



WordPress in the cloud

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Agenda

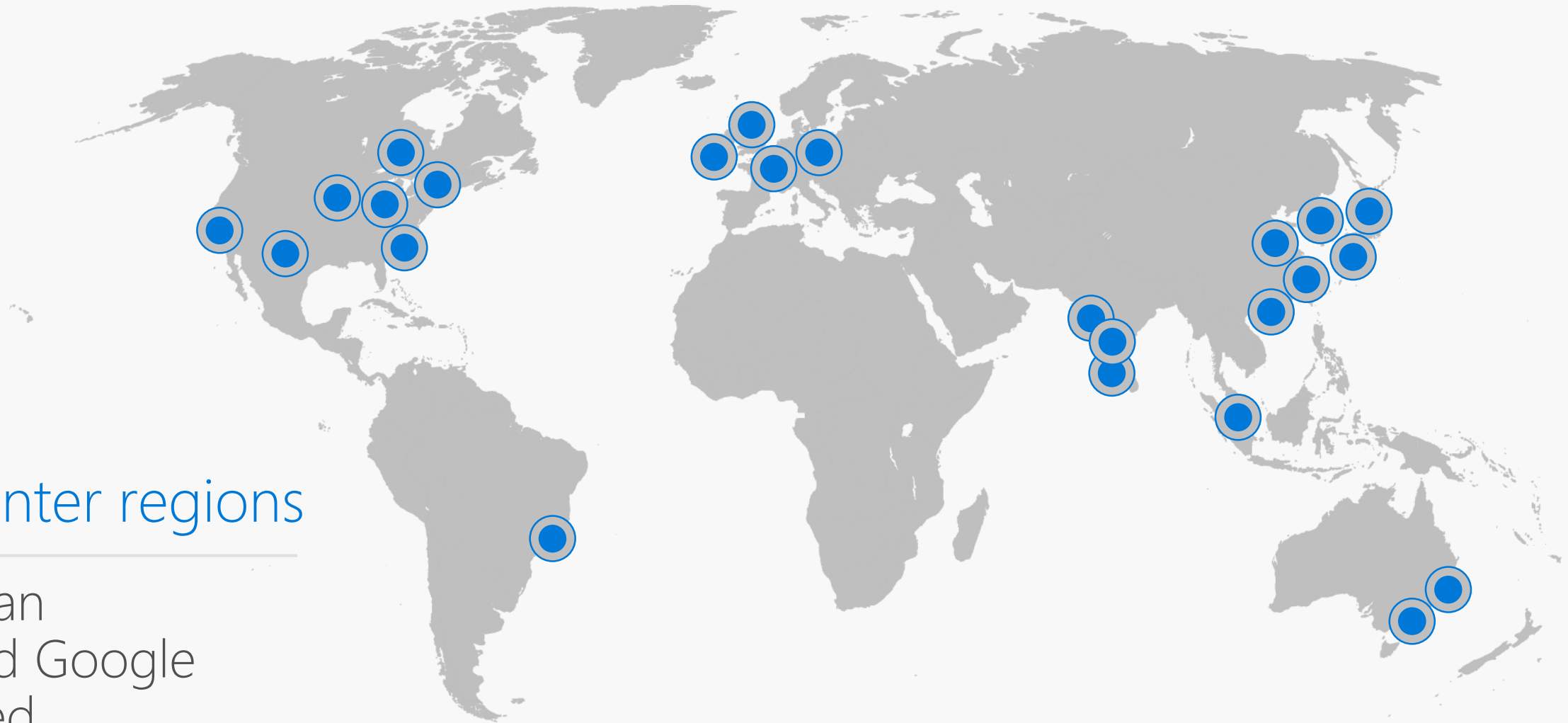
- Cloud intro
- Security overview
- Performance tips - CDN and Cache
- Modern Lifecycle Management
- Demo – The full cycle

