

FUTURE DECODED

6-7 OTT '16 / MILANO

IN PARTNERSHIP WITH:



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ITP01 - COME INTEGRARE ARCHITETTURE CLOUD E ON-PREMISES

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Session objectives and Agenda

Objectives

- Understand hybrid cloud architectures
- Explore hybrid cloud services and what is coming next

Agenda

- The new world of IT
- Hybrid Cloud, solutions and services available
- Automating, monitoring and managing an hybrid cloud platform
- Hybrid Cloud vNext
- DEMO

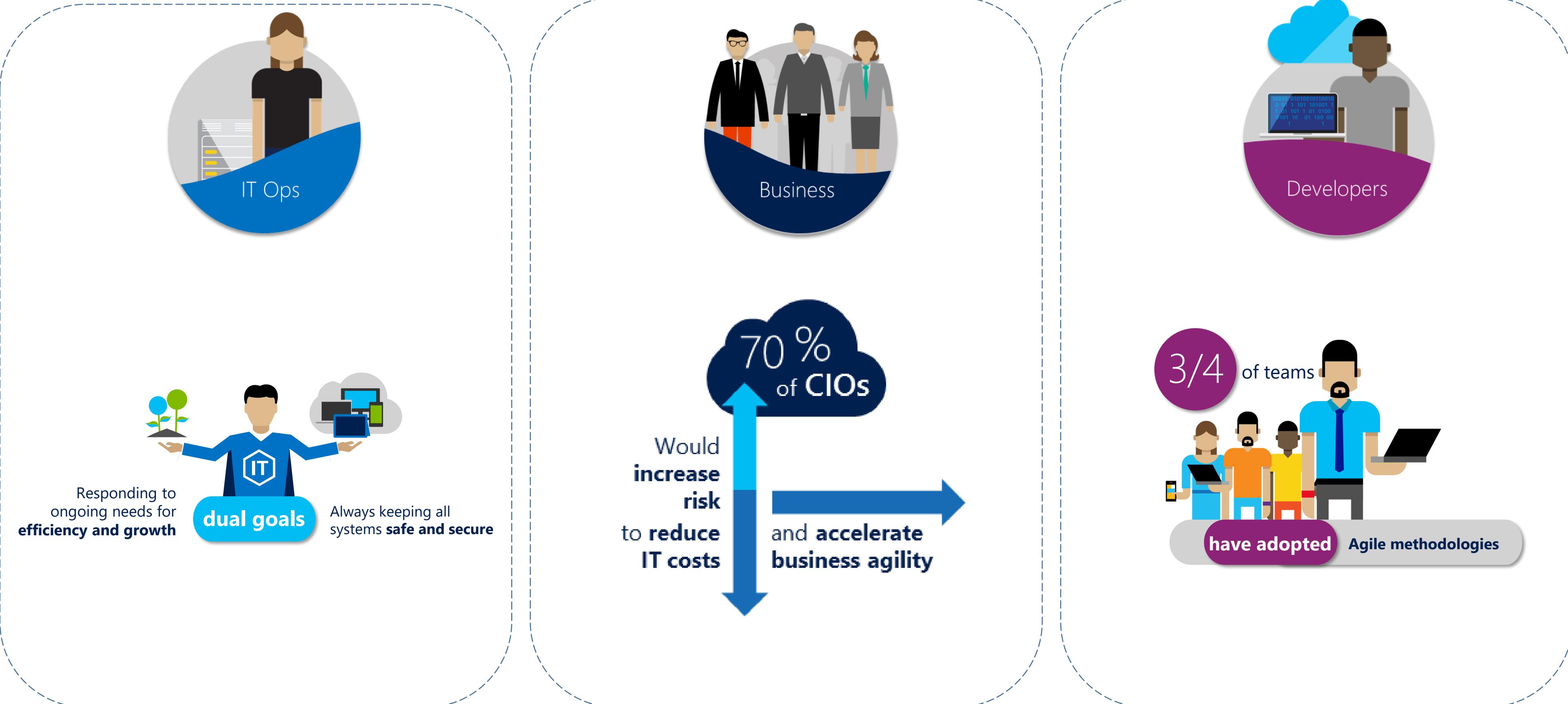
The background image shows a vibrant city at night. In the foreground, a multi-lane highway curves through the frame, with streaks of red and white light from passing vehicles creating dynamic diagonal lines. Above the highway, a modern elevated walkway or bridge is visible, also featuring lights. The background is filled with numerous skyscrapers of various heights, their windows glowing with blue and yellow lights against the dark sky.

IT world has
changed...

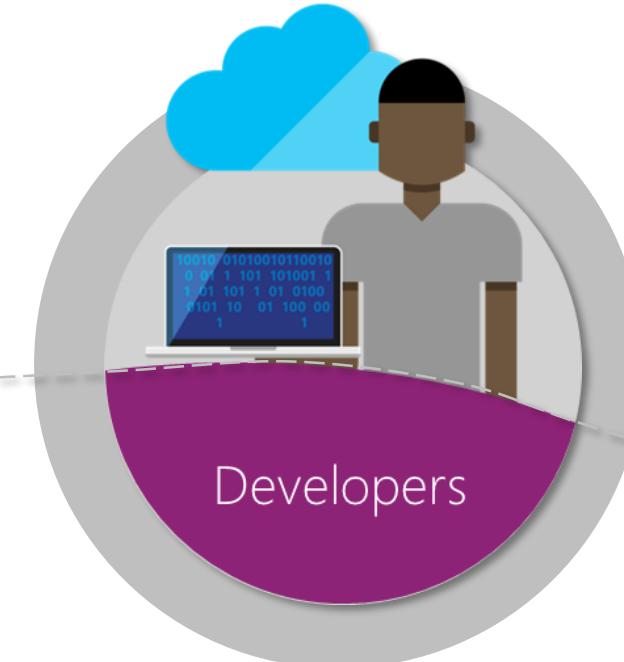
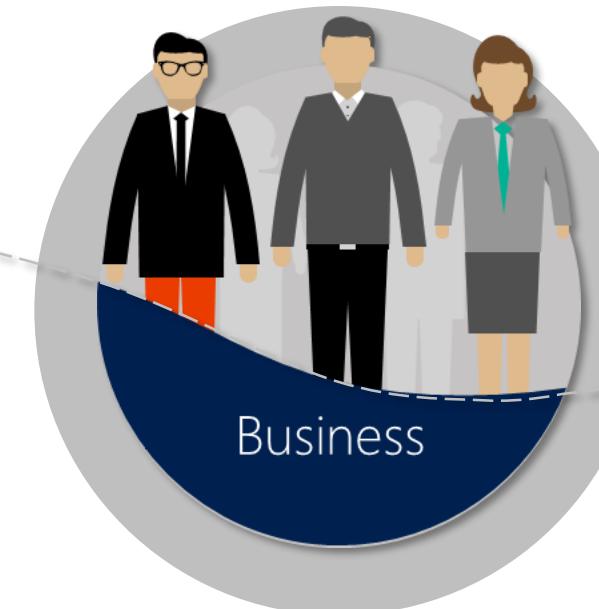
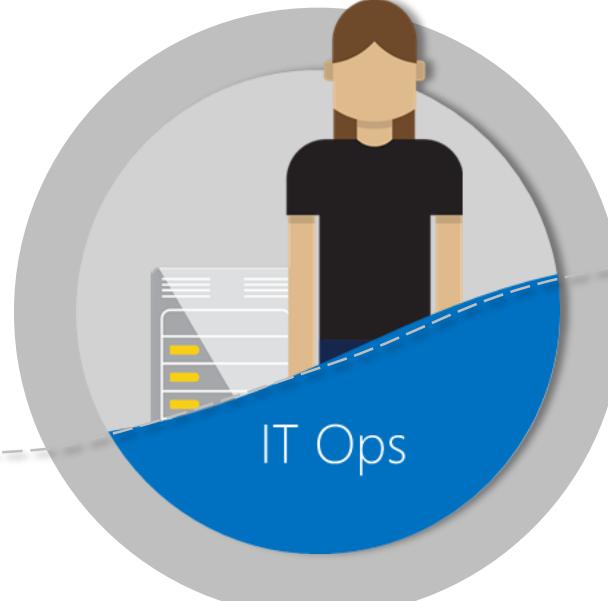
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Infrastructure Transformation



Transform the Datacenter



Software-Defined Datacenter

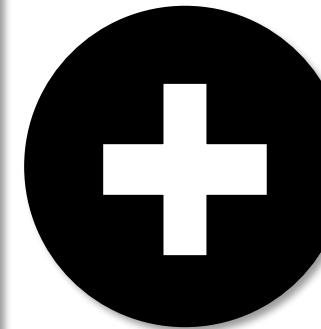
Operational efficiency

Who – Nearly all traditional IT departments today

Characteristics:

- Need DC standardized and automation
- Want hardware assets as software
(Compute | Storage | Network)

