intel Microsoft Azure

英特爾邊緣到雲端技術產業論壇
Taiwan Edge to Cloud Conference

橫跨邊緣運算到機密運算之雲端最新運用

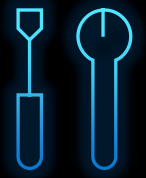
馮立偉 (David Feng)

HPC / AI 解決方案 副總經理
全球黑帶 微軟亞洲區

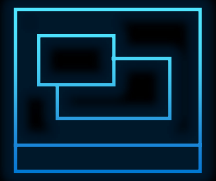
Microsoft Cloud is here to empower you

Transform your business with the largest ecosystem in the industry

Automate operations with Edge AI



Develop solutions with best-in-class tools

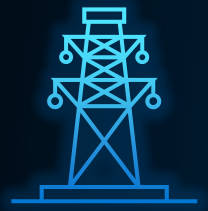


Operate from a single control plane

Secure your environment

Cloud technology for every kind of business

Manufacturing



Energy

Smart Places

Connected Automotive

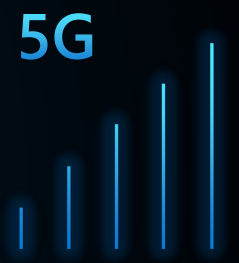
Retail

Healthcare

Automate operations with Edge AI

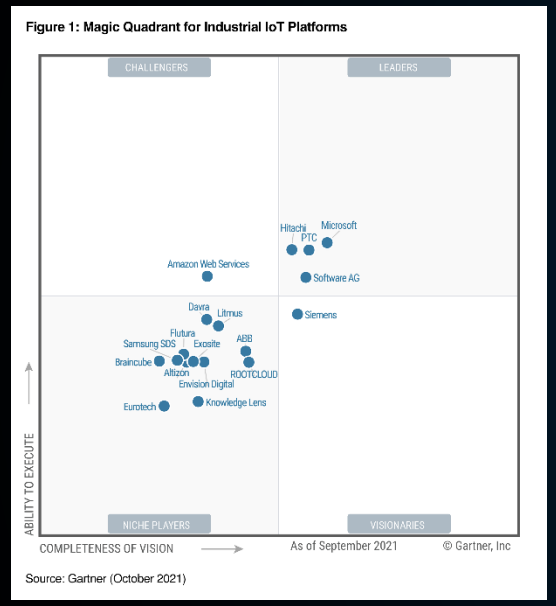
End-to-end edge AI platform including hardware accelerators integrated with Azure AI and IoT services

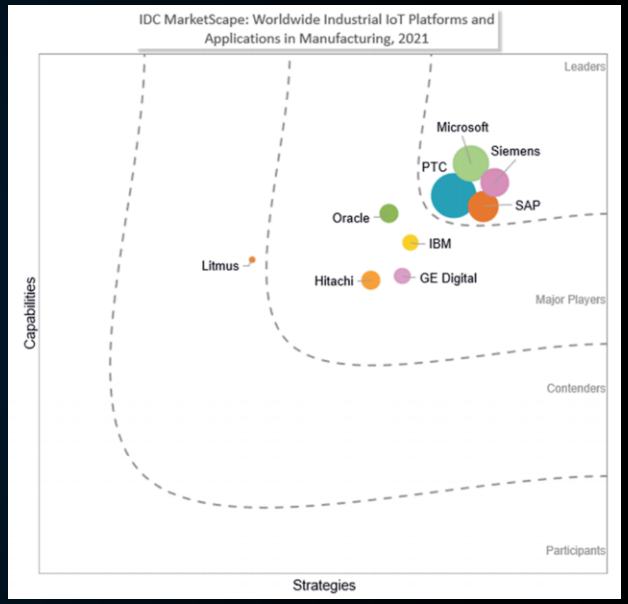
Pre-built AI models and solution management to help you start your proof of concept in minutes



Deliver **ultra-low-latency networking,** applications, and services at the enterprise edge.

