돈 안받고
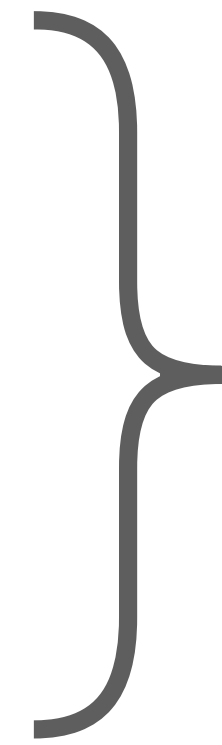# Google Severless 제품 광고

발표자: 윤상호 @interyoon

스터디원: 좌민주, 이승연, 나정원

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2. Severless 개요

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사실상 돈도 안받고 해주는 GCP 광고

Google Cloud

DEVELOPER'S CHEAT SHEET

v2021.3.3
Created by the Google Developer Relations Team
Maintained at https://4words.dev

Feedback? 🐦 @gregsramblings @pvergadia

COMPUTE

Cloud Functions	Event-driven serverless functions
App Engine	Managed app platform
Cloud Run	Serverless for containerized applications
Kubernetes Engine (GKE)	Managed Kubernetes/containers
Compute Engine	VMs, GPUs, TPUs, Disks
Bare Metal Solution	Hardware for specialized workloads
Preemptible VMs	Short-lived compute instances
Shielded VMs	Hardened VMs
Sole-tenant Nodes	Dedicated physical servers
VMware Engine	VMware on Compute Engine

STORAGE

Cloud Filestore	Managed NFS server
Cloud Storage	Multi-class multi-region object storage
Persistent Disk	Block storage for VMs
Local SSD	VM locally attached SSDs

DATABASE

Cloud Bigtable	Petabyte-scale, low-latency, non-relational
Cloud Firestore	Serverless NoSQL document DB
Cloud Memorystore	Managed Redis and Memcached
Cloud Spanner	Horizontally scalable relational DB
Cloud SQL	Managed MySQL,PostgreSQL,SQL Server
Database Migration Service	Migrate to Cloud SQL
DB Insights	SQL Inspector

DATA AND ANALYTICS

BigQuery	Data warehouse/analytics
BigQuery BI Engine	In-memory analytics engine
BigQuery ML	BigQuery model training/serving
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Cloud Dataproc	Managed Spark and Hadoop
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Data Studio	Collaborative data exploration/dashboarding
Looker	Enterprise BI and Analytics

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Vision Product Search	Visual search for products

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Direct Peering	Peer with GCP
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Virtual Private Cloud	Software defined networking
VPC Service Controls	Security perimeters for API-based services
Network Intelligence Center	Network monitoring and topology

GAMING

Google Cloud Game Servers	Orchestrate Agones clusters

INTERNET OF THINGS (IOT)

Cloud IoT Core	Manage devices, ingest data

IDENTITY AND SECURITY

Access Transparency	Audit cloud provider access
Assured Workloads	Workload compliance controls
Binary Authorization	Kubernetes deploy-time security
Certificate Authority Service	Managed private CAs
Cloud Asset Inventory	All assets, one place
Cloud Audit Logs	Audit trails for GCP
Cloud DLP	Classify and redact sensitive data
Cloud HSM	Hardware security module service
Cloud EKM	External keys you control
Cloud IAM	Resource access control
Cloud Identity	Manage users, devices & apps
Cloud Identity-Aware Proxy	Identity-based app access
Cloud KMS	Hosted key management service
Cloud Resource Manager	Cloud project metadata management
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IDENTITY AND SECURITY (CONT.)

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Cloud Shell	Browser-based terminal/CLI
Artifact Registry	Universal package manager
Cloud Source Repositories	Hosted private git repos
Container Registry	Private container registry/storage
Container Analysis	Automated security scanning
Eventarc	Event-driven Cloud Run services
Cloud Scheduler	Managed cron job service
Cloud Tasks	Asynchronous task execution
Cloud Workflows	HTTP services orchestration

MIGRATION TO GCP

BigQuery Data Transfer Service	Bulk import analytics data
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GCP Medium Publication	medium.com/google-cloud
Apigee Blog	apigee.com/about/blog
Firebase Blog	firebase.googleblog.com
Workspace Developers Blog	gsuite-developers.googleblog.com
Workspace GitHub	github.com/gsuitedevs
Workspace Twitter	twitter.com/gsuitedevs
Google Cloud Certifications	cloud.google.com/certification
Google Cloud System Status	status.cloud.google.com
Google Cloud Training	cloud.google.com/training
Google Developers Blog	developers.googleblog.com
Google Maps Platform Blog	mapsplatform.googleblog.com
Google Open Source Blog	opensource.googleblog.com
Google Security Blog	security.googleblog.com
Kaggle Home Page	www.kaggle.com
Kubernetes Blog	kubernetes.io/blog
Regions and Network Map	cloud.google.com/about/locations
DORA - Software & Delivery Research	cloud.google.com/devops

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GCP Medium Publication	medium.com/google-cloud
Apigee Blog	apigee.com/about/blog
Firebase Blog	firebase.googleblog.com
Workspace Developers Blog	gsuite-developers.googleblog.com
Workspace GitHub	github.com/gsuitedevs
Workspace Twitter	twitter.com/gsuitedevs
Google Cloud Certifications	cloud.google.com/certification
Google Cloud System Status	status.cloud.google.com
Google Cloud Training	cloud.google.com/training
Google Developers Blog	developers.googleblog.com
Google Maps Platform Blog	mapsplatform.googleblog.com
Google Open Source Blog	opensource.googleblog.com
Google Security Blog	security.googleblog.com
Kaggle Home Page	www.kaggle.com
Kubernetes Blog	kubernetes.io/blog
Regions and Network Map	cloud.google.com/about/locations
DORA - Software & Delivery Research	cloud.google.com/devops

