Networking Products   (https://cloud.google.com/products/networking/)
Network Service Tiers   (https://cloud.google.com/network-tiers/)
Documentation   (https://cloud.google.com/network-tiers/docs/) Guides

Using Network Service Tiers

Introduction

This page shows you how to specify a Network Service Tier for your workloads. Before manually setting a network tier, review the information in the Cloud Network Service Tiers Overview (https://cloud.google.com/network-tiers/docs/overview).

Specifications

Network Service Tiers are only supported by eligible Google Cloud resources (https://cloud.google.com/network-tiers/docs/overview#and_resources). Standard Tier is only available in select regions (https://cloud.google.com/network-tiers/docs/overview#regions_supporting_standard_tier), but Premium Tier is available in every Google Cloud region.

External IP pools

Whether an external IP address is global or regional, and, if regional, what its network tier is, determines the pool from which the address is chosen. IP addresses in one pool **cannot** be moved to another.

The pool of regional external Standard Tier IP addresses is unique to its respective region, not to the type of eligible resource. For example, VM instances, HTTP(S), SSL Proxy, TCP Proxy, and Network load balancers using Standard Tier all use IPs from the chosen region's Standard Tier pool.

In Premium Tier, HTTP(S), SSL Proxy, and TCP Proxy load balancers use *global* external IP addresses, while Network load balancers and VM instances use regional external IP addresses. Each region has its own pool of regional external IP addresses for Premium Tier which are separate from the pool of global external IP addresses.

Unassigned IP addresses

Unused regional external IP addresses in Standard Tier behave differently than unused
Premium Tier IP addresses.

Standard Tier IP addresses are automatically "parked" when they are not assigned to an eligible
resource. While parked, the IP address will answer certain requests; for example, HTTP requests
sent to a parked Standard Tier IP address will be sent a Google hosted HTTP 404 (Not Found)
web page. Traffic sent to parked Standard Tier IP addresses is not simply dropped. Further,
Standard Tier IP addresses that are being processed for assignment to a resource can behave
as if they are parked.

A Standard Tier external IP address assigned to a VM instance might be moved to a parked
state during live migration (https://cloud.google.com/compute/docs/instances/live-migration) if the
migration takes a more than 20 minutes. A Premium Tier external IP address assigned to a VM
simply drops traffic during very long live migrations.

Setting the default tier for a project

⌄   **Permissions required for this task**

To perform this task, you must have been granted the following permissions **OR** the following
IAM roles.

Permissions

- `projects.setDefaultNetworkTier`, which requires
  `compute.projects.setDefaultNetworkTier` on the project.

Roles

- `roles/compute.admin`

Follow these directions to define a default network tier for your project. This tier will be used by
newly-created eligible resources in the project unless you specify a tier for the resources
themselves. Changing the default tier for a project does not change the tier for any existing
resources.