Global scale, in local regions

32

data center regions

More than
AWS and Google
combined





The cloud has
changed
expectations

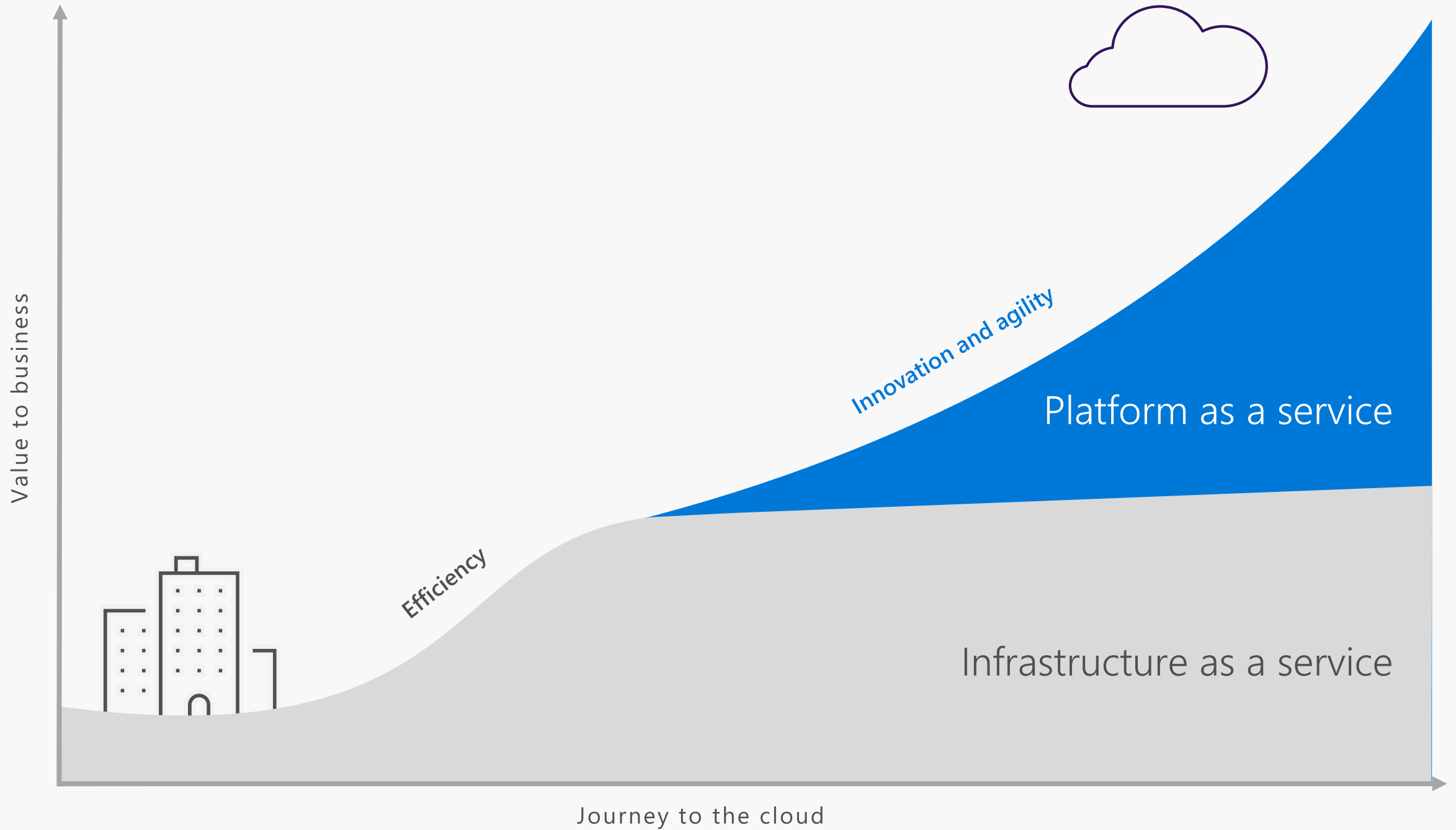


Expectations of Cloud Applications

Availability

Hyper-Scale

Agility



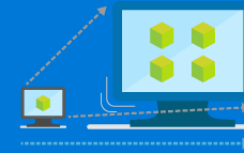
Common Azure solutions



Web & mobile



Business apps



Microservice apps



Development & test



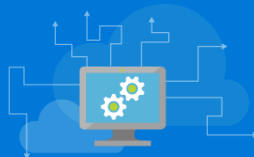
Big data & analytics



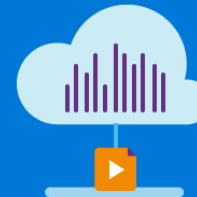
Internet of Things



Backup, recovery
& archive



High Performance
Computing



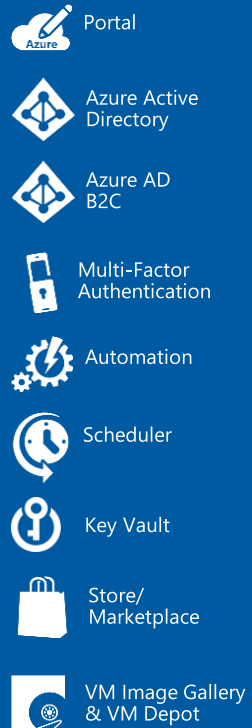
Digital media

Building blocks for an Enterprise Grade Cloud

- Networking
- Role Based Access Control (IAM)
- Subscription Management
- Automation
- Billing
- SLA & Monitoring
- Backup, Recovery, Migration
- Security & Compliance

Platform services

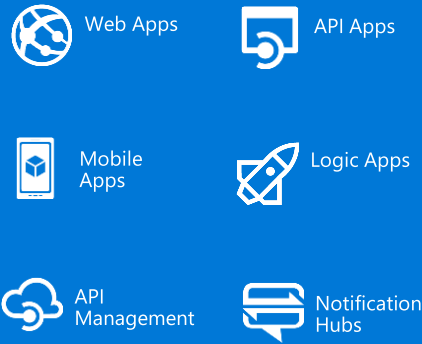
Security & management



Services compute



Web and mobile



Data



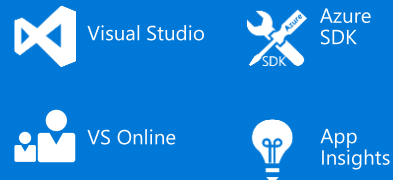
Hybrid Operations



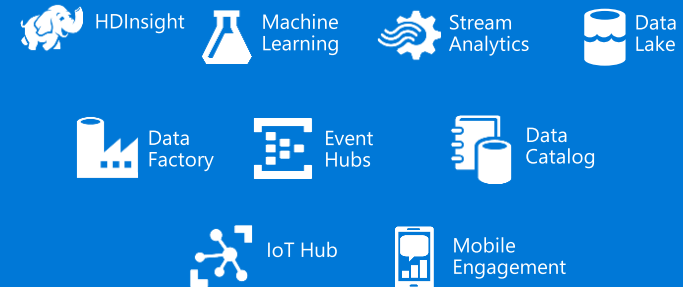
Integration



Developer services



Analytics & IoT



Media & CDN



Infrastructure services

OS/server compute



Storage



Networking



Datacenter infrastructure (34 regions, 32 online)



Azure is an open cloud

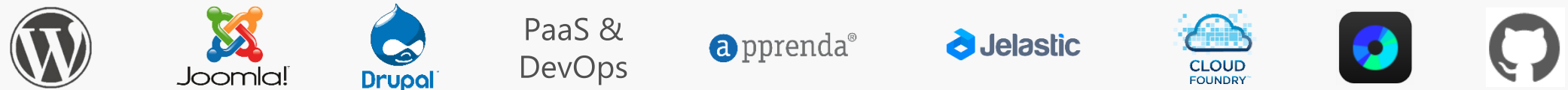
Devops



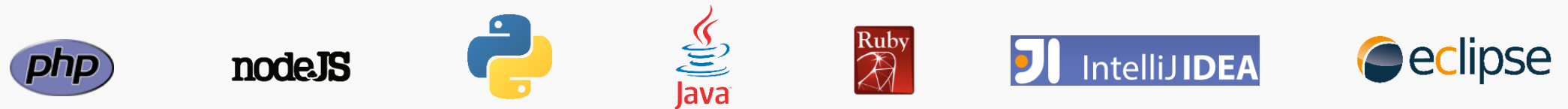
Management



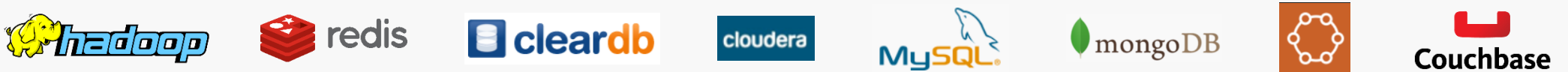
Applications



App frameworks & tools



Databases & middleware



Infrastructure



Security Overview

the era of cloud computing

is being born

in a time of war-like constant hostility



"If you **know yourself** but not the enemy, for every victory gained you will also suffer a defeat."

"If you **know neither** the enemy nor yourself, you will succumb in every battle."

"If you **know the enemy and know yourself**, you need not fear the result of a hundred battles."