Gartner and IDC recognize Microsoft's leadership in IoT





Gartner

IDC

Sources: Gartner: "Magic Quadrant for Industrial IoT Platforms," Alfonso Velosa, Ted Friedman, Katell Thielemann, Emil Berthelsen, Peter Havart-Simkin, Eric Goodness, Matthew Flatley, Lloyd Jones, Kevin Quinn, 18 October 2021;
IDC: "MarketScape Worldwide Industrial IoT Platforms and Applications in Energy Vendor Assessment, 2021" + "MarketScape Worldwide Industrial IoT Platforms and Applications in Manufacturing Vendor Assessment 2021," Stacy Crook, Reid Paquin, June 2021

Hybrid Cloud
Operate & manage from a single control plane

Intelligent Edge

Intelligent Cloud

Connected devices

Operations on the Edge

Datacenter

Cloud

Azure Arc

Consistent security, identity, management, connectivity, and developer experience

Azure Confidential Computing

GOAL

Achieve the highest levels of ***privacy*** **for your most sensitive workloads** by encrypting your data in use in the cloud and on the edge

One of the first cloud vendors offers Intel Sapphire Rapids Confidential Computing

Azure Confidential Computing on 4th Gen Intel Xeon Scalable Processors with Intel TDX

Posted on January 10, 2023

Mark Russinovich, Chief Technology Officer and Technical Fellow, Microsoft Azure

Microsoft continues to be the cloud leader in confidential computing, and the Azure team is excited to continue our leadership by partnering with Intel to offer confidential computing on 4th Gen Intel Xeon Scalable processors with Intel Trusted Domain Extensions (Intel TDX) later this year, enabling organizations in highly regulated industries to lift and shift their workloads that handle sensitive data to scale in the cloud. Intel TDX meets the Confidential Computing Consortium (CCC) standard for hardware-enforced memory protection not controlled by the cloud provider, all while delivering minimal performance impact with no code changes.

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Microsoft Azure

Azure Confidential Computing

EXISTING ENCRYPTION

Data at rest

Encrypt inactive data when stored in blob storage, database, etc.

Data in transit

Encrypt data that is flowing between untrusted public or private networks

CONFIDENTIAL COMPUTING

Data in use

Protect/encrypt data that is in use, while in RAM, and during computation

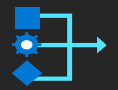
Protect against

Insider threat

privileged admins abusing rights

Hackers

exploiting bugs in the Hypervisor/OS



Third parties

accessing data without customer consent

The ***protection of data in use*** by performing computation in a hardware-based, attested Trusted Execution Environment (TEE).

Verifiable assurance for data integrity, code integrity, and data confidentiality

Confidential Computing Consortium

Microsoft is a founding member of this open source community dedicated to defining and accelerating the adoption of confidential computing.