CONSOLE   GCLOUD   API

1. Go to the Network service tier page in the Google Cloud Console.

   GO TO THE NETWORK SERVICE TIER PAGE (HTTPS://CONSOLE.CLOUD.GOOGLE.COM/NET-TIER/TIE

2. Click the **Change tier** button.

3. Select **Premium** or **Standard**.

4. Click **Change**.

The network tier you specify for a resource always takes precedence over the default tier you define for your project. For example, if your project's default tier is Standard, you can still create a global external IP address (which must use Premium Tier) and a global forwarding rule for a HTTP(S) load balancer in Premium Tier.
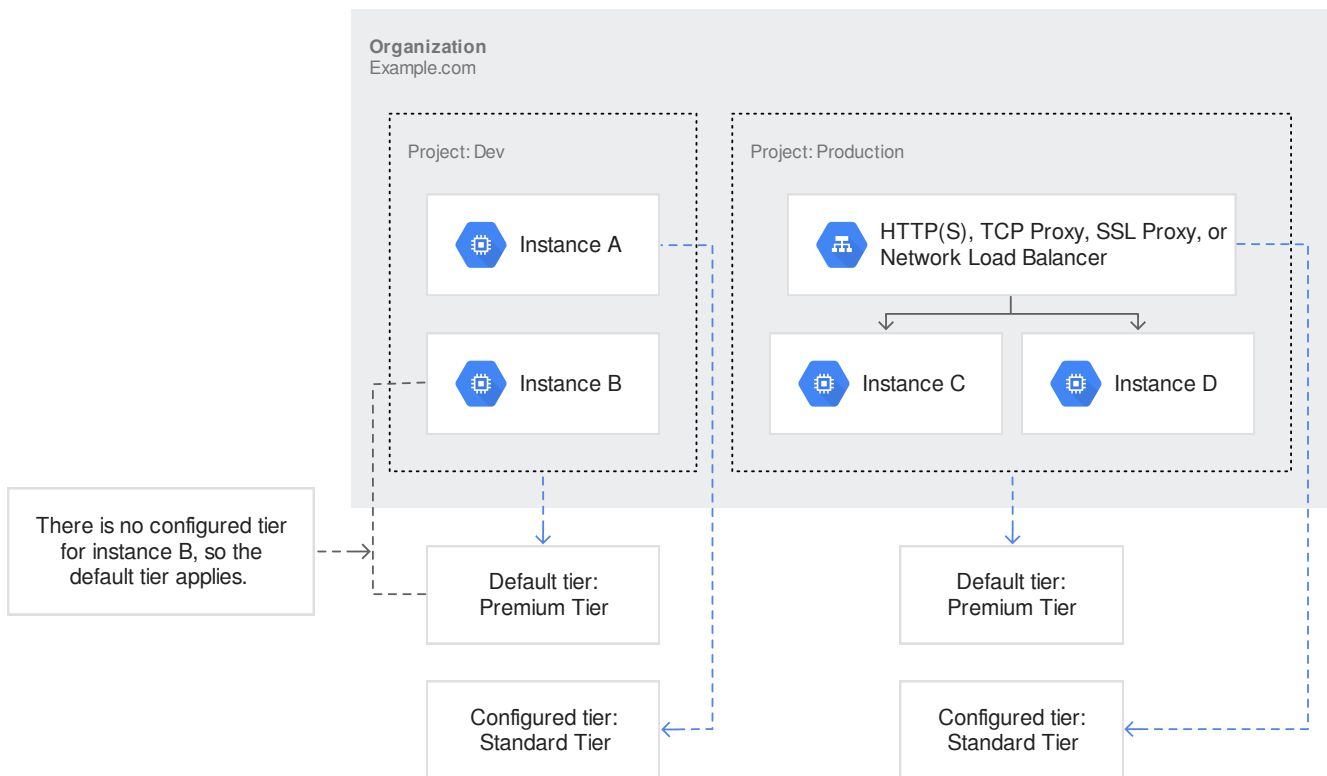
(https://cloud.google.com/network-tiers/images/tiers-resources-projects.svg)
Tier configuration level (click to enlarge)

Creating static external addresses

⌄ Permissions required for this task

To perform this task, you must have been granted the following permissions **OR** the following IAM roles.

Permissions

- `compute.addresses.insert`, which requires `compute.addresses.create` on the project and `compute.subnetworks.use` on the subnetwork

Roles

- `roles/compute.networkAdmin`

When creating a static regional external IP address, you can specify either `PREMIUM` or `STANDARD` for its network tier.

Note: Global external IP addresses and internal IP addresses are always Premium Tier.

To reserve a static regional external IP address using Standard Tier, do the following:

CONSOLE	GCLOUD	API

1. Go to the External IP address page in the Google Cloud Console.

   GO TO THE EXTERNAL IP ADDRESS PAGE (HTTPS://CONSOLE.CLOUD.GOOGLE.COM/NETWORKING

2. Click **Reserve static address**.

3. Under **Type**, select **Regional**, then select a region where Standard Tier is supported (https://cloud.google.com/network-tiers/docs/overview#regions_supporting_standard_tier).

4. Under **Network service tier**, select **Standard**.

5. Populate other fields as appropriate (https://cloud.google.com/compute/docs/ip-addresses/reserve-static-external-ip-address#reserve_new_static)
   .

6. Click **Reserve**.

Creating forwarding rules

⌄ Permissions required for this task

To perform this task, you must have been granted the following permissions **OR** the following IAM roles.

Permissions

- `forwardingRules.insert`, which requires `compute.addresses.use` if a static external address is to be used and `compute.*.use` on the target of the forwarding rule (instance, target pool, proxy).

Roles

- `roles/compute.networkAdmin`

When creating a new forwarding rule, you can specify the network tier. The possible values are `PREMIUM` (default) and `STANDARD`.

If you specify an external IP address with the `--address` flag, that address must be the same tier as you specify for the forwarding rule. If you create a forwarding rule and do not specify the `--address` flag, GCP will allocate an ephemeral IP address of the appropriate tier.

The Standard Tier is only available for regional forwarding rules. Global forwarding rules must use the Premium Tier.

A load balancer can use both the Premium Tier and the Standard Tier by having two different forwarding rules, one for each tier. You select the tier for a given connection by specifying the relevant IP address in your request.

CONSOLE	GCLOUD	API

To create a Standard Tier forwarding rule in the console, you must create or update an existing load balancer. Load balancers that have backend services in more than one region cannot use the Standard Tier. See the load balancing (https://cloud.google.com/load-balancing/docs) documentation for instructions on choosing and creating a load balancer.

