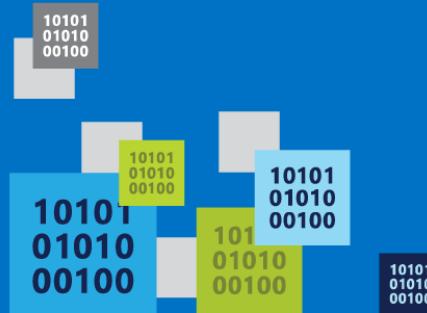


# Welcome at Microsoft Accelerate

## Azure <3 IoT

Presenters: Jeroen ter Heerdt, Valery Jacobs



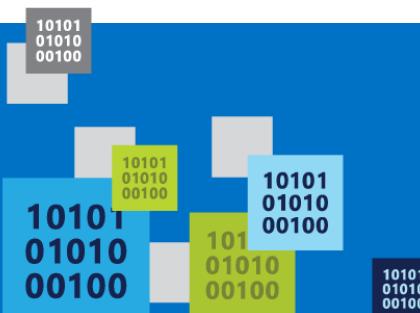
# Todays goals:

Get to know IoT

Get to know today's Microsoft (and us)

Get a taste

Inspiring & valuable experience



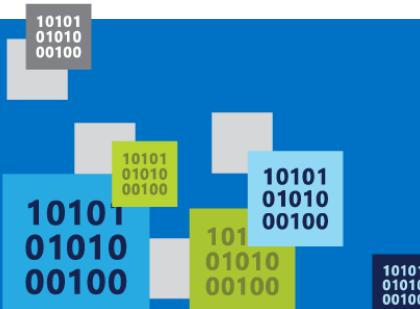
# Todays topics:

(short) Azure overview

Microsoft and IoT

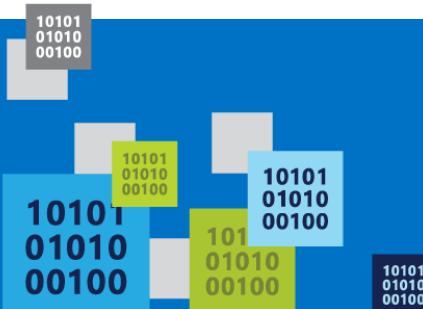
You and IoT

IoT in practice



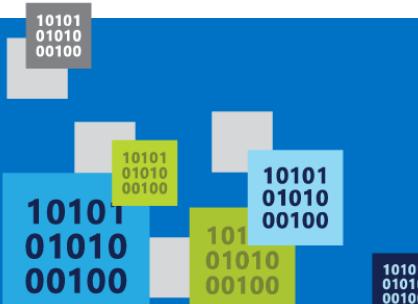
# Todays format:

Presentations  
Hands-on  
Sharing  
Follow-up

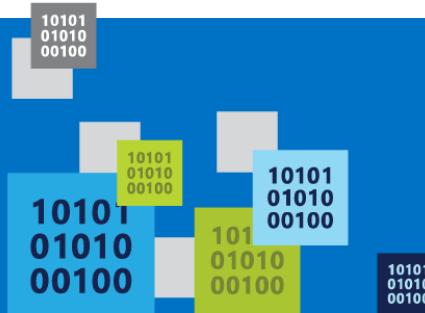


# Schedule:

<b>10:00-10:15</b>	<b>Walk-in</b>
10:15-10:45	Kick-off + Azure update
10:45-11:15	Azure IoT: Devices & data ingest
<b>11:15-11:30</b>	<b>Break</b>
11:30-12:00	Azure IoT: Data
12:00-12:30	Lab: Devices & Azure IoT Services
<b>12:30-13:30</b>	<b>Lunch</b>
13:30-14:00	Lab: Stream analytics & PowerBI
14:00-14:30	Lab: Azure Machine Learning
14:30-14:45	Lab: Azure Stream Analytics & Machine learning integration
14:45-15:00	Lab: Spark on HDInsight
<b>15:00-15:15</b>	<b>Break</b>
15:15-16:00	Lab: Spark on HDInsight cont.
16:00-16:30	Fun and inspiration with IoT & Data
16:30-17:00	Wrap-up
<b>17:00</b>	<b>Drinks &amp; conversation</b>



# Next: Extra toegevoegde slide



# Accelerating IoT Commercialization

## Nominate projects!

[IoTInsider@microsoft.com](mailto:IoTInsider@microsoft.com)

