



Cloud-native Pathways for the start-ups: *Discovery to Deployment*

Maheshkumar R

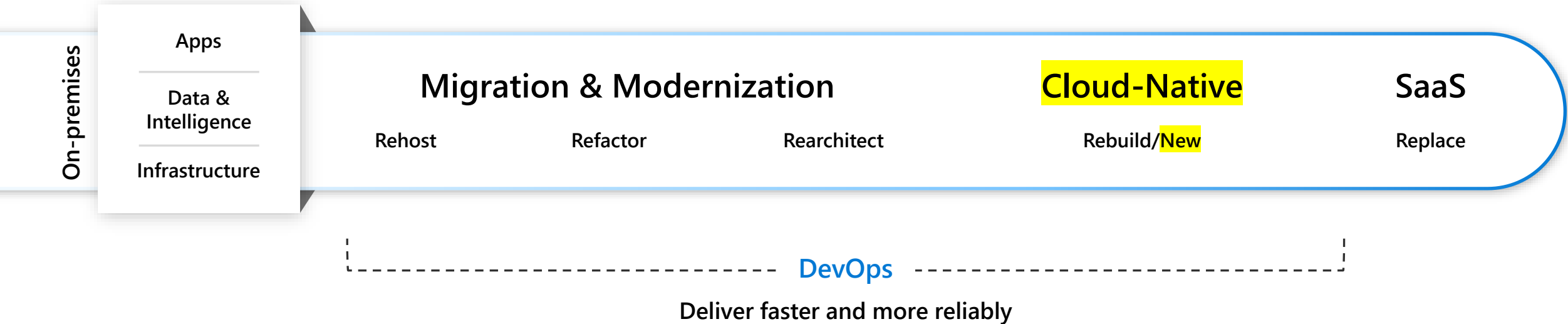
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The **journey** to the cloud



The [Cloud Native Computing Foundation](#) provides the [official definition](#):

Cloud-native technologies empower organizations to **build and run scalable applications** in modern, dynamic environments such as public, private, and hybrid clouds. **Containers, service meshes, microservices**, immutable infrastructure, and declarative APIs exemplify this approach.

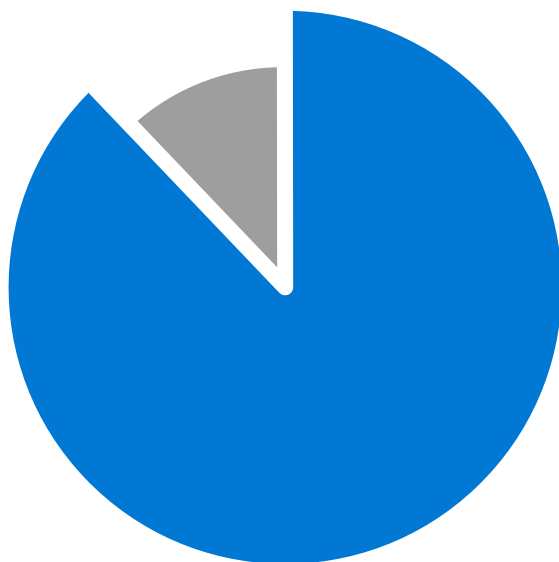
These techniques enable loosely coupled systems that are **resilient, manageable, and observable**. Combined with robust automation, they allow engineers to make high-impact changes frequently and predictably with minimal toil.

Company	Experience
Netflix ↗	Has 600+ services in production. Deploys 100 times per day.
Uber ↗	Has 1,000+ services in production. Deploys several thousand times each week.
WeChat ↗	Has 3,000+ services in production. Deploys 1,000 times a day.

Test your Kubernetes adoption knowledge

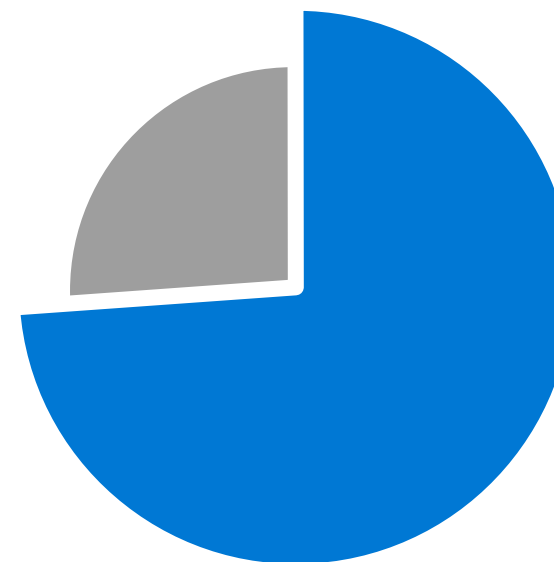
How many of you are **using Kubernetes for container orchestration**?

