



Technology Showcase



Irving Hutagalung
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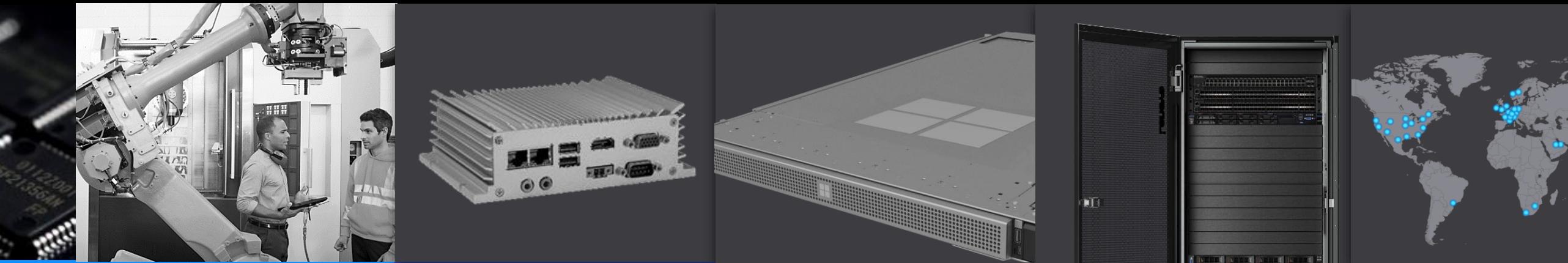
**“Whatever you learn today,
will be obsolete in 6 months”**



Azure Intelligent Edge

+

Cloud Taxonomy



Sensors + Control

Sensors to Interactive

Integrated Platform

Global scale processing

Microcontroller Azure Sphere

- Integrated Circuit designed to govern a specific operation in an embedded system
- Highly-secured, connected MCU
- Azure Sphere Linux OS for modern MCUs
- Included Azure IoT Device SDK

IoT Devices Azure IoT Device SDK

- Endpoint devices such as appliances, vehicles, or factory machines that connect, interact and exchange data
- 1000+ devices
- 250+ partners
- All certified to work great with Azure IoT Hub

Edge Devices Azure IoT Edge

- Devices that aggregate, process & provide gateway capabilities for IoT endpoints
- Deploy and manage Azure Services in containers on any IoT device
- AI, AzureML, Azure Stream Analytics and more

Edge Appliances Azure Stack Edge

- Integrated appliances that provide a subset of cloud edge roles, such as ML-inferencing
- Stack Edge: AI-Enabled, Storage and compute Azure Edge appliance
- Data Box: Offline, ruggedized data transport, 100 TB – 1 PB

Edge Stack Azure Stack Hub

- Scalable solutions that provide a full cloud stack, including IaaS and PaaS capabilities
- Edge and Disconnected Scenarios
- Regulatory Requirements
- Cloud app model on-premises

Hyperscale Cloud Edge Regions

- First-party cloud regions
- Full Range Hyperscale Cloud Services
- Tiered Service availability: Heroes > Hubs > Satellites
- Open Source Based Services & Tools

← Most specialization
Fewest services

Full Spectrum of Cloud + Edge Form Factors
Intentional & Appropriate Azure Service Availability

→ Fewest form factors
Most services



Azure Stack Edge

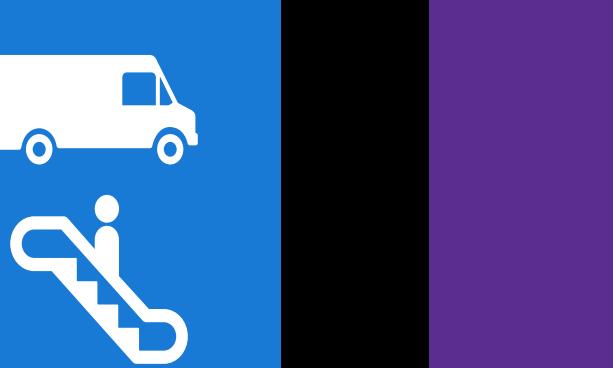


Sathish Balakrishnan
Senior Technical Specialist
Microsoft Asia Pacific

Azure Stack Edge

Enabling AI at the Edge

Things



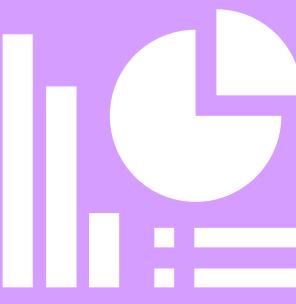
Connectivity



Data

10101
01010
00100

Analytics



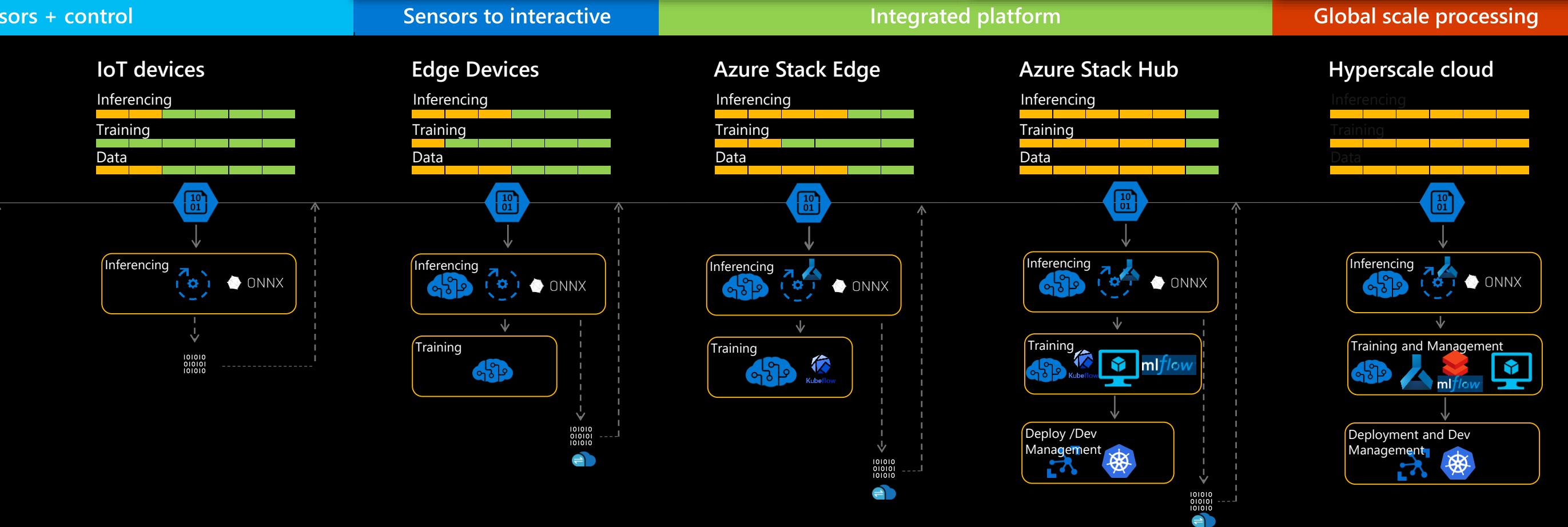
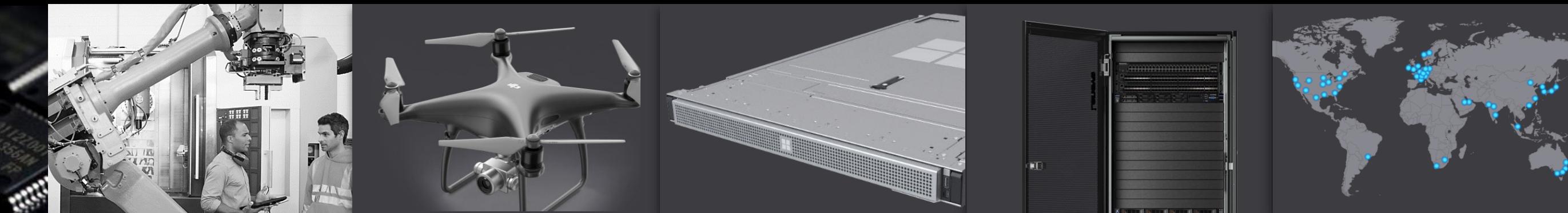
Action



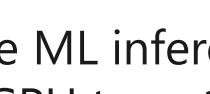
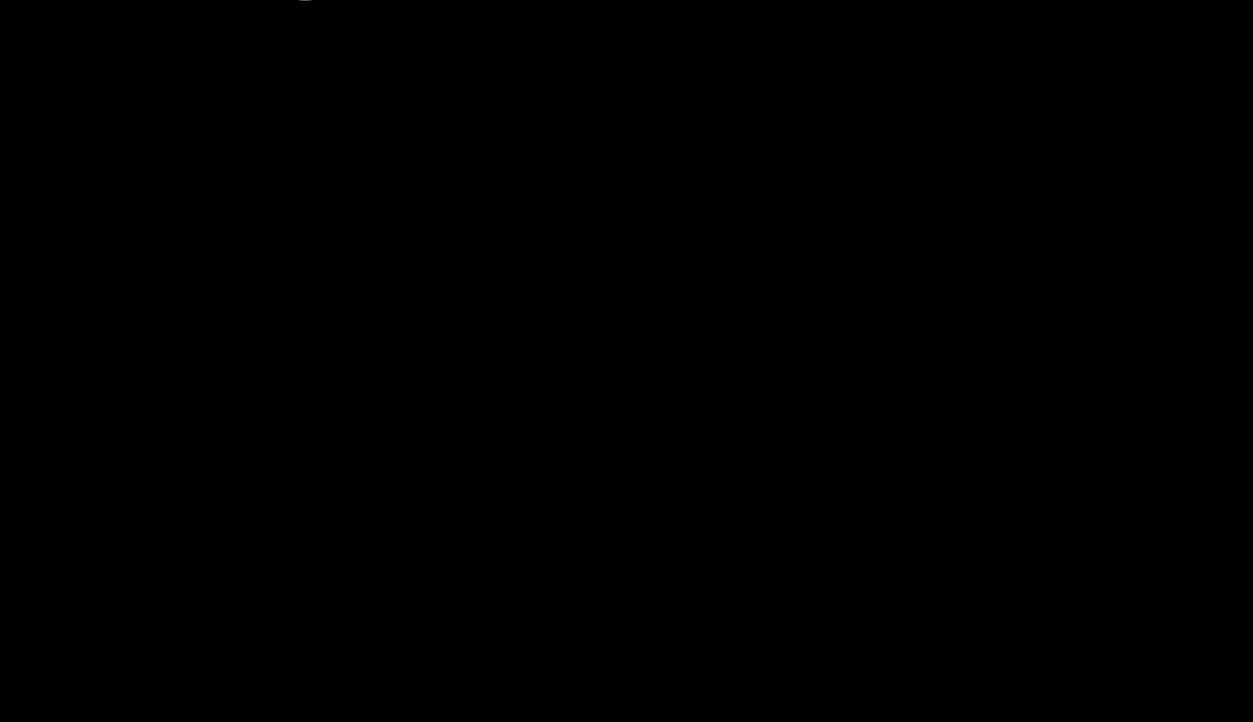
Intelligent Edge + Cloud

taxonomy + AI functionality

Phase 1

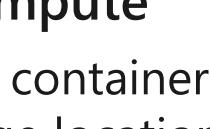


Azure Stack Edge



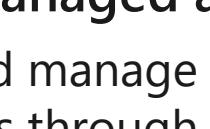
Hardware-accelerated machine learning

Accelerate ML inferencing using on-board FPGA or GPU to get results close to the data source



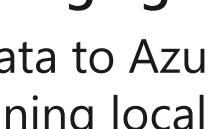
Edge compute

Run VMs, containers, and Azure services at the edge locations



Azure managed appliance

Order and manage your appliance and workloads through the Azure portal



Cloud storage gateway

Transfer data to Azure over the network while retaining local access to blobs and files



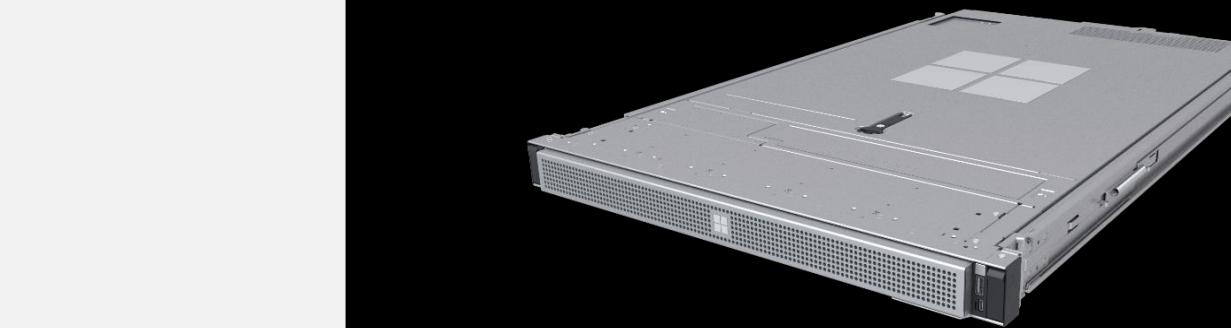
Machine learning at the edge



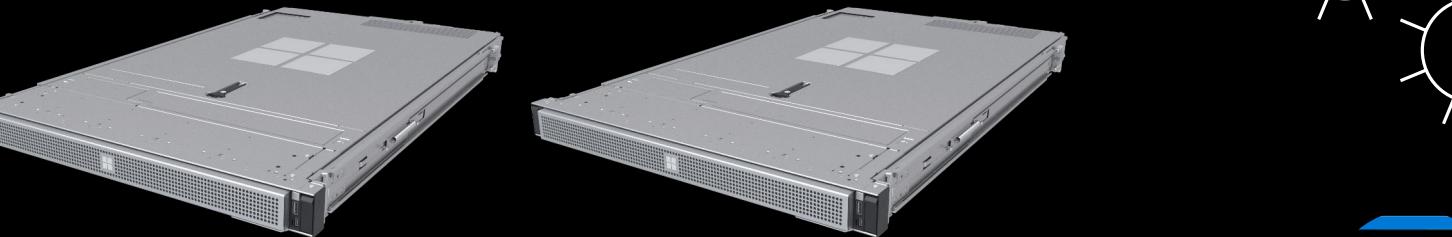
Edge compute and IoT solutions



Network data transfer from edge to cloud



Coming Soon for Azure Stack Edge



Commercial Series



Services



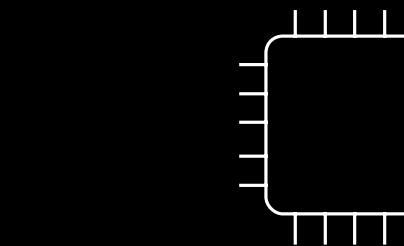
Virtual Machines



Multi-Access Edge
Compute



Live Video Analytics



Features



K8S



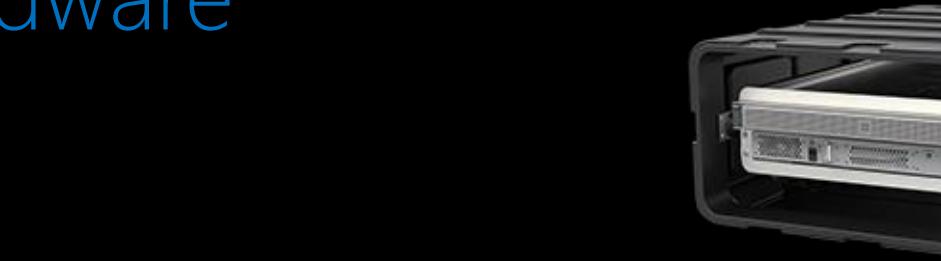
GPU Options



High Availability

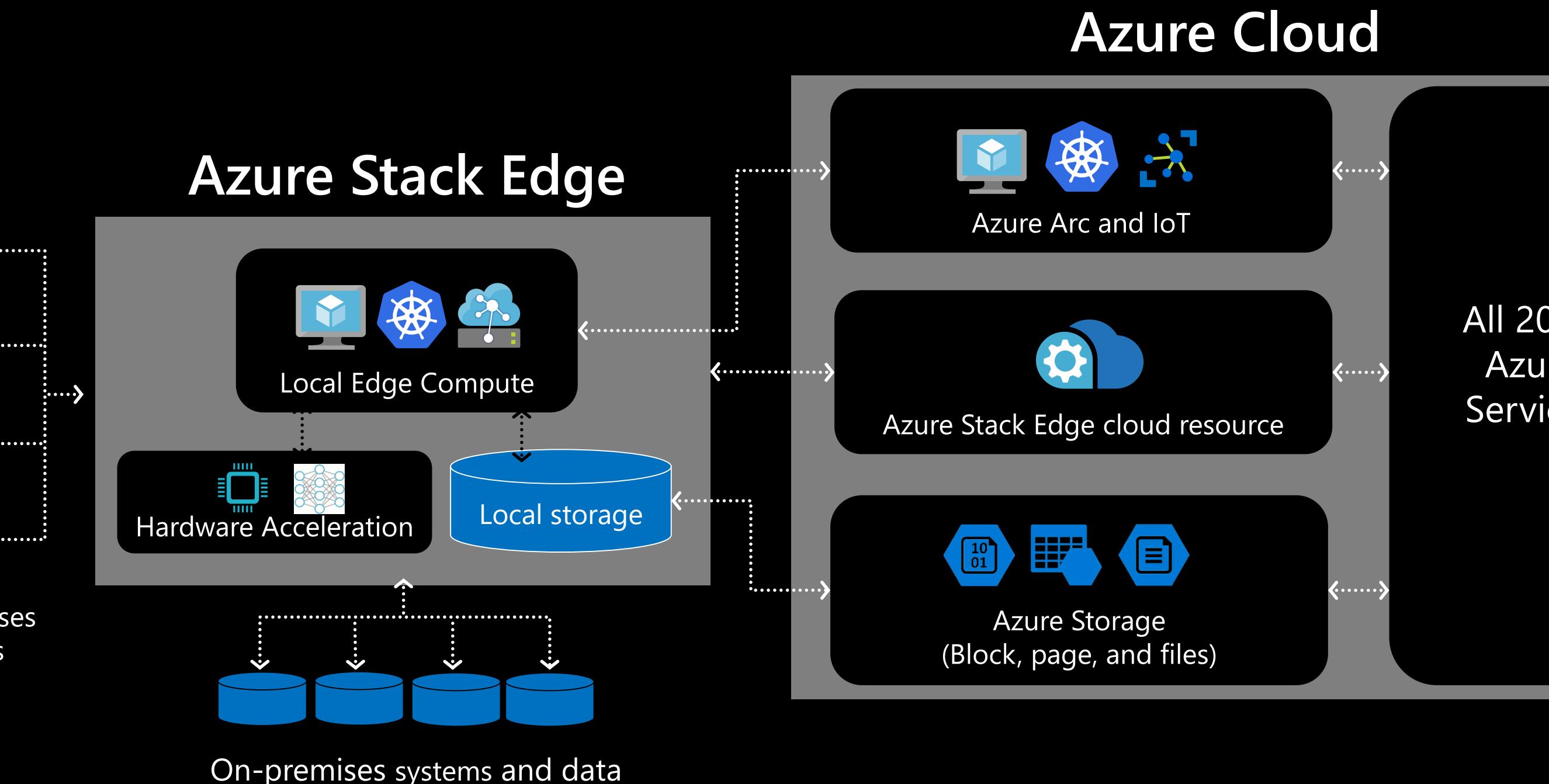


Hardware

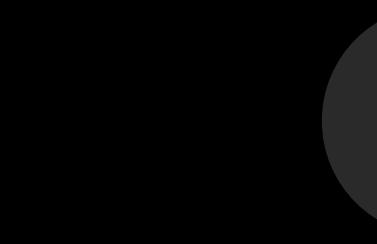


Rugged Series

Azure Stack Edge solution architecture



Summary of compute use cases



PREMISE SAFETY -
TRESPASSING/WEAPON
DETECTION



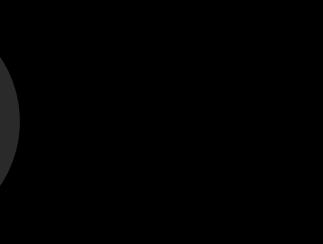
RETAIL ANALYTICS



INDUSTRIAL SAFETY
ENFORCEMENT



MANUFACTURING –
PREDICTIVE ANALYSIS,
QUALITY ASSURANCE



TRAFFIC ANALYSIS,
VEHICLE COUNTING,
TRAFFIC ANOMALIES



VEHICLE IDENTIFICATION
/ LICENSE PLATE
RECOGNITION



REMOVE SENSITIVE DATA
FOR COMPLIANCE



ANONYMIZATION
OF DATA



PUBLIC SAFETY

Azure Stack Edge

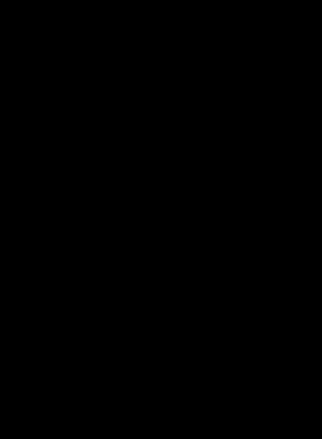
<https://aka.ms/AzureStackEdge>



Commercial Series



Rugged Series





Azure Stack Edge in Telco



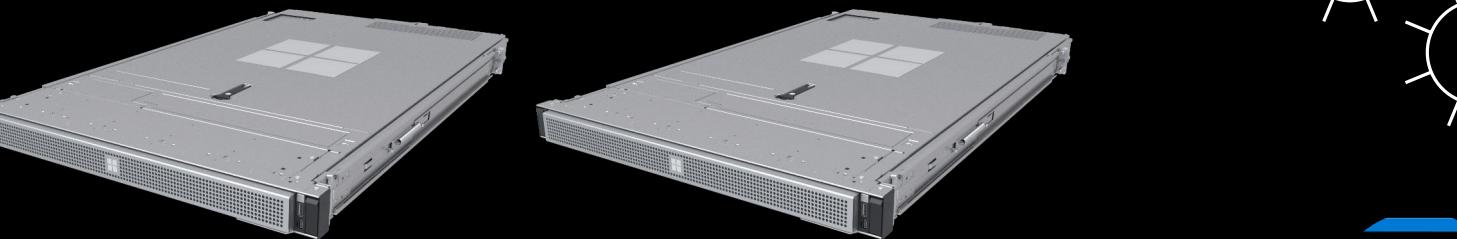
Makka Kesuma

Senior Cloud Solution Architect

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Coming Soon for Azure Stack Edge



Commercial Series



Services



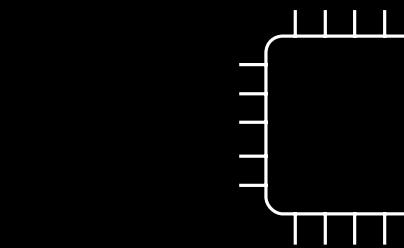
Virtual Machines



Multi-Access Edge
Compute



Live Video Analytics



Features



K8S



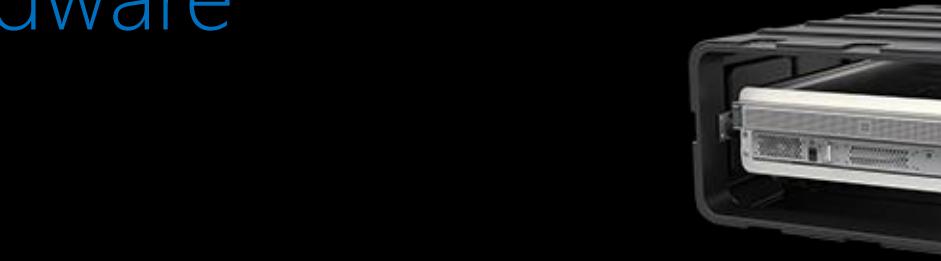
GPU Options



High Availability



Hardware



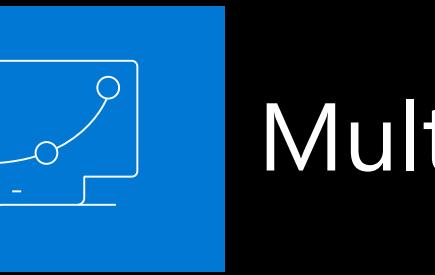
Rugged Series



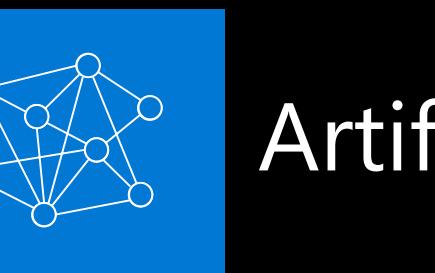
Ruggedization

Microsoft's Worldview

Latency is the new currency



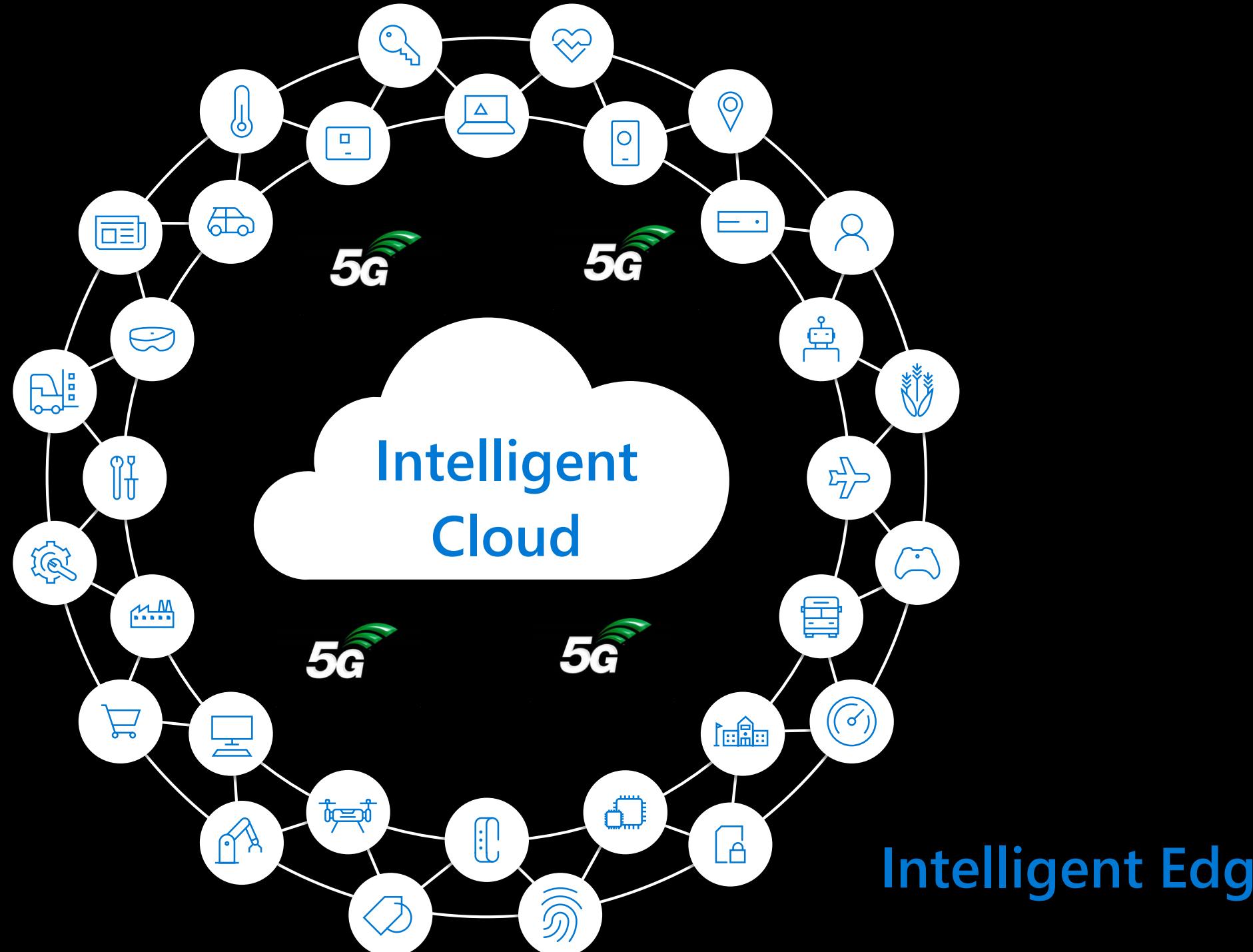
Multi-device, Multi-sense



Artificial Intelligence



Serverless



What is 5G ?



