Microsoft Azure

Serverless On Azure

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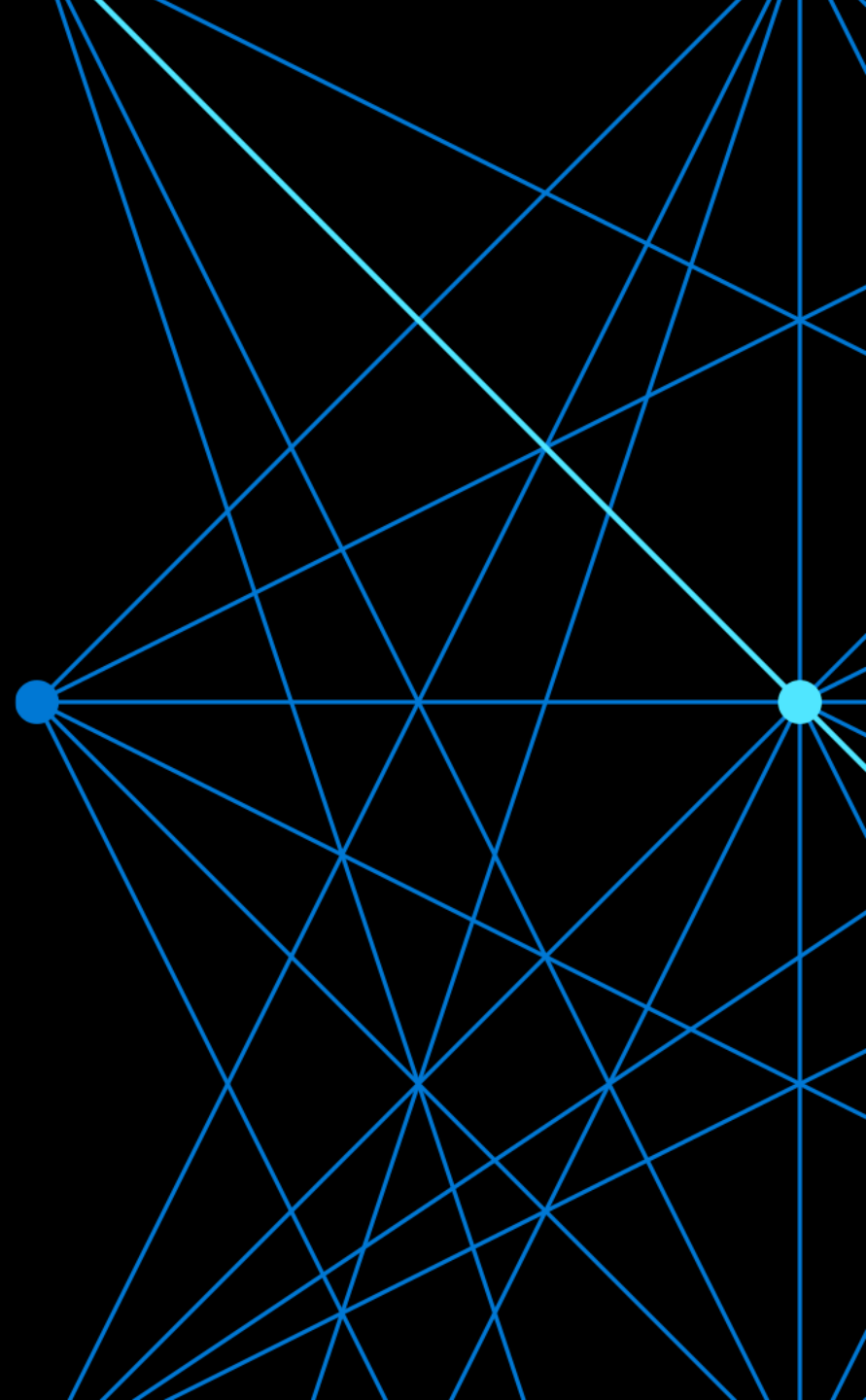
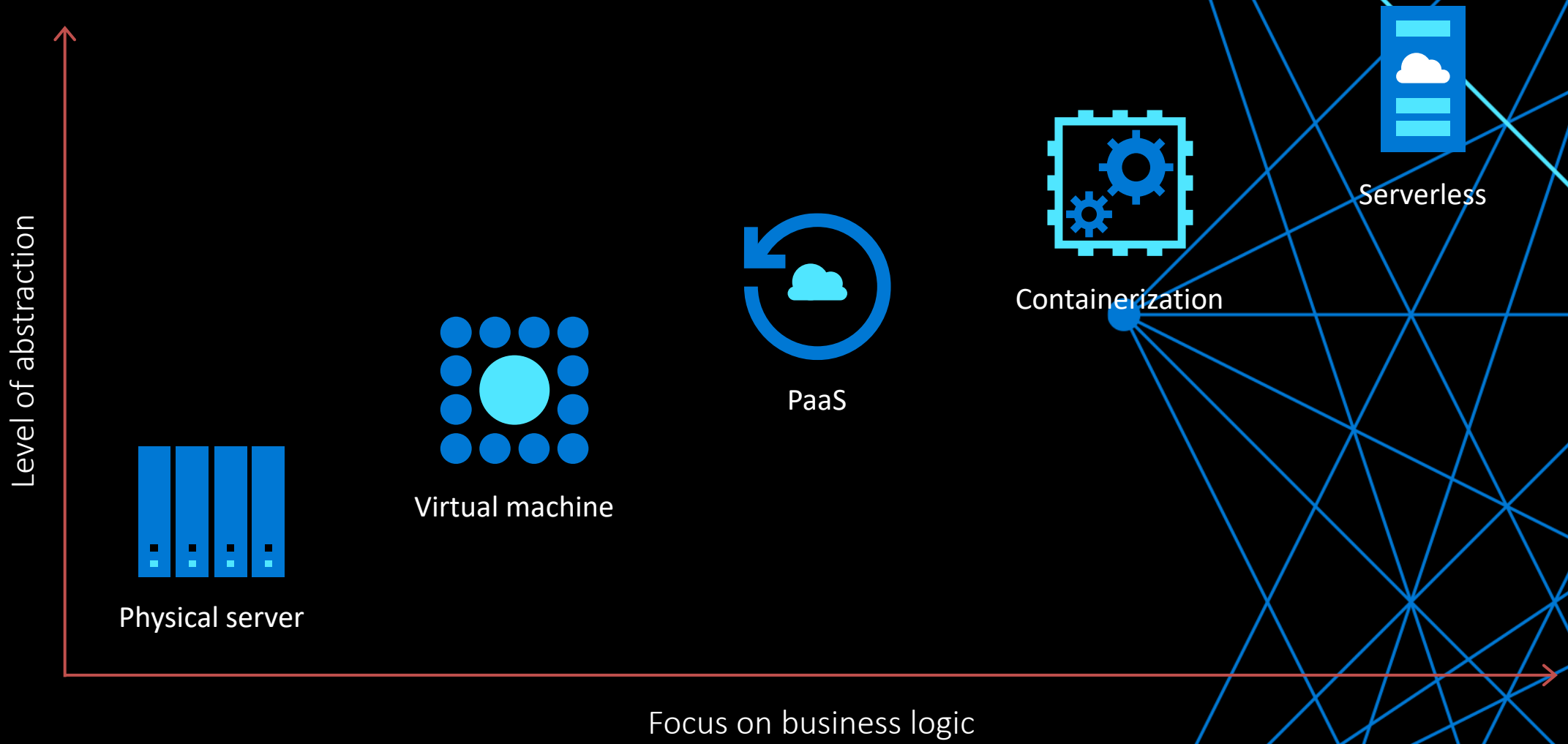
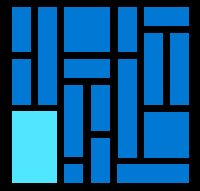