- A. 42%
- B. 66%
- C. 73%
- D. 88%
- E. 95%

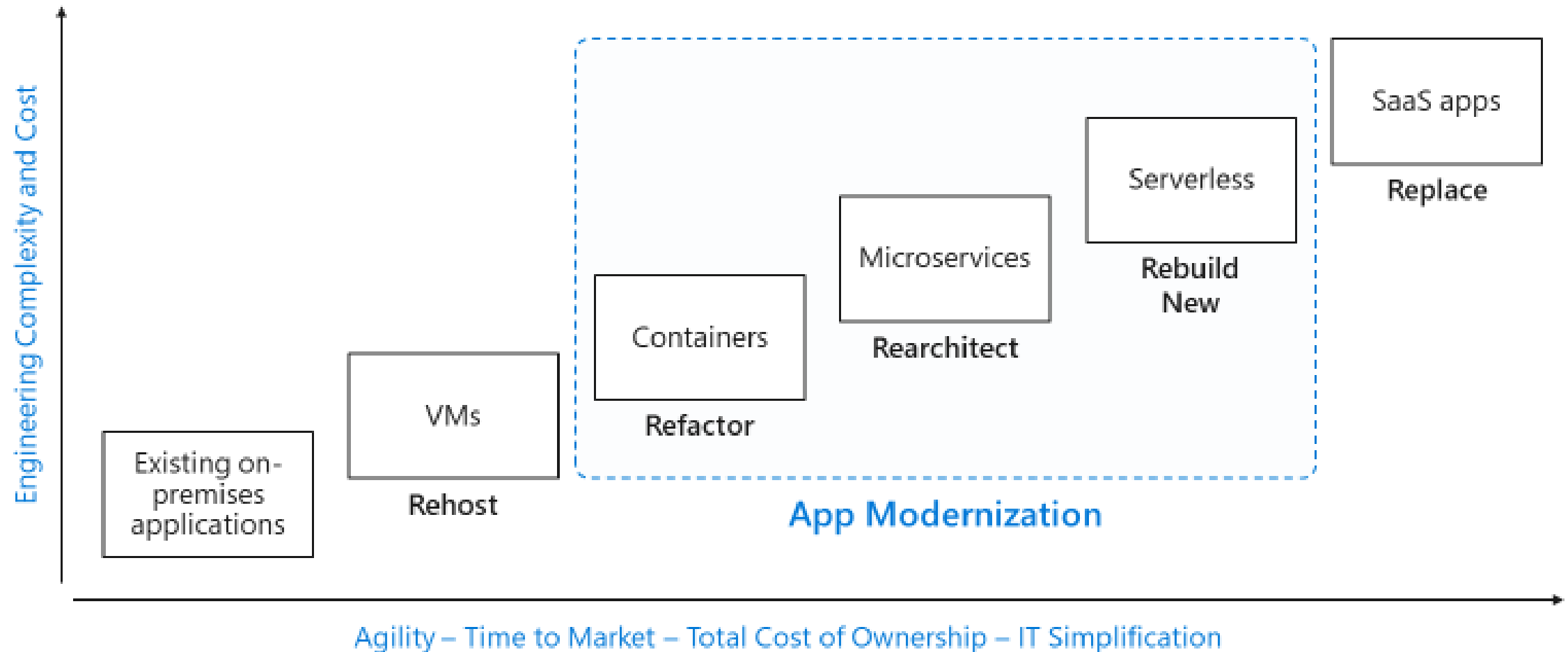


Of those of you using Kubernetes, how many are **running workloads in production**?

- A. 45%
- B. 55%
- C. 74%
- D. 85%
- E. 100%



Cloud app **continuum**



Kubernetes: the de facto container orchestrator

Microsoft investing in Kubernetes

88%
of enterprises using or
adopting Kubernetes

- 74% of enterprises that use Kubernetes are running workloads in production
- 74% of survey respondents have a DevSecOps initiative underway
- At least 20% of enterprises that use Kubernetes leverage **six different open-source security tools**



Portable

Public, private, hybrid,
multi-cloud

Extensible

Modular, pluggable,
hookable, composable

Self-healing

Auto-placement, auto-restart,
auto-replication, auto-scaling

LandscapeCard ModeMembersServerlessWasm

App Definition and Development

DatabaseStreaming & MessagingApplication Definition & Image BuildContinuous Integration & Delivery

Orchestration & Management

Scheduling & OrchestrationCoordination & Service DiscoveryRemote Procedure CallService ProxyAPI GatewayService Mesh

Runtime

Cloud Native StorageContainer RuntimeCloud Native Network

Provisioning

Automation & ConfigurationContainer RegistrySecurity & ComplianceKey Management

Special

Kubernetes Certified Service ProviderKubernetes Training PartnerCertified CNFs

Platform

Certified Kubernetes - DistributionCertified Kubernetes - HostedCertified Kubernetes - InstallerPaaS/Container Service

Observability and Analysis

MonitoringLoggingTracingChaos EngineeringContinuous Optimization

Serverless


Members

CD Foundation Landscape

CLOUD NATIVE Landscape

Cloud Native Computing Foundation

RedpandaAmplify


l.cncf.io

This landscape is intended as a map through the previously uncharted terrain of cloud native technologies. There are many routes to deploying a cloud native application, with CNCF Projects representing a particularly well-traveled path.

