a hybrid cloud will enable business growth<sup>1</sup>

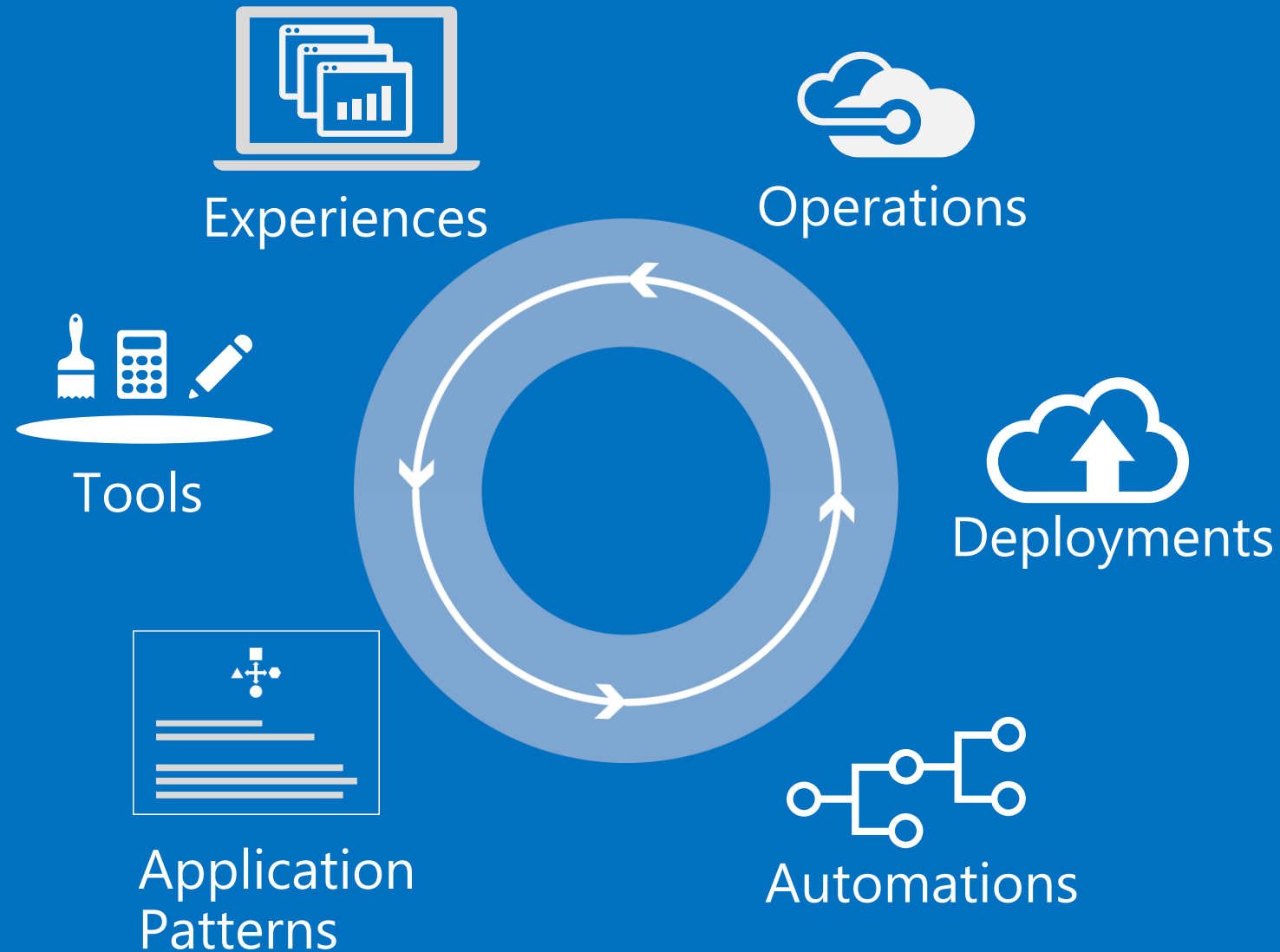


Enterprises have a hybrid cloud strategy<sup>2</sup>

Sources: 1. Avanade, Global Study: Hybrid Cloud—From Hype to Reality (Dec 2014); 2. IDC Cloud Predictions for 2015 (Dec 2014).