Goal – Virtualize, standardize, and automate for optimal operational efficiency



Cloud Computing Platform

Enable the developer

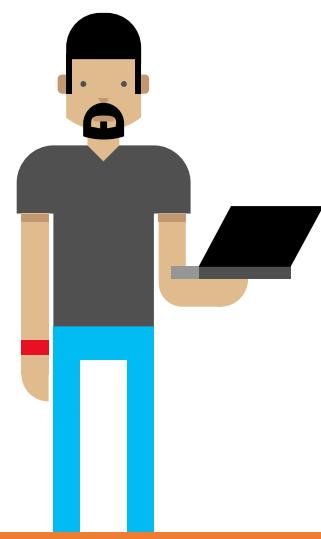
Who – Line of business, DevOps teams and start-ups

Characteristics:

- Adopting loosely coupled apps and micro-services
- Want to move to PaaS
- Looking to integrate infra code with app code

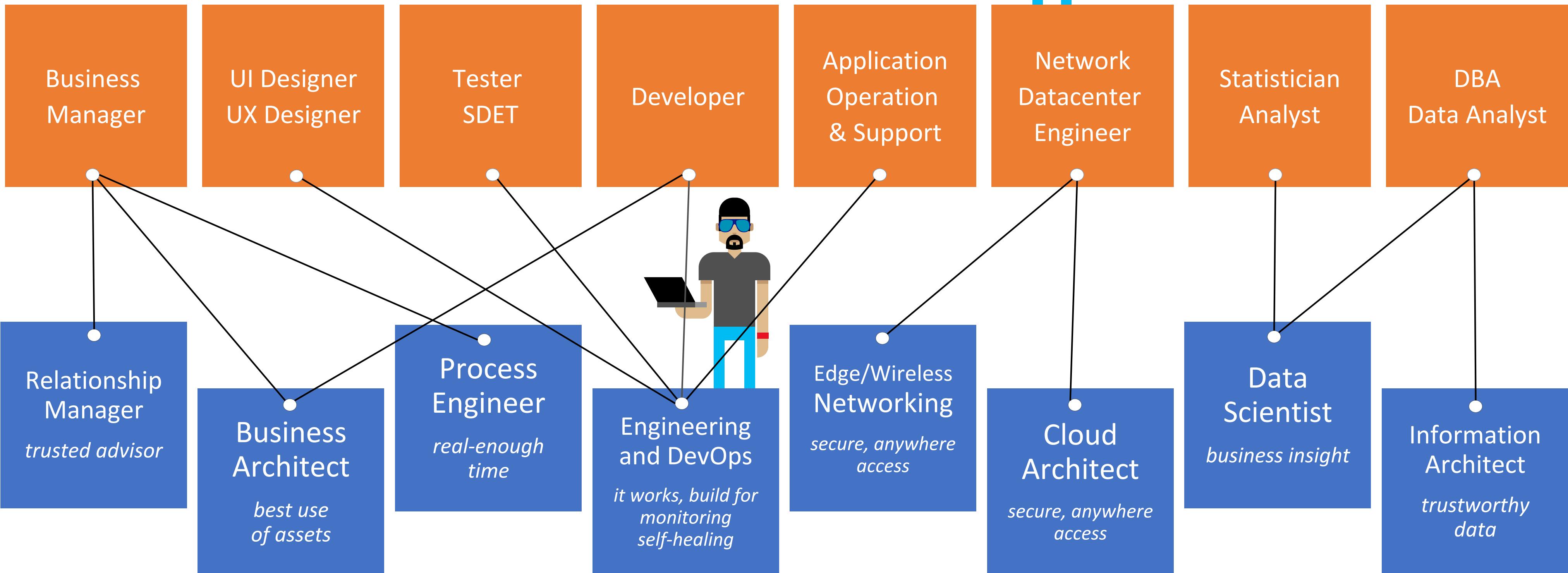
Goal – Maximize developer speed and innovation