## IoT Insider Program

Accelerate IoT projects on Windows or Azure

Technical and business assistance

Help with small and large scale manufacture

## IoT Insider Labs

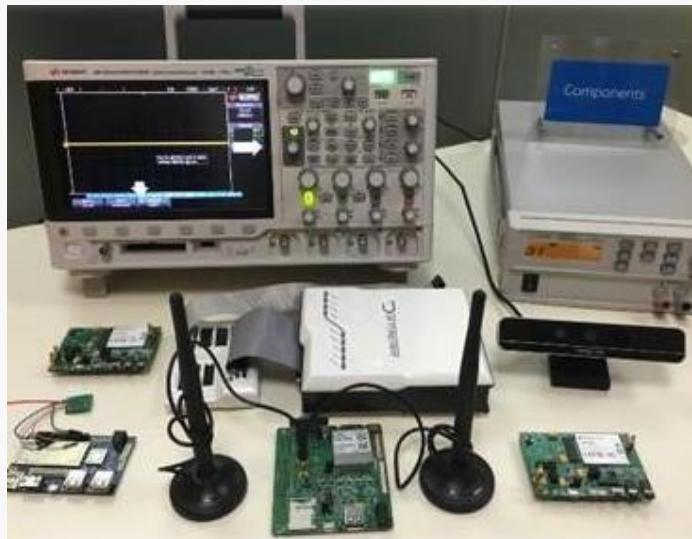
Engineers on staff in Redmond and Shenzhen

PCB prototyping

Small scale manufacturing (through partners)

Device and app development assistance

Cloud data collection, analytics and ML



# Stel je vragen ook online

Heb je een vraag tijdens of na het lab? stel je vraag dan ook online, er zijn speciaal voor jullie collega's online:

- Door je vraag online te stellen vergeet je het antwoord niet
- Je helpt niet alleen jezelf maar ook andere die wellicht dezelfde vraag hebben
- Mocht je thuis of op het werk een vraag hebben, stel hem gewoon online, wij helpen graag\*

<https://social.msdn.microsoft.com/Forums/>

*\*elke maandag en donderdag van 14.00 tot 15.00 uur zitten onze Nederlandse experts voor u klaar!*

# Quick Azure Overview

# 28

Azure regions  
HyperScale  
around the world



Latest launch was in October 2015-  
India – Central, India – South, India – West

**GENERALLY AVAILABLE**

6 new regions announced: Canada Central, Canada East, Germany Central,  
Germany North East, United Kingdom (2 – regions TBD)

# Network Coverage

## Express Route Partners



Plus 31 CDN Point  
of Presence locations



- AZURE REGIONS
- EXPRESSROUTE LOCATIONS
- CDN POINT OF PRESENCE

# Cloud OS Network

- >100 Countries
- >600 Local datacenters
- >100 World-class partners
- >3.7M Customers every day



● AZURE REGIONS

● EXPRESSROUTE LOCATIONS

● CDN POINT OF PRESENCE

● CLOUD OS NETWORK PARTNERS

# Azure Momentum

120,000 New Azure customer subscriptions/month	20 Million SQL database hours used every day	>50 Trillion Storage objects in Azure	<p><i>"Microsoft is growing its cloud revenue faster than Amazon"</i> – Business Insider 2016</p> <p>AWS revenue grew about 69% but Microsoft Azure revenue grew by 127%</p>
425 Million Azure Active Directory Users	60 Billion Hits to Websites run on Azure Web App Service	57% Of Fortune 500 Companies use Microsoft Azure	
>5 Trillion Storage transactions every month	1 Trillion Messages delivered every month with Event Hubs	1.4 Million SQL Databases Deployed In Azure	

# Azure Compliance

## The largest compliance portfolio in the industry



ISO 27001



SOC 1 Type 2



SOC 2 Type 2



PCI DSS Level 1



Cloud Controls Matrix



ISO 27018



Content Delivery and Security Association



Shared Assessments



FedRAMP JAB P-ATO



HIPAA / HITECH



FIPS 140-2



21 CFR Part 11



FERPA



DISA Level 2



CJIS



IRS 1075



ITAR-ready



Section 508 VPAT



European Union Model Clauses



EU Safe Harbor



United Kingdom G-Cloud



China Multi Layer Protection Scheme



China GB 18030



China CCCPPF



Singapore MTCS Level 3



Australian Signals Directorate



New Zealand GCIO



Japan Financial Services



ENISA IAF

## Platform Services

### Security & Management

- Service Creation & Configuration
- User/Group Directory Store
- Identity Sign-Up and sign-in
- Multi-Factor Authentication
- Scheduled Service Management
- Task Scheduler
- Encryption Key Store
- Software/Solution Marketplace
- Pre-Build VM Images