LandscapeCard ModeMembersServerlessWasm

App Definition and Development

DatabaseStreaming & MessagingApplication Definition & Image BuildContinuous Integration & DeliveryPlatform

Orchestration & Management

Scheduling & OrchestrationCoordination & Service DiscoveryRemote Procedure CallService ProxyAPI GatewayService Mesh


Runtime

Cloud Native StorageContainer Runtime

Provisioning

Automation & ConfigurationContainer RegistrySecurity & Compliance

Kubernetes Certified Service Provider



Azure Kubernetes Service (AKS)

License: Not Open Source

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Azure Kubernetes Service (AKS)




Microsoft CNCF Platinum Member

Platform · Certified Kubernetes · Hosted

Simplify the deployment, management, and operations of Kubernetes. Use a fully managed Kubernetes container orchestration service or choose other orchestrators.

Website	azure.microsoft.com/en-us/services/kubernetes-service
Crunchbase	crunchbase.com/organization/microsoft
LinkedIn	linkedin.com/company/microsoft
Twitter	@Azure Latest Tweet this week
Headquarters	Redmond, Washington Headcount 10,001-1,000,000
Market Cap	\$1.9T

Tweets by @Azure

 Microsoft Azure 
[@Azure](#)
Taking cloud computing to new heights. 
<https://twitter.com/WCGamingTweets/status/1537557495853481984>

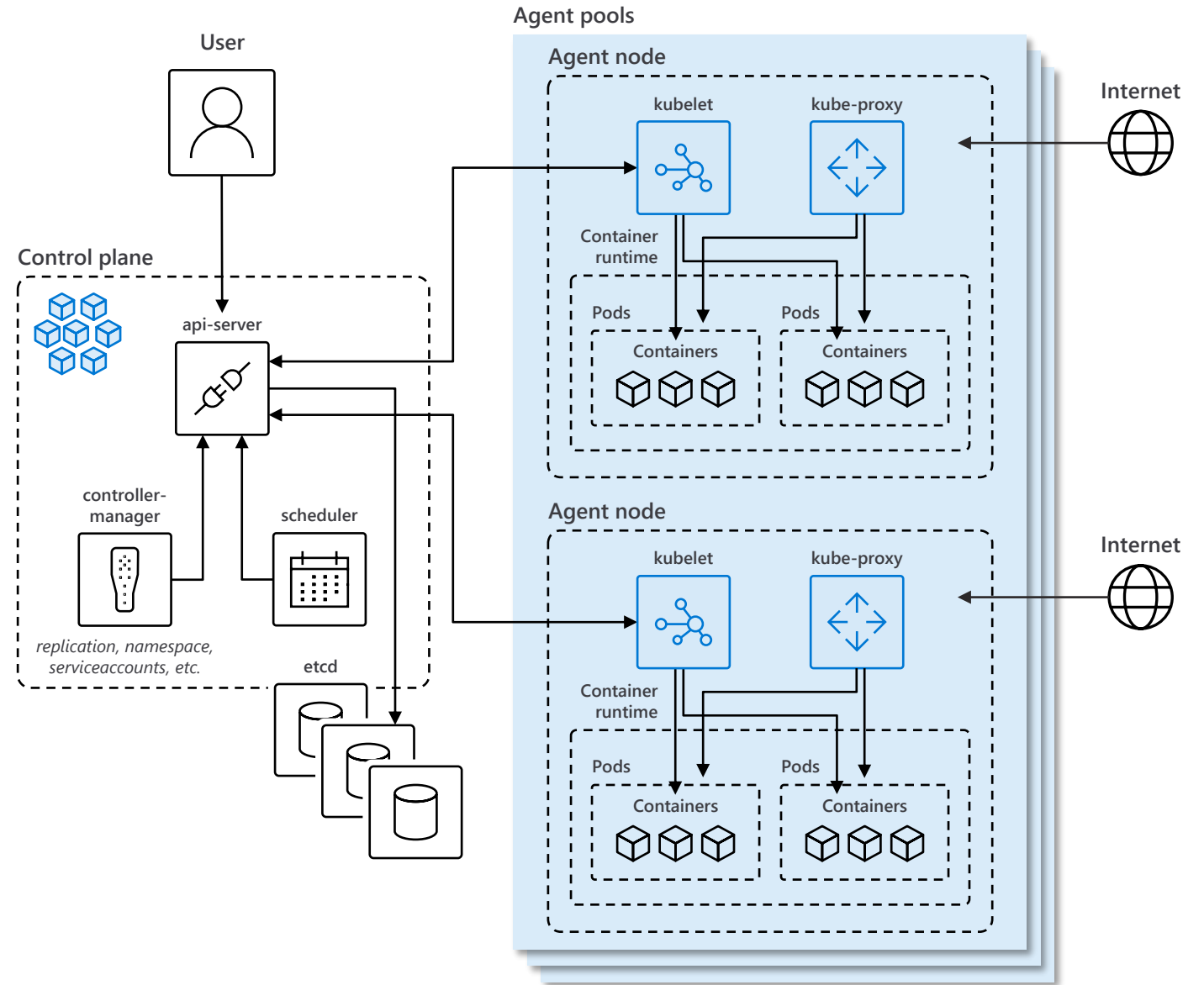
What's Your Kubernetes Maturity?