An evolution of the IT pro skill set



● Commoditized skills

● Strategic skills for the new era



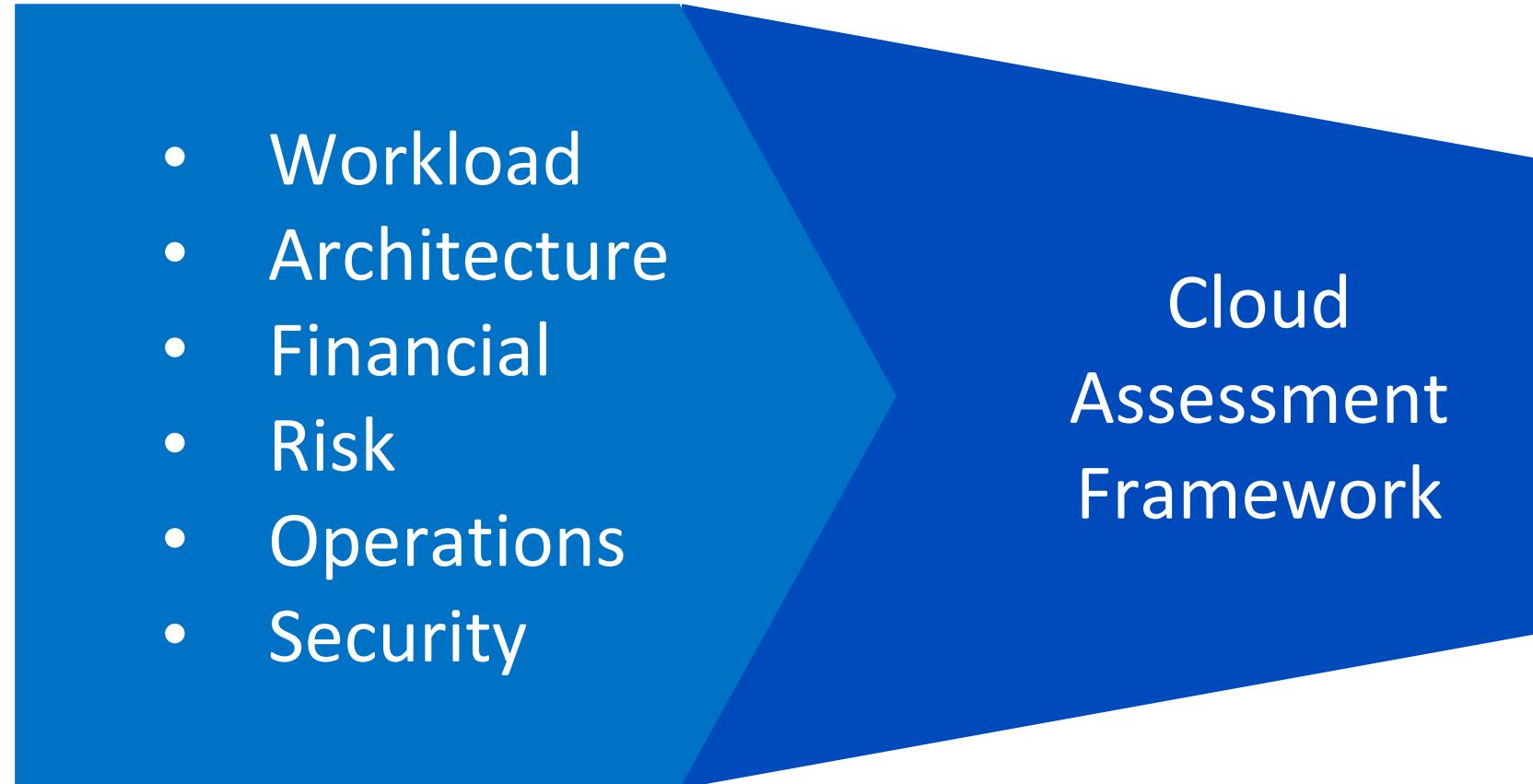
Migration to cloud

Running on Cloud != Designed for Cloud

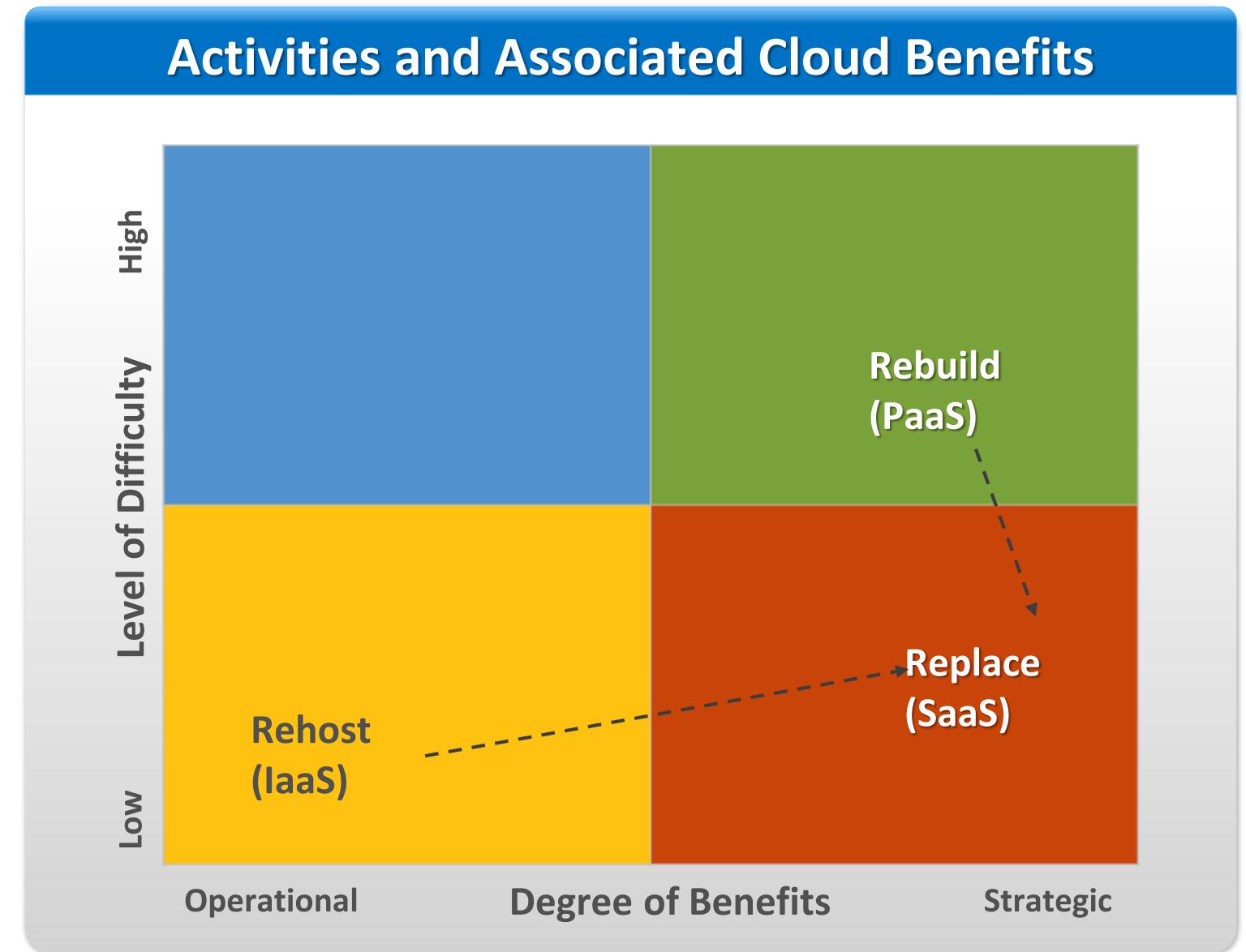
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Top Down – Application Assessment



- Replace (SaaS)
- Rebuild (PaaS)
- Rehost (IaaS)
- Refactor (Hybrid)



Solution Design Patterns

<http://aka.ms/Cloud-Design-Patterns>

Hybrid Cloud solutions and services

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Every hybrid cloud project involves, at least

- Identity management
- Network, connectivity and security
- Compute
- Data
- Applications
- And, of course, management and monitoring
- And, of course, costs governance ☺

Hybrid cloud adoption steps

1

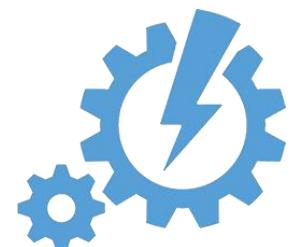
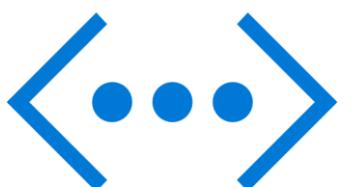
Extend datacenter
and adopt Hybrid
Cloud Services

2

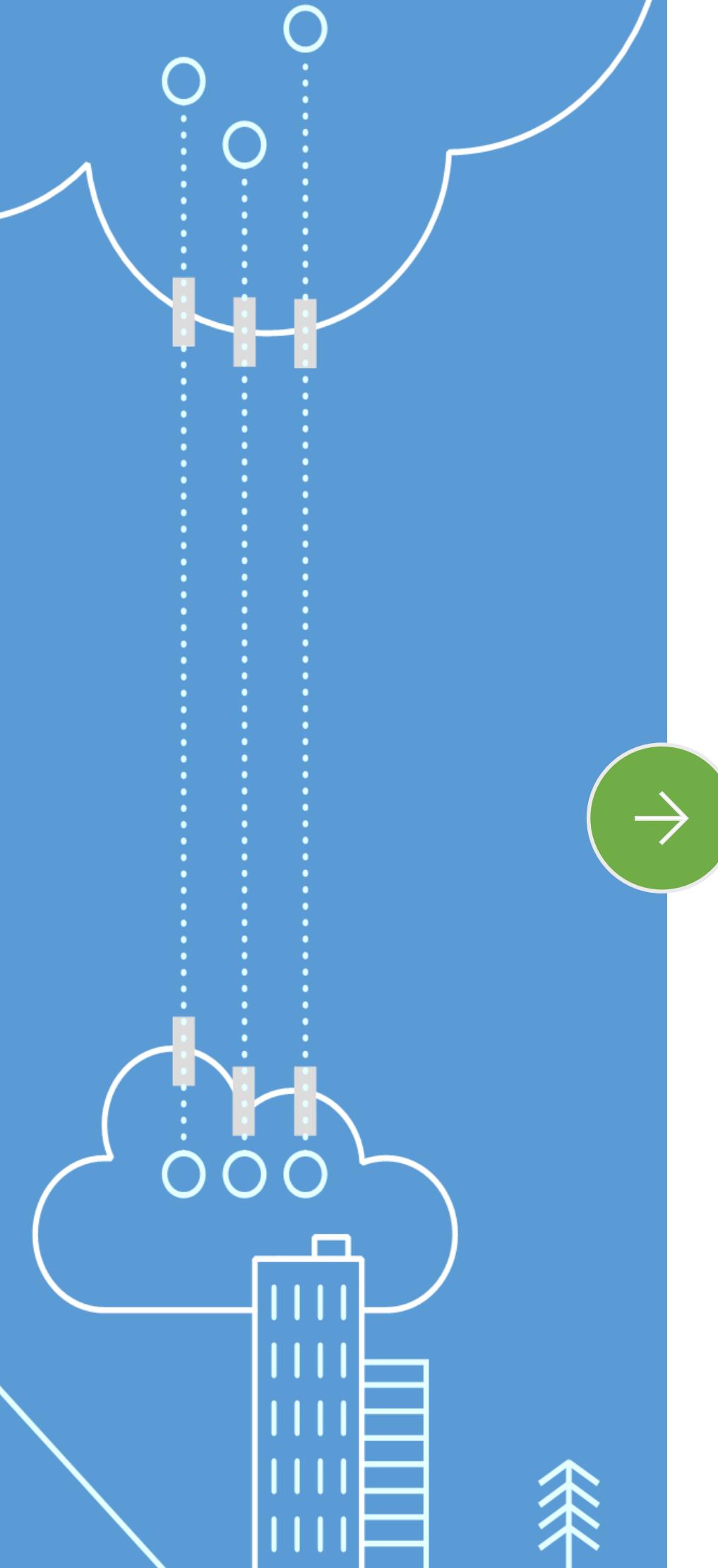
Cloud services
automation and
optimization

3

Bring cloud
approach to on-
premises



Hybrid Capabilities



Storage

StorSimple + Azure Storage

Backup + DR

Azure Backup + Azure Site Recovery

Database

SQL Server 2016 Stretch DB
+ Azure SQL DB

App integration

Azure Service Bus + BizTalk
+ Azure Data Factory

Consistency

Azure Stack + Cloud Platform System

Identity

Azure Active Directory

Cloud management

Operations Management Suite + System Center

Networking

VPN + ExpressRoute

What is Cloud Integrated Storage?

“Cloud-integrated storage (CIS) is a conventional storage-area network, network-attached storage or unified storage system that tiers and/or caches data to cloud-based storage and **treats the cloud storage as if it were part of the primary storage system.**”

