Shawn Weisfeld

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https://www.linkedin.com/in/shawnweisfeld/

Checkout other Regional Events

https://aka.ms/AustinEvents

More info about OCP

http://aka.ms/USPartnerBriefing

http://www.UserGroup.tv

Siraj Mohammad

Technical Solution Specialist
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https://www.linkedin.com/in/siraj-mohammad-0205b26/

Azure—cloud for all

Productive   Hybrid   Intelligent   Trusted
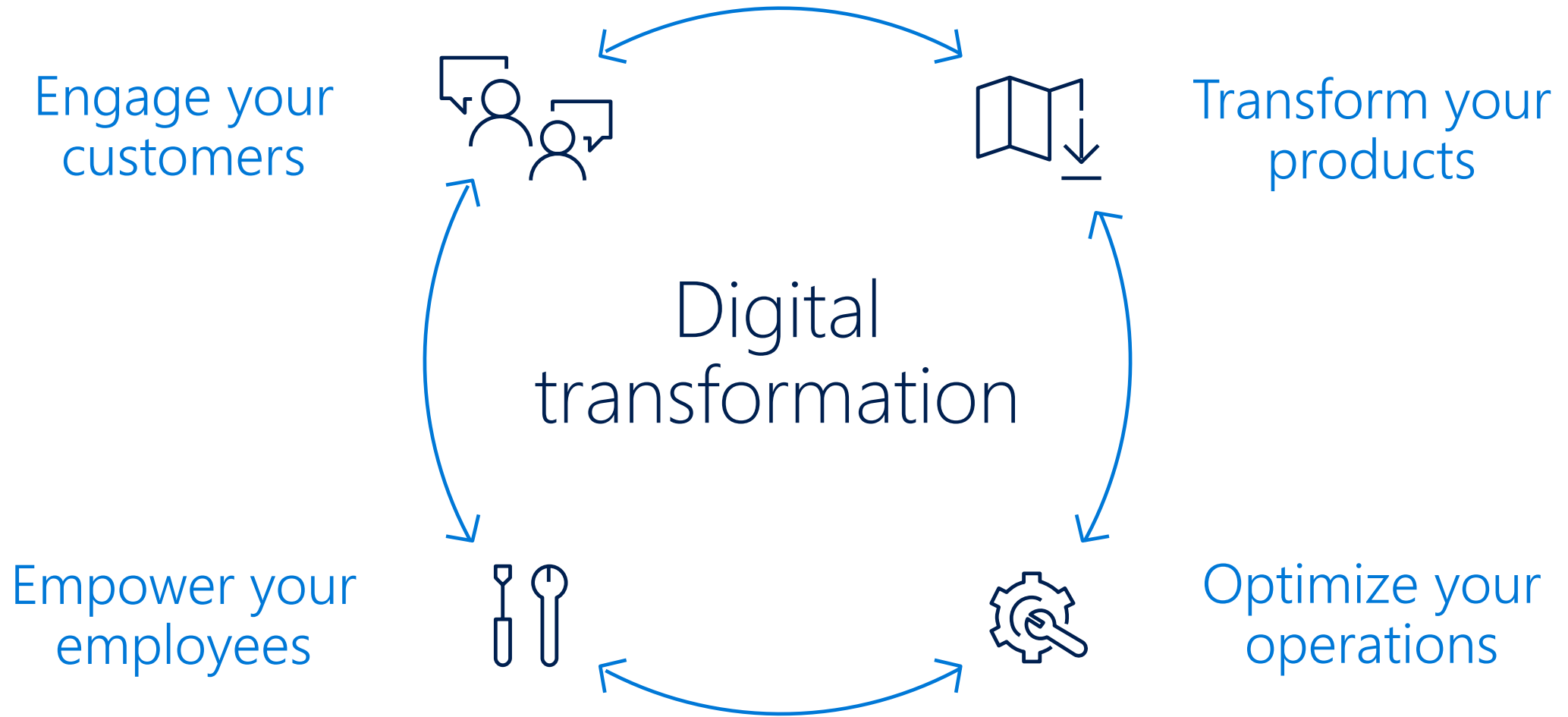
Unparalleled developer productivity

Productive

Hybrid

Intelligent

Trusted

Integrated tooling

Visual Studio
third–parties | DevOps

100+ services

Azure Functions
Kubernetes | Logic Apps

http://aka.ms/AzureCards

Unified management

Single cloud | Policy
and Governance

Plan

Build

Continuous development

Continuous Integration

Deploy

Operate
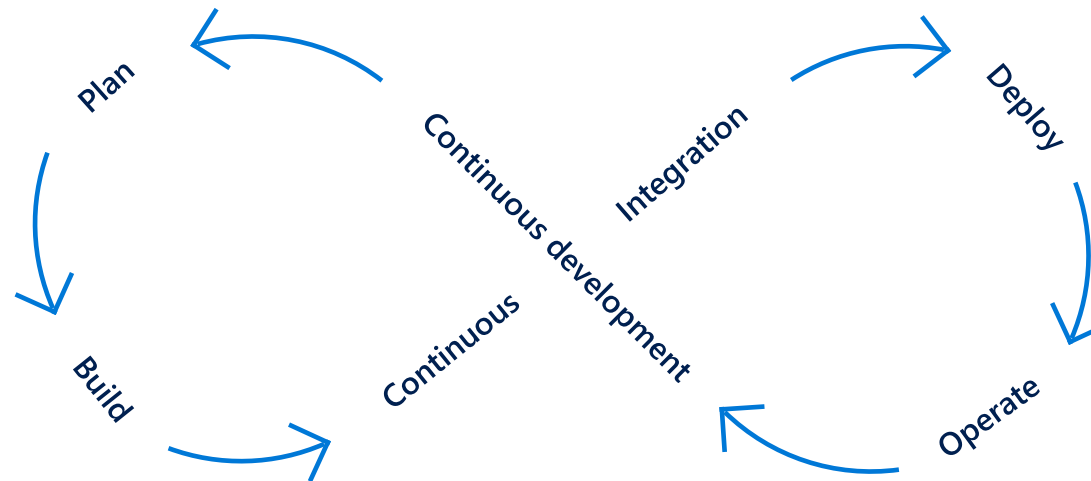
Open source support
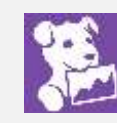
DevOps		Nagios	VAGRANT		GRUNT				Xamarin
Management	CHEF	puppet labs	ANSIBLE	SALTSTACK			mist.io	libcloud		SCALR
Applications		Joomla!	Drupal		APPRENDA				
App frameworks & tools	php	nodeJS		JS	Ruby	IJ	eclipse		
Databases & middleware		redis	CLEARDB	cloudera	MySQL	mongoDB		Couchbase	
Infrastructure			redhat	SUSE		bitnami	ORACLE LINUX	freeBSD	docker
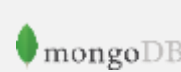
The only consistent, hybrid cloud

Productive

Hybrid

Intelligent

Trusted

Azure Active Directory	Azure services	Azure data services	Azure security and management
Common identity	Unified cloud platform	Data platform	Security and management
Active Directory	Azure Stack	SQL Server	On–premises infrastructure
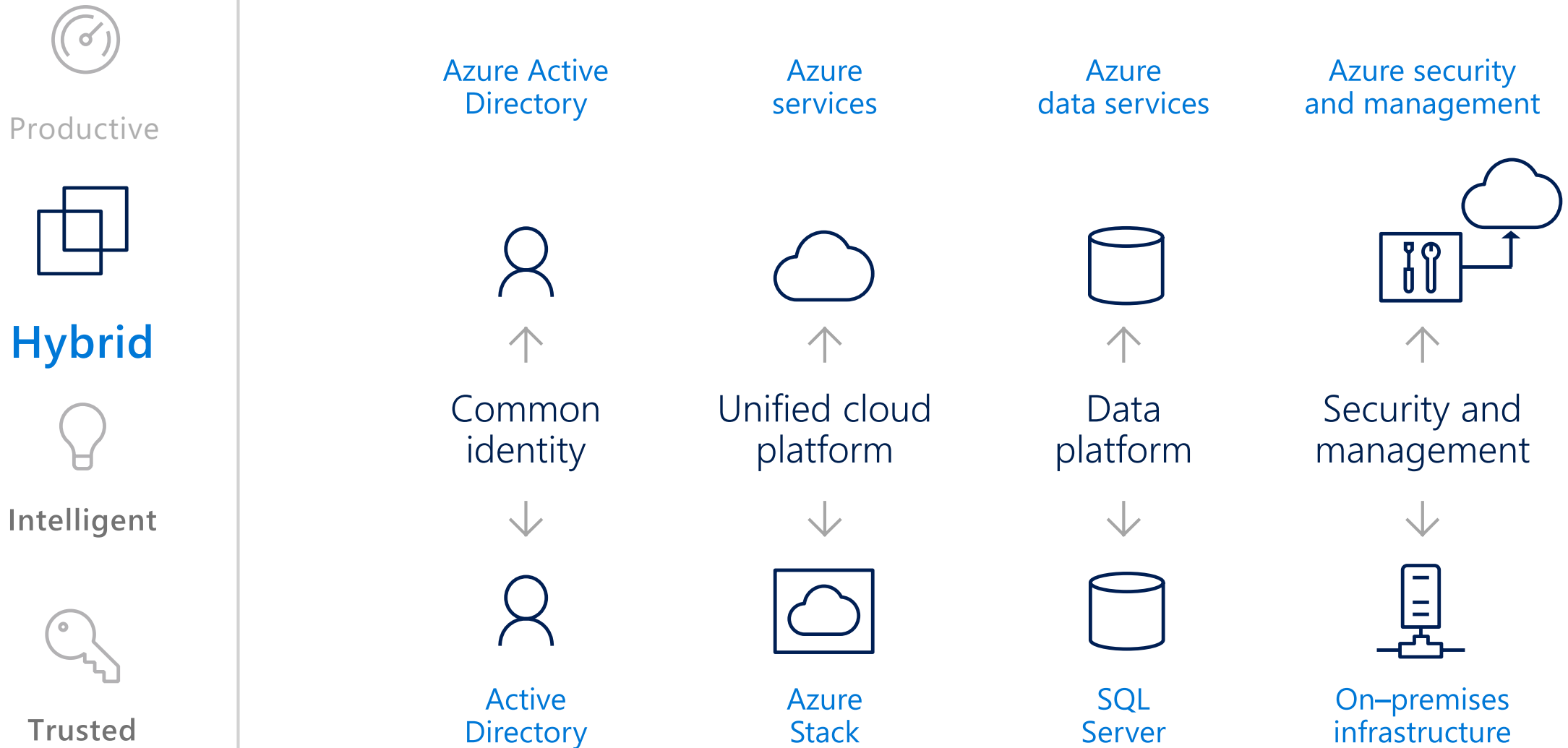
Comprehensive deep learning, machine learning as a service

Productive

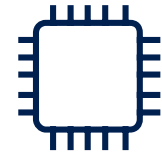**Hybrid**

Intelligent

Trusted

Customizable services
VS, ML STUB, Tensor, Caffe

Tools
Bots, Cognitive, ML

Infrastructure and compute
CPU, GPU, FPGA

Azure

Productive

Hybrid

Intelligent

Trusted

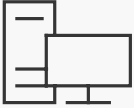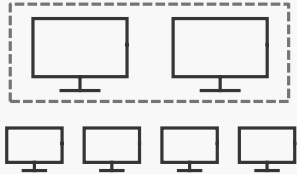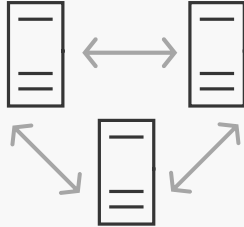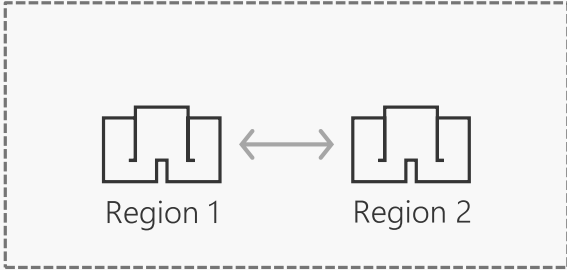# 50 Azure
regions incl. 3 National Clouds