Evolution of computing



What is Serverless



No infrastructure management

Developers can just focus on their code—without needing to worry about provisioning and managing infrastructure

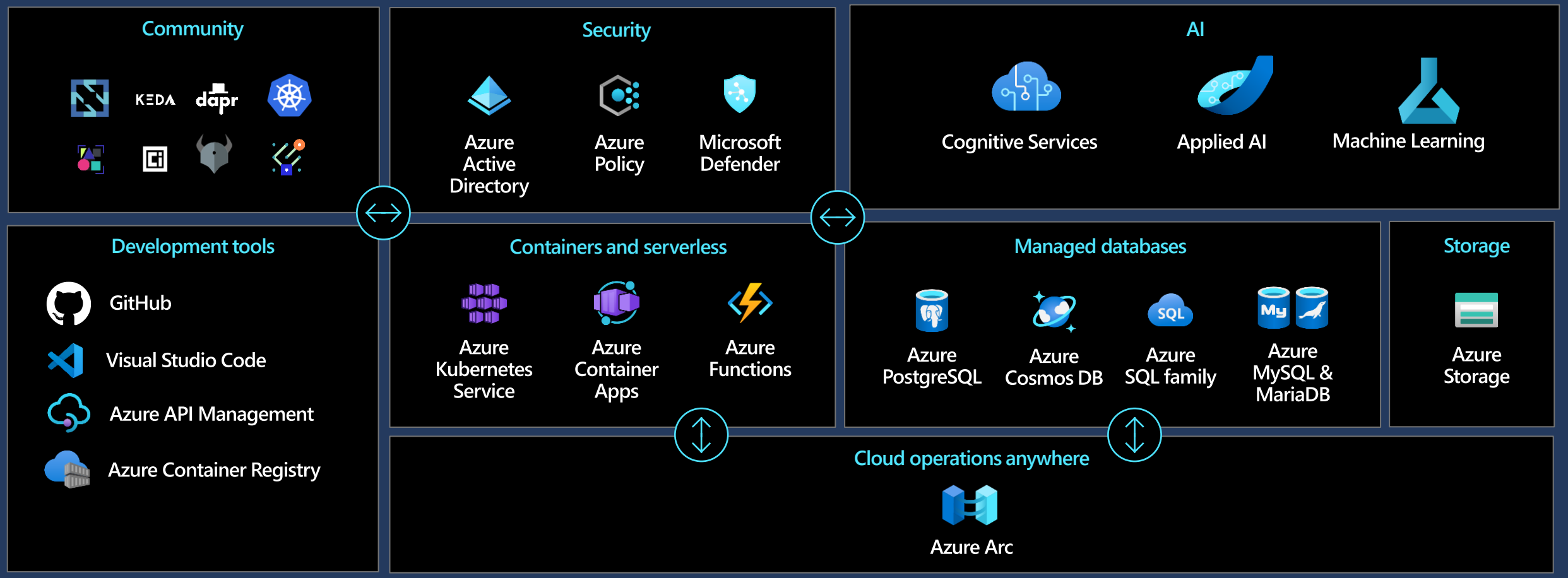
Instant, event-driven scalability

Application components react to events and triggers in near real-time with virtually unlimited scalability