- Based on Sun Tzu, *The Art of War*



Security in a Cloud Enabled World

Responsibility	SaaS	PaaS	IaaS	On-prem
Data governance & rights management	Customer	Customer	Customer	Customer
Client endpoints	Customer	Customer	Customer	Customer
Account & access management	Customer	Customer	Customer	Customer
Identity & directory infrastructure	Shared	Shared	Customer	Customer
Application	Microsoft	Shared	Customer	Customer
Network controls	Microsoft	Shared	Customer	Customer
Operating system	Microsoft	Microsoft	Customer	Customer
Physical hosts	Microsoft	Microsoft	Microsoft	Customer
Physical network	Microsoft	Microsoft	Microsoft	Customer
Physical datacenter	Microsoft	Microsoft	Microsoft	Customer
	Microsoft		Customer	

Security threats targeting all layers

Attacks ultimately target data

Everything else required to secure the data

Security responsibilities shift

Per workload

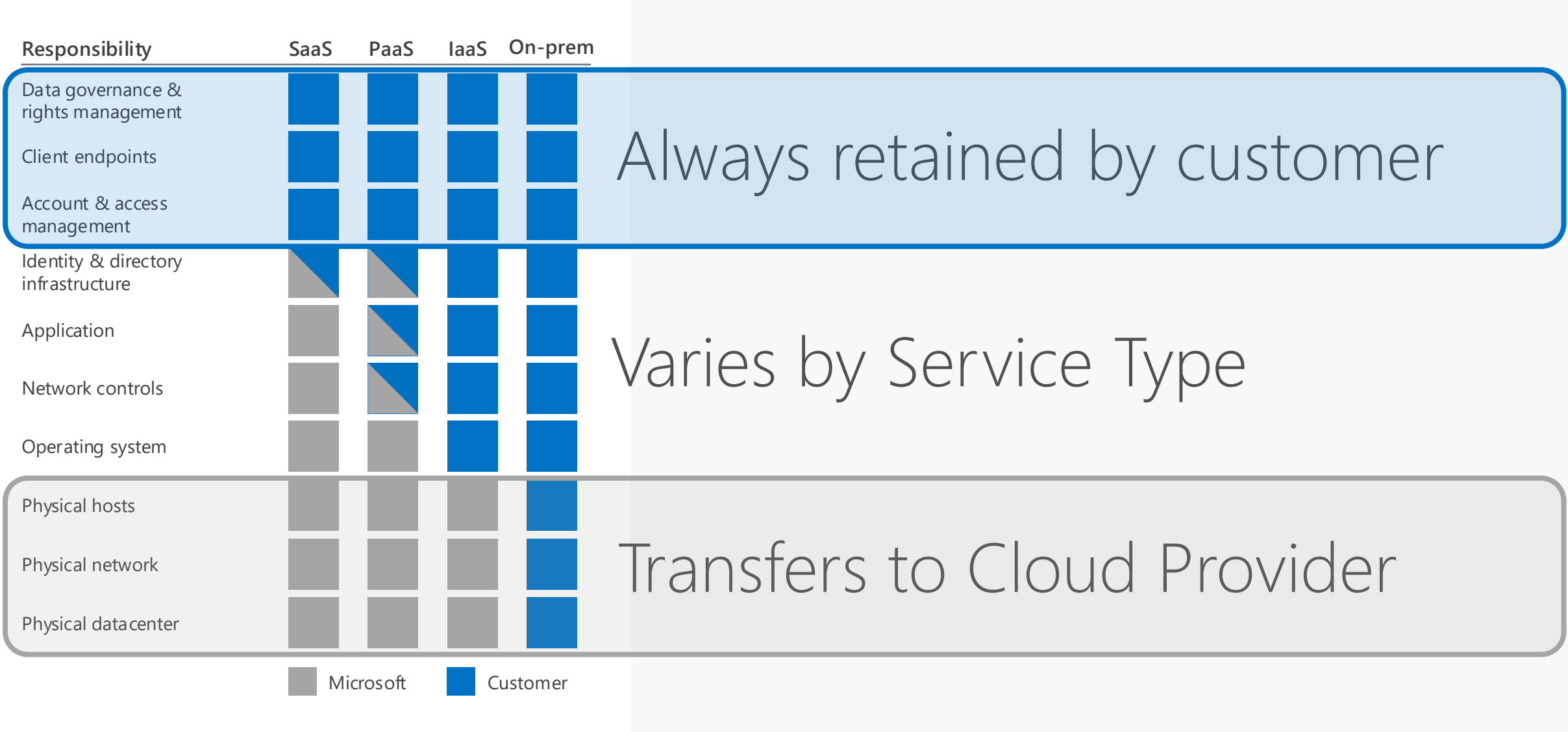


Cloud service provider responsibility



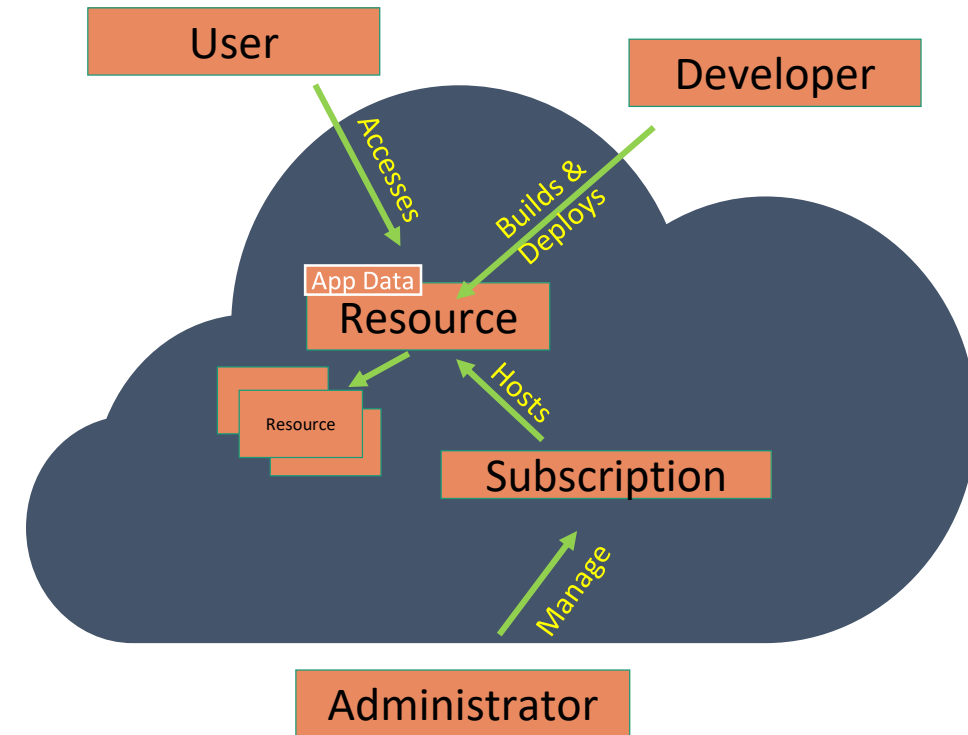
Tenant responsibility

Responsibility Zones

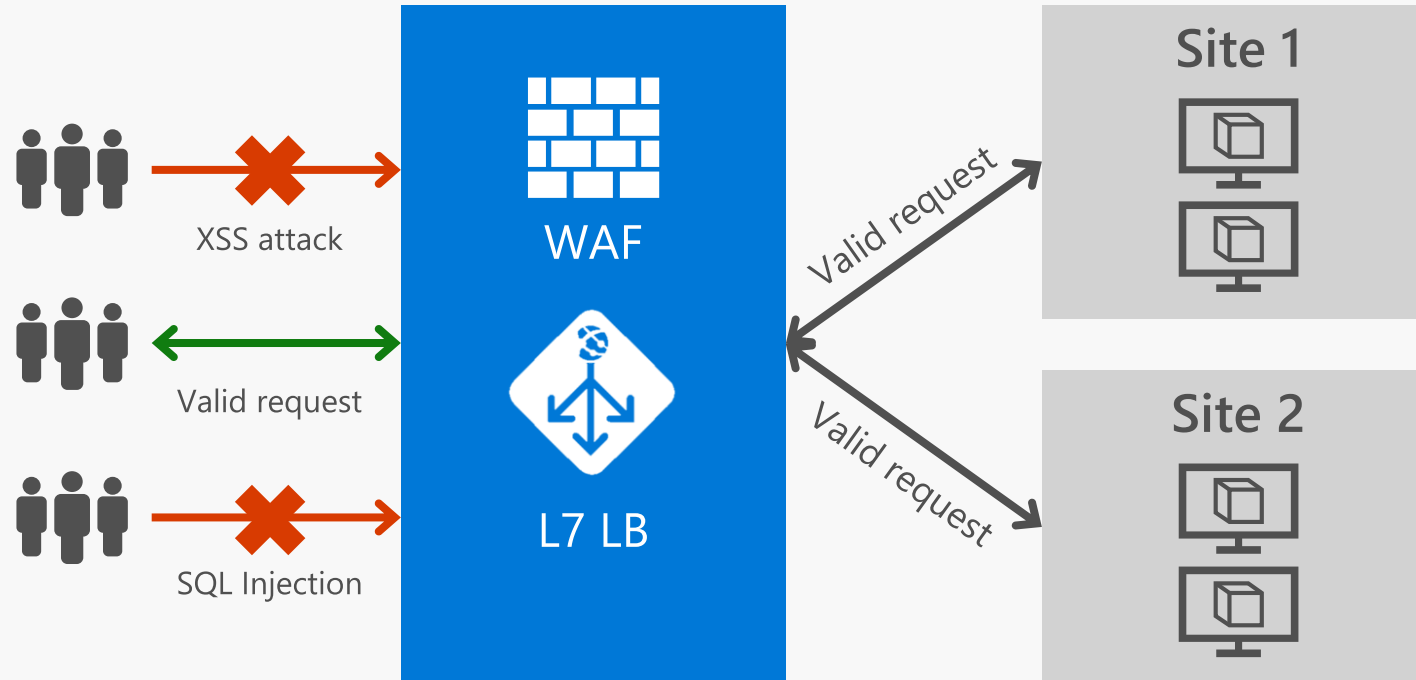


Who are the targets?

- User
 - Impersonate the user, Take the user's data
- Developer