Video Tour: https://www.youtube.com/watch?v=0uRR72b_qvc
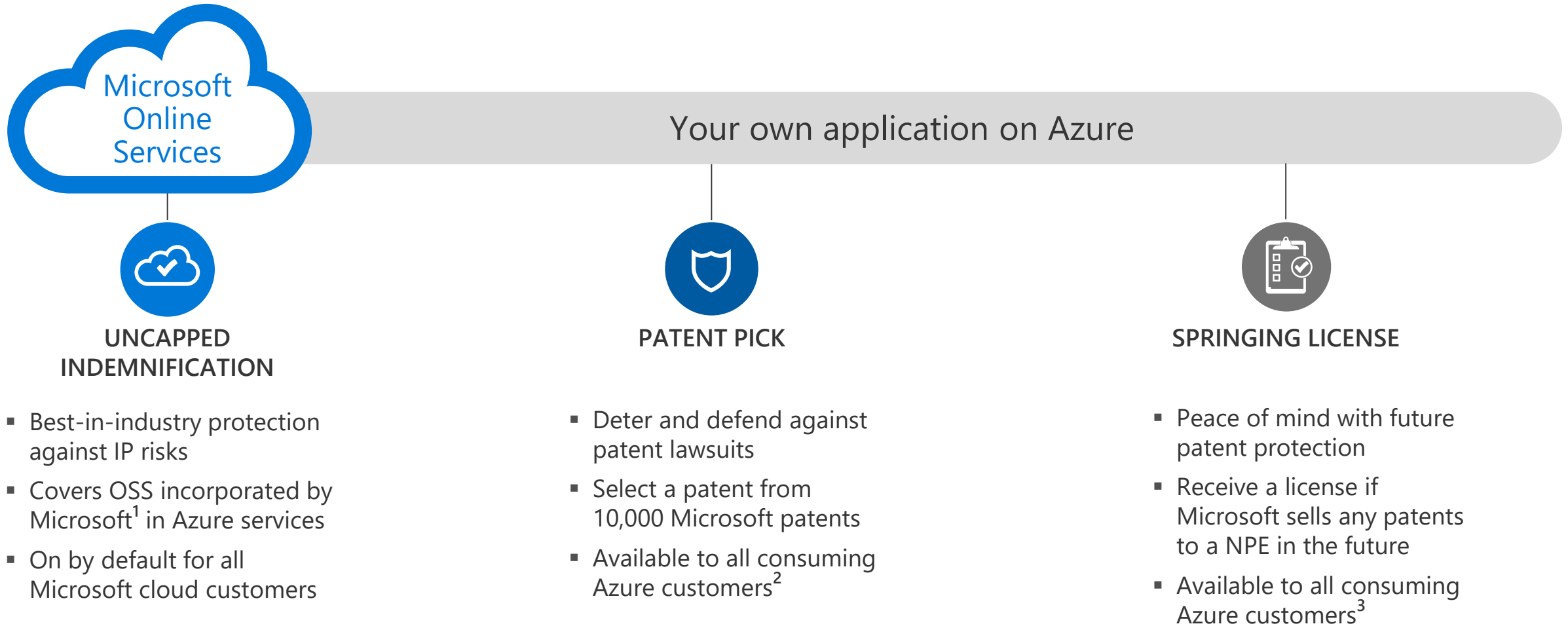
Azure covers 73 compliance offerings

Azure has the deepest and most comprehensive compliance coverage in the industry

Global
- ☑ ISO 27001:2013
- ☑ ISO 27017:2015
- ☑ ISO 27018:2014
- ☑ ISO 22301:2012
- ☑ ISO 9001:2015
- ☑ ISO 20000-1:2011
- ☑ SOC 1 Type 2
- ☑ SOC 2 Type 2
- ☑ SOC 3
- ☑ CSA STAR Certification
- ☑ CSA STAR Attestation
- ☑ CSA STAR Self-Assessment
- ☑ WCAG 2.0

US Gov
- ☑ FedRAMP High
- ☑ FedRAMP Moderate
- ☑ EAR
- ☑ DoD DISA SRG Level 5
- ☑ DoD DISA SRG Level 4
- ☑ DoD DISA SRG Level 2
- ☑ DFARS
- ☑ DoE 10 CFR Part 810
- ☑ NIST SP 800-171
- ☑ NIST CSF
- ☑ Section 508 VPATs
- ☑ FIPS 140-2
- ☑ ITAR
- ☑ CJIS
- ☑ IRS 1075

Industry
- ☑ PCI DSS Level 1
- ☑ GLBA
- ☑ FFIEC
- ☑ Shared Assessments
- ☑ FISC (Japan)
- ☑ APRA (Australia)
- ☑ FCA (UK)
- ☑ MAS + ABS (Singapore)
- ☑ 23 NYCRR 500
- ☑ HIPAA BAA
- ☑ HITRUST
- ☑ 21 CFR Part 11 (GxP)
- ☑ MARS-E
- ☑ NHS IG Toolkit (UK)
- ☑ NEN 7510:2011 (Netherlands)
- ☑ FERPA
- ☑ CDSA
- ☑ MPAA
- ☑ FACT (UK)
- ☑ DPP (UK)
- ☑ SOX

Regional
- ☑ Argentina PDPA
- ☑ Australia IRAP Unclassified
- ☑ Australia IRAP Protected
- ☑ Canada Privacy Laws
- ☑ China GB 18030:2005
- ☑ China DJCP (MLPS) Level 3
- ☑ China TRUCS / CCCPPF
- ☑ EN 301 549
- ☑ EU ENISA IAF
- ☑ EU Model Clauses
- ☑ EU – US Privacy Shield
- ☑ Germany IT-Grundschutz workbook
- ☑ Germany C5
- ☑ India MeitY
- ☑ Japan CS Mark Gold
- ☑ Japan My Number Act
- ☑ Netherlands BIR 2012
- ☑ New Zealand Gov CIO Fwk
- ☑ Singapore MTCS Level 3
- ☑ Spain ENS
- ☑ Spain DPA
- ☑ UK Cyber Essentials Plus
- ☑ UK G-Cloud
- ☑ UK PASF

https://aka.ms/AzureCompliance

Most comprehensive resiliency and best SLA

INDUSTRY-ONLY	INDUSTRY-LEADING HIGH AVAILABILITY SLA		INDUSTRY-LEADING DISASTER RECOVERY
VM SLA 99.9%	**VM SLA** 99.95%	**VM SLA** 99.99%	**REGIONS** 50

SINGLE VM
Protection with Premium Storage

AVAILABILITY SETS
Protection against failures within datacenters

AVAILABILITY ZONES
Protection from entire datacenter failures

REGION PAIRS
Protection from disaster with Data Residency compliance

Microsoft Azure IP Advantage | Protecting your innovation in the cloud

Microsoft Online Services

Your own application on Azure

UNCAPPED INDEMNIFICATION

- Best-in-industry protection against IP risks
- Covers OSS incorporated by Microsoft[1] in Azure services
- On by default for all Microsoft cloud customers

PATENT PICK

- Deter and defend against patent lawsuits
- Select a patent from 10,000 Microsoft patents
- Available to all consuming Azure customers[2]

SPRINGING LICENSE

- Peace of mind with future patent protection
- Receive a license if Microsoft sells any patents to a NPE in the future
- Available to all consuming Azure customers[3]

1. Terms and conditions apply
2. Must (i) have an Azure usage of $1k/m over the past three months; (ii) have not filed a patent infringement lawsuit against another Azure customer for their Azure workloads in the last 2 years; and (iii) show evidence of a current patent litigation that occurred after Microsoft Azure Advantage launch
3. Must (i) have an Azure usage of $1k/m over the past three months

Blockchain

"...a sweeping vista of opportunity to **reimagine how the financial system can and should work** in the Internet era, and **a catalyst to reshape that system** in ways that are more powerful for individuals and businesses alike"

- Marc Andreessen, A16z

CIO JOURNAL.

Blockchain will be the killer app for supply chain management in 2018

Are You Eating Sustainable Fish? Blockchain May Provide the Answer

Forbes

How Blockchain Can Create Owned And Trusted Health Care Records

How Blockchain Technology Could Work in the Insurance Industry

By The Guardian

Blockchain establishes a secure, shared source of truth
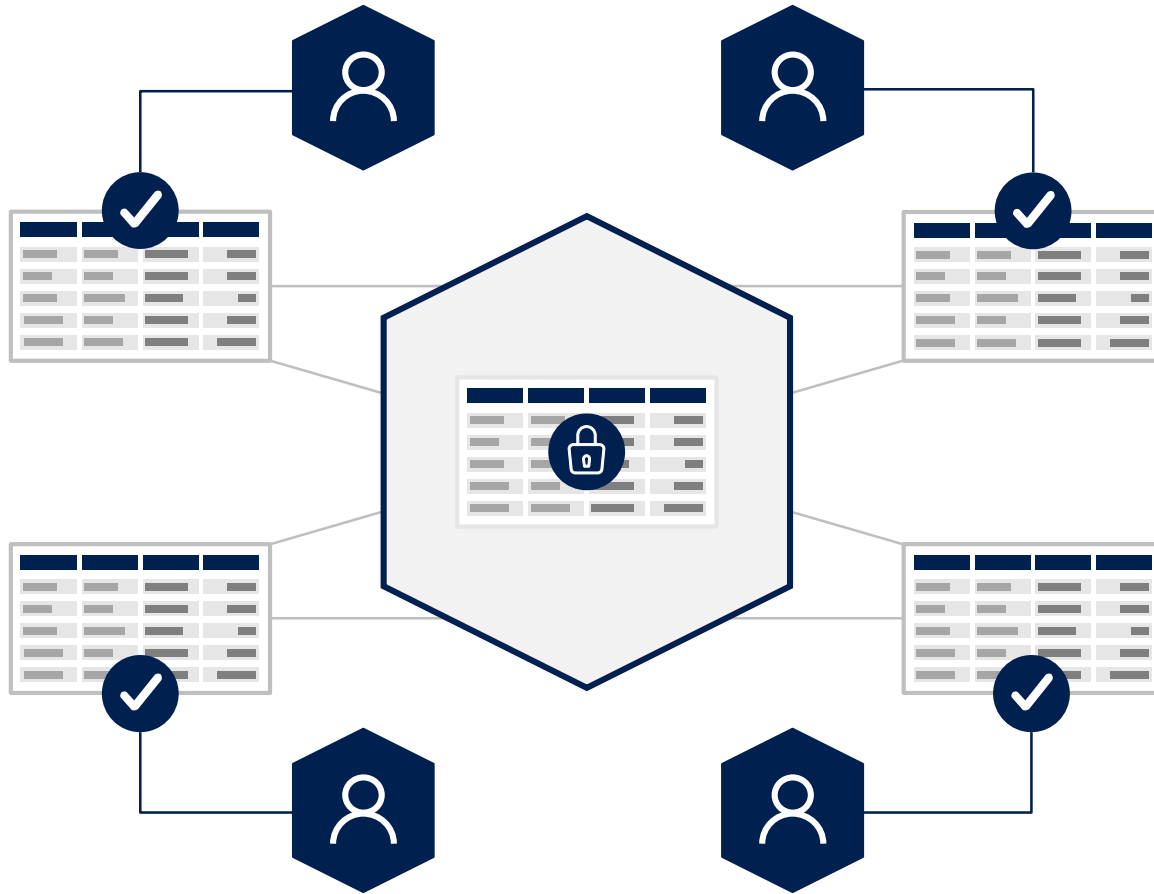
Data is stored in a ledger—a record of every transaction

Everyone in the network has an individual, identical copy

The ledger can only be updated by network consensus, and information can't be altered or deleted without the knowledge of the whole network

The types of assets vary across industries

3M

- Ensuring supply chain integrity e.g. sensitive pharmaceuticals
- Managing movement across a complex supply chain
- Preventing tampering and counterfeit

bank hapoalim

- Improving the process for issuing bank guarantees
- Creating ease of access for guarantee beneficiaries and applicants
- Ensuring security of sensitive documents

webjet.com.au

- Facilitating thousands of hotel bookings on a daily basis
- Coordinating between many different booking systems
- Mitigating discrepancies that lead to booking errors

SINGAPORE AIRLINES

- Creating a system to track reward points
- Enabling system to span multiple partner organizations
- Reducing the risk of discrepancy
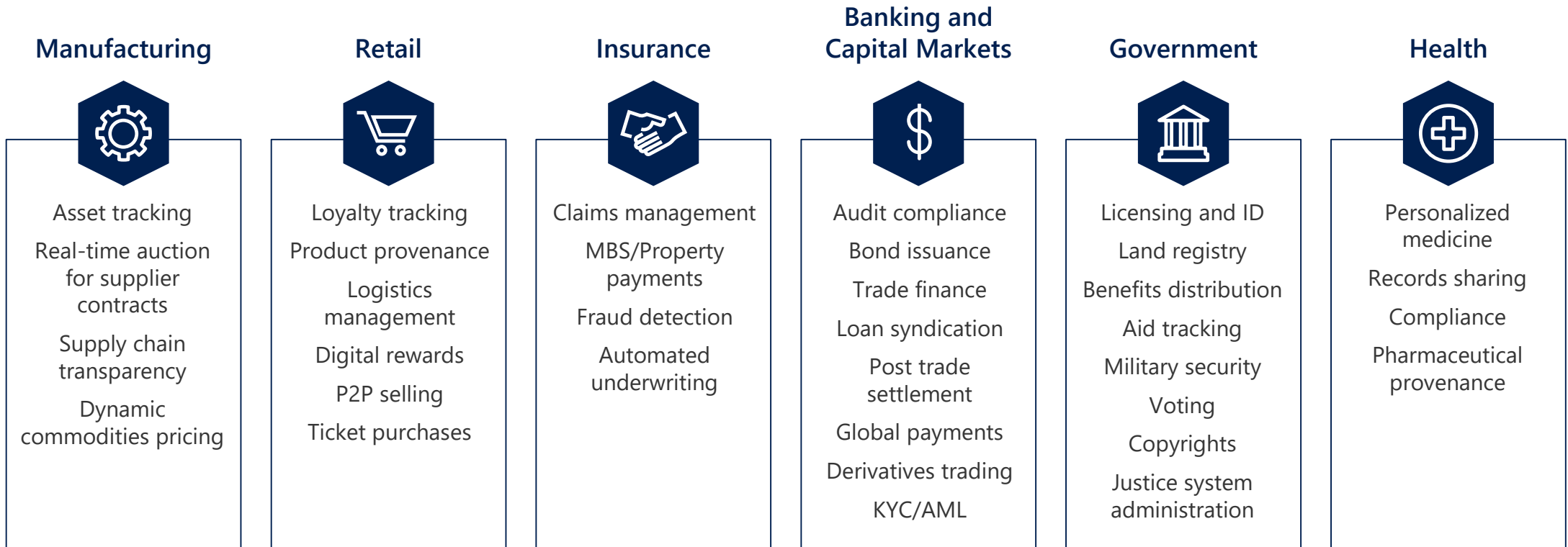

