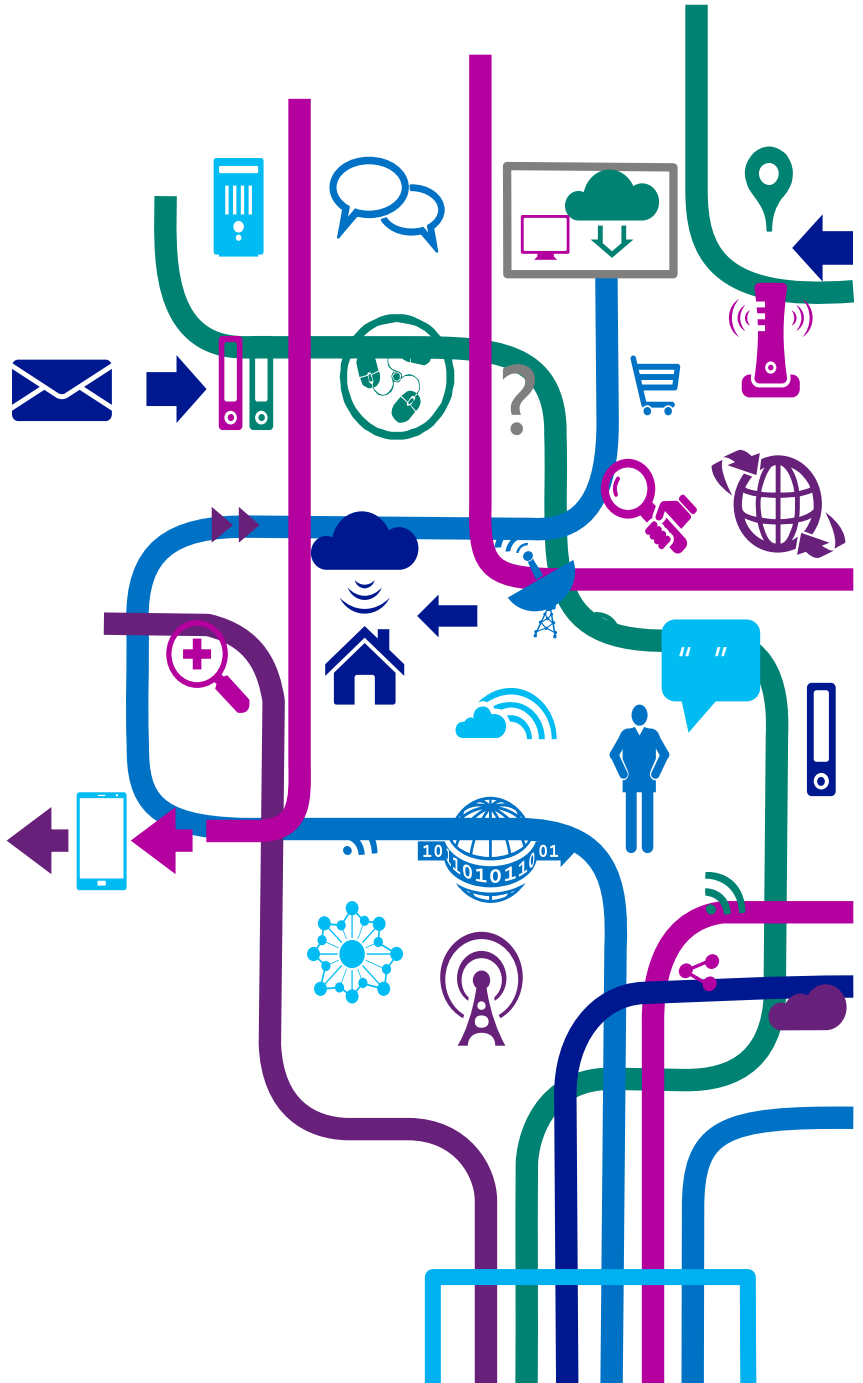
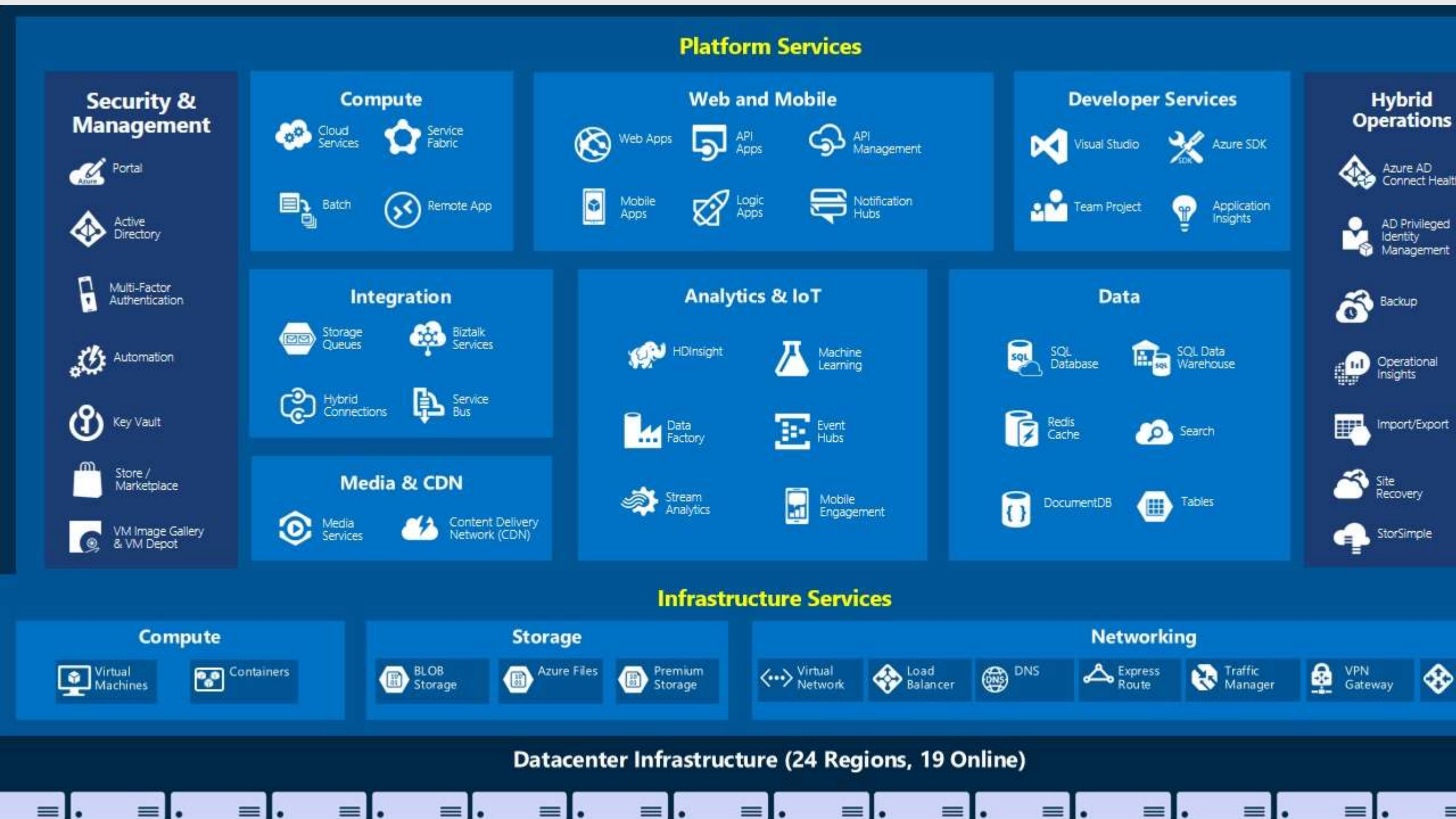
엄청난 트래픽을 막아본
두 남자의 이야기

김영욱 부장/ Microsoft

youngwook@outlook.com
Blog: Youngwook.com




Platform Services
Security & Management
Portal
Active Directory
Multi-Factor Authentication
Automation
Key Vault
Store / Marketplace
VM Image Gallery & VM Depot
Compute
Cloud Services
Service Fabric
Batch
Remote App
Web and Mobile
Web Apps
API Apps
API Management
Mobile Apps
Logic Apps
Notification Hubs
Developer Services
Visual Studio
Azure SDK
Team Project
Application Insights
Hybrid Operations
Azure AD Connect Health
AD Privileged Identity Management
Backup
Operational Insights
Import/Export
Site Recovery
StorSimple
Integration
Storage Queues
Biztalk Services
Hybrid Connections
Service Bus
Analytics & IoT
HDInsight
Machine Learning
Data Factory
Event Hubs
Stream Analytics
Mobile Engagement
Data
SQL Database
SQL Data Warehouse
Redis Cache
Search
DocumentDB
Tables
Media & CDN
Media Services
Content Delivery Network (CDN)
Infrastructure Services
Compute
Virtual Machines
Containers
Storage
BLOB Storage
Azure Files
Premium Storage
Networking
Virtual Network
Load Balancer
DNS
Express Route
Traffic Manager
VPN Gateway
Datacenter Infrastructure (24 Regions, 19 Online)