Pay-per-use

Only pay for what you use: billing is typically calculated on the number of function calls, code execution time, and memory used*

Building cloud-native on Azure



Azure Serverless

The platform for next-gen apps

PLATFORM

API Management

Event Grid	Functions	Logic Apps
Manage all events that can trigger code or logic	Execute your code based on events you specify	Design workflows and orchestrate processes
Database, Storage	Automation, Intelligence	Security, IoT

DEVELOPMENT

- IDE support
- Integrated DevOps
- Local development
- Monitoring
- Visual debug history

Azure Functions

An event-based, serverless compute experience that accelerates app development

Integrated programming model

Use built-in triggers and bindings to define when a function is invoked and to what data it connects

End-to-end development experience

Take advantage of a complete, end-to-end development experience with Functions—from building and debugging locally on major platforms like Windows, macOS, and Linux to deploying and monitoring in the cloud

Hosting options flexibility

Choose the deployment model that better fits your business needs without compromising development experience

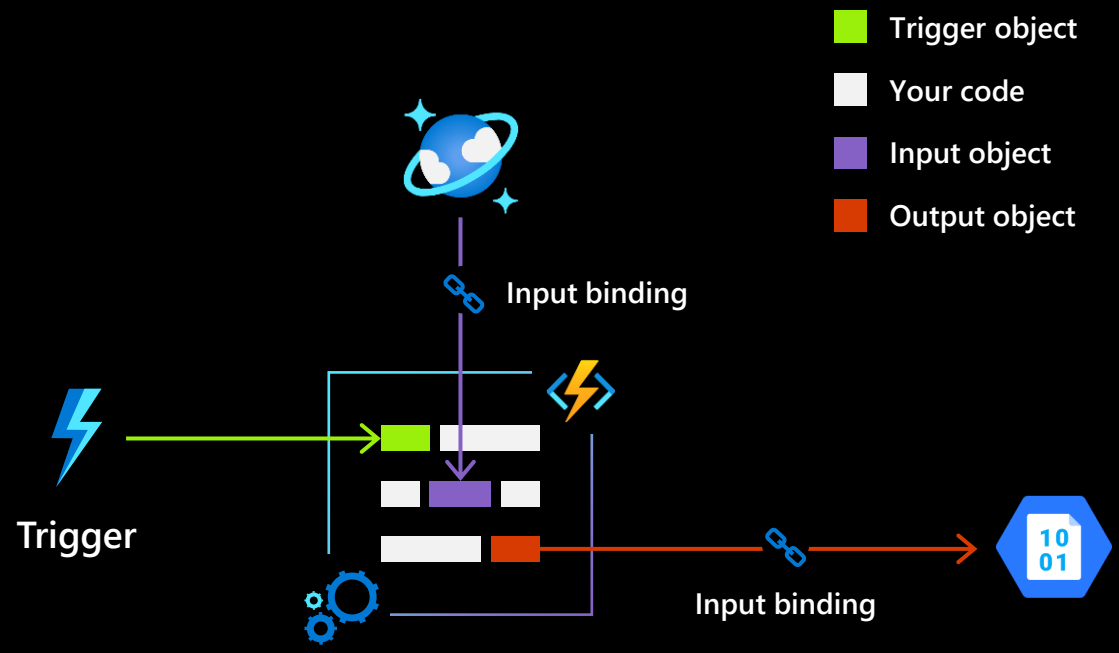
Fully managed and cost-effective

Automated and flexible scaling based on your workload volume, keeping the focus on adding value instead of managing infrastructure

open-source project - https://github.com/Azure/Azure-Functions

Integrated programming model

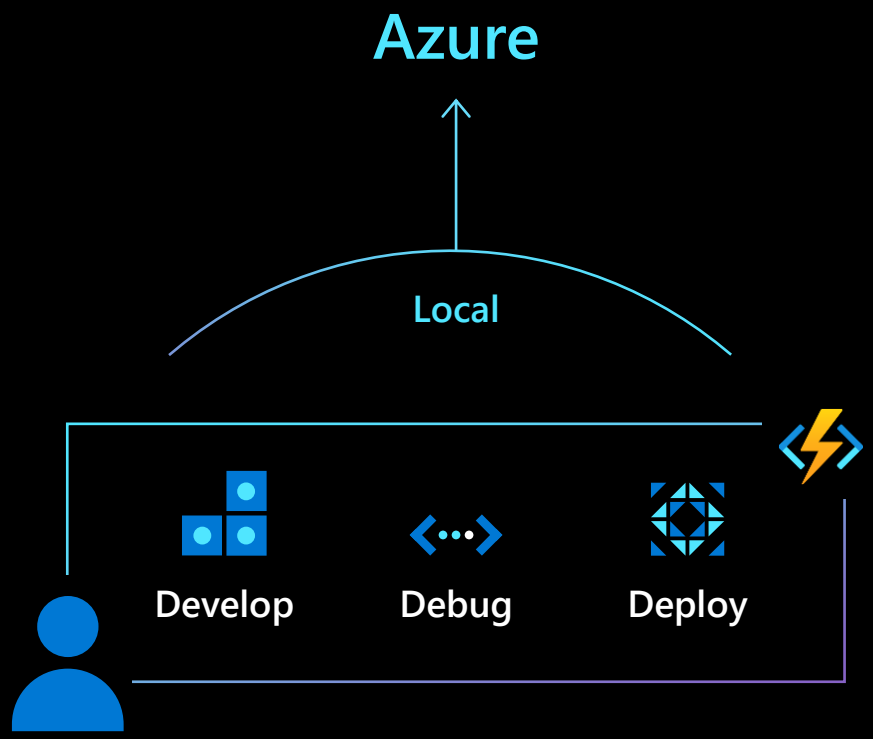
Azure Functions features input/output bindings which provide a means of pulling data or pushing data to other services. These bindings work for both Microsoft and third-party services without the need to hard-coding integrations.