Alibaba Cloud · Fortanix · ORACLE

arm · Google · Red Hat

Baidu 百度 · HUAWEI · swisscom

decentriq · intel · Tencent 腾讯

facebook · Microsoft · vmware

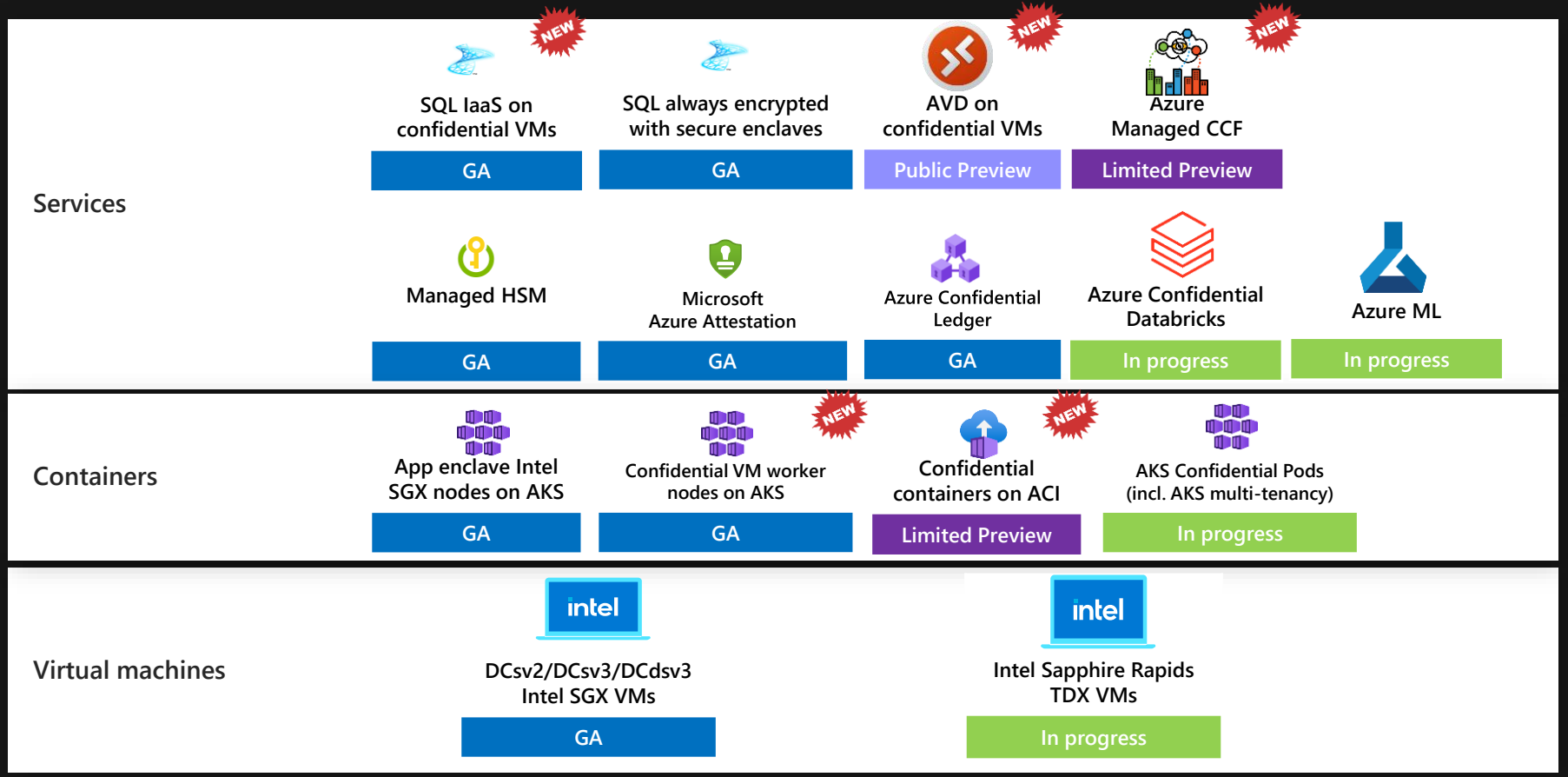
and growing...