 - Compromise services, bypass controls, plant backdoors
- Resource
 - Take data, logic bomb, surveil transactions, subvert auditing
- Subscription
 - Complete control of cloud resources
- Administrator
 - Pivot attack to on-prem resources
- Cloud Provider
 - Complete dominion of multiple tenant



Web Application Firewall (WAF)



Securing web applications

- Why Web Application Firewall?

Web based attacks are increasingly frequent attack vector

Sophisticated Layer 7 attacks not caught by Intrusion Prevention System/Intrusion Detection System

- Common Layer 7 attack patterns

SQL Injection, Cross site scripting, Protocol anomalies and others

OWASP consortium identifies and publishes a list of top 10 web vulnerabilities

- Web Application Firewall challenges

Most applications struggle with baseline security setup

WAF configurations are inherently complex and difficult to set up

Performance tips – CDN & Cache

Why CDNs....Humans hate to wait

0.1 second
delay

The limit for having the user feel that the system is reacting instantaneously

1.0 second
delay

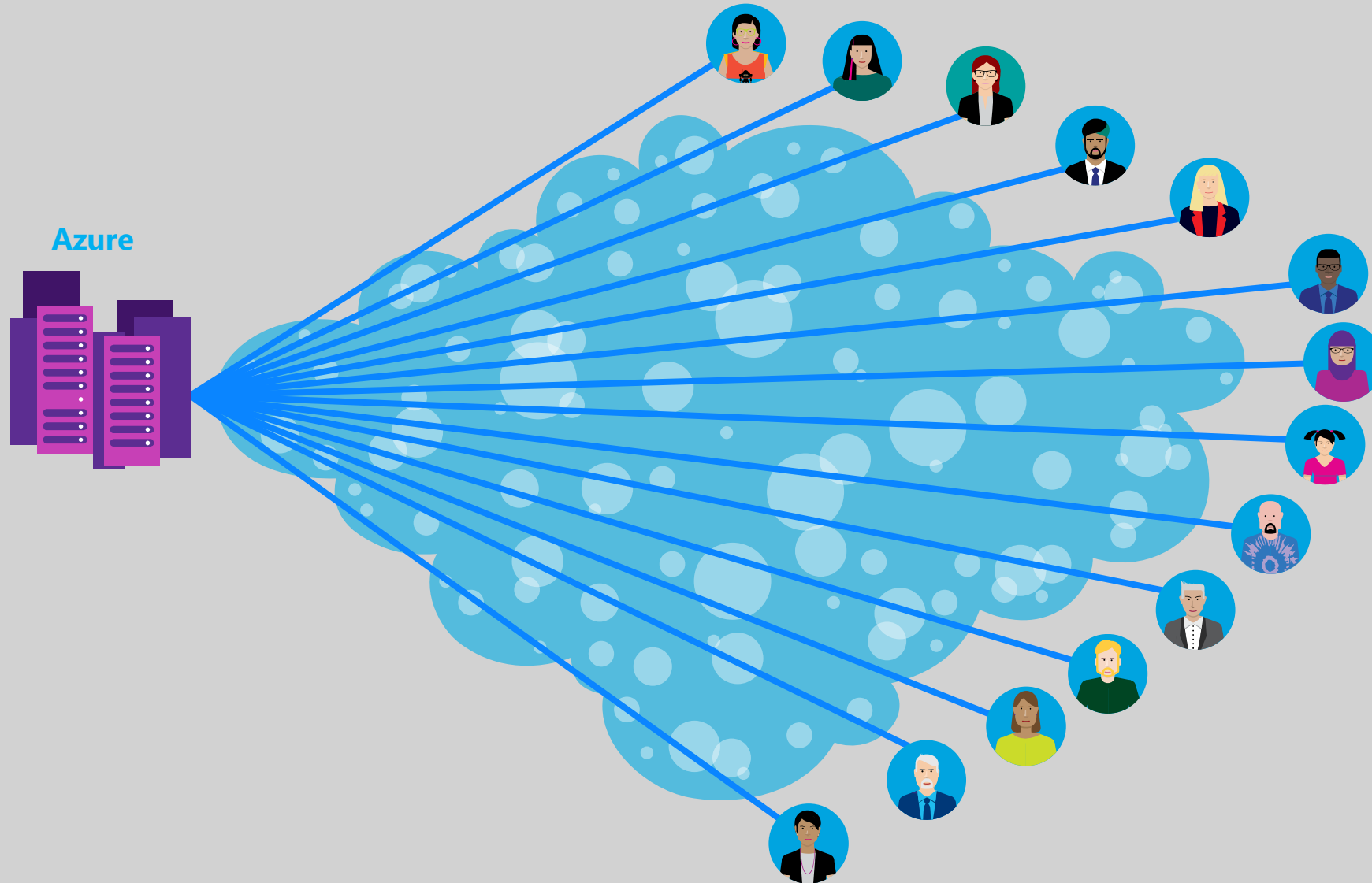
The limit for the user's flow of thought to stay uninterrupted