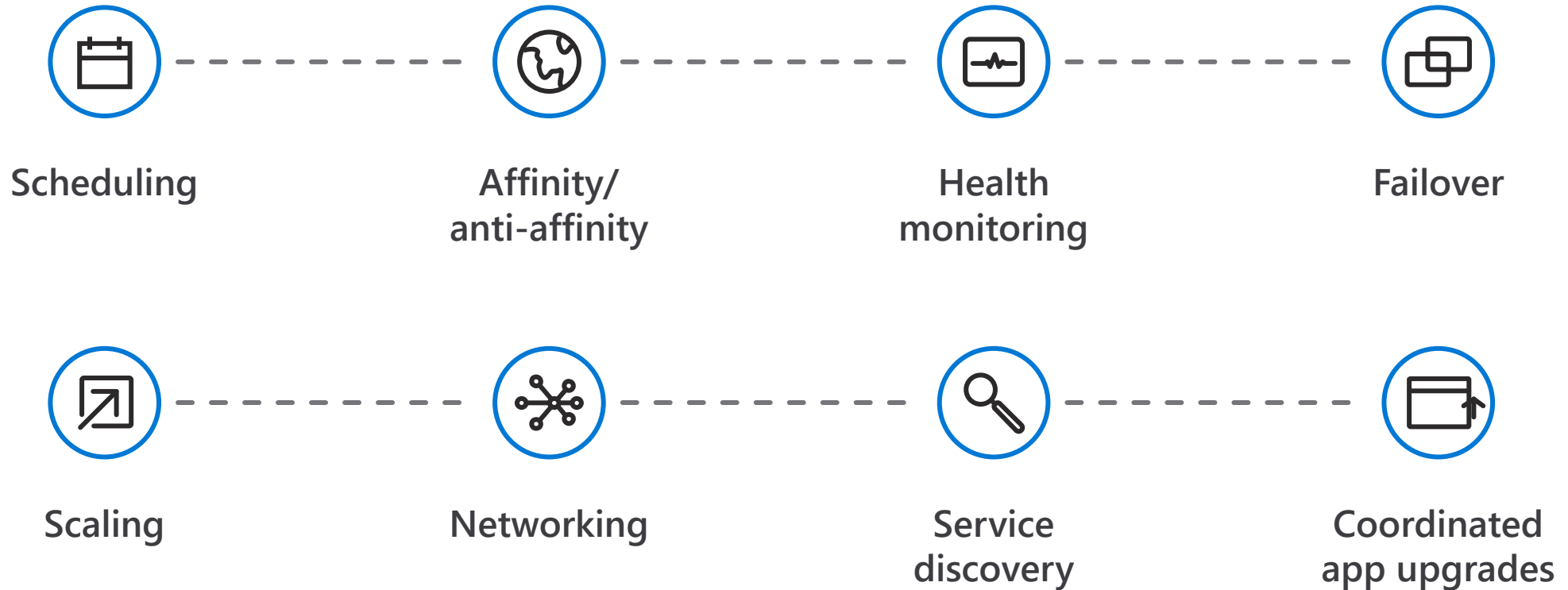
Why Managed Kubernetes?

Kubernetes is complex

1. Kubernetes users communicate with API server and apply desired state
2. Control plane actively enforces desired state on agent nodes
3. Agent nodes support communication between containers
4. Agent nodes support communication from the Internet
5. Agent pools keep multiple agent nodes organized



The elements of high-performing **Kubernetes**



Microsoft Cloud



Identity



Security

Microsoft 365

Dynamics 365

Power Platform

Azure

Changing landscape

Application innovation trends for 2021 and beyond...