End-to-end development experience

Azure functions offers the best-in-class end-to-end development experience, from developing and debugging to monitoring and deploying with built-in DevOps capabilities and integrated tools. Azure Functions integrates with VS and VS Code which let you locally develop, debug, and deploy functions to Azure.

Azure Functions Core Tools lets you develop and test your functions on your local computer from the command prompt or terminal, and the local functions can connect to live Azure services.



Hosting options flexibility

Pick the Functions plan that matches your business needs and deploy the same code to multiple targets—from pay-per-execution in the cloud to your Kubernetes cluster or IoT devices for edge computing.

Consumption

Premium

App service

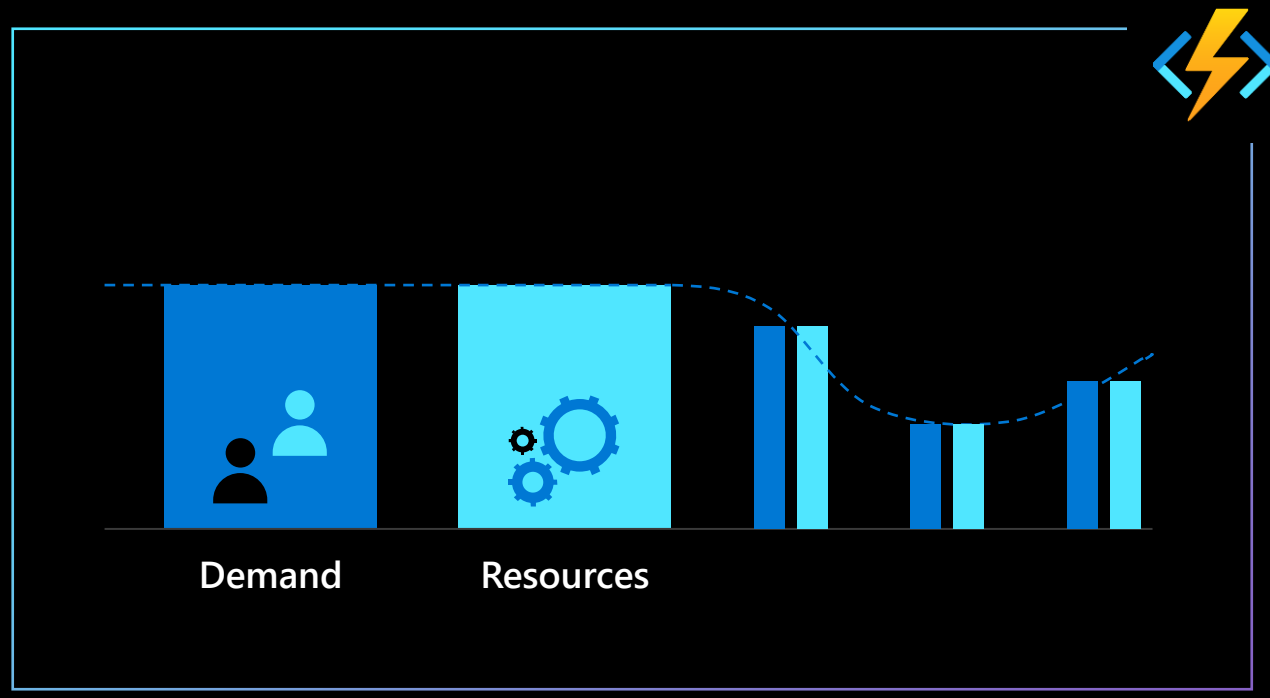
Kubernetes

Azure stack

IoT Edge

Fully managed and cost-effective

- Automatically handles all maintenance and updates
- Serverless and auto scale options keep costs low by matching resources to demand and eliminating capacity management and resource over-provisioning during busy or slow times
- Cost-effective serverless model responds to app patterns and is ideally suited for small, spiky workloads with moderate performance requirements



