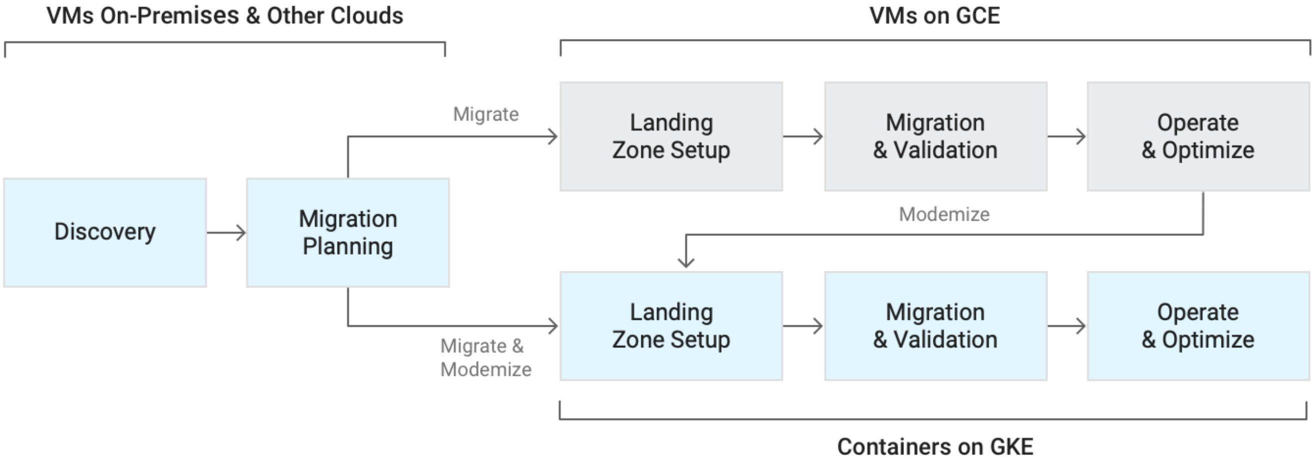
Documentation (https://cloud.google.com/migrate/anthos/docs/) Guides

Your migration journey to GKE

This topic describes the steps for migrating an application to VMs or containers with Migrate for Anthos. It also describes the generic roles for staff at each step in a migration.

Migrate for Anthos migrates VMs to Google Cloud or containers on GKE. Migrate for Anthos automates migrating VM-based, legacy enterprise workloads to containers on GKE.



Discovery

Gather the information needed for a migration by understanding your applications and their dependencies. This includes an inventory of:

- Your VMs
- Your applications' required network ports and connections
- Dependencies across app tiers
- Service name resolution or DNS configuration

Roles

- **IT analyst** with knowledge of the application's topologies and migration.

Migration Planning

Divide your applications into phases and translate the information collected during the discovery step into the Kubernetes model. Your application environments, topologies, namespaces, and policies are centralized in Kubernetes YAML configuration files. Sample YAML files are available (https://cloud.google.com/migrate/anthos/docs/yaml-reference).

Roles

- **Application migration engineer or analyst**. This person needs a beginners-level knowledge of the Kubernetes managed object model, GKE deployments, and YAML files.

Landing Zone Setup

In this step,

- Create or identify the GKE cluster to host your migrated workloads.
- Create VPC network rules and Kubernetes network policies (https://kubernetes.io/docs/concepts/services-networking/network-policies/) for your applications.
- Apply Kubernetes service definitions (https://kubernetes.io/docs/concepts/services-networking/service/),
- Make load balancing choices,
- Configure DNS.

Roles

- **GKE cluster administrator**, familiar with cluster deployment, Google Cloud networking, firewall rules, Cloud Identity and Access Management service accounts and roles, and launching deployments from the Google Cloud marketplace.

Migration and Validation

After your GKE cluster, VPC network, and Migrate for Anthos components are ready to accept workloads, apply your application configuration YAMLs. GKE will start up your workloads. When starting up a container, Migrate for Anthos's streaming enables your workload to start in minutes instead of waiting for all its storage to be transferred. If you would like, use Migrate for Anthos's **Test Clone** to quickly test your workload in GKE.

Once you are satisfied with your workload, finalize the migration by using the **Storage Exporter**. This creates a single Kubernetes Persistent Volume from all of your disks, and removes the dependency on the source storage and the Migrate for Anthos Container Storage Interface (CSI) driver. The Persistent Volume can be backed by any supported GKE storage provider (https://cloud.google.com/kubernetes-engine/docs/concepts/storage-overview).

Roles

- For workload migration:
  - **Application owner**, or **Application migration analyst**, with beginner knowledge of the Kubernetes managed object model, GKE deployments, and YAML editing.
- For storage export:
  - **Storage administrator** or **GKE administrator**, familiar with Kubernetes persistent volume management on GKE.

Operate and Optimize

You can now leverage tools provided by Anthos and the larger Kubernetes ecosystem. In this step, you can add access policies, encryption and authentication using Istio, monitoring and logging with Stackdriver, all through changing configuration and not rebuilding your applications.

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