1. On Promise
서버리스가 나오기까지

- 직접 하드웨어와 소프트웨어를 관리

- 유연한 대응이 불가능

  - 갑자기 유저가 늘었다거나
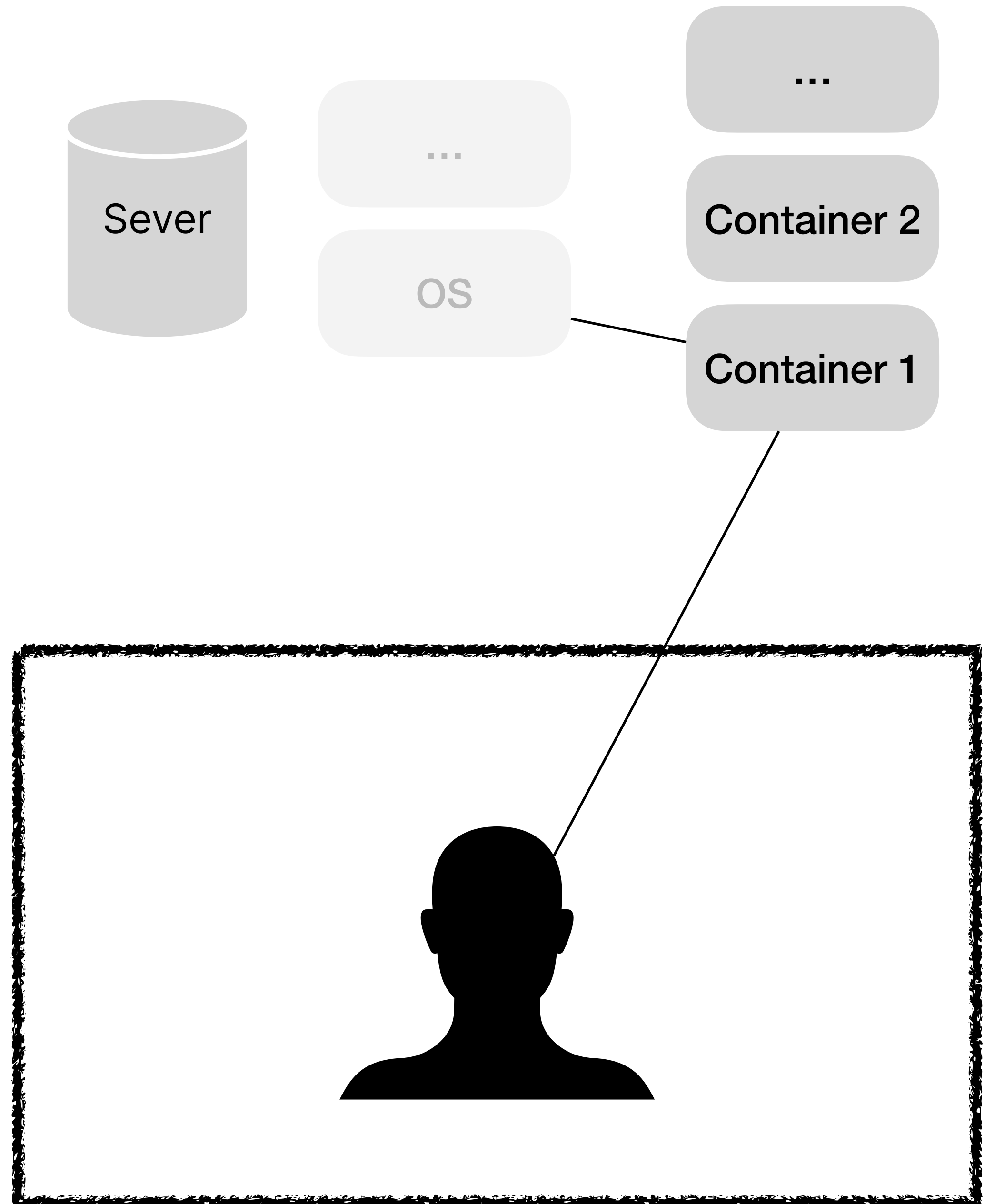
  - 갑자기 정전이 발생했다거나

- 즉, 하드웨어적인 관리 측면의 어려움 발생

나의 영역

Sever

...