10 second
delay

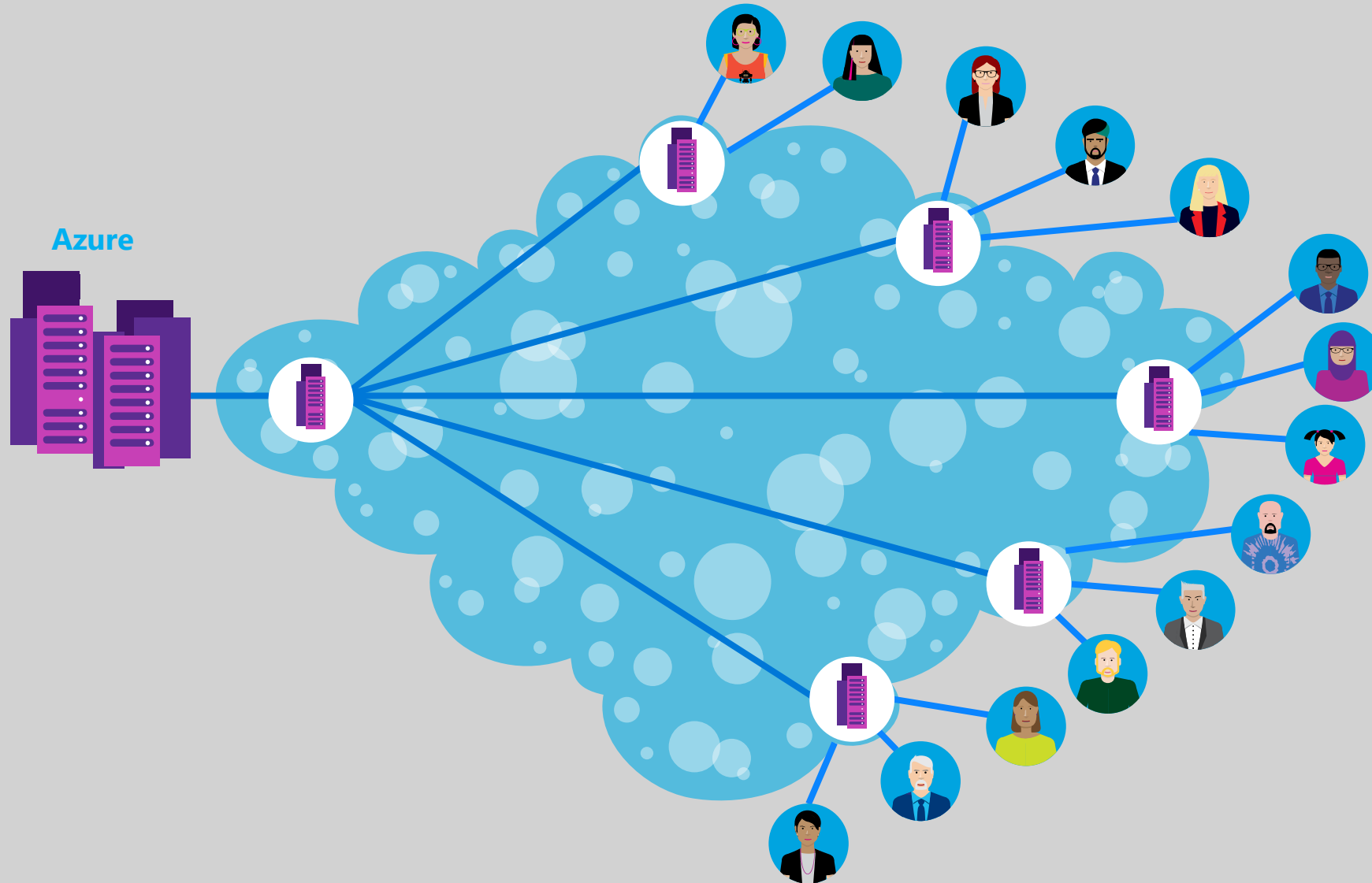
The limit for keeping the user's attention focused on the dialogue



Delivering content from the edge of the internet



Delivering content from the edge of the internet



Azure CDN is a multi CDN service

- Integrated, one-stop service
- Infrastructure from Akamai & Verizon
- Massive scale, high performance, and security
- Broader global coverage and reach
- Reduce complexity for capacity and costs
- Rich set of Analytics, APIs and developer tools



What is Redis ?