Backup-to-Cloud and Cloud Integrated Storage

Backup

Backup protects from a historical perspective

Understand the backup periods

Need the ability to restore

Available capacity



Azure Backup



StorSimple



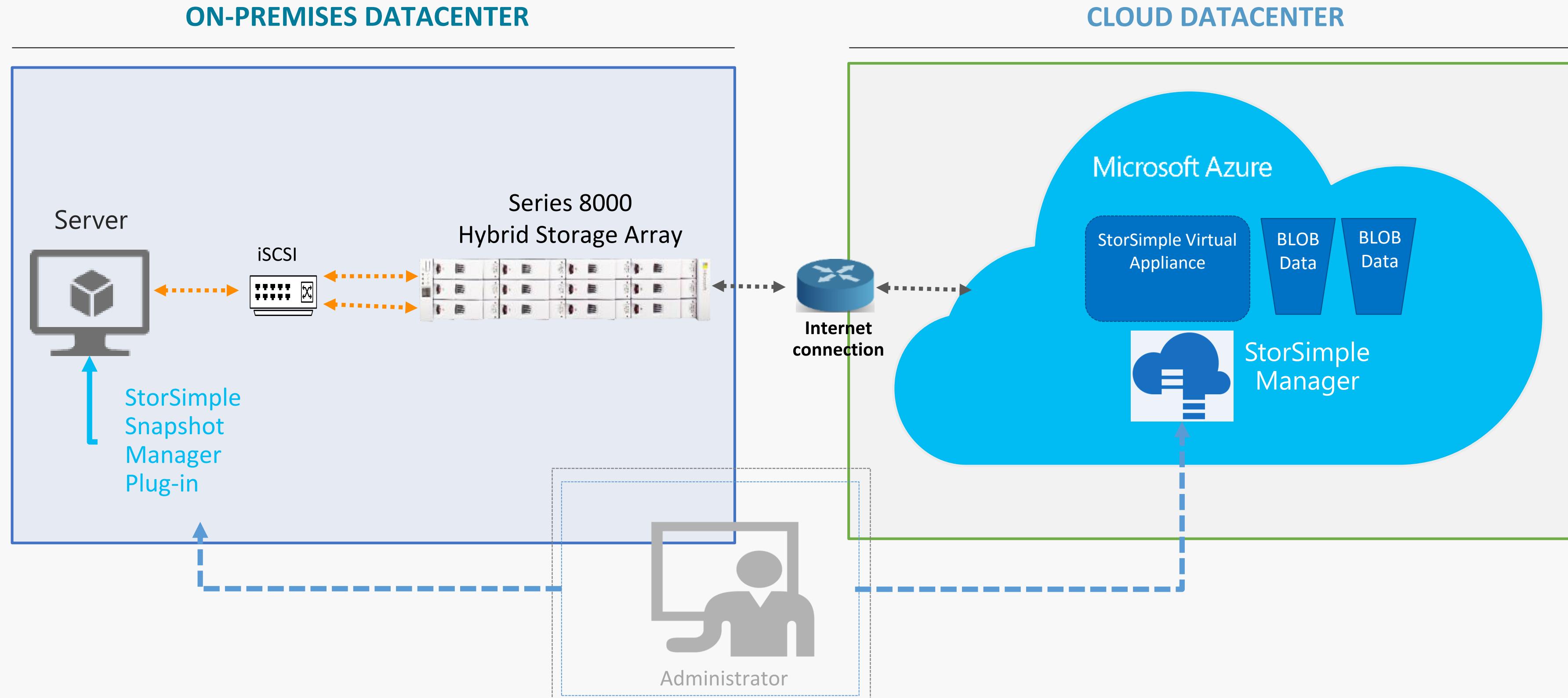
Azure Marketplace

Seagate Backup Services



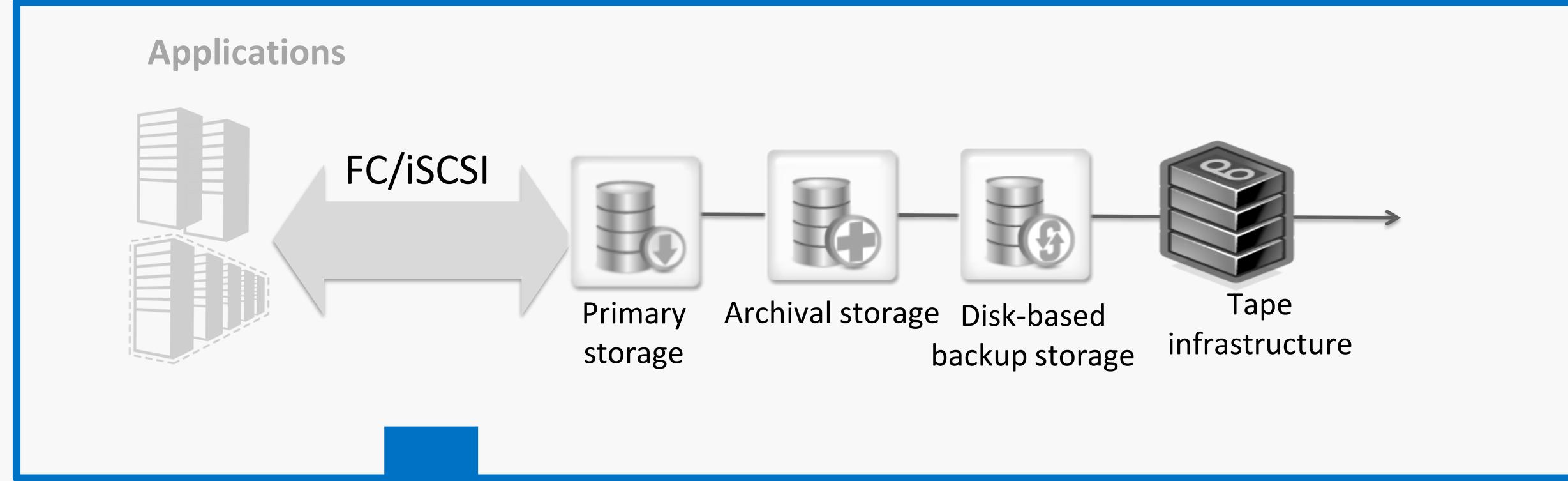
Managed Backup Portal, Direct Restore,
Cloud Connect