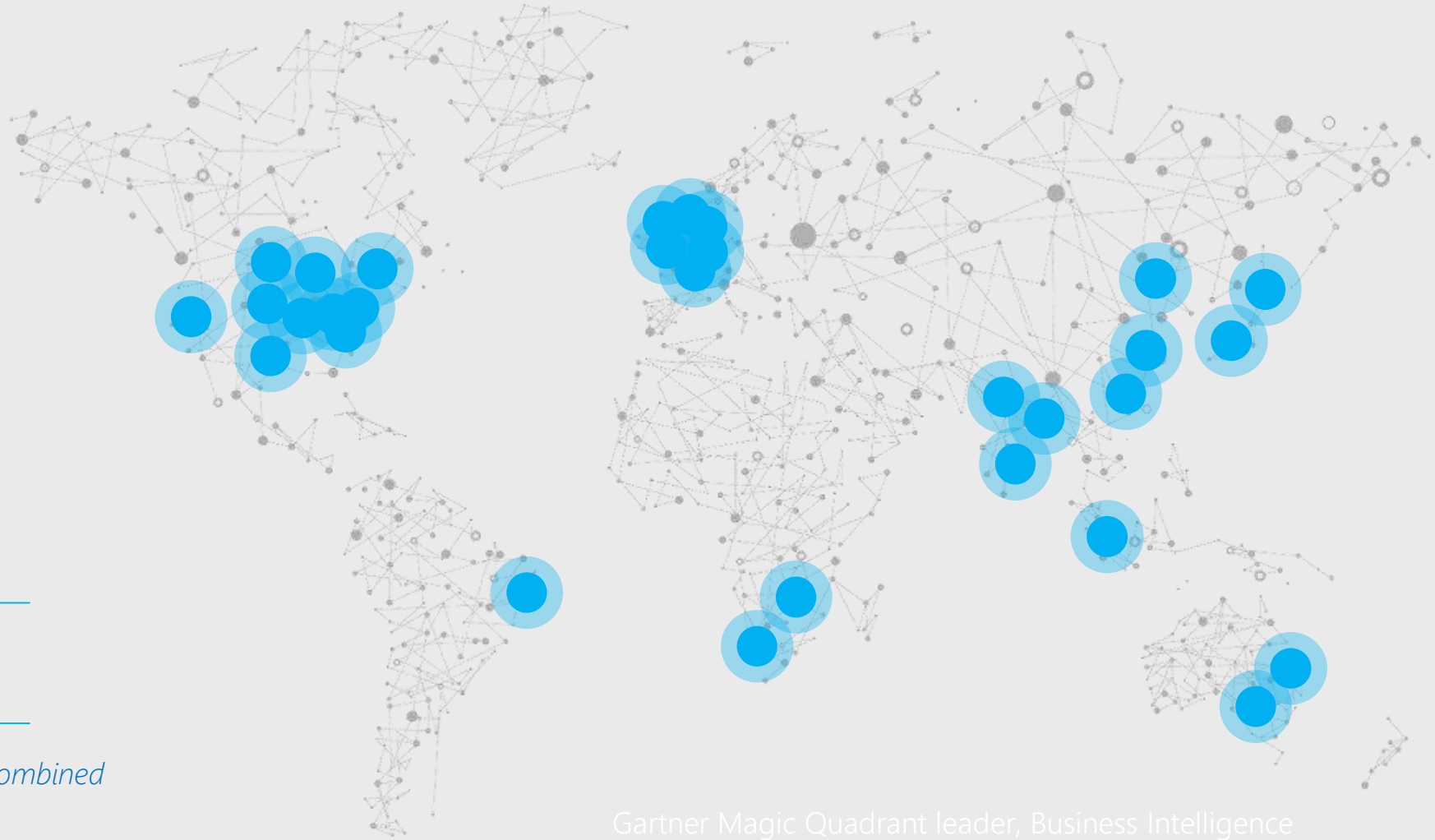
Microsoft Azure is the leading hyperscale cloud

54

Azure regions
around the world

AZURE REGIONS

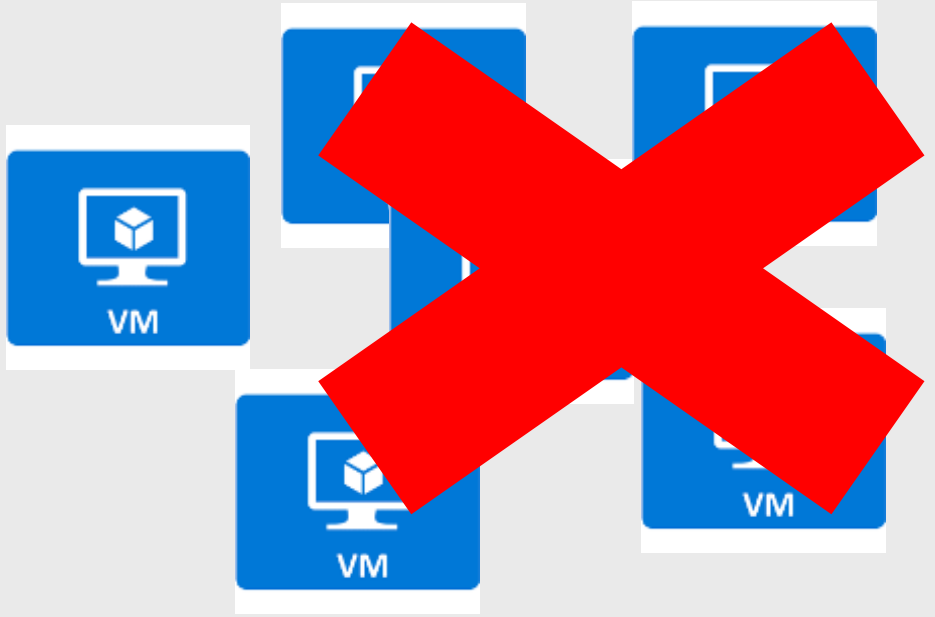
More than AWS and Google Cloud combined



Gartner Magic Quadrant leader, Business Intelligence and Analytics Platforms, 2017

엄청난 트래픽이 몰려온다. !!!!

초당 5000개!



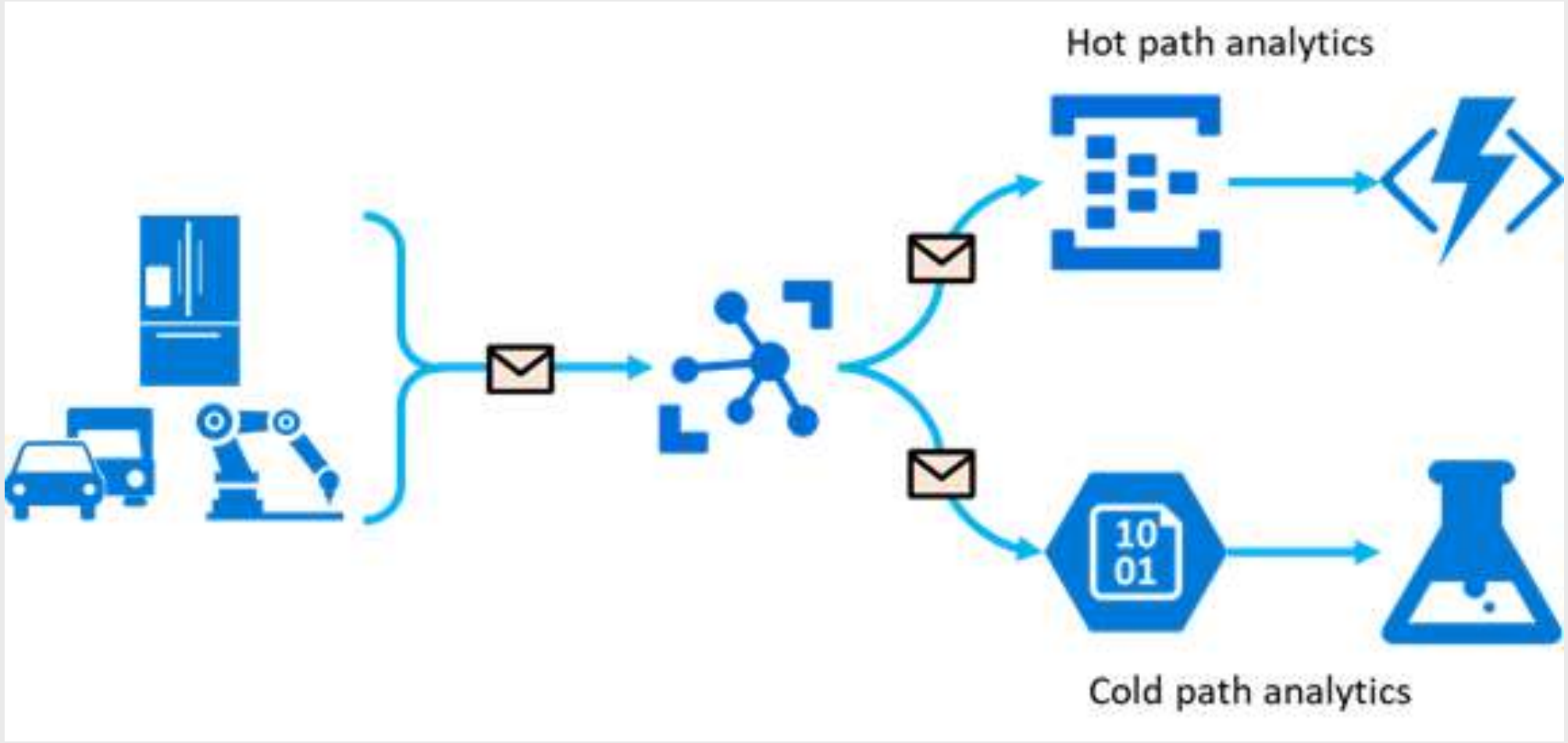
Microsoft Azure IoT services

Devices	Device Connectivity	Storage	Analytics	Presentation & Action
	Event Hubs	SQL Database	Machine Learning	App Service
	Service Bus	Table/Blob Storage	Stream Analytics	Power BI
	External Data Sources	DocumentDB	HDInsight	Notification Hubs
		External Data Sources	Data Factory	Mobile Services
				BizTalk Services