OS
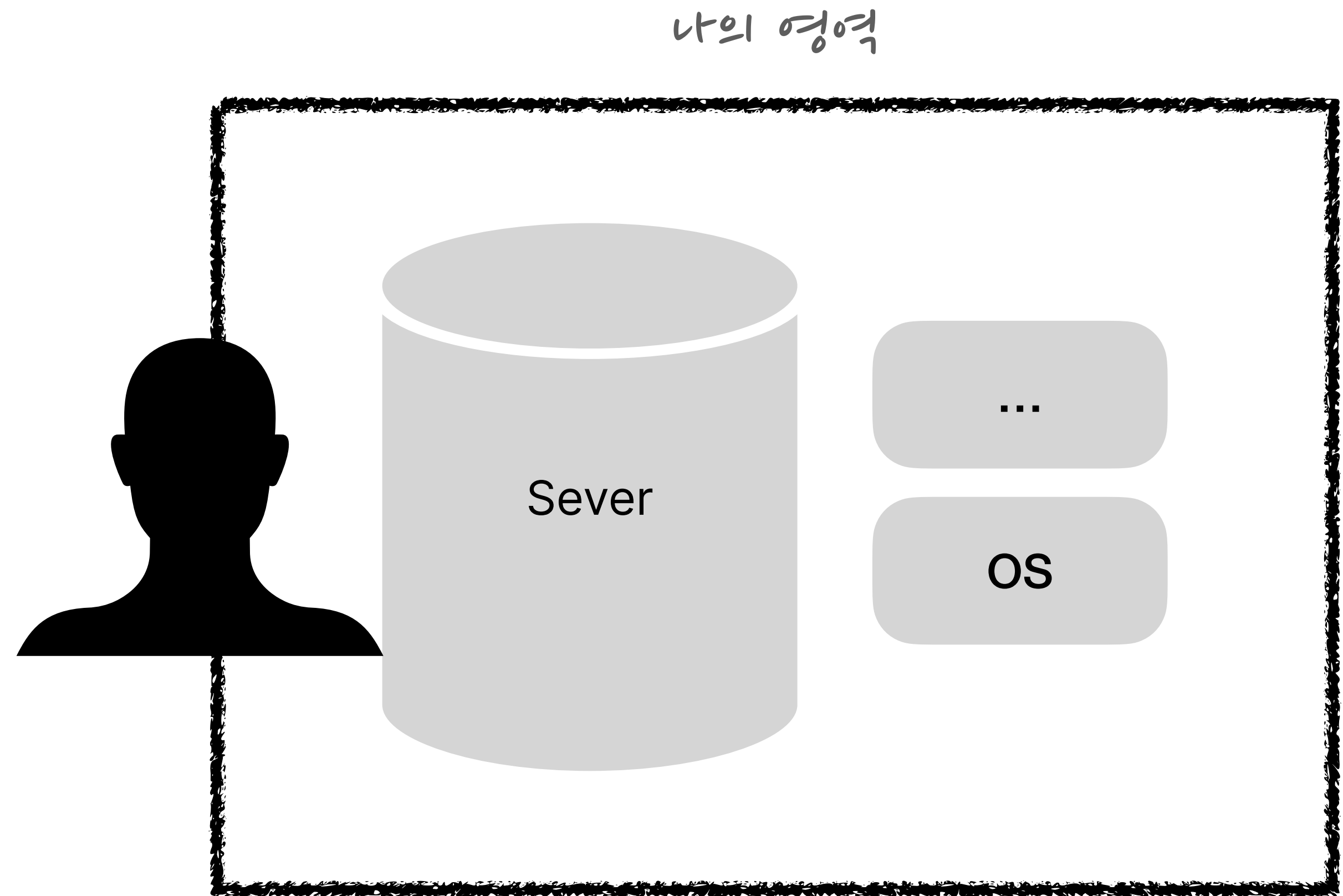
2. IaaS의 등장
하드웨어 관리로부터의 독립

- 하드웨어를 빌려다 씀

- 앞서 언급한 유연한 대응은 가능

- 하지만,

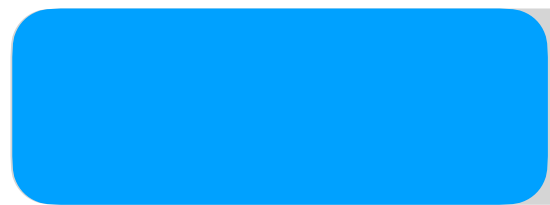 - 소프트웨어는 여전히 나의 몫

  - 사용자가 서비스를 사용하지 않더라도 서버를 켜두는 만큼 비용 발생

Sever

...

OS

...

