

Microsoft Azure: The consistent Hybrid Cloud

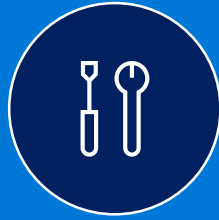
Gabriel Nepomuceno
Tech Evangelist



Digital Transformation



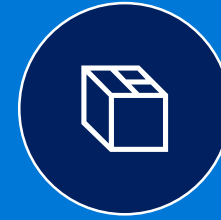
Engage
customers



Empower
employees



Optimize
operations



Transform
products



▶ Speed and innovation

▶ Stability and predictability

Your Hybrid Cloud world



Cloud



On-Premises

Hybrid Cloud requires consistency

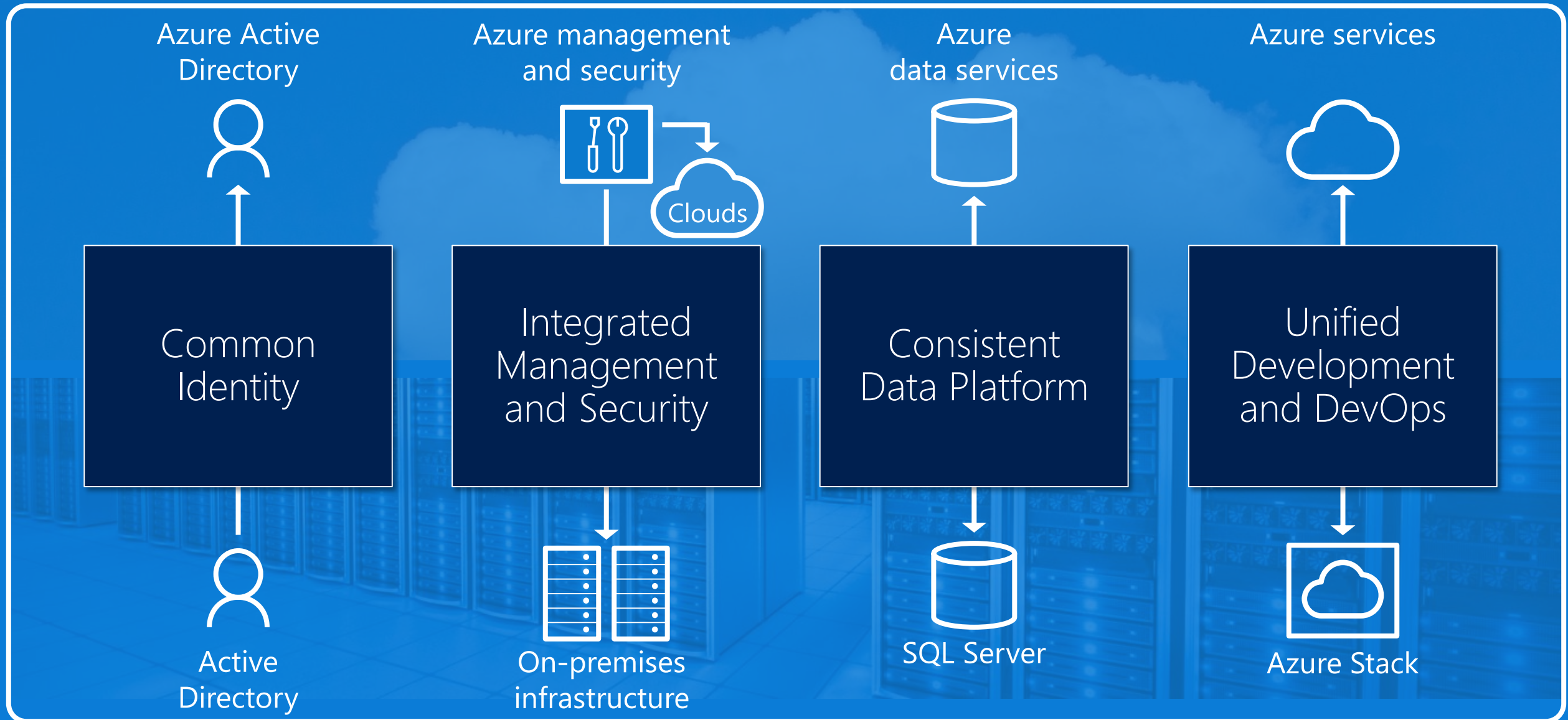
Common
Identity

Integrated
Management
and Security

Consistent
Data Platform

Unified
Development
and DevOps

Microsoft Azure: The consistent Hybrid Cloud



Hybrid + Open



DocuSign[®]

box

salesforce

jive

W

servicenow

Common Identity



vmware[®]

CHEF[™]

Linux

fluentd

amazon web services

Cherwell

Integrated Management and Security



mongoDB

SUSE

redhat.

spark

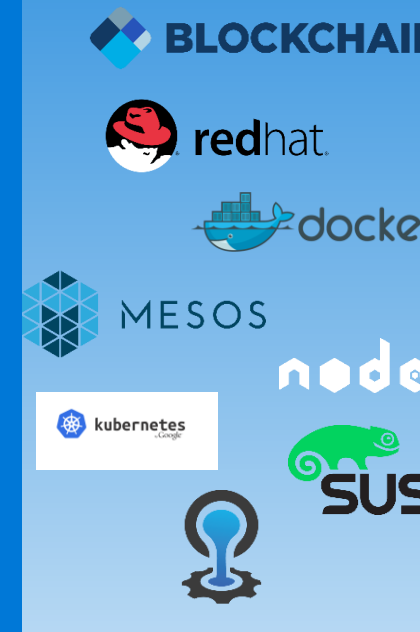
python

hadoop

ubuntu[®]

R

Consistent Data Platform



BLOCKCHAIN

redhat.

docker

MESOS

node.js

kubernetes

SUSE

CLOUDFOUNDRY

Unified Development and DevOps

Disruptive, hybrid-cloud insurance solution

"We've moved from on-premises implementations to hybrid deployments with the cloud, and we continually find enhancements in Azure that make it increasingly useful to us and our customers."