Move to the public cloud

Accelerate and scale innovation



Democratize technology development

Allow non-technical users to build low-code apps



Shorten time to market

Innovate with speed to adapt to digital urgency



Harness rapidly growing data volumes

Make apps smarter with data insights



Reassess investments

Optimize for a new macro environment



Infuse intelligence

Create real-time personalization with AI and ML



Enable remote development

Collaborate globally and remotely



Prioritize reliability and security

Invest in business continuity and security

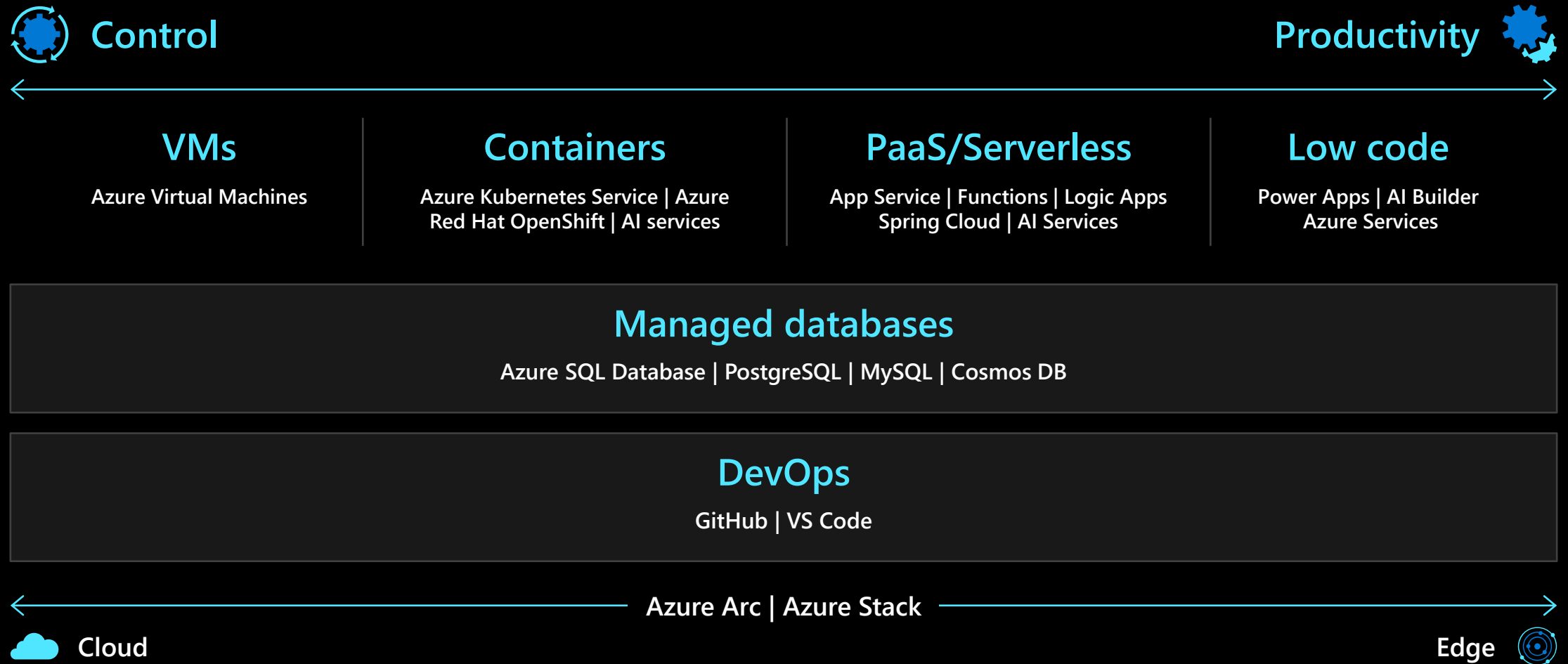
Most comprehensive developer tools and cloud



1. Forrester: Forrester Wave for Public Cloud Development and Infrastructure Platforms, and, Public Cloud Development Platforms, Q1 2020

2. Forrester Wave for Low-Code Development Platforms, 2019

How our products enable app innovation



Our application innovation vision



1. The Total Economic Impact of Power Apps by Forrester Consulting, March 2020

2. McKinsey Developer Velocity Research

Build new intelligent cloud-native applications



90% of all production
apps will be cloud-native
by 2025¹

Increase speed of innovation without
compromising reliability and security

Azure offers the strongest developer experience
with the most comprehensive toolchain and AI
portfolio for your applications