Microsoft Azure

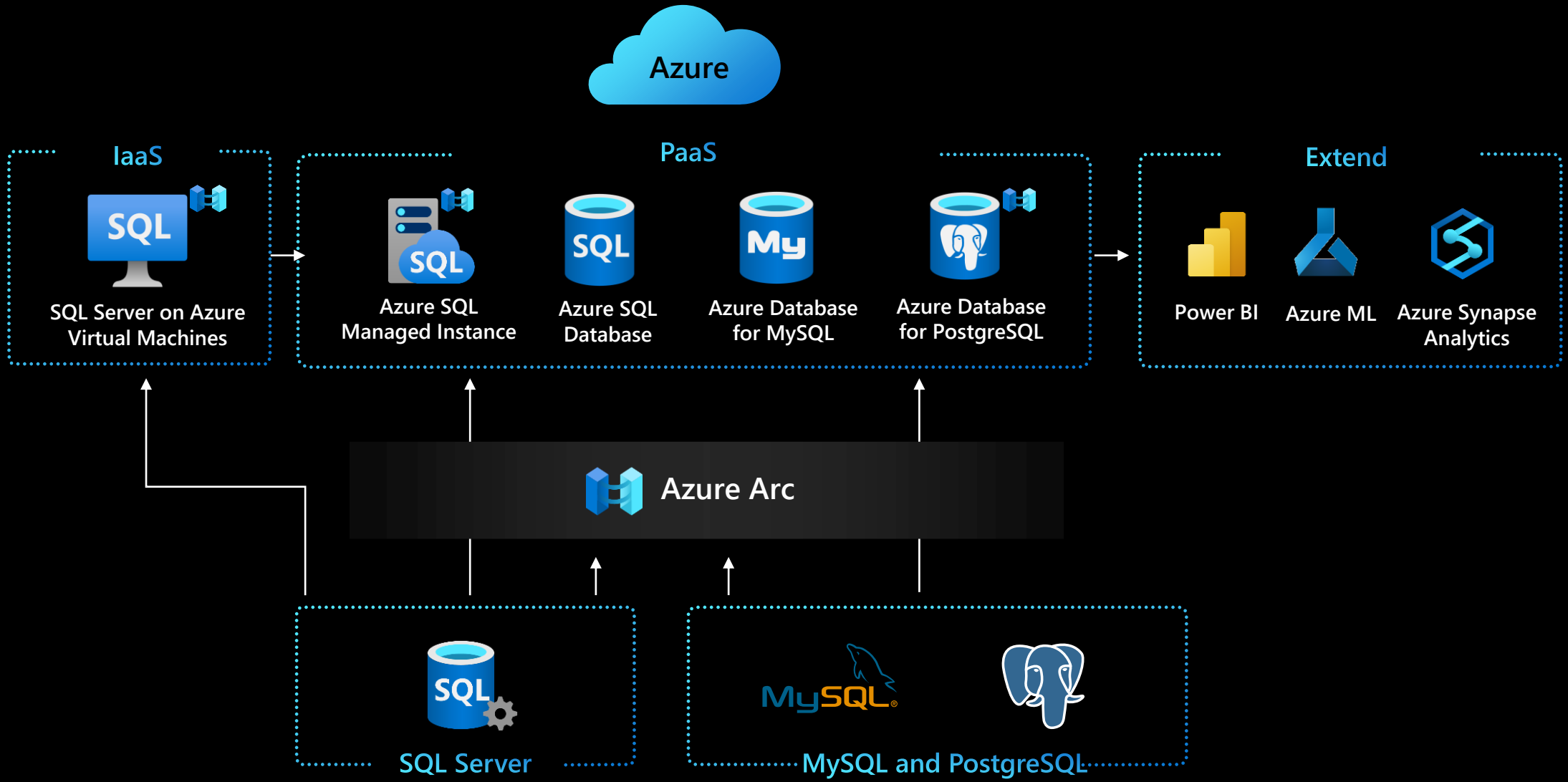
*Other names and brands may be claimed as the property of others.

Confidential computing @ Azure

Azure confidential computing offerings cover VMs, containers, and also Azure PaaS/SaaS offerings



Migrate and modernize your data estate in the cloud

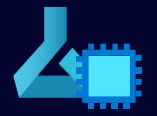


HPC Optimized Resource Stack on Azure

Digitally
Transform

Azure Machine Learning

Azure Data Lake


Azure ML Compute

Workload
Management

Azure CycleCloud

Azure VM Scale Sets

Azure Batch

Fast, Secure
Network

ExpressRoute

InfiniBand

High Performing
Storage

Azure HPC Cache

Azure NetApp Files

Azure NFS Blob

Optimized
Compute

Ecosystem momentum

IHV → Device → Connectivity Provider → ISV → Service Provider → SI → Professional Services → Consulting → Solutions → Customer

Developer Community

Visual Studio, GitHub, hadoop, docker, php, nodeJS, Powershell, eclipse, python, ARM mbed, MySQL, Ruby, Java, mongoDB, Chef + Puppet

Partner Ecosystem

System Integrators & Advisors

accenture, CGI, HCL, EY, TATA CONSULTANCY SERVICES, HARMAN, eBECS, T-Systems, KPMG, Cognizant, Infosys, Tech Mahindra, SOGETI, avanade, pwc, DXC.technology, LARSEN & TOUBRO, Reply, wipro, Capgemini, robotron, MOQdigital