Willis
Towers
Watson

Wayne Bullock, Global Leader of
Life Insurance Software Development



Microsoft Hybrid Cloud solution customers



Hybrid Cloud leadership

Cloud Enterprise

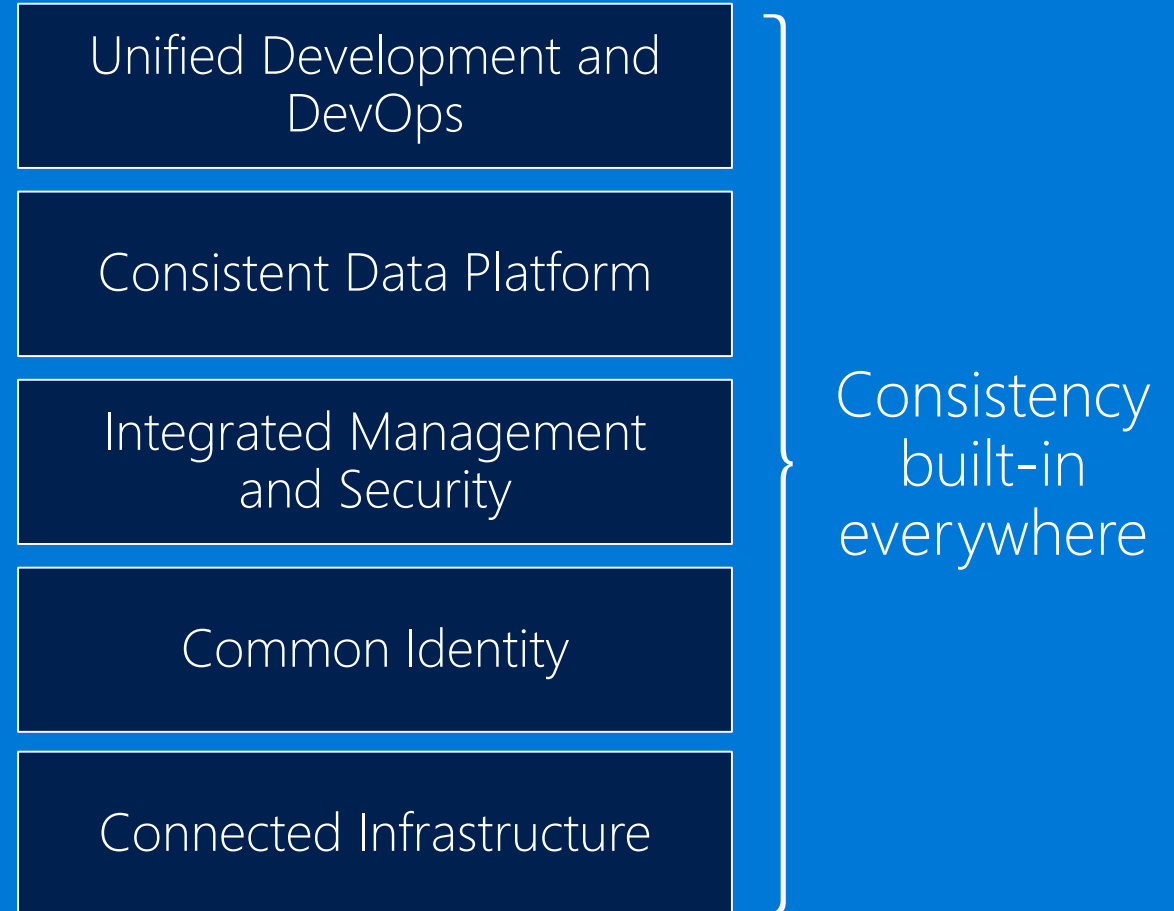
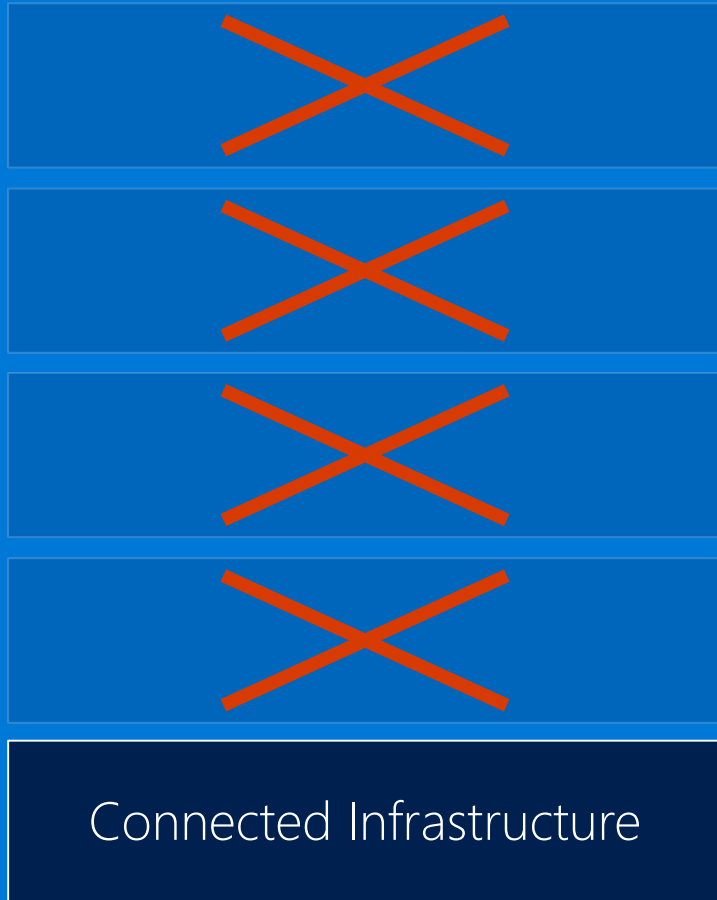
120k

new customer sign-ups
monthly, fastest growing
public cloud provider¹

2/3

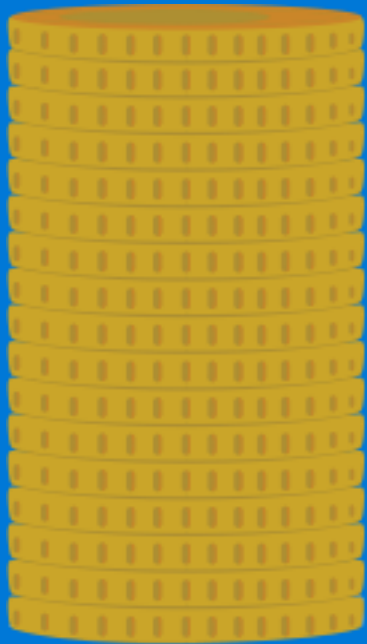
of enterprise servers in
the world run on the
Microsoft platform²

The Microsoft Azure advantage



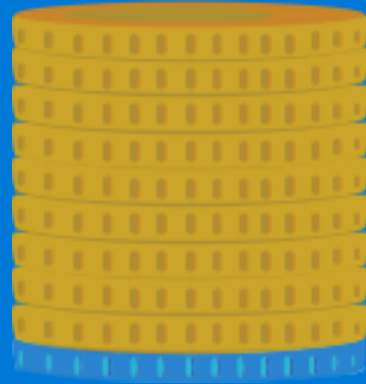
Achieve savings with Azure Hybrid Use Benefit

Annual cost of
two D2 v2 VMs



\$2,964

Same VM with
Azure Hybrid
Use Benefit



\$1,777

- ▶ Save up to **40 percent** when you move to the cloud
- ▶ Maximize your existing Windows Server investments

Microsoft Azure: Global scale

38

Azure regions

More than AWS and
Google Cloud combined

RECENTLY LAUNCHED:

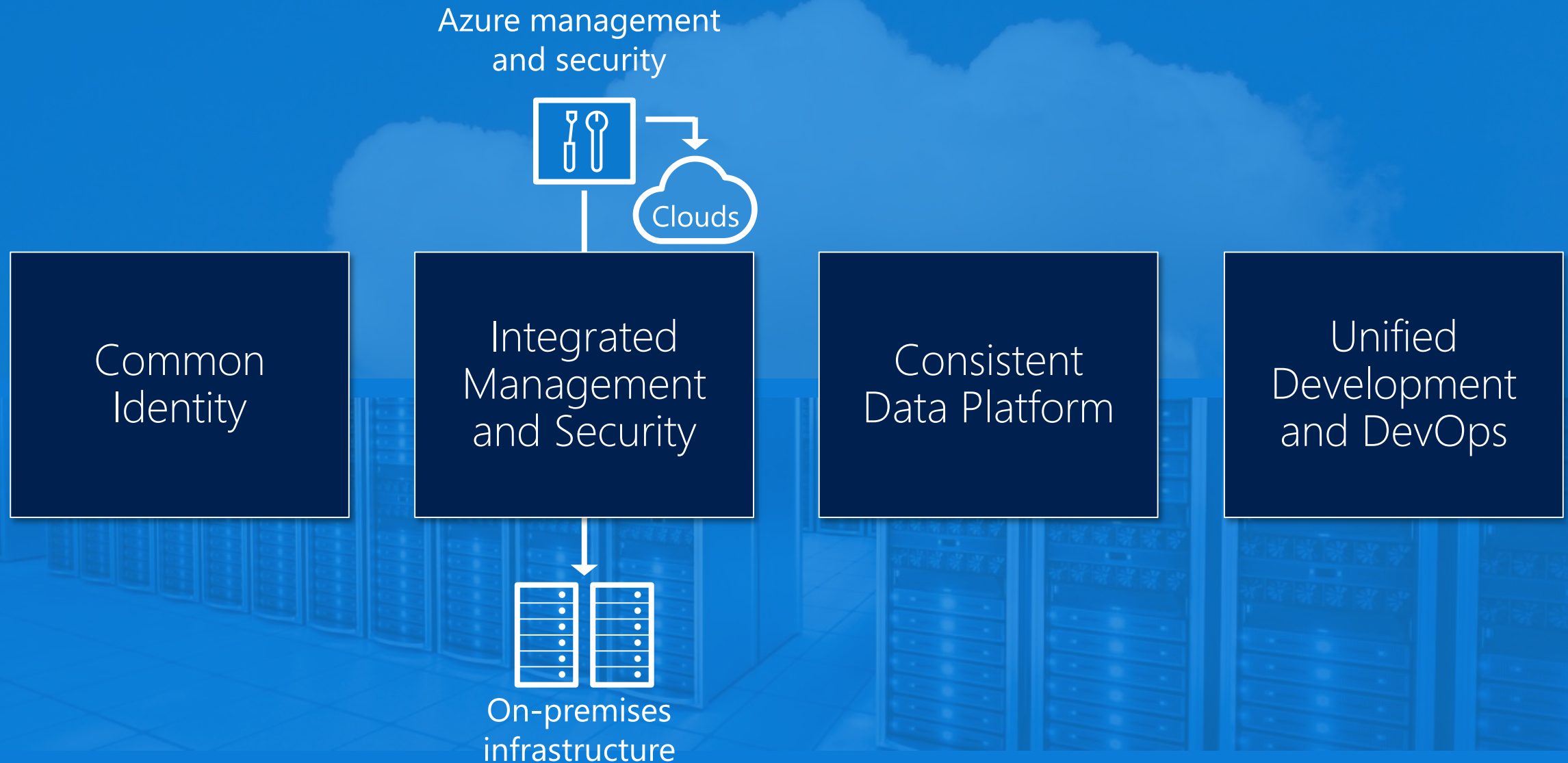
US Regions: West US 2 and West Central
Germany – Launched in Sep 2016
United Kingdom – Launched in Sep 2016