Microsoft Azure StorSimple

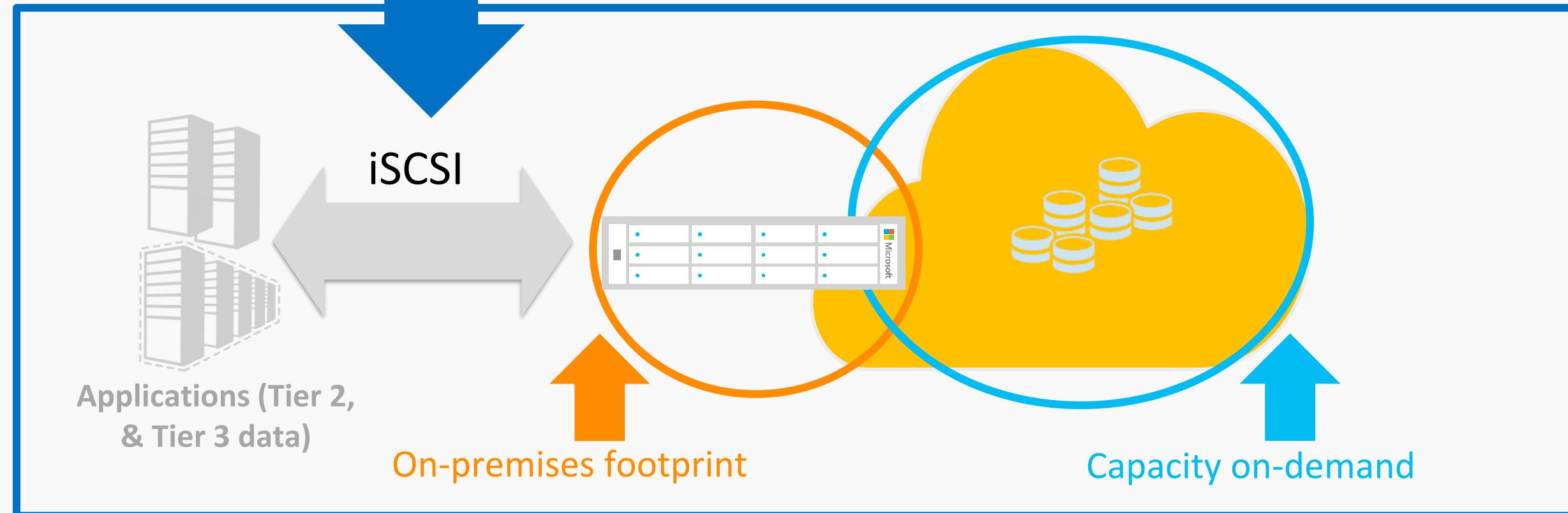


File shares and archives

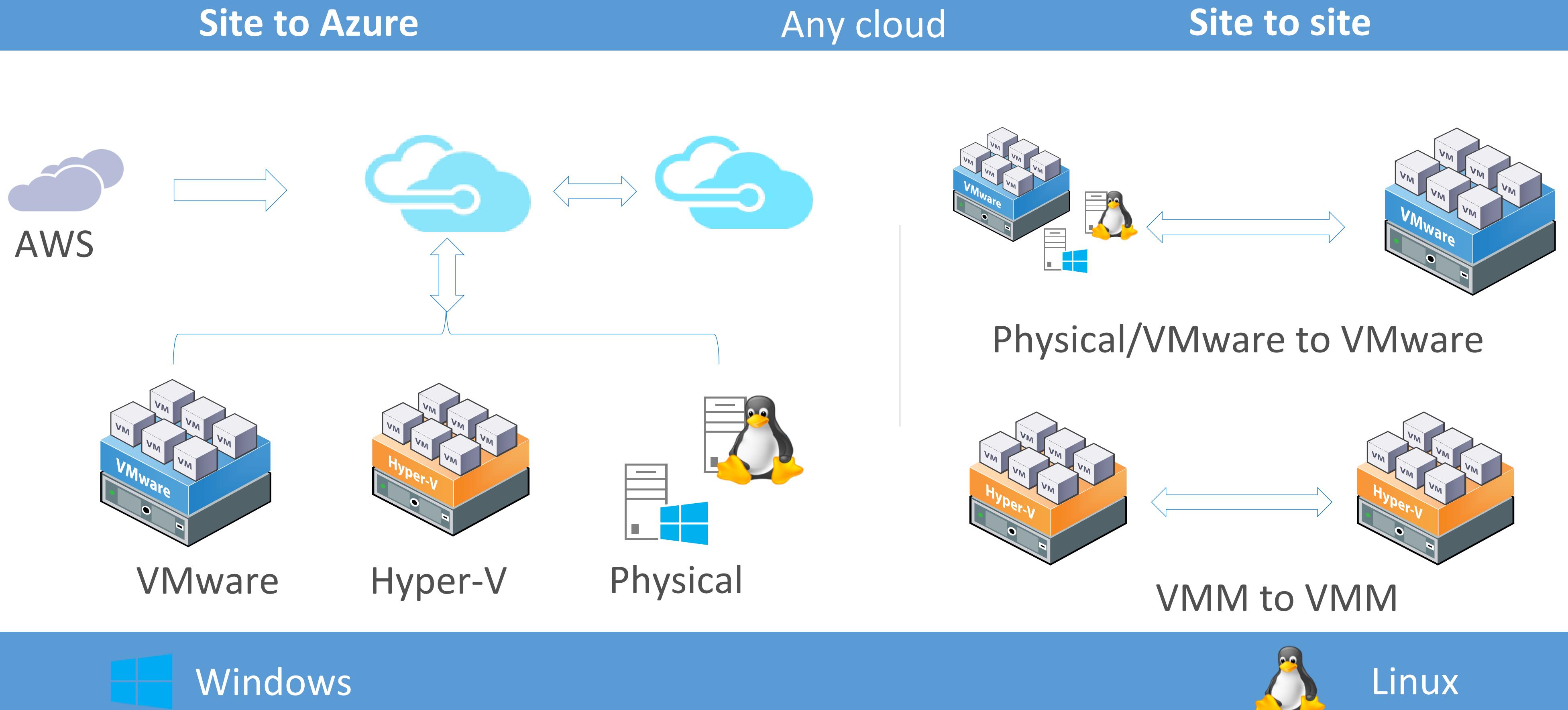
Before



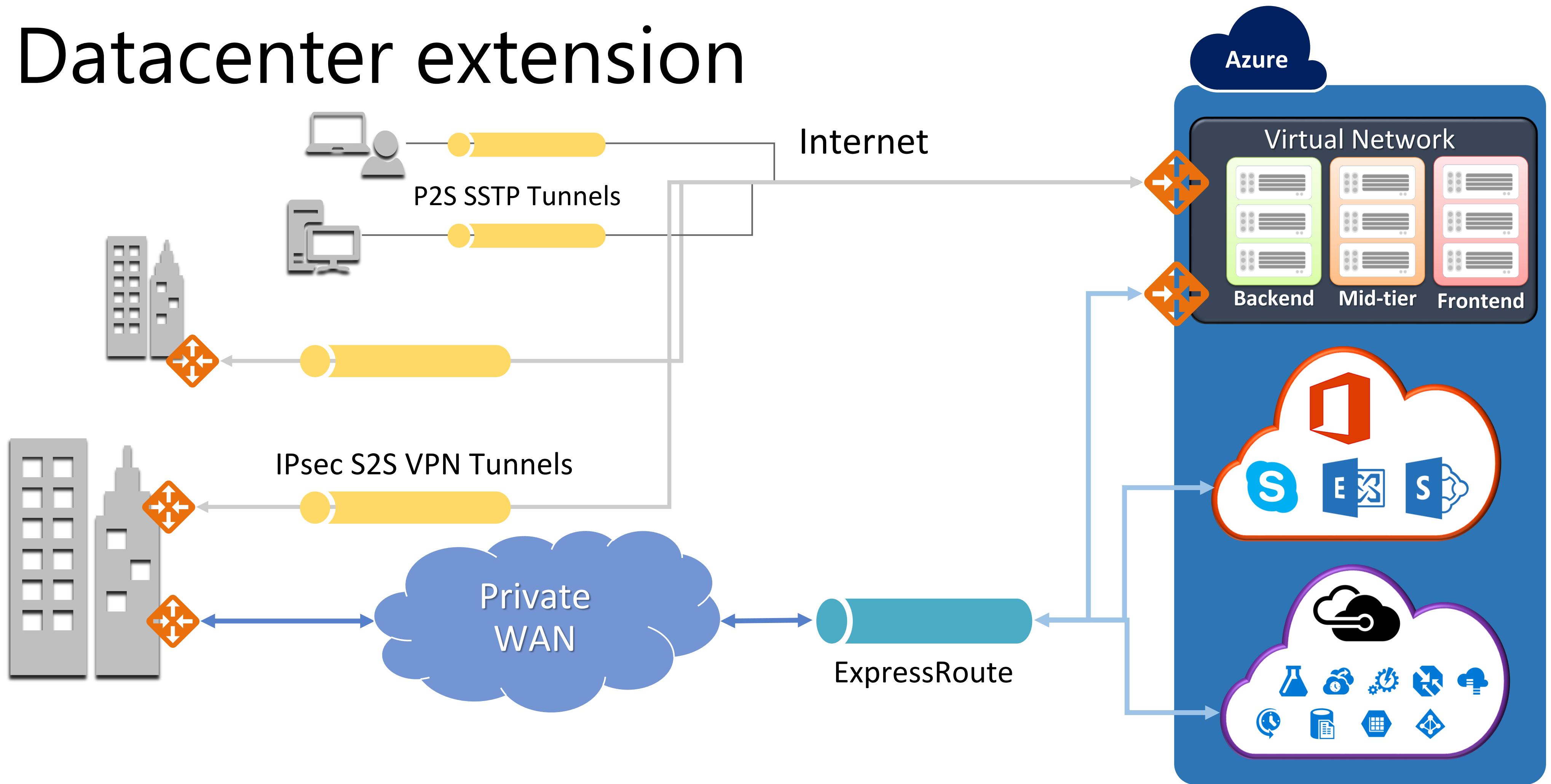
After



Azure Site Recovery: The disaster recovery / migration solution



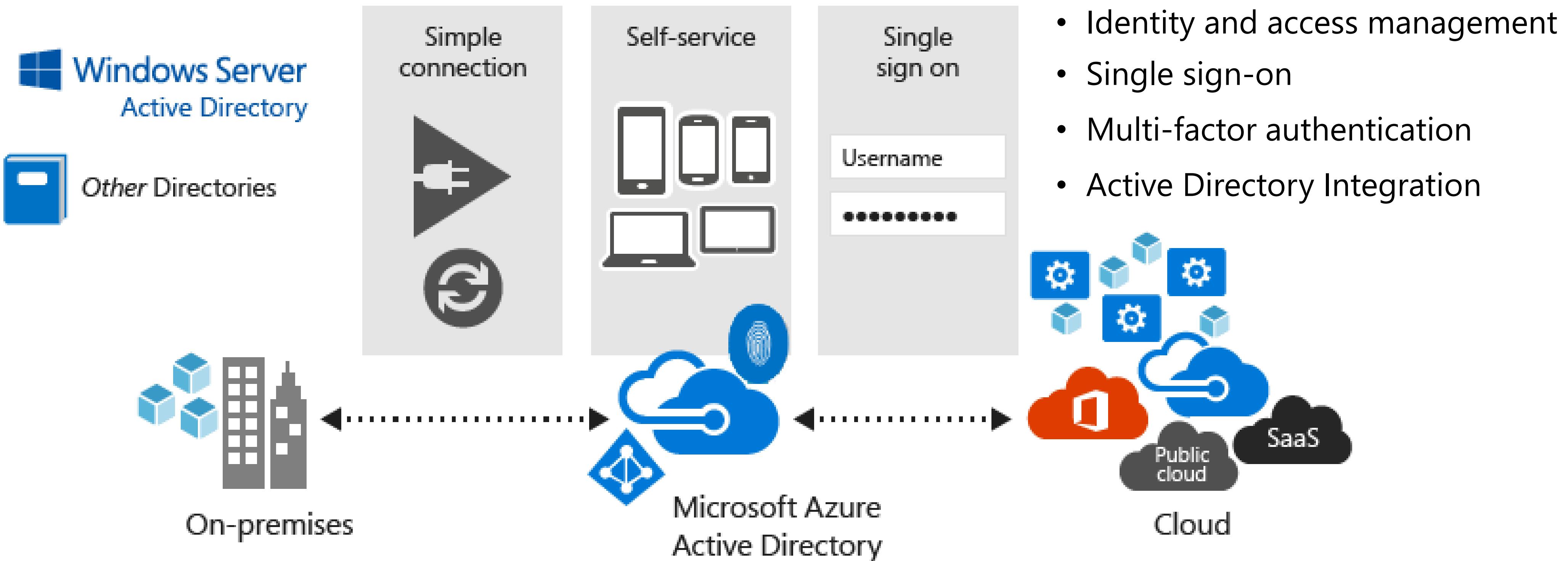
Datacenter extension



What is Identity and Access Management?

“An identity management access (IAM) system is a framework for business processes that **facilitates the management of electronic identities**. The framework includes the technology needed to support identity management.”