IoT Hub

무제한 접속!

https://azure.microsoft.com/ko-kr/services/iot-hub/



IoT Hub

https://azure.microsoft.com/ko-kr/services/iot-hub/

MQTT vs AMQP

Moblie Apps
3,500,000

HTTP

MQTT
5000 P / Sec

Http Trigger

IoT Hub

IoT Hub Trigger

Stream Analytics Job

Cosmos DB
11000 RU
1TB

Cosmos DB

Blob Storage

Blob Trigger

Location
Mapping

Timer Trigger

SQL Database

시기: 3월
기간: 3일

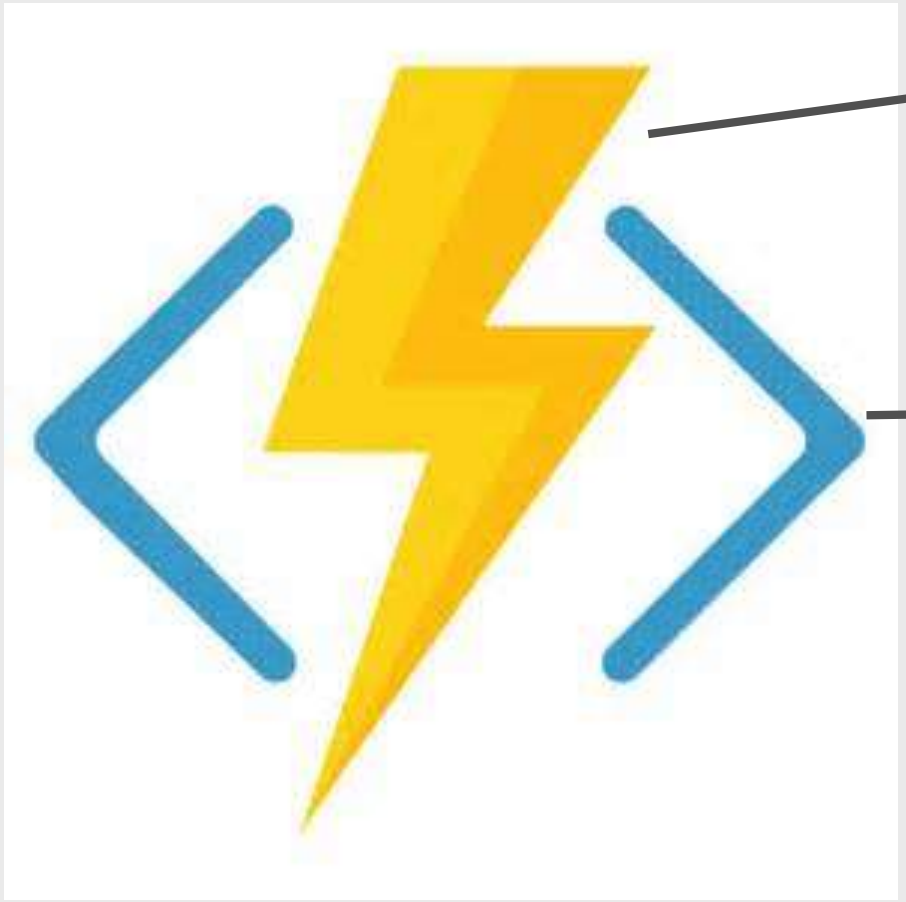
Azure Functions

https://azure.microsoft.com/ko-kr/services/functions/

Serverless
Function
Micro-service

Azure Functions

https://azure.microsoft.com/ko-kr/services/functions/

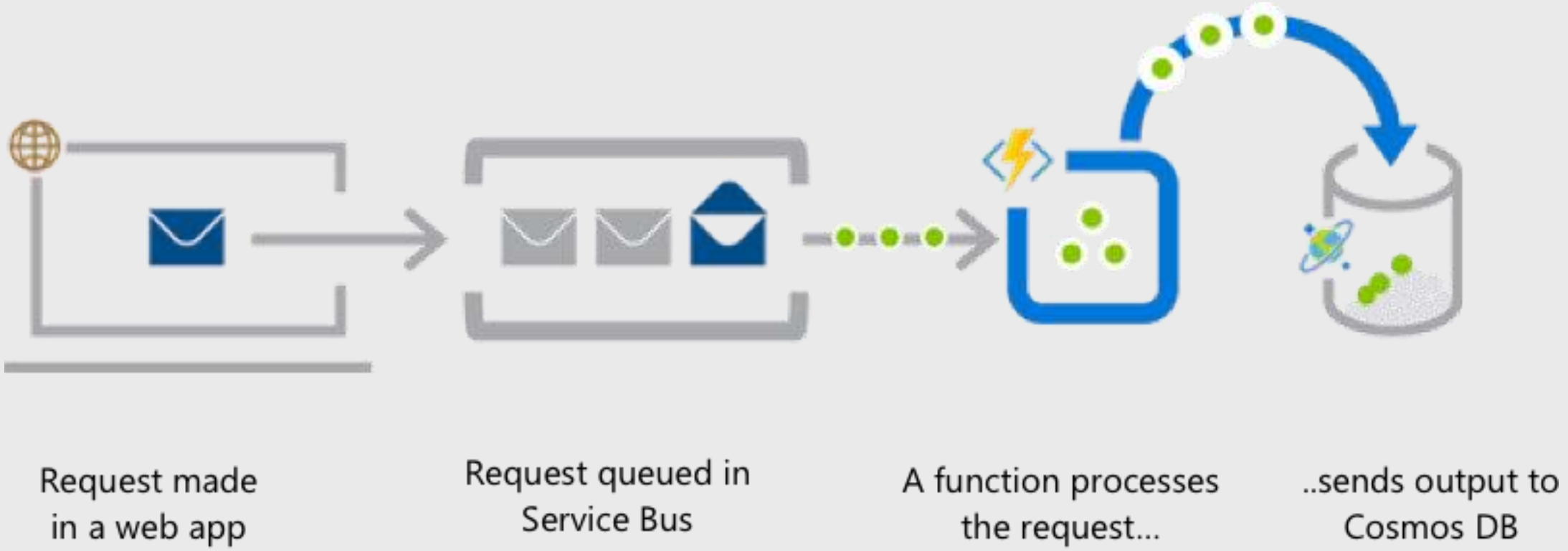


Event!(Trigger)

Function!
(Code)

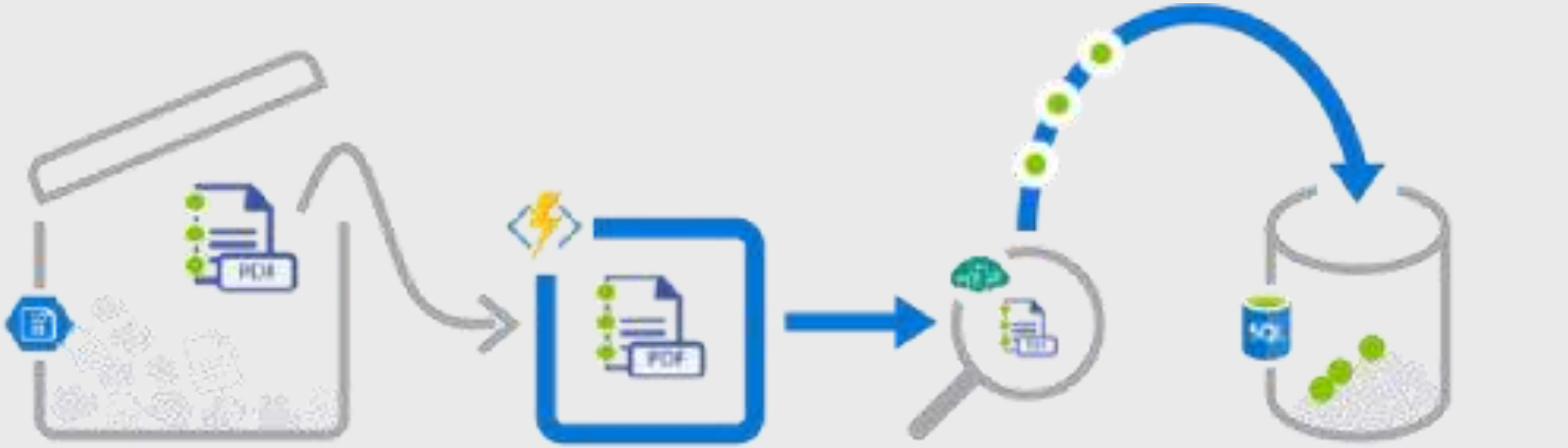
Azure Functions

https://azure.microsoft.com/ko-kr/services/functions/



Azure Functions

https://azure.microsoft.com/ko-kr/services/functions/



Azure Functions

https://azure.microsoft.com/ko-kr/services/functions/

A function cleans a database every 15 minutes...

...deduplicating entries based on business logic

문제는 비용!!