NEWLY ANNOUNCED:

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

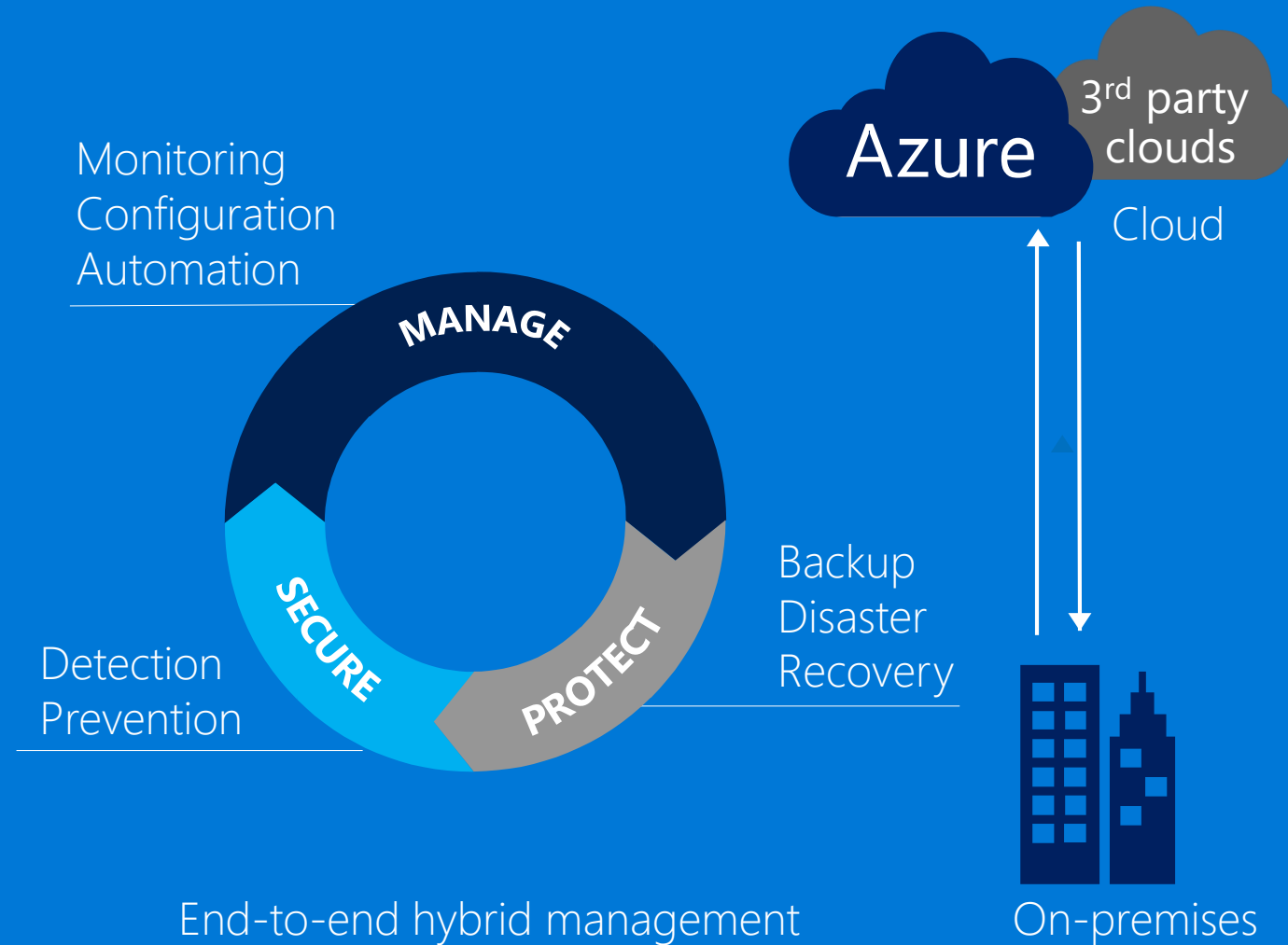


Truly consistent Hybrid Cloud with Microsoft Azure



Integrated management and security

Increase visibility and control with built-in management and security solutions across the full operational lifecycle, from the cloud to your on-premises datacenter.