Azure Active Directory





Dynamically stretch
databases to cloud

SQL Server stretch db

Orchestrate data
services at scale

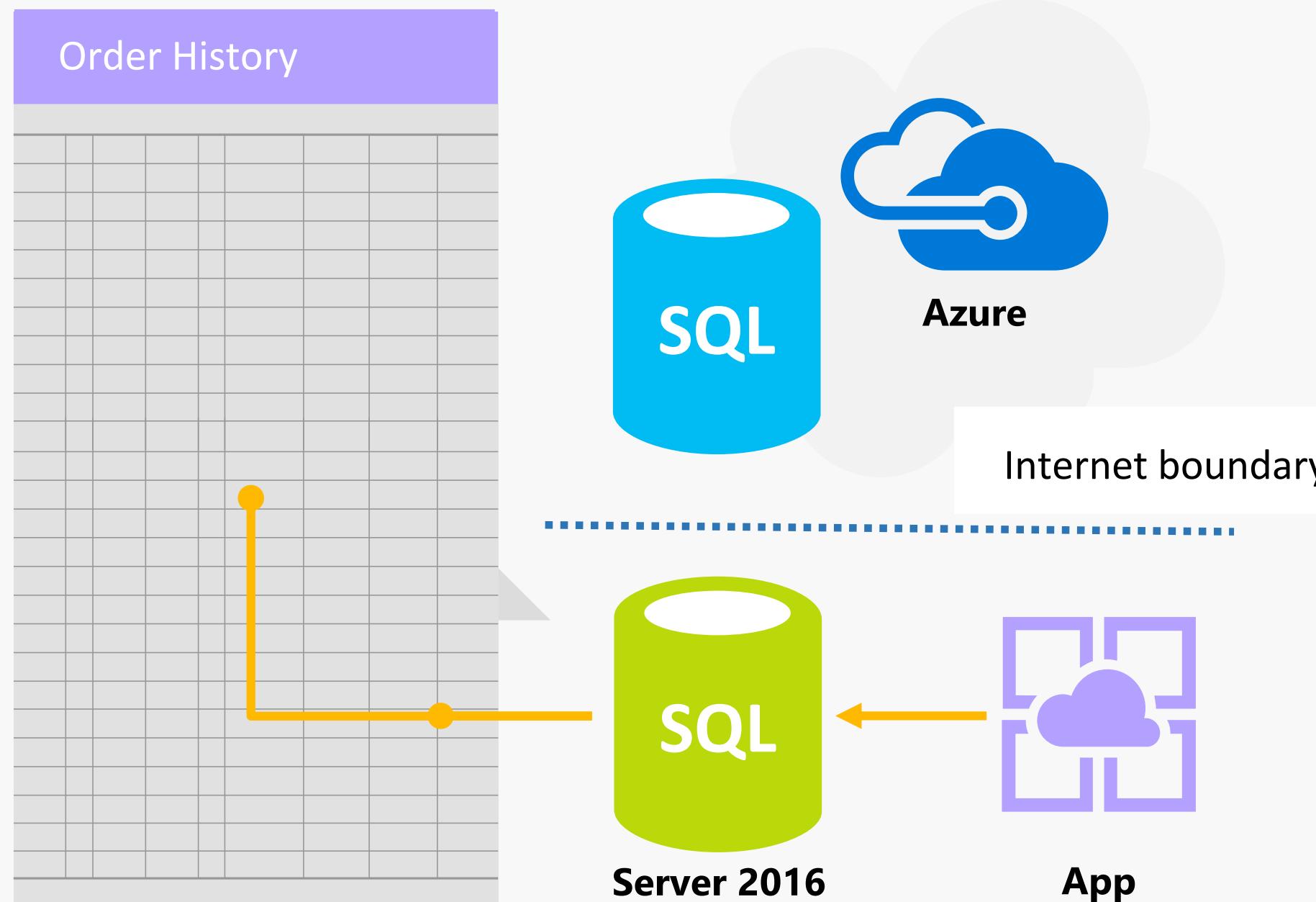
Azure Data Factory

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What is SQL Server 2016 Stretch Database?

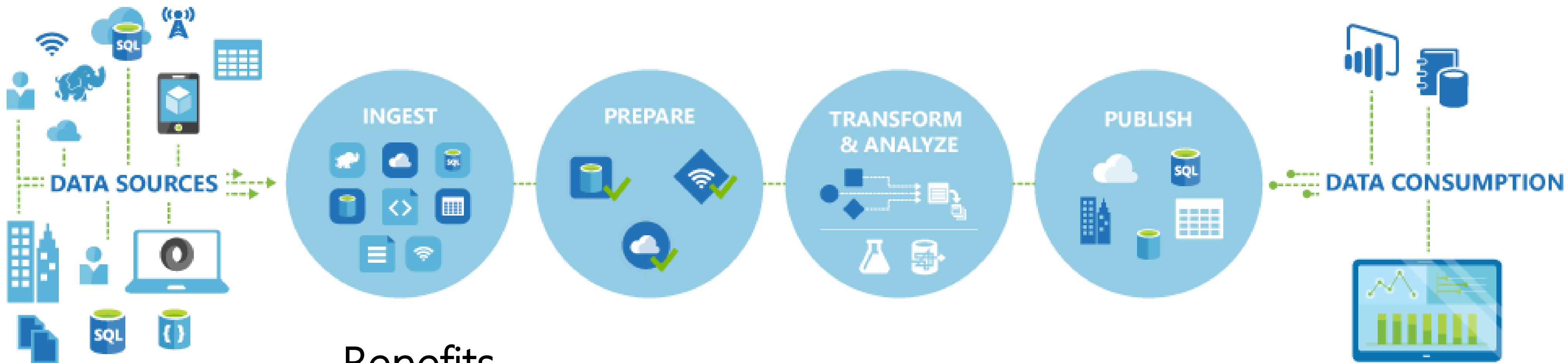
A Microsoft solution for securely migrating cold data to Azure with remote query processing abilities



Benefits

- Offers cost-effective online cold data
- Reduces local storage and maintenance costs
- Entire table always online and accessible
- No application changes
- Supports Always Encrypted and Row-Level Security

Azure Data Factory



Benefits

Access to cloud and on-premises data sources

Powerful workflow designer, web based

Integrated with other Azure features (e.g. Hadoop, ML)

The background of the slide is a nighttime photograph of a city skyline, likely Hong Kong, featuring numerous skyscrapers with illuminated windows. In the foreground, there is a multi-level highway or elevated roadway with blurred lights from moving vehicles, creating a sense of motion. The overall atmosphere is futuristic and technologically advanced.

The
technologies of
the future,
available today

Hybrid Cloud vNext

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Some examples

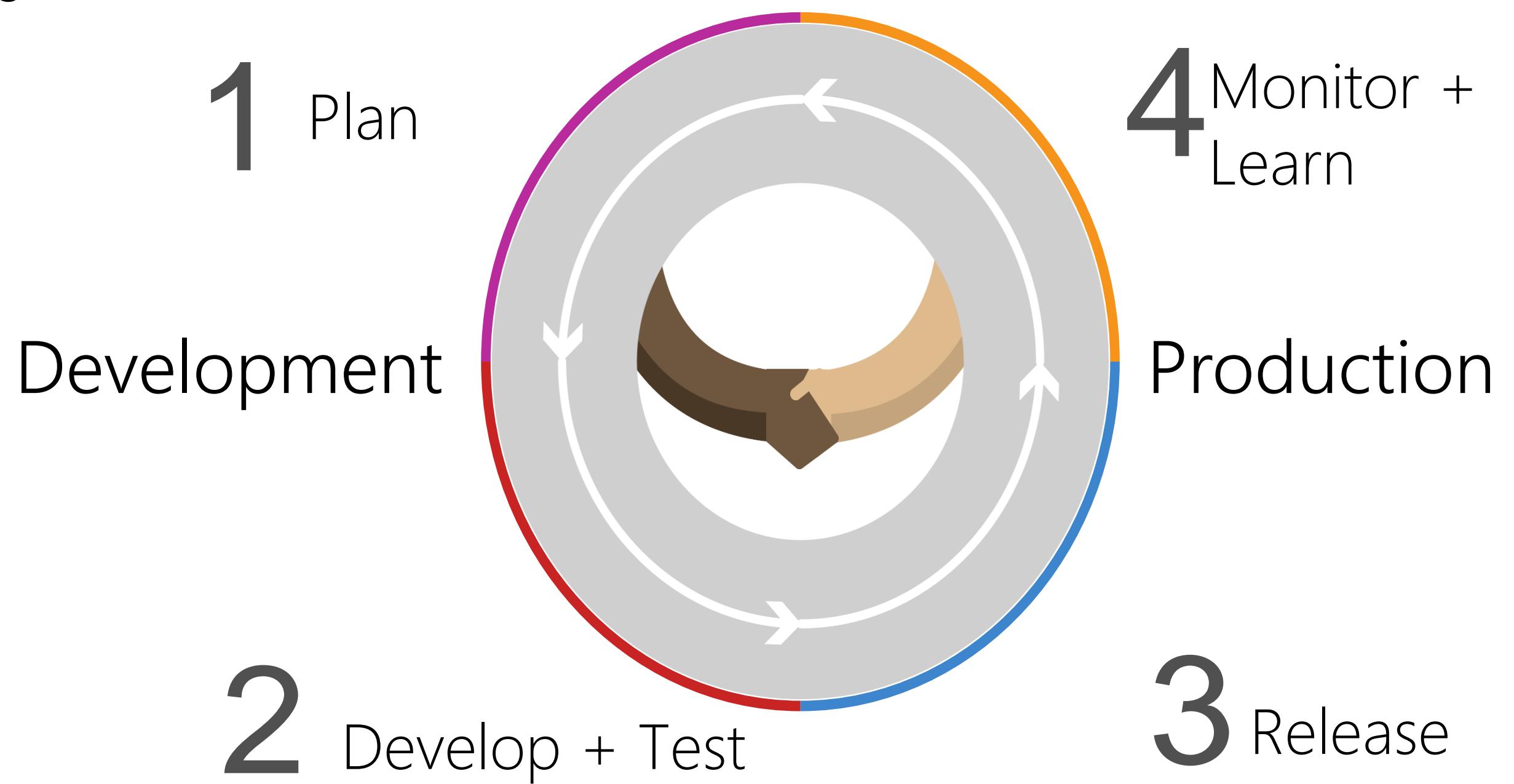
- Infrastructure as code
 - Automation, automation, automation
- Azure Stack
- Nano servers
- Containers

What is Infrastructure as Code?

