Google Cloud

DevFest 2023

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Ashok Jung Bahadur

Cloud Architect

Google

@ashokjung

Google Cloud

DevFest 2023

Running Containerised Application on Serverless

- Architect at Google
- 13+ years of Industry Experience working with Various Product Organisation
- Expertise in Application Development & Modernisation
- Tech Speaker
- Full Stack Developer
- Mentor

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The Buzzwords

Google Cloud Run

What is Container?

- Containers are packages of software that contain all of the necessary elements to run in any environment.
- Containers virtualize the operating system and run anywhere, from a private data center to the public cloud or even on a developer's personal laptop.
- Containerization allows our development teams to move fast, deploy software efficiently, and operate at an unprecedented scale.
- From Gmail to YouTube to Search, everything at Google runs in containers running, 2 billion containers/week.
- The Open Container Initiative (OCI), established in June 2015 by Docker and other industry leaders, is promoting common, minimal, open standards and specifications around container technology

Why do we need Container?

- Isolation
- Portability
- Scalability
- Resource Efficiency
- Version Control
- Standardisation

Types of Container?

- Stateless Containers: These types of containers do not persist data. These containers are typically used to run stateless applications such as web servers, reverse proxies, and load balancers.
- Stateful Containers: These types of containers persist data and are typically used to run stateful applications such as databases, message queues, and file servers. The data stored inside the container is persistent even if the container is stopped or recreated.
- Ephemeral Containers: These types of containers are used for short-lived tasks, such as running one-off commands, performing CI/CD pipeline tasks, etc. They are typically used for testing and debugging purposes. They are created and destroyed very quickly and are not meant to be long-lived.

What is Cloud Run?

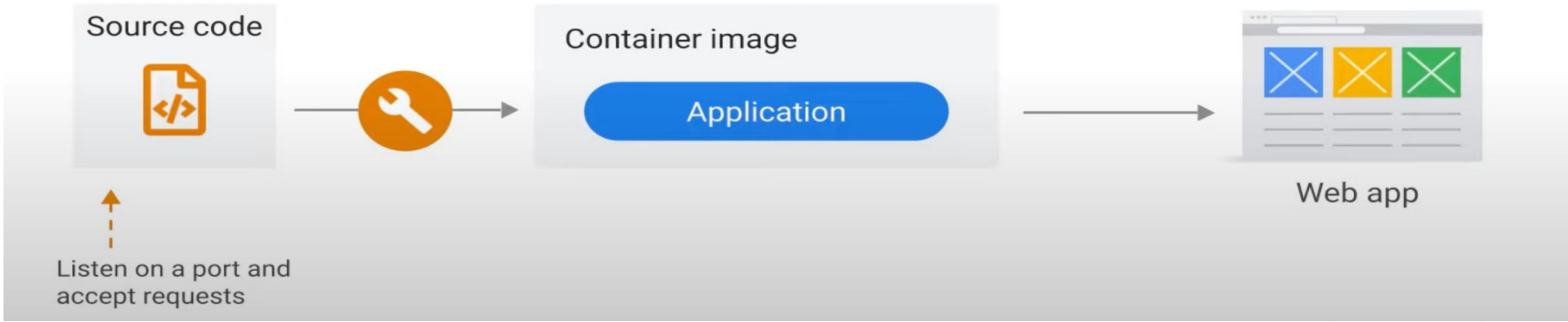
- Cloud Run is a managed compute platform that lets you run containers directly on top of Google's scalable infrastructure.
- You can deploy code written in any programming language on Cloud Run if you can build a container image from it.
- In fact, building container images is optional. If you're using Go, Node.js, Python, Java, .NET Core, or Ruby, you can use the source-based deployment option that builds the container for you, using the best practices for the language you're using.
- Google has built Cloud Run to work well together with other services on Google Cloud, so you can build full-featured applications.
- On Cloud Run, your code can either run continuously as a *service* or as a *job*.

