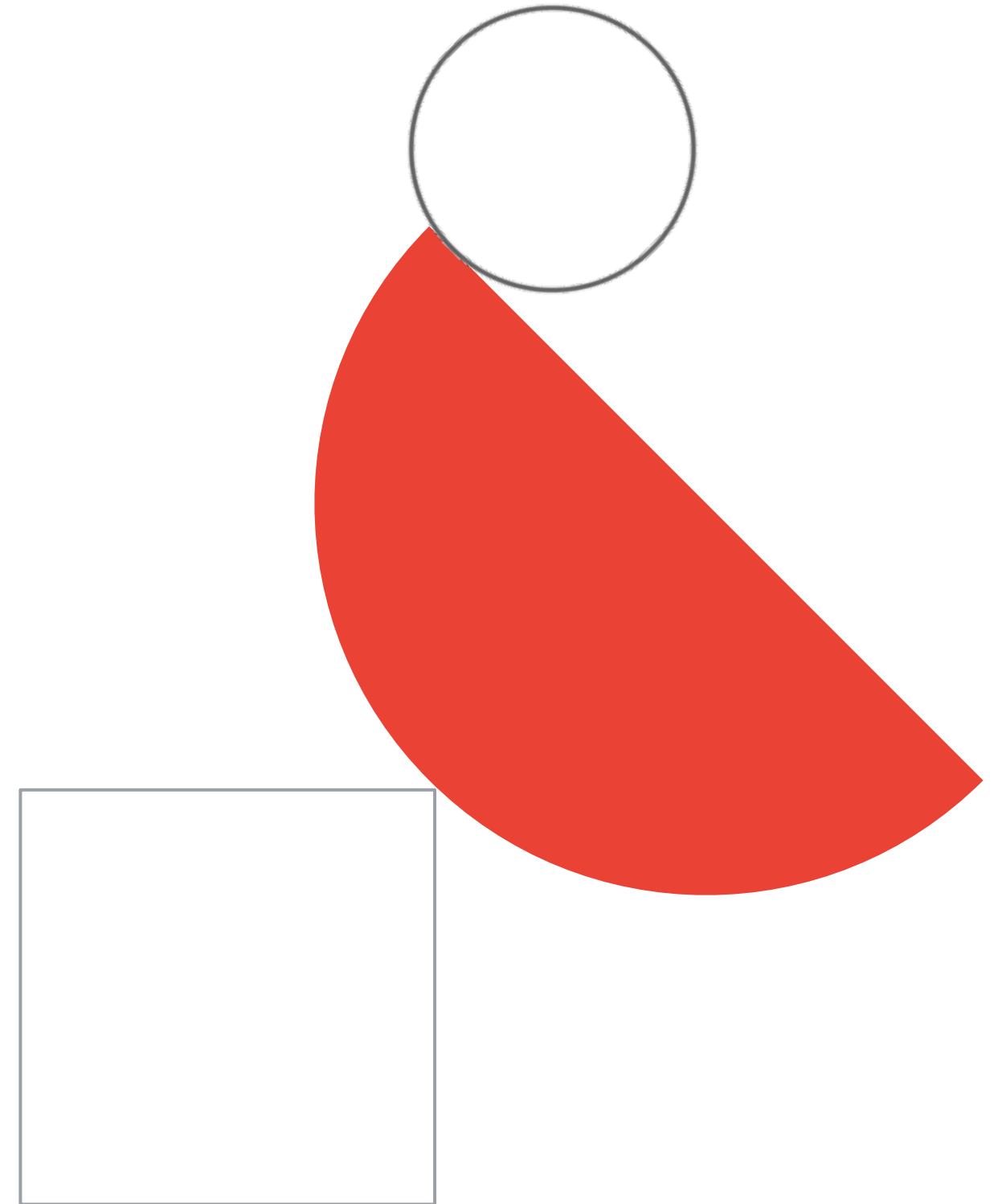# Cloud Run

Cloud Run

- Enables stateless containers.

- Abstracts away infrastructure management.

- Automatically scales up and down.

- Open API and runtime environment.

Exam Tip: *"Stateless" is the key here. Cloud Run is MUCH newer than App Engine (2019 vs 2008) and uses Kubernetes (App Engine uses pre-K8s and pre-Docker containers). Otherwise, use-cases for App Engine and Cloud Run are similar.*

Google Cloud

Containers in GCP = GKE or Cloud Run

OR

Google Cloud

Comparing the App Engine environments

	Standard environment	Flexible environment
Instance startup	Seconds	Minutes
SSH access	No	Yes (although not by default)
Write to local disk	No (some runtimes have read and write access to the /tmp directory)	Yes, ephemeral (disk initialized on each VM startup)
Support for 3rd-party binaries	For certain languages	Yes
Network access	Via App Engine services	Yes
Pricing model	After free daily use, pay per instance class, with automatic shutdown	Pay for resource allocation per hour; no automatic shutdown

Google Cloud

Exam Tip: "Know how to differentiate between App Engine Standard and Flex.