### Services Compute

- Stateless Compute
- Distributed Compute
- Scheduled Compute Jobs
- Virtual App Streaming

### Web and Mobile

- Web Apps Infrastructure
- API App Infrastructure
- Mobile Backends
- Business Process Automation

### Integration

- Simple Queuing
- B2B Integration
- Hybrid Connections
- Pub/Sub Queuing

### Developer Services

- Development Tools
- Software Development Kits
- Software Lifecycle Management
- Application Instrumentation

### Media & CDN

- Live & OD Media Streaming
- Content Delivery Network (CDN)

### Data

- Relational SQL Database
- Data Warehouse
- Document Database Service
- Distributed In-Memory Cache
- Search
- Simple Key/Value Store

### Analytics & IoT

- Big Data Analytics
- Predictive Analytics
- Data Stream Analytics
- Big Data Storage
- Data Pipelines
- Device Data Collection
- Data Source Management
- IoT Device Management
- Mobile Analytics

### Hybrid Operations

- Directory Health Monitoring
- Privileged Identity Management
- Domain Join & Policy Management
- Server Data Backup
- Operational Analytics
- Bulk Data Import And Export
- Disaster Recovery
- Hybrid/Intelligent Data Backup

## Infrastructure Services

### OS/Server Compute

- Virtual Servers
- Containers

### Storage

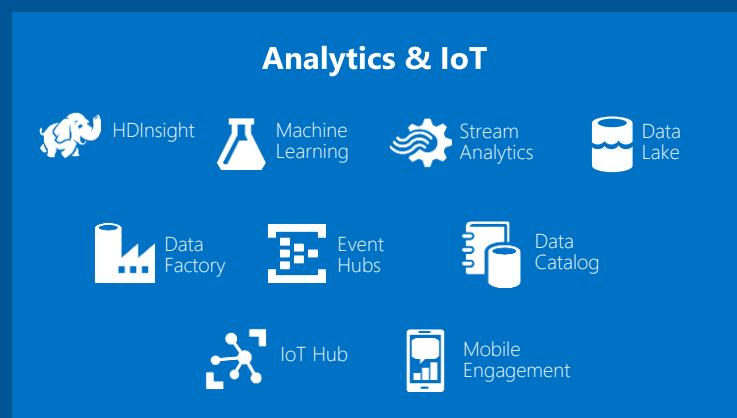
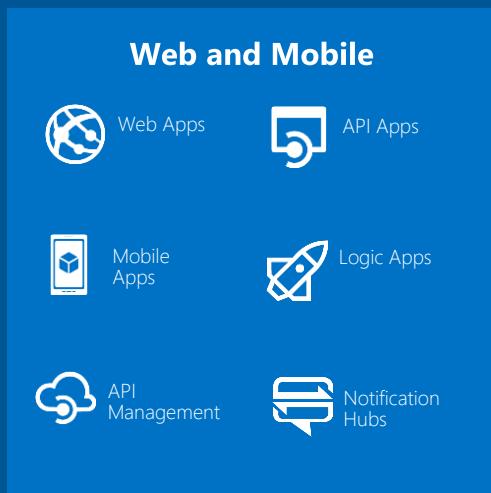
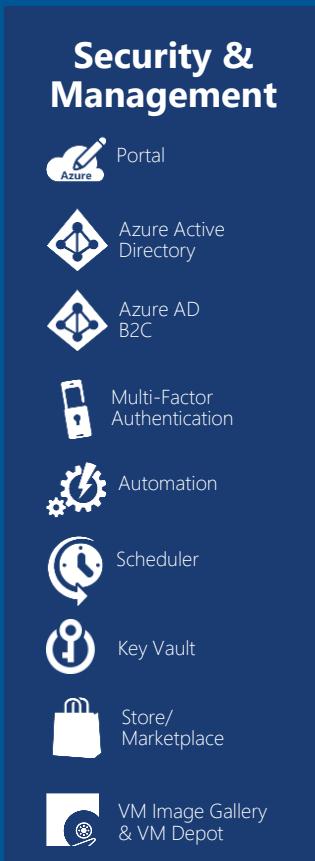
- Disk based Object/File Storage
- Shared Storage
- SSD based Object/File Storage