Google Cloud Run workflow is a three-step process

1 Write your code

2 Build and package

3 Deploy to Cloud Run



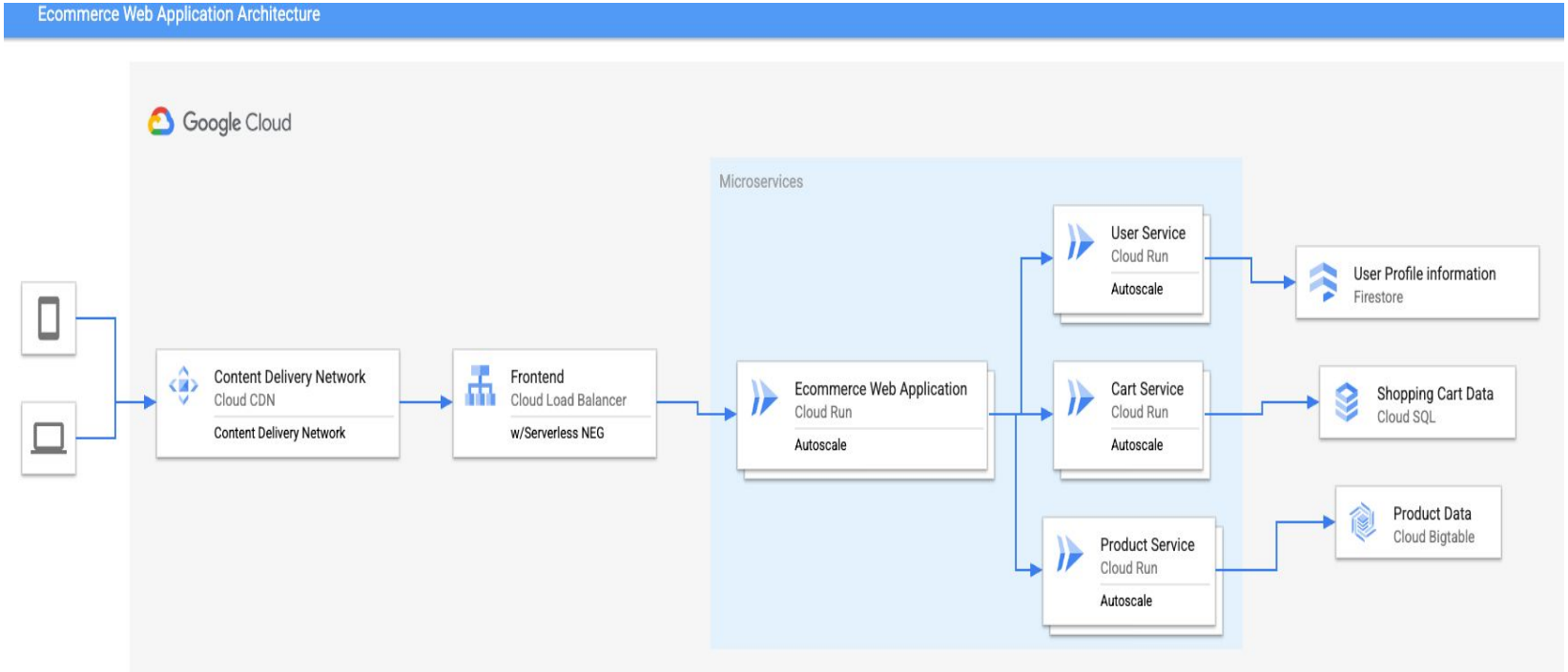
Cloud Run Services

- Unique HTTPS endpoint for every service
- Fast request-based auto scaling
- Built-in traffic management
- Private and public services
- Scale to zero and minimum instances
- Pricing (Request-based,Instance-based)

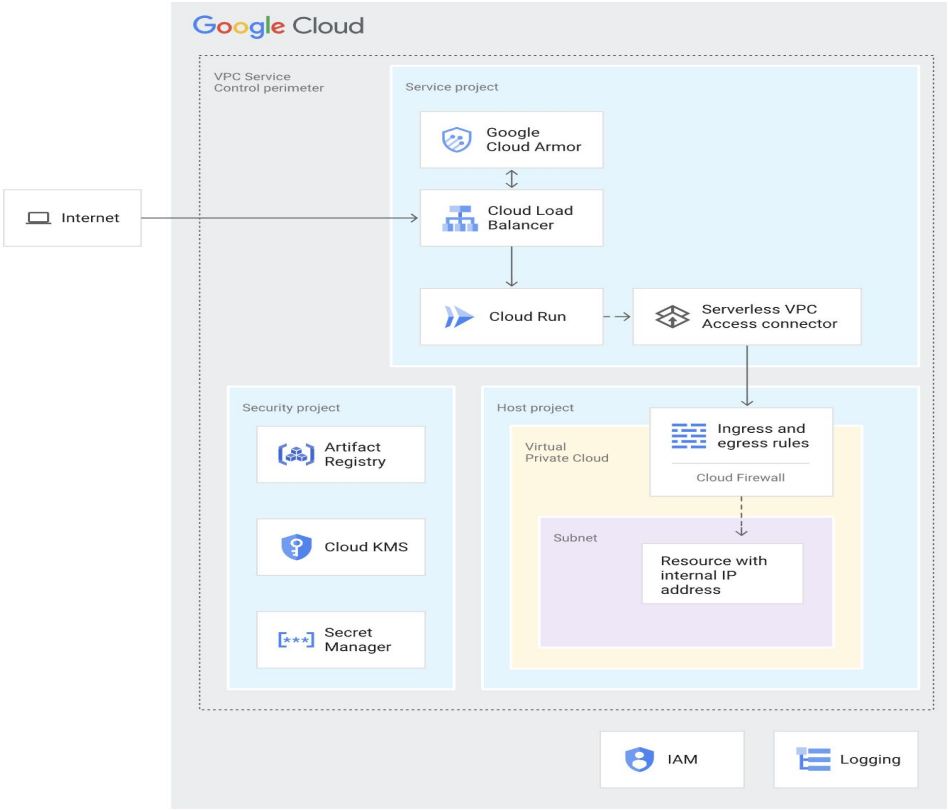
Typical Use Cases

- Microservices /API
- Event Processing
- Web Application
- GRPC
- Service to Service Communication