“ Infrastructure as Code (IaC) is the process of **managing and provisioning computing infrastructure** and their configuration through **machine-processable definition files**.”

DevOps & Infrastructure as Code

- Essential part of DevOps adoptions
- Supports the entire ALM process
- Gets "IT Ops" involved
- Treat infrastructure projects like software development



IaC Best Practices

Automate
Automate
Automate



The value of Infrastructure as Code

Cost (reduction)

- Removing manual work
- Increased reliability

Speed

- Automation enables faster execution
- Code reuse

Risk

- Automation removes risk (human error)
- Enables infrastructure testing
- Versioning of your datacenter configuration
- Improved security

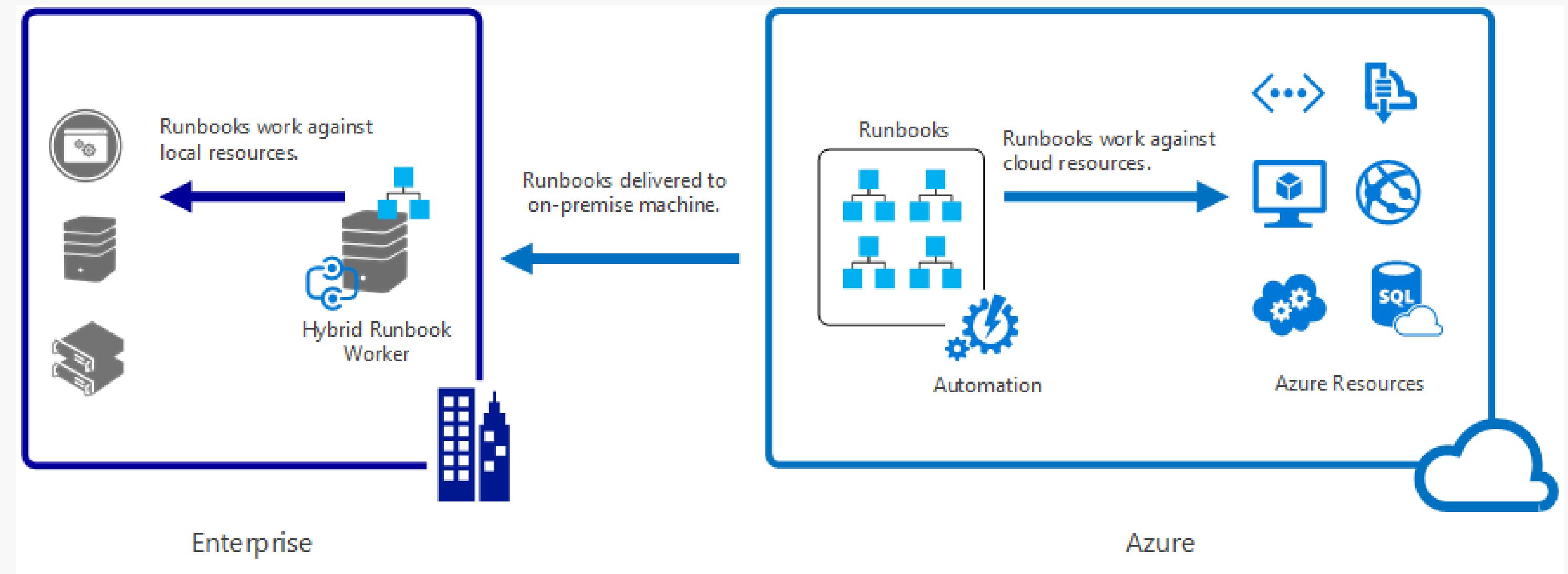
Azure Automation and Azure ARM

DevOps

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Azure Automation

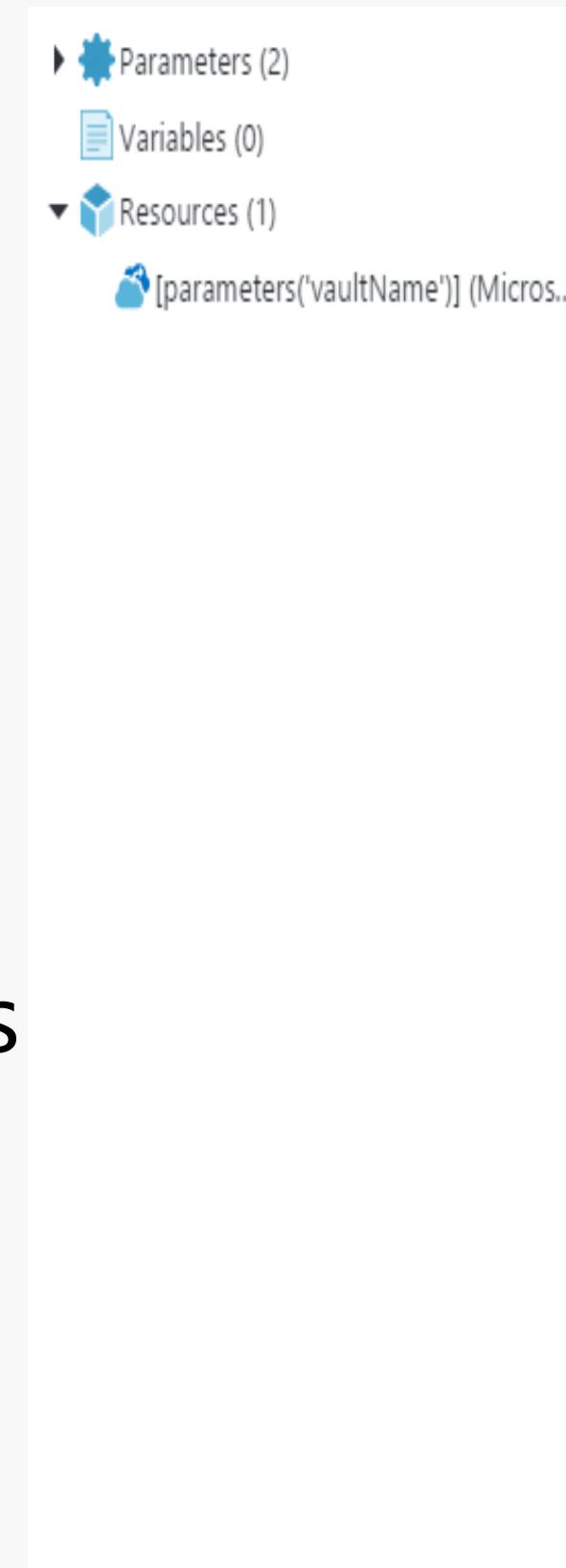


- What's inside

- Build runbooks for tasks that other tools don't do out of the box
- Integrate tools that aren't extensible (although many are now)
- Define the full delivery pipeline
- Hybrid Runbook Worker

Azure Resource Manager

- JSON based
 - Describe what you want, let Azure figure out how (declarative)
 - Relate dependencies
 - Manage in source control
 - Reusable, parameterised templates



```
1 {
2   "$schema": "https://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
3   "contentVersion": "1.0.0.0",
4   "parameters": {
5     "vaultName": {
6       "type": "string",
7       "metadata": {
8         "description": "Name of the Vault"
9       }
10    },
11    "skuName": {
12      "type": "string",
13      "defaultValue": "Standard",
14      "allowedValues": [
15        "Standard"
16      ],
17      "metadata": {
18        "description": "SKU for the vault"
19      }
20    }
21  },
22  "resources": [
23    {
24      "type": "Microsoft.Backup/BackupVault",
25      "apiVersion": "2015-03-15",
```