### Networking

- Virtual Network
- VM Load Balancer
- DNS
- Direct Network Connections
- Traffic Distribution
- VPN Gateway
- HTTP Load Balancer

## Datacenter Infrastructure (30 Regions, 22 Online)

## Platform Services

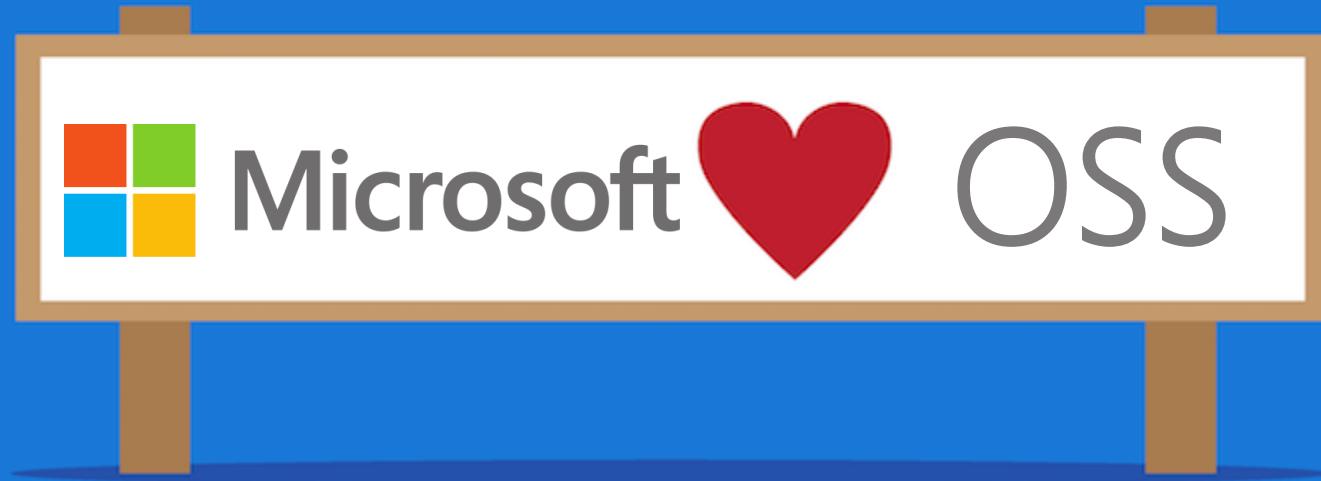


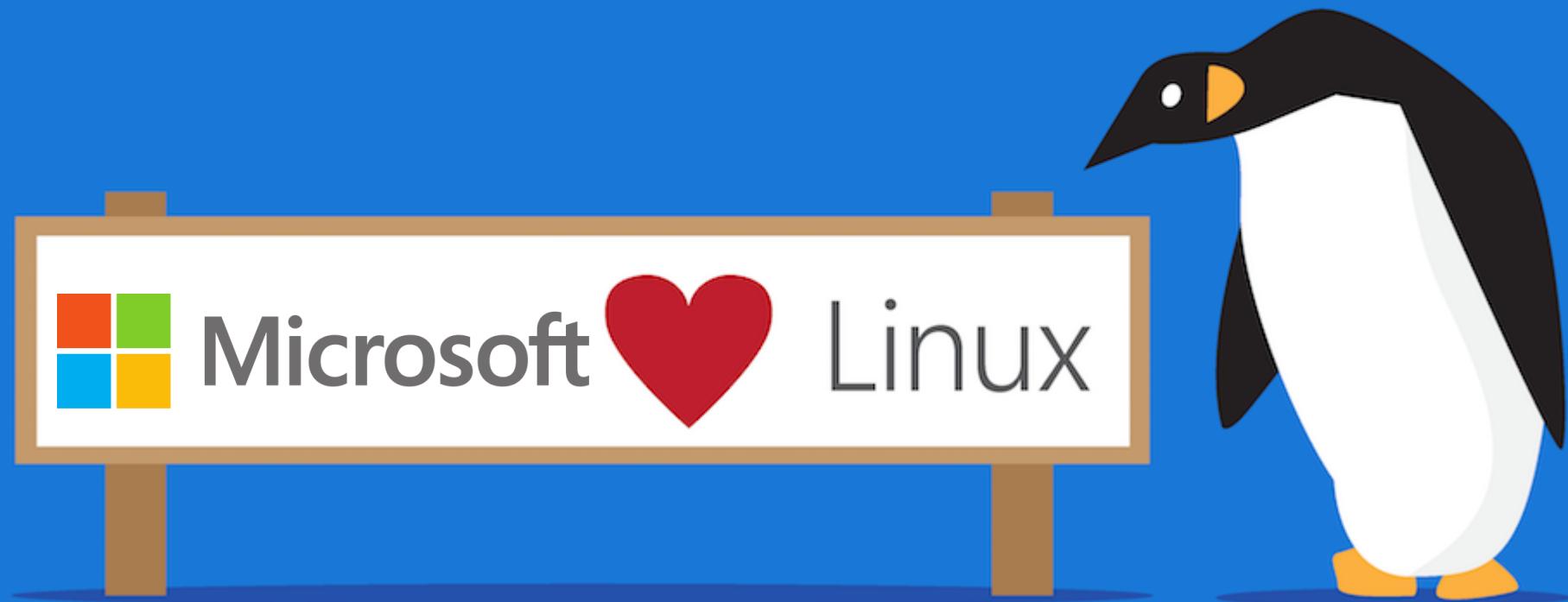
Datacenter Infrastructure (30 Regions, 22 Online)