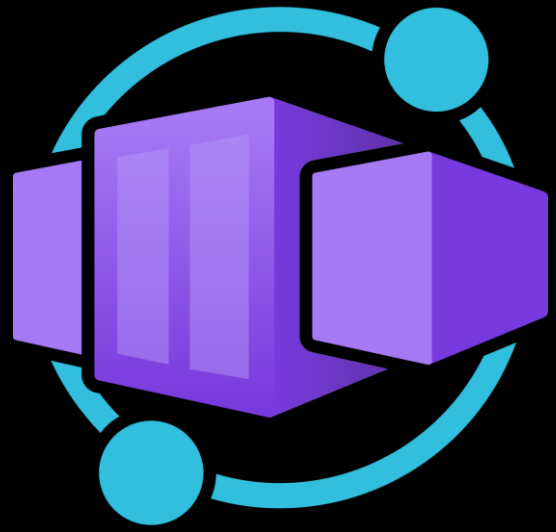
Azure Container Apps

Serverless containers for microservices

Build modern apps on open source

Focus on apps, not infrastructure

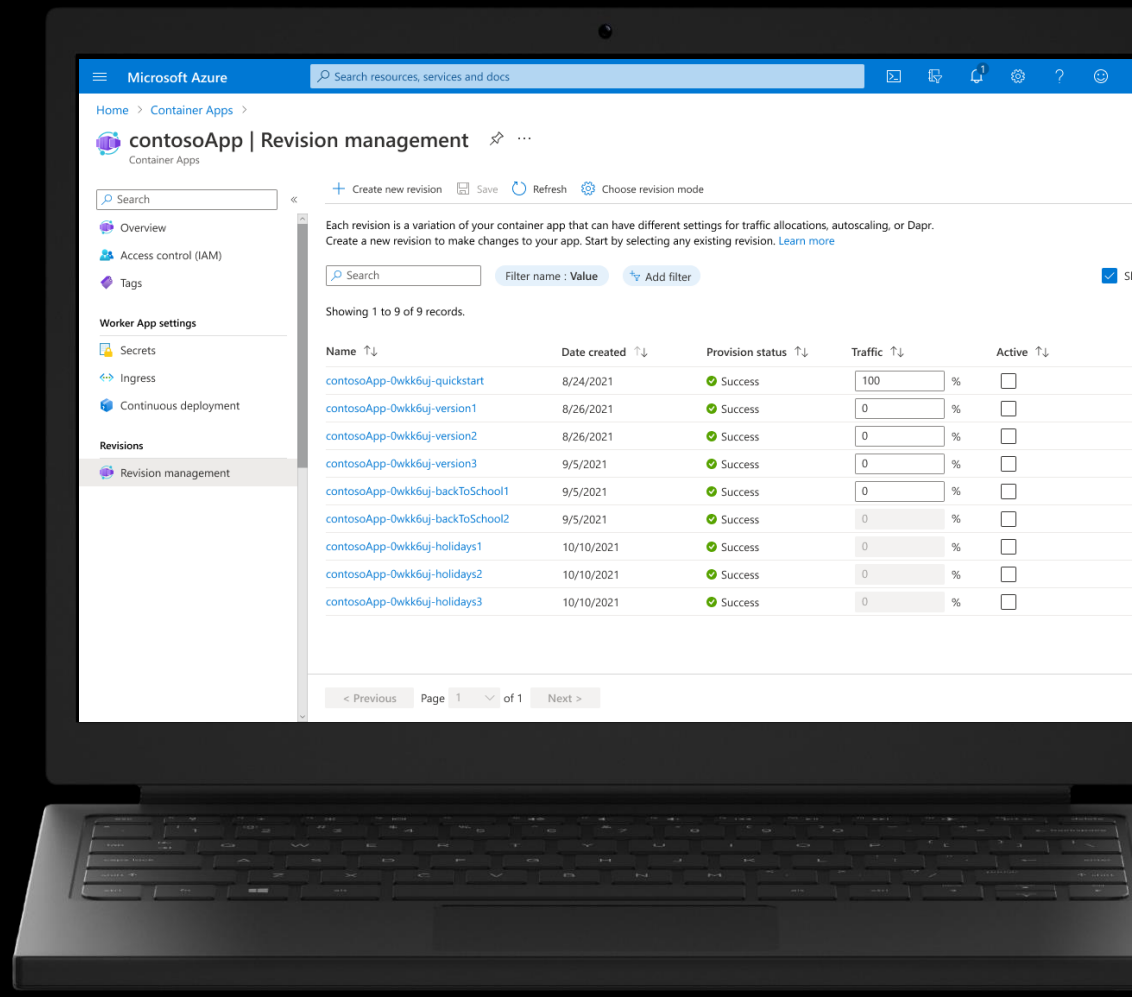
Scale dynamically based on events



Kubernetes KEDA dapr DAPR envoy Envoy

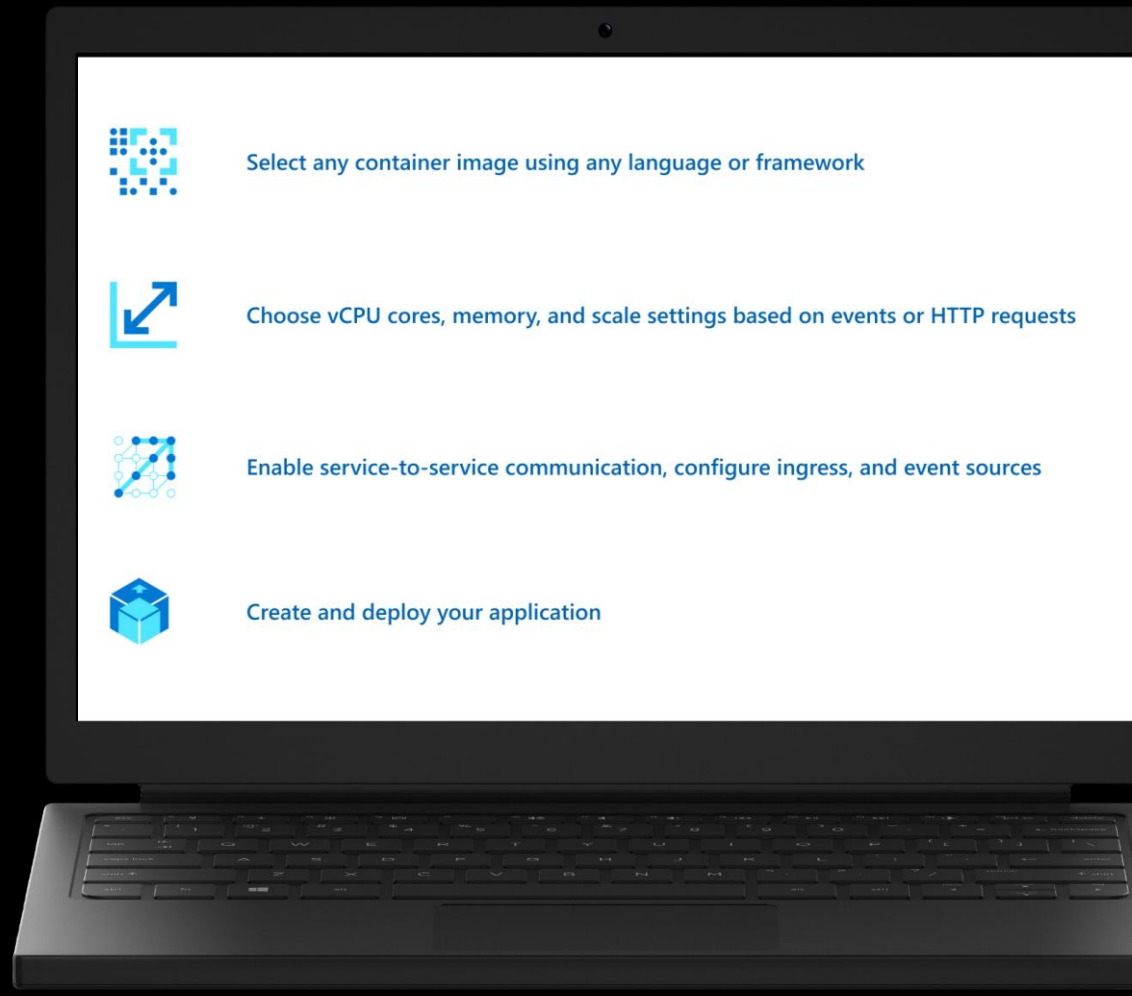
Build modern apps on open-source

- App portability powered by open standards and APIs
- App patterns and best practices encapsulated by products like Dapr
- Service capabilities influenced by OSS contributions
- Benefit from streamlined application lifecycle for upgrades and versioning, traffic shifting, service discovery, and monitoring.