OS
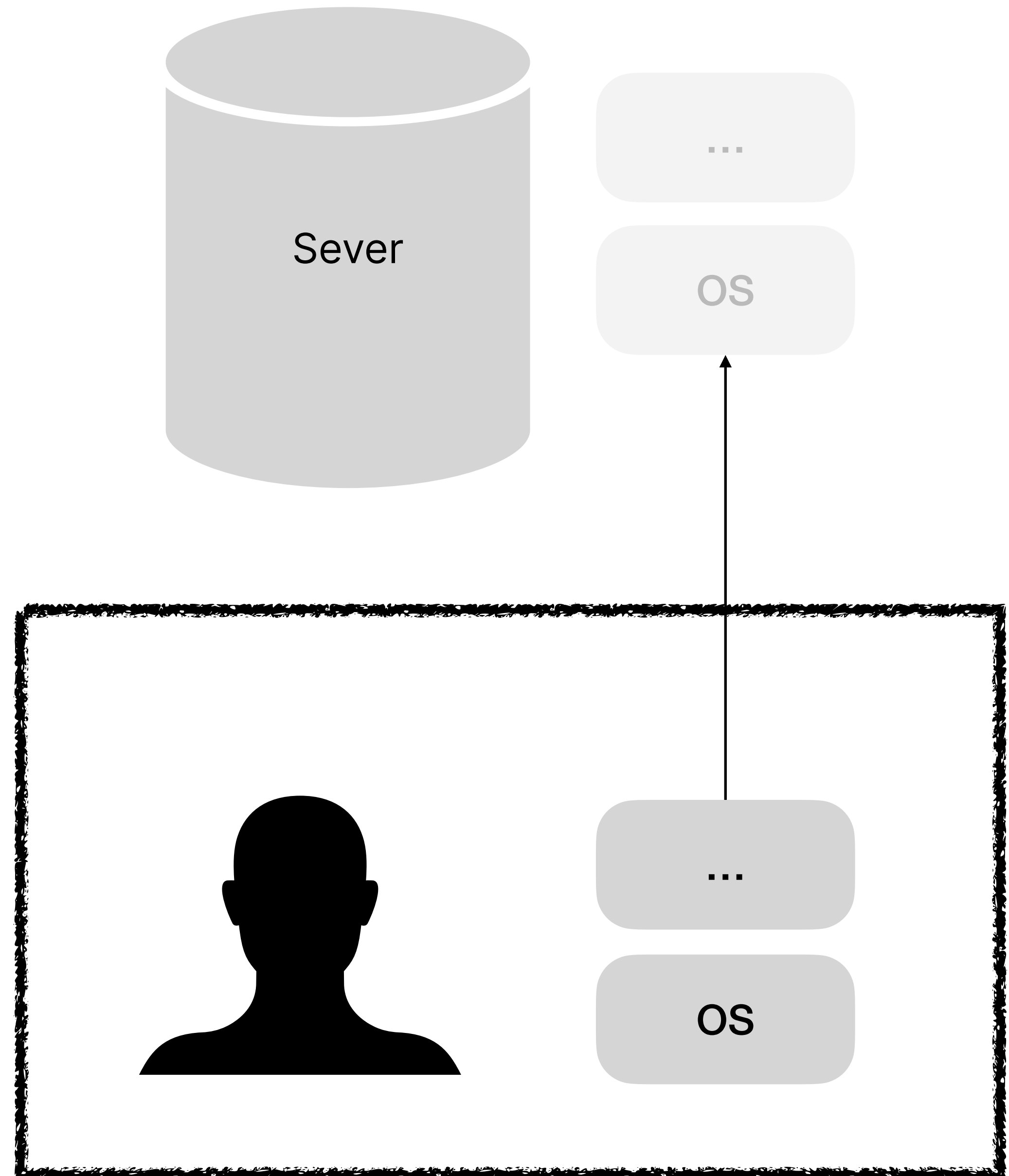
3. PaaS의 등장
소프트웨어로부터의 독립

- 직접 하드웨어와 소프트웨어를 관리

- 필요한 소프트웨어를 도커나 쿠버네티스를 사용해 필요한 서버에 소프트웨어를 설치할 수 있음
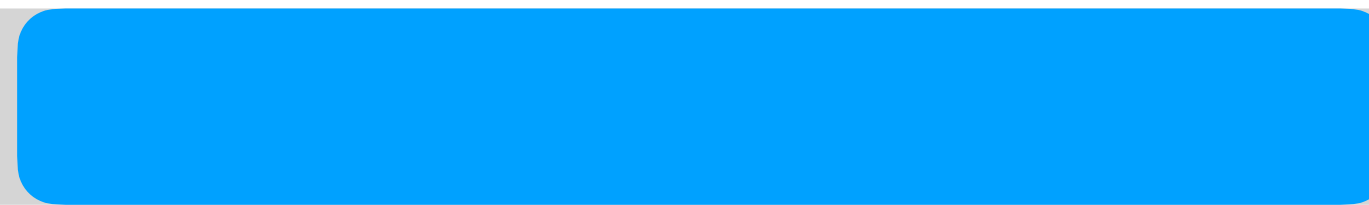
- 하지만 여전히 사용자가 서비스를 사용하지 않더라도 서버를 켜두는 만큼 비용 발생

  - 유저가 0명이든 1000명이든 같은 돈을 내야 함.

4. Severless의 등장

유지 및 관리로부터의 해방

- "특정 코드"를 실행하는 데
  필요한 컴퓨팅 리소스와 스토리지만 동적으로 할당

Start up   Handling Request   Shut down

💸   💸   💸
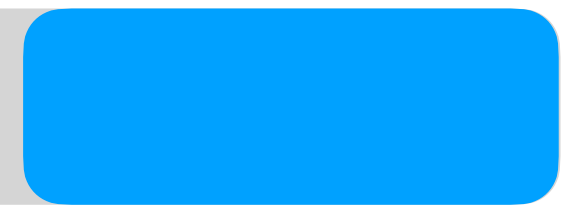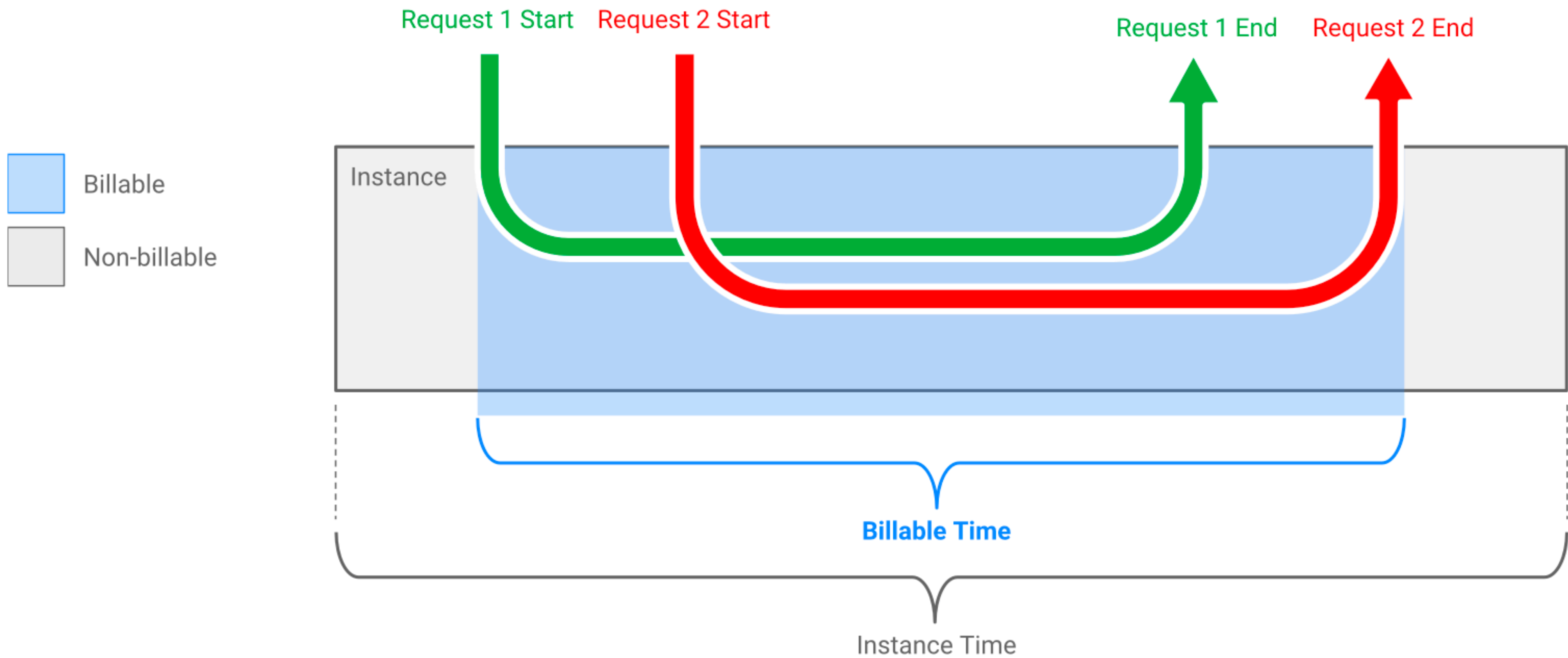
4. Severless의 등장
!= 서버가 없다

- <u>여전히 서버는 필요합니다.</u>

- 사용자(개발자)는 서버 관리에서 완전히 자유로워지며 실제 구현해야 할 기능에 더 집중할 수 있음.