# The Azure Periodic Table

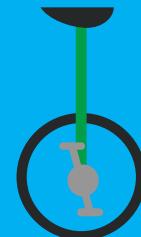
Explore the power and possibilities of Azure

 DATA FACTORY									 TRAFFIC MANAGER
 STREAM ANALYTICS	 EVENT HUBS				 SQL DATABASE	 SQL DATA WAREHOUSE	 DOCUMENTDB	 AZURE SEARCH	 EXPRESSROUTE
 MACHINE LEARNING	 HDINSIGHT	 VIRTUAL MACHINES	 CLOUD SERVICES	 BATCH	 REMOTEAPP	 STORAGE	 STORSIMPLE	 AZURE REDIS CACHE	 VIRTUAL NETWORK
 AZURE AD	 MULTI-FACTOR	 BACKUP	 SITE RECOVERY	 SERVICE BUS	 BIZTALK SERVICES	 SCHEDULER	 AUTOMATION	 OPERATIONAL INSIGHTS	 DNS
 WEB APPS	 MOBILE APPS	 NOTIFICATION HUBS	 API MANAGEMENT	 MOBILE ENGAGEMENT	 APP SERVICES	 API APPS	 LOGIC APPS	 KEY VAULT	 APPLICATION GATEWAY
 VISUAL STUDIO	 APPLICATION INSIGHTS	 MEDIA SERVICES	 MEDIA INDEXER	 MEDIA ENCODING	 MEDIA PROTECTION	 MEDIA PLAYER	 MEDIA STREAMING	 CDN	 VPN GATEWAY



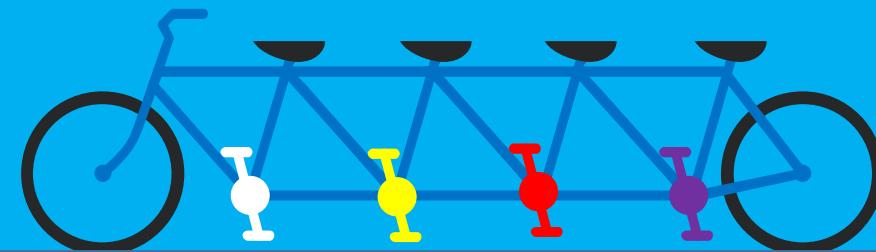


# Community collaboration visualized



Without it...

# Community collaboration visualized



With it.

# Azure is an open cloud

DevOps



Clients



Management



Applications



PaaS & DevOps



App Frameworks & Tools



Databases & Middleware



Infrastructure



redhat



FreeBSD



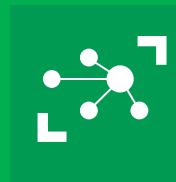
# Microsoft Azure

## CLOUD INFRASTRUCTURE

Compute	Security + Management	Networking	Hybrid Operations
 Virtual Machines	 Active Directory	 Express Route	 Azure AD Connect Health
 Containers	 Multi-Factor Auth	 Virtual Network	 AD Privileged Identity Mgmt
 Remote App	 Automation	 Load Balancer	 Backup
 Batch	 Key Vault	 DNS	 Operational Insights
Storage			
 Blob Storage	 Azure Files	 Premium Storage	 Import/Export
			 StorSimple
			 Site Recovery