Fiber-Like Speeds



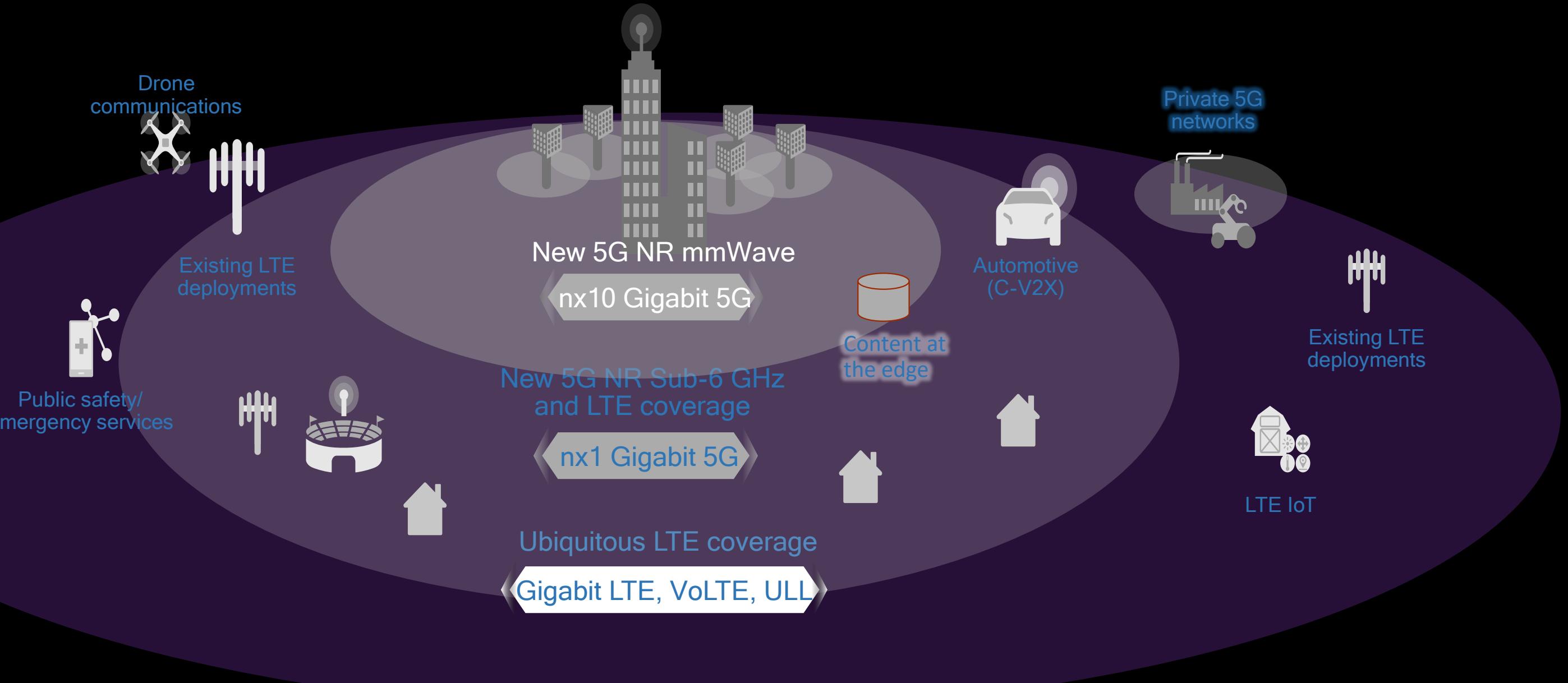
Uniform Experience



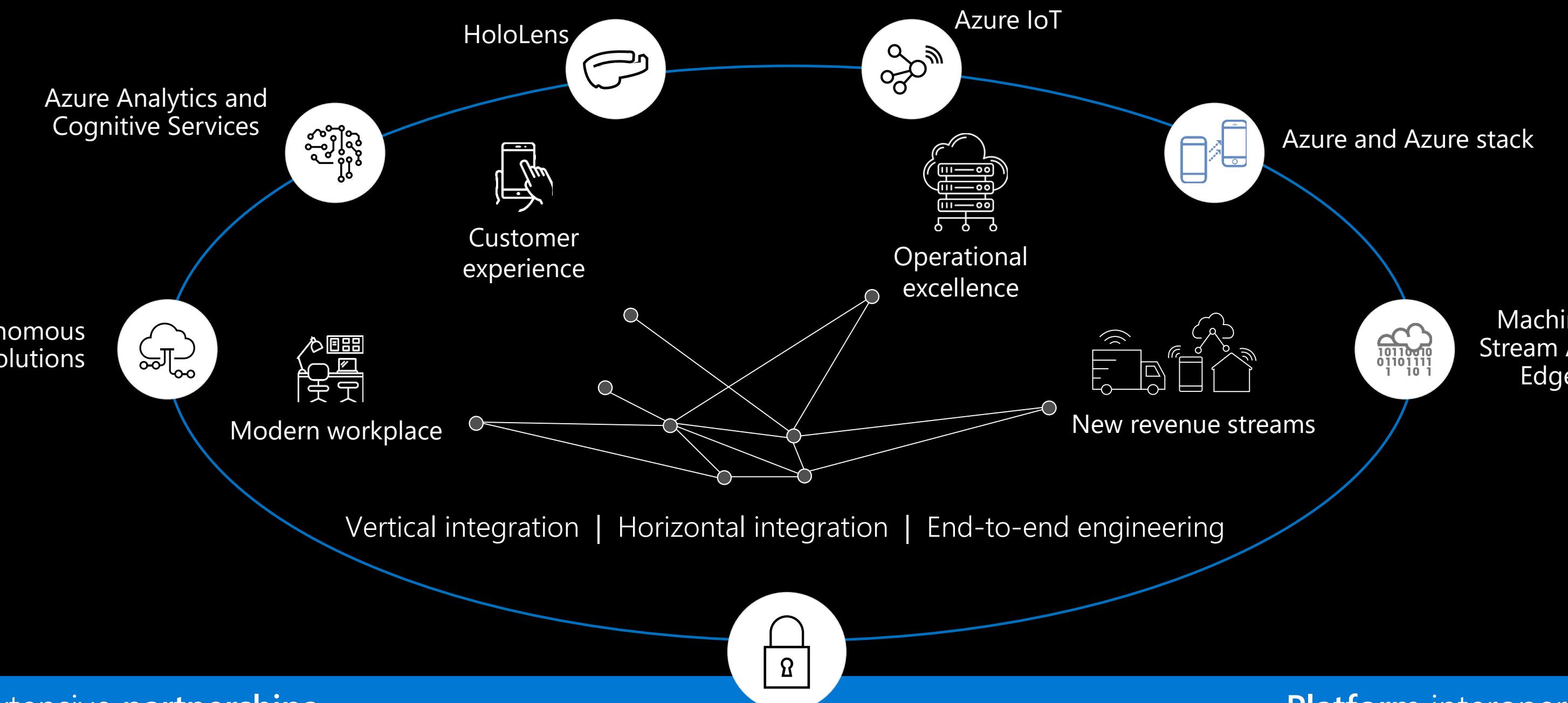
Lower Latency



Lower Cost per-Bit



5G Digital Transformation

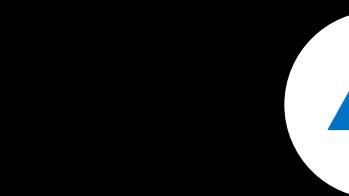


Extensive **partnerships**
across digital ecosystem

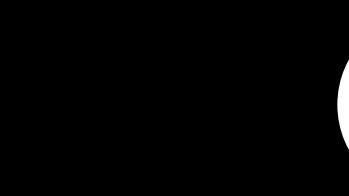
Trusted | Secure | Compliant

Platform interoperability
across the cloud continuum

MEC and private mobile networks



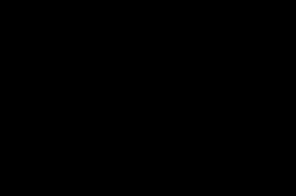
Managed Compute and
Network as a Service



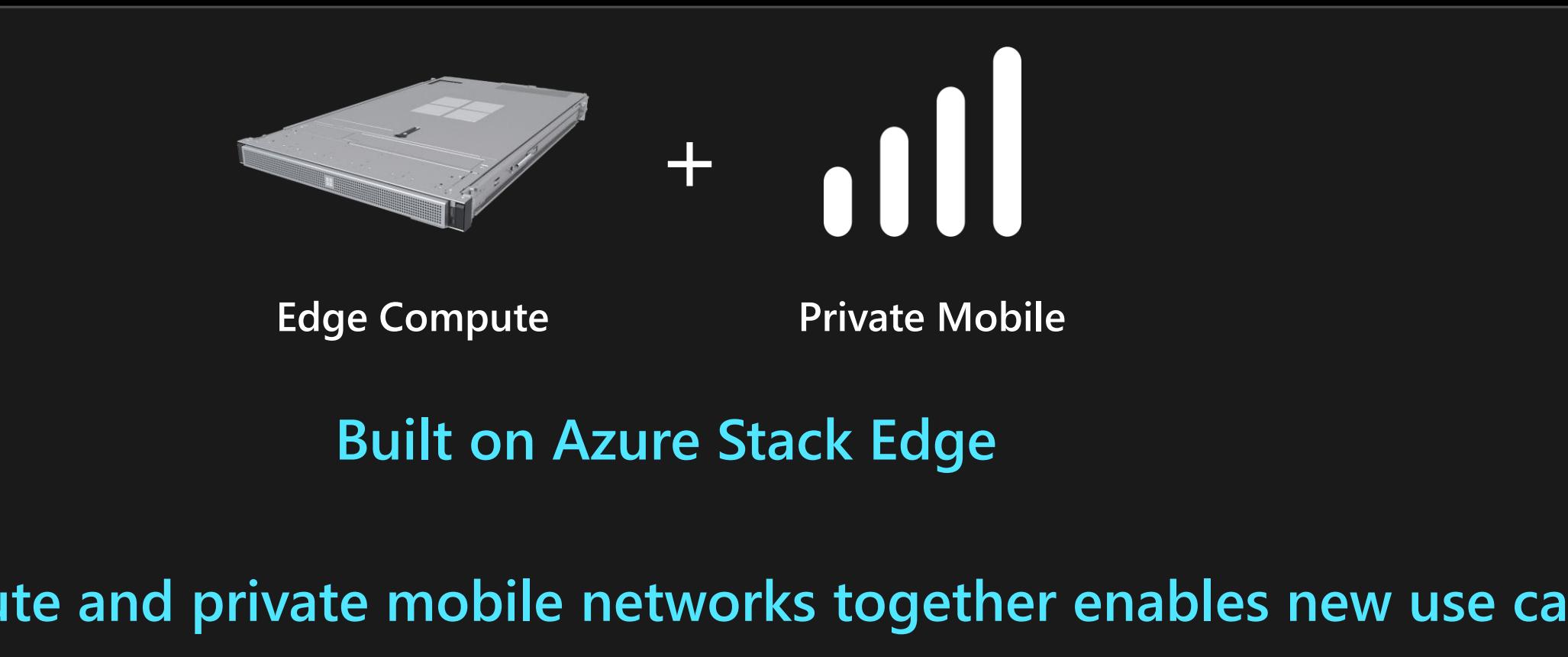
Managed from
Azure



Mobile networks as a service
from VNF vendors and MSPs



Integration with
Azure Services





Microsoft + Telkomsel

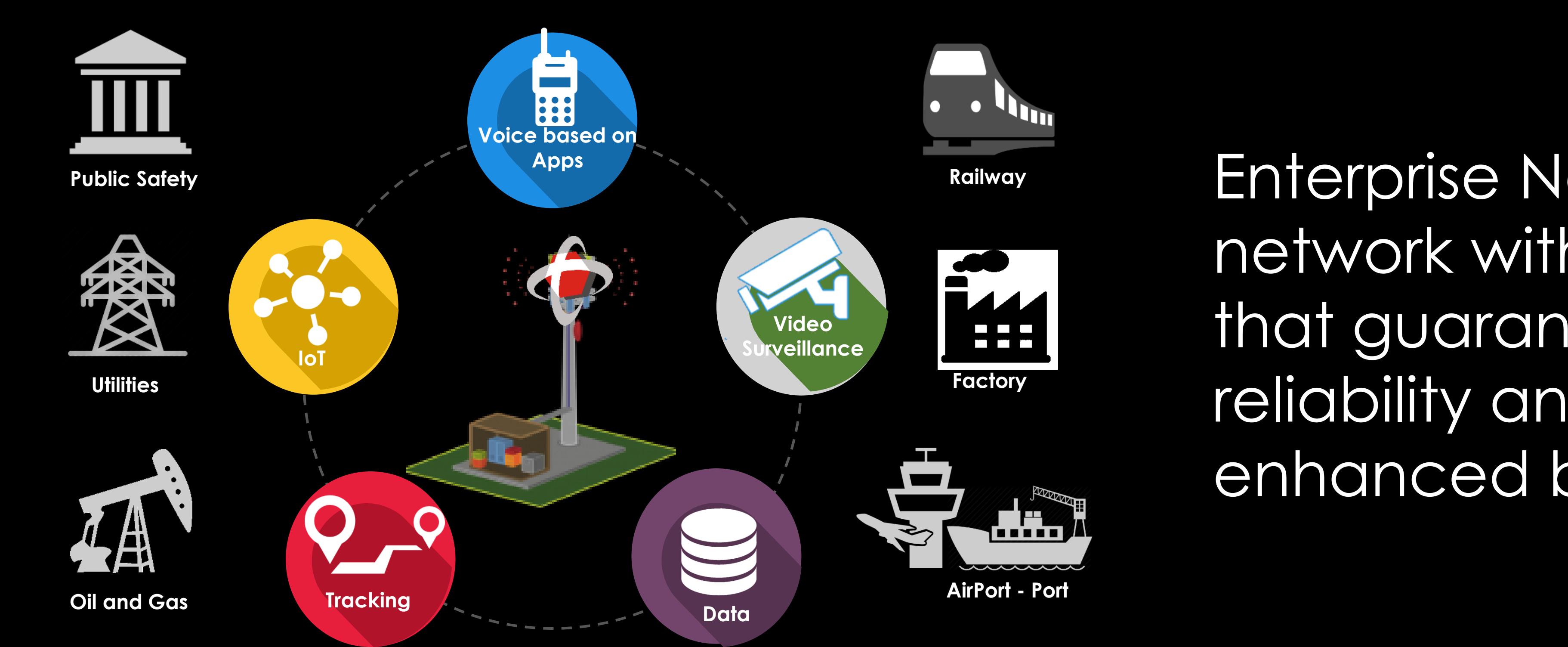


Wanda Prasetia
Business Development Manager
Microsoft Indonesia



Dharma Simorangkir
Senior Vice President
Telkomsel





Enterprise Network solution is a network within enterprise premises that guarantee better network reliability and data security to enhanced business operation

Features and Benefits



High Reliability

Avoid costly downtime with a robust communications network that keeps your business and mission critical systems up & running



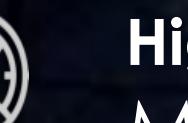
Secure

Shield your operations & data from cyber threats that has built in encryption & authentication capabilities



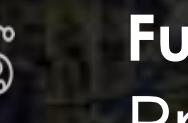
Pervasive Coverage

Increase efficiency & support new application by extending ubiquitous connectivity across sites



High Performance

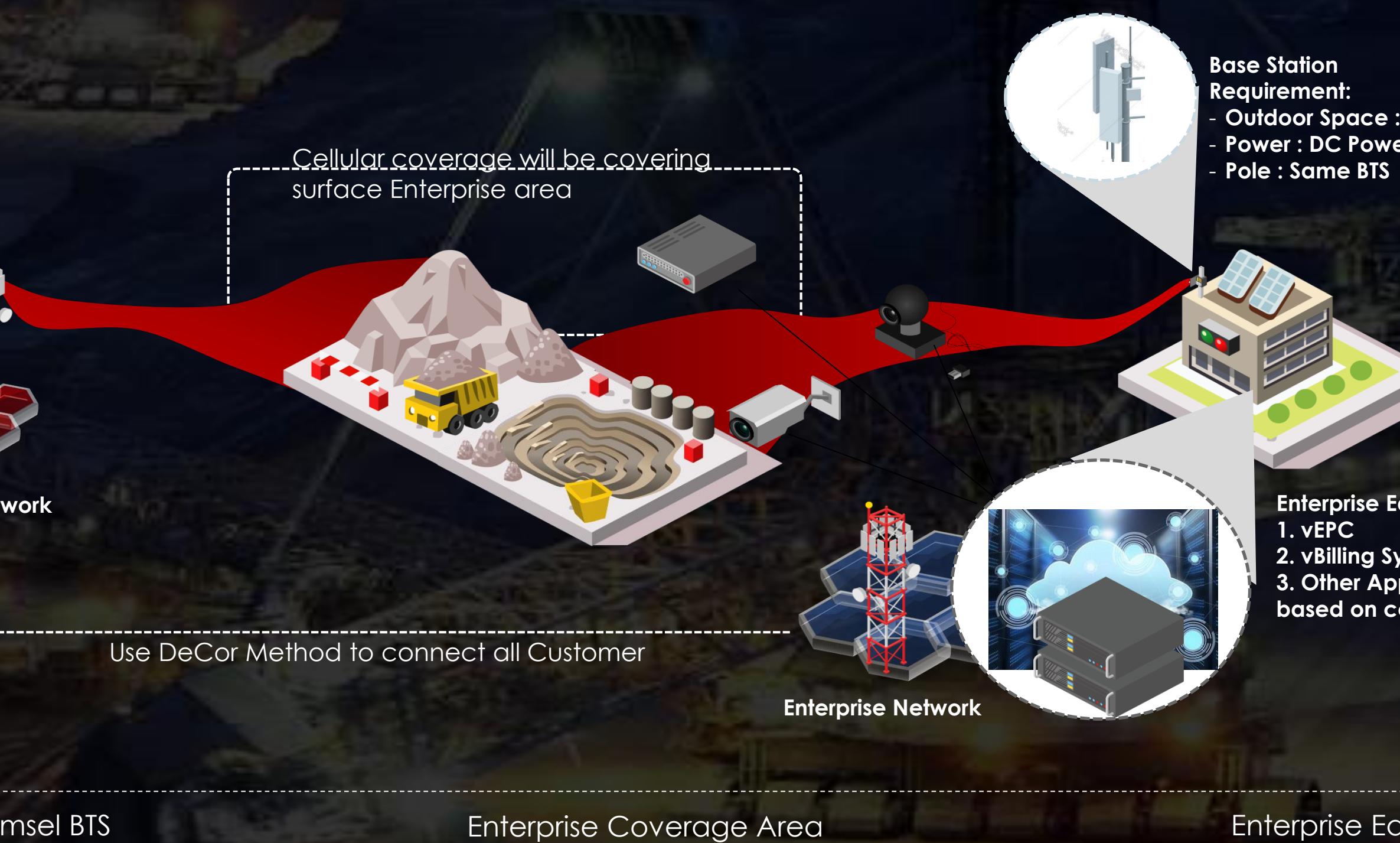
Meet the growing demands of connected workers, machines & applications with consistently high data rates & low latency



Full Mobility

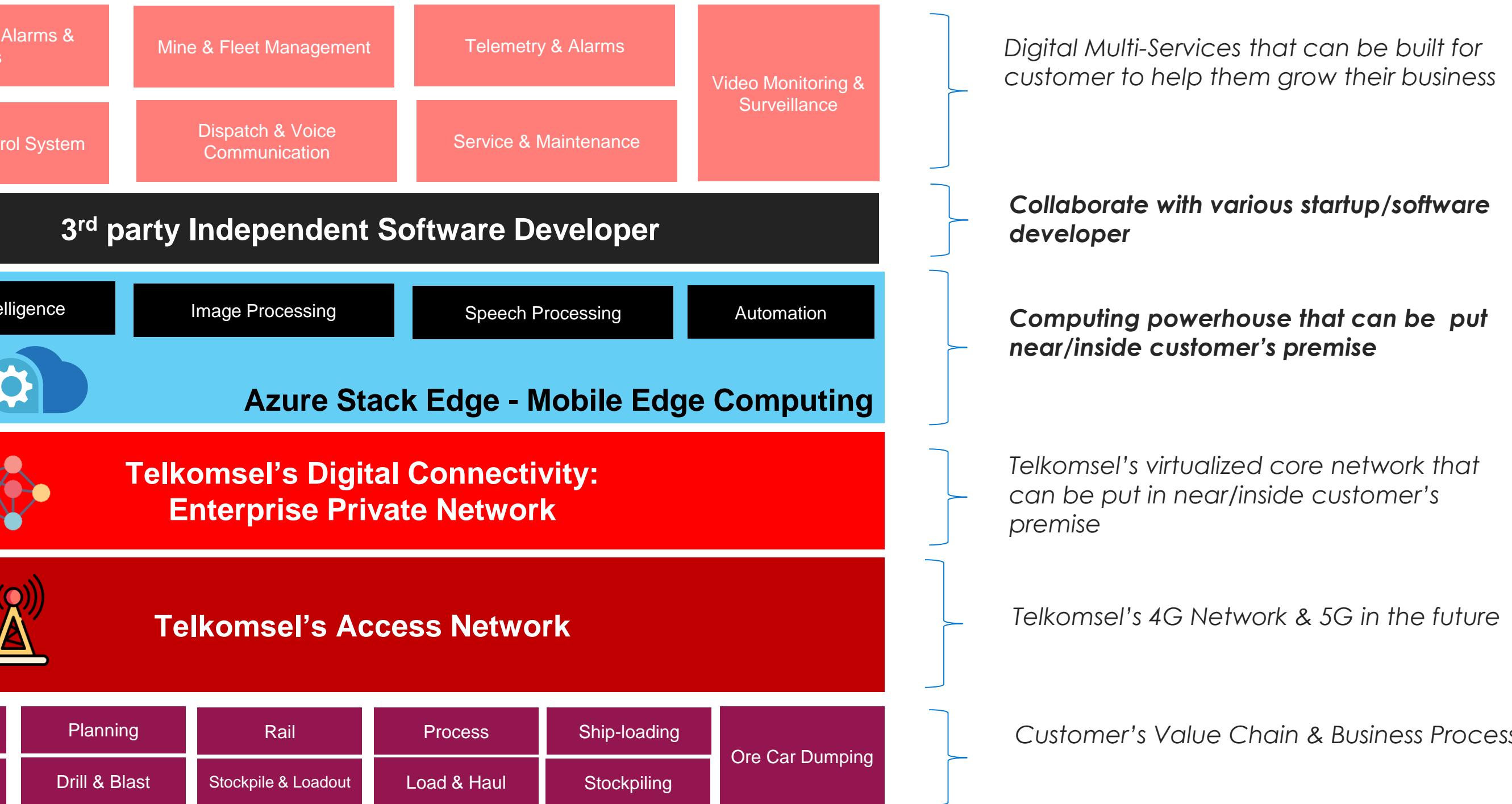
Provide connectivity that support advanced application on mobile assets and transparent handover to public Networks

Enterprise Network Use Case for Mining



Enterprise Network Use

Case for Mining
Mapping customer's value chain, unlock value through digital connectivity & create digital multi-service to help customer grow



//DevCon/ DIGITAL ECONOMY SUMMIT 2020

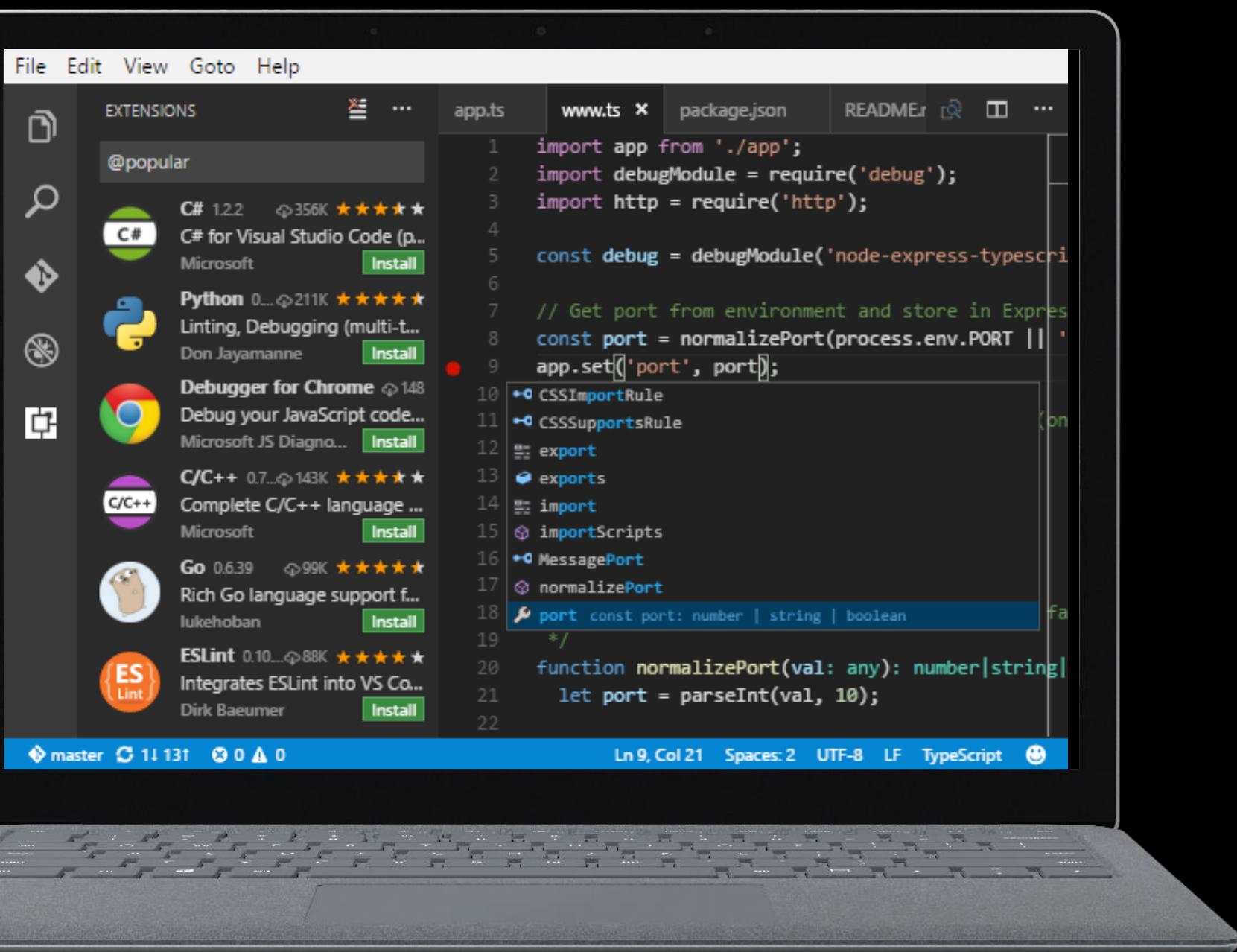
Visual Studio Code

Loved by developers across communities:

- #1 JavaScript editor (56.6% in 2019, [State of JS](#))
- #1 Go editor (35% in 2018, [Go Survey](#))
- #1 Rust editor (44.4% in 2018, [Rust Survey](#))
- #2 Python editor (16% in 2018, [Python Developer Survey](#))
- #1 Most Popular Development Environment (50.7% in 2019, [StackOverflow Developer Survey](#))

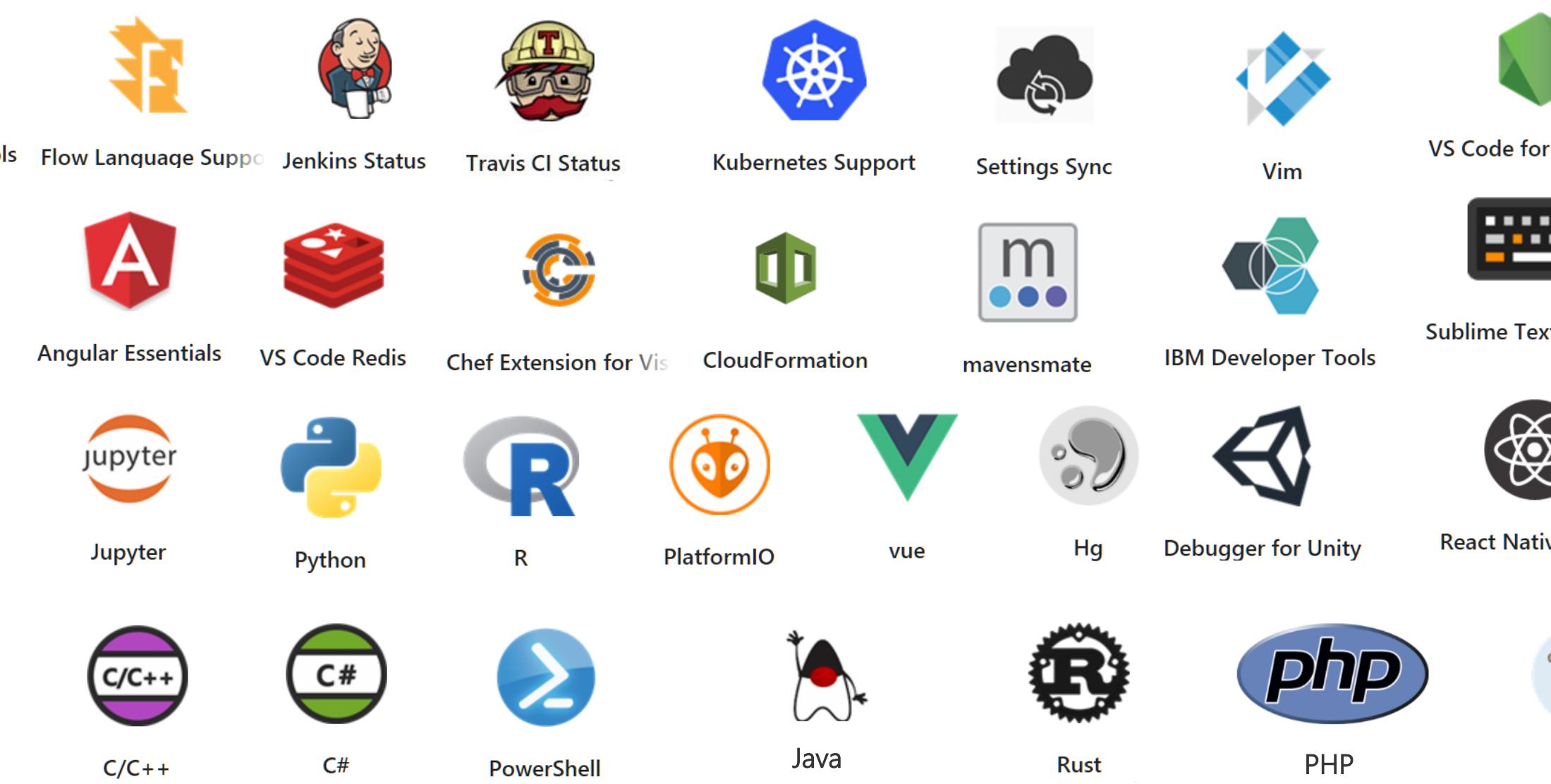
Developed with a strong OSS ecosystem:

- 19.1K contributors on GitHub (#1 in 2019, [The State of the Octoverse](#))
- Daily insider releases
- Public roadmap, issues, backlog



Any programming language, any operating system, any tool chain, ...

<https://marketplace.visualstudio.com/VSCodium>



EDITION: AS ▾

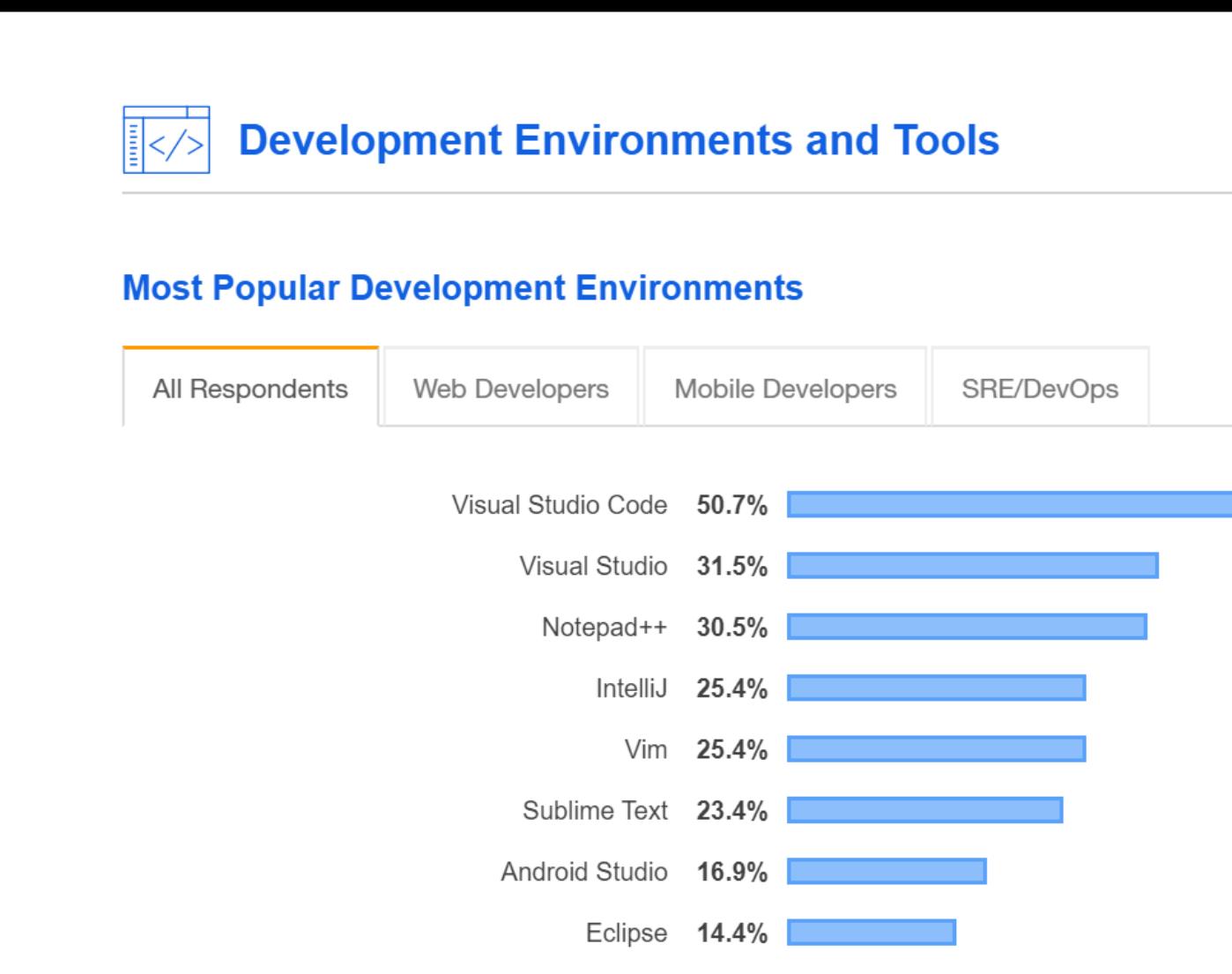
ZDNet

CLOUD INNOVATION CXO HARDWARE MORE ▾ NEWSLETTERS ALL WRITERS

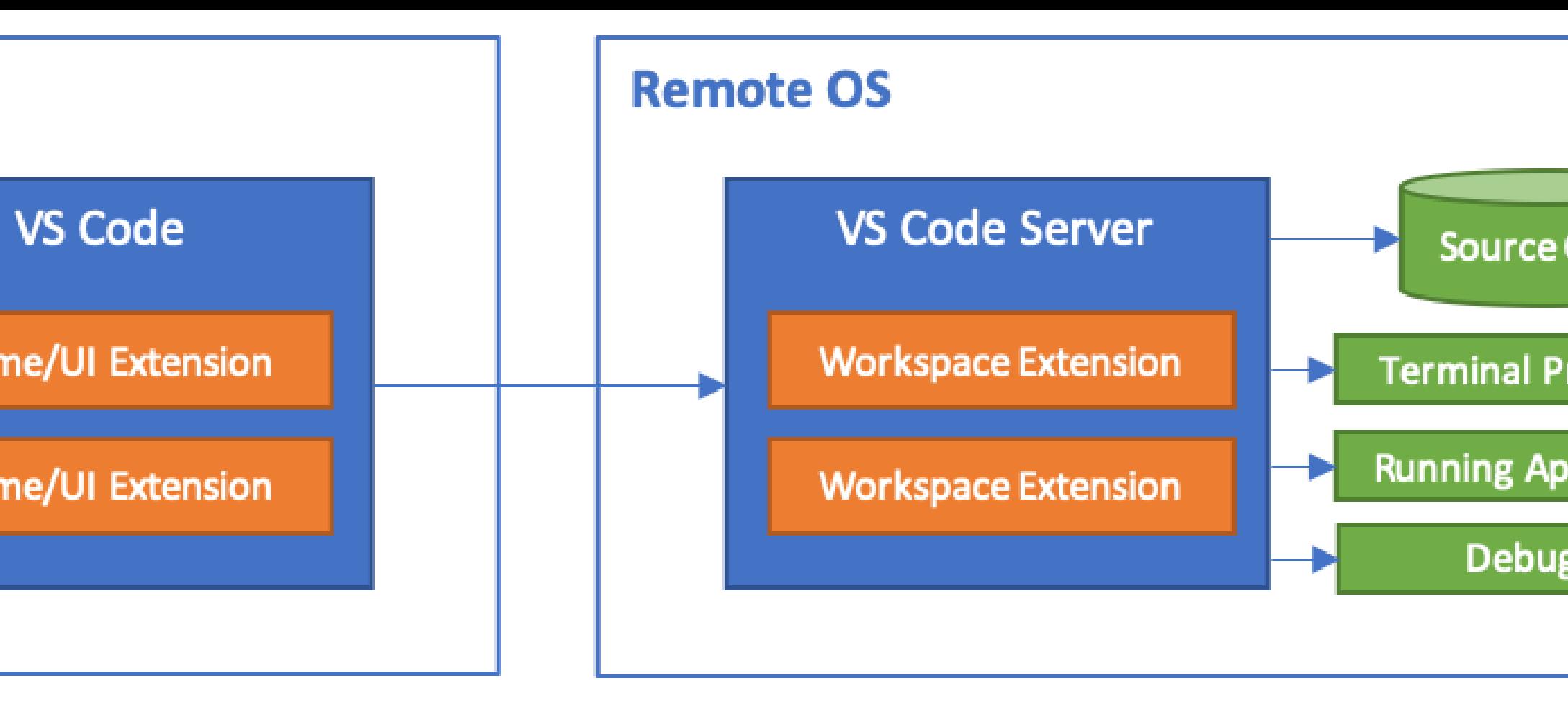
MUST READ: 5G: Huawei unveils new infrastructure products aimed at Europe