서버리스

완전 관리형 서버리스 플랫폼에서 확장성이 우수한 애플리케이션 및 함수를 개발하고 배포합니다. 서버리스 컴퓨팅은 트래픽에 따라 서비스를 자동으로 확장하거나 0으로 축소하며 사용한 만큼만 비용을 지불합니다.

무료 체험판을 시작하여 $300의 무료 크레딧을 받으세요.

콘솔로 이동　영업팀에 문의

장점

1. 실제 사용량에 대해서만 비용이 청구
    되므로 경제적.

    - 비용 절감 기존 IaaS나 PaaS와 비
      교하여

2. 사용자는 개발하는 애플리케이션의
    품질 향상에 좀 더 집중.

    - 애플리케이션의 품질에 집중 가능
      서버에 신경 쓸 필요가 없어지므로

장점

3. 가용성이 높고 스케일링에 신경 쓸 필요
가 없다.

   - 높은 가용성과 유연한 확장 요청이 들
어올때만 실행되고 동적으로 자원을 할
당하기 때문에

4. 관리보다 개발에 집중할 경우

   - 빠른 개발 배포 간단한 패키징 및 배포
릴리즈 주기 감소 높은 생산성 유지보
수나 기능추가에 효율적이라 관리보다
개발에 집중할 경우
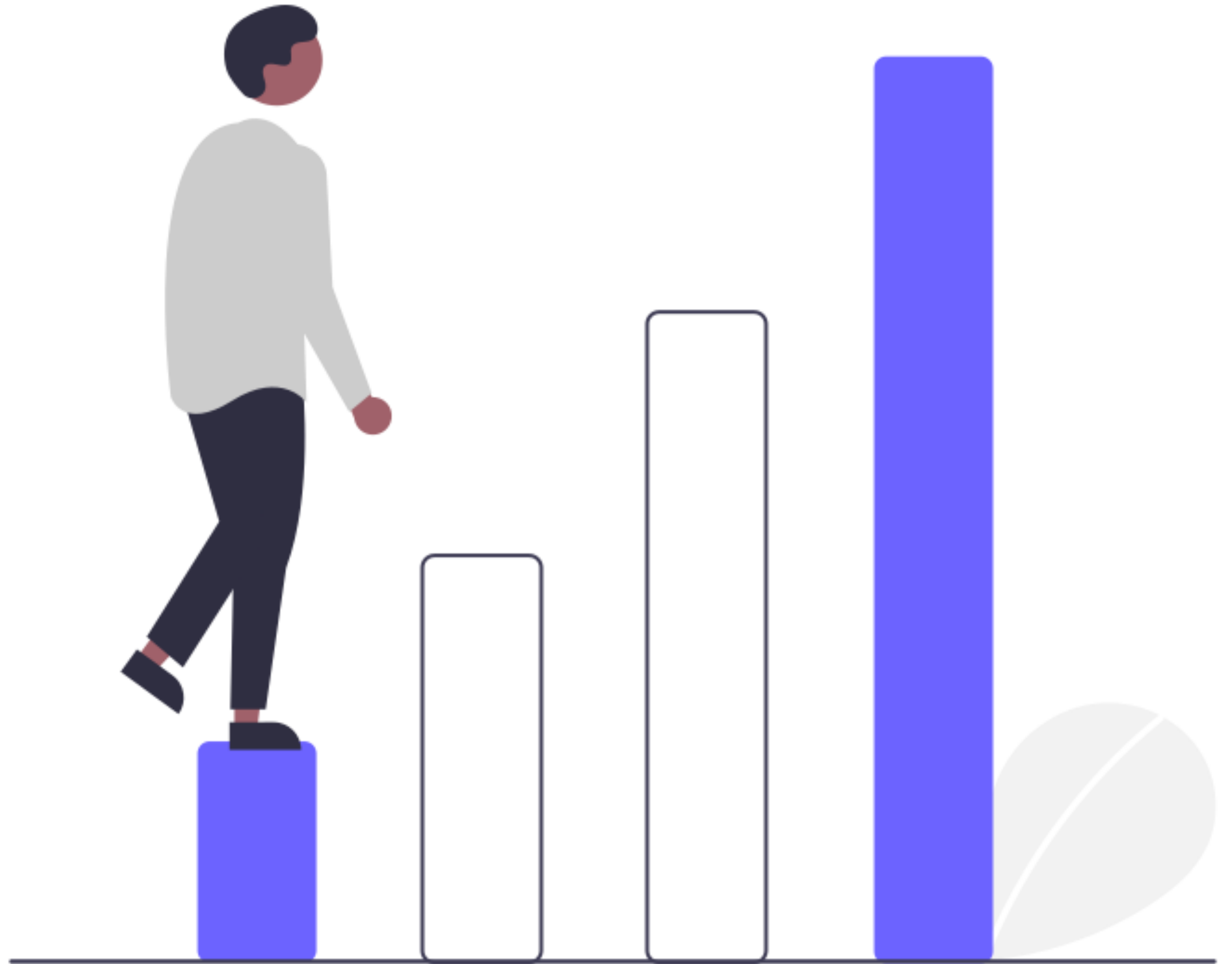
단점

1. **Cold Start.**
   서버리스의 함수들은 요청이 없으면
   수면 상태로 전환.

   - 즉, 아무래도 서버가 항시 요청에 대기
     하고 있는게 아니다보니 IaaS나 PaaS
     등의 모델보단 요청시간이 느리다.

   - 실시간 서비스에는 적합하지 않음 프로
     젝트 규모가 작다면 별로 신경쓸만한 사
     항은 아니지만 규모가 커지거나 속도를
     요구하는 프로젝트라면 서버리스는 좋
     은 선택이 아닐 수 있음.