표준 계층

버전 유형	단위당 가격(매월)	단위당 총 메시지 수/일	메시지 측정 크기
무료	무료	8,000	0.5 KB
S1	₩28.25	400,000	4 KB
S2	[illegible]	6,000,000	4 KB
S3	₩2,[illegible]625	300,000,000	4 KB

대안

Event Hub

Moblie Apps
3,500,000

HTTP

MQTT
5000 P / Sec

Http Trigger

Http Trigger

Event Hub Trigger

Event Hub

Cosmos DB
11000 RU
1TB

Cosmos DB

Location
Mapping

Timer Trigger

SQL Database

Stream Analytics Job

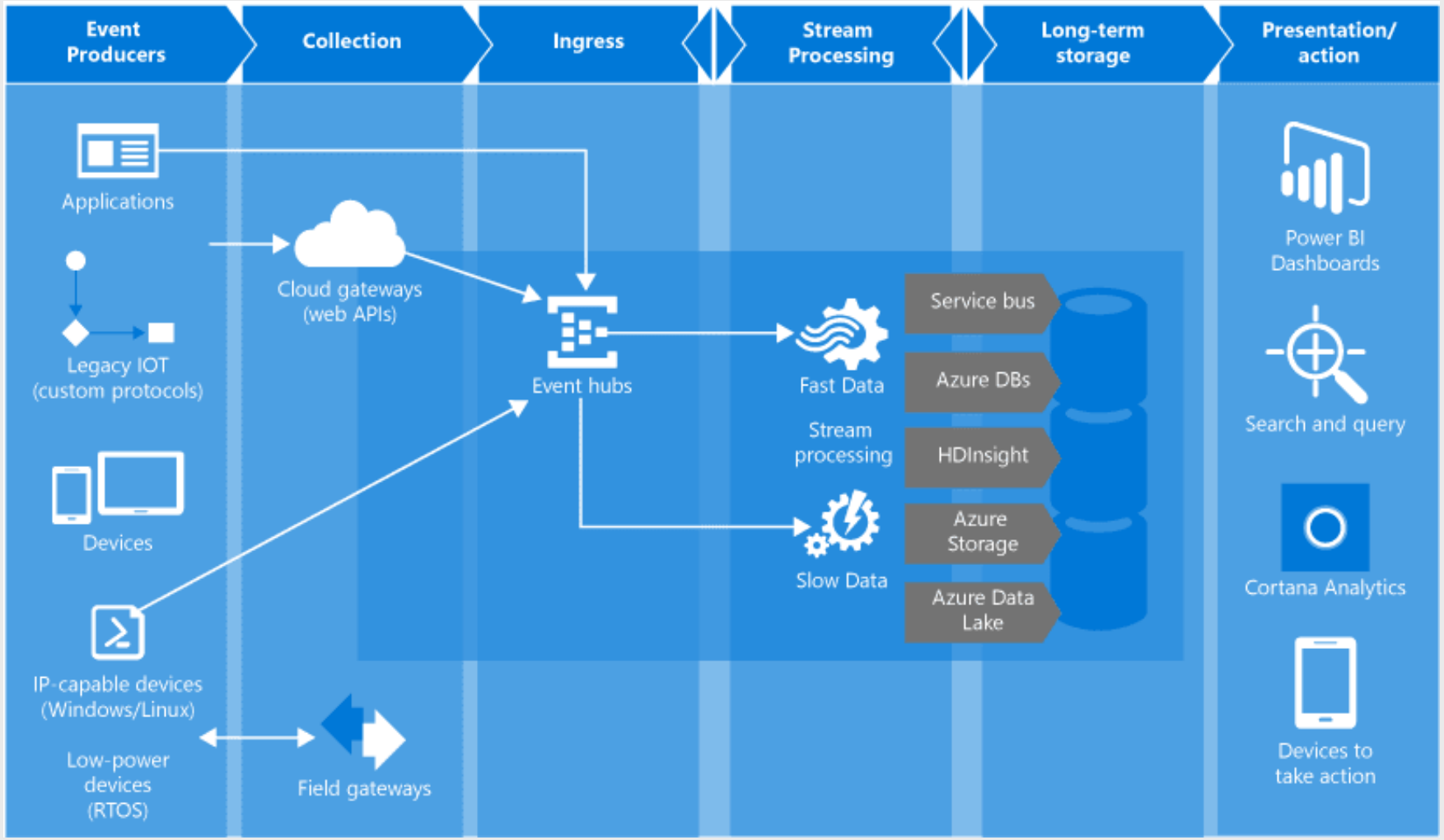
Blob Storage

Blob Trigger

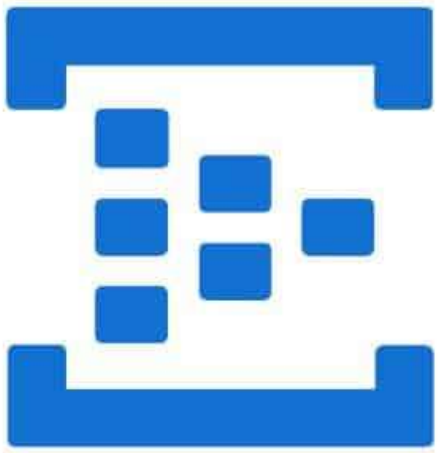
시기: 3월
기간: 3일

Event Hubs

https://azure.microsoft.com/ko-kr/services/iot-hub/



Event Hubs

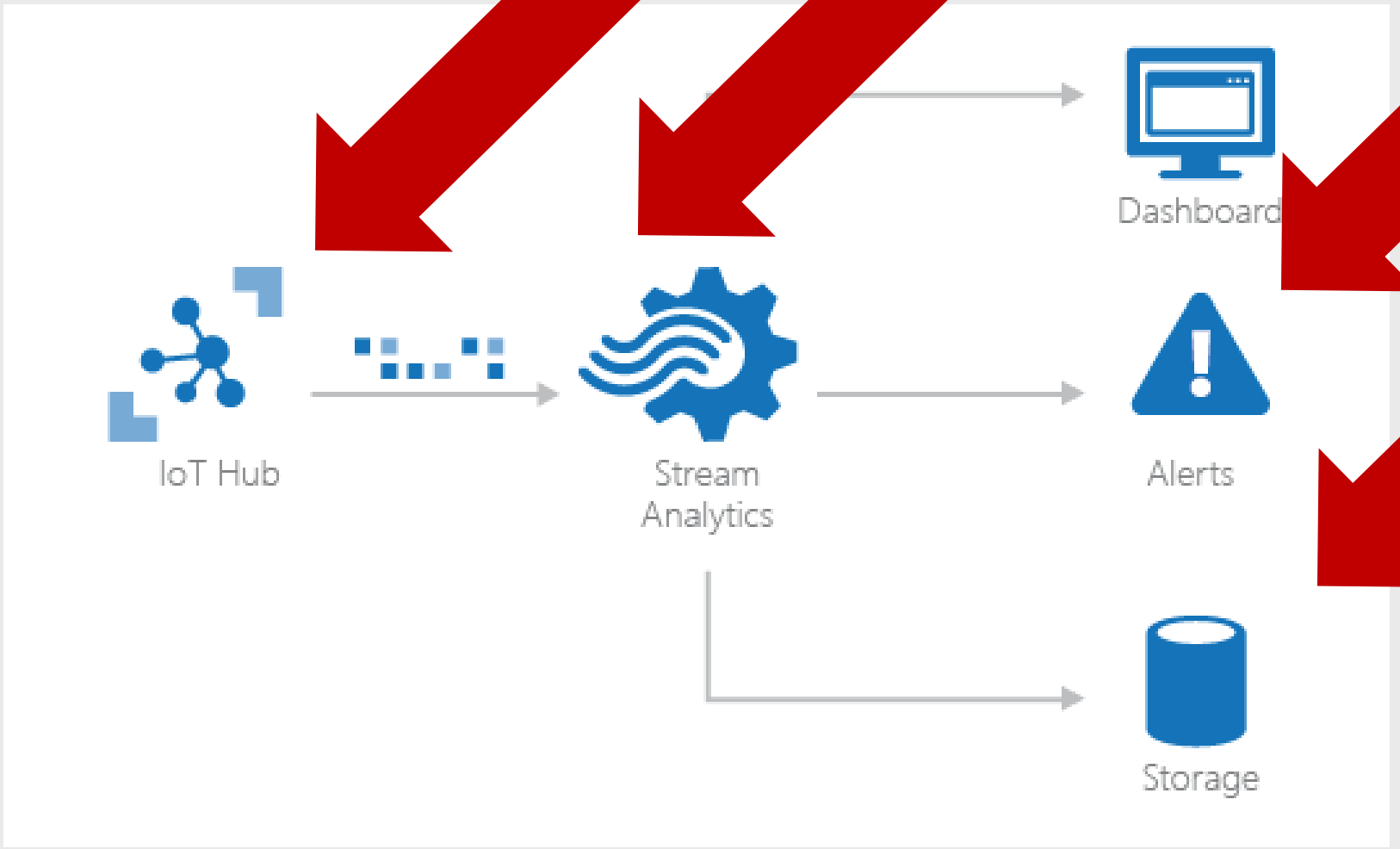