Hybrid use cases: Integrated Management



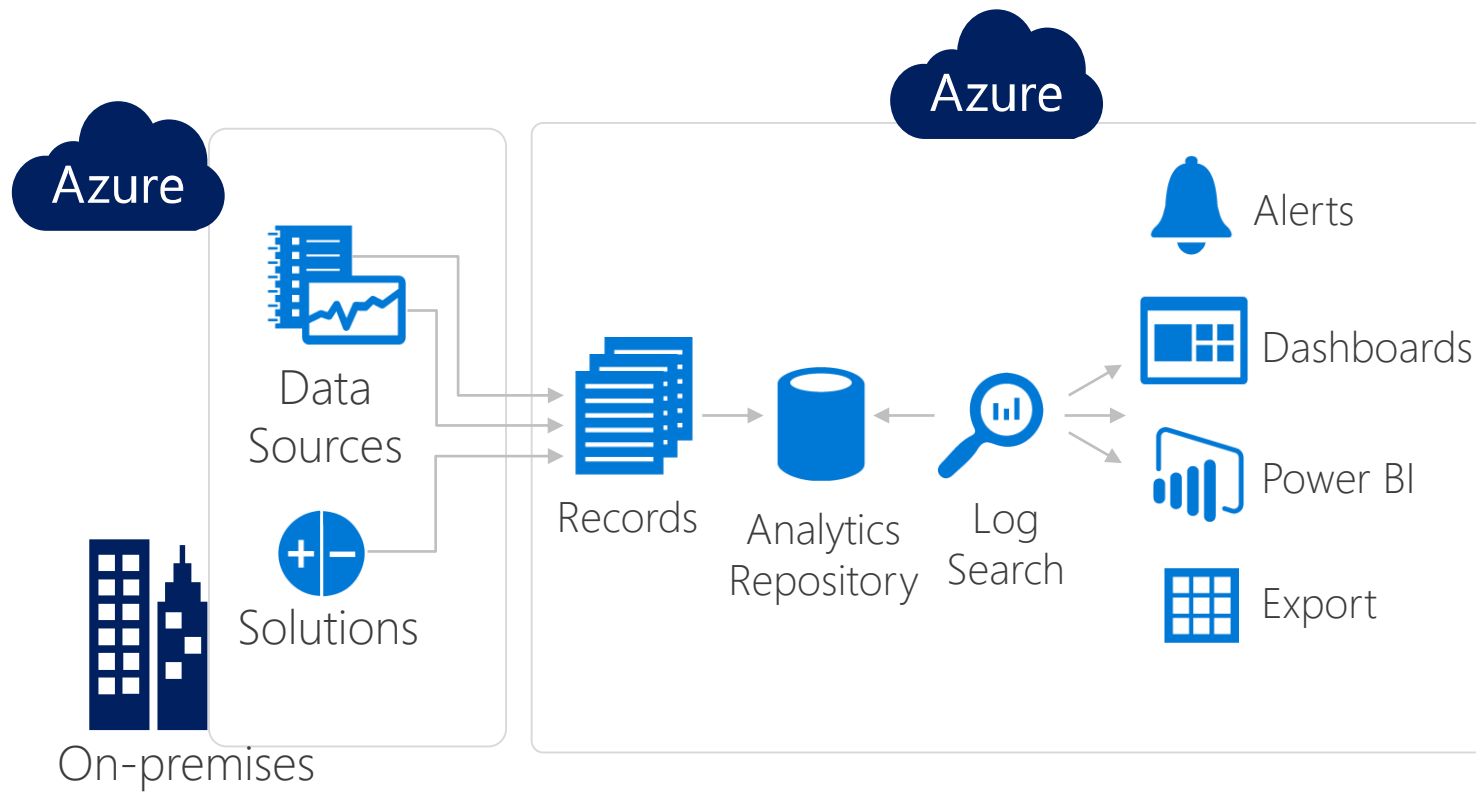
Gain immediate
insight across
workloads and
infrastructure



Detect and respond
to threats



Protect against data loss
and application downtime



Collect and correlate data with simple search and built-in visualizations

Get consistent visibility across cloud and on-premises

Investigate and fix issues faster



Insight across workloads and infrastructure

Actionable insight deep into operations

“The insight gives everyone ... from different perspectives, a better view of what’s happening with an application or a network segment. If we compare it to water service, it’s like looking at a water pipe from inside the house to the sidewalk and all the way to the water tower.”



PURDUE
UNIVERSITY®

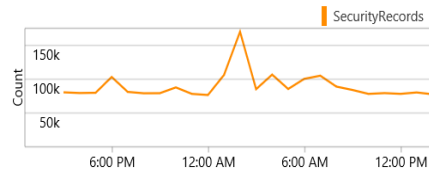
Shawn Williams, System Engineer,
IT Information Systems



Overview ▶ Security And Audit

SECURITY DOMAINS

Security records over time

**Antimalware Assessment**
Computers with Antimalware Assessment

15

Update Assessment
Computers missing updates

3

Network Security
Distinct IP addresses

(Preview) 245

Identity and Access
Accounts attempted to log on

533

Computers
Computers with security events

15

Threat Intelligence
Malicious traffic events

24

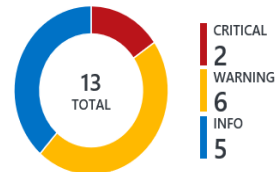
Baseline Assessment
Critical failed rules in the last day

(Preview) 111

Azure Security Center

NOTABLE ISSUES

Active issue types



NAME	COUNT	SEVERITY
High priority SQL assessment security r...	2	CRITICAL
CEO Failed Logins	1	CRITICAL
Computers with insufficient protection	13	WARNING
Low priority SQL assessment security r...	12	WARNING
Contoso55 Process W3WP Computers	4	WARNING
Logons with a clear text password	1	WARNING
Members added To security-enabled g...	1	WARNING
Suspicious executables	1	WARNING
Accounts failed to log on	525	INFO
Contoso55 - Excel issue	4	INFO

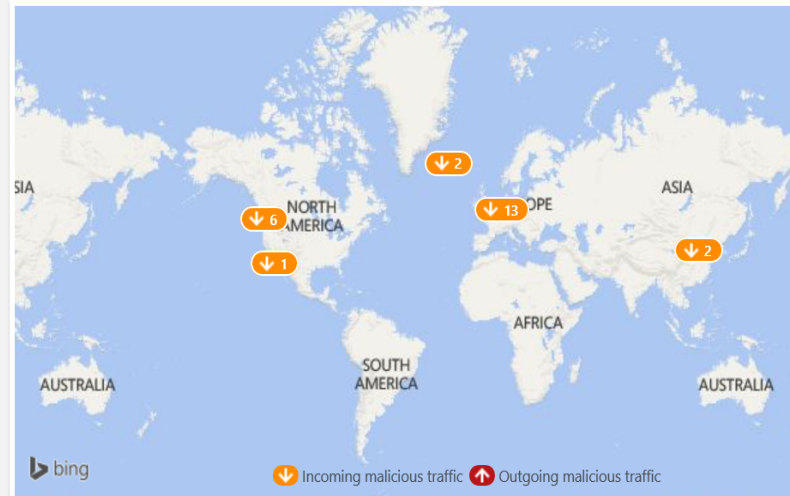
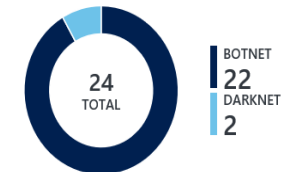
< 1 of 2 >

THREAT INTELLIGENCE (PREVIEW)

Servers with outbound malicious traffic

0

Detected threat types



Data collection across both cloud and on-premises resources

Built-in threat intelligence and rule-based detections

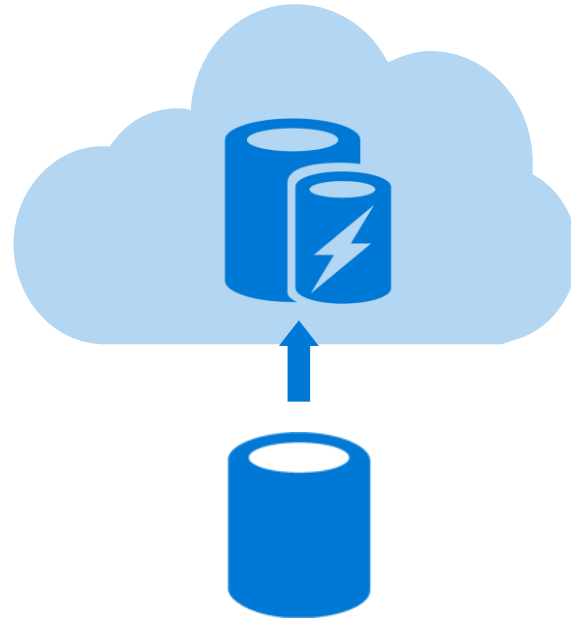
Tools and resources for faster investigation