Build new intelligent cloud-native applications



AI-powered UI and
application logic



Fully managed data,
analytics and insights

Develop collaboratively and securely for the cloud



79% of organizations that claim to do DevOps are leveraging the cloud¹

Collaboration and security remain top of mind as companies have been adapting to a remote work or hybrid work environment

Azure helps your teams to build apps from anywhere with cloud-powered development environments, collaborate smoothly from anywhere with tools that enable distributed teamwork, and securely ship from anywhere, with fully integrated services and tools that enable teams to maintain confidence in security despite being remote

1. Forrester: The State of Modern Technology Operations

● microservices
Search term



● DevOps
Search term



+ Add comparison

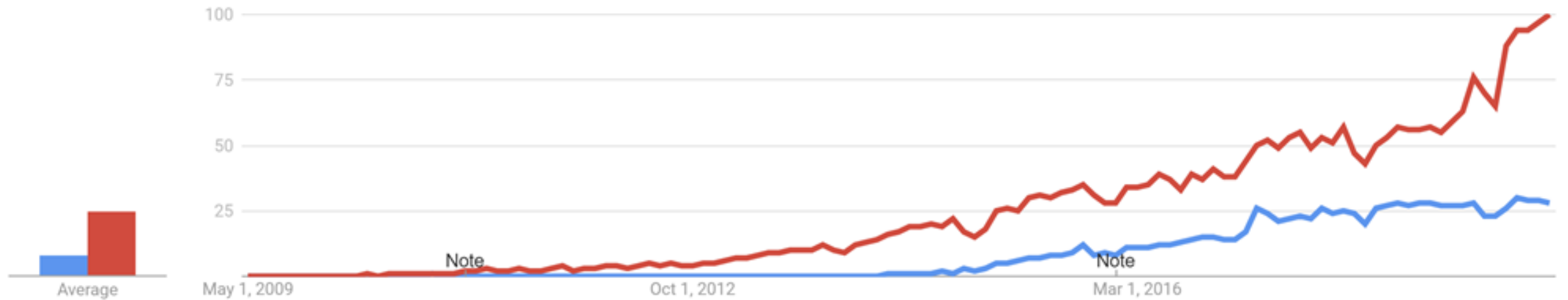
United States ▼

4/28/09 - 5/28/19 ▼

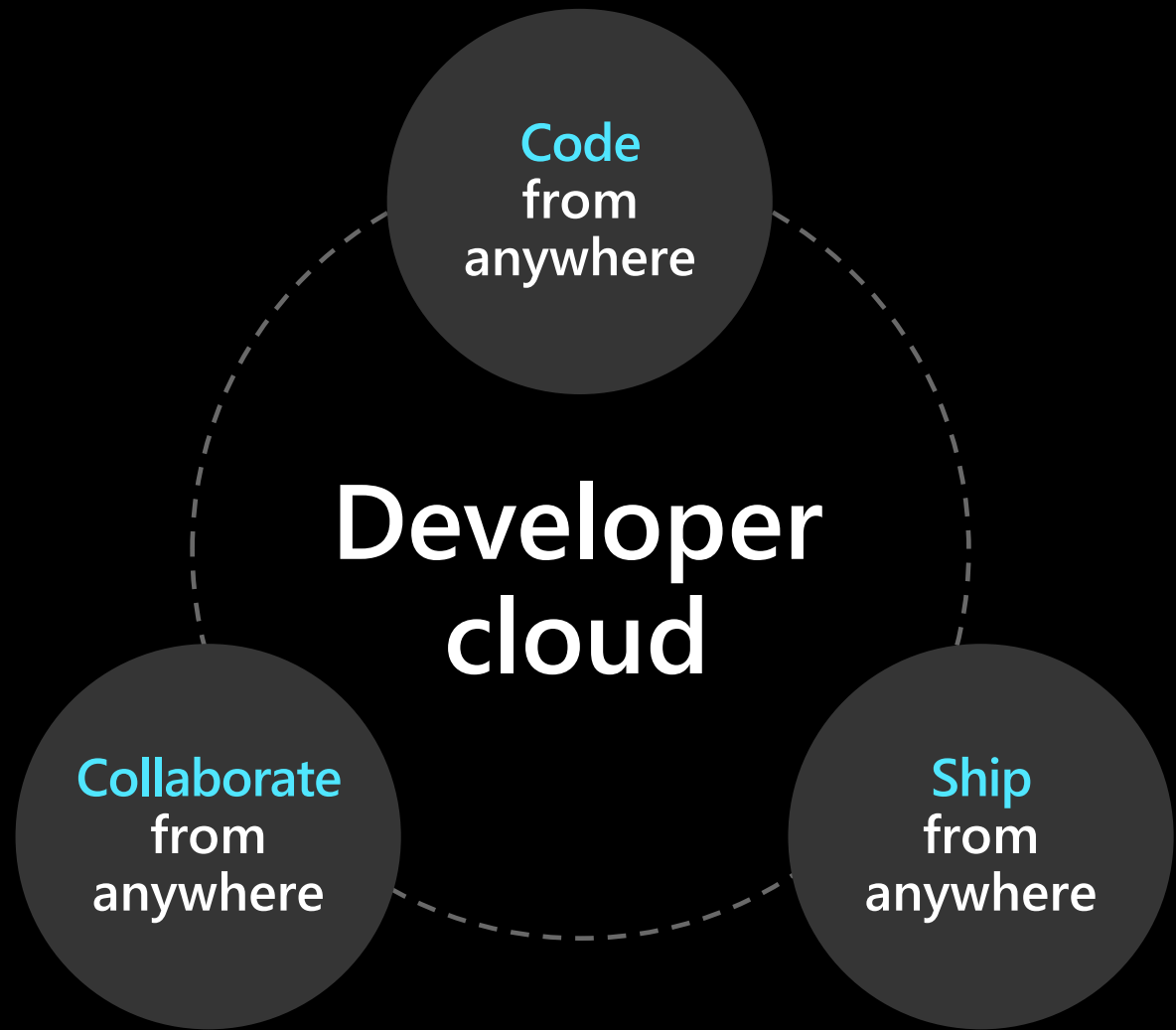
All categories ▼

Web Search ▼

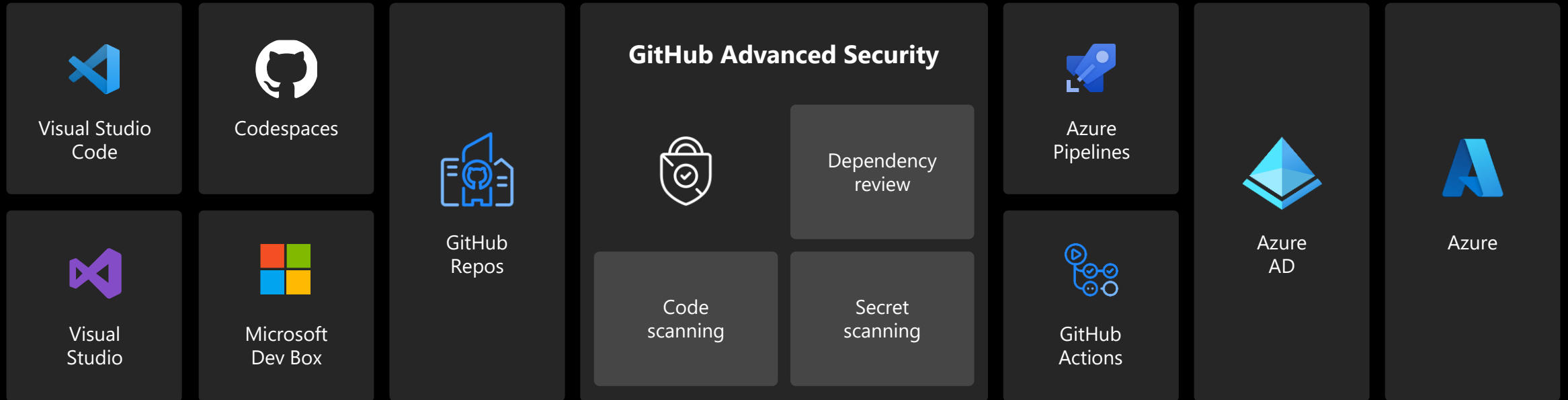
Interest over time ?



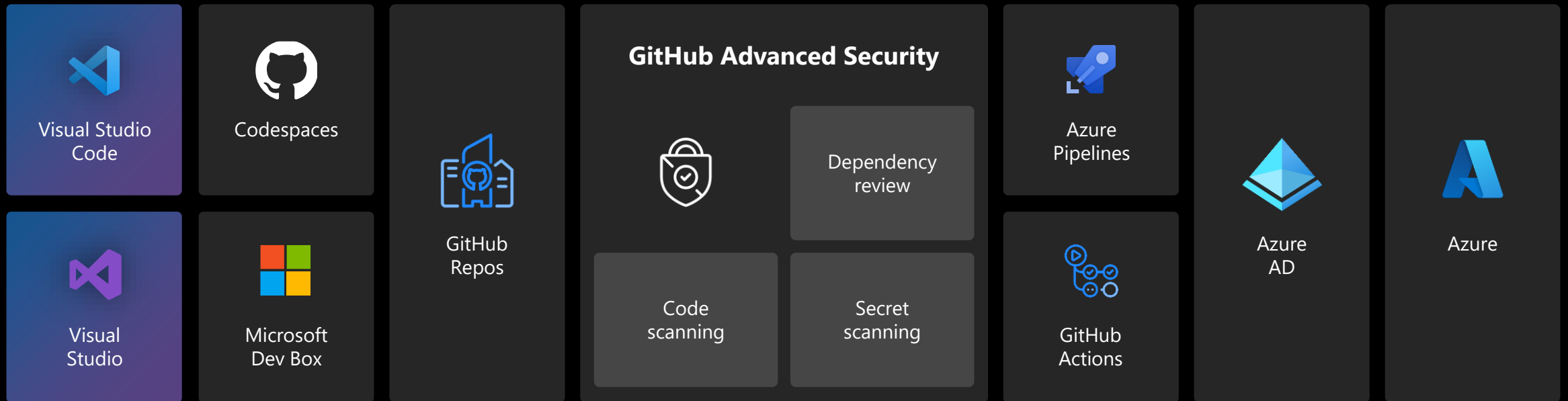
Develop
collaboratively
and securely for
the cloud