😳

😴💤

Cold start 😳

😴💤

Shut down

Handling Request

Start up
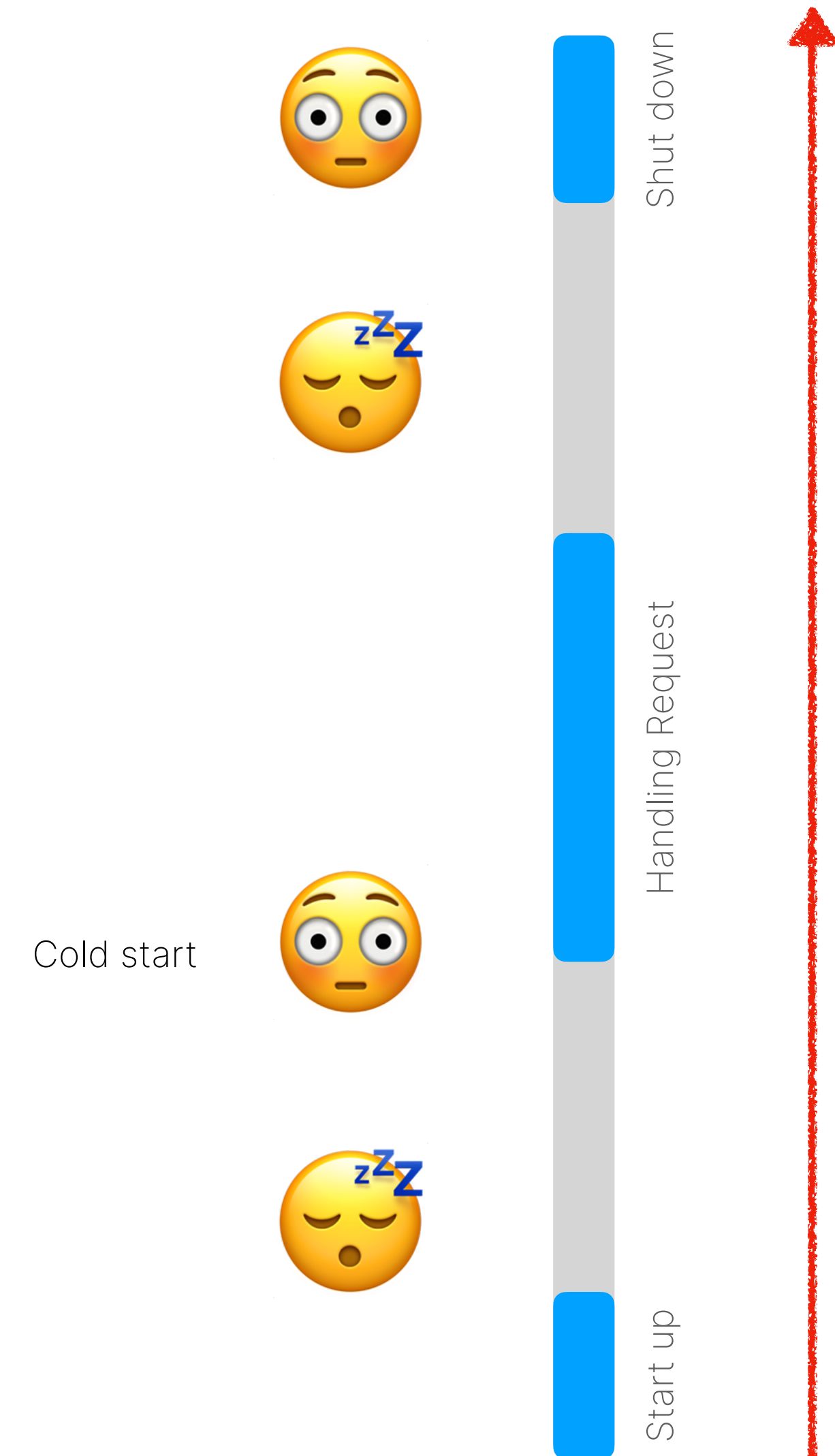
단점

2. 시간을 요하는 작업에 불리함

    - 서버리스는 단순 작업(댓글 쓰기, 이메일 보내기 등)에는 적합

    - 긴 시간을 요하는 작업(동영상 업로드, 데이터 백업 등)에는 굉장히 비효율적임

3. (Stateless) 로컬 데이터를 사용할 수 없음

    - 하나의 작은 기능으로 나뉘어진 함수들은 요청마다 새로 기동되어 호출되기 때문에 전후 상태를 공유할 수 없기 때문이다. 또한 변수와 데이터의 공유가 불가능하며, 데이터를 로컬 스토리지에서 읽고 쓸 수 없다.