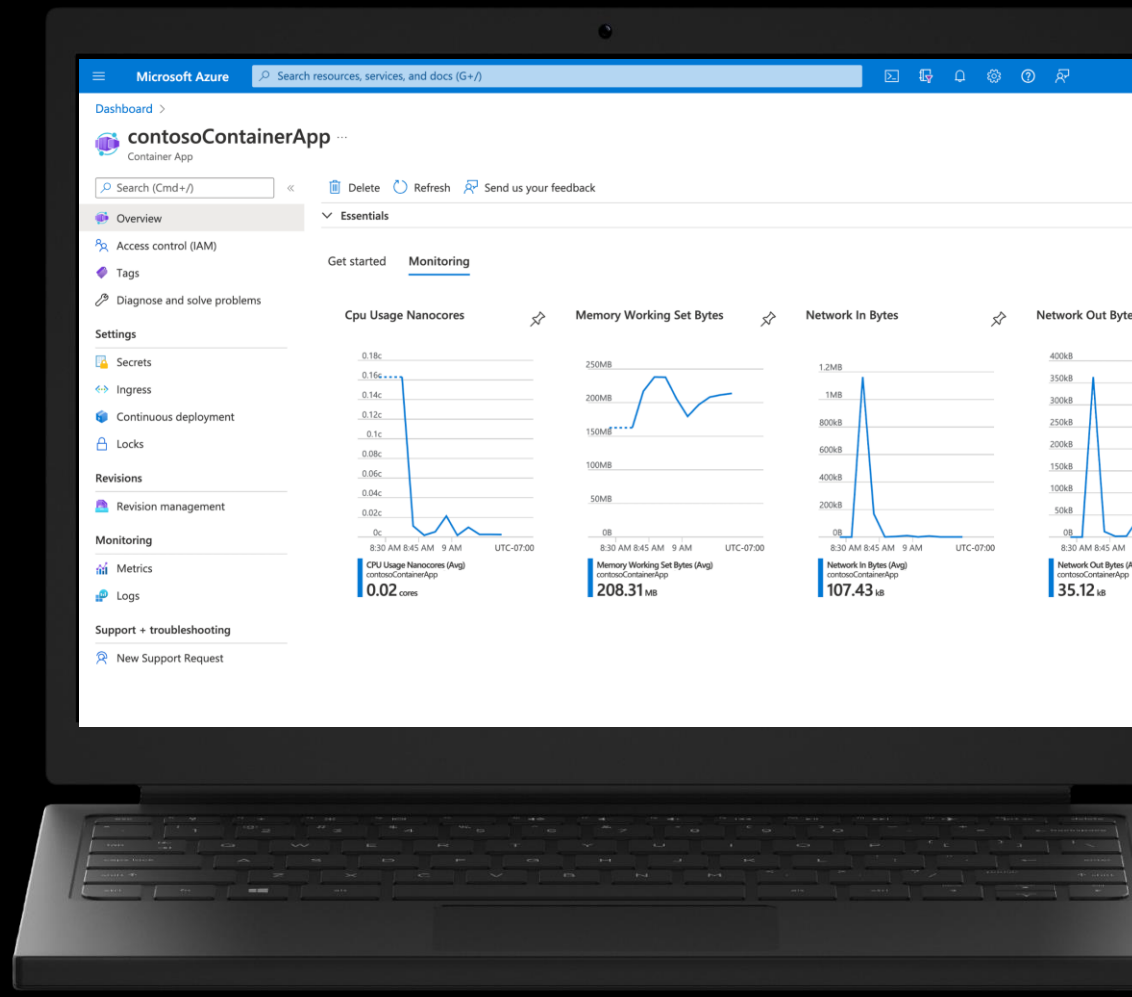
Focus on apps, not infrastructure

- Apps with any development stack, any Linux container image
- No opinionated programming model
- High productivity development experience
- Set up a code-to-cloud pipeline using GitHub Actions.



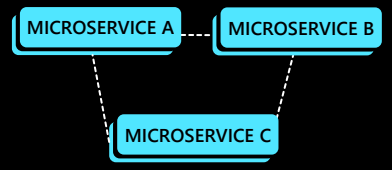
Scale dynamically based on events

- Serverless autoscale based on HTTP requests, KEDA event scale triggers, or CPU and Memory
- Declarative scaling rules eliminate the need to manage complex infrastructure
- Scale to 0 and pay per use by second



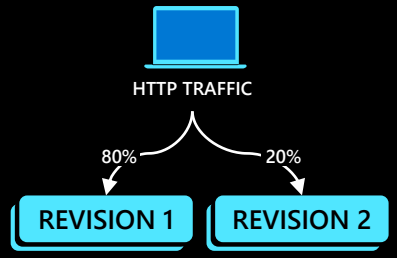
What can you build with Azure Container Apps?

Microservices



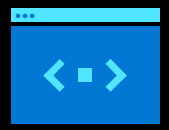