Microsoft

Asset transfer and provenance

Cross-organizational workflow

Multiparty auditing

We've seen this pattern in scenarios across industries

Manufacturing

Asset tracking

Real-time auction for supplier contracts

Supply chain transparency

Dynamic commodities pricing

Retail

Loyalty tracking

Product provenance

Logistics management

Digital rewards

P2P selling

Ticket purchases

Insurance

Claims management

MBS/Property payments

Fraud detection

Automated underwriting

Banking and Capital Markets

Audit compliance

Bond issuance

Trade finance

Loan syndication

Post trade settlement

Global payments

Derivatives trading

KYC/AML

Government

Licensing and ID

Land registry

Benefits distribution

Aid tracking

Military security

Voting

Copyrights

Justice system administration

Health

Personalized medicine

Records sharing

Compliance

Pharmaceutical provenance

Asset transfer and provenance

Cross-organizational workflow

Multiparty auditing

Microsoft

Customers looking for similar set of outcomes

Reduce cost

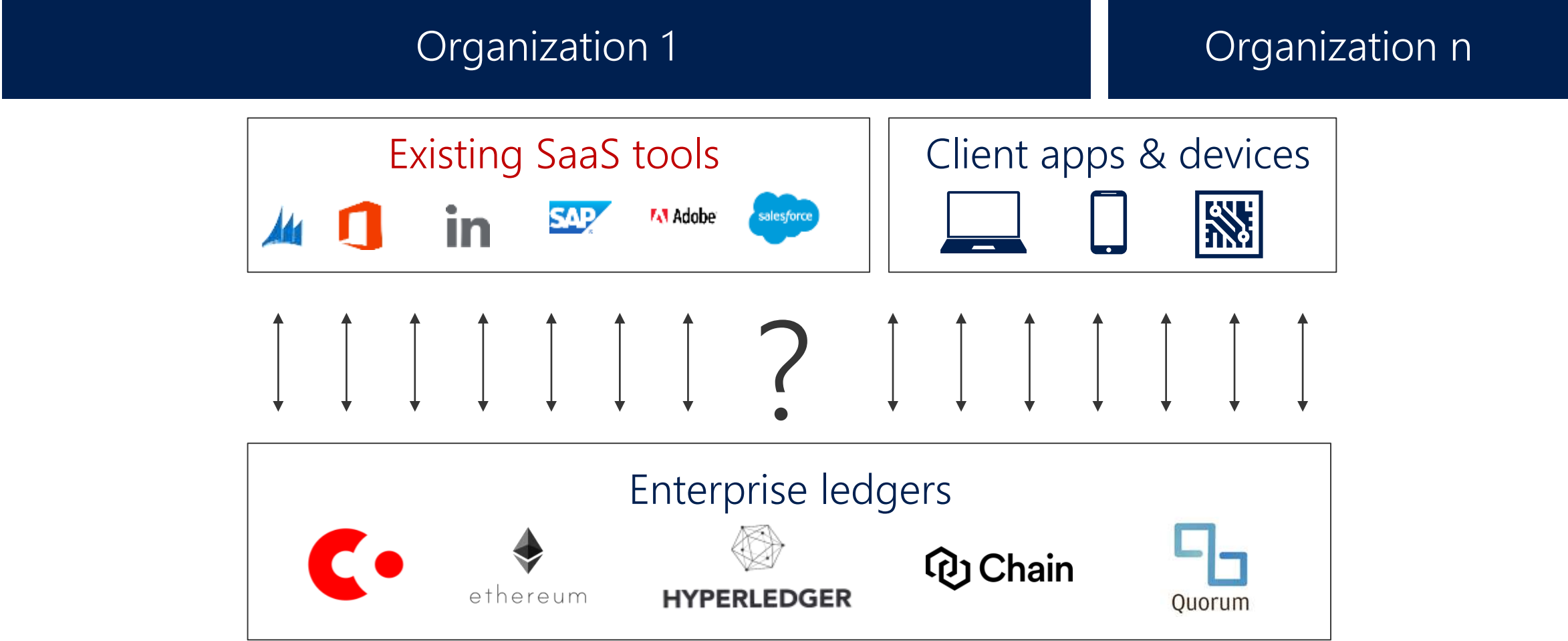Remove friction and enable direct interaction between parties

Mitigate risk

Reduce security threats from fraud, hacking, and data manipulation

Reimagine processes

Digitize processes beyond the four walls of your own business to reshape market dynamics

It's hard to bridge the gap and deploy blockchain in your business

Organization 1

Organization n

Existing SaaS tools

Client apps & devices

?

Enterprise ledgers

ethereum

HYPERLEDGER

Chain

Quorum

Microsoft

So we've taken steps to create a platform that would tackle those challenges

1 — Populated preconfigured networks

2 — Integrated relevant cloud services

3 — Built a simple interface

Microsoft

We started by populating modular preconfigured templates and infrastructure
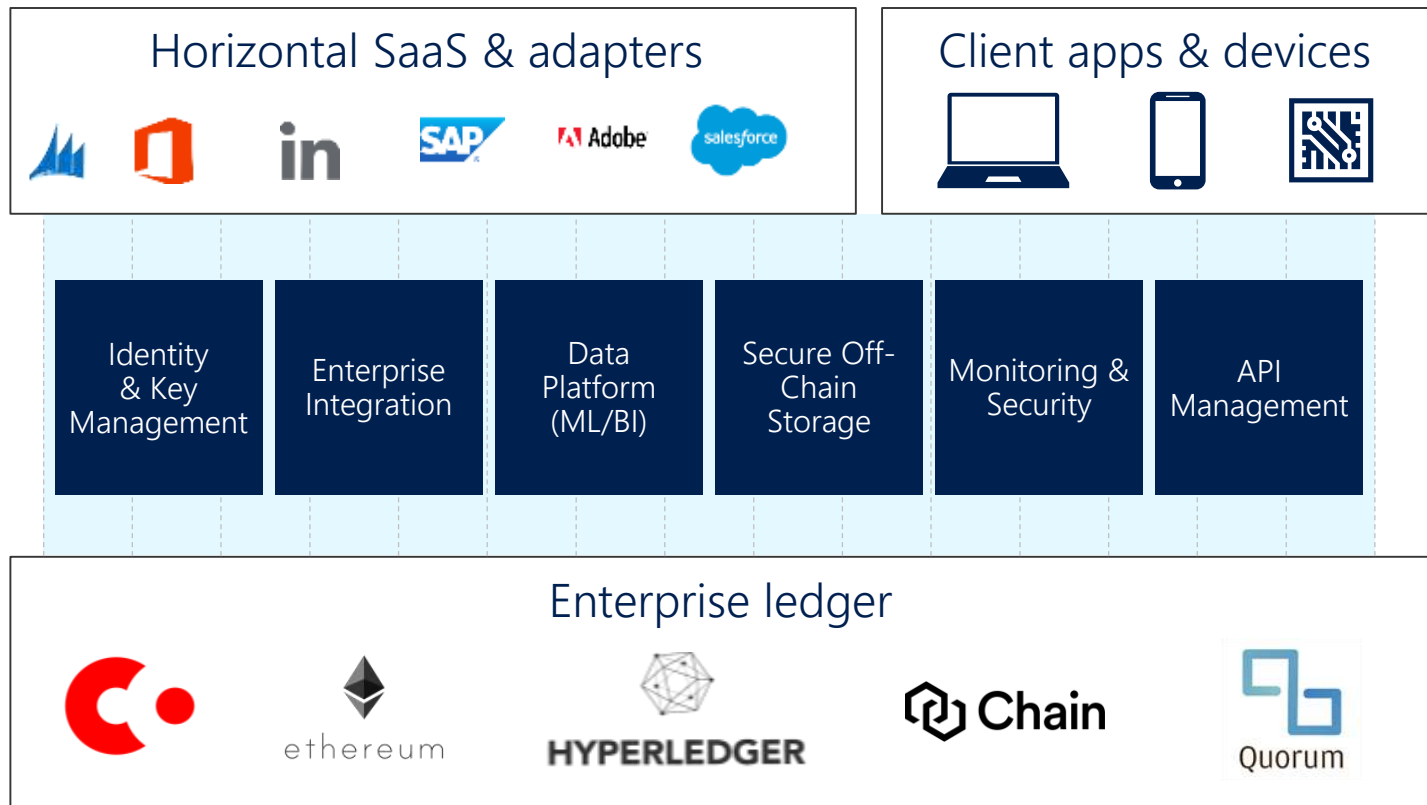
Ledger and topology choice

Choose the ledger that meets your needs

Deploy on flexible topologies (dev test, single-node, or multi-node) so you can expand when you're ready

Next, we enabled prebuilt connections to Azure and the tools you're already familiar with
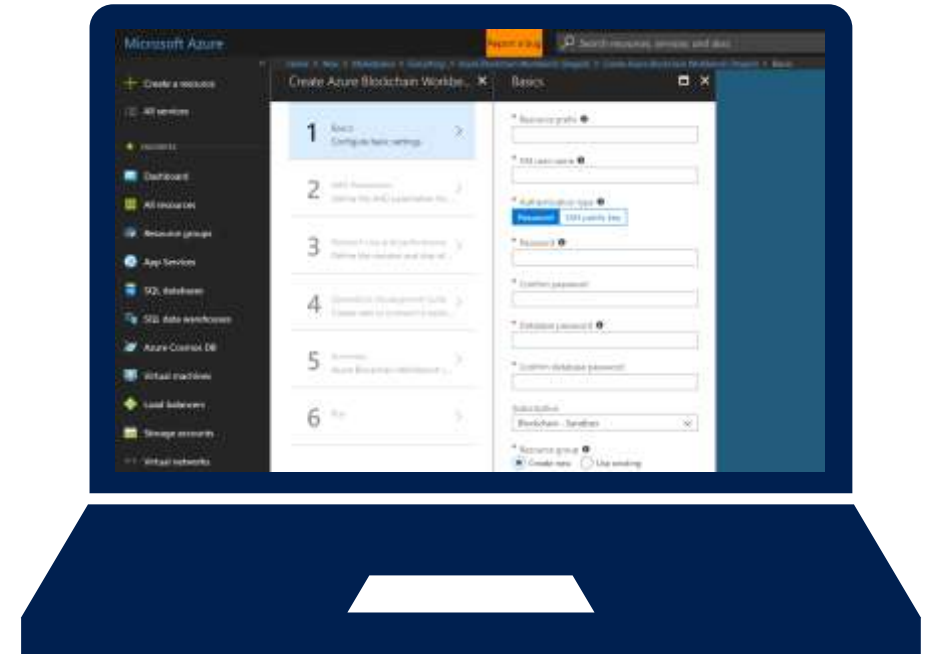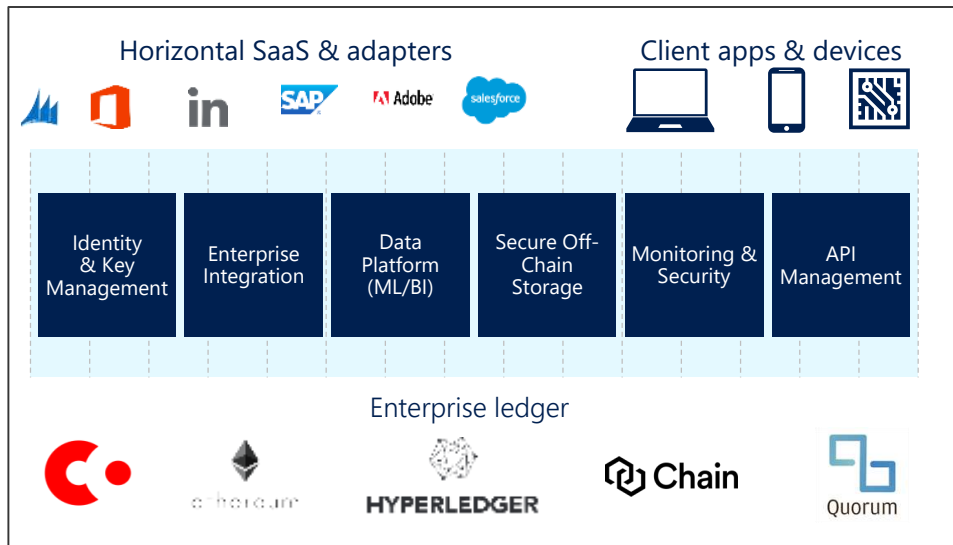

Horizontal SaaS & adapters

Client apps & devices

Identity & Key Management

Enterprise Integration

Data Platform (ML/BI)

Secure Off-Chain Storage

Monitoring & Security

API Management

Quickly integrate with business apps

Connect to the cloud without the heavy lifting

Enterprise ledger

ethereum

HYPERLEDGER

Chain

Quorum

Microsoft

Now, we've built a simple interface for deploying these services and authoring smart contracts