# Microsoft Azure

INTERNET OF THINGS



IoT Hub



Stream  
Analytics



Logic Apps

CLOUD INFRASTRUCTURE

Azure + Azure Stack + Operations Management Suite

# Microsoft Azure

## DATA + ANALYTICS

### Data



SQL Database



DocumentDB



Redis Cache



Search



SQL Data  
Warehouse



Data Lake



Tables

### Analytics



HDInsight



Machine  
Learning



Data Factory



Mobile  
Engagement

## INTERNET OF THINGS

Azure IoT Suite

## CLOUD INFRASTRUCTURE

Azure + Azure Stack + Operations Management Suite

# Azure App Service

## Build and scale great cloud apps



.NET, Java, Node.js, PHP, Python

Auto patching

Auto scale

Integration with existing apps

Continuous deployment

# Azure App Service Web Apps



## Start simple

Easily create and scale your new sites in seconds

Automatically scale your sites that scale with your business

Quickly improve performance and reduce latency with right resources

Built-in web jobs support

## Office Blog



## Code smart

Leverage existing skills – Languages and databases you know

Start with open source apps and frameworks

Develop with VS and WebMatrix

Supports X-Plat development

## ASP.NET site



## Go live

Improve developer productivity through continuous automated deployment

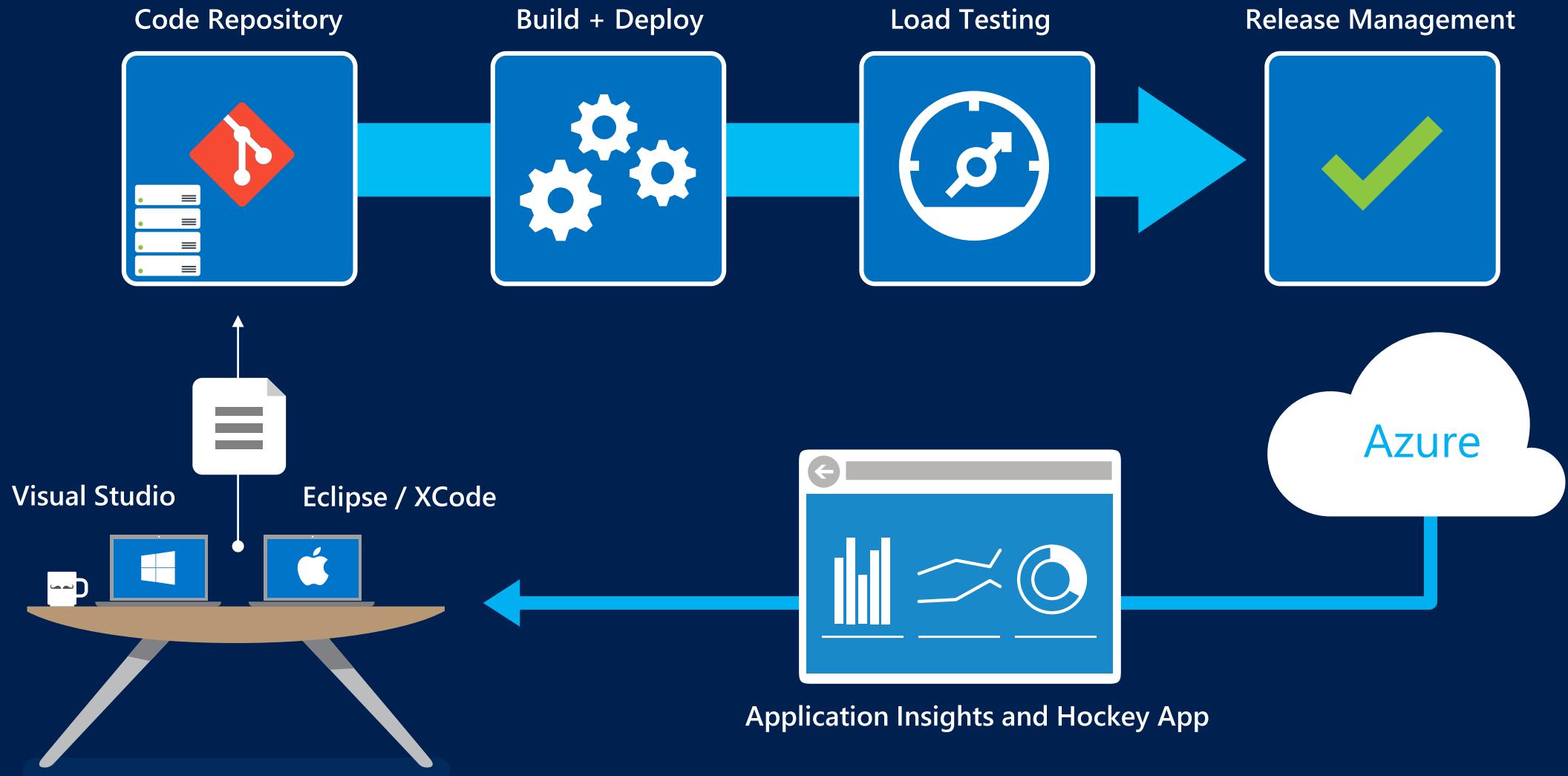
Built-in monitoring of perf and usage data