Facebook: Microsoft's Visual Studio Code is now our default development platform

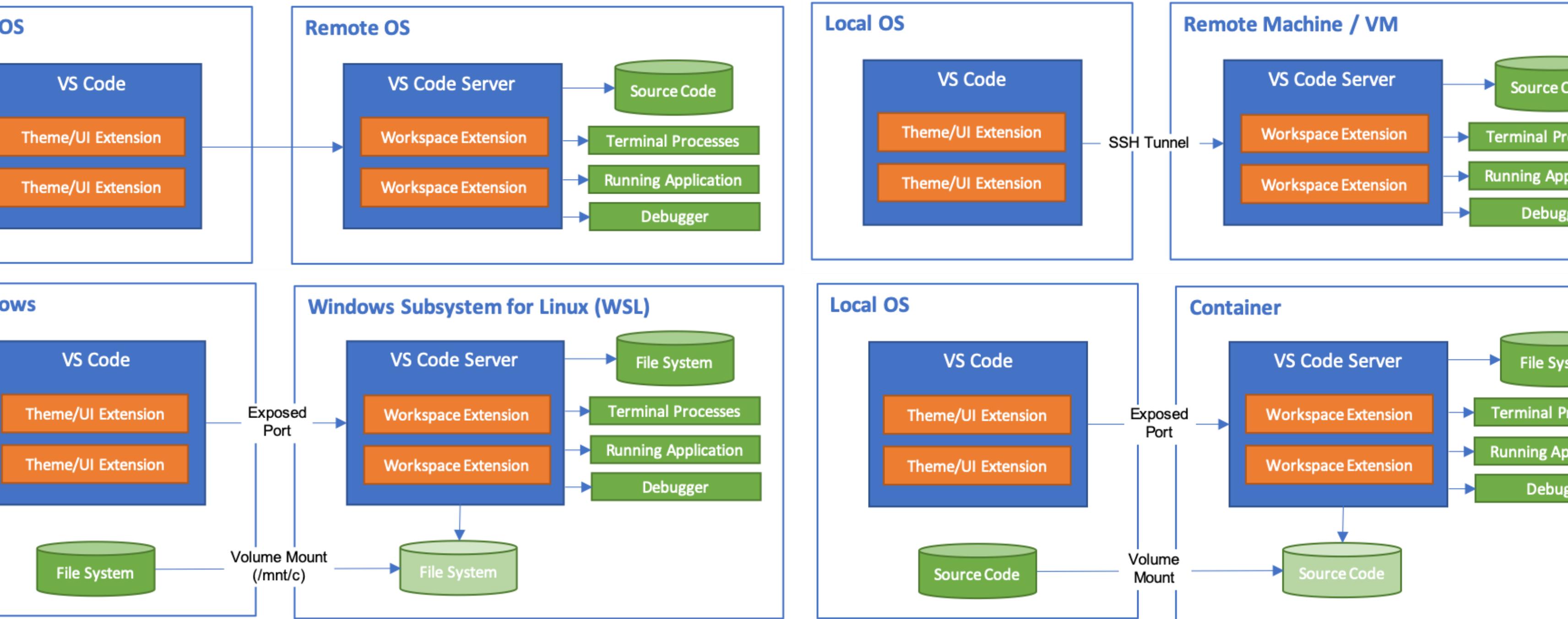
Facebook is also helping Microsoft improve the remote development experience in Visual Studio Code.



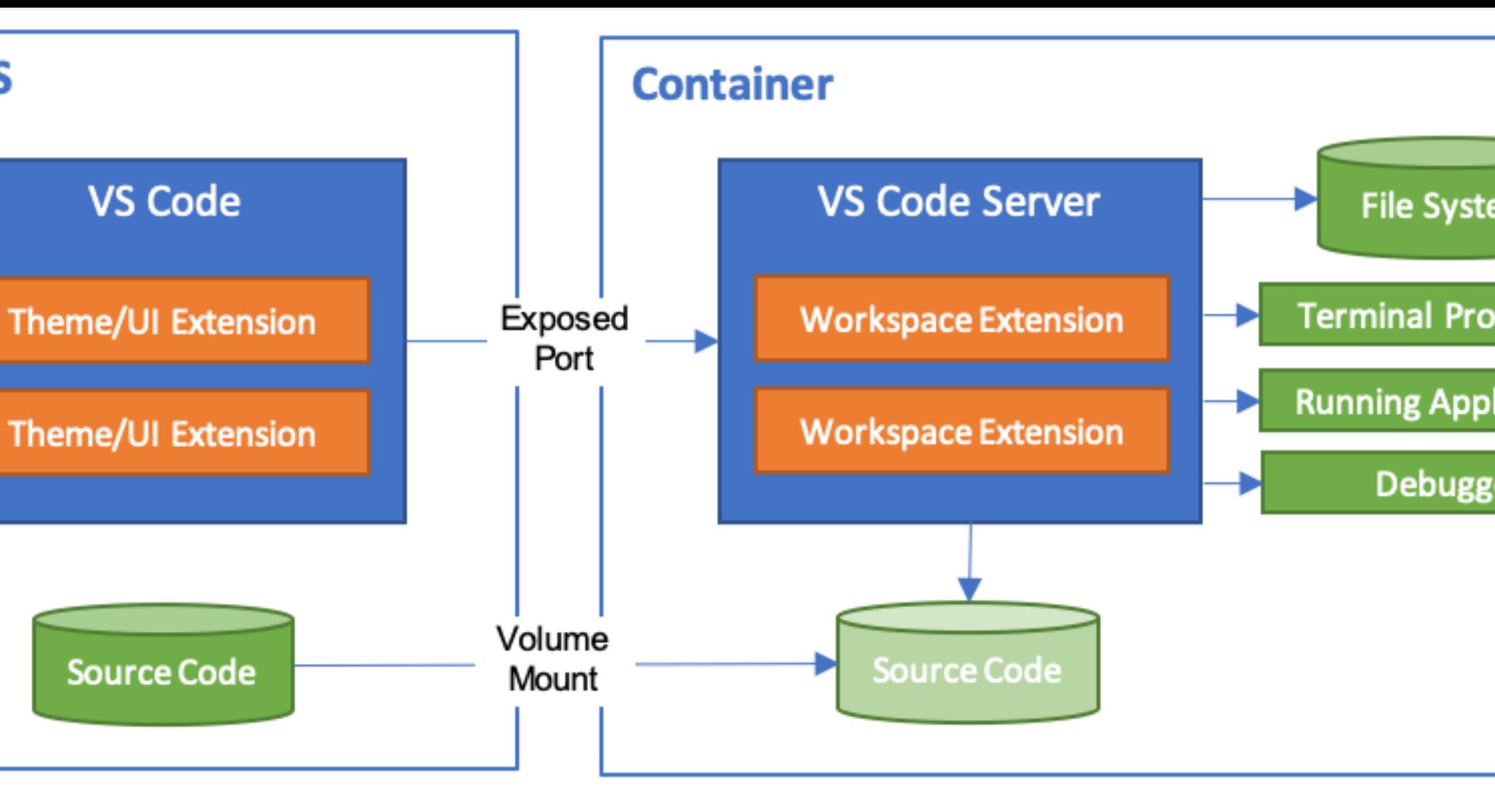
VS Code Remote



VS Code Remote



VS Code Remote - Containers





Visual Studio Code Demo



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Visual Studio Online

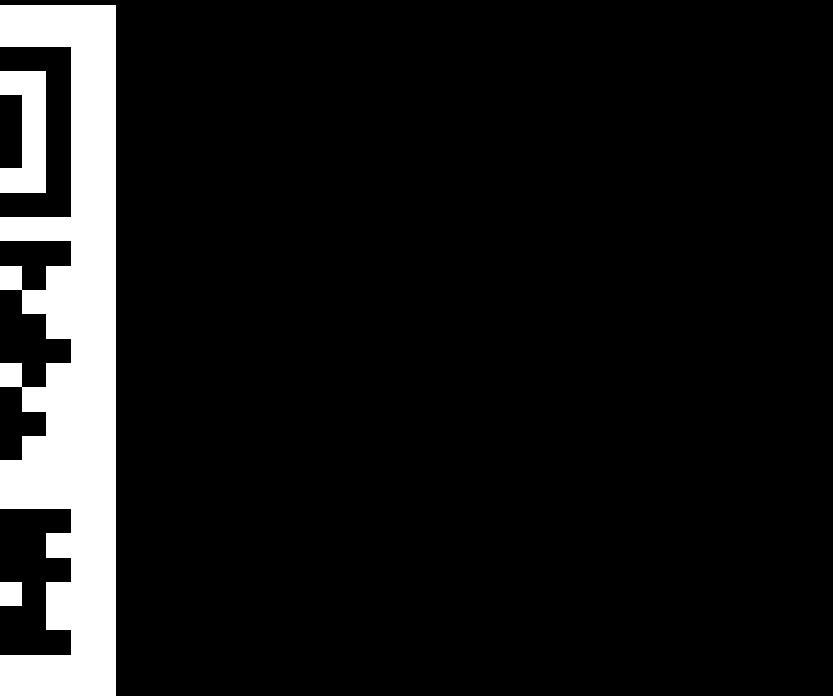


Visual Studio Online



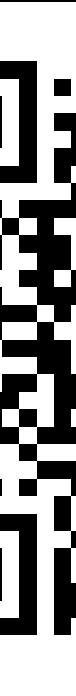
Visual Studio Code

<https://code.visualstudio.com/>



Visual Studio Online

<https://aka.ms/vsonline>



Customer environments are increasingly complex

10s–1,000s of apps



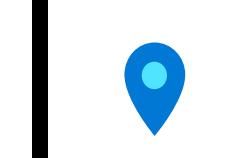
VMs



Databases



Containers



Serverless



.NET



JS



Python



Java



Go



PHP



Datacenters



Hosters



Branch offices



OEM hardware



IoT devices



Edge

Diverse infrastructure



Microsoft Azure



aws

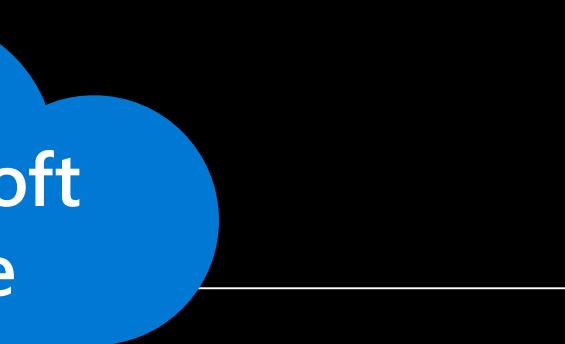


Google Cloud

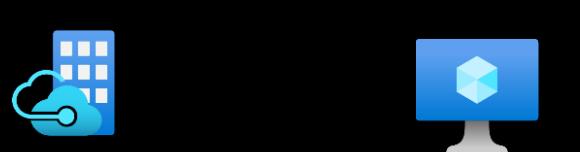
Multi-cloud

Azure Hybrid

Innovation anywhere with Azure



Azure Stack
Integrated systems



Azure Arc
Any datacenter, any cloud



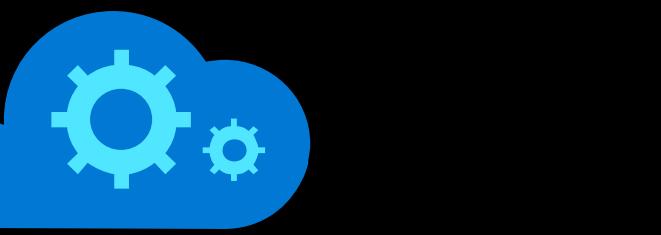
Azure IoT
Any edge device



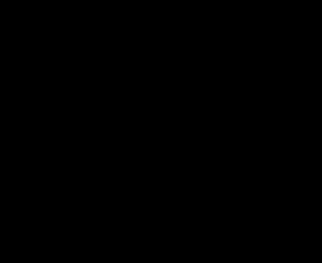
Management | Security + Identity | App + Data Services | Dev Tools + DevOps

Azure Arc

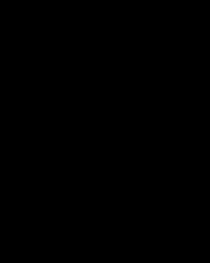
Bring Azure services and management to any infrastructure



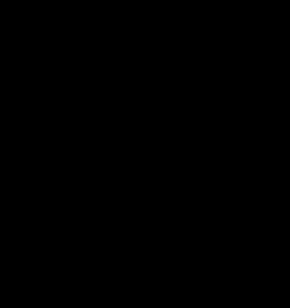
Run Azure Data
Services anywhere



Extend Azure management
across your environments



Adopt cloud
practices on-premises

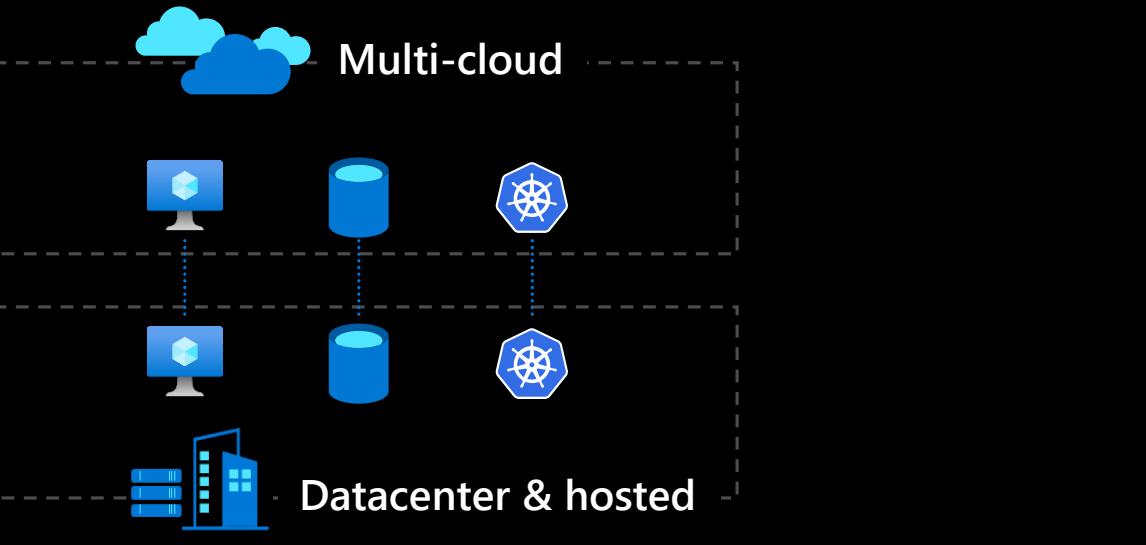


Implement Azure
security anywhere

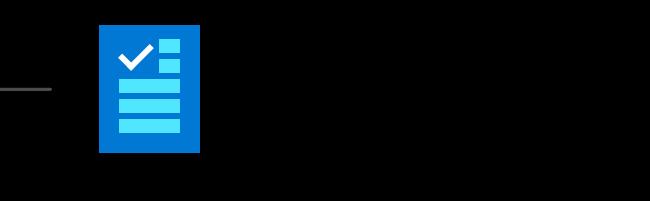
Azure Arc is a set of technologies that extends Azure management and enables
Azure services to run across on-premises, multi-cloud, and edge

Azure Arc

Customer use cases



Get Kubernetes clusters and servers that are sprawling across clouds, datacenters and edge under control by centrally organizing and governing from a single place.



At-scale Kubernetes
app management

Deploy and manage Kubernetes applications at scale across environments using DevOps techniques. Ensure that applications are deployed and configured consistently from source control, at scale.



Run data services
anywhere

Deploy and manage data services where you need it for latency or compliance reasons. Always use the most current technology and seamlessly manage and secure your data assets across on-premises, clouds and edge.



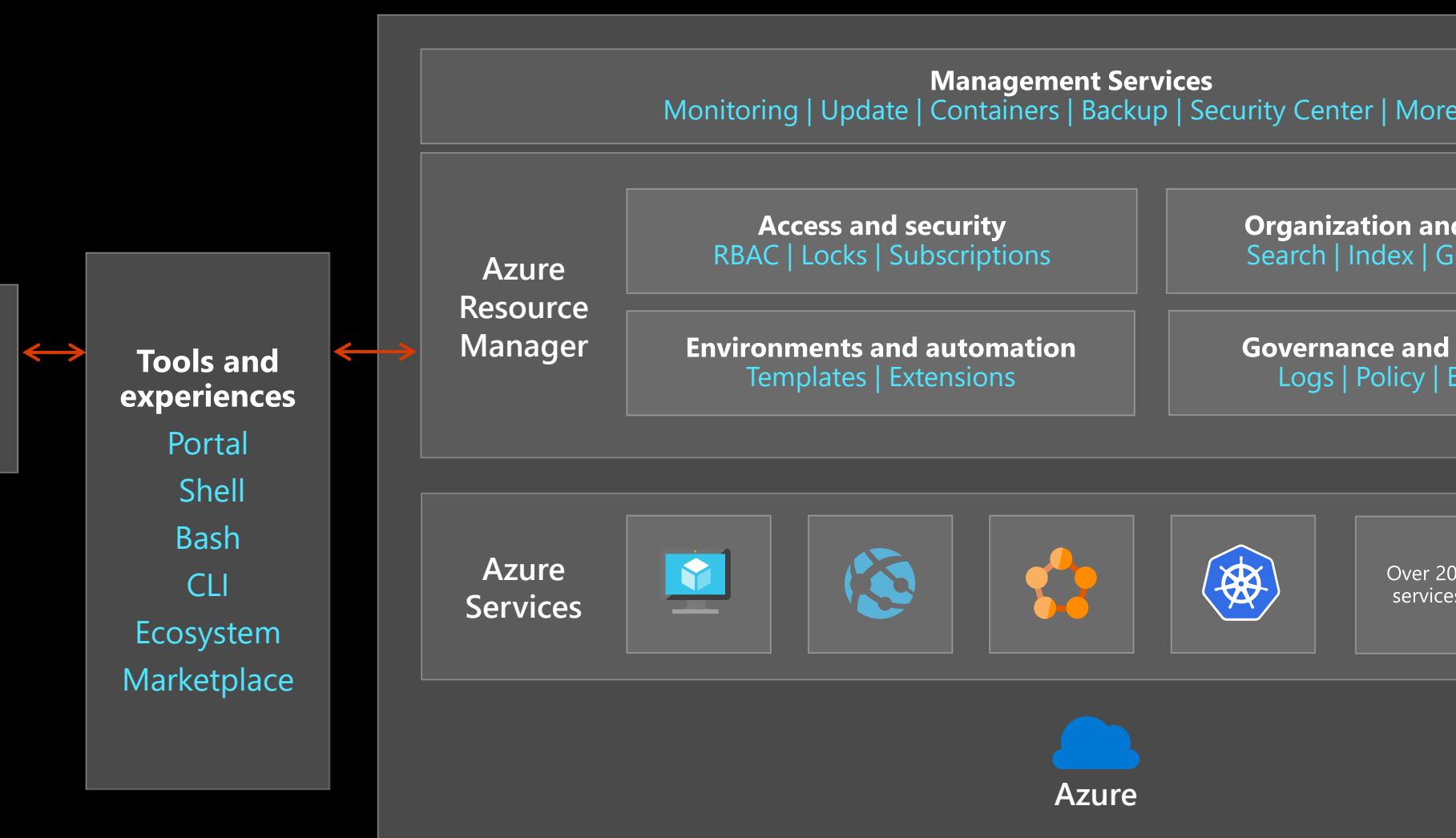
Azure Arc Demo



Johanes Alexander
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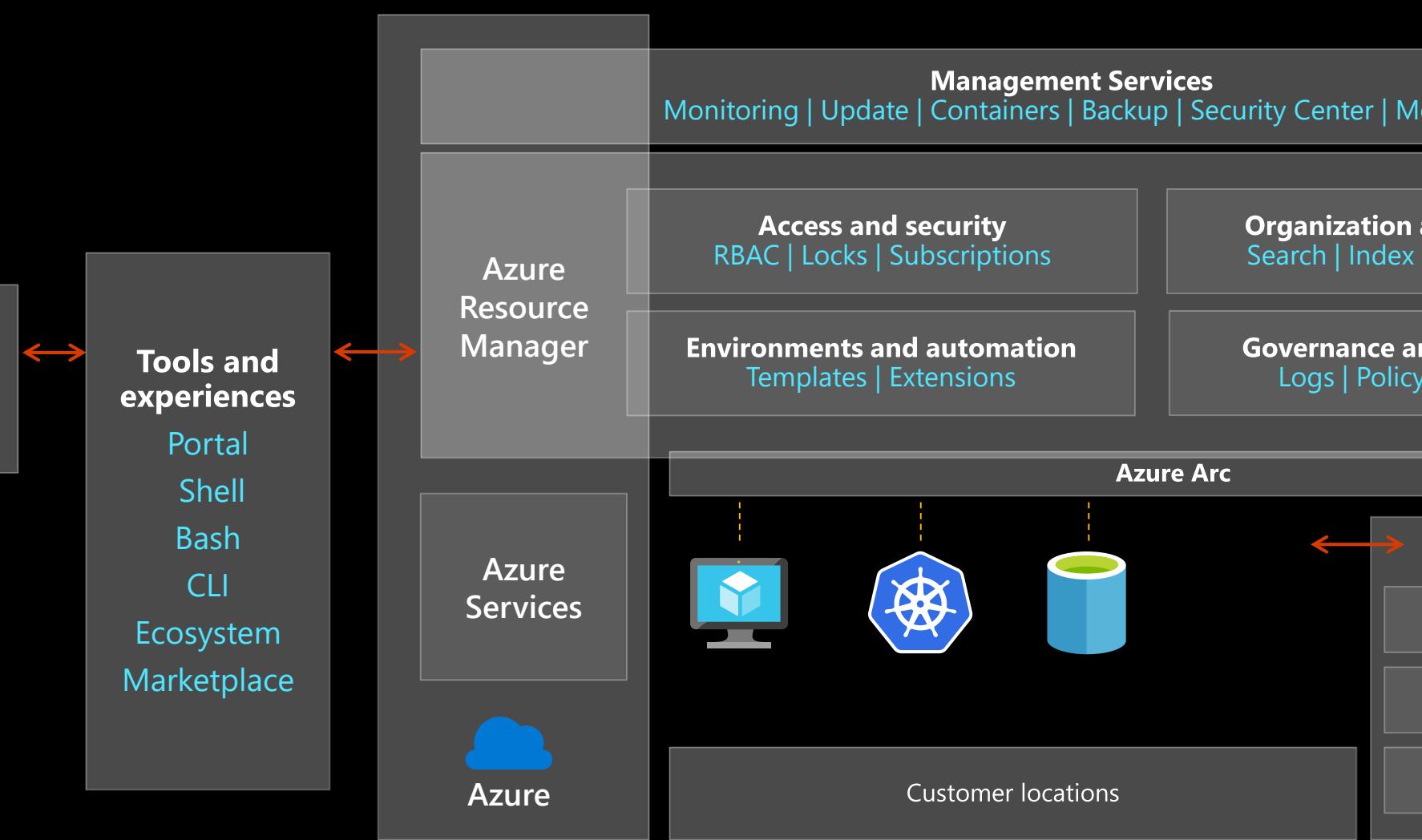
Azure Management

Single control plane for Azure resources



Azure Management

Single control plane for Azure resources



Azure Arc

<https://aka.ms/Azure-Arc>



Analytics & AI is the #1 investment for business leaders, however they struggle to maximize ROI

80%

report struggling to
become mature users of
data*

55%

as roadblocks*

report data silos and data
management difficulties

Businesses are forced to maintain
two critical, yet independent analytics systems

Big Data

- Experimentation
- Fast exploration
- Semi-structured data

Data Lake

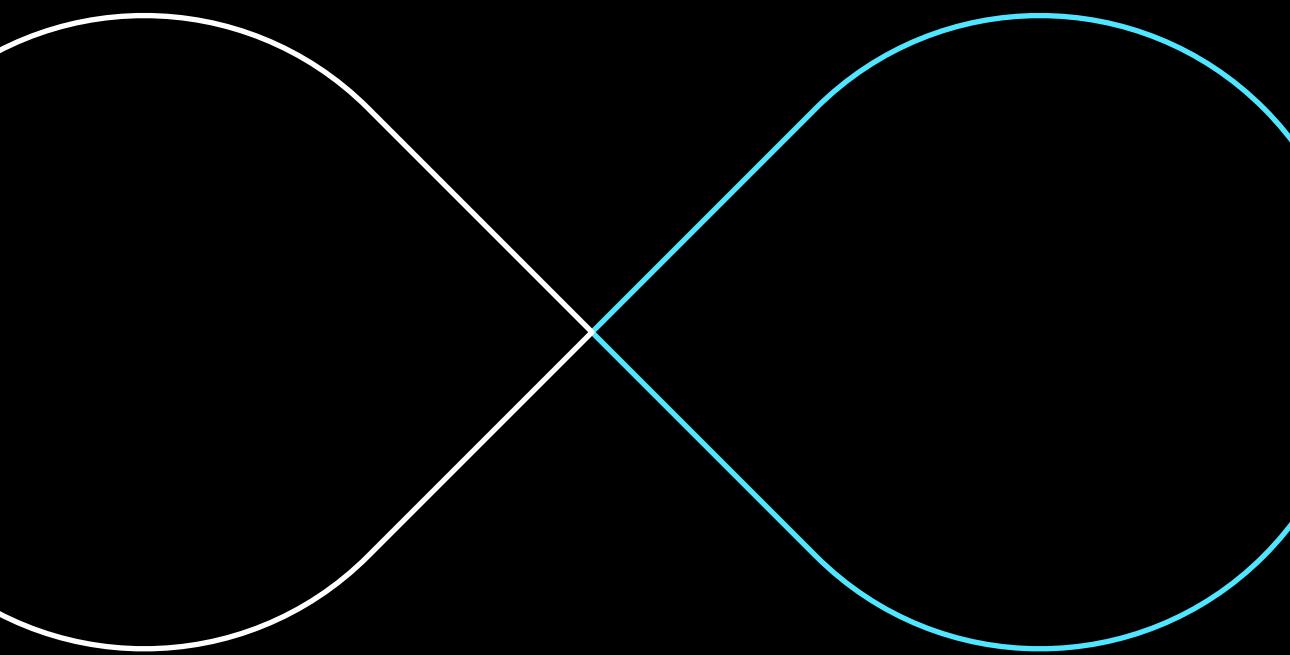
Relational Data

- Proven security & privacy
- Dependable performance
- Operational data

Data Warehouse

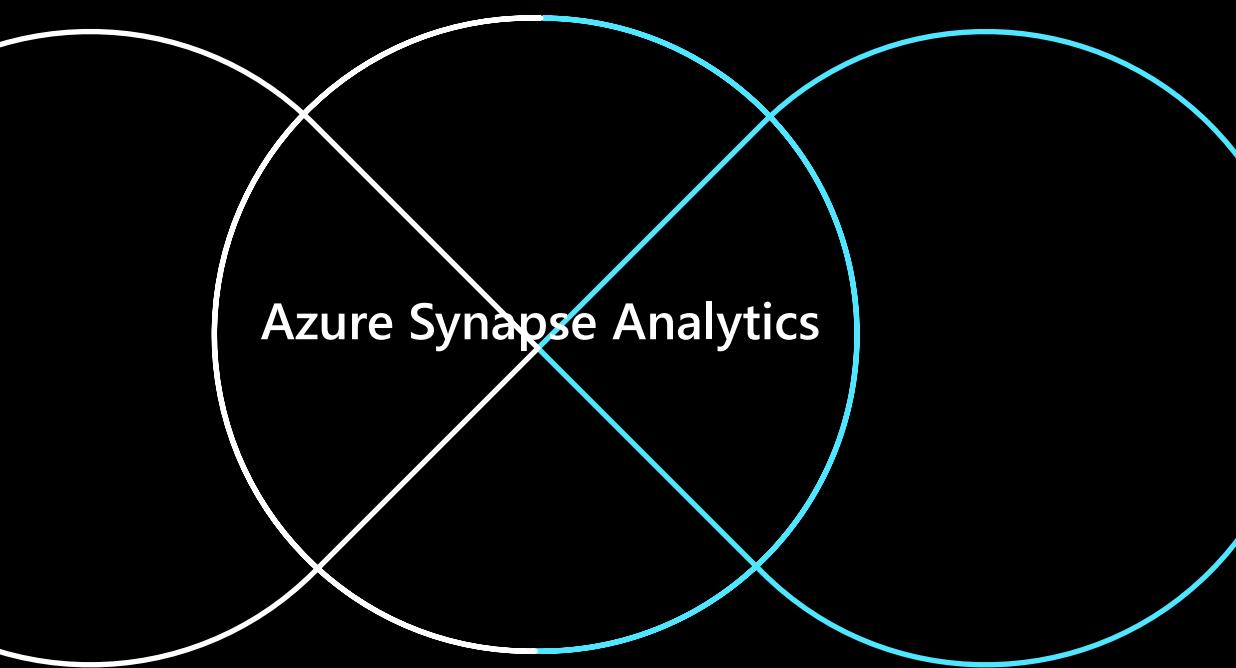
OR

Azure brings these two worlds together, in a single service,
to provide limitless analytics

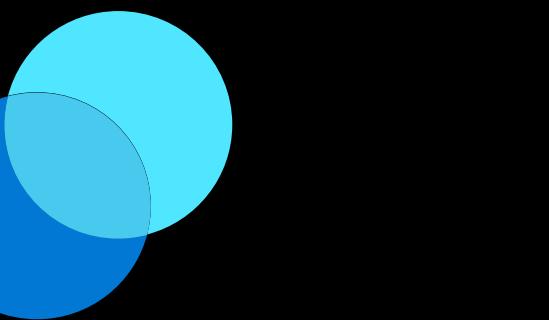


Data warehousing & big data analytics—all in one service

Azure brings these two worlds together, in a single service,
to provide limitless analytics