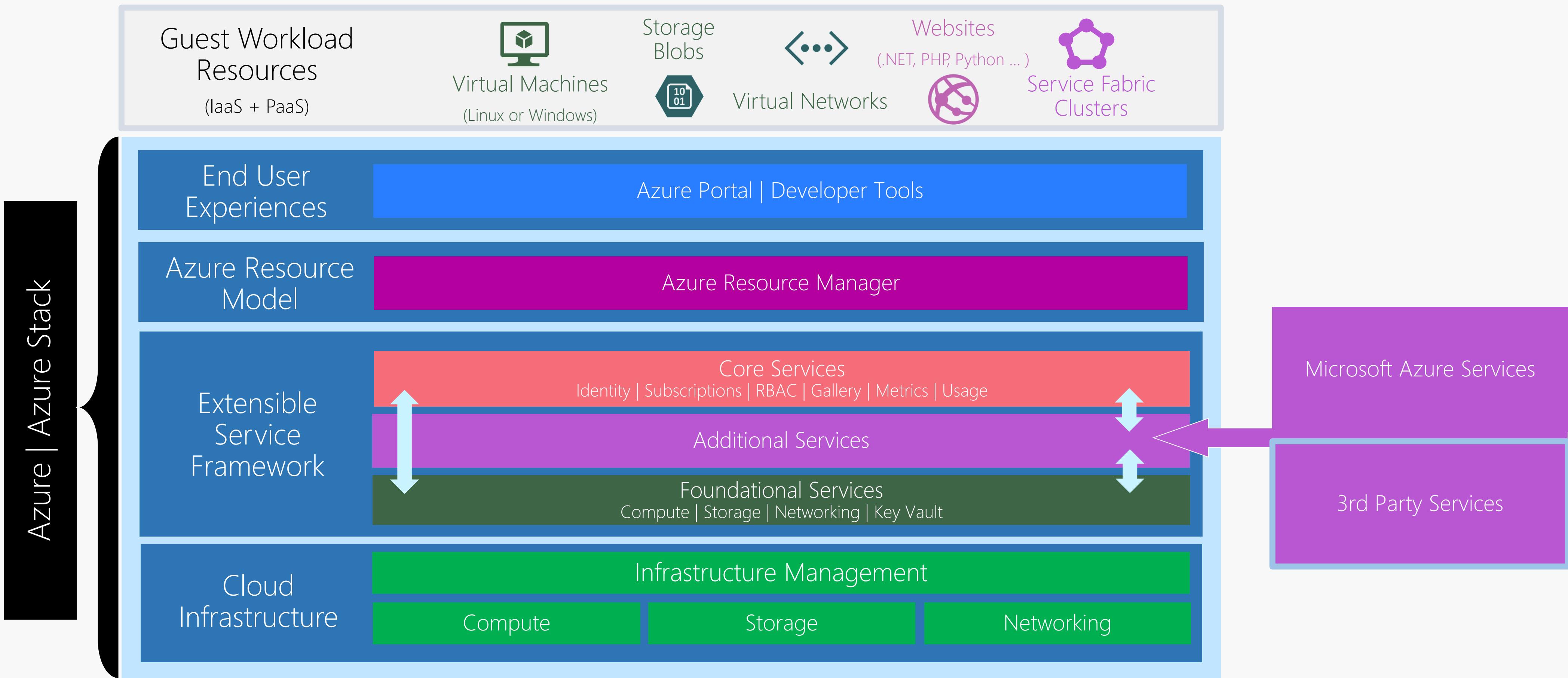
Azure Stack

write once, deploy to Azure or Azure Stack

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Azure Cloud Architecture



Nano Server and Containers

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Nano Server & Containers

Nano Servers

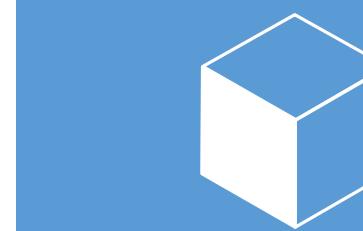
- Higher density and Reduced attack surface and servicing requirements
- Next-gen distributed app frameworks
- Interoperate with existing server applications

Containers

- Share the operating system kernel and libraries
- Good option to host microservices

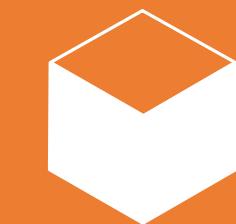


Containers
and modern
applications



Nano Server
Just enough OS

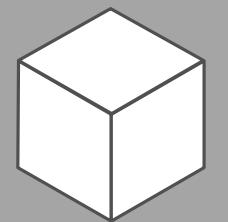
Traditional
VM workloads



Server Core
Lower
maintenance
server
environment

Third-party
applications

RDS experience



Full GUI
Specialized
workloads

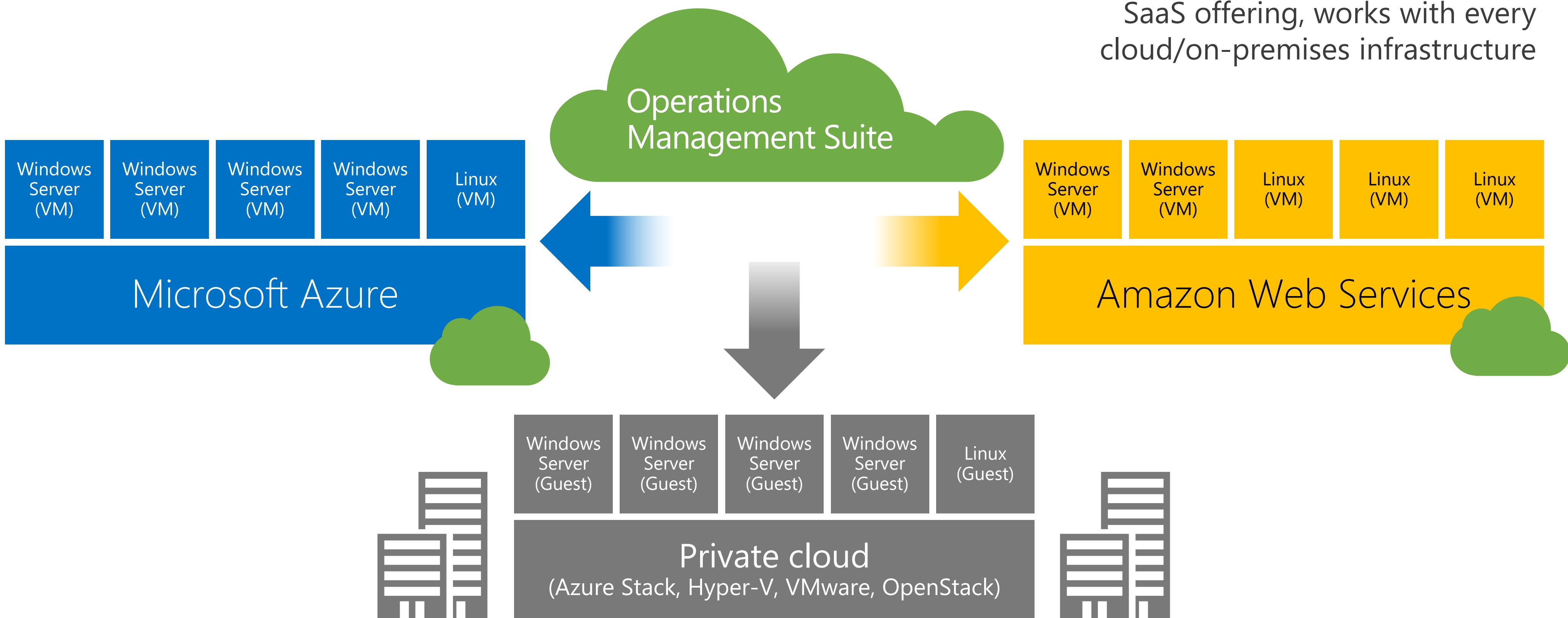
Monitoring the hybrid cloud infrastructure

Operations Management Suite

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Operations Management Suite



The background image shows a dense urban environment at night. In the foreground, a multi-lane highway curves through the city, with the motion of vehicles creating long, streaky light trails in red, white, and blue. The city skyline is filled with numerous skyscrapers of various heights, their windows glowing with different colors of light. A prominent bridge or overpass structure is visible in the middle ground, also featuring some illumination.

Costs governance

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Billing and usage governance

The image displays two side-by-side screenshots illustrating billing and usage governance.

Left Screenshot (Power BI): A dashboard titled "Usage Trend By Accounts & Subscriptions". It includes three visualizations:

- A donut chart showing the distribution of costs by account name.
- A bar chart showing extended cost by department name, highlighting "Third Party Company" with values 18,466.34 and 15,851.01.
- A line chart showing extended cost by date from March 2015 to October 2015.

Filters on the left include "Account Name" and "Month". The "Account Name" filter lists subscriptions like "1-MAEP Test3", "Azure Billing Portal test", etc. The "Month" filter lists months from 2015-Aug to 2015-Sep.

Right Screenshot (Microsoft Azure Enterprise Enrollment Management): A web-based interface for managing enrollment details.

Enrollment Detail:

- Administrator:** Enrollment Number 100 (highlighted with a red box).
- Company Name:** Test Enrollment (Direct)
- Country:** United States
- Auth Level:** Mixed Account
- Start/End Date:** 7/1/2013 - 6/30/2018
- Billing Cycle:** Quarterly
- Status:** Active (green)
- Support Level:** None
- Support Coverage:** (empty)

Notification Contact: (empty)

The URL in the browser is https://ea.azure.com/manage/enrollment/100.

A wide-angle, low-angle night photograph of a dense urban skyline. The buildings are tall and modern, with numerous windows illuminated from within, creating a grid-like pattern of light against the dark sky. In the foreground, a multi-lane highway curves through the frame, with the motion of vehicles captured as long, streaky lines of light in various colors (red, white, blue). A large, curved overpass or bridge structure is visible in the middle ground, also featuring lights. The overall atmosphere is one of a bustling, futuristic city at night.

DEMO

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Session recap

Objectives

- Understand hybrid cloud architectures
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GRAZIE !

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