AppEngine vs Cloud Run

- AppEngine was first released in *2008*, and while it still has a larger use-base and receives updates, Cloud Run offers, in most cases, a better alternative

- **Cloud Run** is the flagship product, receives updates first is container-first and compatible with [open-source software](#)

- Cloud Run covers almost all the use cases of AppEngine and has an excellent developer experience

- Cloud Run is great for serverless use-cases and event-driven automation

- See more in-depth comparison and migration info, including **performance** & **cost advantages** at [go/migrate-run](#)

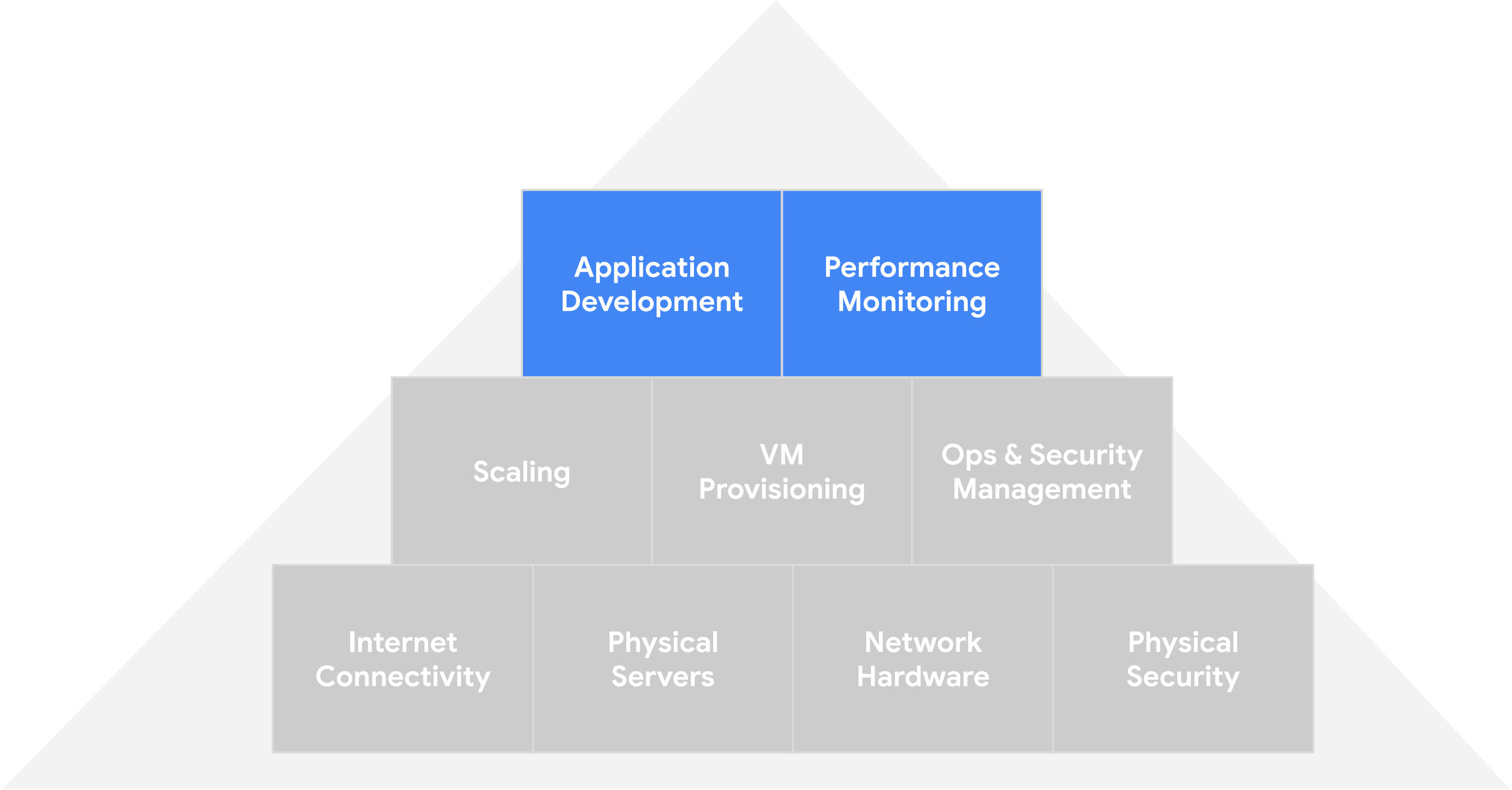App Engine

vs
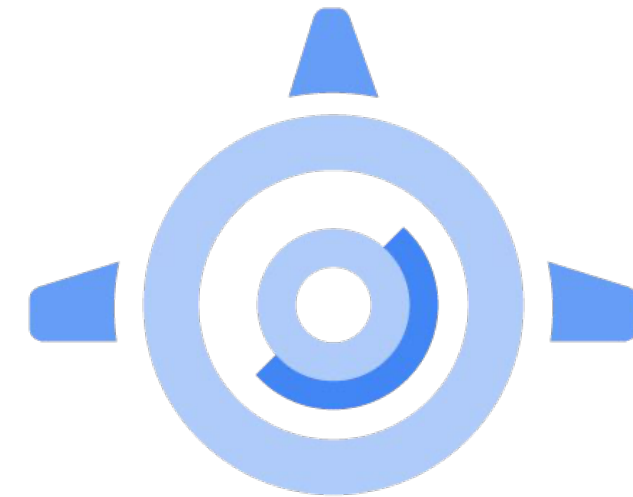
prefer this for new projects

Cloud Run

Google Cloud

Cloud Functions

- Create single-purpose functions that respond to events without a server or runtime.

  ○ Event examples: New instance created, file added to Cloud Storage.

- Written in Javascript (Node.js), Python or Go; execute in managed Node.js environment on Google Cloud.

Google Cloud

The Responsibility Pyramid

Serverless

Application Development	**Performance Monitoring**

Scaling	VM Provisioning	Ops & Security Management

Internet Connectivity	Physical Servers	Network Hardware	Physical Security

Managed by customer

Fully Managed by Google

Google Cloud