Built-in diagnostics to assist with debugging

Built for DevOps

## microsoft.com

# Visual Studio Online: DevOps



# Visual Studio Online: Application Insights

The image displays a collage of screenshots illustrating the integration of Visual Studio Online and Microsoft Azure for application development and monitoring.

**Visual Studio Online (Top Left):** Shows the 'Build' screen for a 'MyShuttle' project, specifically the 'MyShuttle-Android' build definition. It details the configuration for signing and aligning an APK file, including the use of a keystore and specific arguments like `-verbose -sigalg MD5withRSA -digestalg SHA1`.

**Microsoft Azure (Top Right):** Shows the 'Users' blade for an 'myshuttle-ios' application. It provides a summary of user activity over the last 30 days, including sessions, page views, and new users. Key metrics shown are 2.61k users, 60.57k sessions, 139.58k page views, and 58 new users.

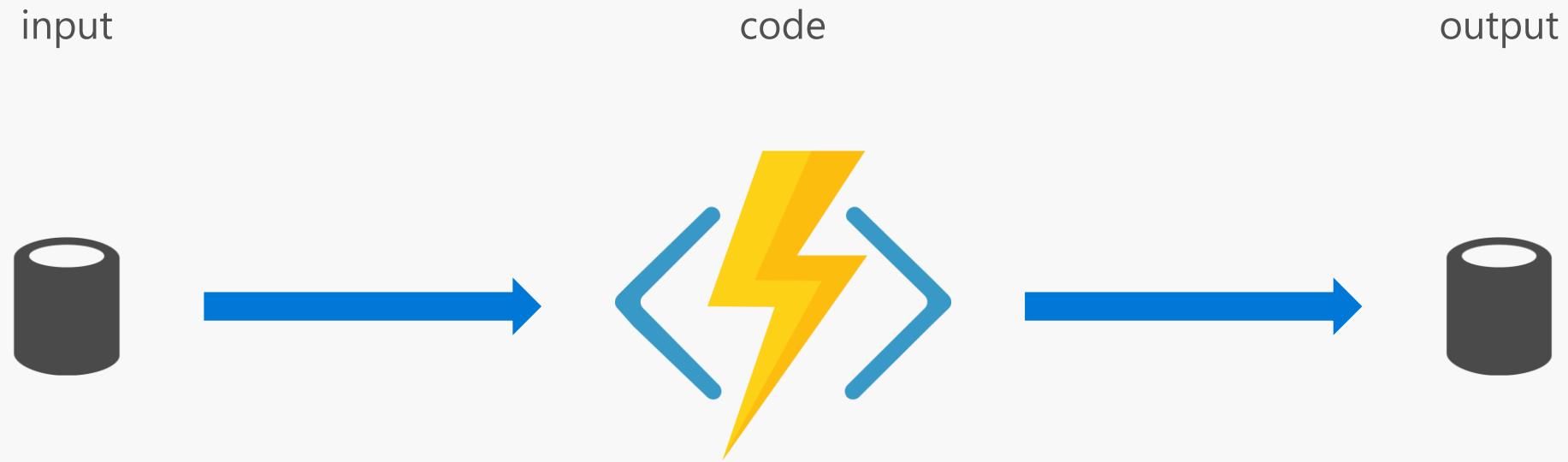
**Visual Studio Online (Bottom Left):** Shows the 'Web tests' blade for a 'myshuttle-web' application. It displays performance metrics such as average response time (548 ms), successful tests (160), and failed tests (16) over a 7-day period. It also shows a timeline of server requests and browser page loads.

**Microsoft Azure (Bottom Right):** Shows the 'Web tests' blade for the same 'myshuttle-web' application. It provides detailed insights into web test execution times, success ratios, and failure counts across different locations like Paris and San Antonio.