Azure Blockchain Workbench

Horizontal SaaS & adapters
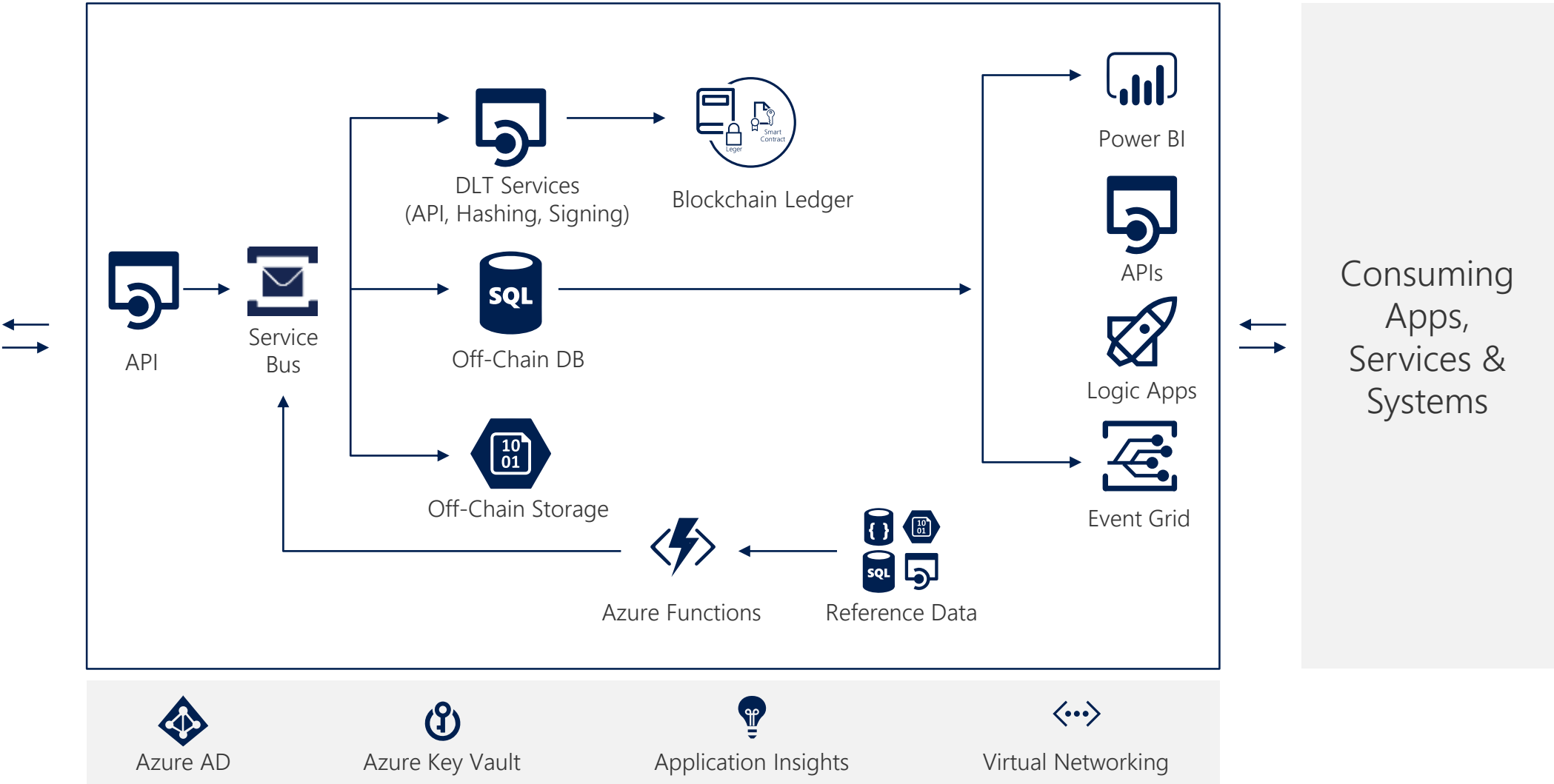
Client apps & devices

| Identity & Key Management | Enterprise Integration | Data Platform (ML/BI) | Secure Off-Chain Storage | Monitoring & Security | API Management |

Enterprise ledger

HYPERLEDGER

Chain

Quorum
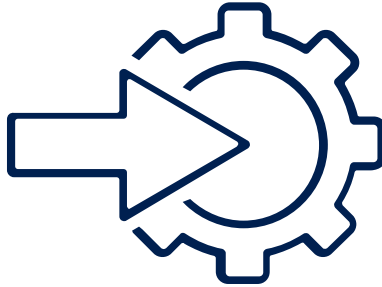
With a clear, simplified approach

Azure Blockchain offers significant benefits to developers

Simplify
development

Accelerate
time to value

Innovate
with confidence
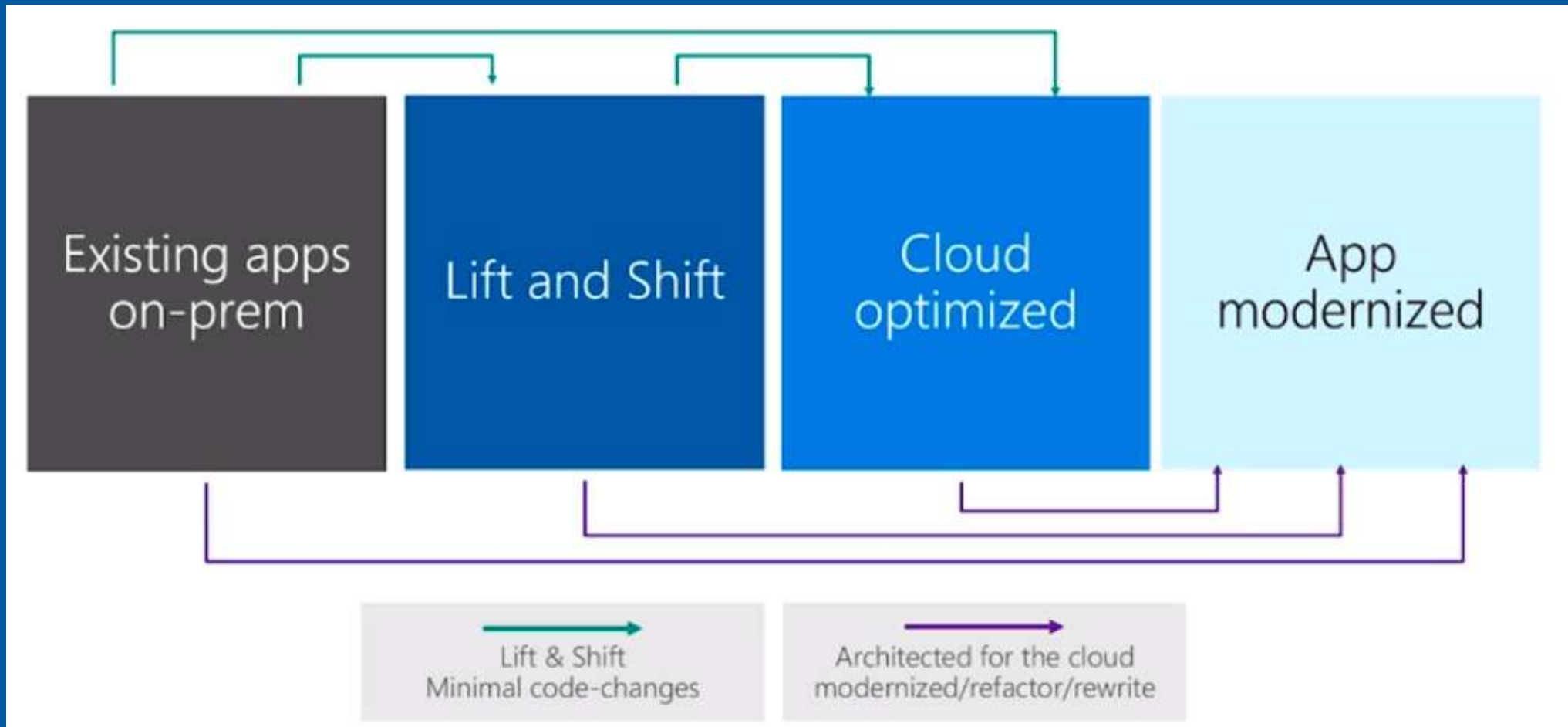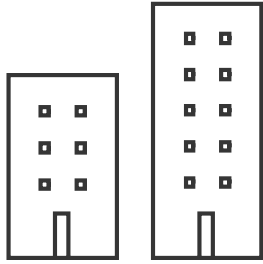
More Info:
Part 1 - https://www.youtube.com/watch?v=gwrYspdaOx8
Part 2 - https://www.youtube.com/watch?v=mlRx52p61_g

Application Modernization with PaaS, Serverless, Containers and DevOps

Business needs
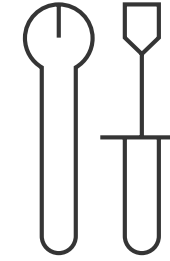
⚡ Rapid innovation

🚗 Connect with customer and empower employees

📈 Close the gap from data to decision

IT challenges

🐷 **72%** [1] budget assigned to keep-the-lights-on functions

📱 Demand for mobile apps **>5x** the capacity of IT

🔄 **Only half** decision makers could get help from technologists with their analysis needs [2]

Widening digital divide between Business and IT

You want to modernize apps also for these reasons

Security

Scale

Innovation

Resolve security challenges

Safeguard reputation

Reach people across multiple platforms

Customize app experiences

Agility

Scale more effectively

Tailor LOB apps

Changing Skillset

Improve extended workflows

Reduce IT Maintenance

Experiment more quickly

Migrate legacy apps
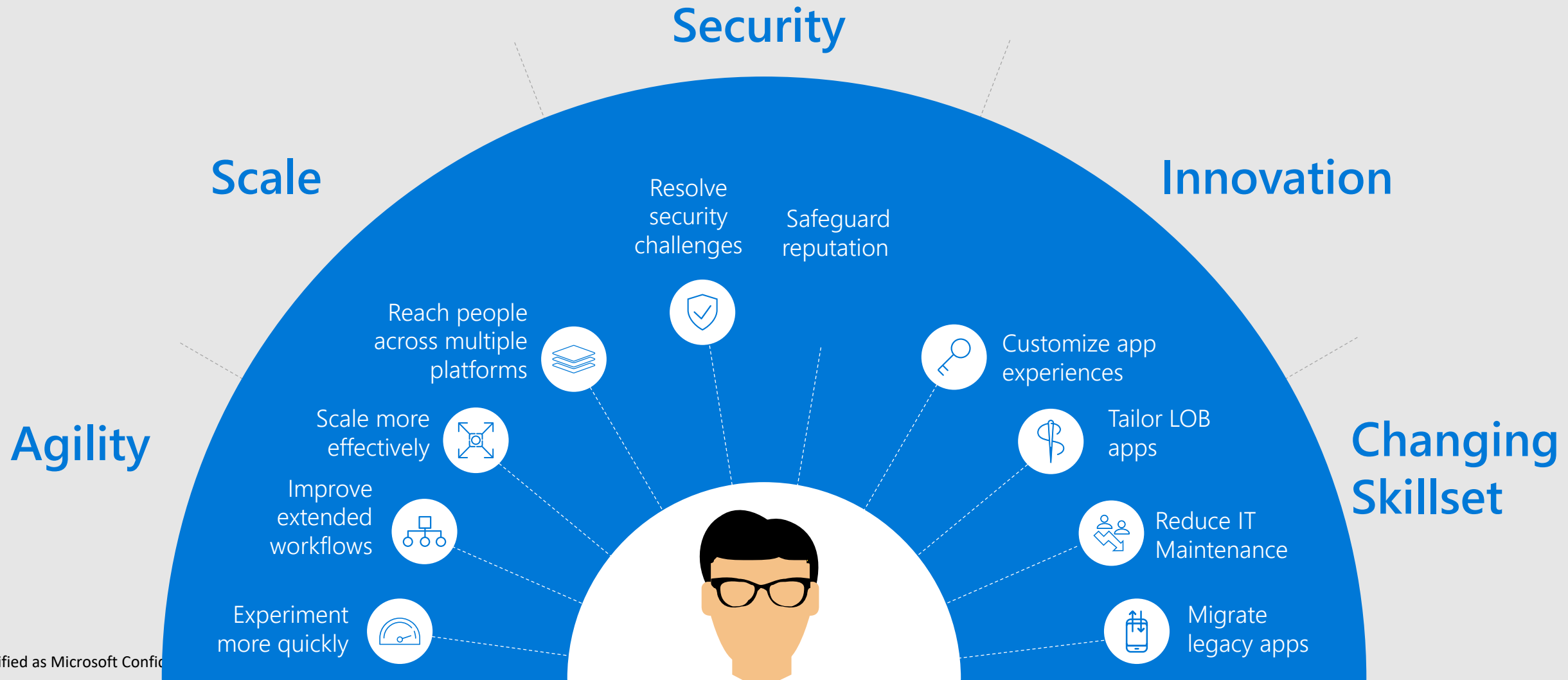
Microsoft's Own Journey to the Cloud

Roadmap planning

~30% Retire it, right-size, eliminate environments

~15% Use or convert to a SaaS (1st or 3rd party) solution

Expose functionality in existing SaaS/PaaS solution

Convert to Azure PaaS solution

Optimize for and move to Azure IaaS

No change, lift 'n shift to IaaS

<5% Remain on-premise

From...
→ Office servers
→ Portals and SPS
→ Any relationship mgmt
→ Active Source Control & WIT
→ Data warehouses
→ Industry standard verticals

...To
→ Office 365
→ SharePoint Online
→ CRM Online
→ VSO
→ ADL + PowerBI
→ Best 3rd-party SaaS

~35% **First to move**
→ Basic web apps
→ Advanced portals
→ Any new solutions
→ Any re-architected solutions

~10% **Next to move**
→ High I/O OLTP
→ Regulatory and high business impact

~5% **Hard or costly to Move**
→ HVA Systems
→ PKI Systems
→ Legacy source control

Azure IT Roadmap

Helping you achieve more

MetLife

Deliver a modern experience on legacy systems

Challenge: Modern experience on top of their LoB apps, **400 systems of record, some are 30 years old**

Success:

70% infrastructure consolidation

Jet

From zero to a full-fledged ecommerce marketplace

Challenge: we will have to handle **millions of customers**. That requires a top-class e-commerce system built on a flexible, open cloud platform

Success:

12 month to build vs 2 years.