- It stands for REmote DIctionary Server
- Extremely fast and versatile
- Ability to store complex Data Structure(s)
- Blurring boundaries where caching ends and where NoSQL DB begins
- Rapidly growing (Craiglist, Twitter, Instagram)
- Open Source, awesome community

Redis Cache Application Patterns

- Caching calls to DB
 - Better Performance and Scalability
 - Reduce DB calls
 - Keep the statement's results using the Redis STRING data type
- Avoiding Calls To DB
 - Server-side storage and sharing of data that doesn't need a full-fledged RDBMS, e.g. sessions and shopping carts
 - Depending on the case, use STRING or HASH to store data in Redis

Modern Lifecycle Management

Situation

"If you can't measure something, you can't understand it. If you can't understand it, you can't control it. If you can't control it, you can't improve it."

H. James Harrington

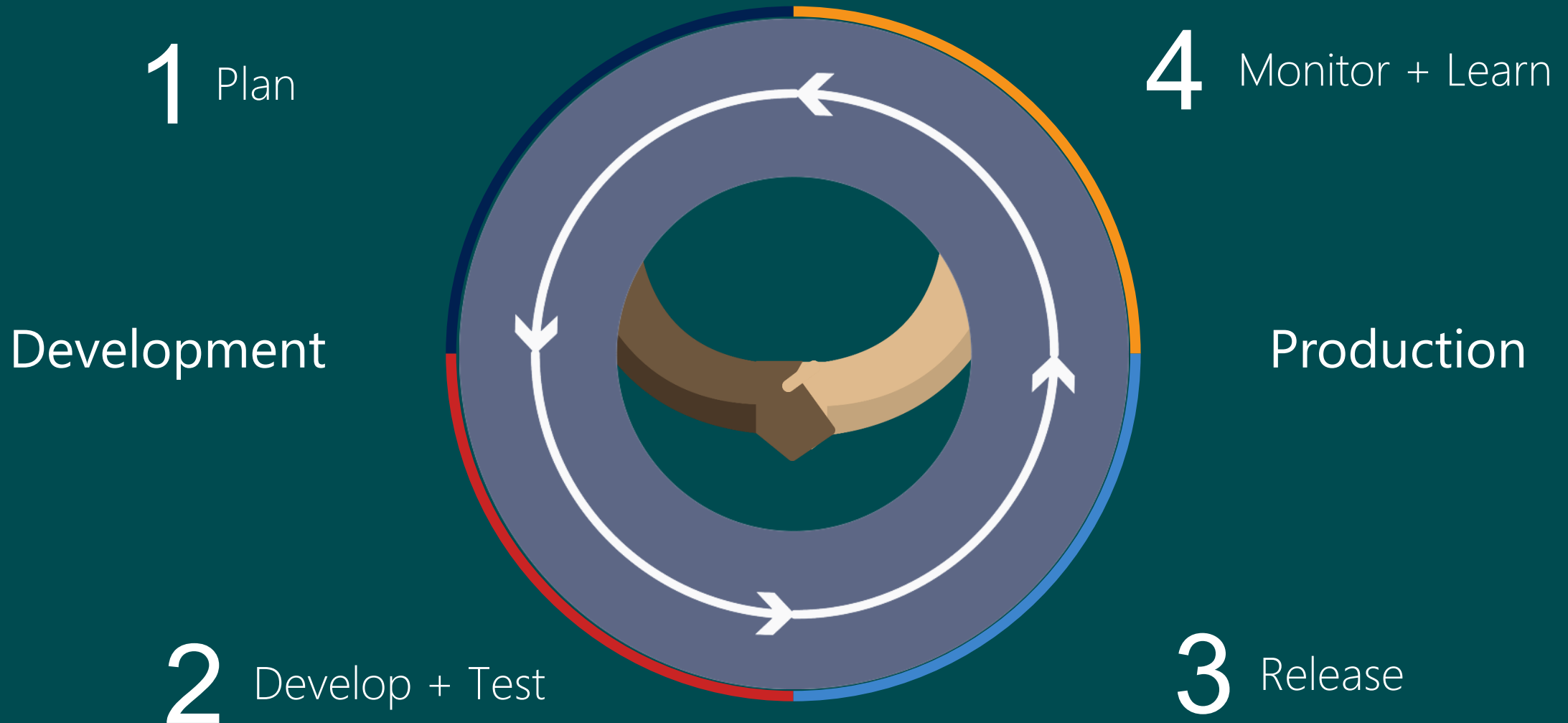
Building successful apps is hard!

- Need for Speed - User retention requires constant improvement in performance & reliability
- Constant Evolution - Services & mobile apps need to evolve rapidly to survive & grow
- Continuous Delivery - Most major services push update as often as every day

Success requires data-driven decision making

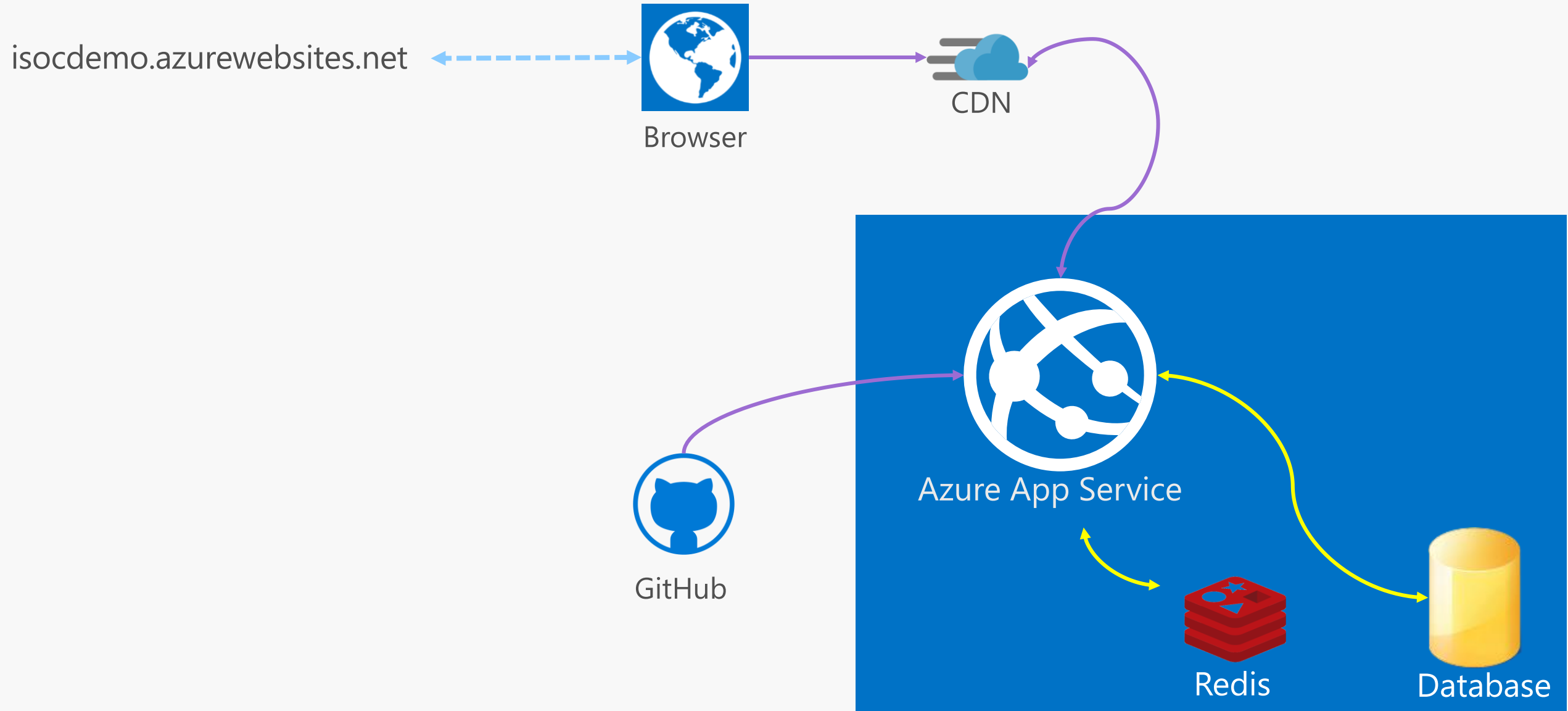
- Making the right investments requires deep understanding of user behavior and habits