GCP
Severless 제품들

Cloud Run

Cloud Function
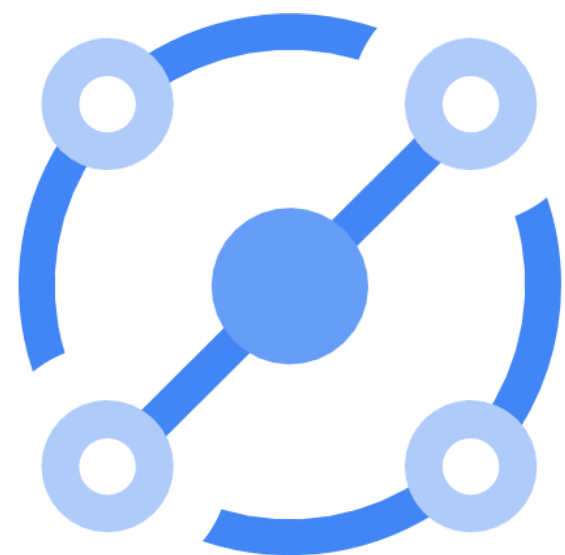
Eventarc

Scheduler
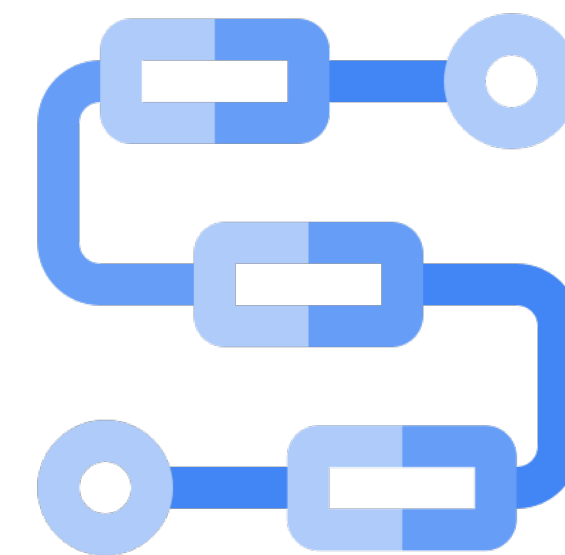
Workflows
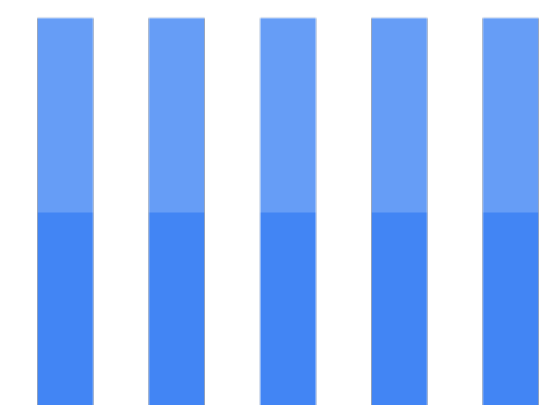
Tasks

Cloud Run

Cloud Function

Cloud run

- 환경을 사용자가 직접 구성하여 쓸 수 있음.

  - 컨테이너를 직접 구성하여 사용

  - 컨테이너에는 실행하고자 하는 코드도 포함되어 있음.

- 특정 포트로 트리거

(1) 데이터 처리

| Cloud Storage | →Cloud Storage trigger→ | Data transformation / Cloud Run | →Stores data→ | BigQuery |

(2) 예약 문서 생성

Cloud Scheduler →Every month→ PDF generation / Cloud Run →Get customer data→ Cloud SQL Relational

PDF generation →Store Invoices→ Cloud Storage
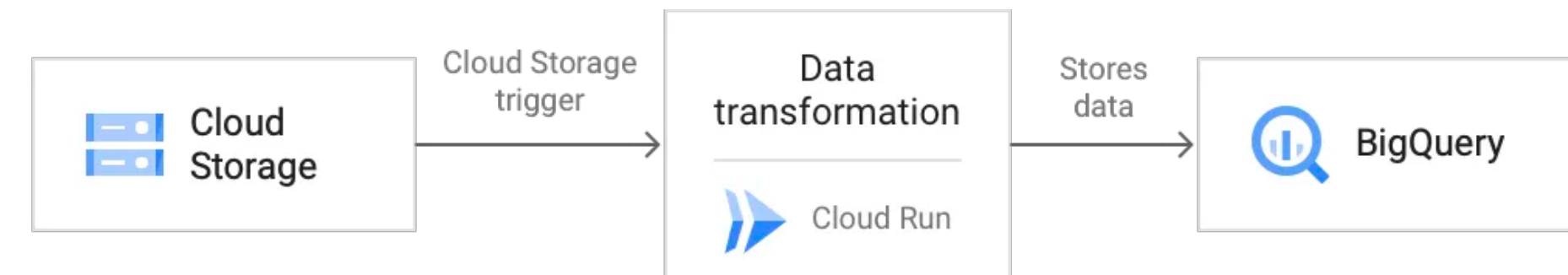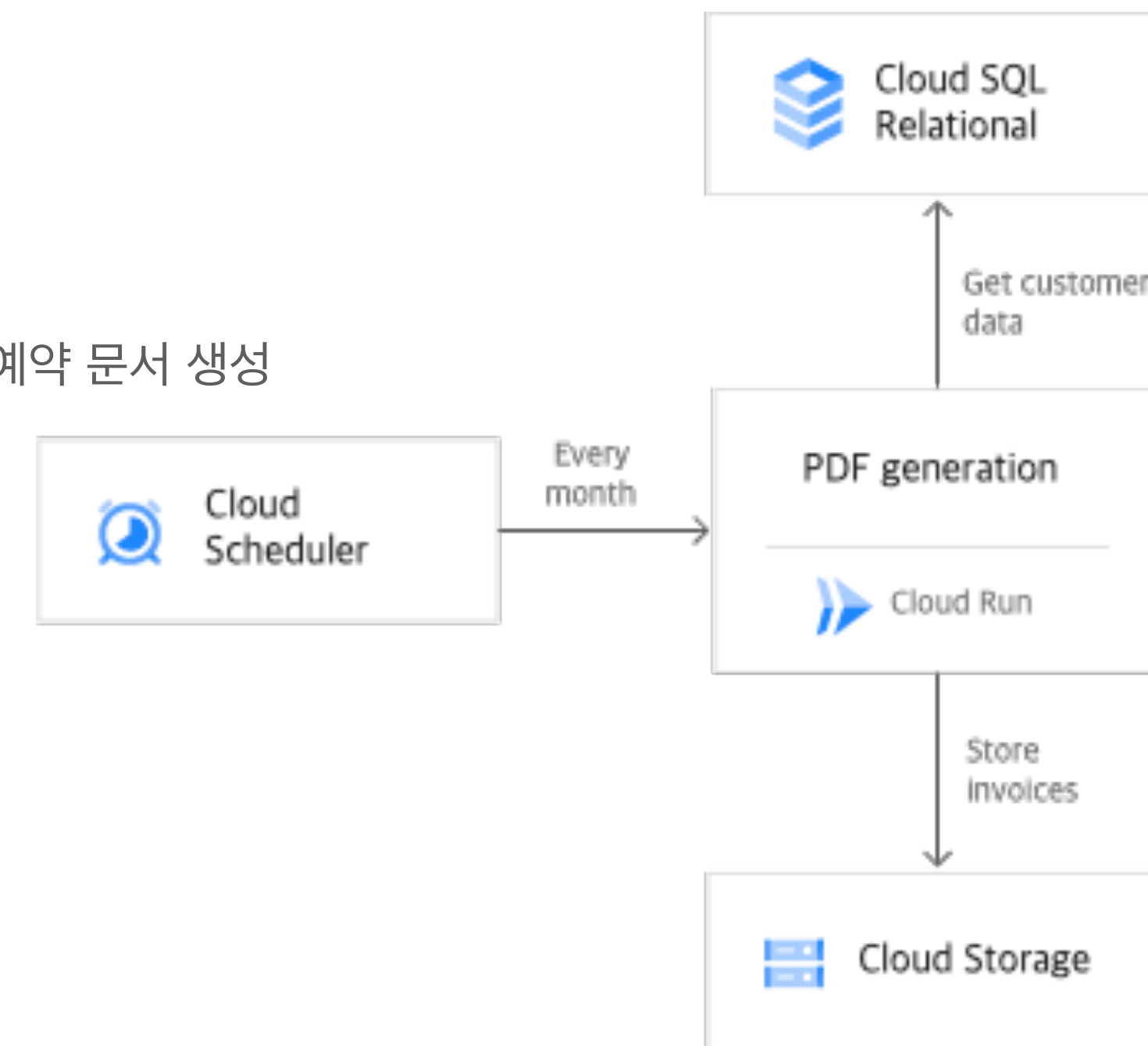
Cloud function