OUTBACK STEAKHOUSE

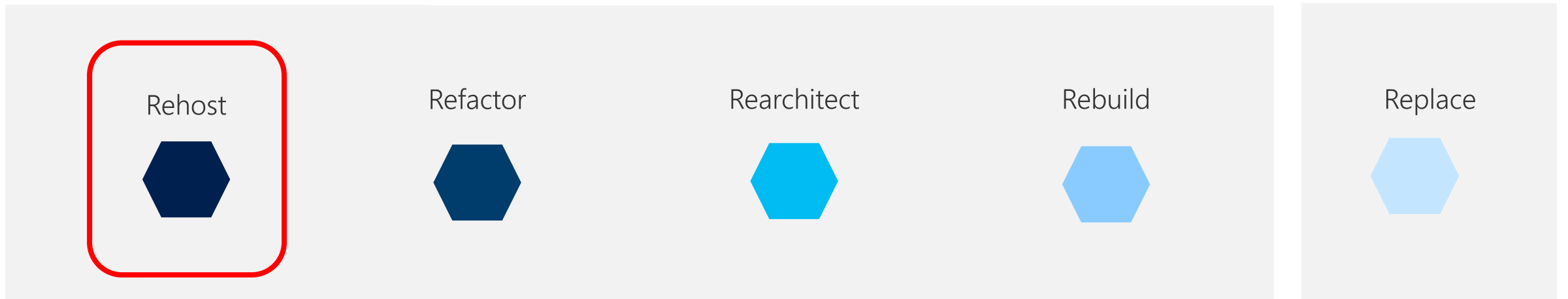### Customer Engagement Innovator with rich mobile app

Challenge: **pain points engaging customers via mobile**: add themselves to a wait list, get alerts, pay via mobile phone, and earn points in reward system. The process needs to streamlined.
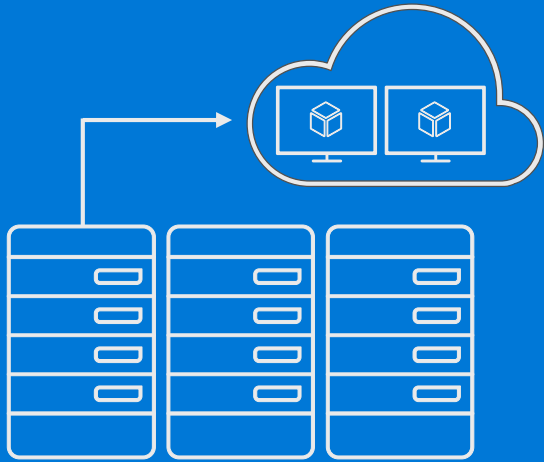
Success:

Winner of 2016 Restaurant Breakthrough Award

The Journey to the Cloud

Rehost	Refactor	Rearchitect	Rebuild	Replace

Rehost

Definition:
Rehosting is also referred to as a "lift-and-shift" migration. In essence, the application is moved into the IaaS environment of a cloud provider while avoiding as many modifications to the system as possible. In this case, you would not be taking advantage of cloud technology such as autoscaling, for example.

When to consider

- Ideal when your goal is to improve operational efficiencies, and free up data center space
- Maintenance apps for which the hardware is not worth additional investment
- Compute-intensive applications that are built for parallelism but don't require high-performance interprocess communications (IPC) and have independent datasets, and applications for which load balancing already increases scalability and availability.

Benefits

- Drives higher ROI (435% from migration to IaaS). Try our TCO Calculator.
- No need to manage data centers
- Enjoy flexible and scalable infrastructure

Core technologies

- VM, VM Scale Set

Source: Gartner IT Glossary

GE Healthcare's seamless migration to Azure

"Doctors working in different locations can all look at the same diagnostic images simultaneously. By running our image exchange software in the cloud, we can help reduce information silos and help doctors collaborate more easily and quickly on treatment plans."

Jeanie Banks
GM of Commercial Cloud Solutions at GE

Result:

- Easy migration using Virtual machines to get on prem apps, SQL server and .net framework over to Azure with full compatibility.

- Fast time to market and lower operating cost

- Enables regulatory compliance (HIPAA BAA).

- Faster innovation when expanding to use PaaS post their Lift & Shift phase.
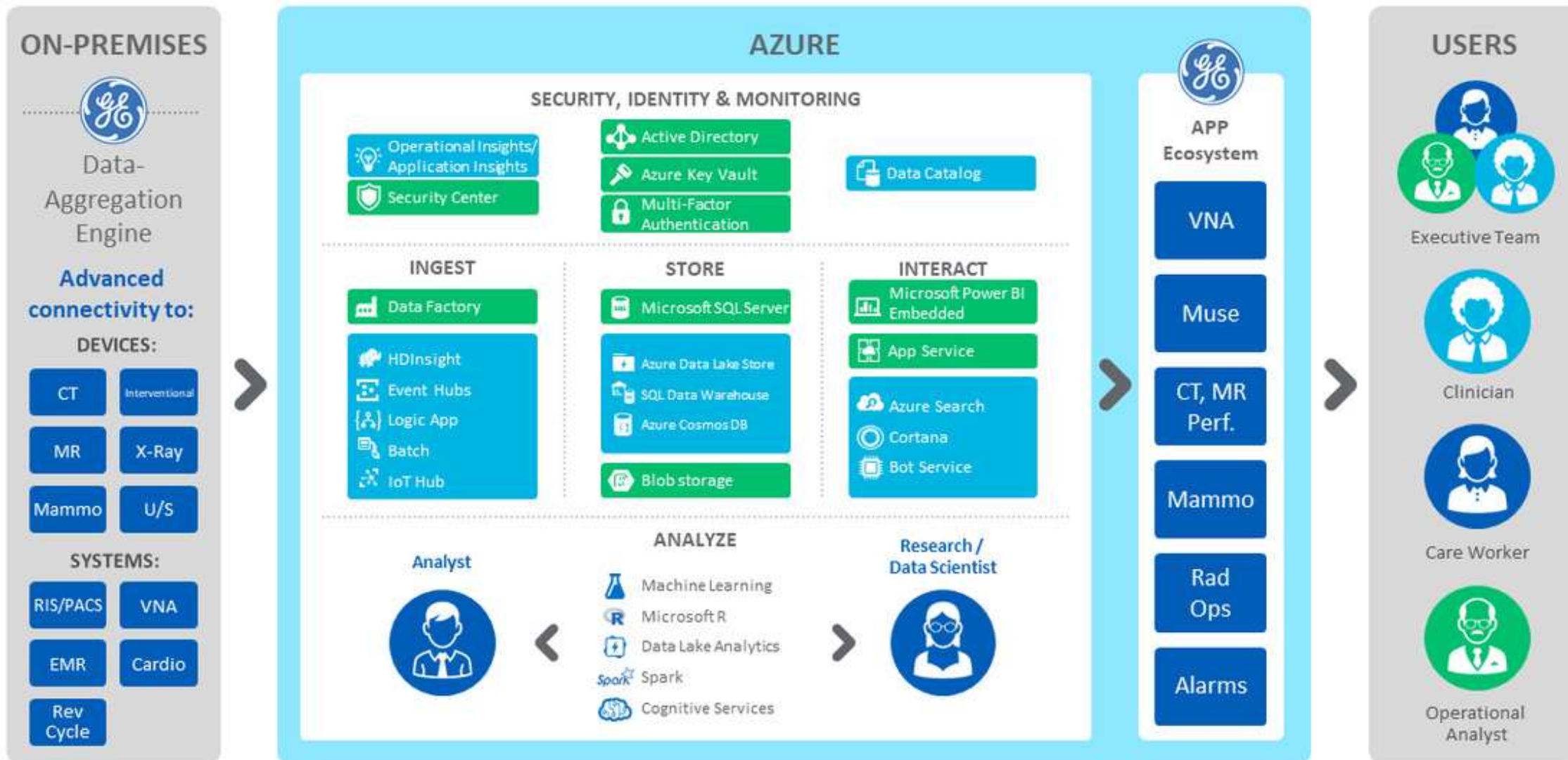
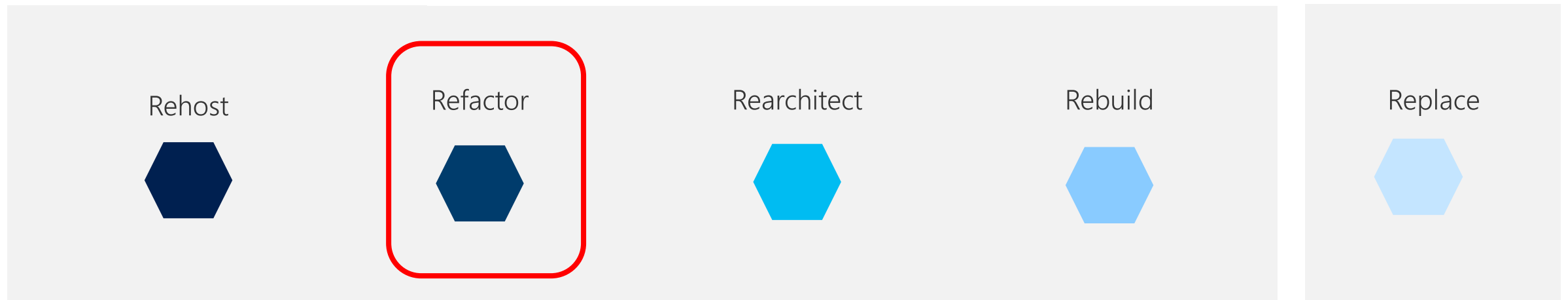https://customers.microsoft.com/en-US/story/ge-healthcare-delivers-core-customer-solutions-on-the
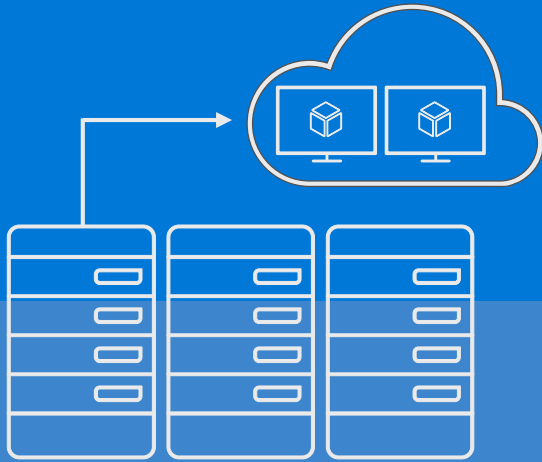
GE Applied Intelligence on Microsoft Azure

ON-PREMISES

Data-Aggregation Engine

Advanced connectivity to:

DEVICES:

- CT
- Interventional
- MR
- X-Ray
- Mammo
- U/S

SYSTEMS:

- RIS/PACS
- VNA
- EMR
- Cardio
- Rev Cycle

AZURE

SECURITY, IDENTITY & MONITORING

- Operational Insights/ Application Insights
- Security Center
- Active Directory
- Azure Key Vault
- Multi-Factor Authentication
- Data Catalog

INGEST

- Data Factory
- HDInsight
- Event Hubs
- Logic App
- Batch
- IoT Hub

STORE

- Microsoft SQL Server
- Azure Data Lake Store
- SQL Data Warehouse
- Azure Cosmos DB
- Blob storage

INTERACT

- Microsoft Power BI Embedded
- App Service
- Azure Search
- Cortana
- Bot Service

ANALYZE

Analyst

- Machine Learning
- Microsoft R
- Data Lake Analytics
- Spark Spark
- Cognitive Services

Research / Data Scientist

APP Ecosystem

- VNA
- Muse
- CT, MR Perf.
- Mammo
- Rad Ops
- Alarms

USERS

- Executive Team
- Clinician
- Care Worker
- Operational Analyst

JB56109US

The Journey to the Cloud

Rehost

Refactor

Rearchitect

Rebuild

Replace

Refactor

Definition

Refactoring an application involves some change to the application design, but not wholesale changes to the application code. The application takes advantage of IaaS and potentially PaaS capabilities from the provider while maintaining code strategic to the application's use case.

When to consider

- You want to leverage existing development skills and codebase is paramount
- When code portability is a concern.
- You prefer a quick way to modernize your apps

Benefits

- Drive continuous innovation by leveraging built-in DevOps or using Containers.
- Easily scale up or down to meet the changing needs of the business
- Improved portability and density.
- Existing programming models, languages and frameworks that can be easily used and extended.
- Fast CI/CD.

Core technologies

- Containers, container orchestration
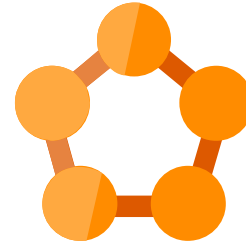- DevOps tools

Source: Gartner IT Glossary

Azure Container Technologies
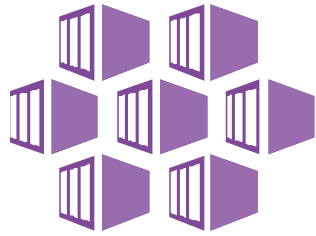
Azure Container
Services (AKS)

Azure Container
Instances

Azure Service
Fabric

Azure App Service

Infrastructure Control

Developer productivity

Run life-safety monitoring applications using Windows Server Containers and Docker

Challenges

- Tyco has more than 3 million customers in 200 countries, protecting top companies and commercial vessels.
- The flagship monitoring application is very complex and contains hundreds of thousands of lines of code. Hard to deploy.
- Scalability: core apps need to support 18,000 Tyco users worldwide.