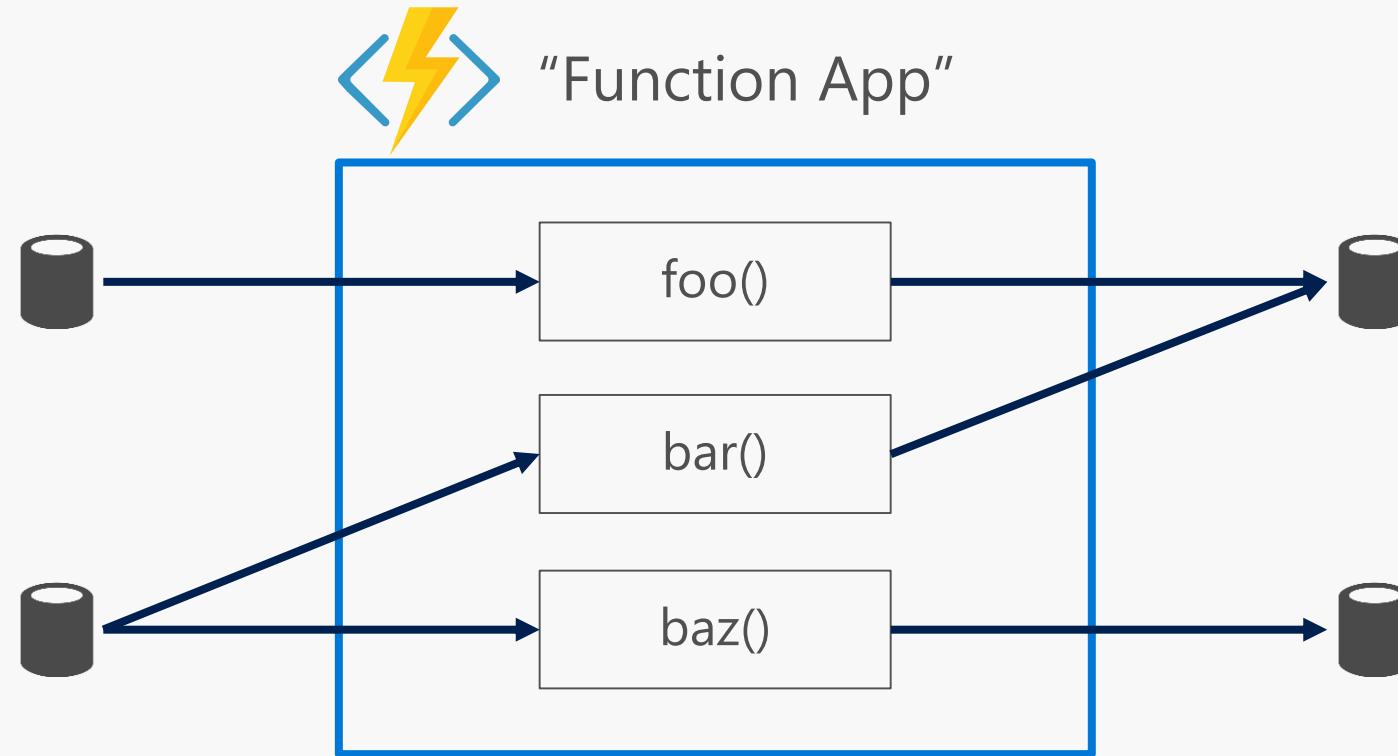
**Central Overlay:** A large blue graphic overlay features the word 'Deploy' in white, surrounded by a gear icon, symbolizing the process of deploying applications.

**Bottom Labels:** The word 'Visual Studio' is positioned above the first two screenshots, and the word 'Hockey App' is positioned below the last two screenshots.

# Azure Functions



# Groups of functions



# Part of App Service



# Supported Languages

- 1<sup>st</sup> class support
  - Node/JavaScript
  - C#
- Experimental support
  - F#
  - Python
  - PHP
  - Batch
  - Bash
  - PowerShell

# Supported bindings

Type	Service	Trigger	Input	Output
Schedule	Azure Functions	✓		
HTTP (REST or WebHook)	Azure Functions	✓		✓
Blob Storage	Azure Storage	✓	✓	✓
Queues	Azure Storage	✓		✓
Tables	Azure Storage		✓	✓
Tables	Azure Mobile Apps Easy Tables		✓	✓
No-SQL DB	Azure DocumentDB		✓	✓
Streams	Azure Event Hubs	✓		✓
Push Notifications	Azure Notification Hubs			✓

# The Azure Portal