Microsoft provides a unified solution to help you accelerate and secure code-to-cloud development



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Microsoft provides a unified solution to help you accelerate and secure code-to-cloud development



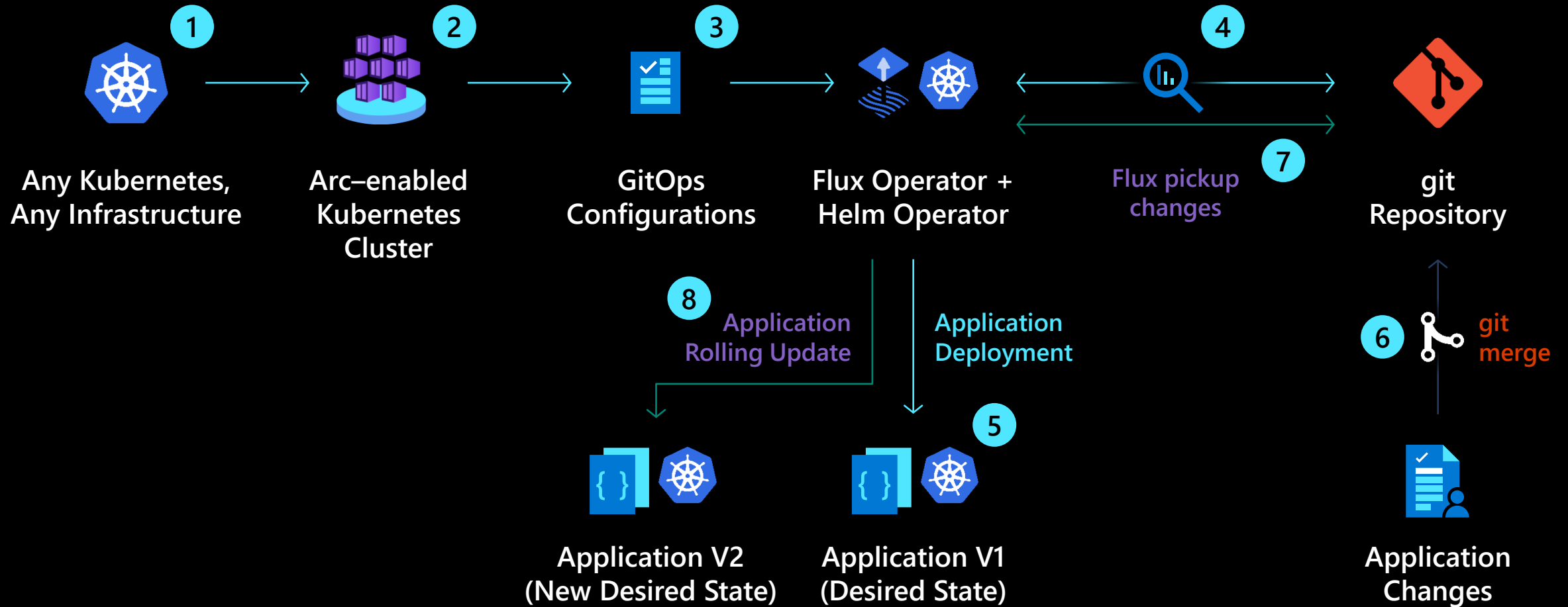
Microsoft provides a unified solution to help you accelerate and secure code-to-cloud development



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GitOps workflow



A diagram of Earth centered in the frame, showing the Americas. Two concentric white circles represent orbital paths. The inner circle has four small white circles at the 12, 3, 6, and 9 o'clock positions. The outer circle has four small white circles at the 1:30, 4:30, 7:30, and 10:30 positions. The word "Demo" is written in white, bold, sans-serif font across the center of the Earth.

Demo



Q&A

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