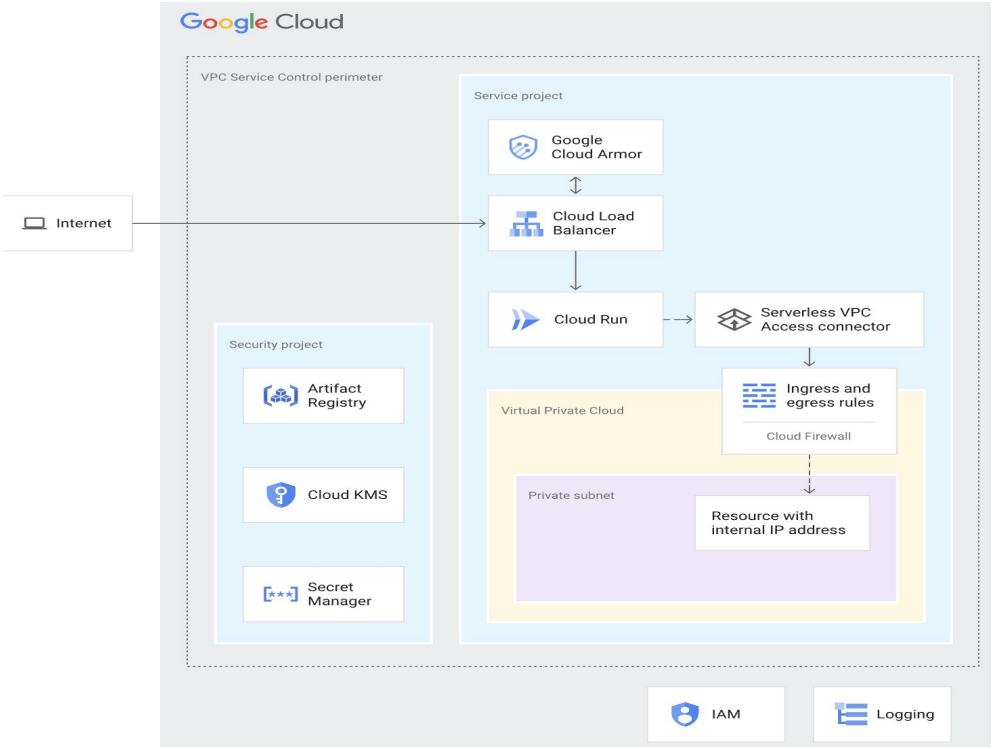
Serverless Architecture



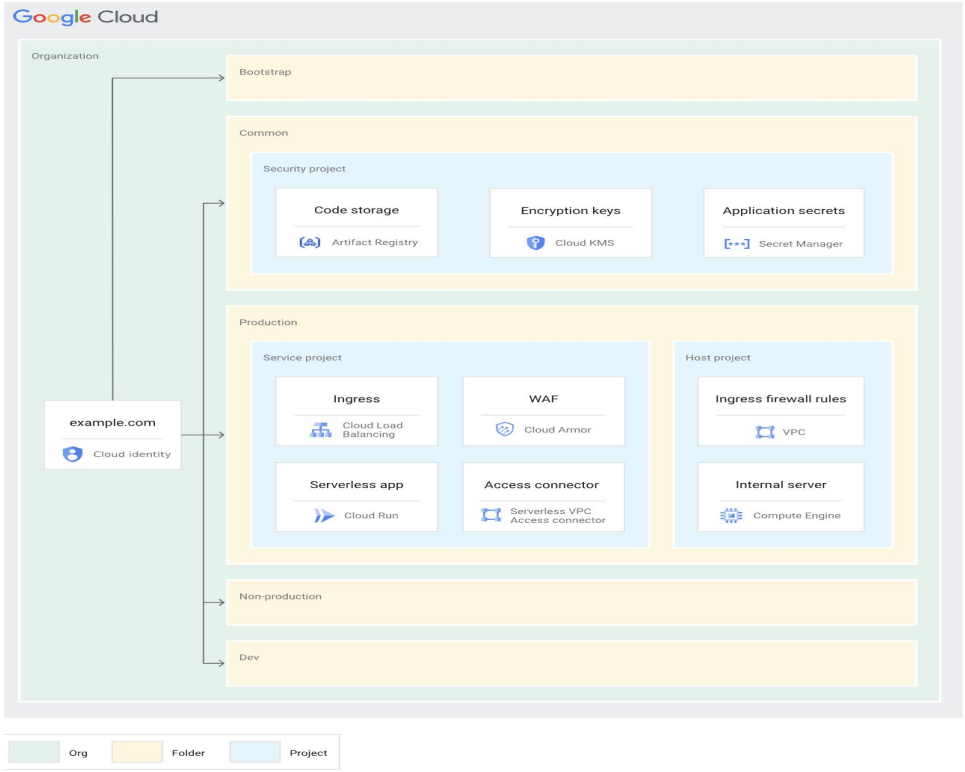
Serverless Application in Shared VPC



Serverless Application without Shared VPC



Organisation Structure



Thanks Everyone !

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Ashok Jung Bahadur

Cloud Architect, Google

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Questions?