Solutions:

Lift & shift into Windows containers using Docker engine

Results

- Immediately modernized key legacy application with elasticity. "By using Windows Server Containers and Docker, we gain better consistency and control between developers, testers, and deployment teams without changing the application"
- Faster time to the market with minimal to zero downtime.
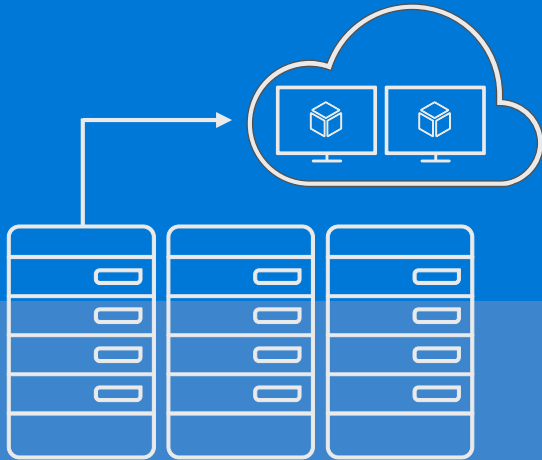- The freedom to run apps anywhere

The Journey to the Cloud

Rehost	Refactor	Rearchitect	Rebuild	Replace
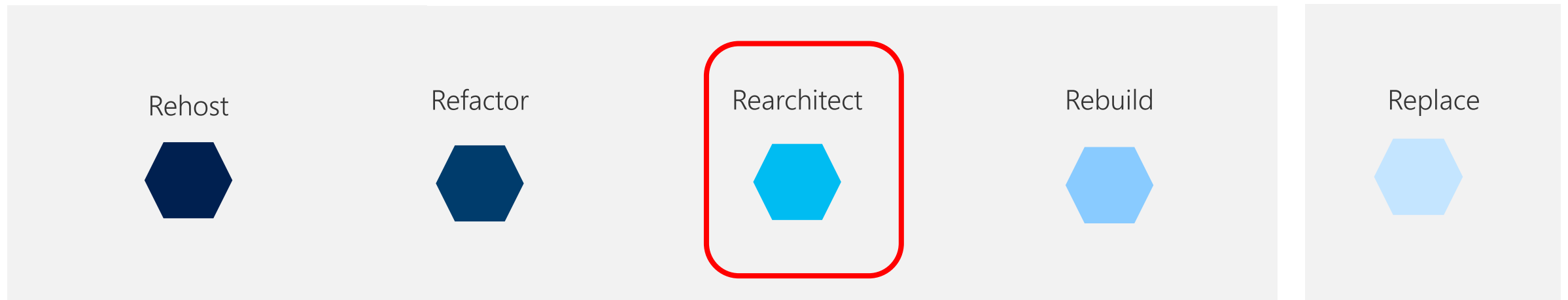
Rearchitect

Definition:

Rearchitecting an application for cloud usage enables you to take advantage of technologies such as autoscaling and dynamic reconfiguration. This process will require developer resources to implement and can take significant time to implement.

When to consider

- When apps need a major revision to incorporate new capabilities or take advantage of the cloud-native capabilities.

Benefits

- Deliver new capabilities and modernization through modified codebase and a monolithic to micro services architectural revision.
- Reduce the volume of code needed to express a capability while still leveraging existing investments.
- Agility and scale.
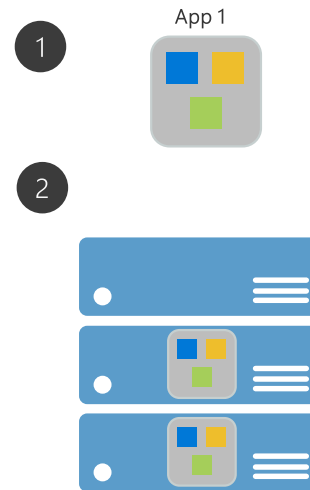
Core technologies

- PaaS, microservices, containers and FaaS

Rearchitect: from monolithic app to microservices

- Individually built and deployed

- Small, independently executing services

- Integrate using published API calls for overall application's functionality

- Fine-grained, loosely coupled application

Monolithic application approach

Microservices application approach
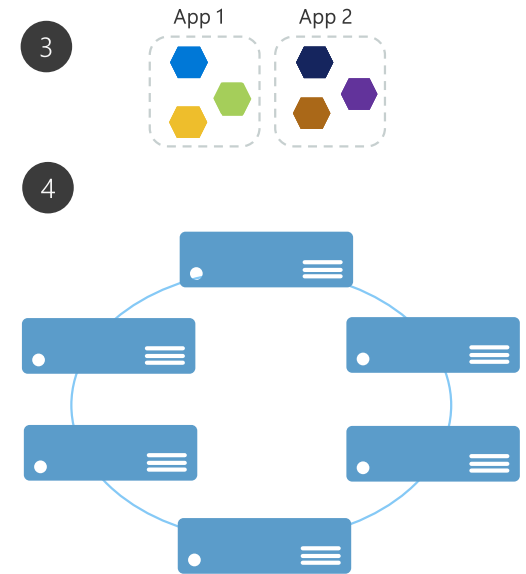
Deploying faster using Azure DevOps suite

DevOps Tools	Developer Tools	Cloud Dev/Test	App Telemetry
Streamline and speed up application delivery	Write better code with advanced developer tools	Save time and money with Cloud Dev/Test	Fix issues faster and improve applications with data and insights
Visual Studio Team Services Agile | Code | Build | Test | Deploy	**The Visual Studio Family** Visual Studio | Visual Studio Code | Visual Studio for **Mac** | Visual Studio App Center	**Microsoft Azure** Virtual Machines | Azure App Service | Azure Dev/Test Labs	**Microsoft Azure** Operations Management Suite Application Insights

EcoStructure enabling IOT-driven operational intelligence via Azure Service Fabric
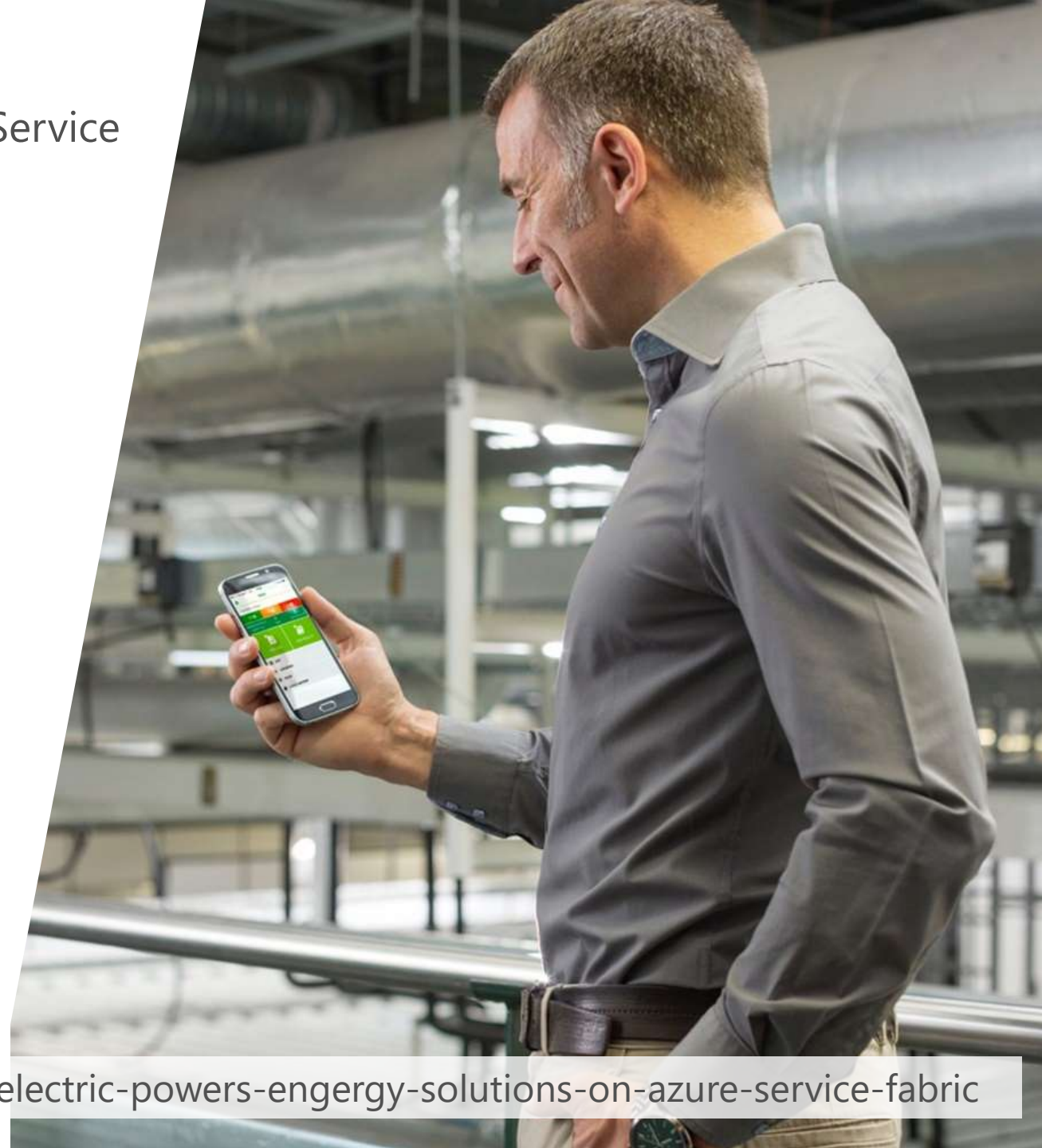
Challenges

- Register and manage millions of connected devices
- Support multiple devices communicating over different protocols
- Query device state and execute commands on a device
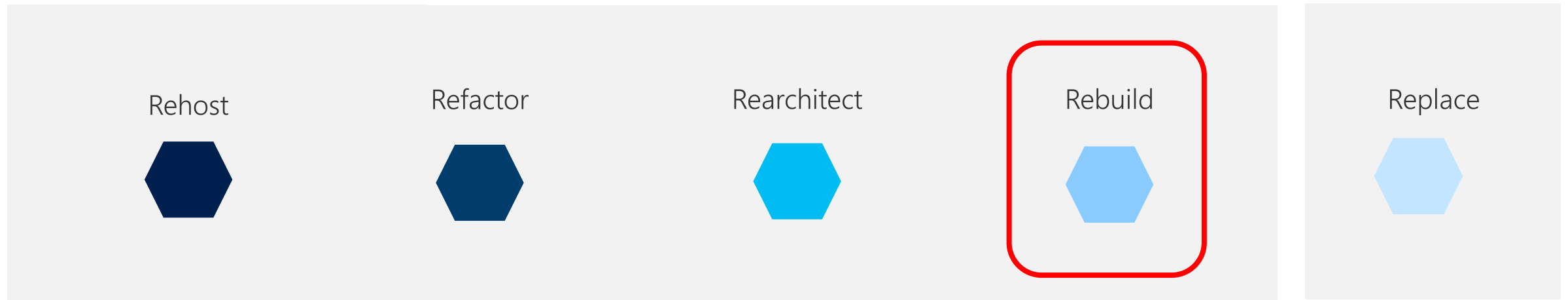- Scale to incorporate more devices, services and data.

Solution:

Using Service Fabric in order to better process data, provide device logic, and provide the device-connectivity framework
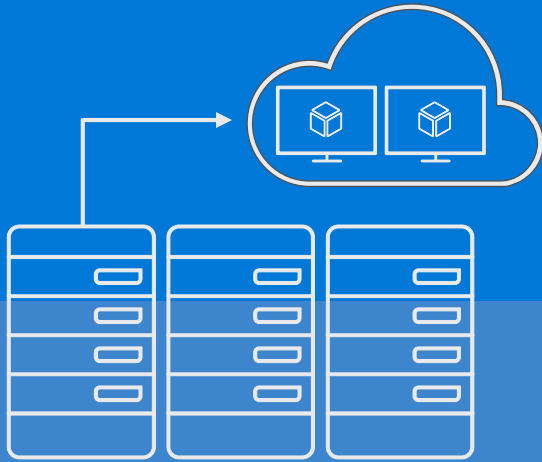
Results

- Using Azure IoT with Service Fabric provides them with an **open, flexible, and highly scalable platform**.