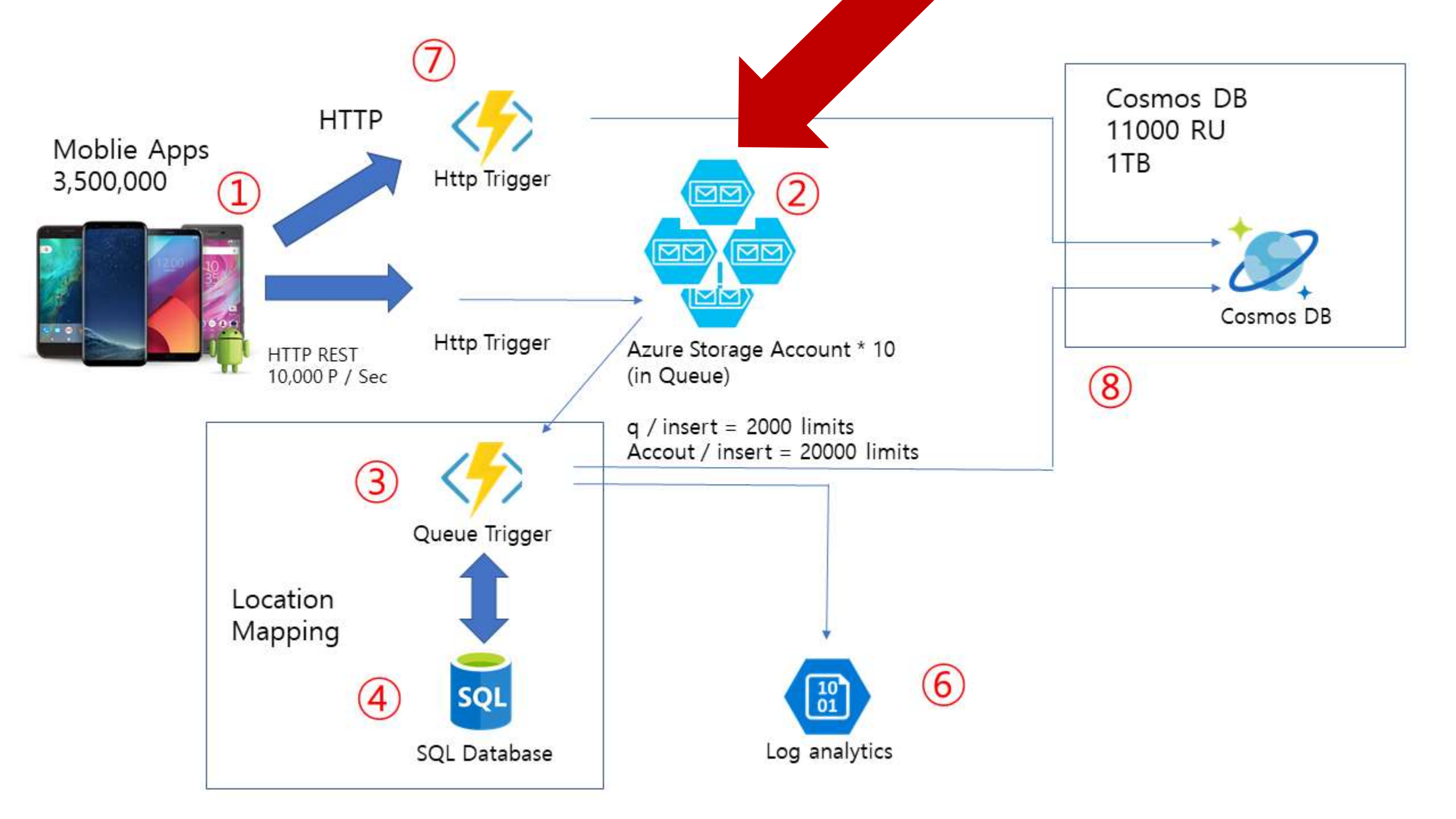
Telemetry
초당 1000개 * 10

테스트 더미

Data의 처리

Stream Analytics Job




Moblie Apps
3,500,000
①
HTTP
⑦
Http Trigger
HTTP REST
10,000 P / Sec
Http Trigger
②
Azure Storage Account * 10
(in Queue)
Cosmos DB
11000 RU
1TB
Cosmos DB
⑧
q / insert = 2000 limits
Accout / insert = 20000 limits
③
Queue Trigger
Location
Mapping
④
SQL
SQL Database
Log analytics
⑥

문제는 비용!!

표준 계층

버전 유형	단위당 가격(매월)	단위당 총 메시지 수/일	메시지 측정 크기
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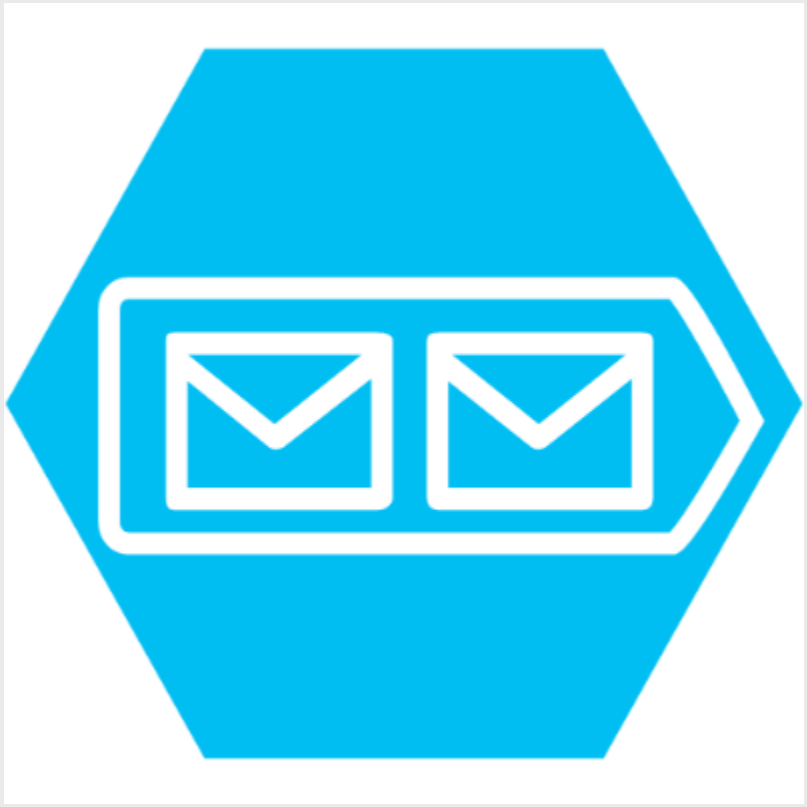
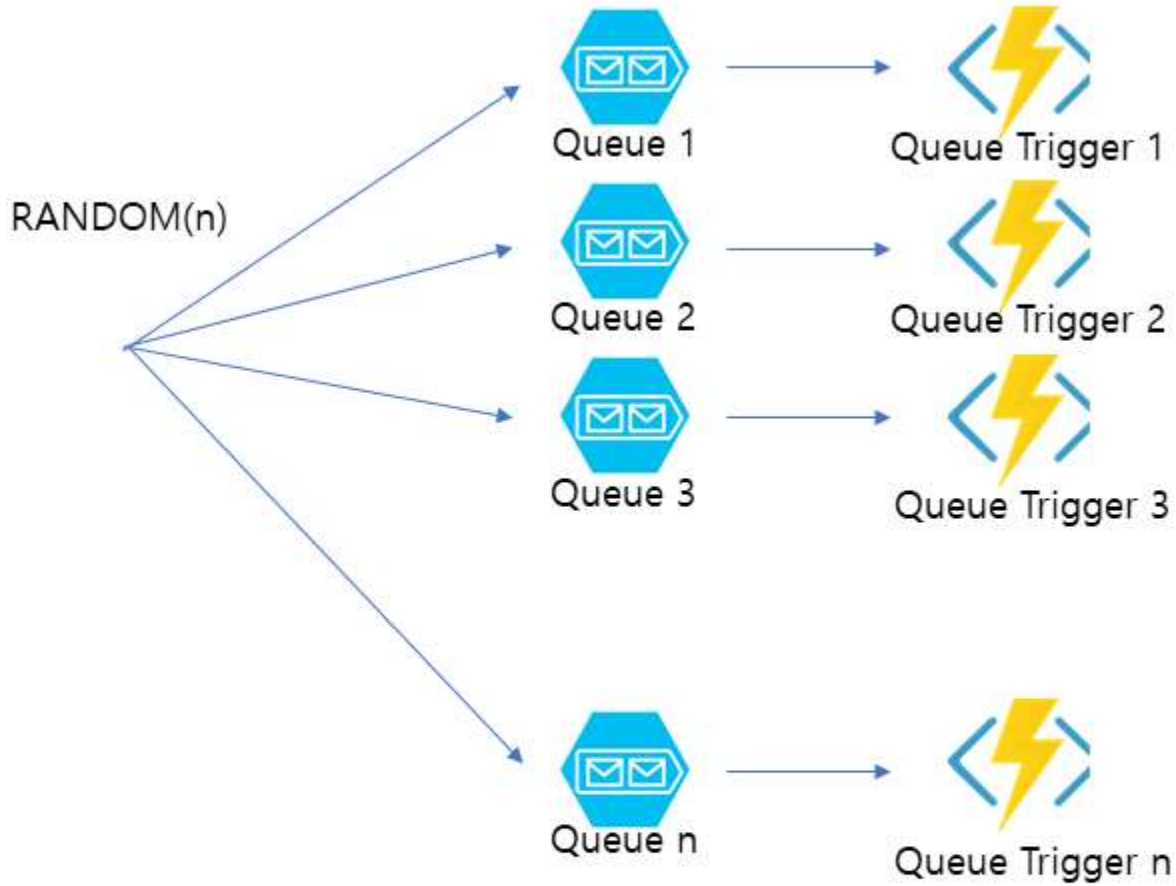
S3	₩2,[illegible]625	300,000,000	4 KB