Data warehousing & big data analytics—all in one service



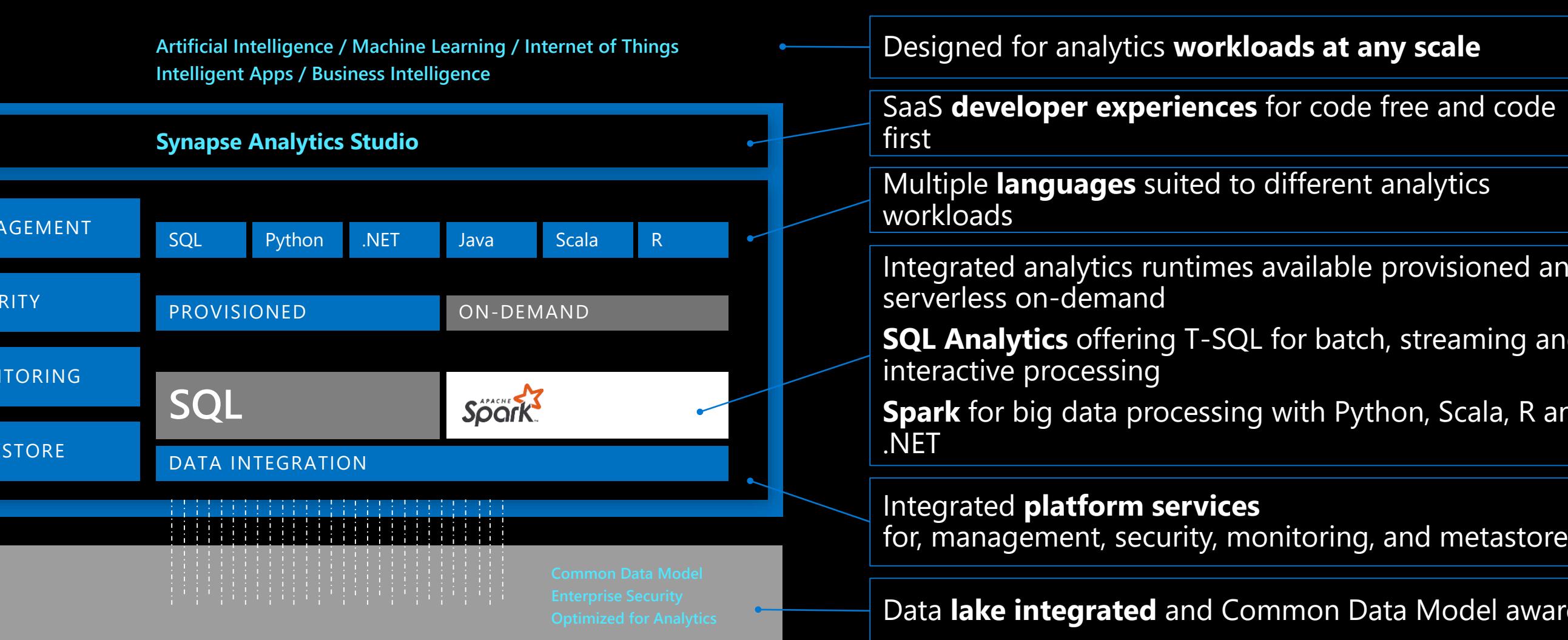
Introducing Azure Synapse Analytics

A **limitless** analytics service with **unmatched time to insight**, that delivers insights from all your data, **across data warehouses and big data** analytics systems, **with blazing speed**

Simply put, **Azure Synapse is Azure SQL Data Warehouse evolved**

We have taken the same industry leading data warehouse and elevated it to a whole new level of

Azure Synapse Analytics





Azure Synapse Demo



Romy Elmaco

Senior Cloud Solution Architect

Microsoft Indonesia

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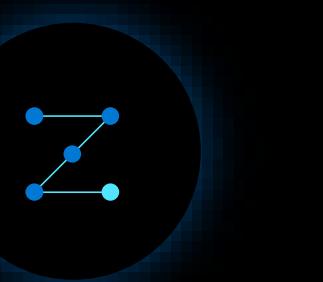
Azure Synapse Analytics



Limitless Scale



Powerful Insights



Unified Experience



Unmatched Security

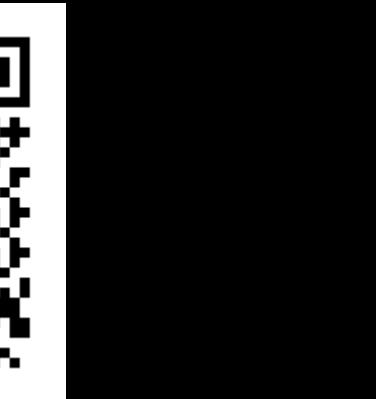
GENERALLY AVAILABLE

Provisioned Data Warehouse

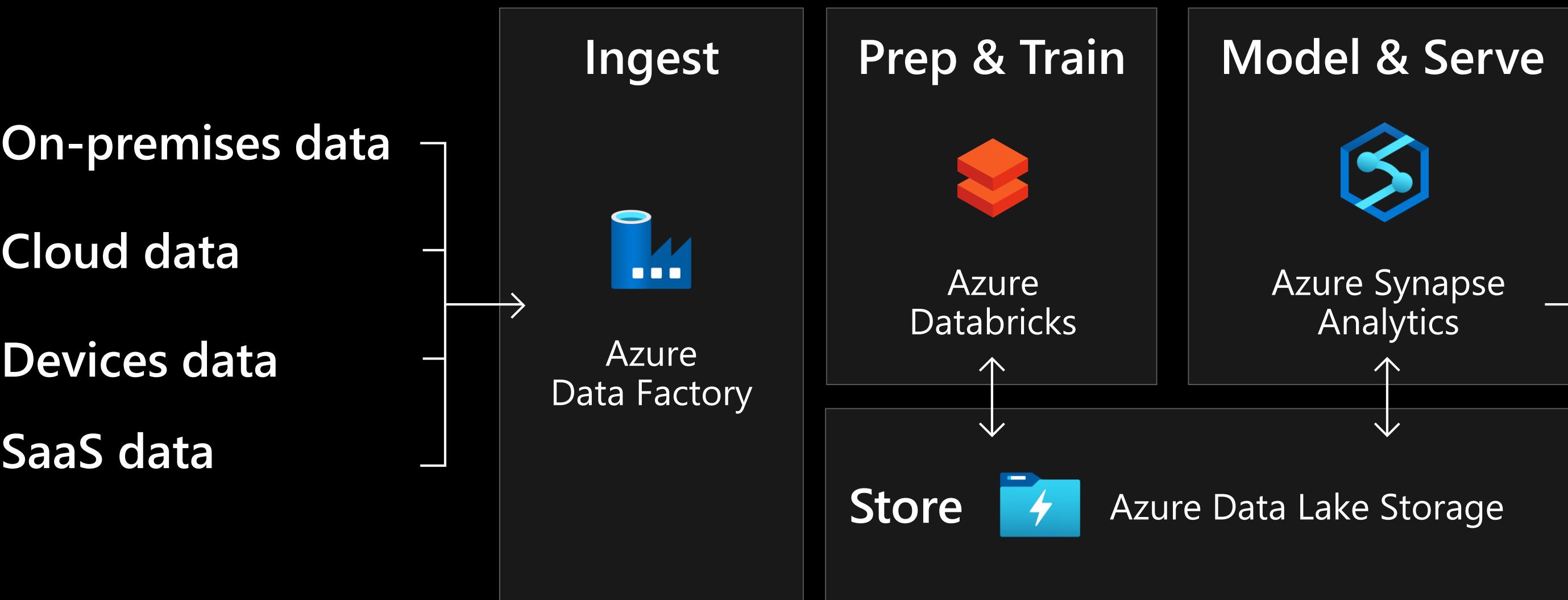
PREVIEW

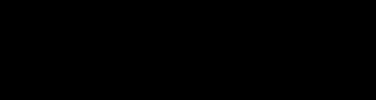
On-demand Query as a Service

<https://aka.ms/AzureSynapseAnalytics>



Azure Analytics





Real-life Machine Learning Journey



Fiki Setiyono
Senior Specialist
Microsoft Indonesia
linkedin.com/in/fikisetiyono

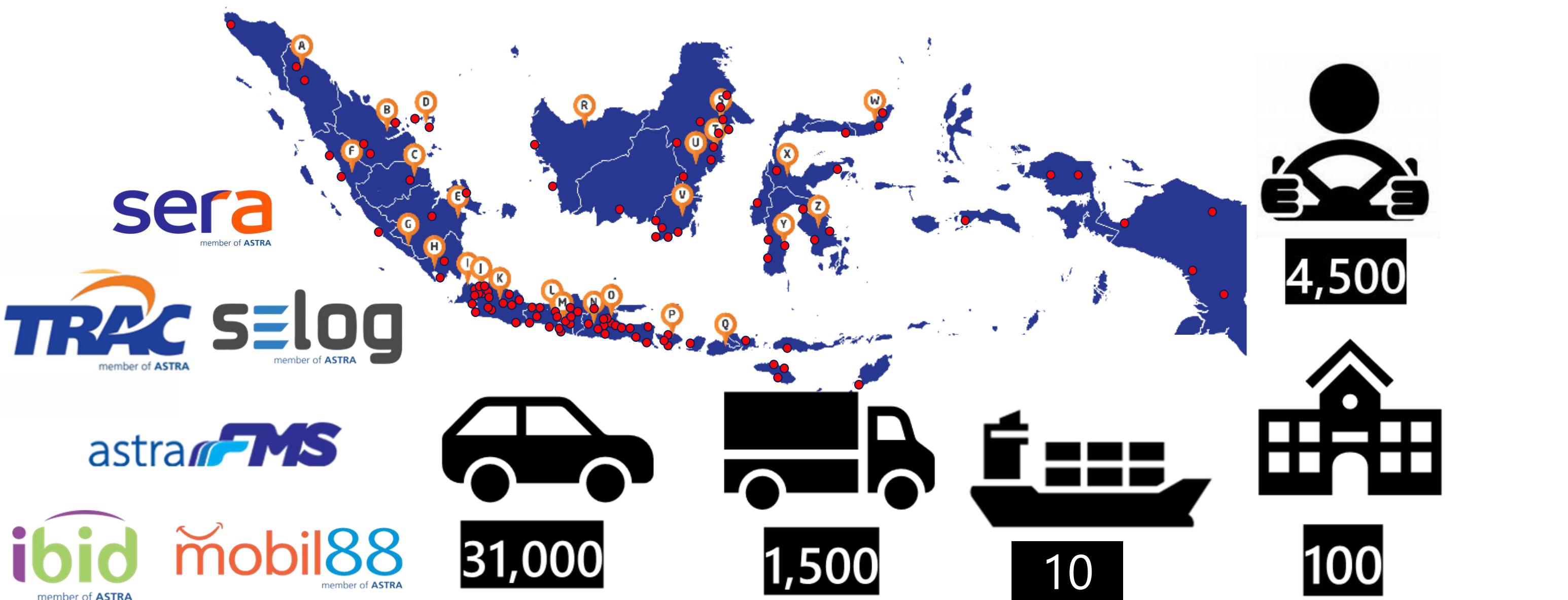


Farika Maharani
Data & Analytics Lead
Serasi Autoraya

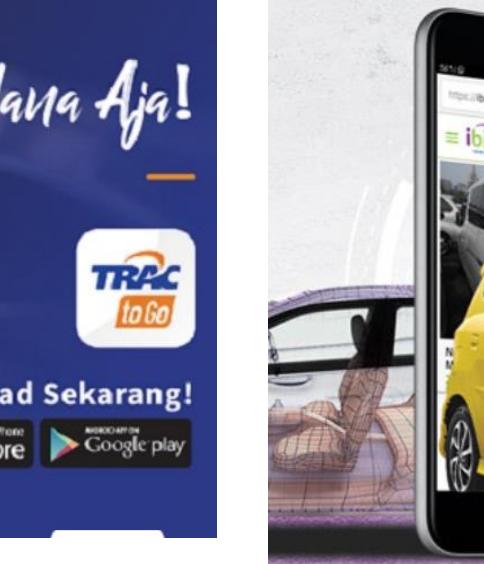
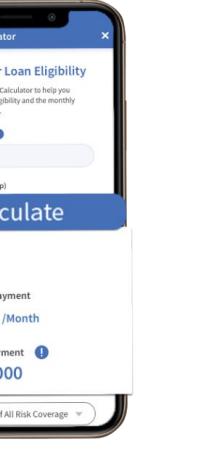
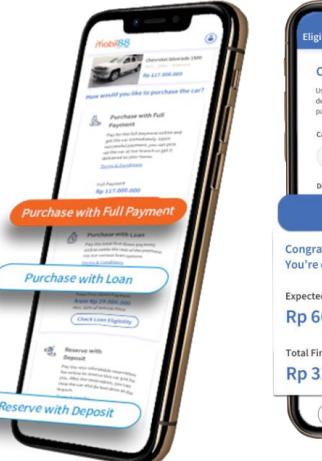
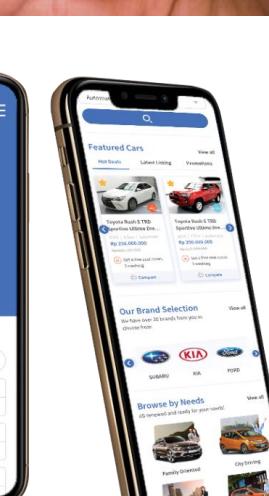
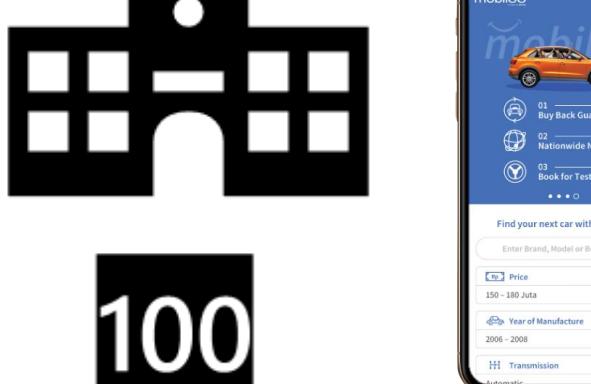
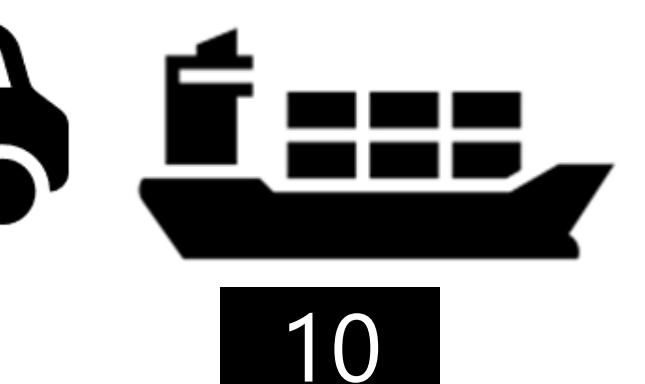
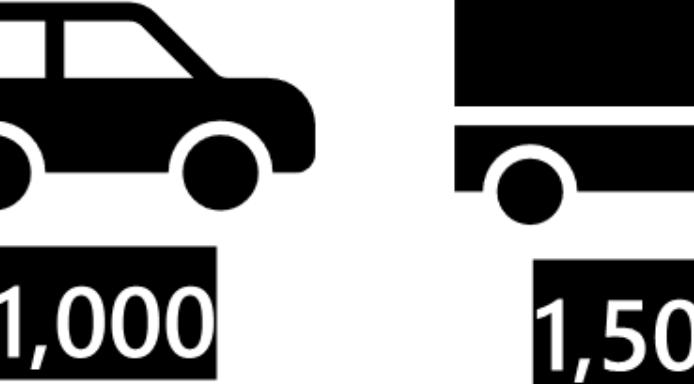
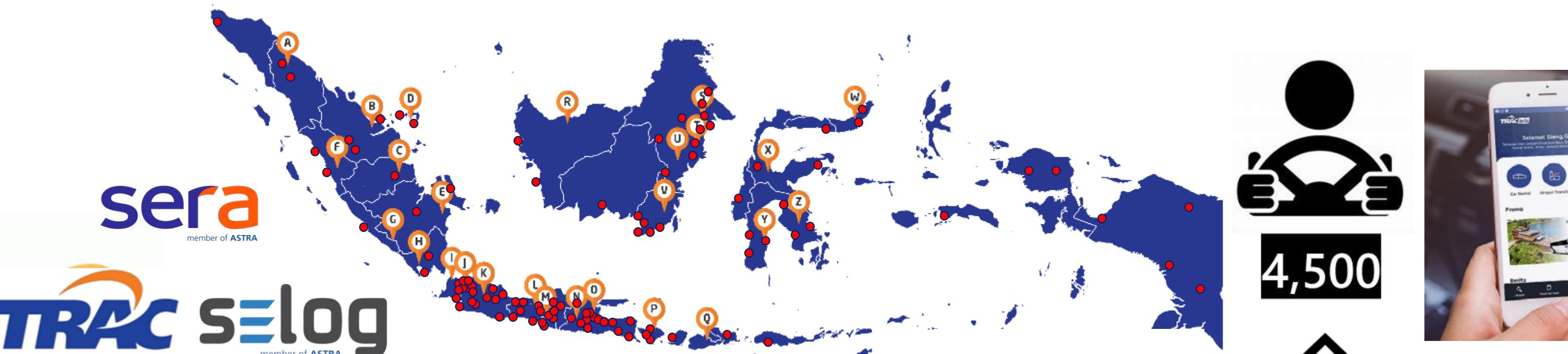
The journey to transform Indonesian Transportation Industry @ SERA



The journey to transform Indonesian Transportation Industry @ SERA



The journey to transform Indonesian Transportation Industry @ SERA

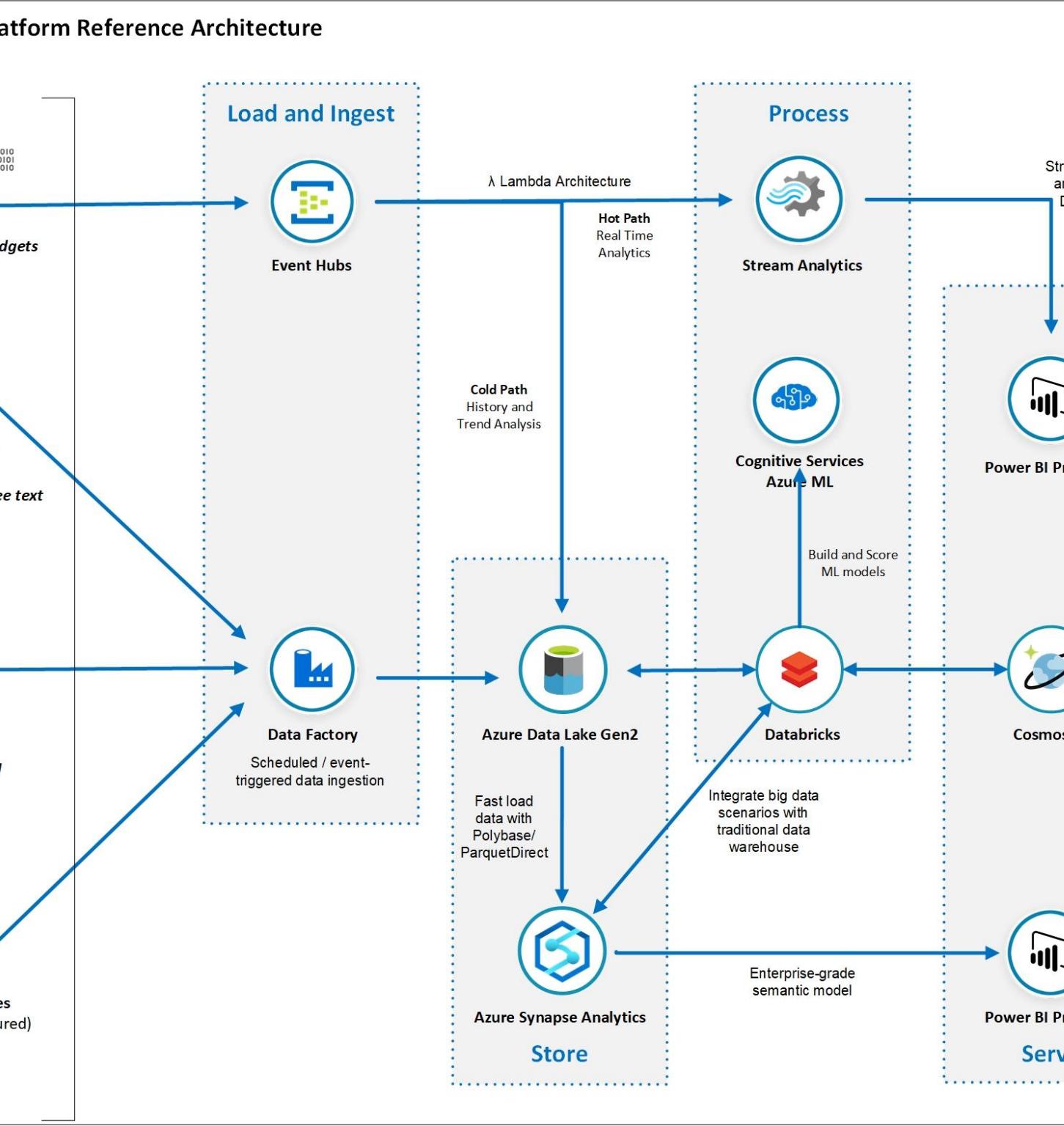


Mode B

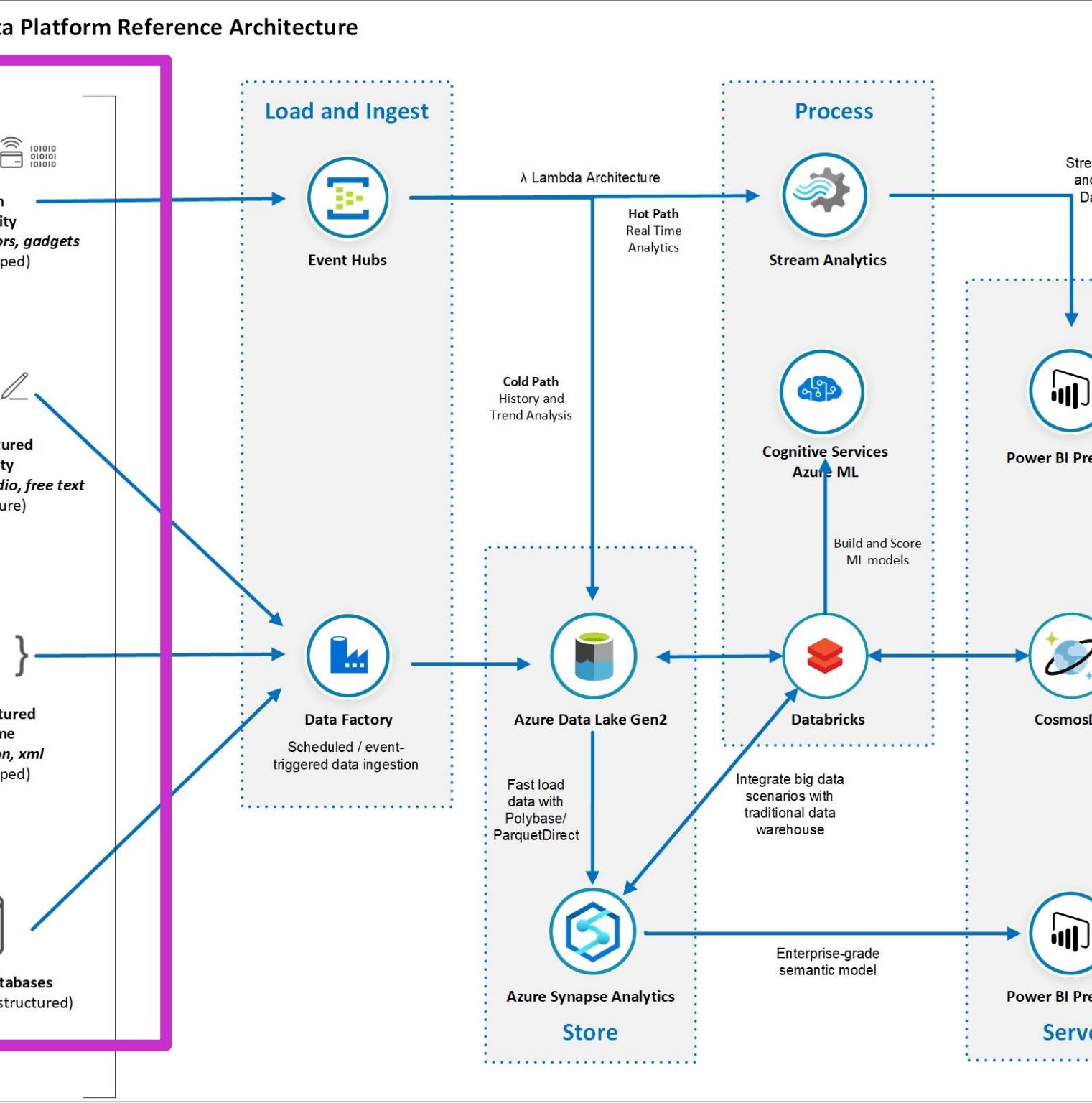
Saatnya menang lelang dari manapun kamu dengan inovasi baru IBID berikut ini