- Elastic scalability: talk to projects that might have a thousand devices or a million devices

https://customers.microsoft.com/en-us/story/schneider-electric-powers-engergy-solutions-on-azure-service-fabric

The Journey to the Cloud

Rehost

Refactor

Rearchitect

Rebuild

Replace

Rebuild

Definition:
Build new application using cloud native environment. Wherever possible, prioritize high-productivity PaaS - model driven or rapid application development

When to consider

- You want to build for cloud-native PaaS environments from ground up.
- Leverage previous investment in a cloud platform, e.g. when customer data has already moved to the Cloud.
- Rapid prototyping is crucial or the scope of a current application is too limited in terms of functionality and lifespan.
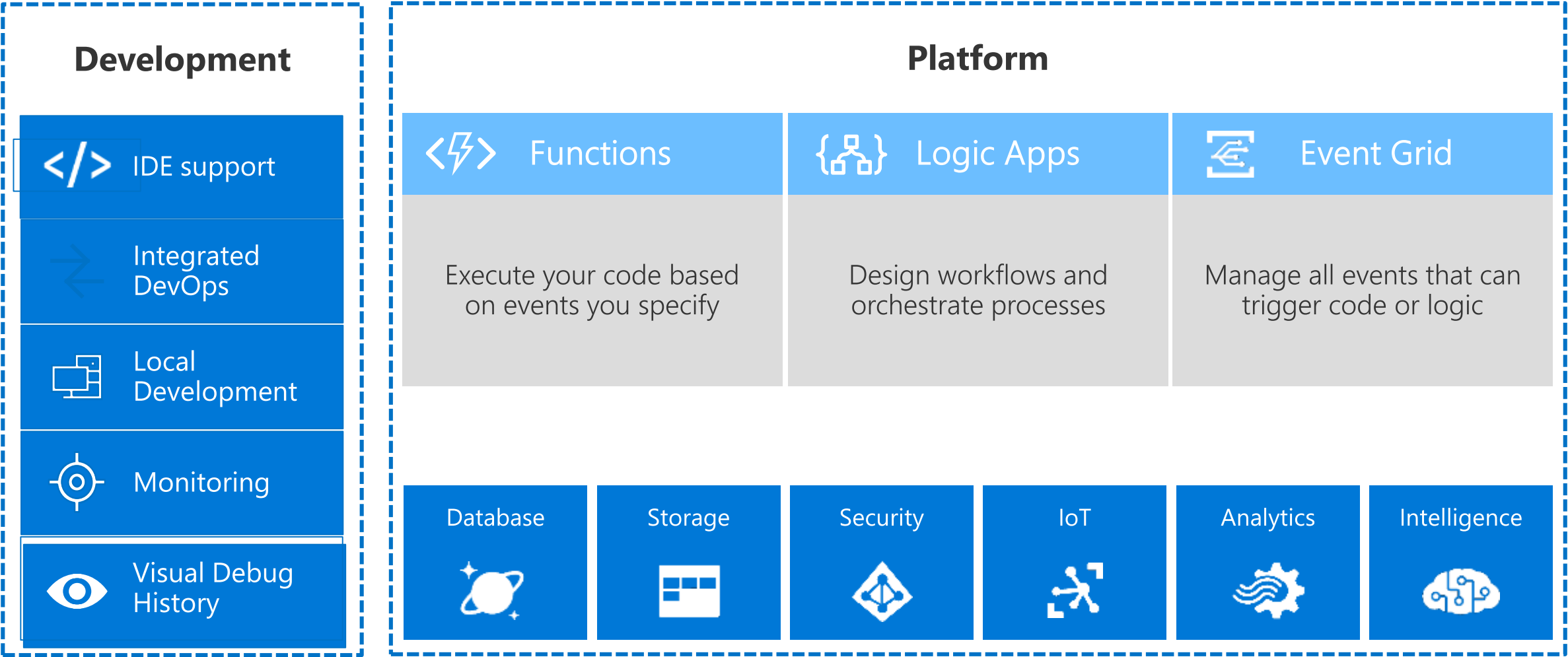
Benefits

- Reduce TCO
- Fully leverage the cloud native capabilities and build applications faster
- Expedite your business innovation

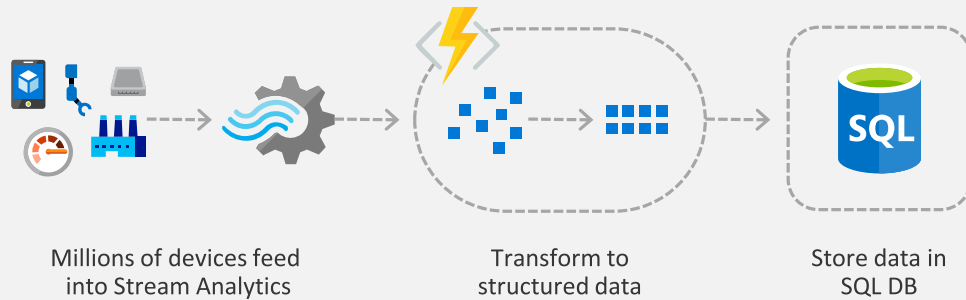## Core technologies

- Serverless, PaaS
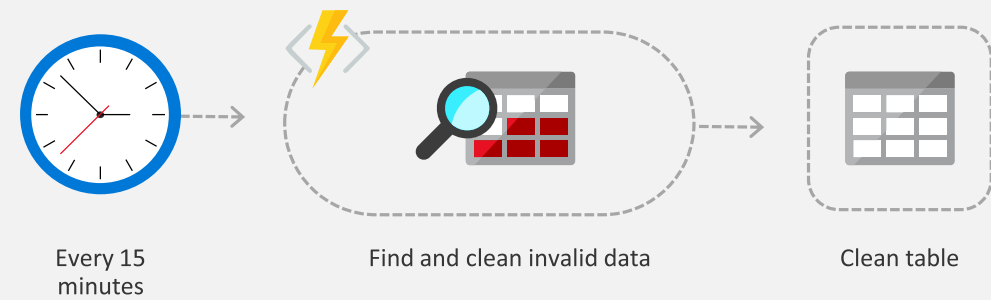
Serverless application platform components

Development

| IDE support |
| Integrated DevOps |
| Local Development |
| Monitoring |
| Visual Debug History |

Platform

Functions	Logic Apps	Event Grid
Execute your code based on events you specify	Design workflows and orchestrate processes	Manage all events that can trigger code or logic

Database	Storage	Security	IoT	Analytics	Intelligence

Scenarios for Serverless

Anything that needs to respond to events

Real-time stream processing

Millions of devices feed into Stream Analytics

Transform to structured data

Store data in SQL DB

Timer-based processing

Every 15 minutes

Find and clean invalid data

Clean table

Backends (Mobile/IoT/Web)

Photo taken and WebHook called

Stores in blob storage

Produces scaled images

Real-time bot messaging

Message sent to Chatbot

Cortana Analytics answers questions

Chatbot sends response

FUJiFILM
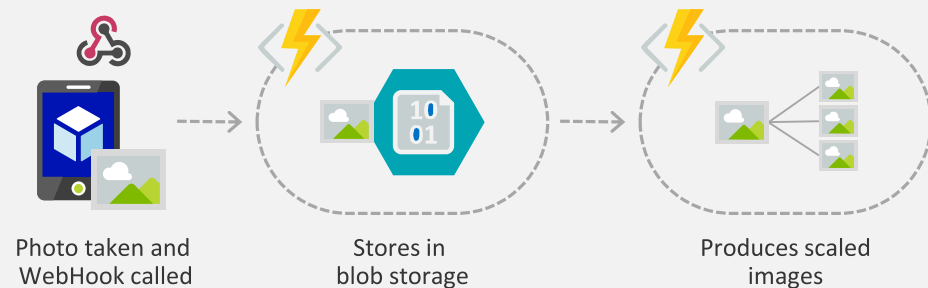
Transformed its service through **Serverless** technologies.

Challenges

- The image haring service that handled more than a terabyte of data each day. They need reliability and lower latency in the service
- Add future enhancements more quickly and at a faster cadence
- Spent an inordinate amount of time in dealing with things that had nothing to do with the core business.
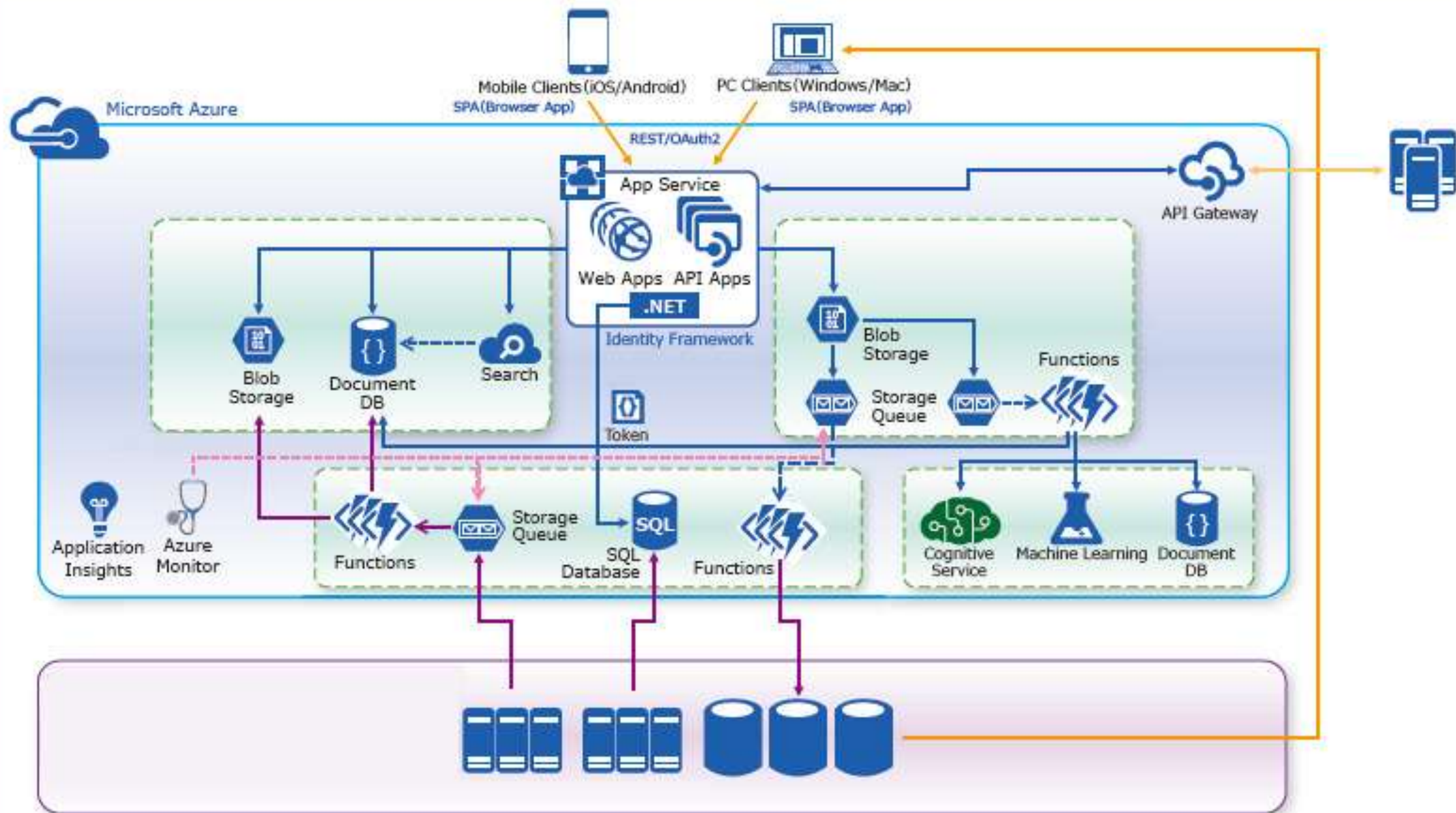
Solutions:
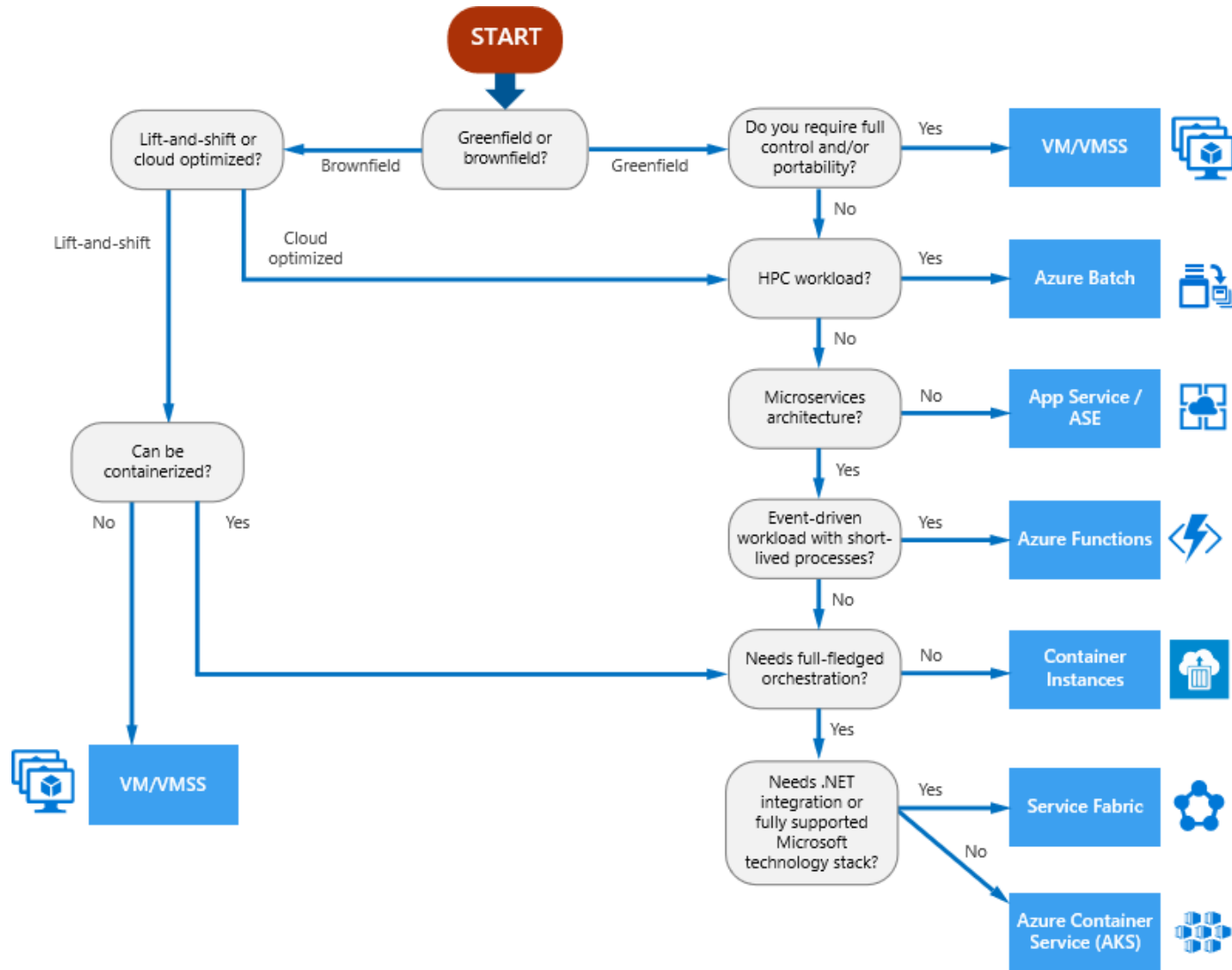
moved to Serverless architecture

Results

- Latency reduced by **95%**
- Development time reduced by **75%**
- Higher reliability
- Ability to add new features and releases faster and more frequently

https://customers.microsoft.com/en-us/story/fujifilm-software-co-ltd

Azure compute services

IoT

The Internet of Things **isn't a technology revolution**...