3. Microsoft survey of 1,100 IT Managers & Professionals across Asia Pacific

# Consistency across clouds is key



# Microsoft's comprehensive hybrid capability



HYBRID STORAGE

StorSimple + Azure Storage



HYBRID BACKUP + DR

Azure Backup + Azure Site Recovery



HYBRID DATABASE

SQL Server 2016 Stretch DB + Azure SQL DB



HYBRID APP INTEGRATION

Azure Service Bus + BizTalk Services



HYBRID IDENTITY

Azure Active Directory + Active Directory



HYBRID CLOUD MANAGEMENT

Operations Management Suite + System Center



HYBRID NETWORKING

VPN + ExpressRoute



HYBRID PLATFORM

Azure Stack + Azure

# Deploy the cloud on-premises



## Azure Stack

Portal | PowerShell |  
Dev-ops tools

Azure Resource Manager

Azure IaaS | Azure PaaS

Cloud infrastructure

One Azure  
ecosystem

Unified app  
development

Azure services in  
your datacenter

Portal | PowerShell |  
Dev-ops tools

Azure Resource Manager

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

Cloud-inspired  
infrastructure

Microsoft Azure  
PUBLIC

Microsoft Azure Stack  
PRIVATE | HOSTED

# The Microsoft Enterprise Cloud



Productivity

Office 365



Business  
apps

Dynamics 365



Application  
innovation

Azure



Data &  
Intelligence

Cortana  
Intelligence



Security &  
management

Enterprise Mobility + Security  
Operations Mgmt. + Security

*"Microsoft is growing its cloud revenue faster than Amazon" AWS revenue grew about 69% whilst Microsoft Azure revenue grew by 127%*  
– Business Insider 2016

120K+

New Microsoft Azure  
customer subscriptions/  
month



5M+

Organizations using  
Azure Active Directory

1.4M+

SQL databases running  
on Microsoft Azure













85%

of Fortune 500 use the  
Microsoft Cloud



## Security & Management

-  Security Center
-  Portal
-  Azure Active Directory
-  Azure AD B2C
-  Multi-Factor Authentication
-  Automation
-  Scheduler
-  Key Vault
-  Store/Marketplace
-  VM Image Gallery & VM Depot

## Platform Services






### Media & CDN

-  Media Services
-  Media Analytics
-  Content Delivery Network








### Integration

-  API Management
-  BizTalk Services
-  Logic Apps
-  Service Bus







### Compute Services

-  Container Service
-  VM Scale Sets
-  Batch
-  RemoteApp
-  Dev/Test Lab








### Application Platform

-  Web Apps
-  Mobile Apps
-  API Apps
-  Cloud Services
-  Service Fabric
-  Notification Hubs
-  Functions

### Developer Services

-  Visual Studio
-  Mobile Engagement
-  VS Team Services
-  Xamarin
-  Application Insights
-  HockeyApp











### Data

-  SQL Database
-  SQL Data Warehouse
-  DocumentDB
-  SQL Server Stretch Database
-  Redis Cache
-  Storage Tables
-  Azure Search









### Intelligence

-  Cognitive Services
-  Bot Framework
-  Cortana

### Analytics & IoT

-  HDInsight
-  Machine Learning
-  Stream Analytics
-  Data Catalog
-  Data Lake Analytics Service
-  Data Lake Store
-  IoT Hub
-  Event Hubs
-  Data Factory
-  Power BI Embedded

## Hybrid Cloud

-  Azure AD Health Monitoring
-  AD Privileged Identity Management
-  Domain Services
-  Backup
-  Operational Analytics
-  Import/Export
-  Azure Site Recovery
-  StorSimple

## Infrastructure Services

### Compute

-  Virtual Machines
-  Containers

### Storage

-  Blob
-  Queues
-  Files
-  Disks

### Networking

-  Virtual Network
-  Load Balancer
-  DNS
-  Express Route
-  Traffic Manager
-  VPN Gateway
-  App Gateway

**Datacenter Infrastructure (32 Regions, 24 Online)**



# Think of Azure services as a Lego set



# SOLUTIONS

## Solution providers have built solutions using Lego bricks





# Azure Solutions and Use Cases



Digital marketing



Mobile



E-commerce



Internet of Things



Microservice applications



Business intelligence



Big data and analytics



Data warehouse



Business SaaS apps



Backup and archive



Development and test



Disaster recovery



Hybrid integration



SAP on Azure



SharePoint on Azure



Dynamics on Azure



High performance computing



Digital media



Gaming



Blockchain

# Digital transformation is essential to advance the mission of government



## OPTIMIZE YOUR OPERATIONS

for a more efficient service delivery platform



## TRANSFORM YOUR SERVICES

to unlock insights that improve citizen services



## EMPOWER YOUR EMPLOYEES

to deliver productivity gains that improve impact



## ENGAGE YOUR CITIZENS

for greater connection and participation

# Thank You!

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