- Live Auction®
- Online Auction
- IBID Mobile Apps

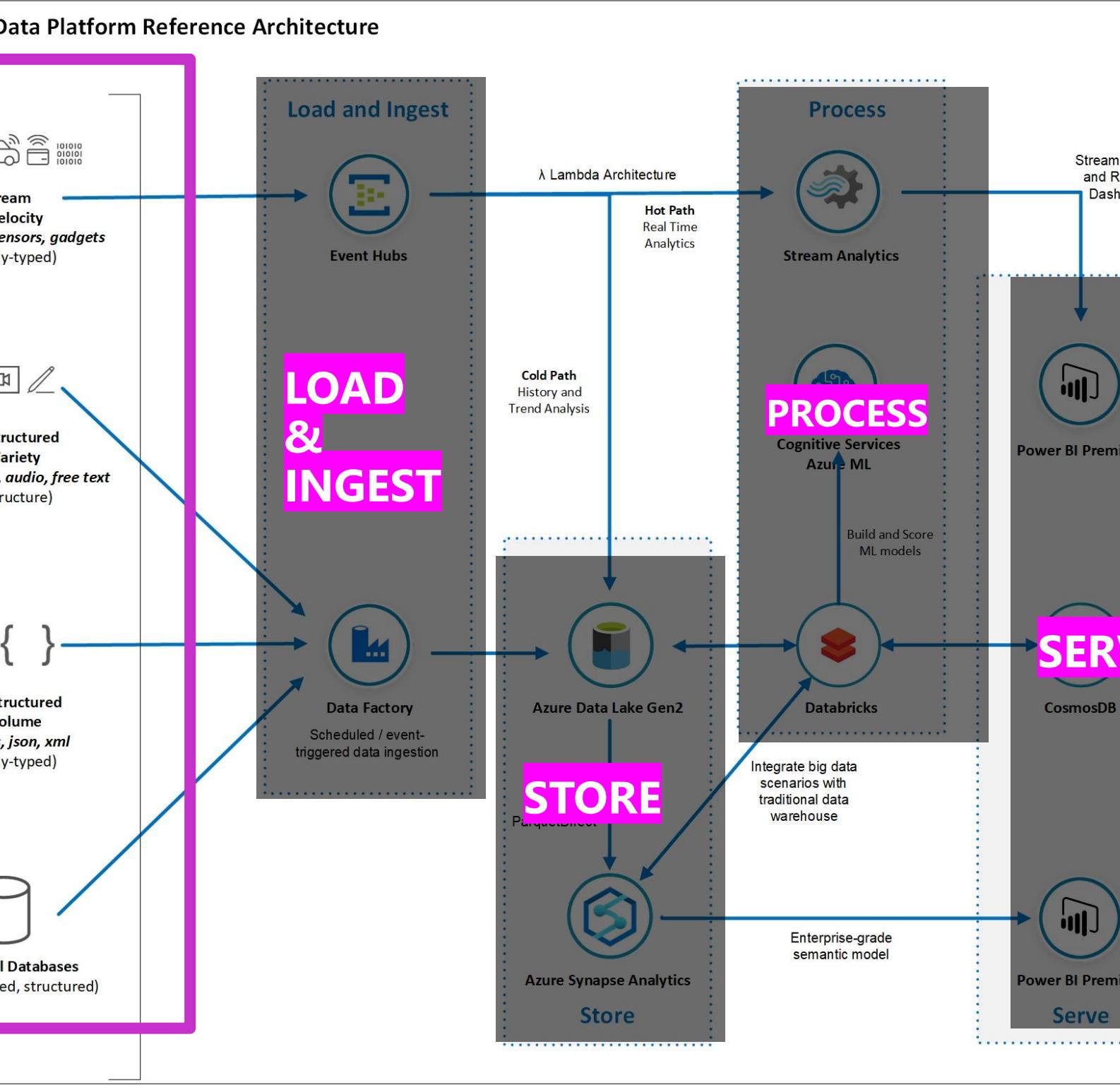
Architecting end-to-end data pipeline



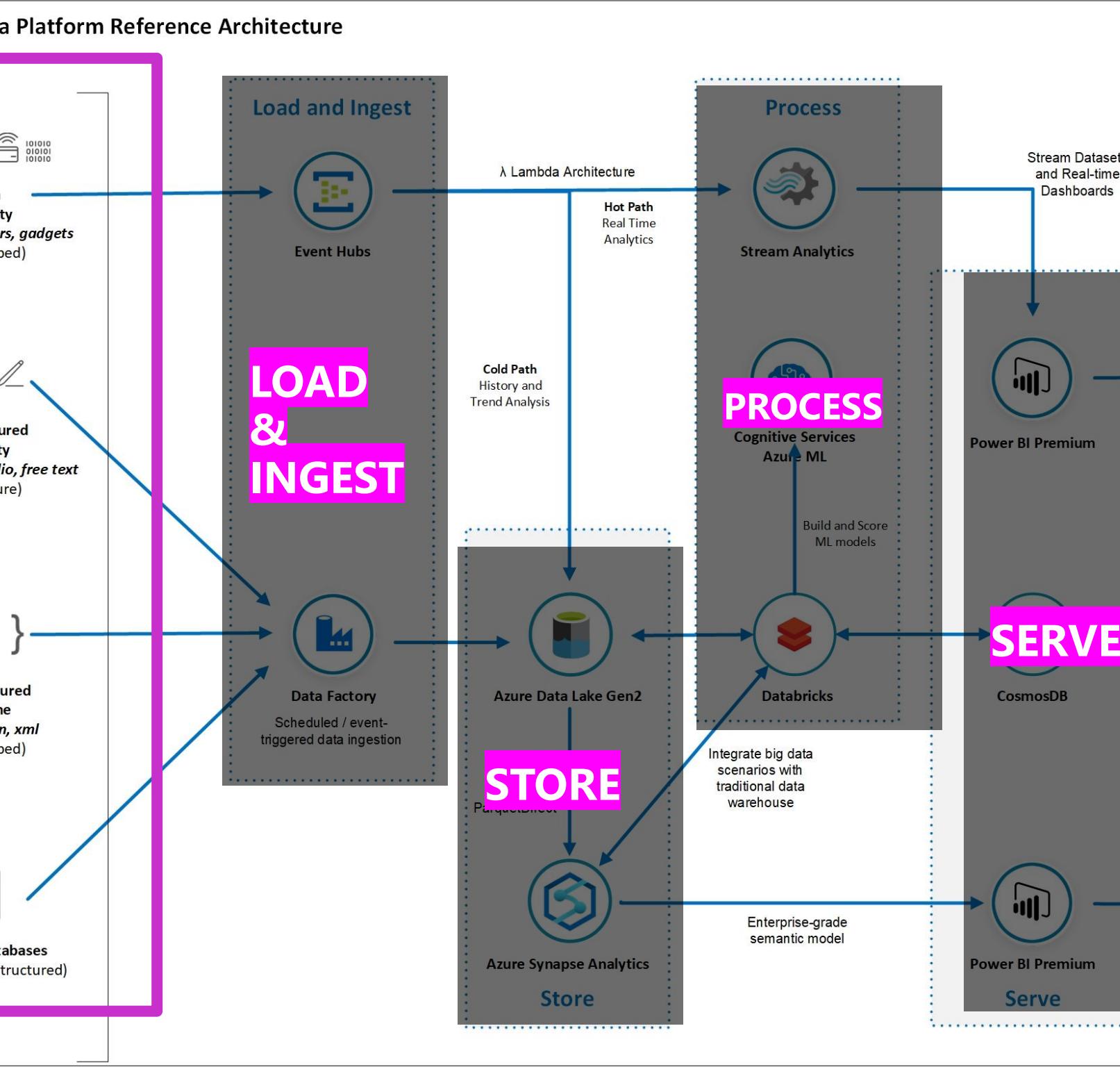
Architecting end-to-end data pipeline



Architecting end-to-end data pipeline

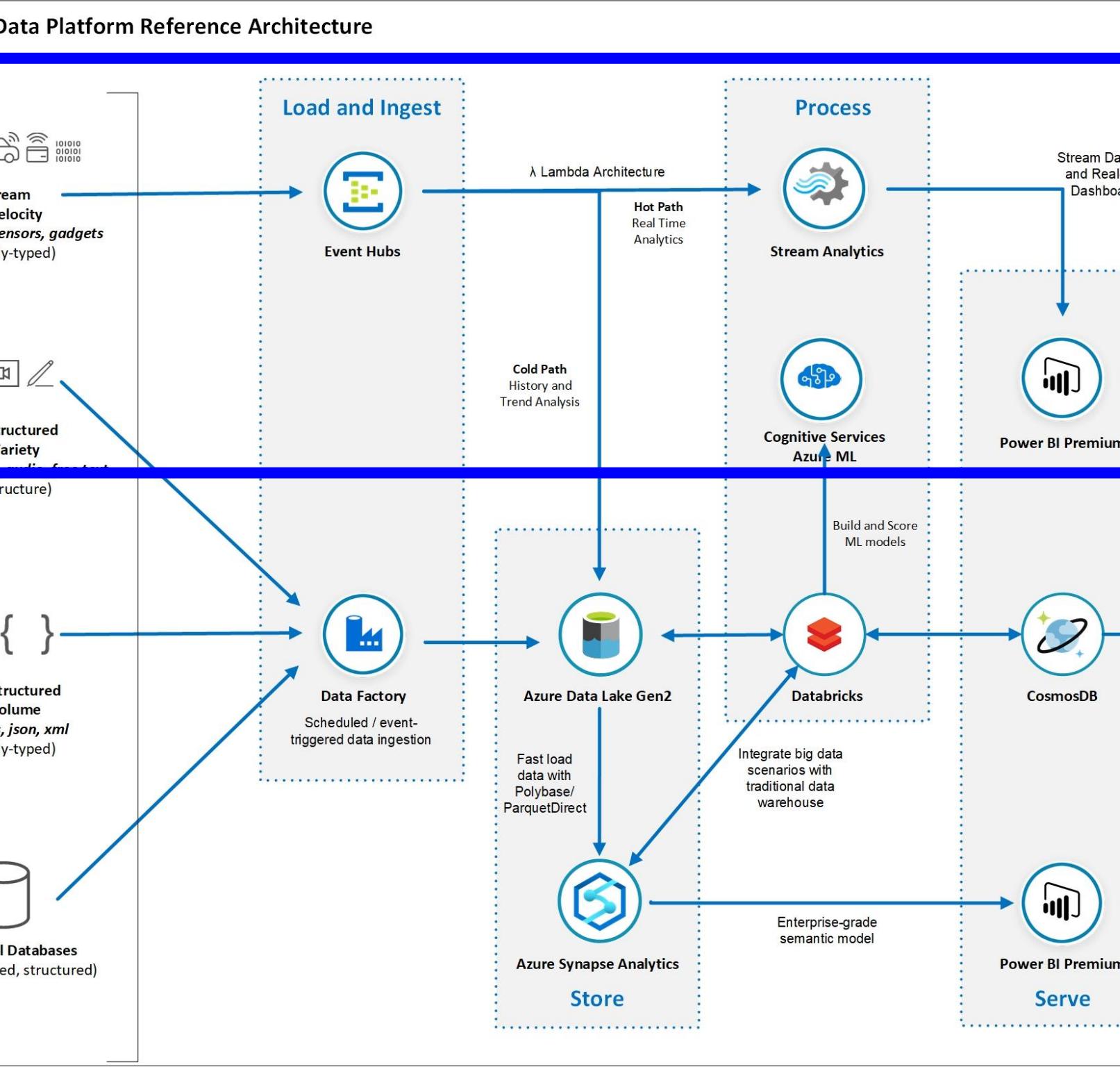


Architecting end-to-end data pipeline



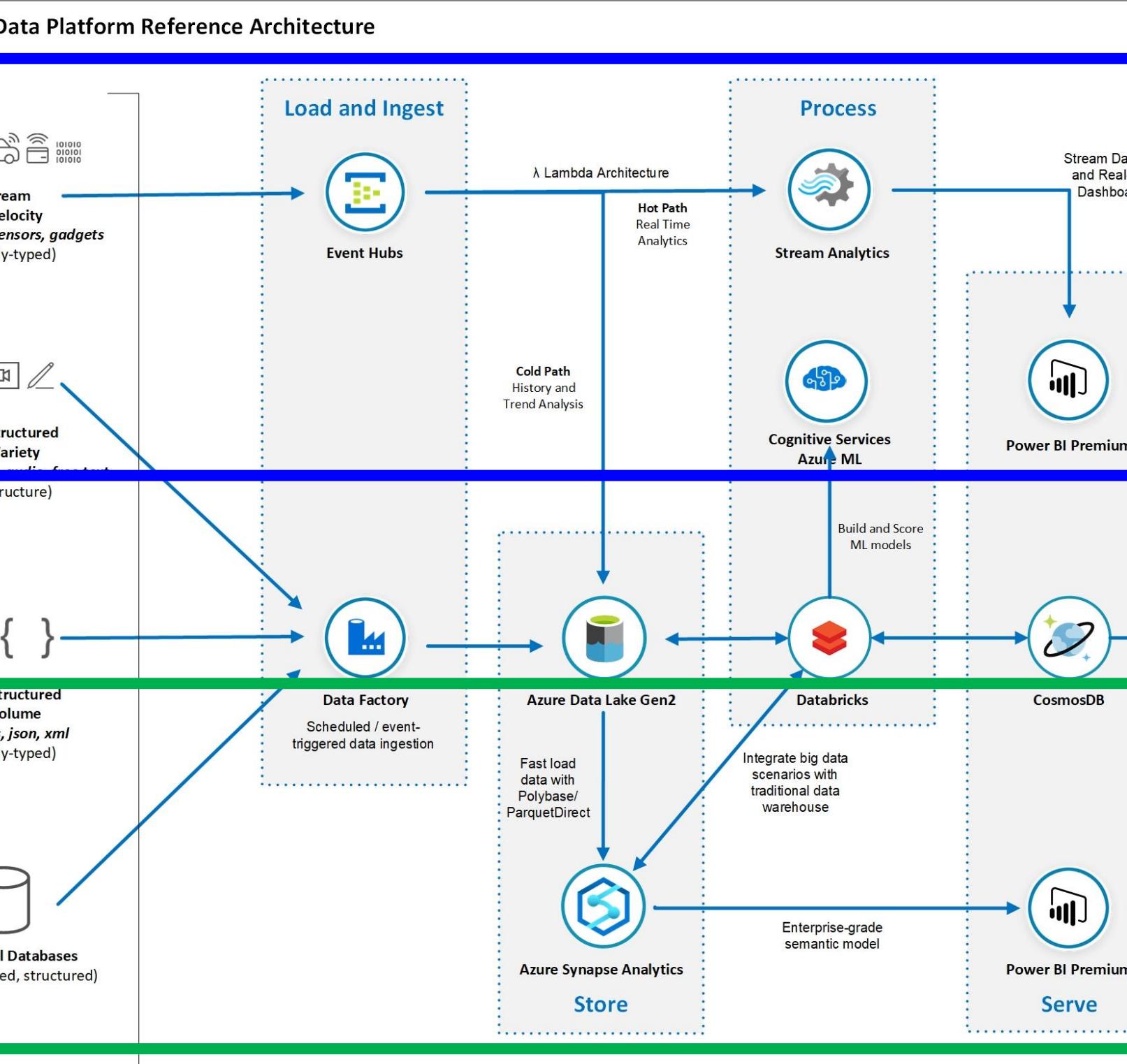
Building the analytics capabilities

The 'Hot Path' Real-time Analytics



Building the analytics capabilities

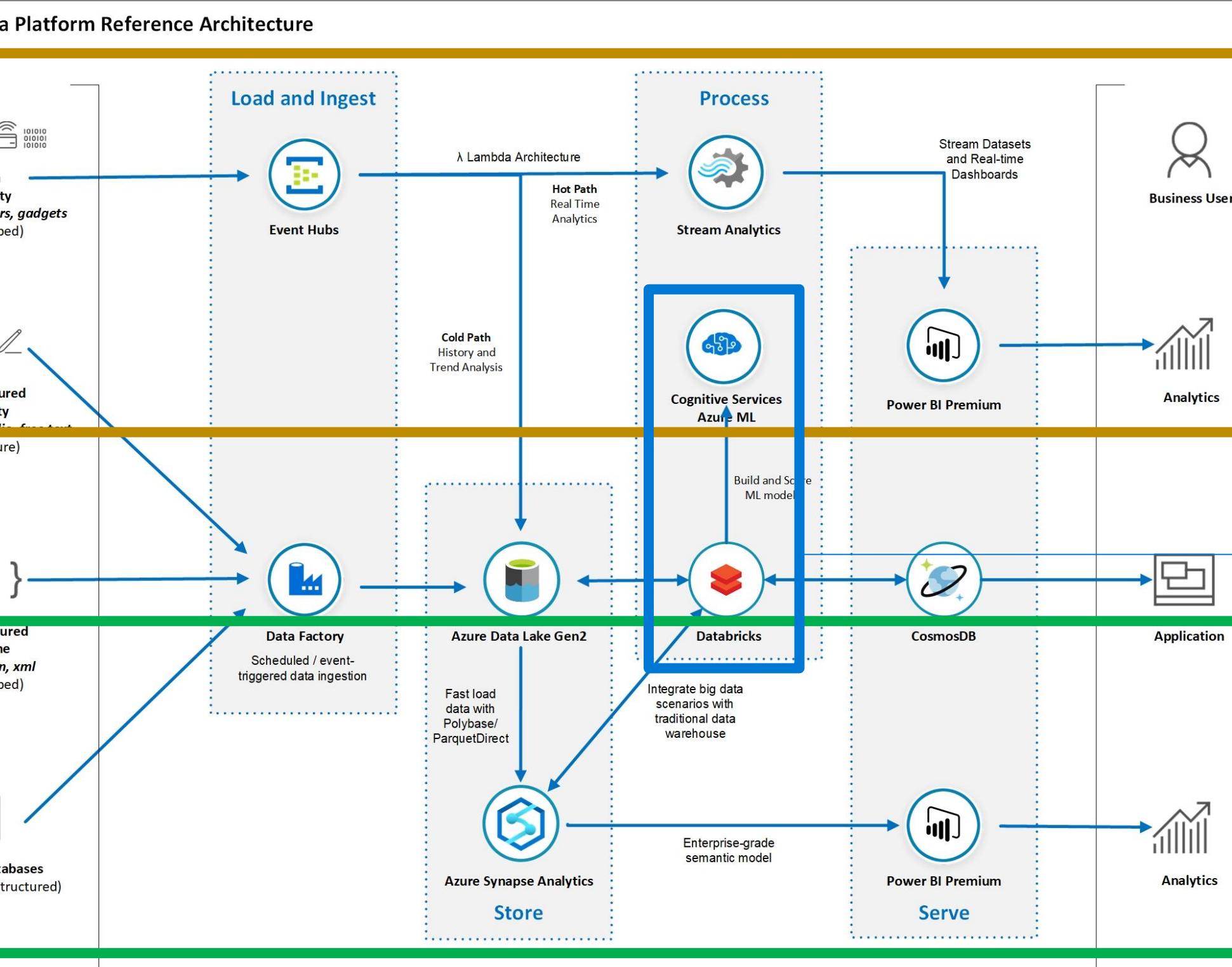
The 'Hot Path' Real-time Analytics



The 'Cold Path' Batch Processing

Building the analytics capabilities

The 'Hot Path' Real-time Analytics



The 'Cold Path' Batch Processing



Data Preparation : Data cleansing and transformation

Prepare

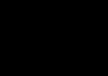


Prepare
Data

```
Cmd 21
1 sa . nd.fillna("UNKNOWN", inplace = True)
2 sa . nd = sa . nd.str.upper()
3 sa . nd = sa . nd.str.replace(" ", "")
4 sa . nd[sa . nd.str.contains("A ROLE")] = "HE ET"
5 sa . nd[sa . nd.str.contains("A A")] = "A"
6 sa . nd[sa . nd.str.contains("A EDE")] = "RC "
7 sa . nd[sa . nd.str.contains("A UBI")] = "TS HI"
8 sa . nd[sa . nd.str.contains("A S")] = "SW P"
9 sa . nd[sa . nd.str.contains("U _")] = "U WN"
```

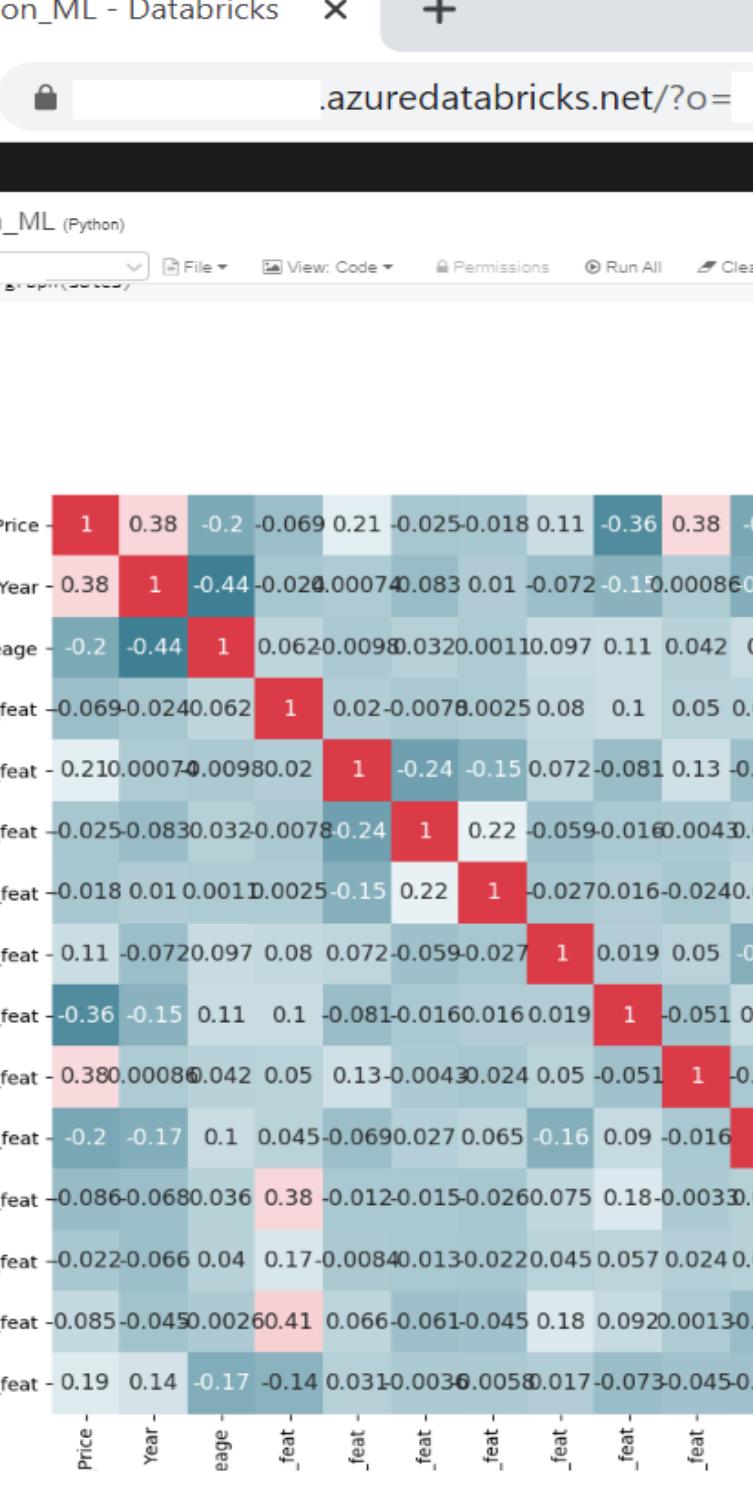
Data Preparation : Exploring data correlation

Prepare



```
Cmd 21
1 sa . nd.fillna("UNKNOWN", inplace = True)
2 sa . nd = sa . nd.str.upper()
3 sa . nd = sa . nd.str.replace(" ", "")
4 sa . nd[sa . nd.str.contains("ROLE")] = "HE LET"
5 sa . nd[sa . nd.str.contains("A")] = "A"
6 sa . nd[sa . nd.str.contains("EDE")] = "RC"
7 sa . nd[sa . nd.str.contains("UBI")] = "TS HI"
8 sa . nd[sa . nd.str.contains("S")] = "SW I"
9 sa . nd[sa . nd.str.contains([" ", " "])] = "U WN"
```

Prepare Data



Data Preparation : Exploring data correlation

Prepare



Prepare
Data

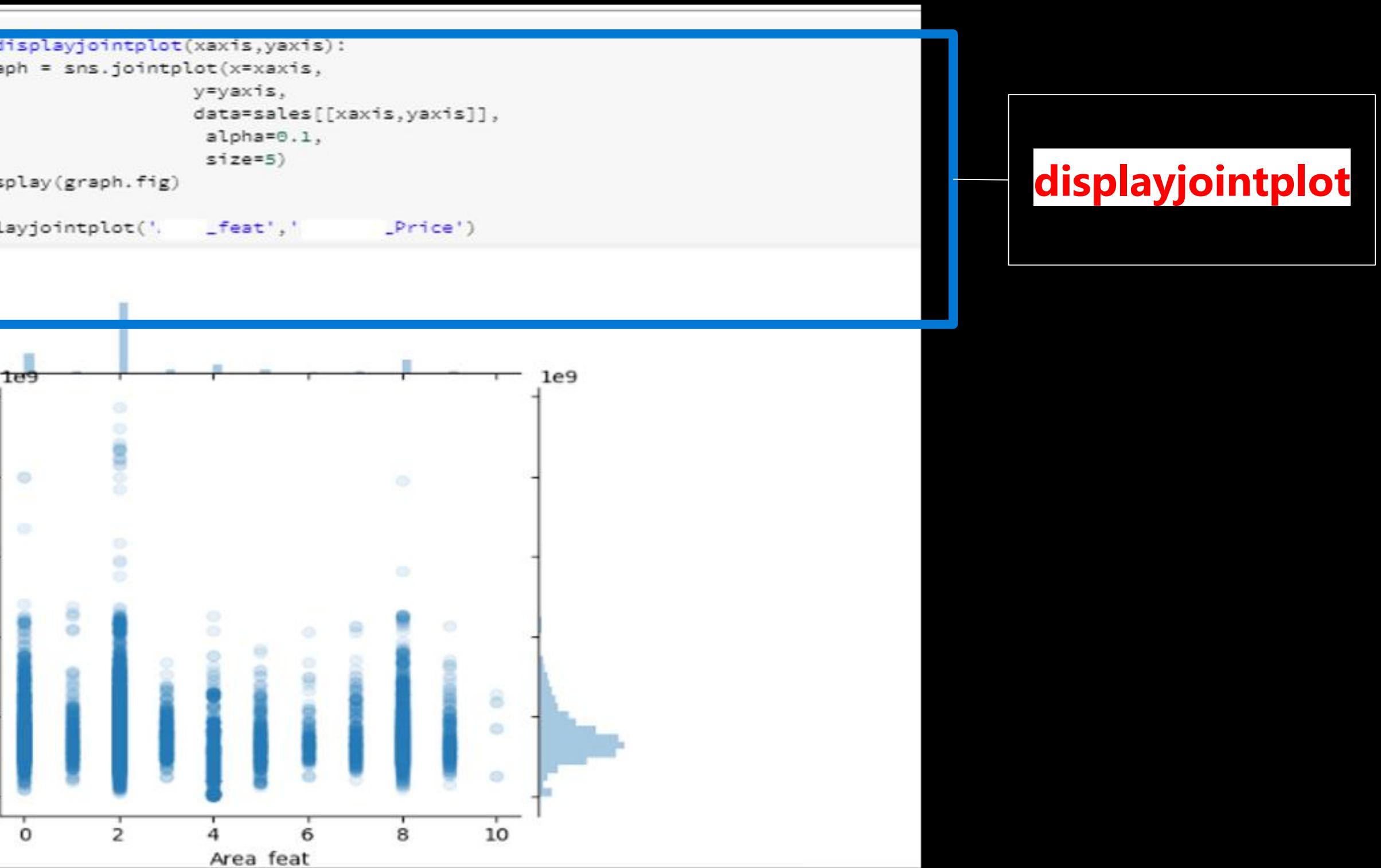
Microsoft Azure

Prediction_ML (Python)

Out[59]:

	Area	Area_feat
0	KI	2
357	LT	4
571	IG	0
753	BY	8
831	IG	9
845	DN	5
868	CB	6
875	LB	7
890	LP	1
905	PS	3
8486	UNKNOWN	10

Command took 0.02 seconds -- by

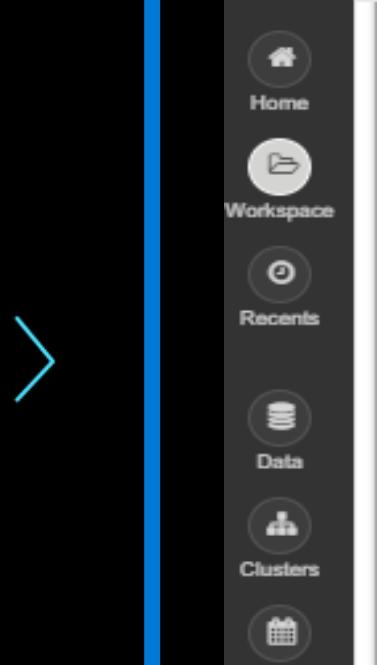


Experiment : Train and Test Model using AutoML



Build model
(your favorite IDE)

Experiment



Train &
Test Model

The screenshot shows a Microsoft Azure Databricks notebook titled "Prediction_ML - Databricks". The notebook interface includes a sidebar with icons for Azure Databricks, Home, Workspace, Recents, Data, Clusters, Jobs, and Search. The main area is a code editor with a Python script titled "Prediction". The code creates an AmlCompute cluster named "automldev". The output pane at the bottom shows the execution results:

```
from azureml.core.compute import ComputeTarget
# Choose a name for your cluster.
amlcompute_cluster_name = "automldev"

found = False
# Check if this compute target already exists in the workspace.
cts = ws.compute_targets
if amlcompute_cluster_name in cts and cts[amlcompute_cluster_name].type == 'AmlCompute':
    found = True
    print('Found existing compute target.')
    compute_target = cts[amlcompute_cluster_name]

if not found:
    print('Creating a new compute target...')
    provisioning_config = AmlCompute.provisioning_configuration(vm_size = "STANDARD_DS12_V2", # for GPU, use "STANDARD_NC6"
                                                               max_nodes = 2)

    # Create the cluster.\n",
    compute_target = ComputeTarget.create(ws, amlcompute_cluster_name, provisioning_config)

print("Checking cluster status...")
# Can poll for a minimum number of nodes and for a specific timeout.
# If no min_node_count is provided, it will use the scale settings for the cluster.
compute_target.wait_for_completion(show_output = True, min_node_count = None, timeout_in_minutes = 20)

# For a more detailed view of current AmlCompute status, use get_status().
```

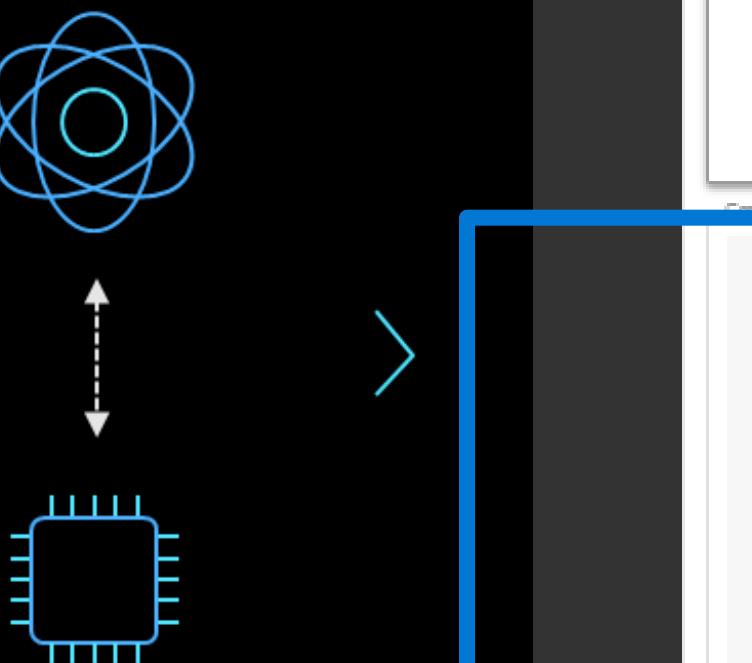
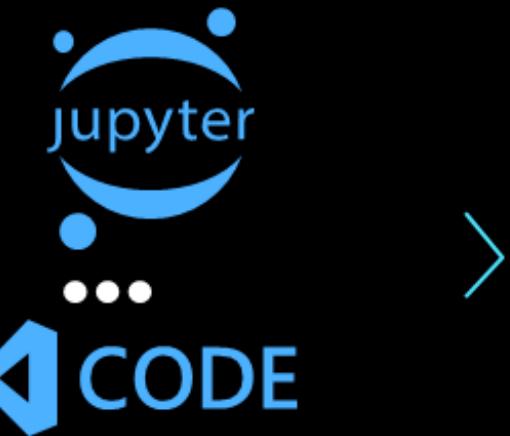
Output:

```
Found existing compute target.
Checking cluster status...
Succeeded
AmlCompute wait for completion finished
```

**Training
Model using
AMLCompute**

Experiment : Train and Test Model using AutoML

Experiment



Build model
(your favorite IDE)

Train &
Test Model

```
22     compute_target = ComputeTarget.create(ws, amlcompute_cluster_name, provisioning_config)
23
24 print("Checking cluster status...")
25 # Can poll for a minimum number of nodes and for a specific timeout.
26 # If no min_node_count is provided, it will use the scale settings for the cluster.
27 compute_target.wait_for_completion(show_output = True, min_node_count = None, timeout_in_minutes = 20)
28
29 # For a more detailed view of current AmlCompute status, use get_status().

Found existing compute target.
Checking cluster status...
Succeeded
AmlCompute wait for completion finished

Minimum number of nodes requested have been provisioned

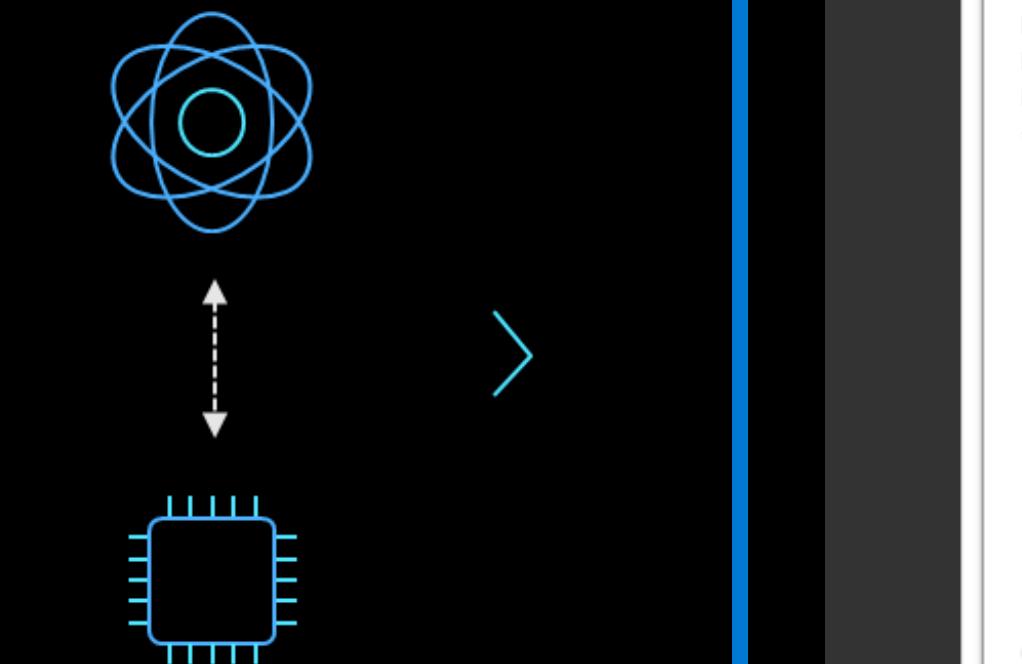
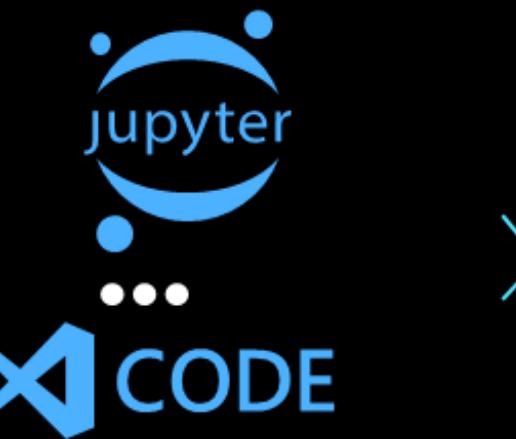
Command took 0.43 seconds -- by .astra.co.id at
```

```
1 automl_settings = {
2     "n_cross_validations": 5,
3     "primary_metric": 'r2_score',
4     "enable_early_stopping": True,
5     "experiment_timeout_hours": 0.3, #for real scenarios we recommend a timeout of at least one hour
6     "max_concurrent_iterations": 3,
7     "max_cores_per_iteration": -1,
8     "verbosity": logging.INFO
9 }
10
11 automl_config = AutoMLConfig(task = 'regression',
12                               compute_target = compute_target,
13                               training_data = train_data,
14                               label_column_name = label,
15                               experiment_timeout_hours=0.5,
16                               enable_early_stopping=True,
17                               n_cross_validations=10,
18                               verbosity=logging.INFO,
19                               primary_metric = 'r2_score'
20 )
```

**AutoML
Configuration**

Experiment : Train and Test Model using AutoML

Experiment



Build model
(your favorite IDE)

Train &
Test Model

Cmd 54

```
1 | remote_run = experiment.submit(automl_config, show_output = True)

Running on remote compute: automldev
Parent Run ID: AutoML_
abc595dbf78b

Current status: DatasetCrossValidationSplit. Generating individually featurized CV splits.
Current status: ModelSelection. Beginning model selection.

*****
ITERATION: The iteration being evaluated.
PIPELINE: A summary description of the pipeline being evaluated.
DURATION: Time taken for the current iteration.
METRIC: The result of computing score on the fitted pipeline.
BEST: The best observed score thus far.
*****

ITERATION PIPELINE DURATION METRIC BEST
0 StandardScalerWrapper LightGBM 0:02:27 0. 04 0. 04
1 MaxAbsScaler LightGBM 0:02:53 0. 37 0. 04
2 SparseNormalizer RandomForest 0:09:04 0. 29 0. 04
3 StandardScalerWrapper ElasticNet 0:03:45 0. 57 0. 04
4 StandardScalerWrapper LightGBM 0:02:29 0. 45 0. 04
5 StandardScalerWrapper XGBoostRegressor 0:02:29 0. 22 0. 04
6 MaxAbsScaler RandomForest 0:02:49 0. 49 0. 04
7 MaxAbsScaler ExtremeRandomTrees 0:02:26 0. 26 0. 04
8 MaxAbsScaler GradientBoosting 0:01:22 0. 05 0. 04
9 VotingEnsemble 0:02:45 0. 05 0. 05
10 StackEnsemble 0:02:37 0. 68 0. 68

Command took 48.87 minutes -- by
```