Detect and respond to threats



Orchestrated disaster
recovery



Simple and cost-effective
options for backup

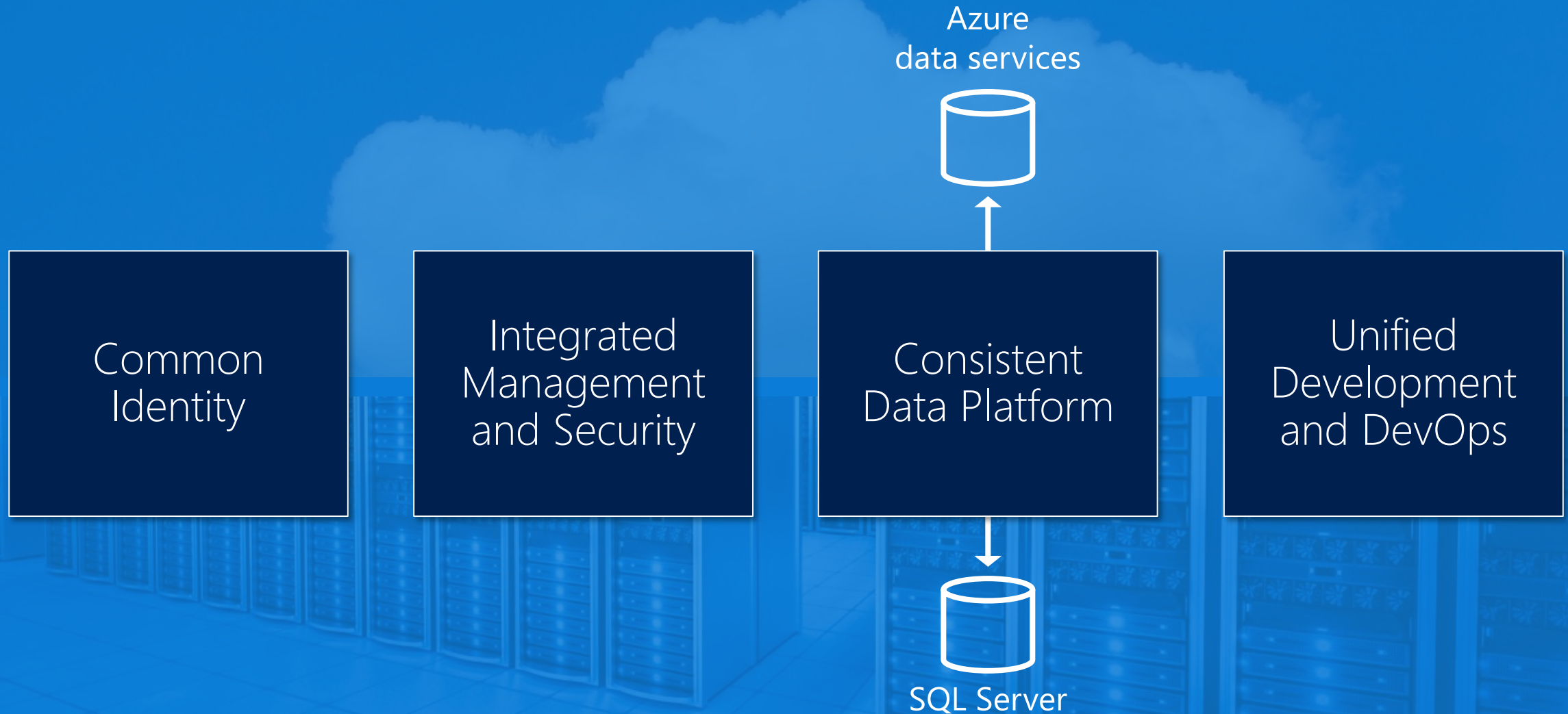
Cloud-based approach benefits:

- Eliminates need for a secondary site.
- Speeds recovery times.
- Increases efficiency.



Protect against data loss and downtime

Truly consistent Hybrid Cloud with Microsoft Azure



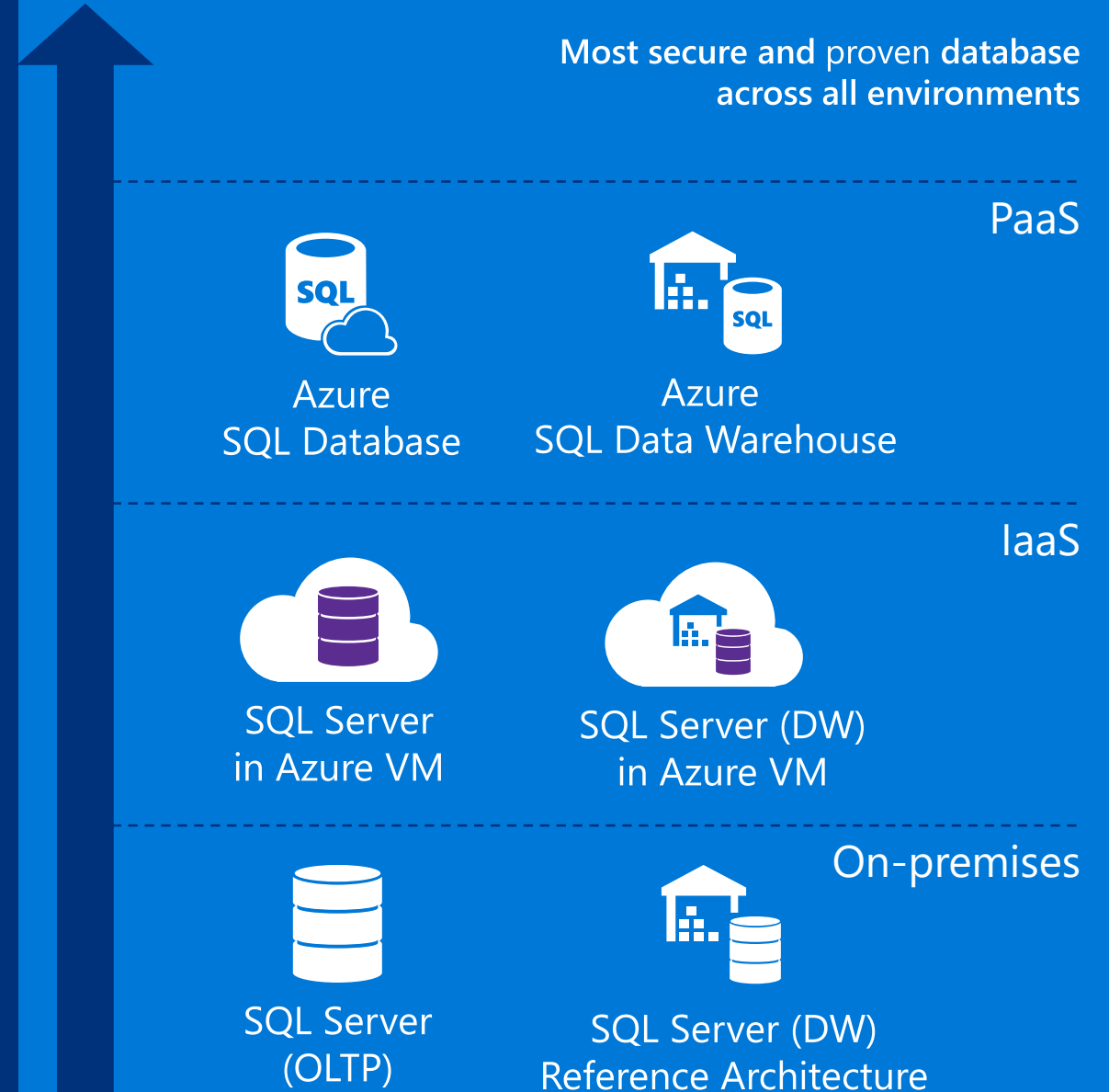
Consistent data platform

Seamlessly distribute data between cloud and on-premises, and enrich with analytics and deep learning

- Common tools for development and management
- Common T-SQL surface area
- Simple cloud migration
- Single vendor for support