- 앞이랑 똑같은데, 실행 환경이 제한적

  - Node, python, go

  - 당연히 버전도 제한적

Next

간단한 to-do-list를 react로 만들어서 cloud function으로 ci/cd 만들어보기
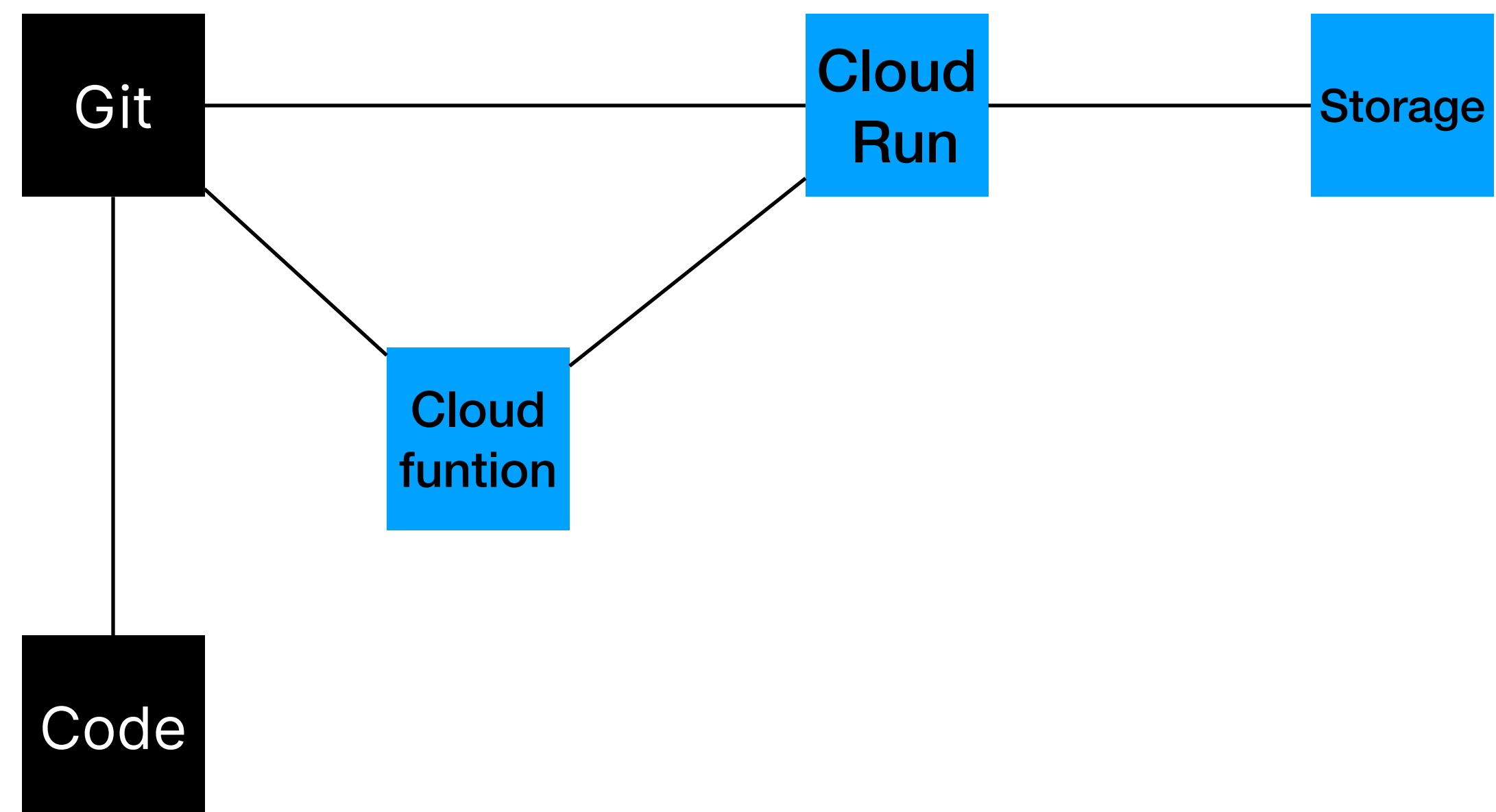
App

Function

Vision api

Function

Storage

Cloud run