Solution Providers

Schneider Electric, GE, ABB, esri, AVEVA, cisco, ICONICS, Rockwell Automation, ActionPoint, conplement, codit, Johnson Controls, Honeywell, SAP, ptc, GloIoT, energisme, SIEMENS, Atos Worldline, DUNAV NET, Hitachi Solutions, Schlumberger, COPADA, relayr

Telco Providers

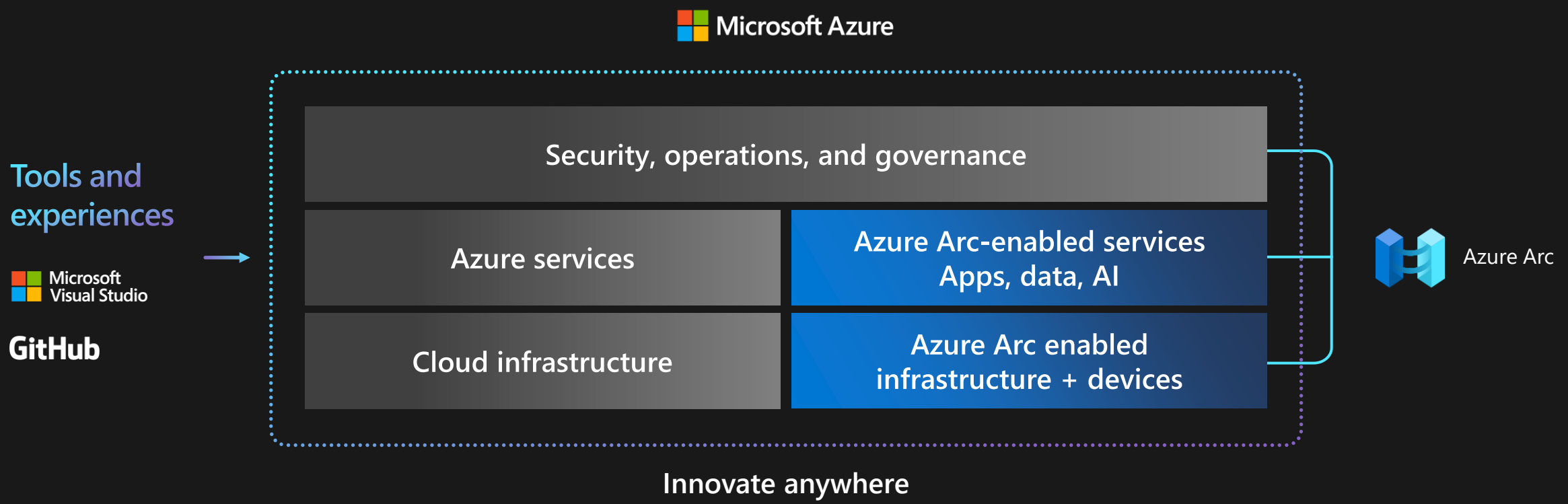
T-Mobile, Deutsche Telekom, américa móvil, Telefónica, TURKCELL, orange, vodafone, at&t, KORE, Hologram, 1NCE, SORACOM, TELNYX

Solution Aggregators

ARROW ELECTRONICS, INC., SYNNEX, MESHSYSTEMS, CUI, Insight, happiest minds, ICT, AVNET, Tech Data, INGRAM, Mobiliya, sigma

Devices

ST life.augmented, RENESAS, cisco, kontron, RaspberryPi, MICROCHIP, DELL, libelium, NVIDIA, Itron, intel, MOXA, Qualcomm, cradlepoint, BECKHOFF, HITACHI Inspire the Next, embedded systems, TOSHIBA Leading Innovation, Panasonic, NEXCOM, Hewlett Packard Enterprise, ADVANTECH, FUJITSU, Toradex, NXP, ARBOR



Cloud regions

50+ Azure regions
Multicloud

Regional edge

Operator DC
Co-Lo provider

IT edge

Customer DC
Branch office

IoT edge

Factory floor
Retail store
Field production

Thank you