On-premises to the cloud

Most secure and proven database across all environments



Hybrid use cases: Consistent Data Platform



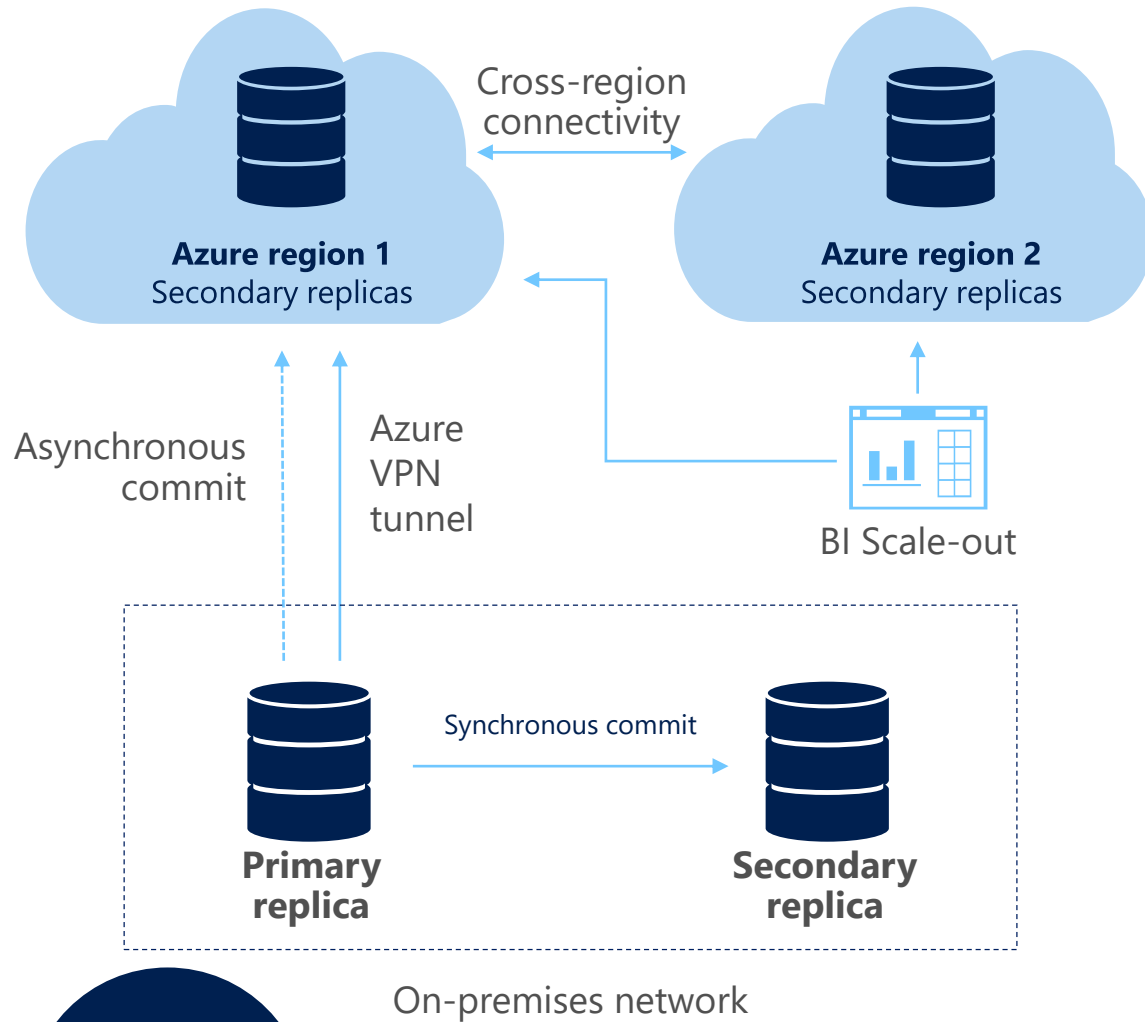
Cost effective
business continuity



Modern
data warehousing



Unparalleled analytics
from on-premises
to cloud



Dramatically simplify HA and DR
Data replication speeds processing up to 10x

- Few clicks to setup on-premises and hybrid cloud HA and DR
- Offload read-only workloads to the closest readable secondary for global BI scale-out
- Fast failover on-premises or to cloud
- Access private, direct connectivity with ExpressRoute



Cost effective business continuity

Up to 10x faster, more than 2.5x data compression

“With our new architecture, we could spin up an additional availability group, whether on-premises or in the cloud, and keep scaling with the business as needed.”



Richard Sawicky
Chief Data Officer



Windows



iOS



Android



HTML5

Scale-out BI for faster global mobile reporting

- Lightning fast with in-memory built-in
- Powerful modeling + direct query
- Rich visualizations using Power BI or revamped Reporting Services
- Online and offline access