DevOps



Demo App

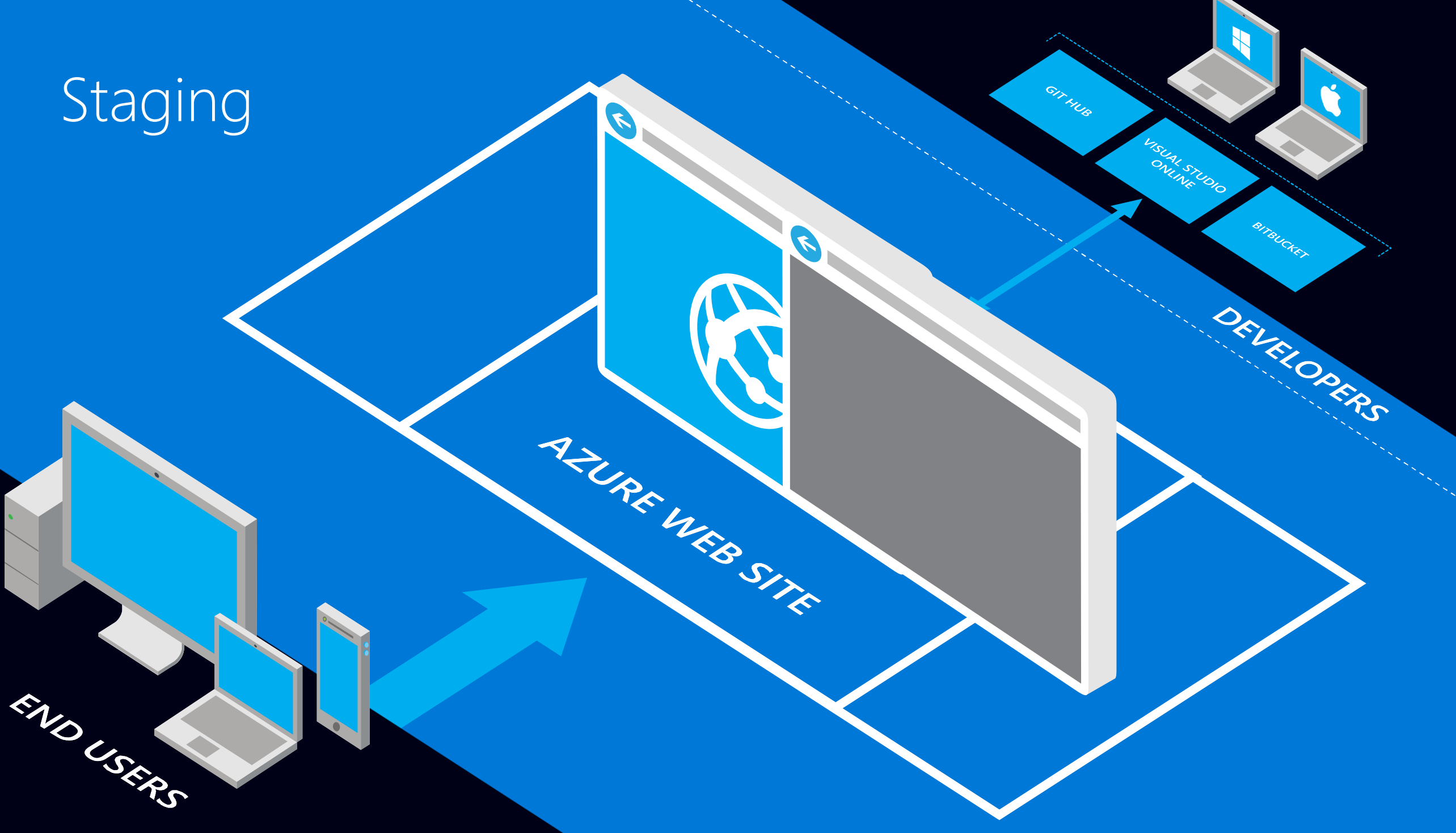
Demo App – High Level



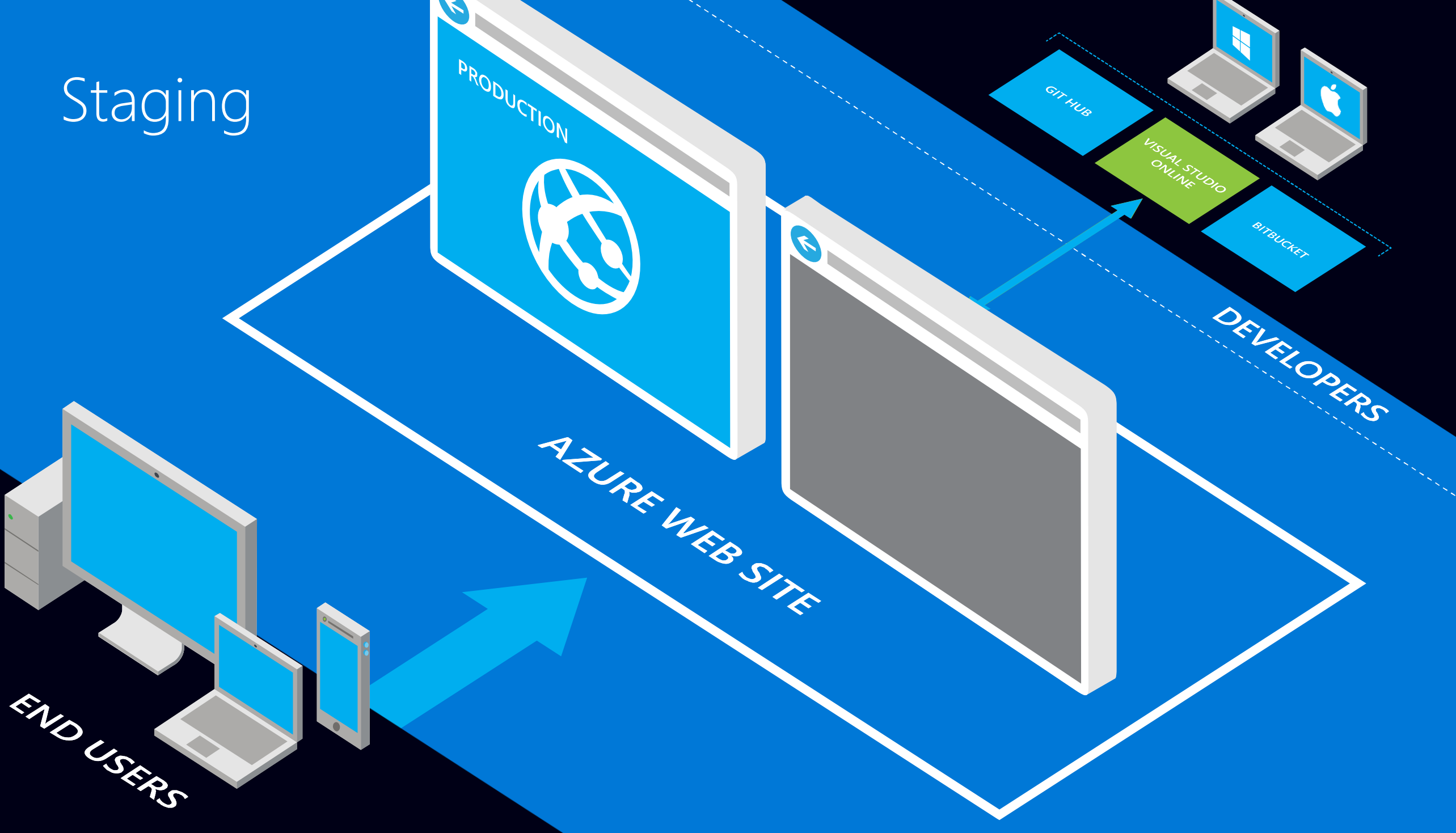