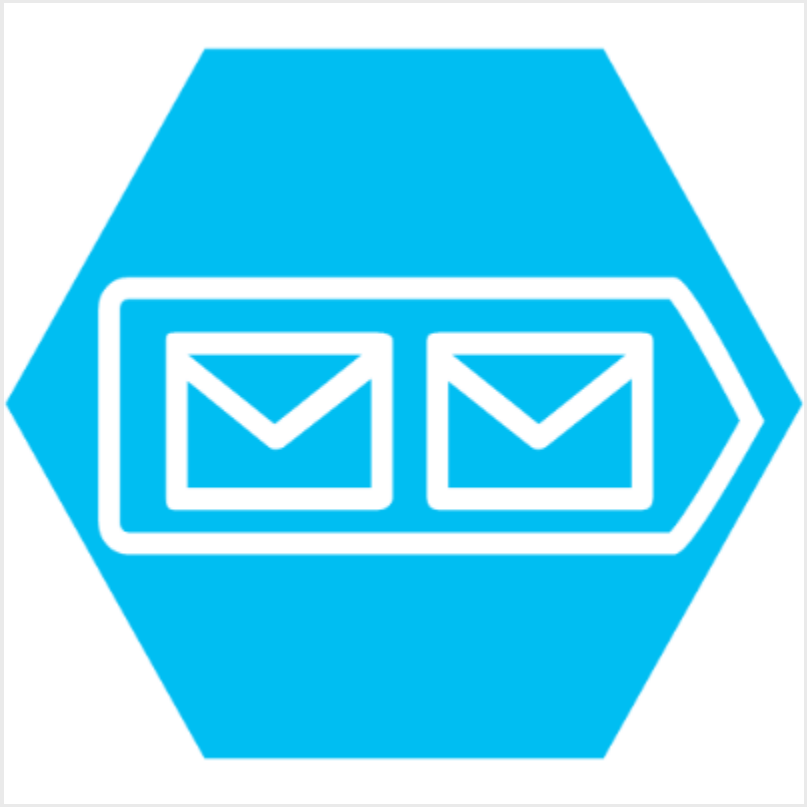
Storage Queue



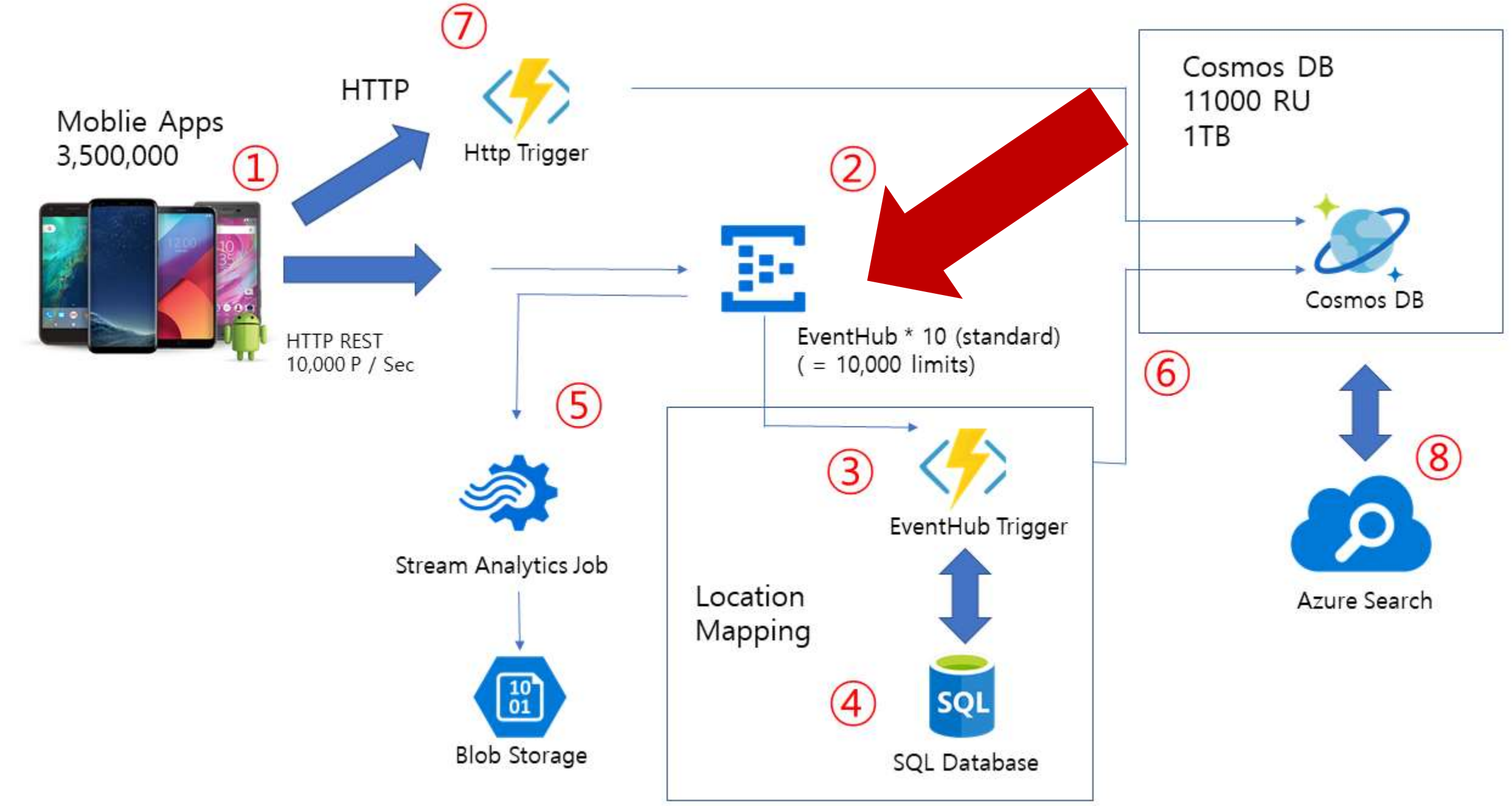
무지싸다!
초당 2000개 * 10
Random의 마법


RANDOM(n)
Queue 1
Queue Trigger 1
Queue 2
Queue Trigger 2
Queue 3
Queue Trigger 3
Queue n
Queue Trigger n

Storage Queue



관리포인트의 증가
비정상적인 트레픽
쏠림에 대한 확신이
없음


Moblie Apps
3,500,000
1
HTTP
7
Http Trigger
HTTP REST
10,000 P / Sec
2
EventHub * 10 (standard)
(= 10,000 limits)
Cosmos DB
11000 RU
1TB
Cosmos DB
6
5
Stream Analytics Job
Blob Storage
3
EventHub Trigger
Location
Mapping
4
SQL
SQL Database
8
Azure Search

Azure Functions의 두 가지 운영방법

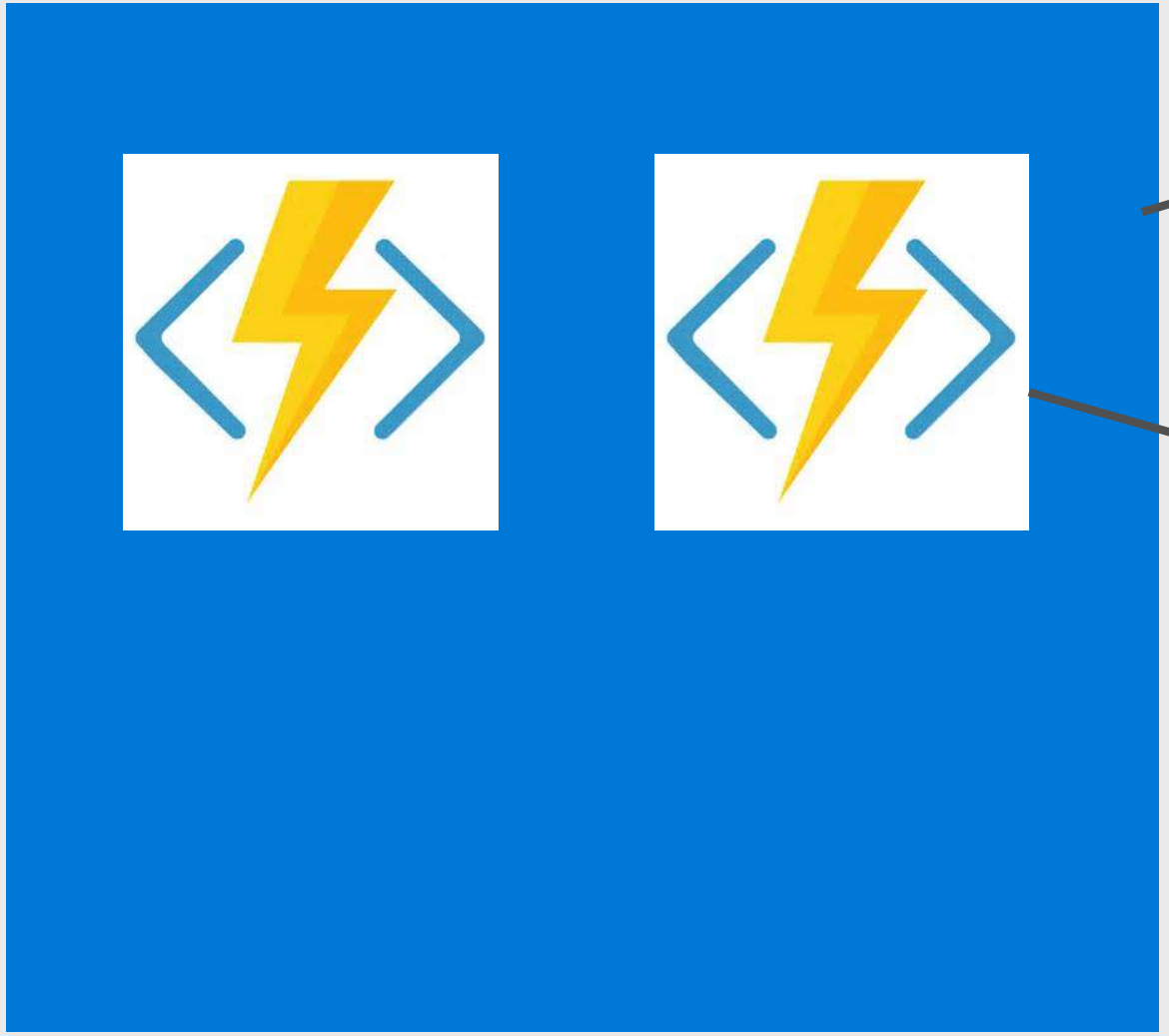
https://azure.microsoft.com/ko-kr/services/functions/