Cmd 55

```
+| remote_run
```

Out[20]:

m88-	Experiment	Id
price-automl	AutoML_	3f65e77

Command took 0.02 seconds -- by

AutoML Result

Register: Build Image and Deploy Model

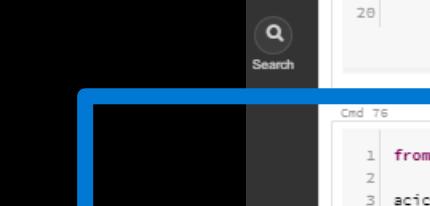
Deploy



Register and Manage Model



Build Image



Deploy Service Monitor Model

```
Prediction (2) (1) (Python)
Azure Databricks Home Workspace Recents Data Clusters Jobs Search
Cmd 75
2 conda_env_file_name = 'mlenv.yml'
3 model_id = 'AutoML' best
4
5 with open(conda_env_file_name, 'r') as cefr:
6     content = cefr.read()
7
8 with open(conda_env_file_name, 'w') as cefw:
9     cefw.write(content.replace('0.1.80', dependencies['azureml-sdk']))
10
11 # Substitute the actual model id in the script file.
12
13 script_file_name = '...Score.py'
14
15 with open(script_file_name, 'r') as cefr:
16     content = cefr.read()
17
18 with open(script_file_name, 'w') as cefw:
19     cefw.write(content.replace(model_id, local_run.model_id))

Cmd 76
1 from azureml.core.webservice import AciWebservice, Webservice
2 aciconfig = AciWebservice.deploy_configuration(cpu_cores=1,
3     memory_gb=1,
4     tags={'area': 'automl'},
5     description='')
6
7 Cmd 77
1 from azureml.core.image import ContainerImage
2 image_config = ContainerImage.image_configuration(execution_script="Score.py",
3     runtime="python",
4     conda_file="mlenv.yml")

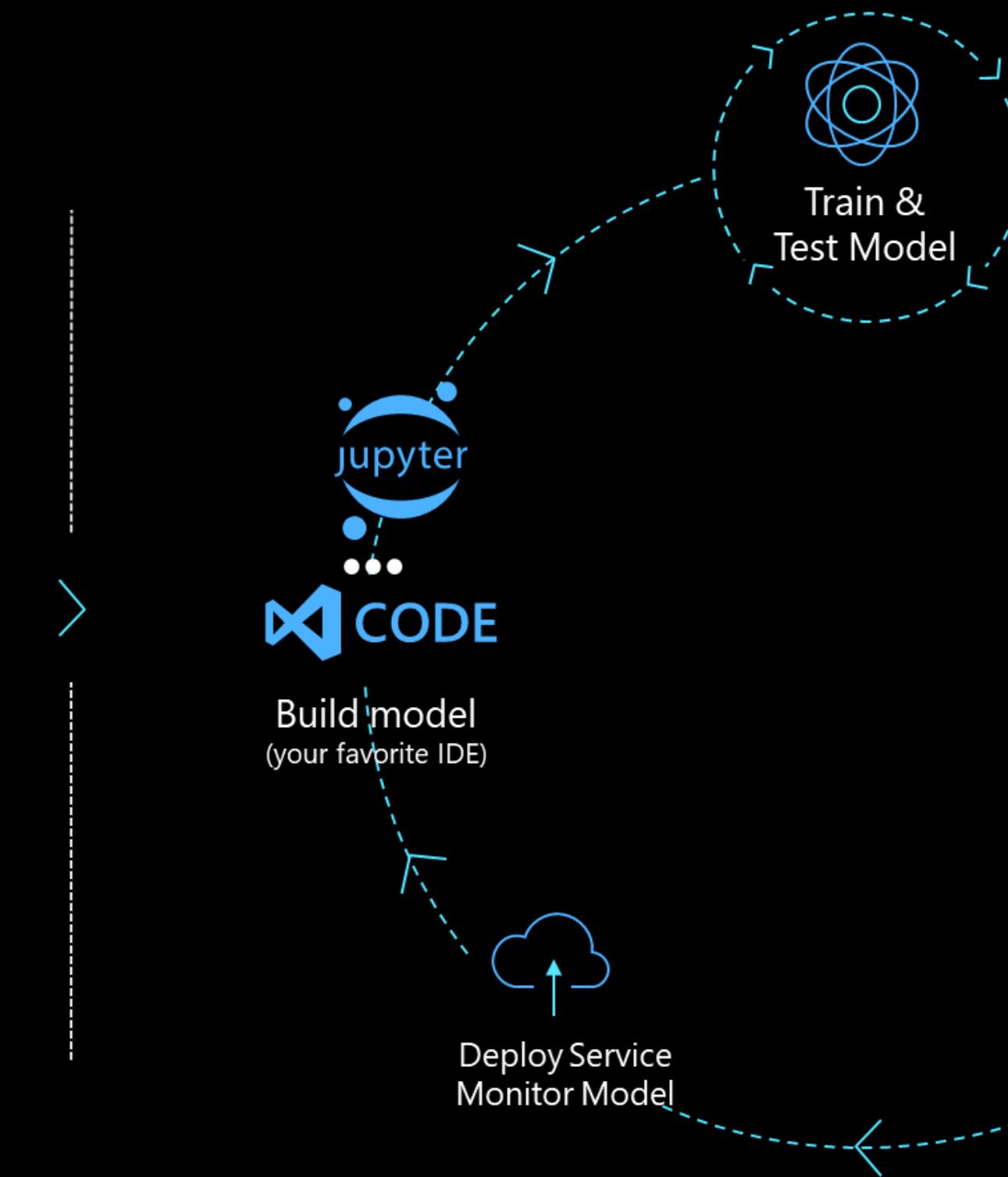
Cmd 78
1 #stime
2 # this will take 5-10 minutes to finish
3 # you can also use "az container list" command to find the ACI being deployed
4 service = Webservice.deploy_from_model(name='...1',
5     deployment_config=aciconfig,
6     models=[model],
7     image_config=image_config,
8     workspace=ws)
9
10 service.wait_for_deployment(show_output=True)
```

Generate API to Connect Other System

Delivering the insights. Past. Present. Future.



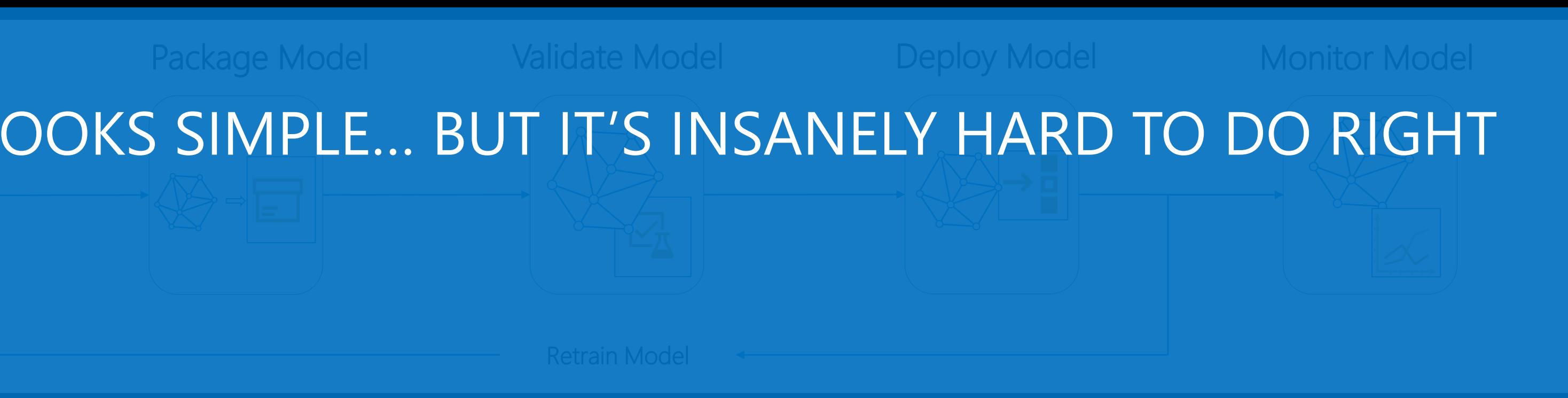
MLOps: DevOps loop for data science



MLOps == ML + DevOps

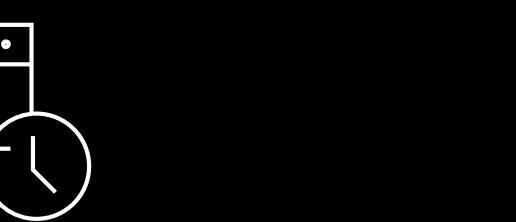
What does the Machine Learning Lifecycle look like?

- **Develop & train model** that solves a real business problem
- **Package model** so you can use it somewhere else
- **Validate model behavior** – functionally, in terms of responsiveness, in terms of regulatory compliance
- **Deploy model** – use the model to make predictions
- **Monitor model** behavior & business value, know **when to replace / deprecate a stale model**



MLOps == How to bring ML to production

Bring together **people**, **process**, and **platform** to automate ML-infused software delivery & provide continuous value to our users.



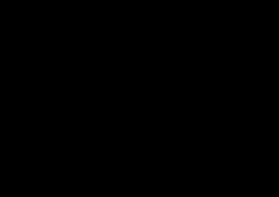
People

- Blend together the work of individual engineers in a repository.
- Each time you commit, your work is automatically built and tested, and bugs are detected faster.
- Code, data, models and training pipelines are shared to accelerate innovation.

101010
010101
101010

Process

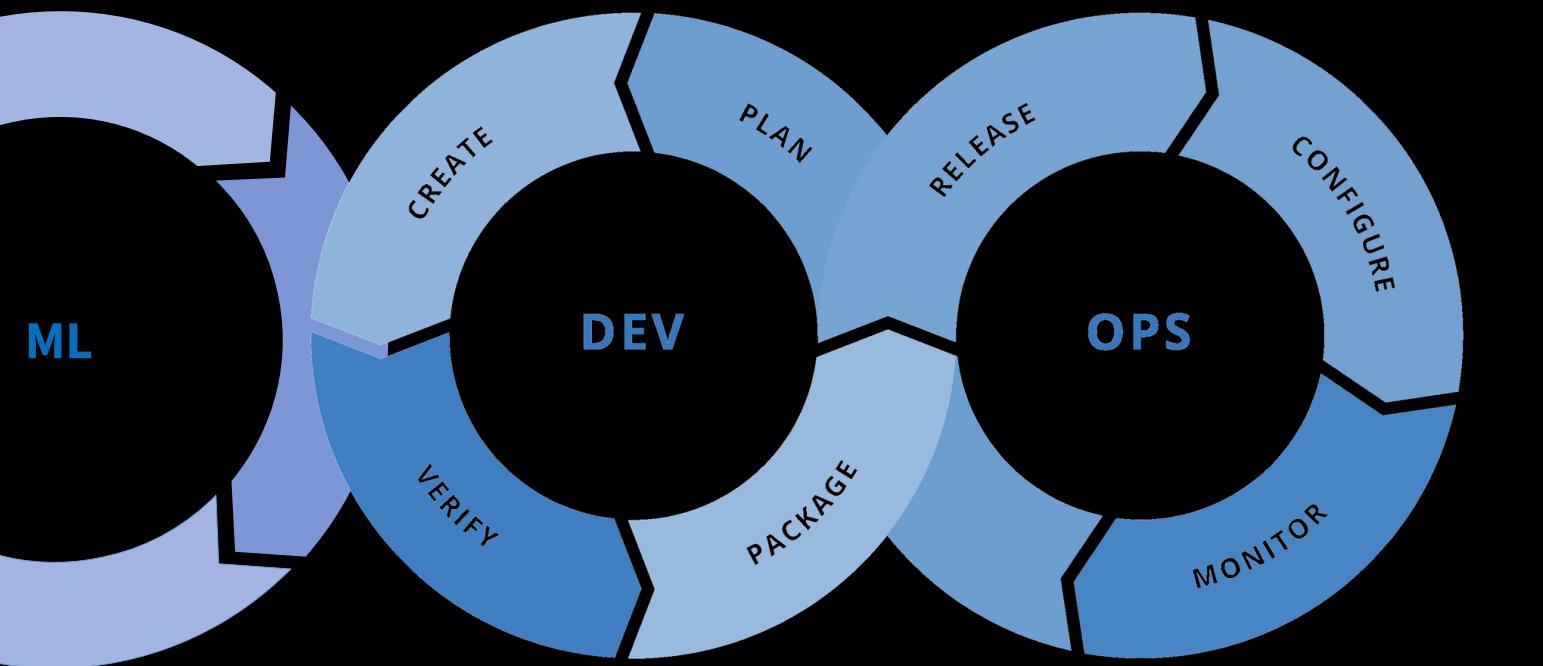
- Provide templates to bootstrap your infrastructure and model development environment, expressed as code.
- Automate the entire process from code commit to production.



Platform

- Safely deliver features to your customers as soon as they're ready.
- Monitor your pipelines, infrastructure and products in production and know when they aren't behaving as expected.