Staging



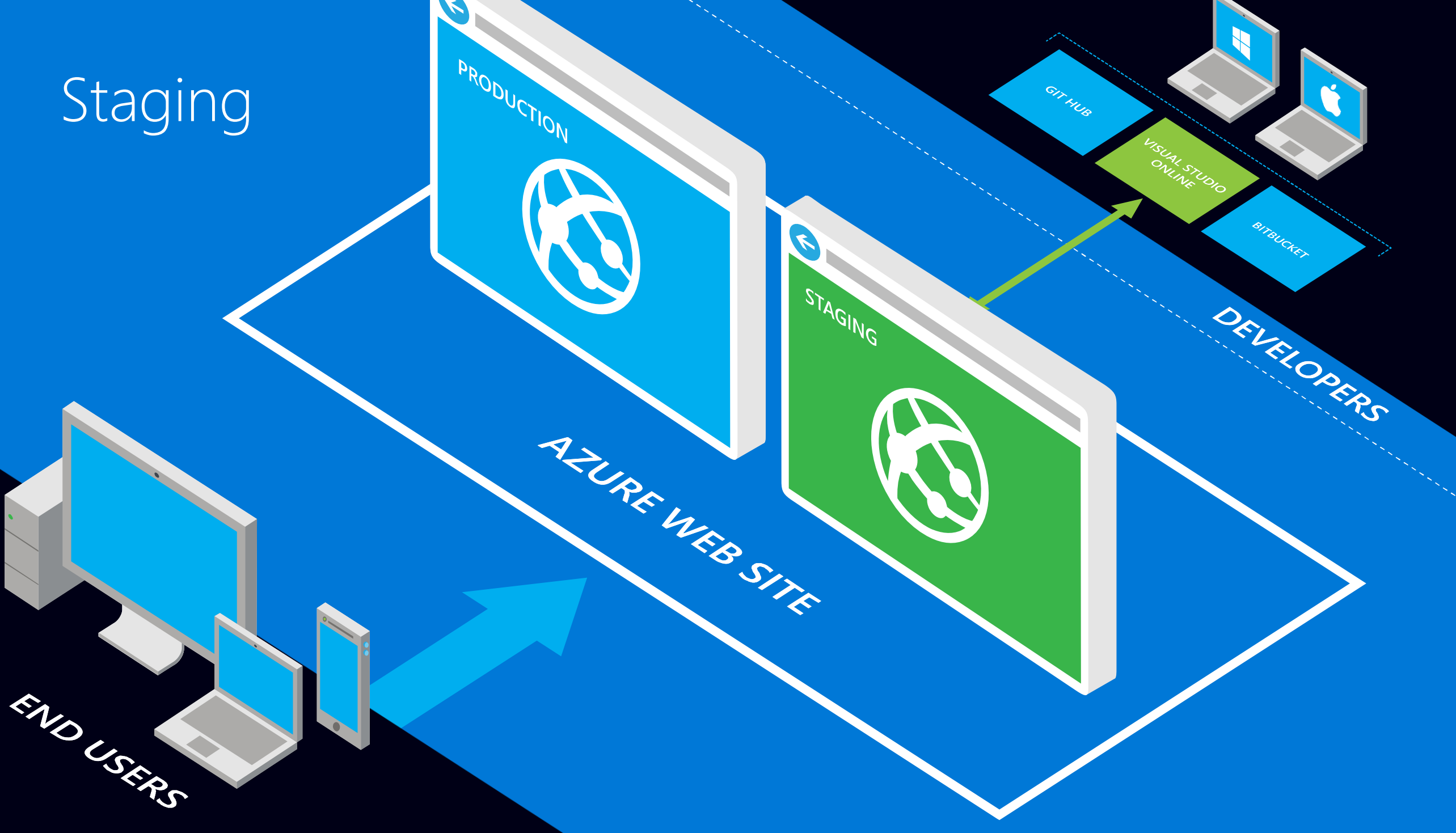
Staging



Staging



Staging



Testing in Prod.