Microservices architecture with the option to integrate with Dapr

Public API endpoints



E.g., API app with HTTP requests split between two revisions of the app

Web Apps



E.g., Web app with custom domain, TLS certificates, and integrated authentication

Event-driven processing

E.g., Queue reader app that processes messages as they arrive in a queue

Background processing

E.g., Continuously running background process transforms data in a database

AUTO-SCALE CRITERIA

Individual microservices can scale independently using any KEDA scale triggers

Scaling is determined by the number of concurrent HTTP requests

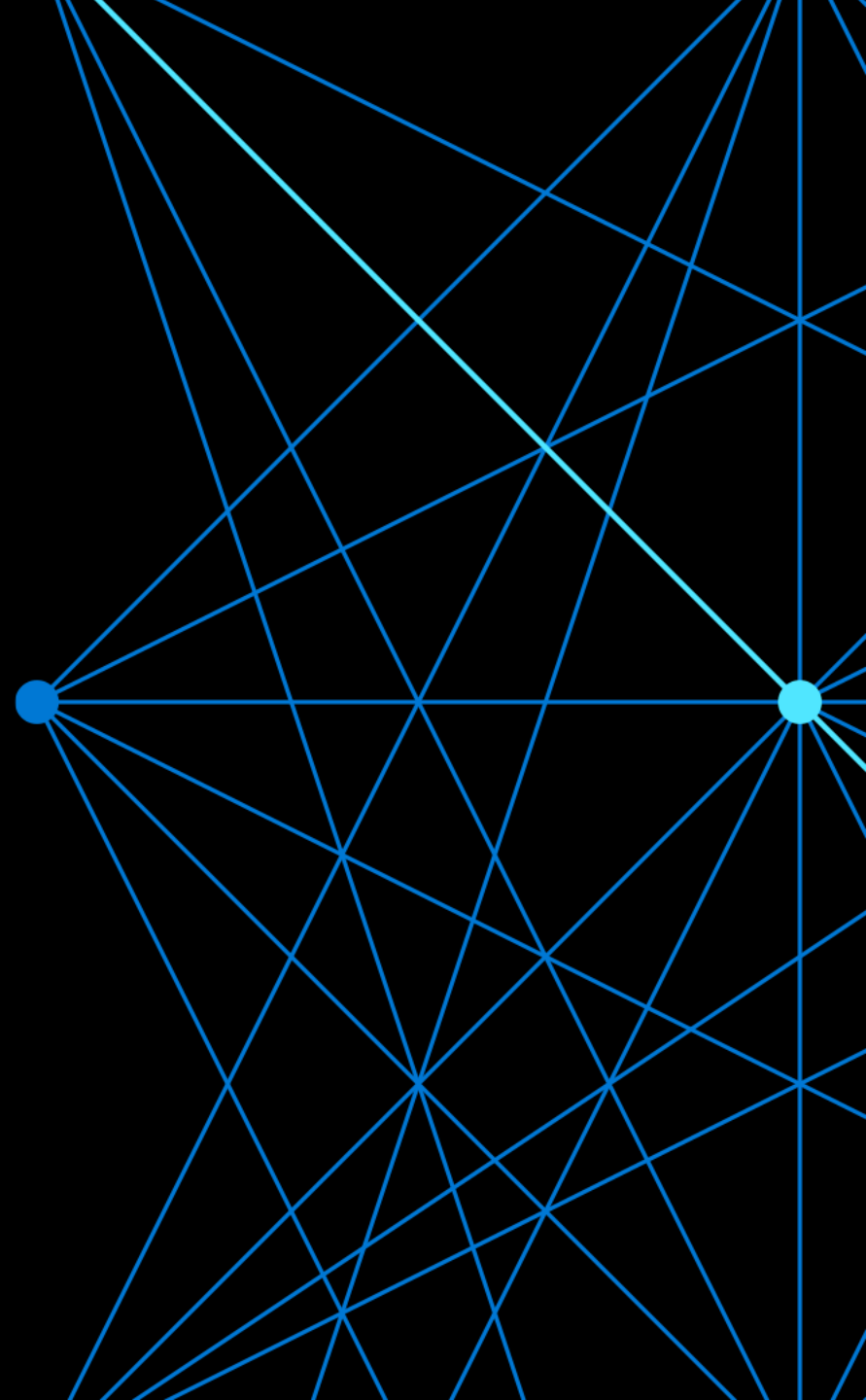
Scaling is determined by the number of concurrent HTTP requests