MLOps = ML ❤️ DEV ❤️ OPS



Experiment

Data Acquisition
Business Understanding
Initial Modeling

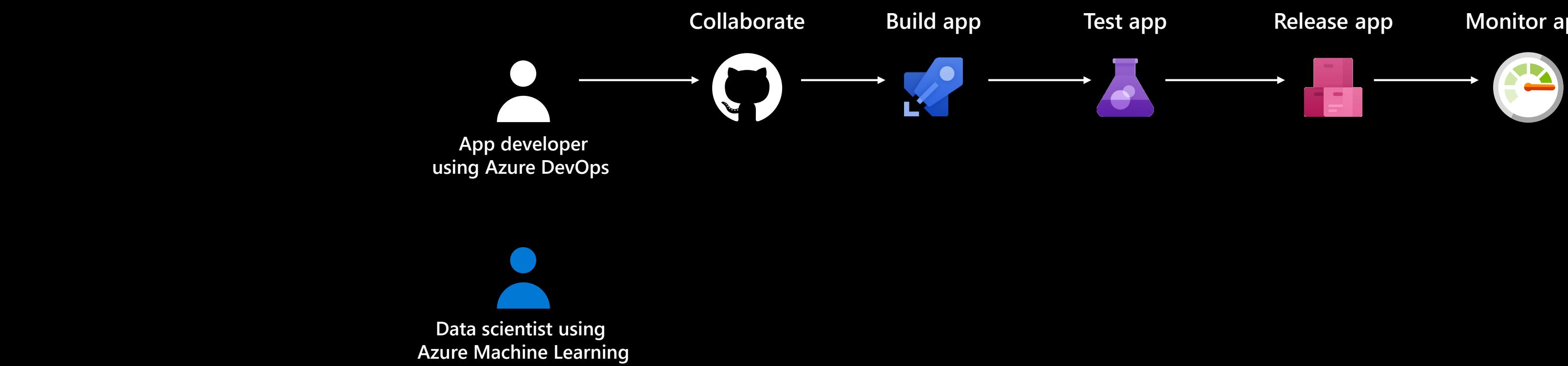
Develop

Modeling + Testing
Continuous Integration
Continuous Deployment

Operate

Continuous Delivery
Data Feedback Loop
System + Model Monitoring

MLOps Workflow



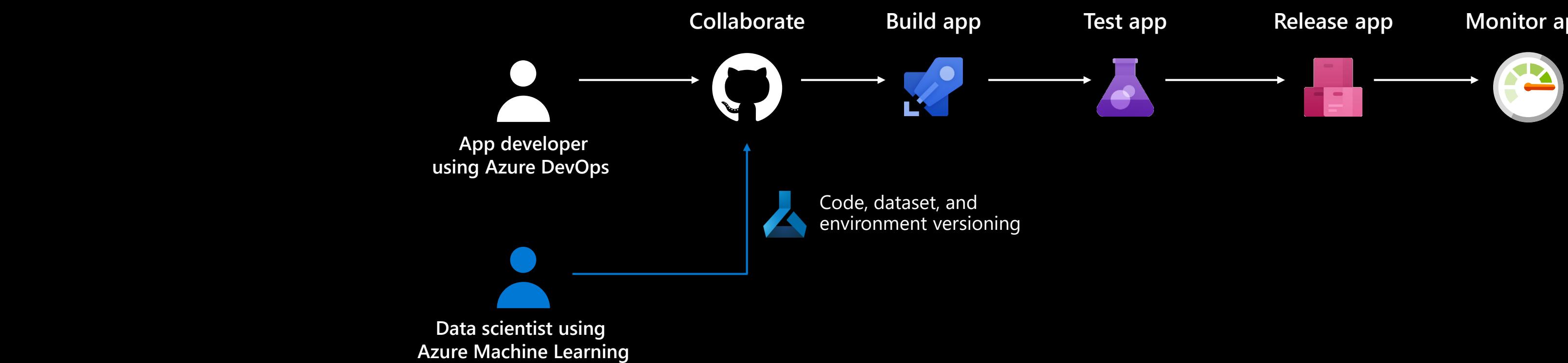
✗ Model reproducibility

✗ Model validation

✗ Model deployment

✗ Model retraining

MLOps Workflow



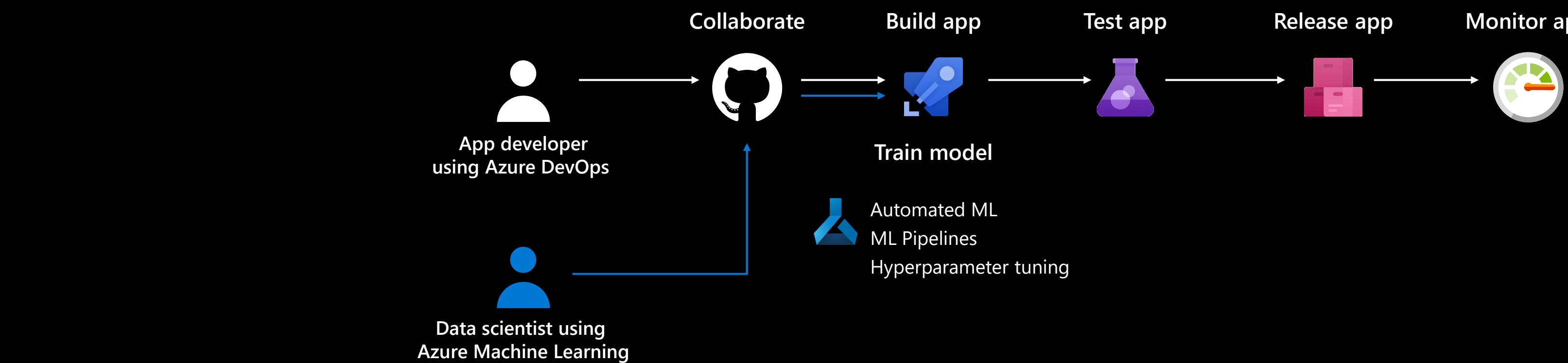
✓ Model reproducibility

✗ Model validation

✗ Model deployment

✗ Model retraining

MLOps Workflow



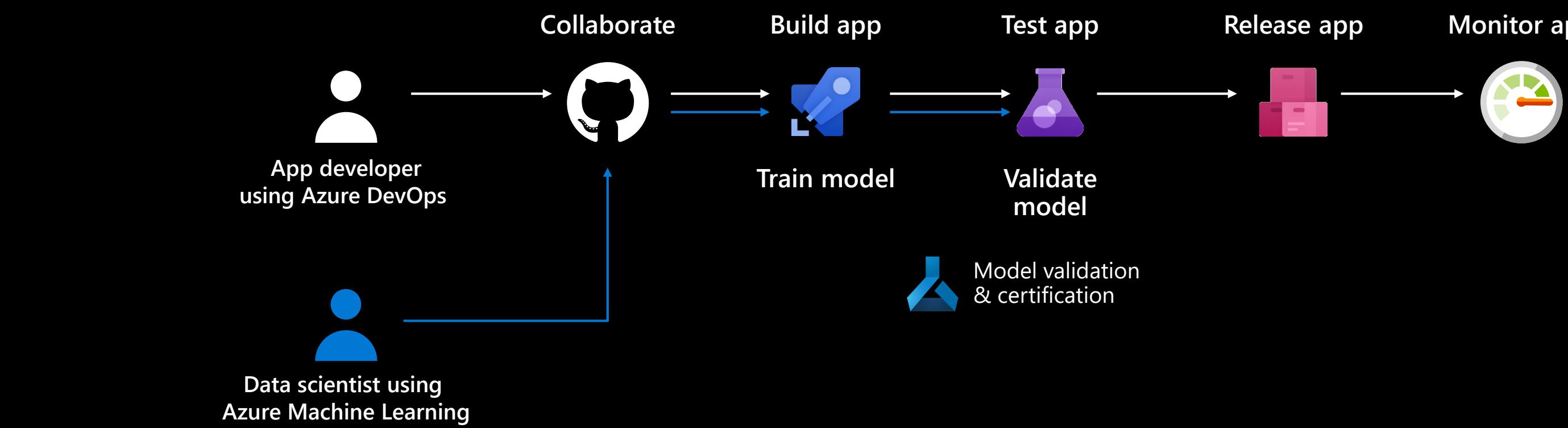
✓ Model reproducibility

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✗ Model retraining

MLOps Workflow



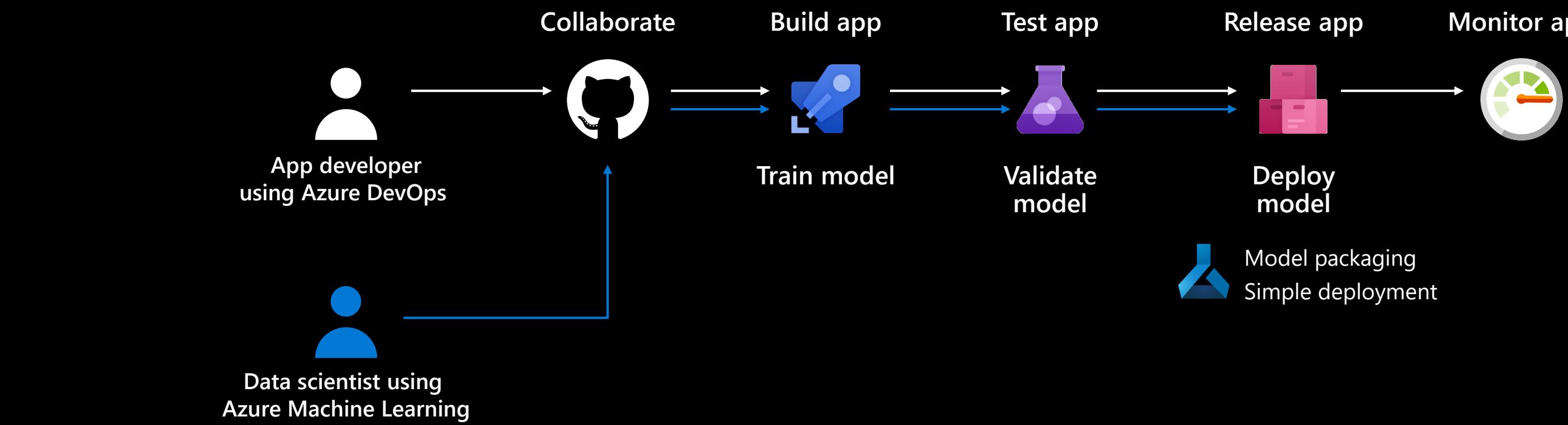
✓ Model reproducibility

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✗ Model deployment

✗ Model retraining

MLOps Workflow



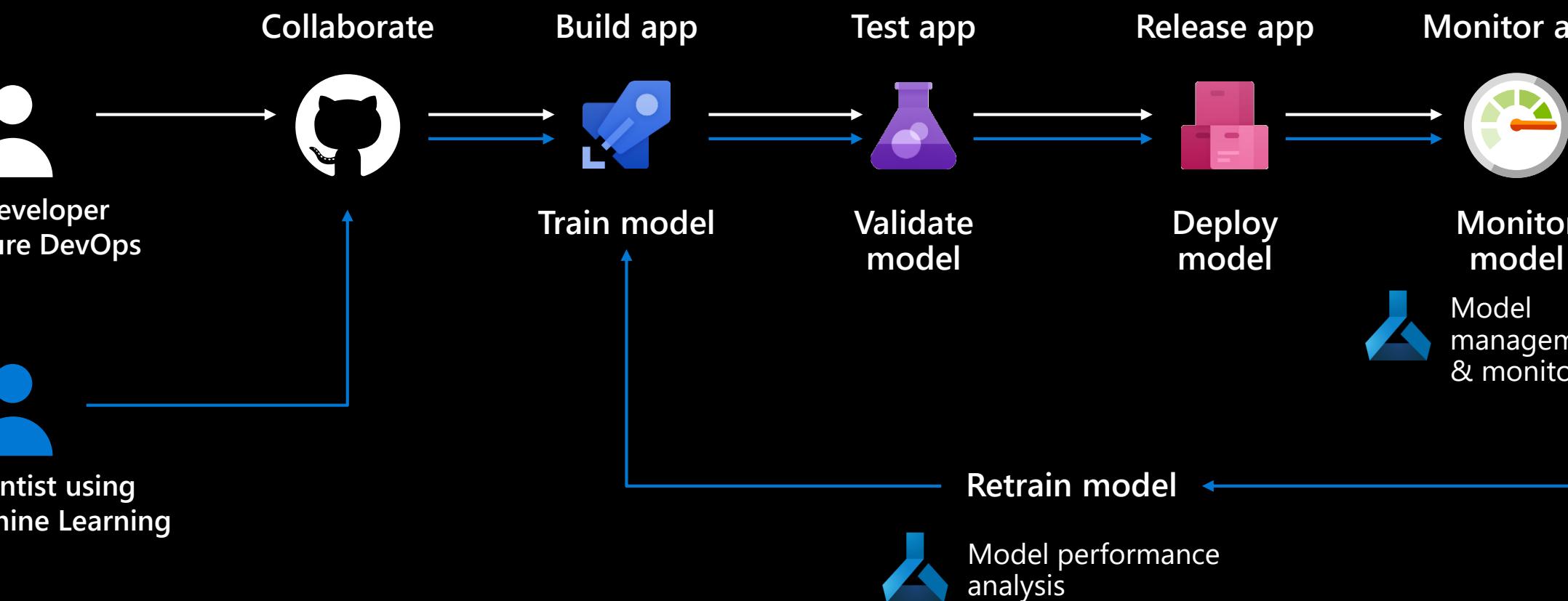
✓ Model reproducibility

✓ Model validation

✓ Model deployment

✗ Model retraining

MLOps with Azure Machine Learning



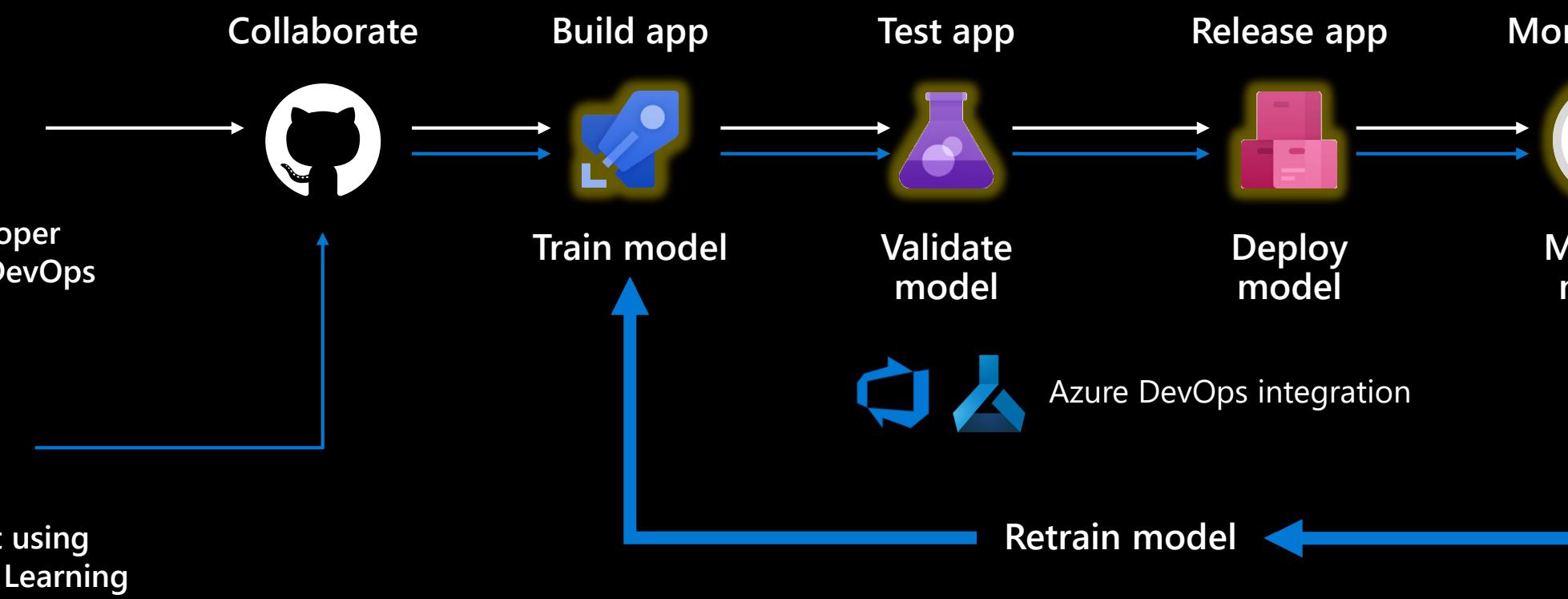
✓ Model reproducibility

✓ Model validation

✓ Model deployment

✓ Model retraining

MLOps with Azure Machine Learning



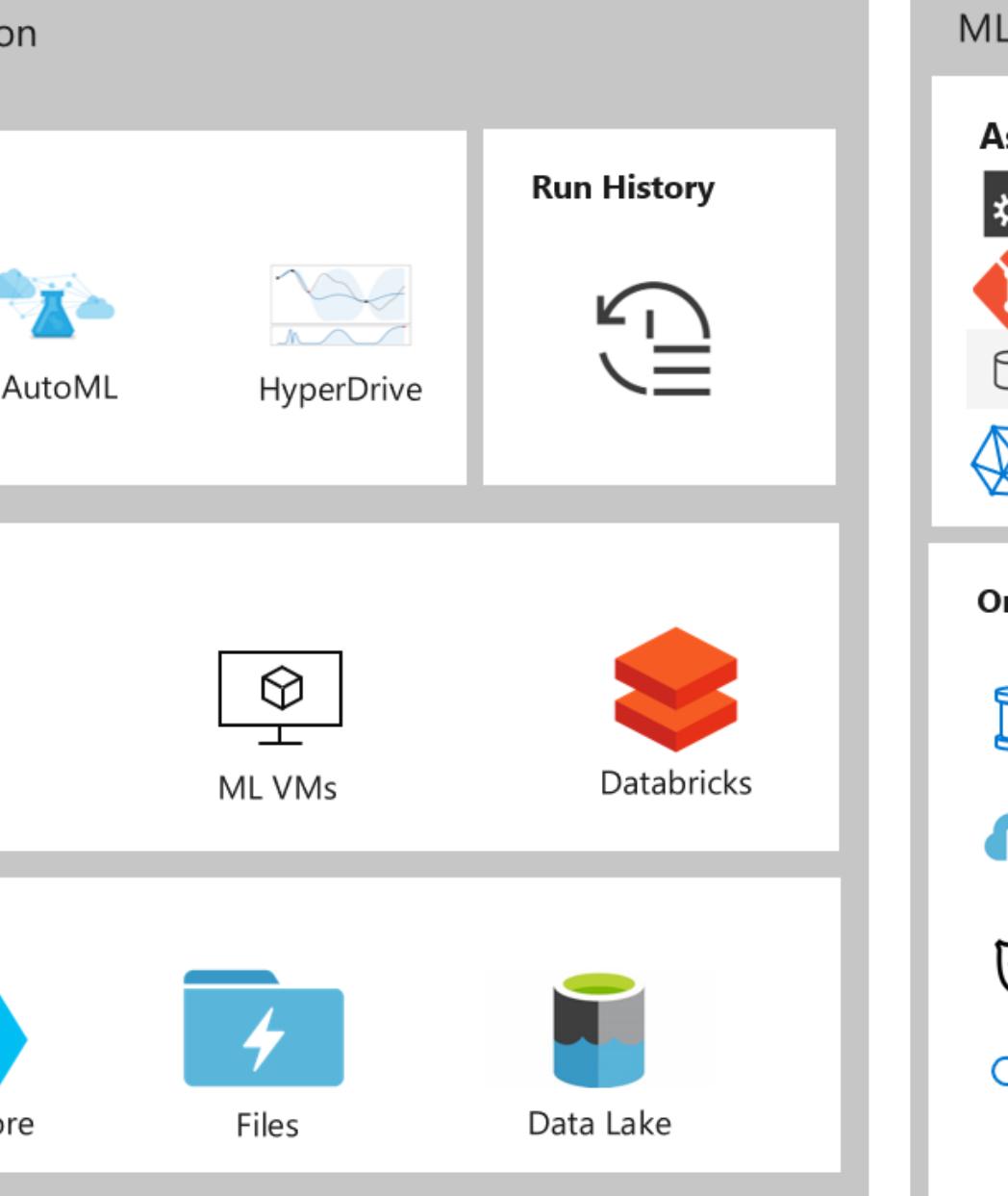
✓ Model reproducibility

✓ Model validation

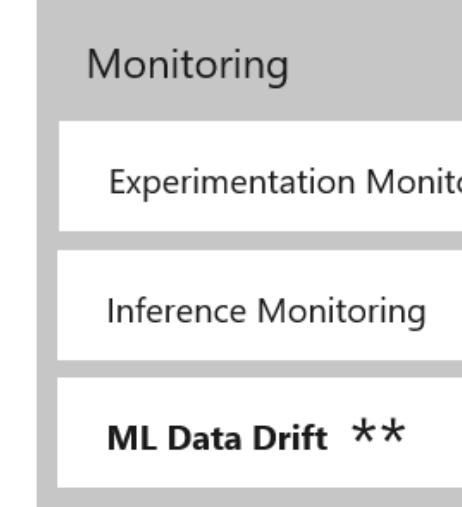
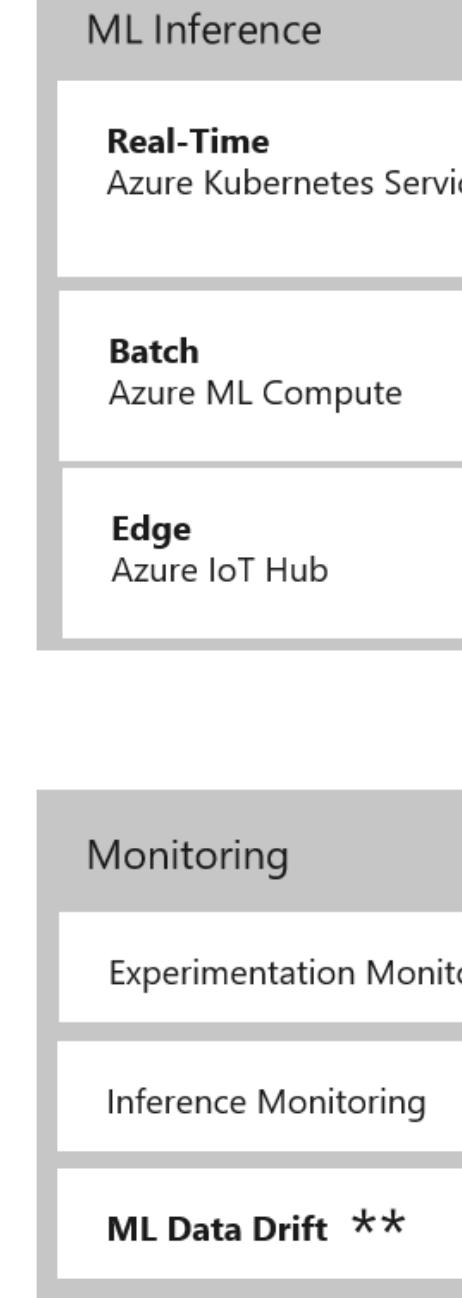
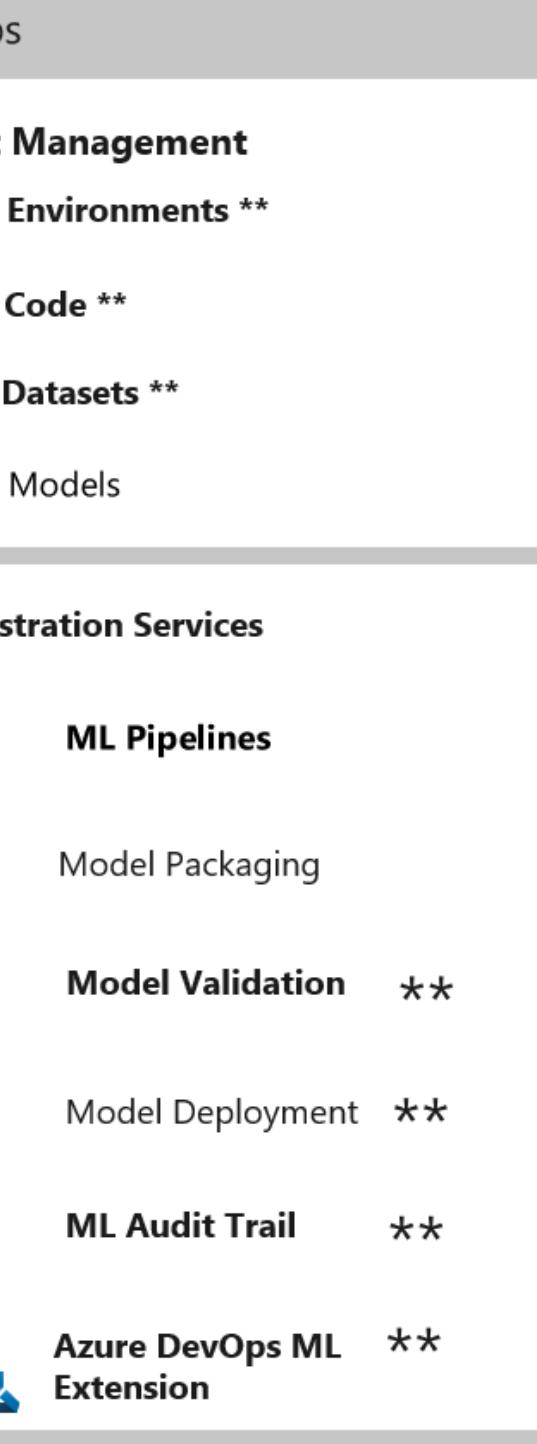
✓ Model deployment

✓ Model retraining

Azure MLOps



Asset management & orchestration services
to help manage the ML lifecycle





MLOps Demo



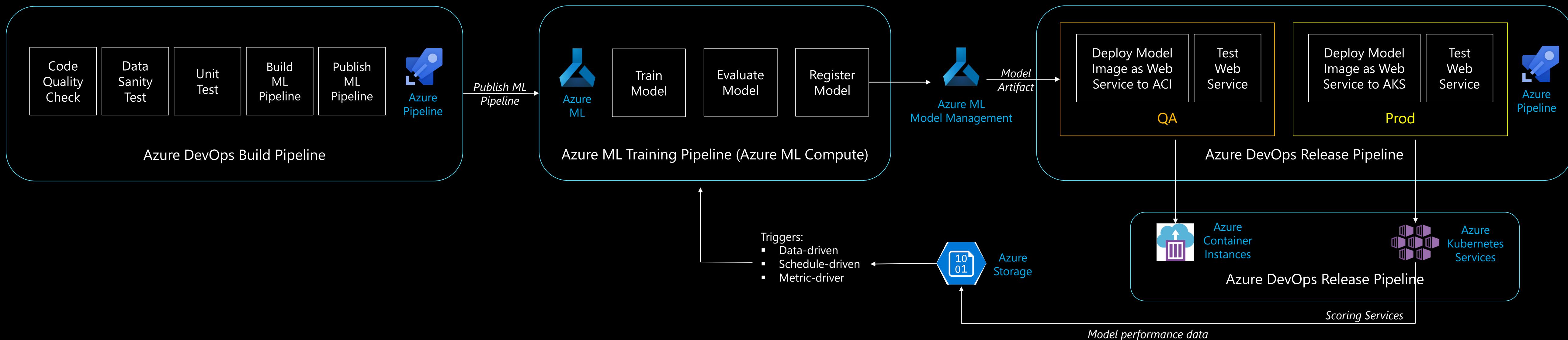
Christoper Gunawan

Senior Cloud Solution Architect

Microsoft Asia Pacific

linkedin.com/in/christoper-gunawan

Azure MLOps

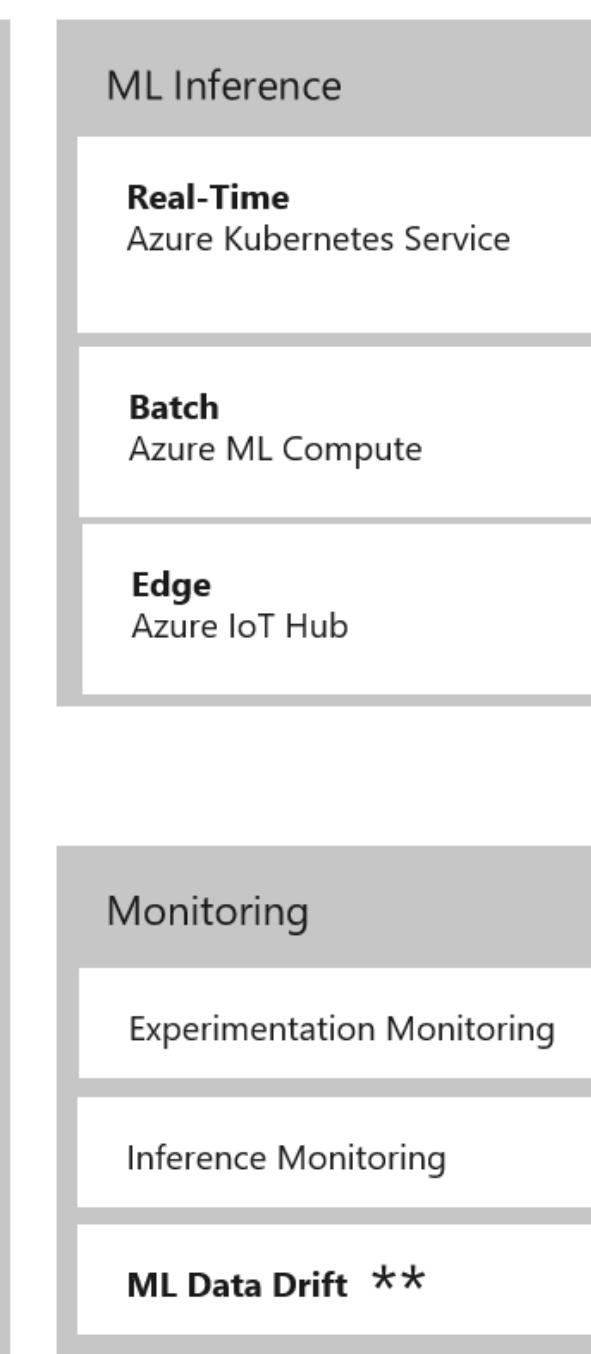
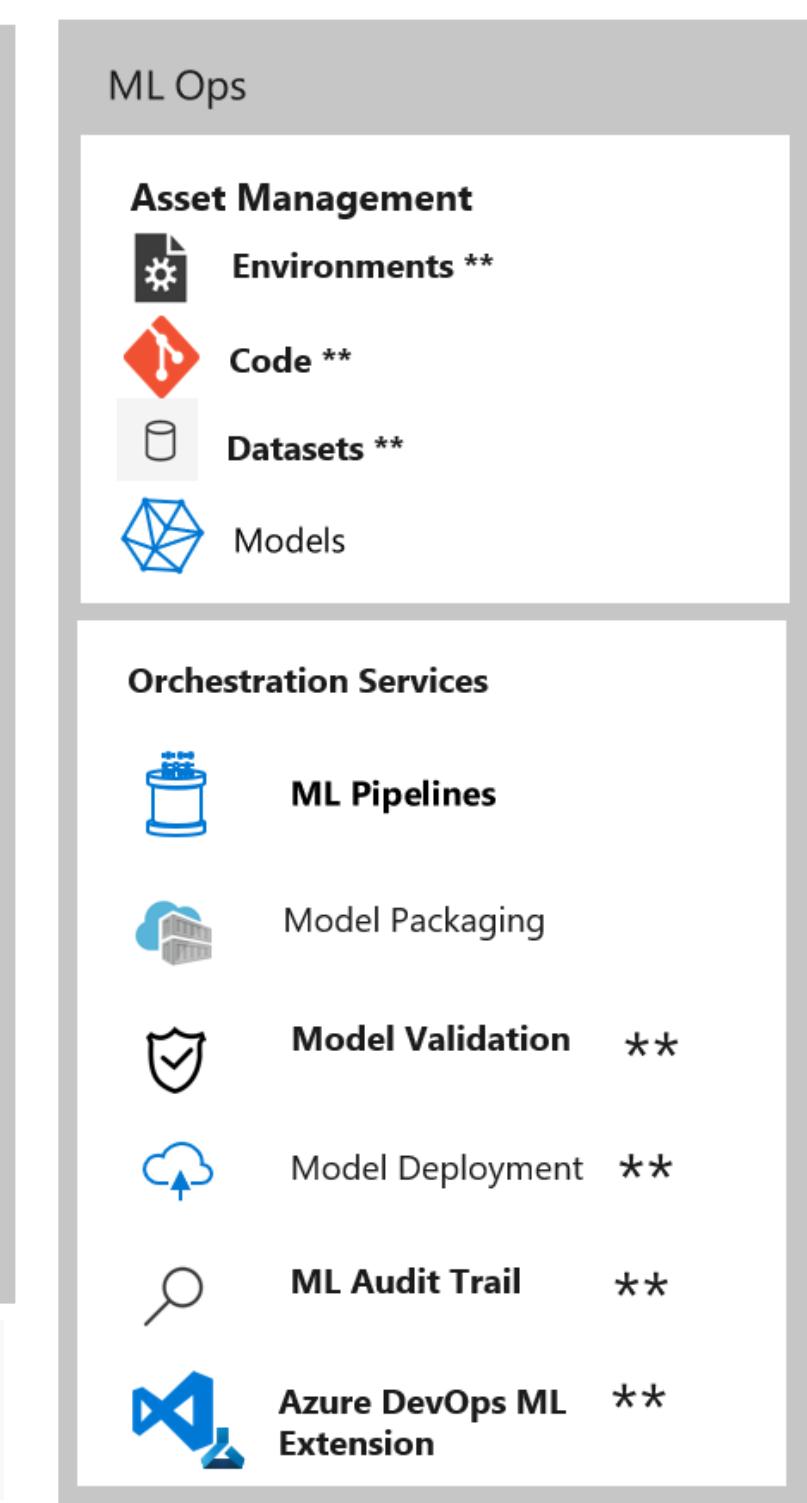
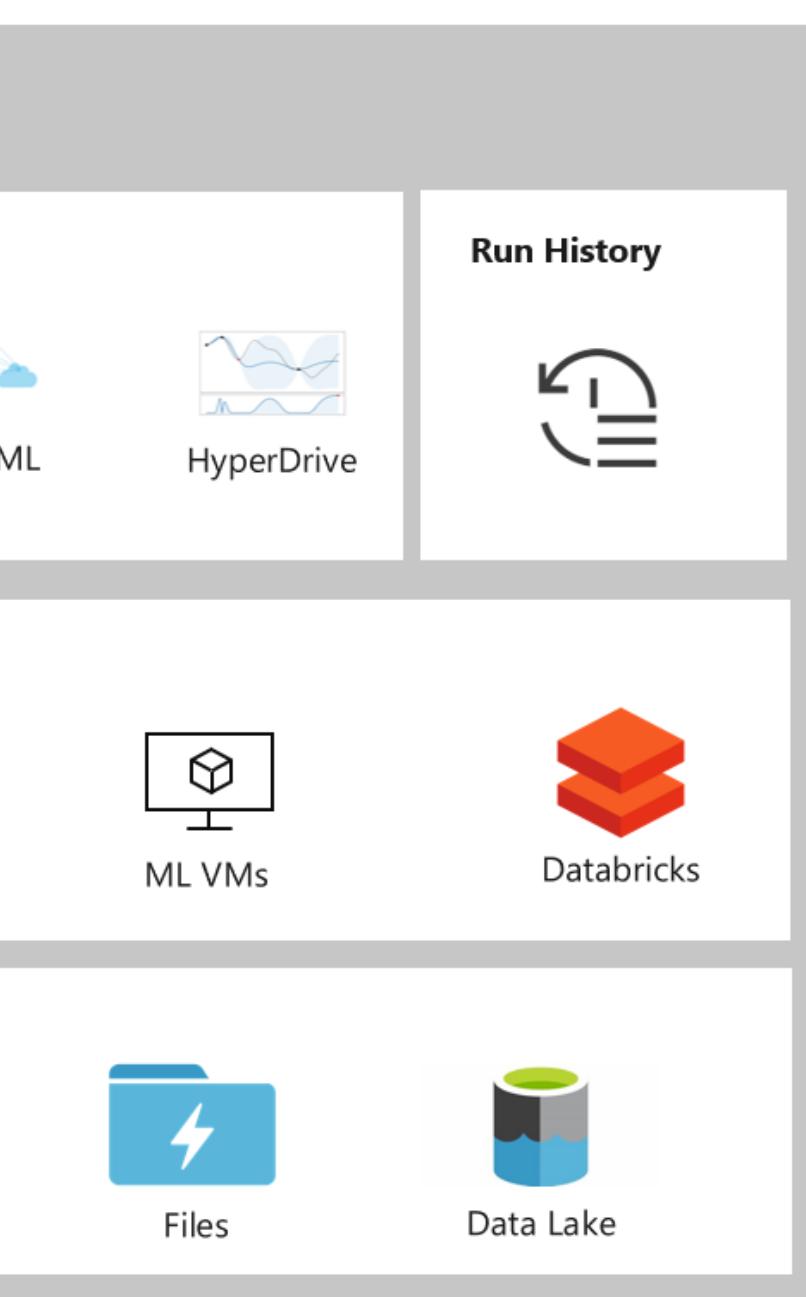


Azure MLOps

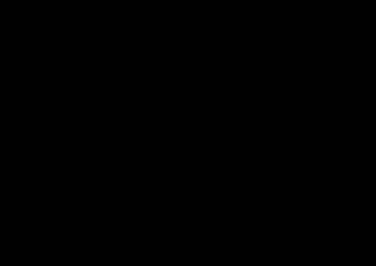
<https://aka.ms/MLOps>



Asset management & orchestration services
to help manage the ML lifecycle



Benefits of low-code app development



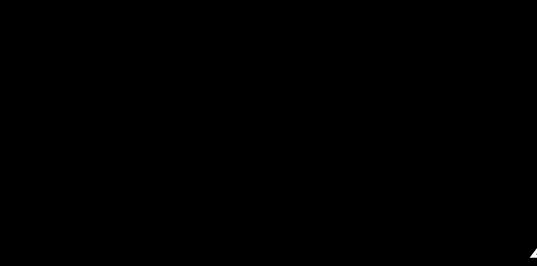
Increased development agility

Automate and enhance repetitive and time-consuming processes and reduce errors across your organization.



Speed & savings

Reduce time & cost building web and mobile applications, enabling you to get through your development backlog.



Efficiency

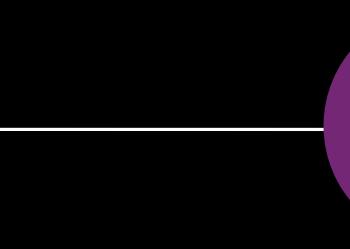
Effortless Dynamics 365, Office 365, and Azure integration. Remove your data siloes through low-code with Common Data Service and AI Builder.

Gartner estimates that **65% of all app dev** will be low code by 2024

Microsoft Power Platform

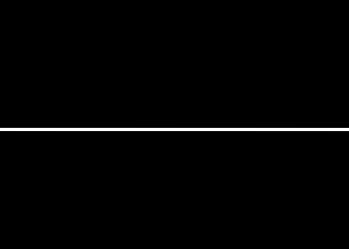
The low-code platform that spans Office 365, Azure, Dynamics 365, and standalone applications

Innovation anywhere. Unlocks value everywhere.



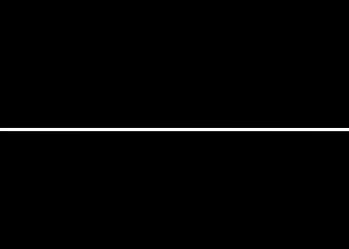
Power BI

Business analytics



Power Apps

Application development



Power Automate

Process automation



Power Virtual Agents

Intelligent virtual agents

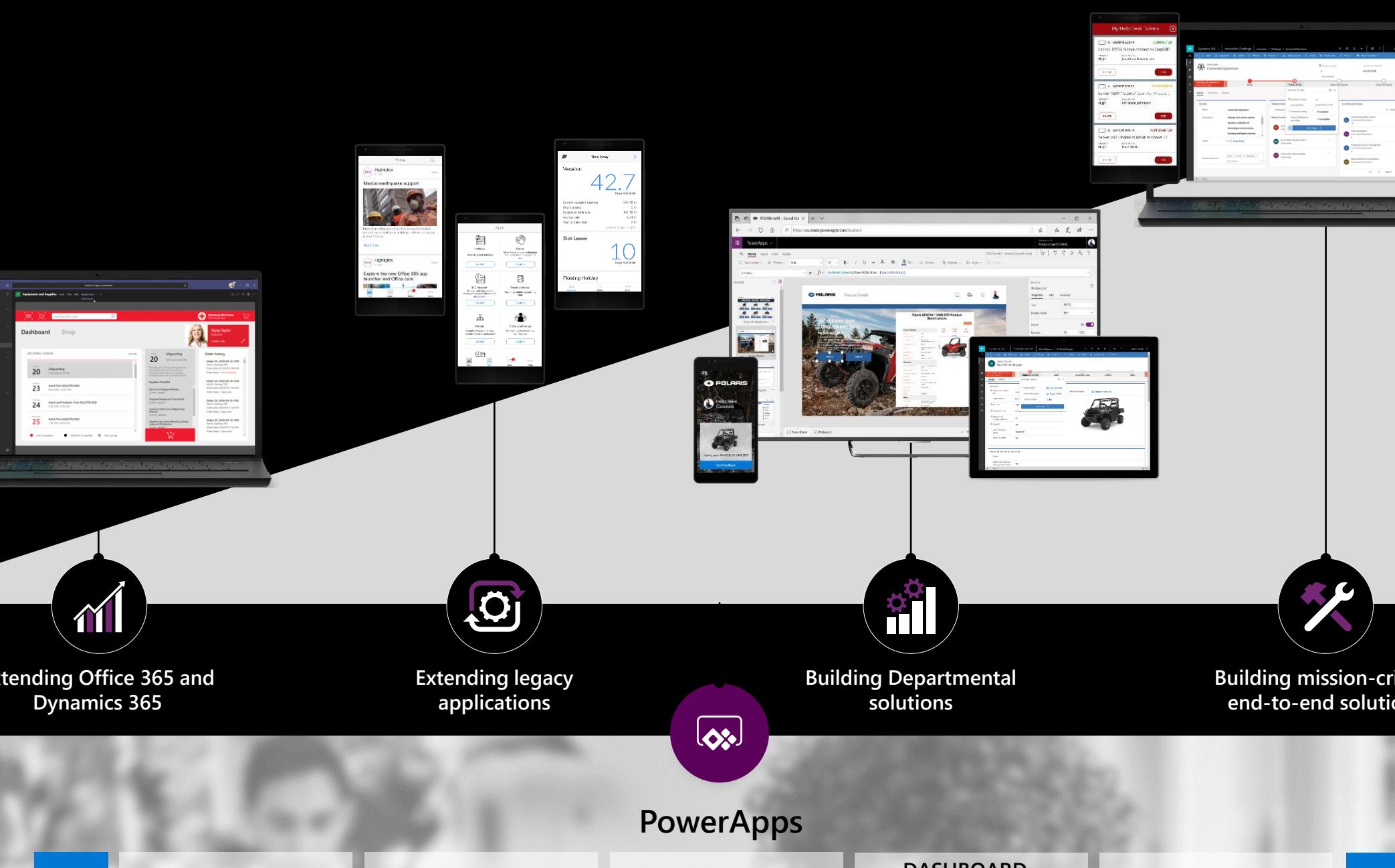


Data connectors

AI Builder

Common Data Service

Enabling digital transformation across the organization



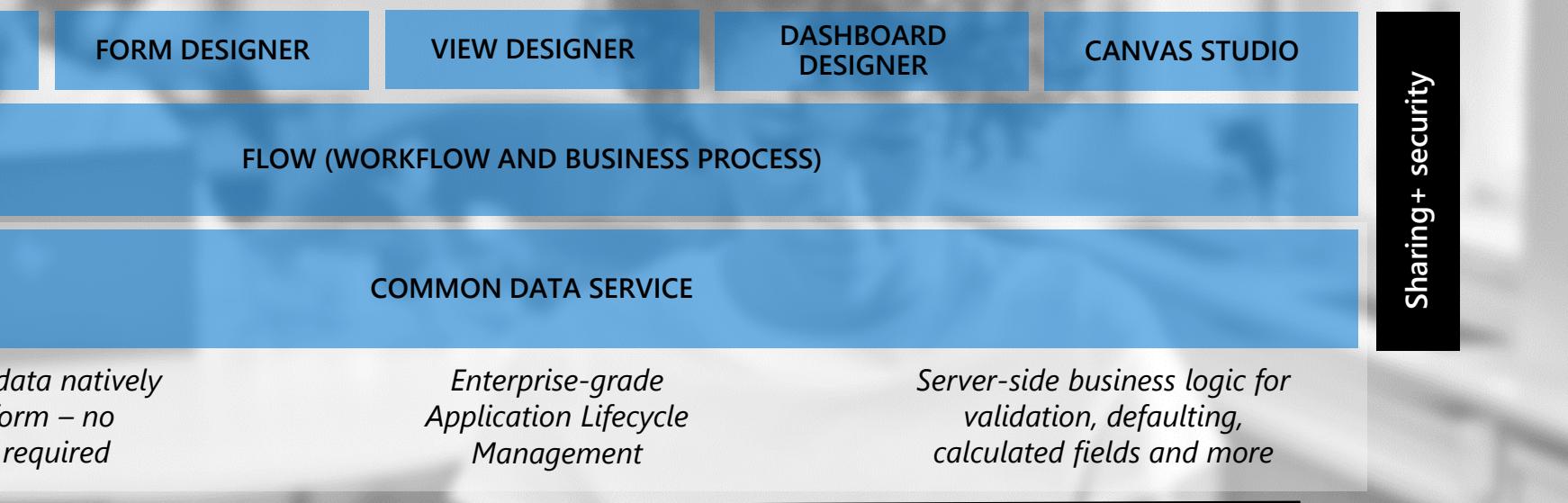
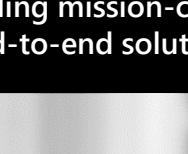
Extending legacy applications

Building Dep
solutio

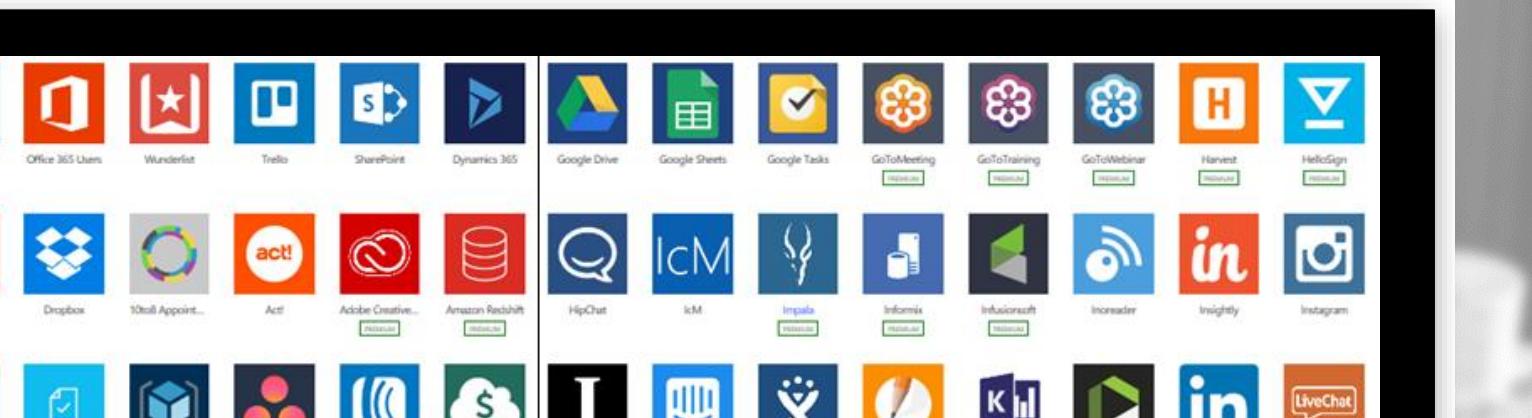
Building mission
end-to-end so



mission-critical
solutions



260+ Connectors





PowerApps + AI Demo



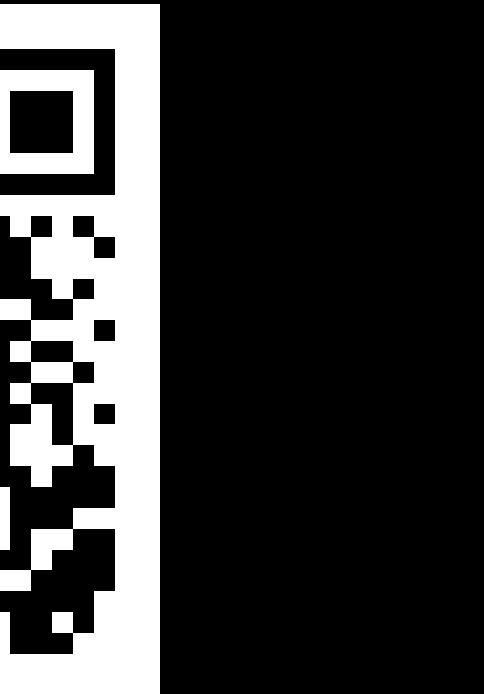
Christo Sardjono
Senior Technical Specialist
Microsoft Asia Pacific
linkedin.com/in/christosardjono



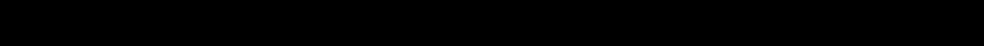
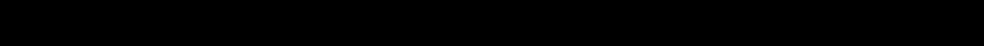
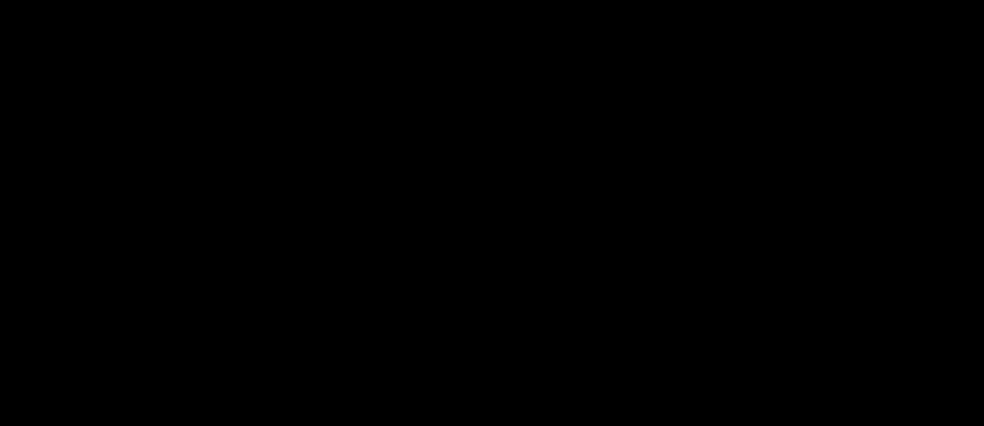
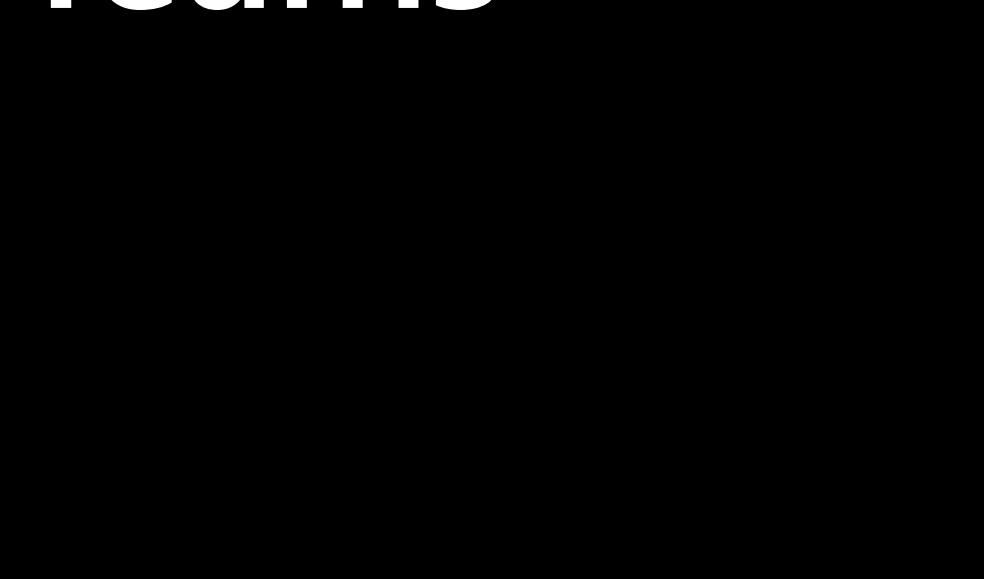
Gogo Muljawan
Partner Technical Architect
Microsoft Asia Pacific
linkedin.com/in/gralniguh