...IoT is a **business revolution**, enabled by technology

MICROSOFT WILL INVEST $5 BILLION IN IoT

Our goal is to give every customer the ability to transform their businesses, and the world at large, with connected solutions.

Waves of innovation

Cloud

Globally available, unlimited compute resources
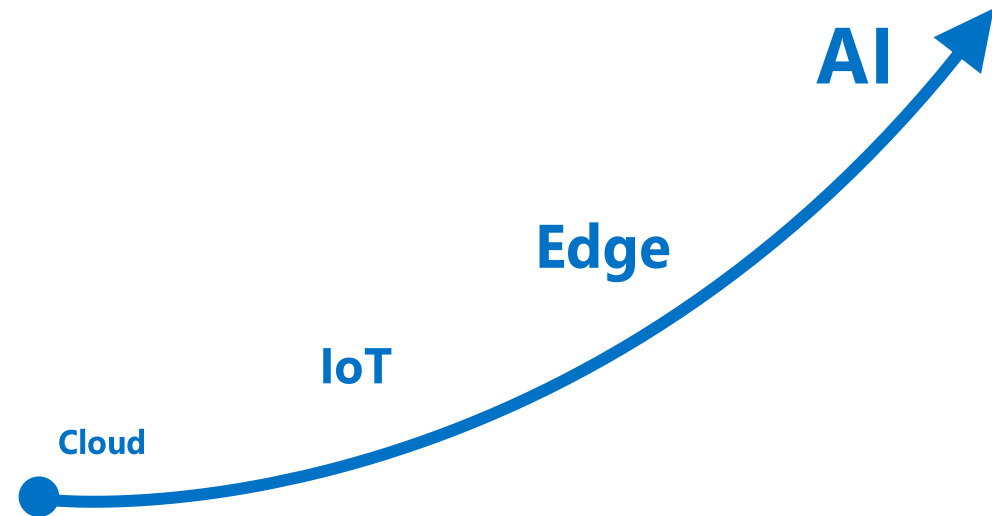
IoT

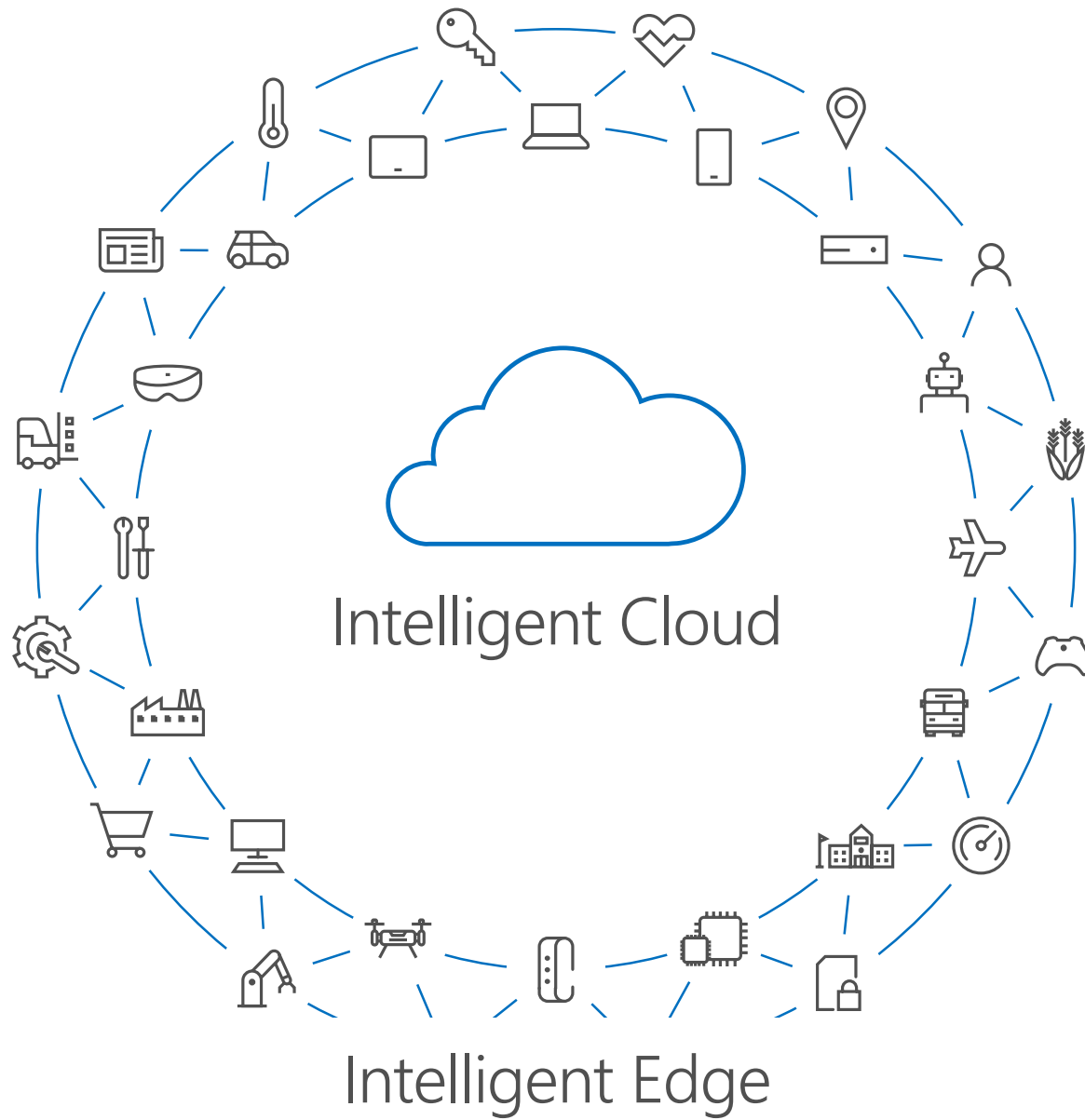Harnessing signals from sensors and devices, managed centrally by the cloud

Edge

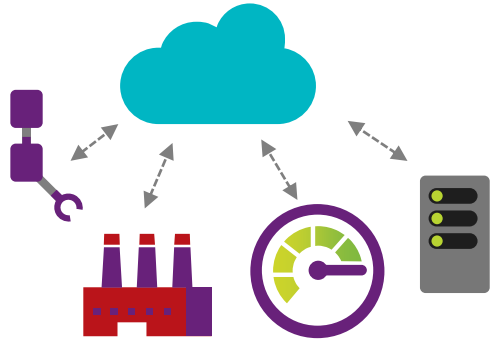Intelligence offloaded from the cloud to IoT devices

AI

Breakthrough intelligence capabilities

AI

Edge

IoT

Cloud

Intelligent Cloud

Intelligent Edge
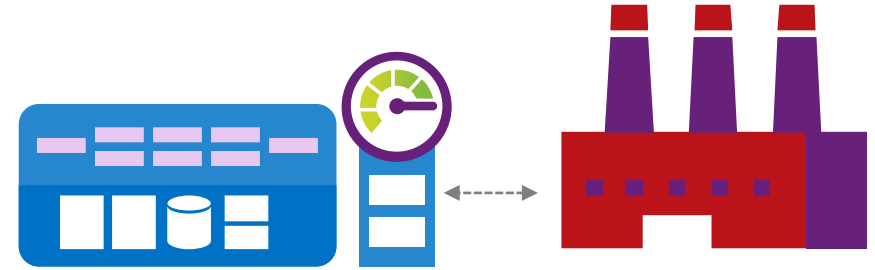
Why the edge?

IoT in the cloud

Remote monitoring and control

Merging remote data from across multiple IoT devices

Near infinite compute and storage to train machine learning and other advanced AI tools

IoT on the edge

Low-latency, tight control loops require near-real-time response

Public Internet inherently unpredictable

Privacy of data and protection of IP

Johnson Controls

Connected chillers are back online 9x faster than unconnected equipment, avoiding more than **$300,000 in hourly downtime costs**

RAC

Reduced its accident rate by 25% and fuel usage by 20%, **reporting annual savings of $1.8 million**

Tetra Pak

Cut down-time cut for each packaging line by up to 48 hours, **saving €30,000 for customers**

thyssenkrupp

Data from sensors and systems to create valuable business intelligence and **reduce downtime by 50%**

DUNAV NET

Keeping farmers informed about irrigation, disease control diseases, and pest has led to **increased yields of 30%, and a 20% reduction in water use**

HERSHEY'S

Licorice extruders on Twizzler's production line are performing at peak optimization, **saving over $500K/year on materials alone**

Rolls-Royce

Rolls Royce "power by the hour" model provides maximize availability by cutting fuel consumption by 1% and **up to $250,000 per plane, per year.**
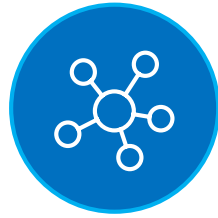
Rockwell Automation

Access to production and supply chain data worldwide, **reduced downtime costs by as much as $300,000 per day**

FINNING CAT

Enabled customers to transport more than **1M additional tons of cargo, and reduce fuel consumption by 17%**

BMW · FUJITSU · KUKA · Steelcase · Schneider Electric · KOHLER · Mercedes-Benz · LIEBHERR · JABIL · ABB
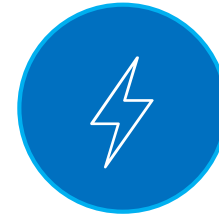
Defining IoT

Things

Insights

Action

IoT projects are still complex

Security
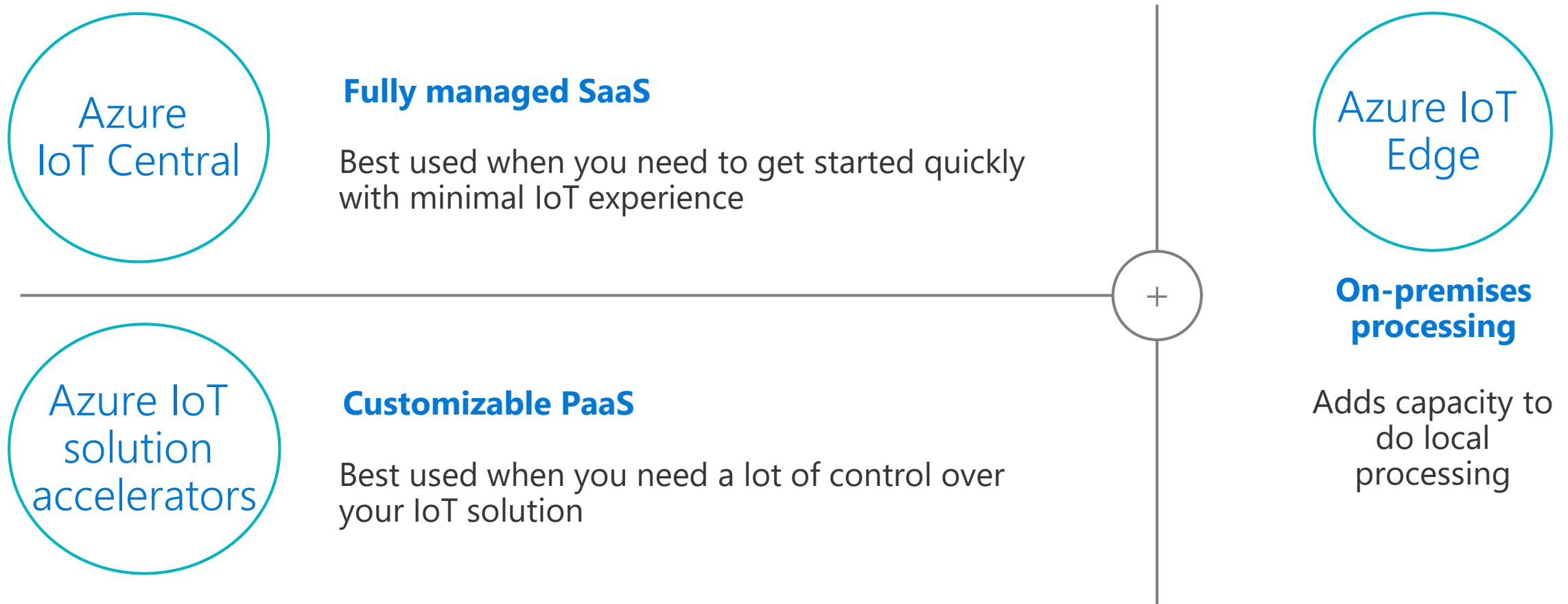is a **challenge**

Time-consuming
to get started

Incompatible with
existing infrastructure

Challenging
to scale

Azure IoT Portfolio

Microsoft's vision is to democratize IoT by allowing everyone to access the benefits of IoT and provide the foundation for digital transformation

Azure IoT Central

Fully managed SaaS

Best used when you need to get started quickly with minimal IoT experience

Azure IoT solution accelerators

Customizable PaaS

Best used when you need a lot of control over your IoT solution

Azure IoT Edge

On-premises processing

Adds capacity to do local processing

http://aka.ms/AngelbeatJune2018Texas

Microsoft

Thank you for joining us.