consumption plan

Web app plan

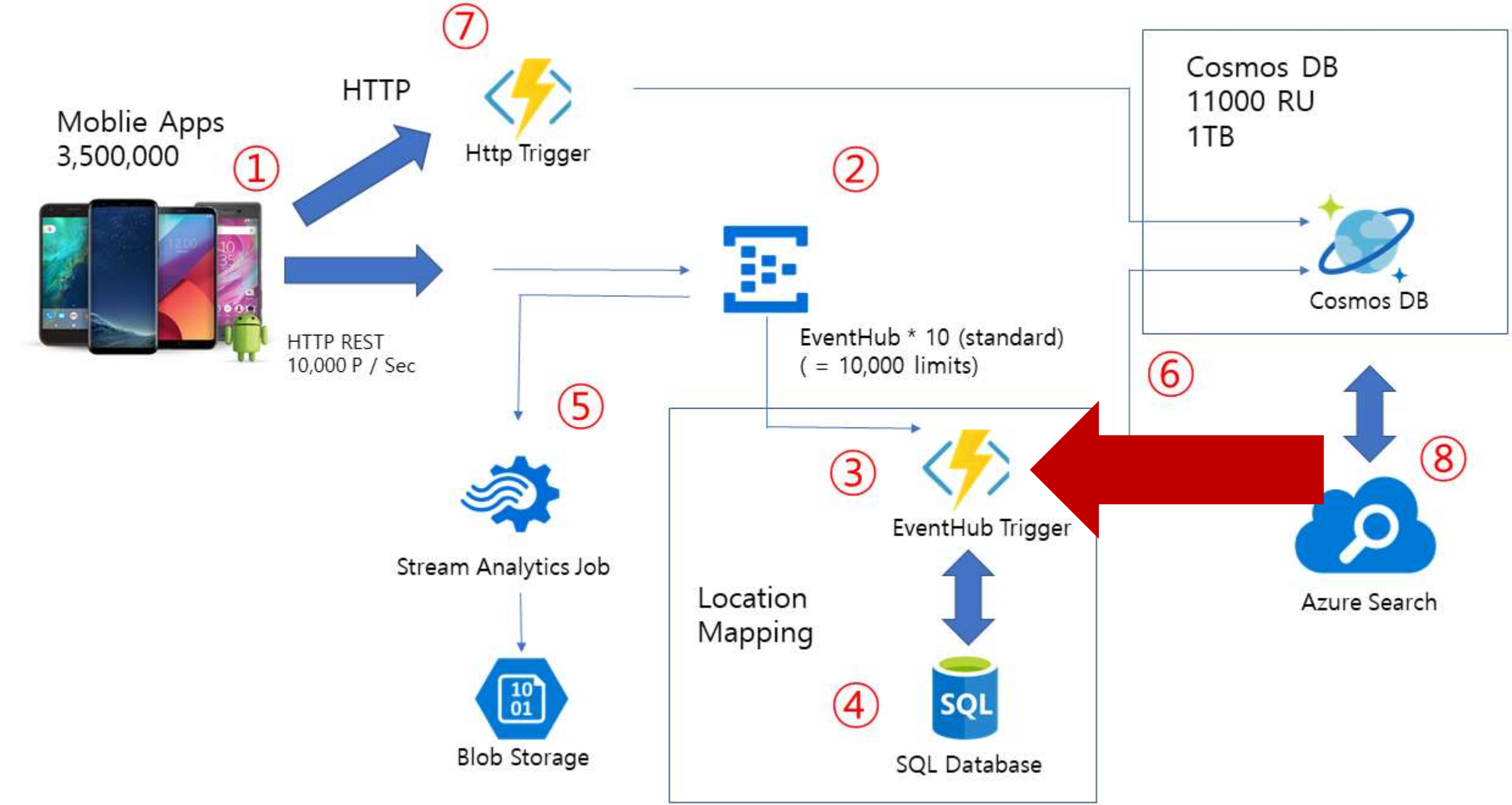
Azure Functions의 두 가지 운영방법

https://azure.microsoft.com/ko-kr/services/functions/

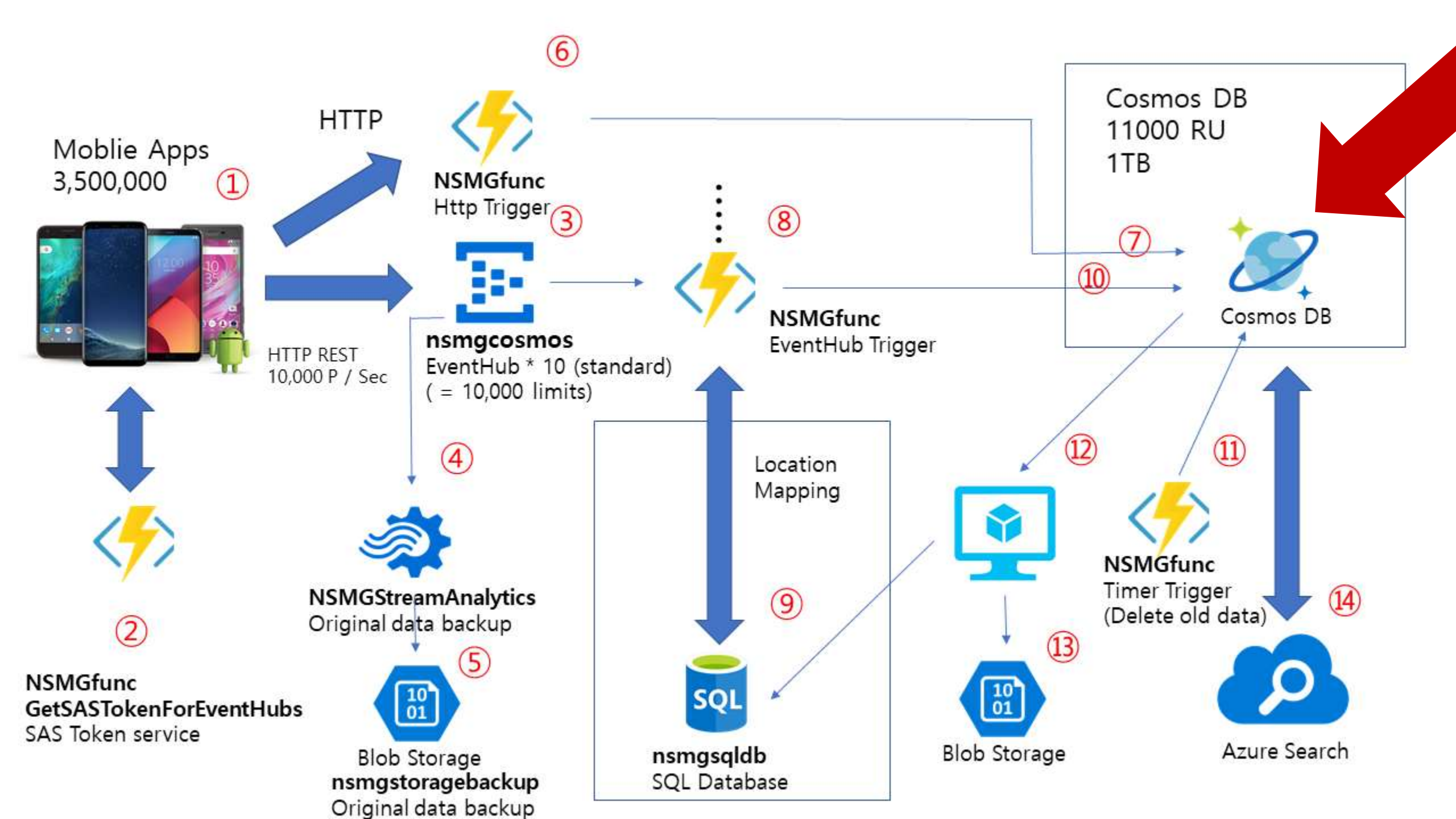


Web app plan

Web app or Functions


Moblie Apps
3,500,000
HTTP
HTTP REST
10,000 P / Sec
Http Trigger
EventHub * 10 (standard)
(= 10,000 limits)
Cosmos DB
11000 RU
1TB
Cosmos DB
EventHub Trigger
Location
Mapping
SQL
SQL Database
Azure Search
Stream Analytics Job
Blob Storage
1
2
3
4
5
6
7
8

The Last Version!!