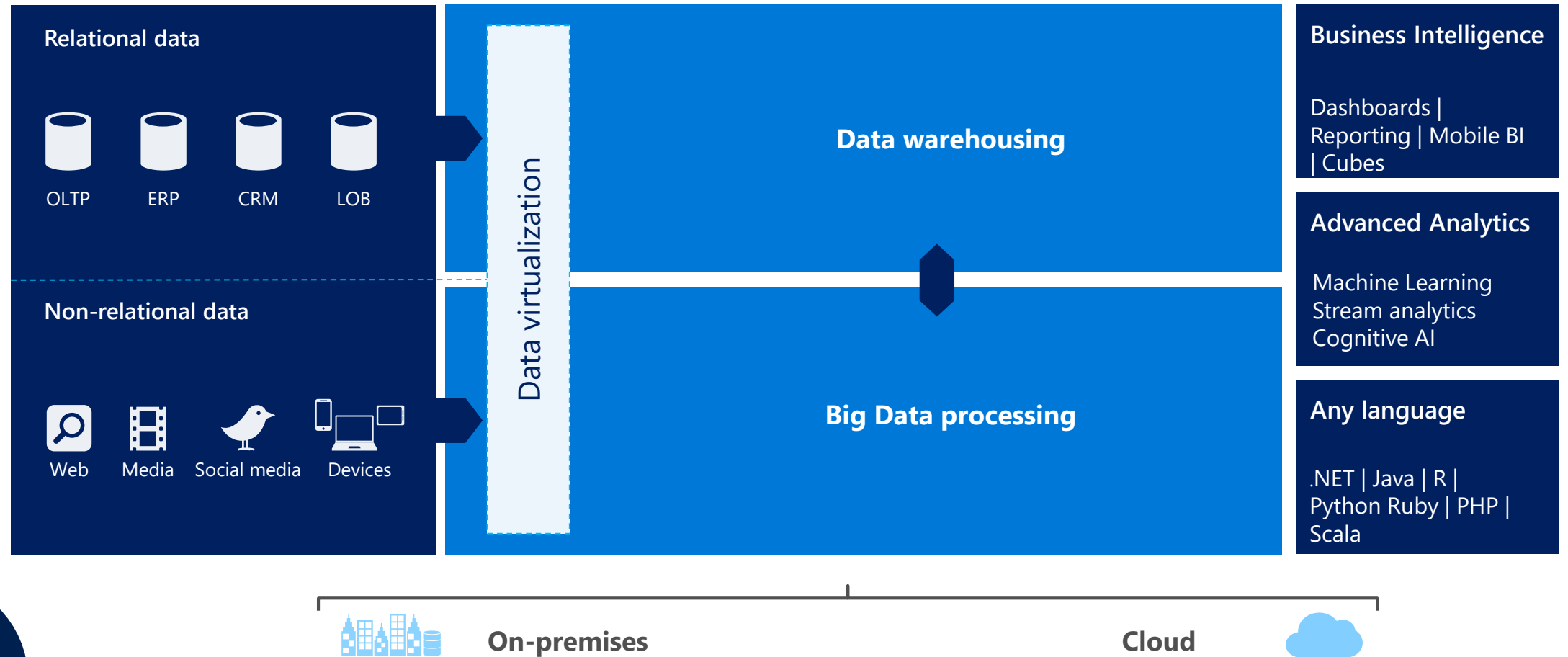
NASDAQ

Reports in minutes vs. days
PB scale with SQL Server



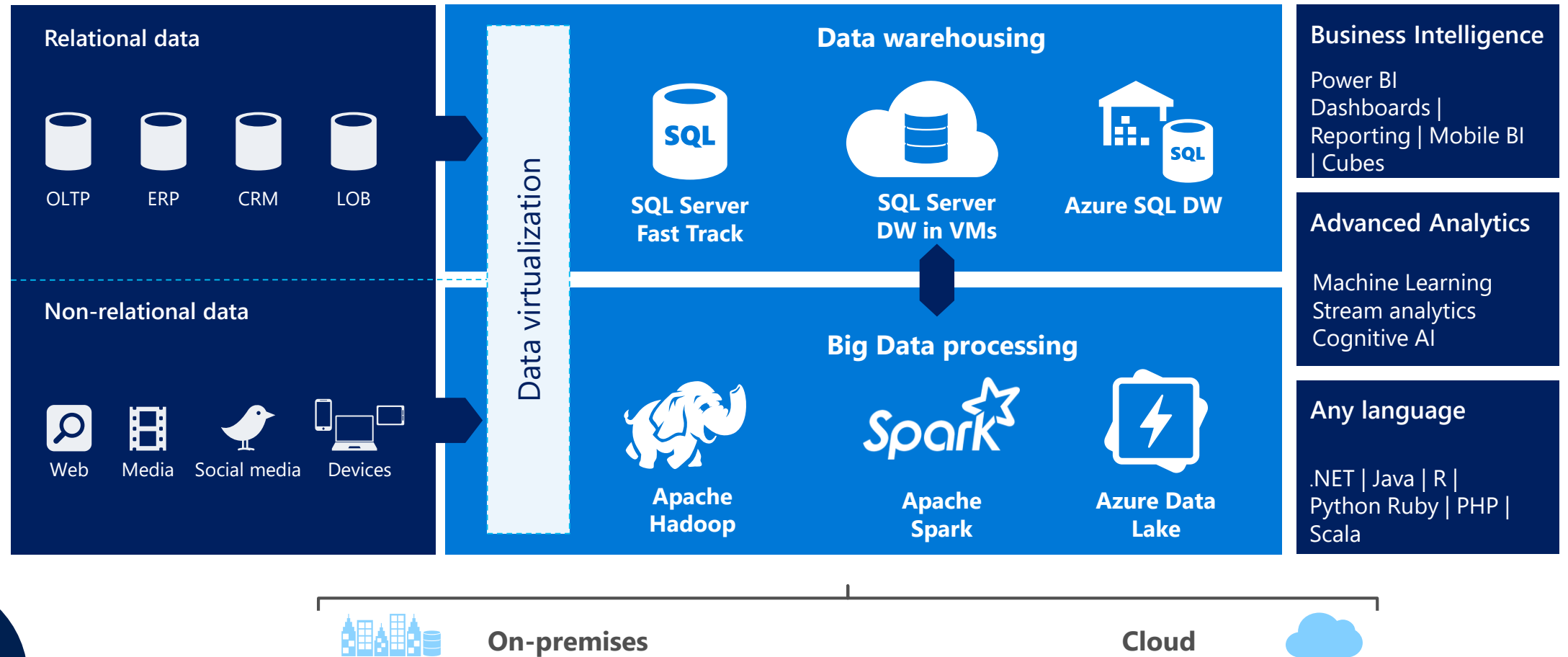
Cost effective business continuity

Tackle any data, using any language across on-premises and cloud



Modern data warehousing

Tackle any data, using any language across on-premises and cloud



Modern data warehousing

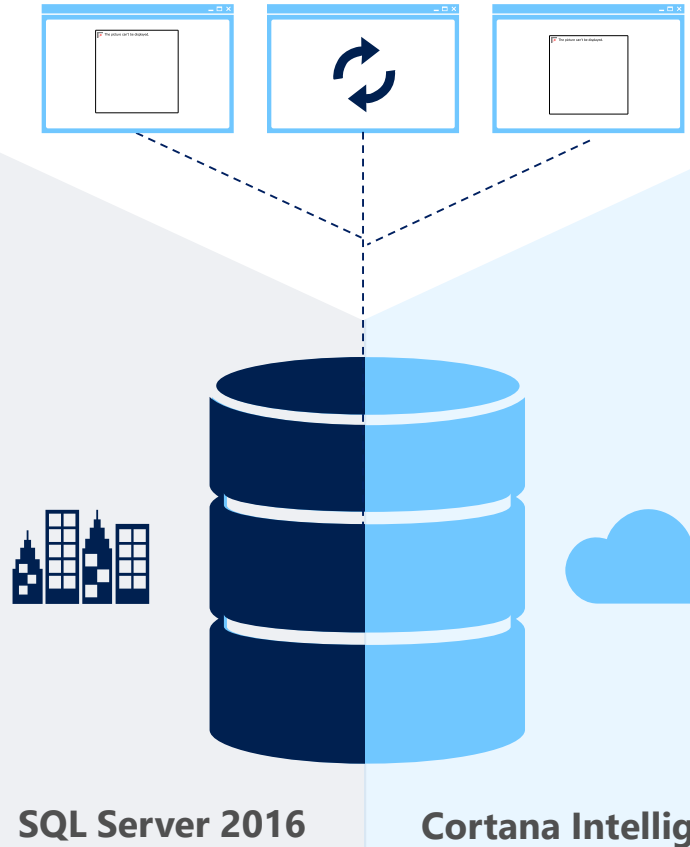
Advanced Analytics

Across on-premises and cloud

On-premises

SQL Server 2016

- R built-in to your T-SQL
- Real-time operational analytics
- Open Source R with in-memory and massive scale



Cloud

- Easy-to-use predictive analytics solutions
- Cognitive services to enable contextual interactions
- Process and analyze IoT data



Unparalleled analytics from on-premises to cloud

Disruptive, hybrid-cloud insurance solution

"We've moved from on-premises implementations to hybrid deployments with the cloud, and we continually find enhancements in Azure that make it increasingly useful to us and our customers."




Willis
Towers
Watson

Wayne Bullock, Global Leader of
Life Insurance Software Development



Disruptive, hybrid-cloud insurance solution

“... We run analytics that are more sophisticated—and more predictive—than those of competitors, which make them more valuable to insurers. Azure is crucial to our ability to do this.”

—Andy Lingard, Global Leader of General Insurance Software Development



**Willis
Towers
Watson**

- Needed scalable pricing models to help insurers blend structured policy data with telematics and other real-time data from drivers
- Using Azure as part of hybrid solution saved 20 percent in initial capital costs compared to building on-premises solution — with 40 percent savings projected over time
 - On-premises data warehouse for analytics R&D
 - Azure Table Storage stores solution data
 - Azure-hosted app runs analysis
 - Results pushed to on-premises reporting app and SQL Server database

Hybrid solution boosts capability, improves customer experience

"Azure turned out to be perfect for solving our image storage problems. Azure Storage provided effectively limitless storage with read-accessible geo-replication, so we could deliver increased capability and resilience that was cost-effective."



CARmax

Brandon Linton, Solution Architect,
Online Systems Platform team



Hybrid solution boosts capability, improves customer experience

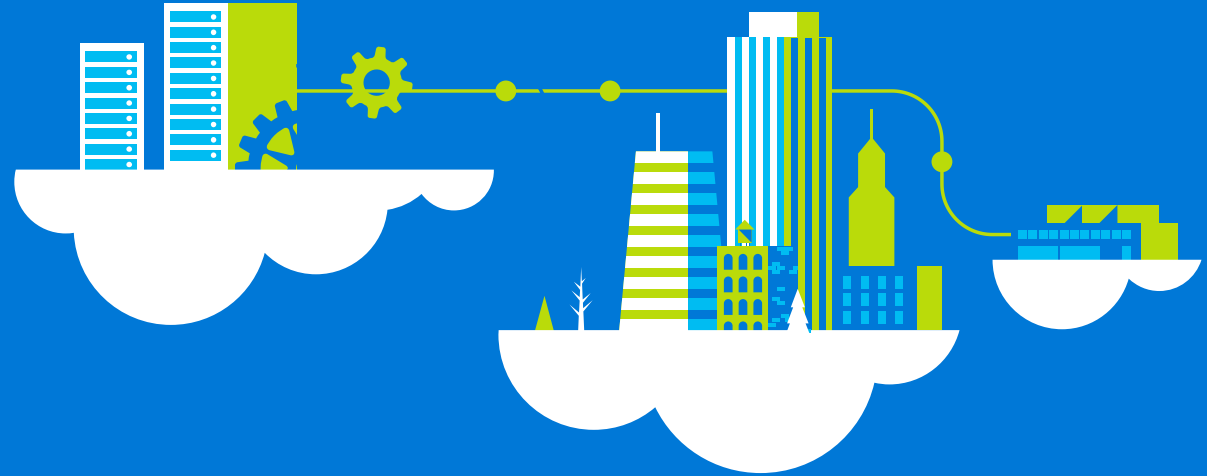
"We don't have to spend our time and energy becoming proficient and installing, maintaining, and updating key platform components. Microsoft takes care of that."