Microsoft Power Platform

<https://powerplatform.microsoft.com>



Microsoft Teams



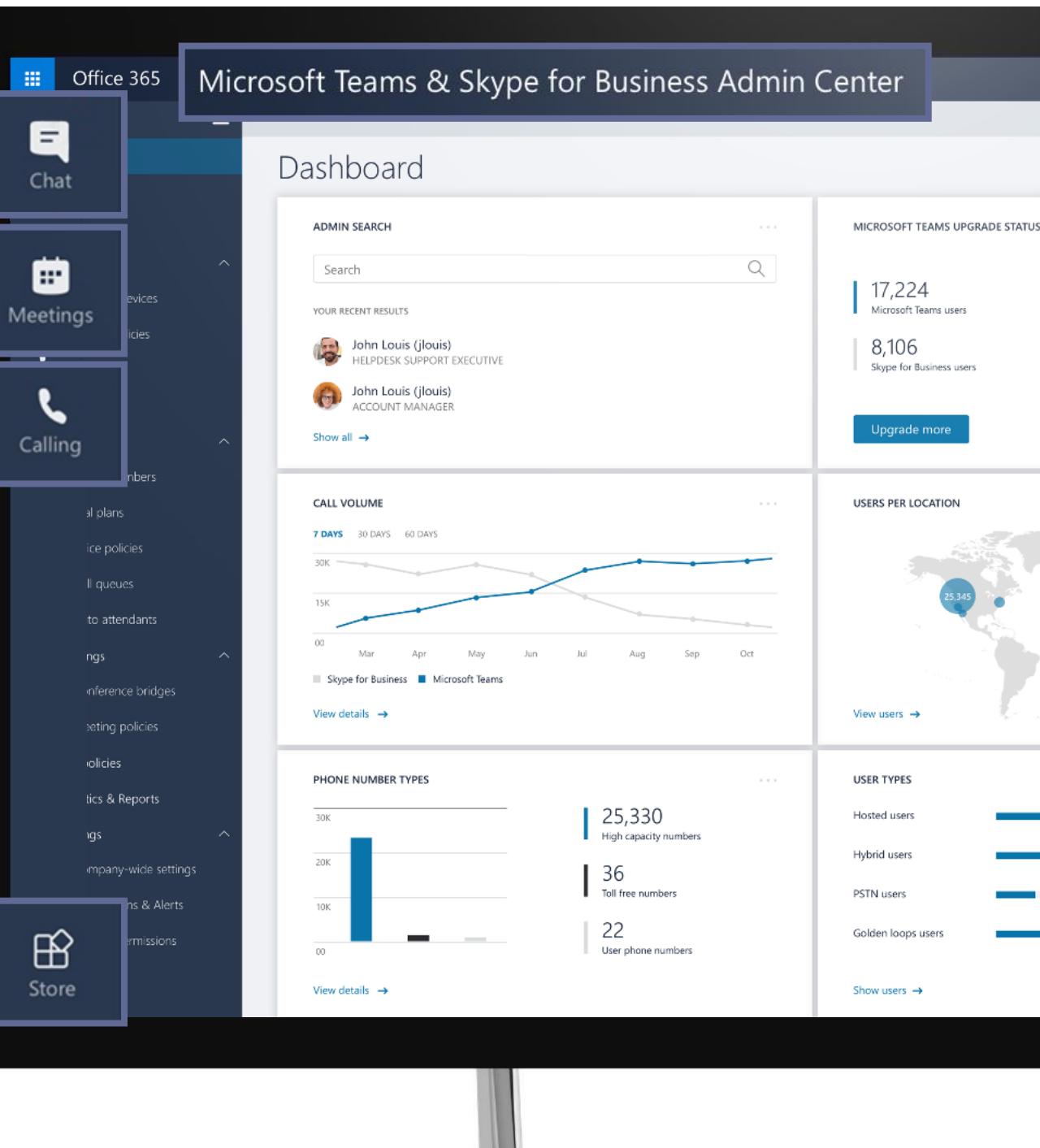
The hub for teamwork in Office 365

Communicate
through chat, meetings & calls

Collaborate
with deeply integrated Office 365 apps

Customize & extend
with 3rd party apps, processes, and devices

Work with confidence
enterprise level security, compliance,
and manageability



Jira Software

Trello



smartsheet

zendesk

GitHub



Wrike



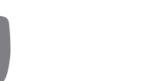
asana



inVISION



Hootsuite™



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Polly.ai



meekan
by Doodle



POPiN



SurveyMonkey®



open agora

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ZENEFITS



STATSBOT

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Zoom.ai



approved contact



talla

Stream

KRONOS®

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ModuleQ

approved contact

Stream

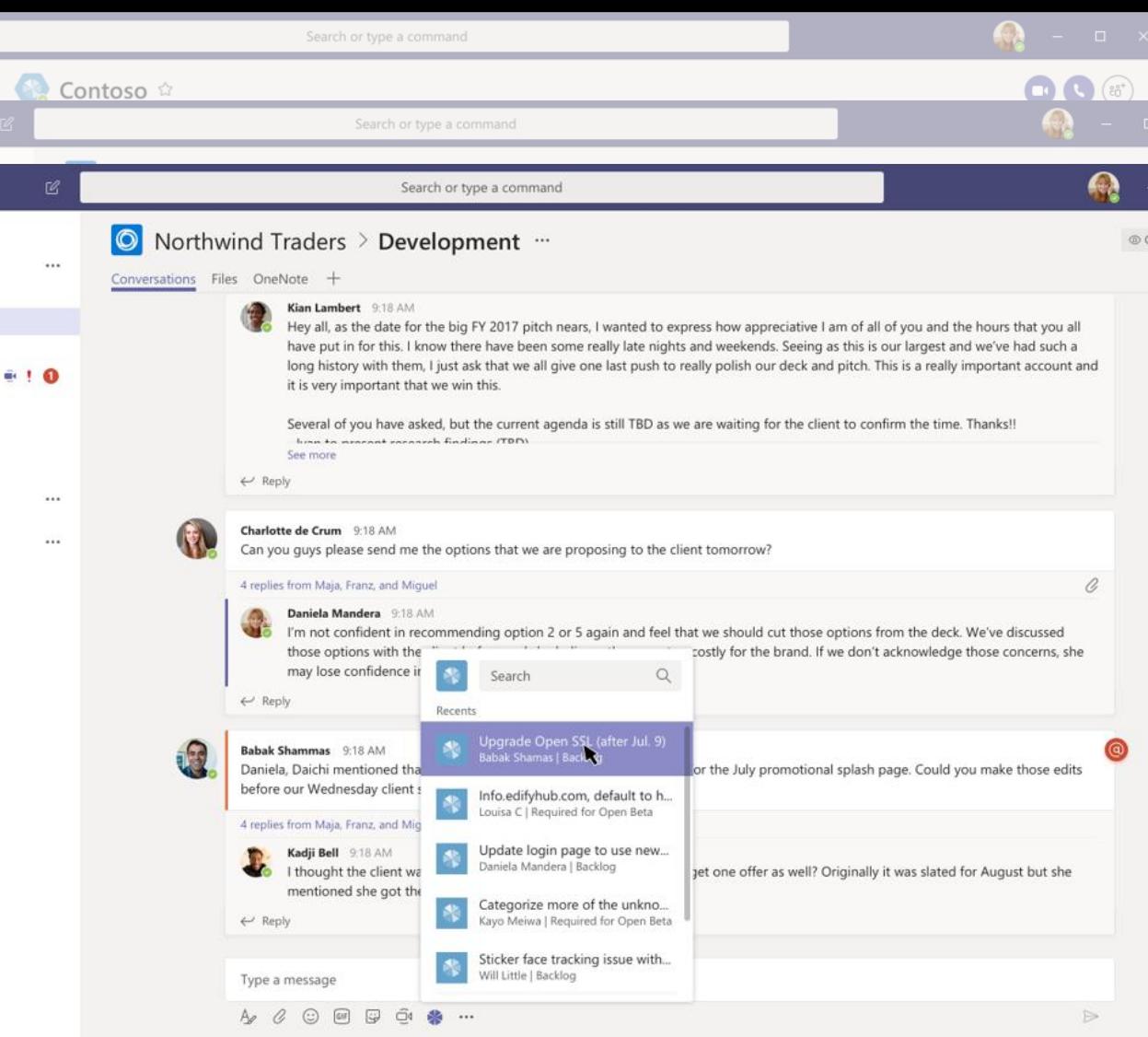
KRONOS®

sage

Adobe

ModuleQ

Extend to suit your workflows



Bots

Help users get tasks done in conversations

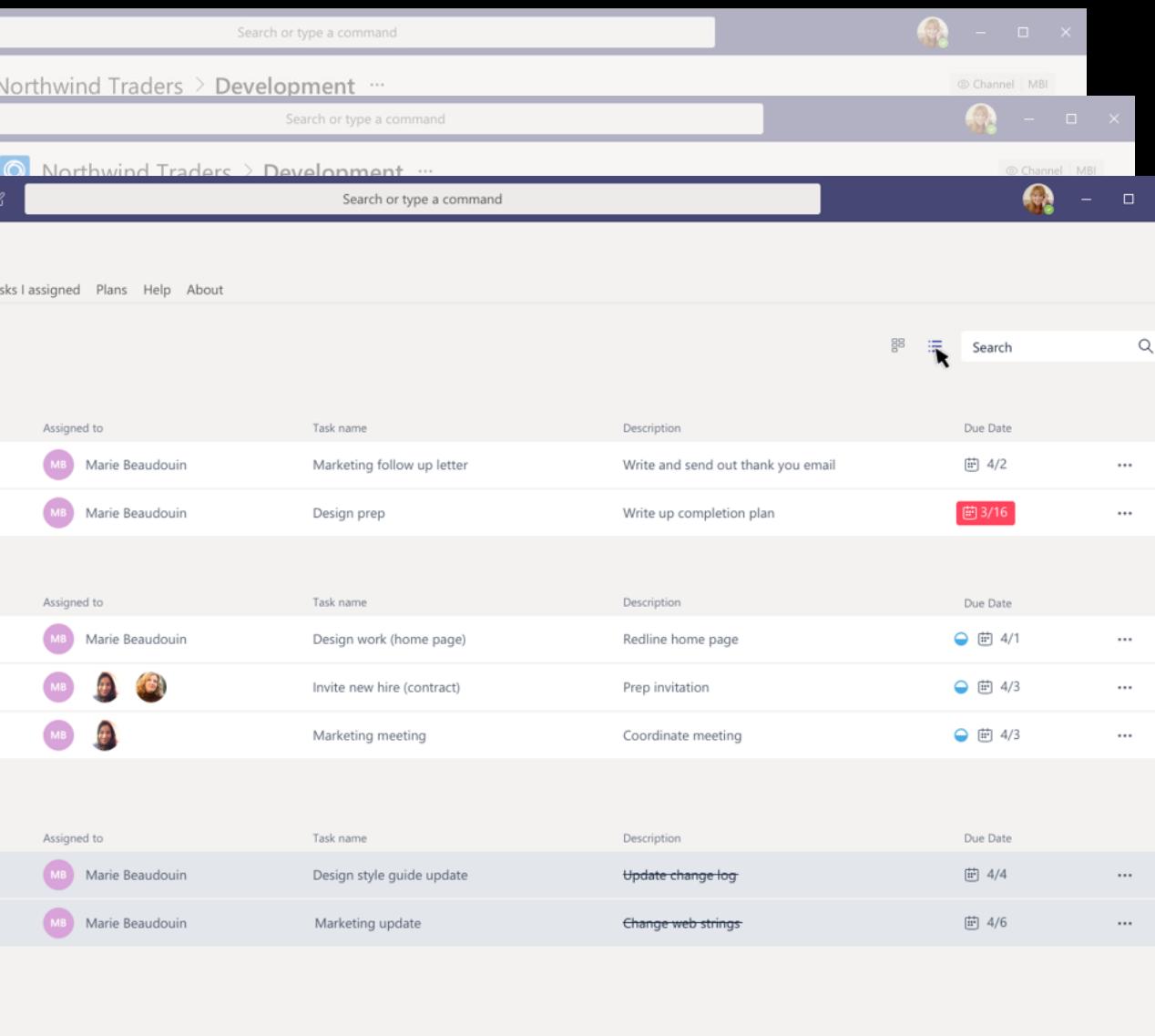
Tabs

Surface rich content within Teams

Compose Extensions

Allow users to query and share information as rich cards

Extend to suit your workflows



Activity Feed

Engage users via activity feed notifications

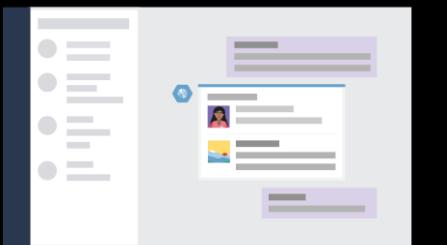
Adaptive Cards

Allow users to take action within card updates

Personal Apps

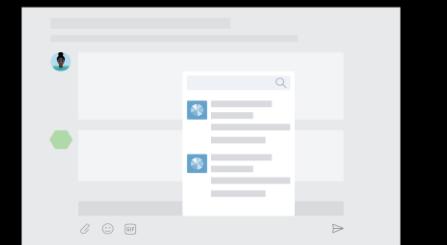
All content across all teams and channels in one place

Immersive experiences toolkit



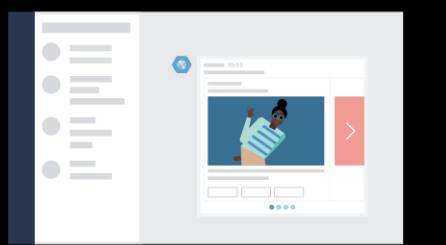
Tabs

Surface rich content within Teams



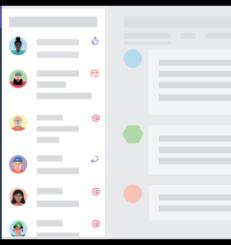
Bots

Help users get tasks done in conversations



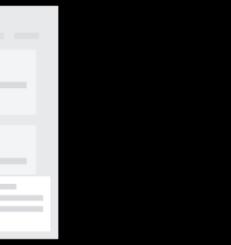
Compose Extensions

Allow users to query and share information as rich cards



Adaptive Cards

Add rich interaction to your connector cards



Activity Feed

Engage users via feed notifications

Microsoft Graph
API gateway for Office 365,
Windows and EMS

Line of Business Systems
Services and content you own and
manage

Microsoft AI
Power conversations with intelligence using
pre-built or custom models



Teams App Dev Demo



Adrian Rozaq

Senior Technical Specialist

Microsoft Asia Pacific

linkedin.com/in/adrianrozaq

Microsoft Teams App Studio

Developer Demo Scenario

Company Name → Indo 365

Application Developer : Joni S jonis@indo-365.com

IT Admin : Admin admin@indo-365.com

Finance User : Allan D alland@indo-365.com

HRD User : Johanna L johannal@indo-365.com

Company Intranet Portal – Internal Web App → <https://www.indo-365.com>

HR Department - Internal Web App → <https://hrd.indo-365.com>

Finance Department - Internal Web App → <https://finance.indo-365.com>

Objective: Publish & Embed the Internal Company Application into Microsoft Teams

Microsoft Teams App Development

<https://developer.microsoft.com/en-us/microsoft-teams>



Developer Partners

Examples include:

Jira – bot, tabs, notifications, compose, personal app

Confluence – third party notifications

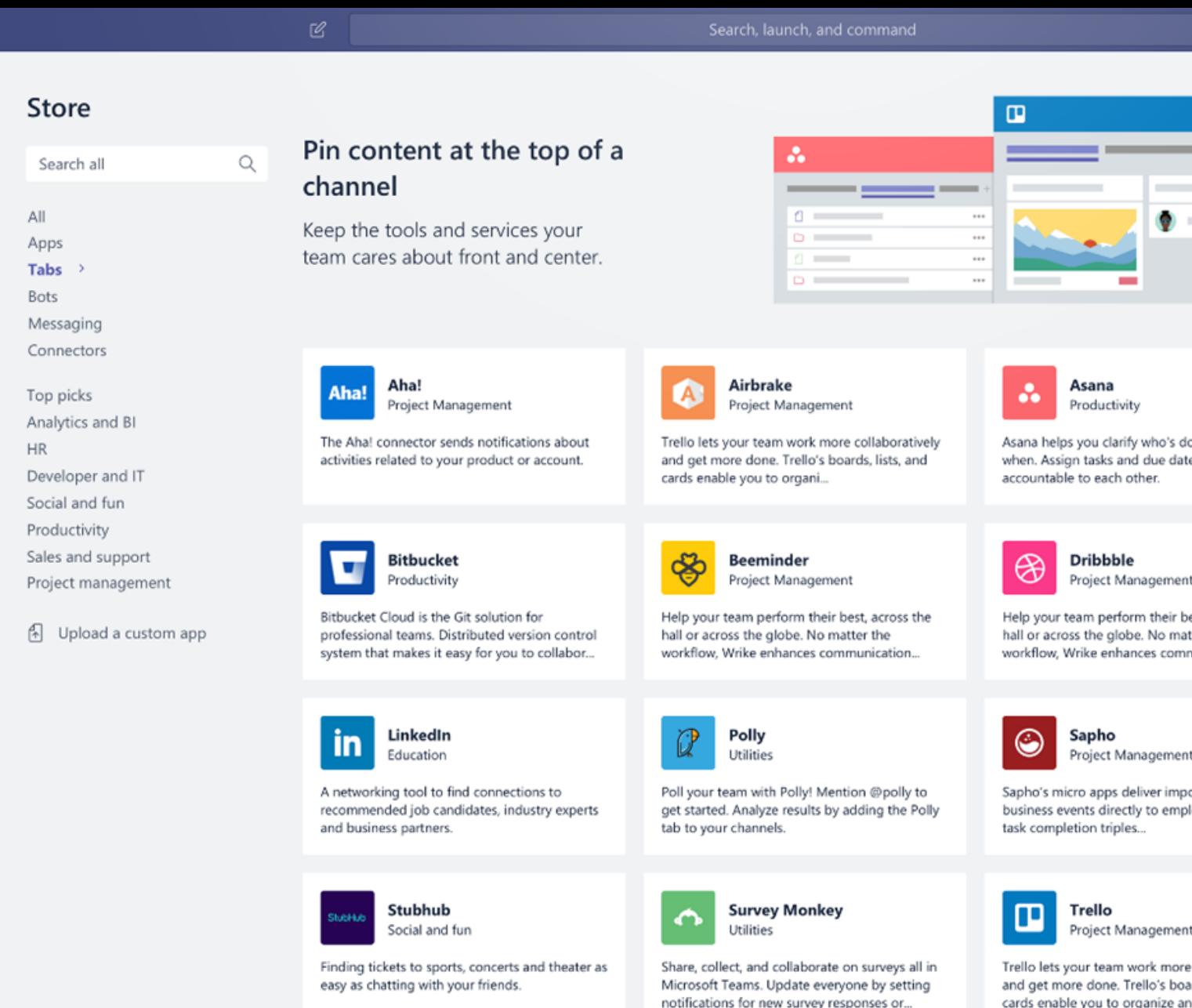
Bit Bucket – tabs, notifications, compose, personal app

TeamCity – third party GitHub project

Jenkins – notifications

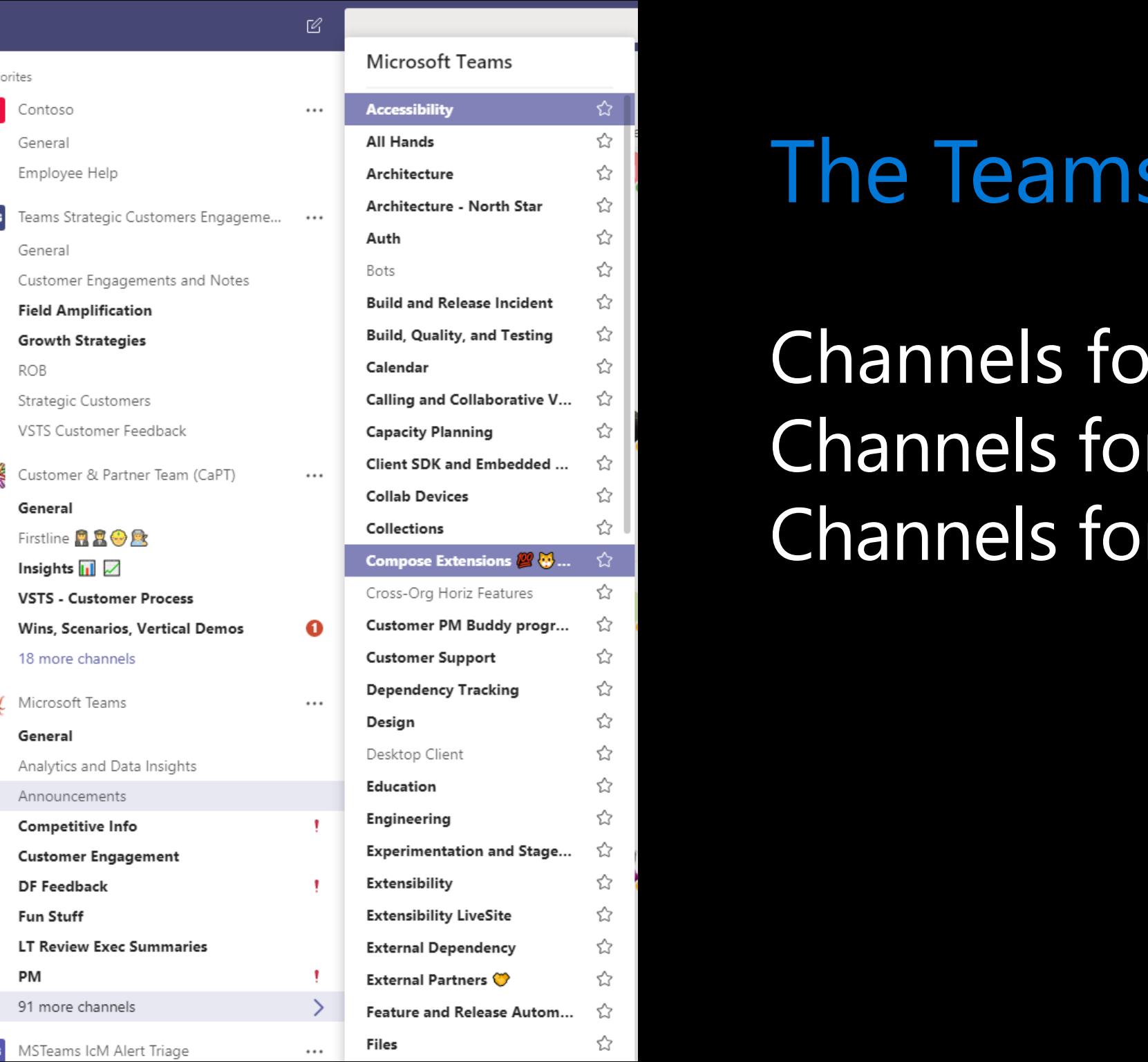
Agile Central– can be integrated with webhooks

Visual Studio – tabs, notifications, compose, personal



Existing DevOps integrations in Teams

- GitHub ([Tab](#))
- Jira Service Desk Cloud
- Jira Server ([connector](#))
- Magnum CI ([connector](#))
- OpsGenie ([connector](#))
- TFS ([connector](#))
- GoSquared ([connector](#))
- Buddy ([connector](#))
- Azure DevOps
- BitBucket Cloud
- Jira Server ([connector](#))
- New Relic ([connector](#))
- Orky (bot)
- Travis CI ([connector](#))
- Greenhouse ([connector](#))
- Circle CI ([connector](#))
- Jira Cloud
- Confluence Cloud
- GitHub Enterprise ([connector](#))
- Jenkins ([connector](#))
- PagerDuty ([connector](#))
- Beanstalk ([connector](#))
- Insping ([connector](#))
- Codeship ([connector](#))



The Teams team uses Teams to build Teams....

Channels for disciplines – design, PM, test...

Channels for features – Auth, Desktop Client, Extensibility...

Channels for operations – all-hands, LT review, insights...



Teams + DevOps Demo



Erice Ong
Senior Specialist
Microsoft Indonesia
linkedin.com/in/ericeong



Kholis Arohman
Development Lead
Multi Inti Digital Bisnis (MDB)

Multi Inti Digital Bisnis

Purpose-Driven Innovation

Dengan semangat 'Purpose-Driven Innovation', MDB mengembangkan beragam inovasi berbasis digital yang memberikan manfaat dan dampak positif bagi kehidupan masyarakat.

Inovasi-inovasi yang dihadirkan MDB, antara lain:

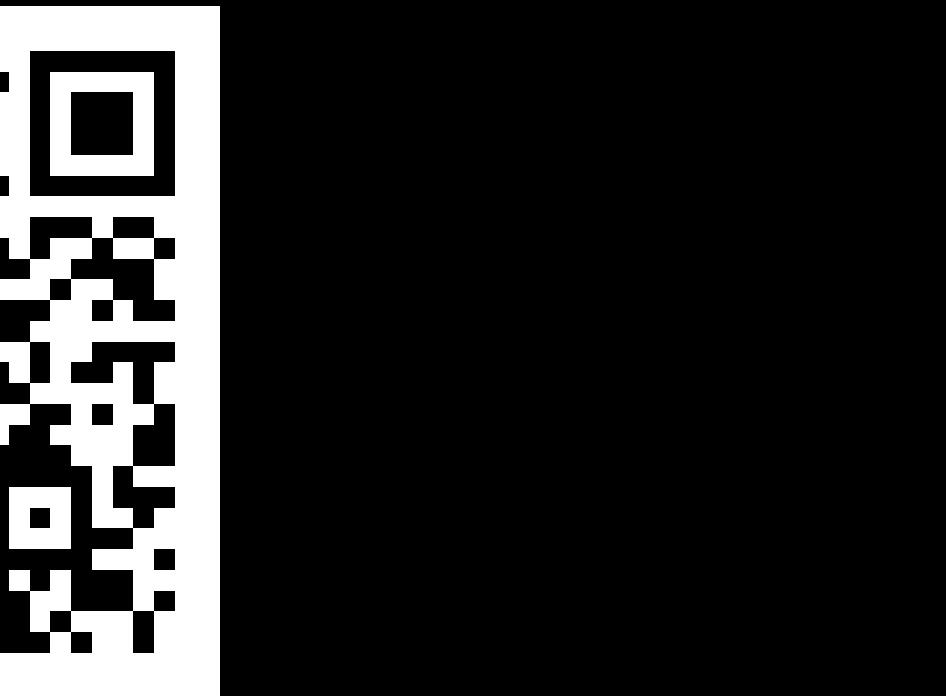
- Penanganan limbah plastik terintegrasi
- On-demand public transportation
- Koperasi digital
- Solusi integrasi untuk usaha retail UKM
- Digital Loyalty
- Digital Payment
- Digital Logistik



Our Products

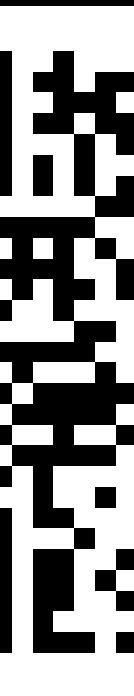
Microsoft Teams

<https://products.office.com/microsoft-teams>

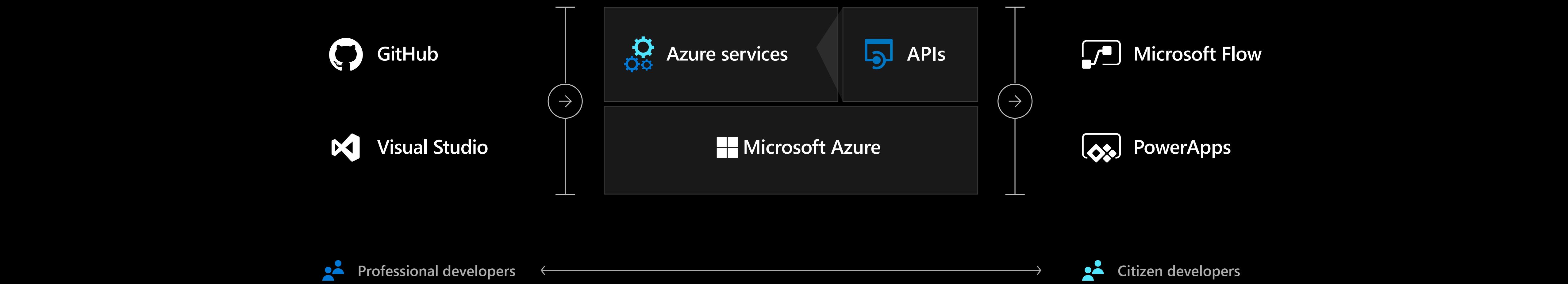


Azure DevOps

<https://aka.ms/AzureDevOps>



Democratizing development



Evolution of software development

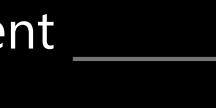
Scale innovation

Collaborate
globally & securely

Build
productively



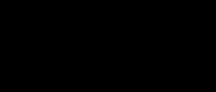
Developers



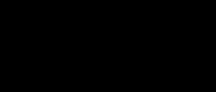
Development
teams



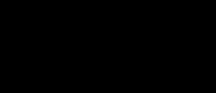
Open Source
development



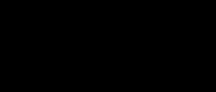
DevOps



Cloud
computing



Low-code
extensibility



LiveOps



GitHub

36M+ developers



Visual Studio

#1 developer tool¹



Microsoft Azure

**#1 Developers' Choice
of PaaS products²**



PowerApps

**Leader in low-code
development platforms³**

¹ Stack Overflow: Stack Overflow Developer Survey, 2019

² SlashData: SlashData's Developers' Choice Awards, 2018

³ Forrester: Forrester Wave for Low-Code Development Platforms, 2019

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Are you a Developer?

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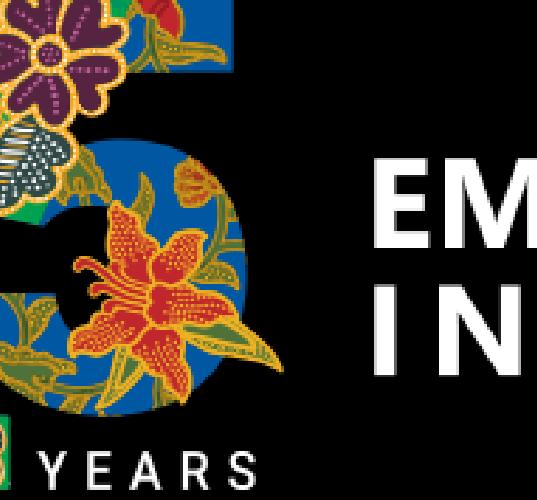


aka.ms/devID





Microsoft



EMPOWERING
INDONESIA