Moblie Apps
3,500,000
①
HTTP
HTTP REST
10,000 P / Sec
⑥
NSMGfunc
Http Trigger
③
nsmgcosmos
EventHub * 10 (standard)
(= 10,000 limits)
⑧
NSMGfunc
EventHub Trigger
Cosmos DB
11000 RU
1TB
⑦
⑩
Cosmos DB
④
NSMGStreamAnalytics
Original data backup
⑤
Blob Storage
nsmgstoragebackup
Original data backup
Location
Mapping
⑨
SQL
nsmgsqldb
SQL Database
⑫
⑪
NSMGfunc
Timer Trigger
(Delete old data)
⑬
Blob Storage
⑭
Azure Search
②
NSMGfunc
GetSASTokenForEventHubs
SAS Token service

Azure Cosmos DB

A globally distributed, massively scalable, multi-model database service

Table API

MongoDB API

Key-value

Column-family

Document

Graph

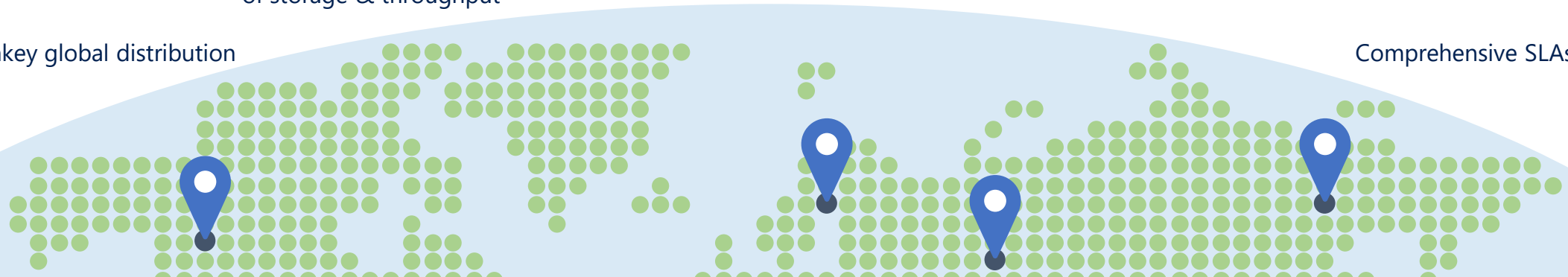
Guaranteed low latency at the 99th percentile

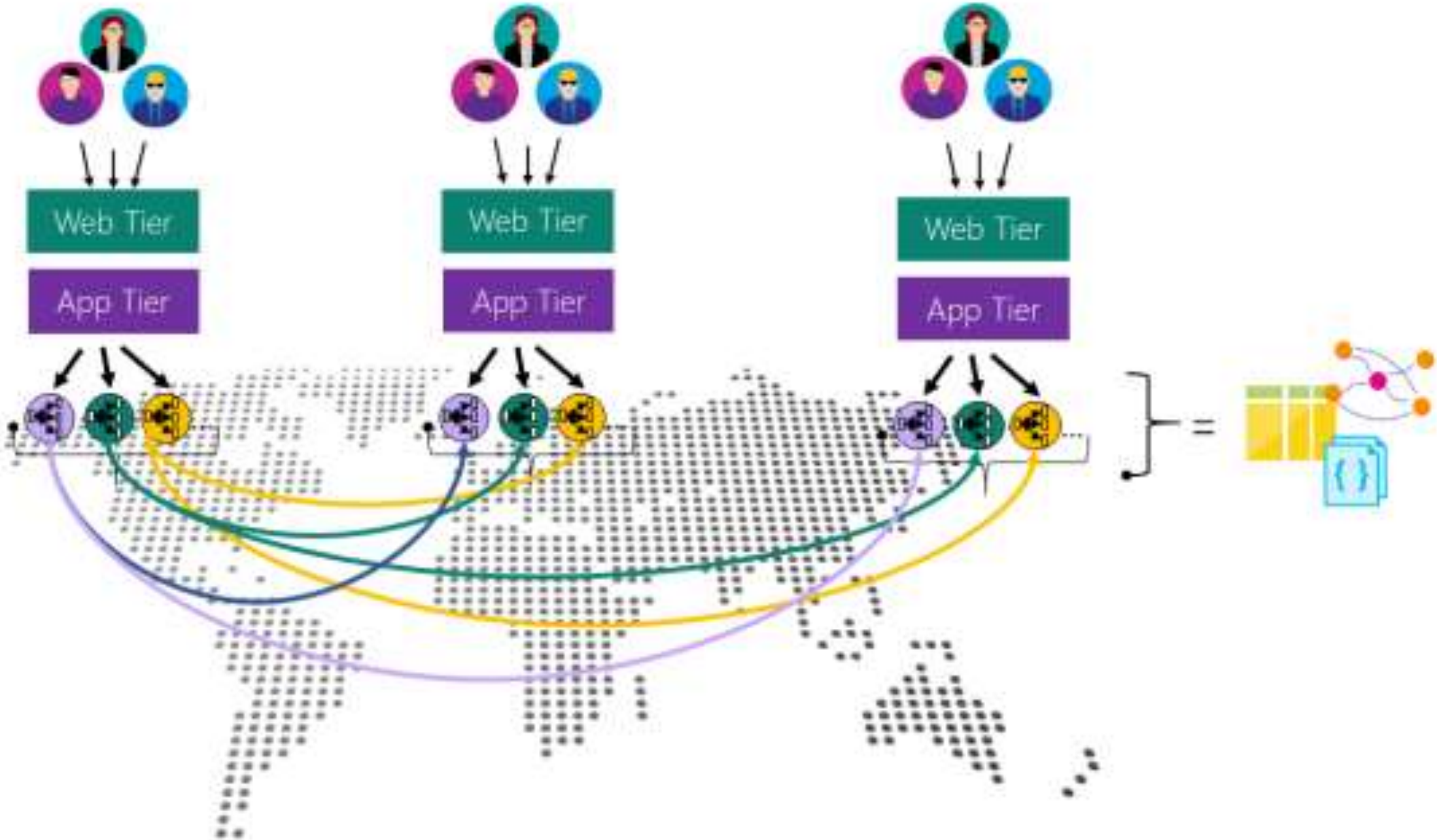
Elastic scale out
of storage & throughput

Five well-defined consistency models

Turnkey global distribution

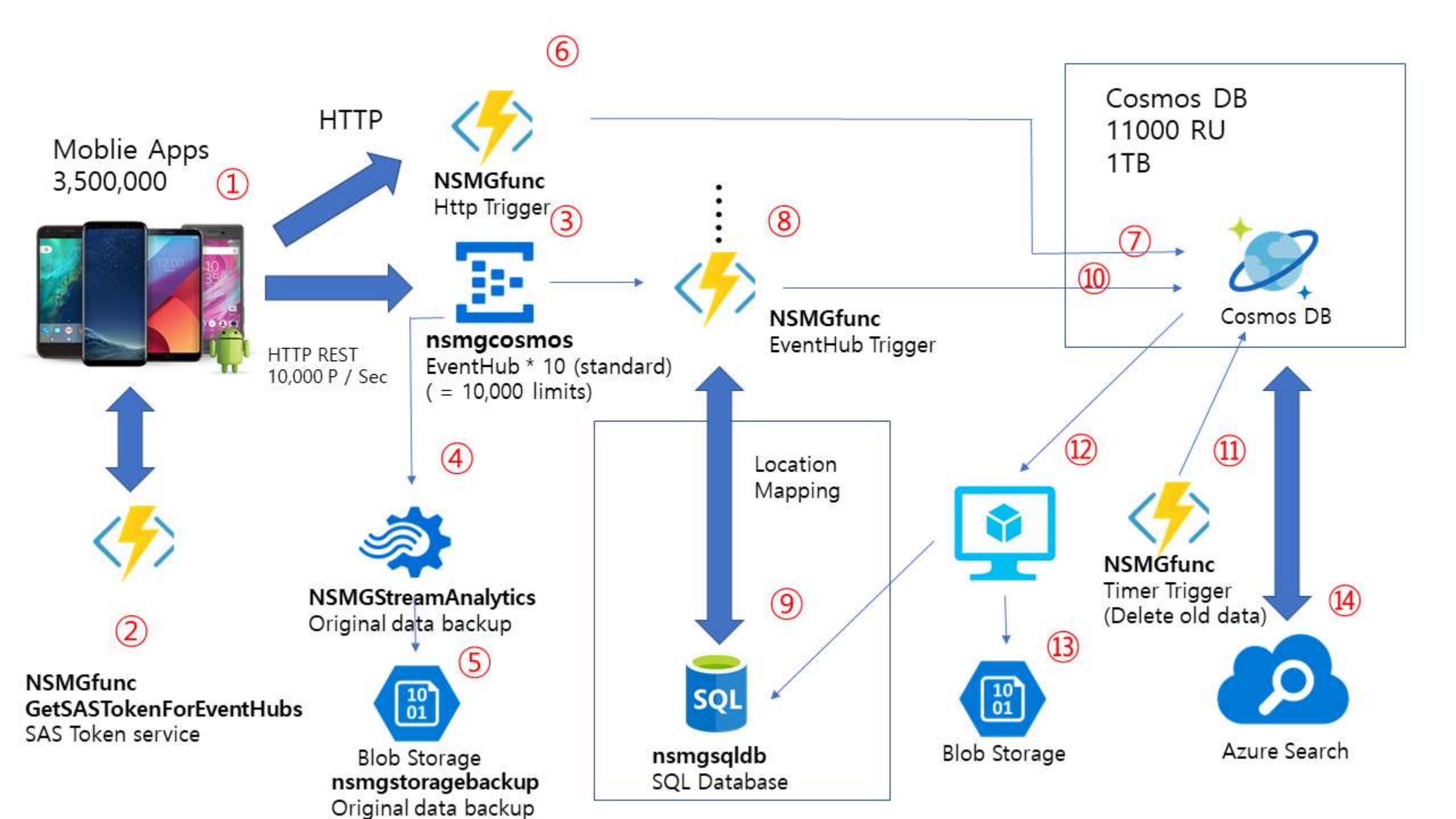
Comprehensive SLAs




Web Tier
App Tier
Web Tier
App Tier
Web Tier
App Tier

Cosmos DB

RU
Storage Size
Replications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EventHub * 10 (standard)
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NSMGfunc
EventHub Trigger
Cosmos DB
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1TB
⑦
⑩
Cosmos DB
④
NSMGStreamAnalytics
Original data backup
⑤
Blob Storage
nsmgstoragebackup
Original data backup
Location
Mapping
⑨
SQL
nsmgsqldb
SQL Database
⑫
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NSMGfunc
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SAS Token service