—Brandon Linton, Solution Architect,
Online Systems Platform team



- Needed to deliver faster response to online car shoppers with high quality images for any device
- Needed to replace costly on-premises storage for increasing volume of higher resolution images
- Consolidated web and mobile sites into one mobile-friendly site using Microsoft Azure platform services
- Moved millions of vehicle photos into Azure Blob Storage to reduce costs and gain scale
- Hybrid solution includes retail locations connected to Azure datacenter services that generate right-size images on the fly for online shoppers
- Azure database services can scale up and down with the click of a button

➔ Migration planning
is key to a hybrid
cloud strategy



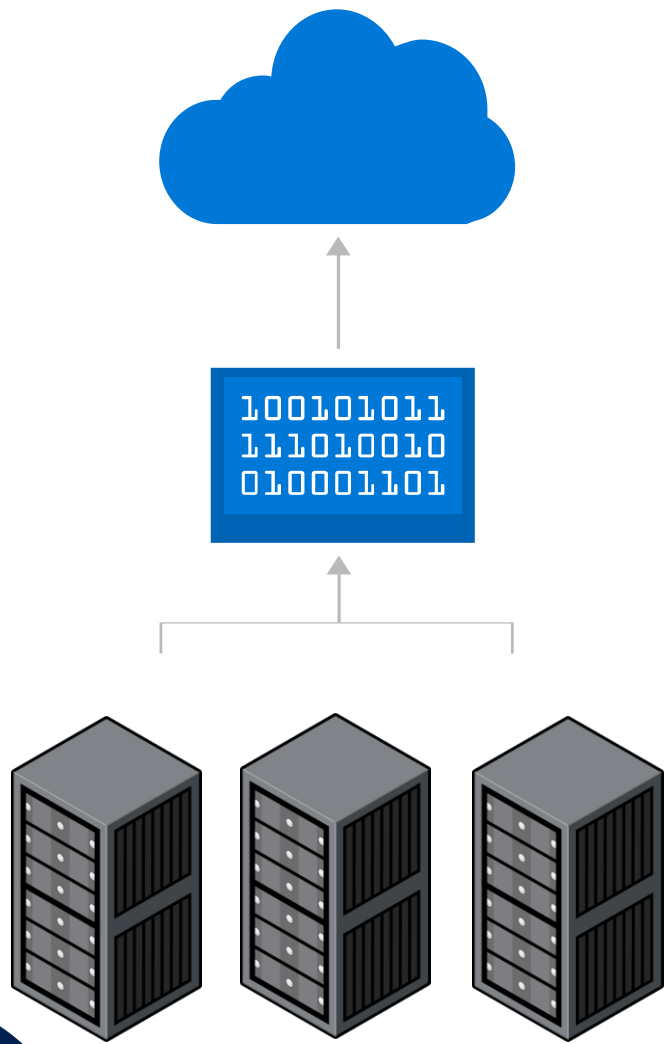
Migration process



Apps

Data

Virtual Machines



Simple discovery and analysis to build a precise business and technical validation plan

- Easily discover all your applications and their workload and data dependencies
- Inbuilt TCO and ROI calculation
- Comprehensive, targeted cloud migration strategy



Assess

Workload Mapping: Pay-as-you-go Plans

Below is the workload analysis of the workload mapping with the Pay-as-you-go pricing plans. Three categories are evaluated: Compute, Storage and Network.

Workload Optimization: Compute

Your infrastructure has 210 virtualized machines. Cloud Estimator evaluated workload on those VMs and found that only 206 VMs were active, while 4 VMs were turned off for the entire analysis duration. Cloud Estimator identified that 15 VMs had CPU as a bottleneck and 117 machines had memory as bottleneck while 74 machines were constrained by both CPU and Memory.

Compute Cost

\$276k

Per Year

Total VMs Mapped
206

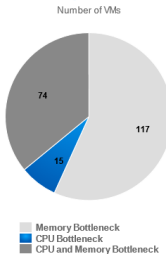
Performance Breakdown

The charts below show the breakdown of VMs by their usage and performance bottleneck.

Number of Active VS. Inactive Machines



Machines by CPU and Memory bottleneck



Workload Optimization: Storage

You will need to spend on Azure storage volumes and IOPS at a total cost of \$9960

Storage Cost

\$10.0k

Per Year

Total vDisks Mapped
332

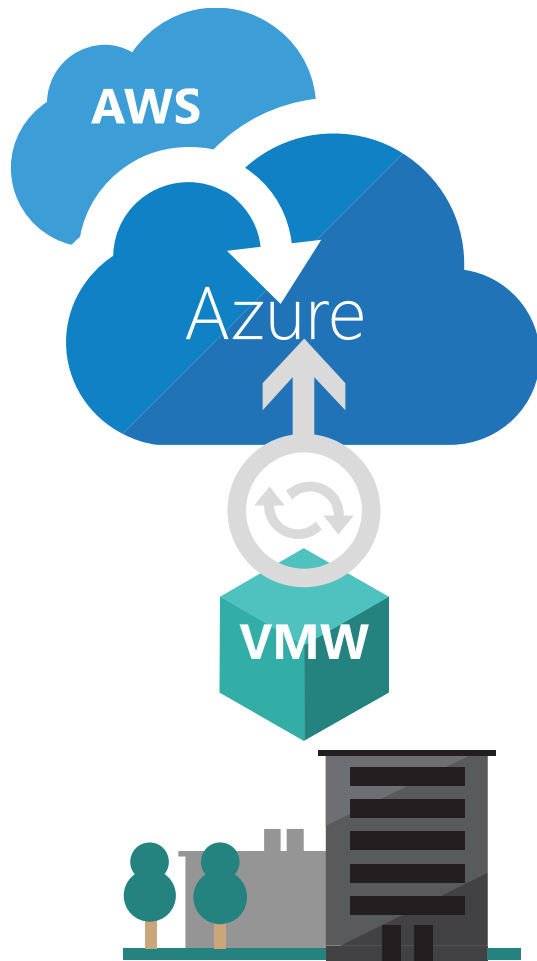
Metric	Value	Cost
Observed Disk Capacity (GB)	30632	
Observed Disk Occupancy (GB)	16204	
Observed IOPS/Sec	250	
Predicted Cloud Capacity (GB)	16350	\$9810
Total IOPS Cost	250	\$150
Total Cost		\$9960

Intelligent algorithms to maximize utilization, and identify blockers

- Minimize costs while ensuring performance with “right-sized” Azure machines
- Planning and assessment tools to lead you through right sizing, remodeling, and rearchitecting when needed.



Optimize



Flexible and powerful migration tools for anywhere to Azure migration

- Model dependencies for concise application migration
- Inbuilt migration testing to ensure expected results
- Warm migration with no long outages

Advanced monitoring and analytics enable you to manage performance and utilization



Migrate

Azure Site Recovery

<http://azure.microsoft.com/en-us/services/site-recovery>