Scaling is determined by the number of messages in the queue

Scaling is determined by the level of CPU or memory load

Microsoft Azure

DEMO



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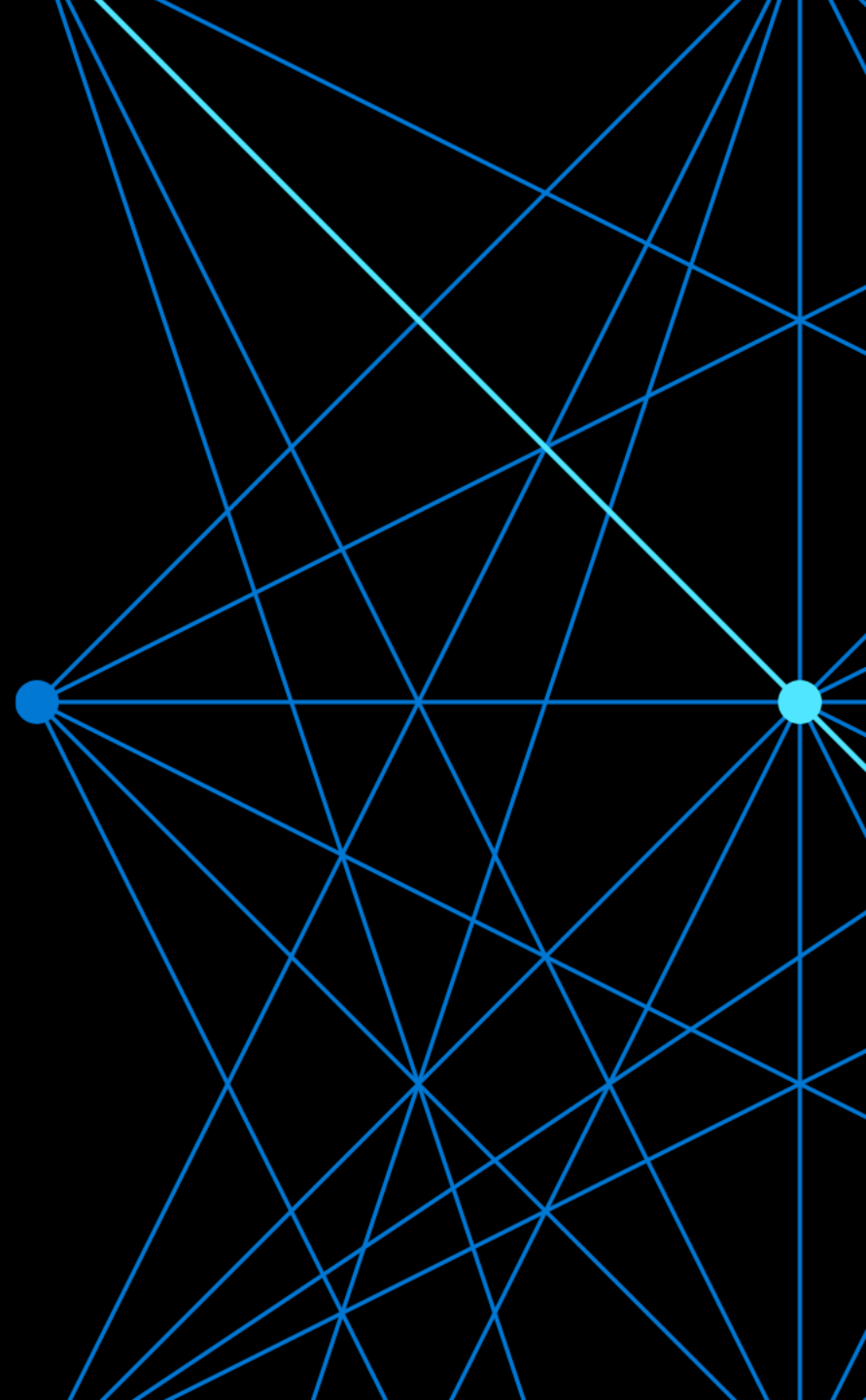
Q&A
Feel to ask anything ☺