1. Go to the Load balancing page in the Google Cloud Console.

   GO TO THE LOAD BALANCING PAGE (HTTPS://CONSOLE.CLOUD.GOOGLE.COM/NET-SERVICES/LO

2. Click the name of an existing load balancer, then click **Edit**.

3. Click **Frontend configuration**.

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    4. Click **Add frontend IP and port**.

    5. Under **Network service tier**, click **Standard**.

    6. Populate other fields as appropriate.

    7. Click **Done**.

    8. Click **Update**.

Instances

Creating instances

⌄ Permissions required for this task

To perform this task, you must have been granted the following permissions **OR** the following IAM roles.

Permissions

- `instances.insert`, which requires `compute.instances.create` on the project, `compute.subnetworks.use` on the subnetwork, `compute.subnetworks.useExternalIp` on the subnetwork, and `compute.address.use` on a static external IP address, if specifying one.

Roles

- `roles/compute.instanceAdmin.v1`

When creating an instance that will connect directly to the Internet, you can specify the network tier. The possible values are `PREMIUM` (default) and `STANDARD`. The network tier is only relevant if the instance will communicate directly with the Internet. If the instance can only reach the Internet via a load balancer, you do not need to specify a network tier as the connection will use the tier specified for the load balancer forwarding rule.

If assigning a static external IP using a reserved address, the network tier of the address must match the network tier of the instance. If assigning an ephemeral external IP address, the network tier of the instance is used to assign an IP address from the corresponding pool.

CONSOLE   GCLOUD   API

1. Go to the VM instances page in the Google Cloud Console.

   GO TO THE VM INSTANCES PAGE (HTTPS://CONSOLE.CLOUD.GOOGLE.COM/COMPUTE/INSTANCE

2. Click **Create instance**.

3. Click **Management, security, disks, networking, sole tenancy**.

4. Click the **Networking** tab.

5. Under **Network interfaces**, click the **Edit** pencil for the default network interface.

6. Under **Network service tier**, select **Standard**.

7. Populate other fields as appropriate
   (https://cloud.google.com/compute/docs/instances/create-start-instance).

8. Click **Create**.

Adding an access configuration to an instance

🔽   **Permissions required for this task**

To perform this task, you must have been granted the following permissions **OR** the following
IAM roles.

Permissions

- `compute.instances.addAccessConfig`, which requires
  `compute.subNetworks.useExternalIp` on the subnetwork, and `compute.address.use` on a
  static external IP address, if specifying one.

Roles

- `roles/compute.instanceAdmin.v1`

When creating an access configuration for an instance (i.e., assigning an ephemeral or static
external IP to an instance), you can also specify the tier of the instance. If you specify an
existing address, it must be the same tier as you are specifying for the instance. The possible
values are `PREMIUM` and `STANDARD`.

GCLOUD   API

```
gcloud compute instances add-access-config INSTANCE_NAME \
    [--network-interface INTERFACE_NAME; default="nic0"] \
    [--access-config-name=ACCESS_CONFIG_NAME; default="external-nat" \
    [--address=IP_ADDRESS \
    [--network-tier PREMIUM | STANDARD; default="PREMIUM"]]
```

where you would replace the following:

- **INSTANCE_NAME** with the name of the instance.
- **INTERFACE_NAME** with the name of the interface. Default is `nic0`, the name of the default interface on the instance.
- **ACCESS_CONFIG_NAME** with the name of the access config for the interface.
- **IP_ADDRESS** with the url of the IP address resource, if you are specifying an IP address.

Creating an instance template that uses the Standard Tier

⌄ **Permissions required for this task**

To perform this task, you must have been granted the following permissions **OR** the following IAM roles.

Permissions

- `instanceTemplates.insert`, which requires `compute.instanceTemplates.create` on the project on the project.

Roles

- `roles/compute.instanceAdmin.v1`

When configuring the network tier upon instance template creation, the following command can be used.

CONSOLE   GCLOUD   API

1. Go to the Instance templates page in the Google Cloud Console.

   GO TO THE INSTANCE TEMPLATES PAGE (HTTPS://CONSOLE.CLOUD.GOOGLE.COM/COMPUTE/IN

2. Click **Create instance template**.

3. Click **Management, security, disks, networking, sole tenancy**.

4. Click the **Networking** tab.

5. Under **Network service tier**, select **Standard**.

6. Populate other fields as appropriate
   (https://cloud.google.com/compute/docs/instance-templates/create-instance-templates).

7. Click **Create**.

What's next

- See the Compute Engine Instances (https://cloud.google.com/compute/docs/instances/)
  documentation for more information about VM instances.

- See the Load Balancing (https://cloud.google.com/load-balancing/docs) documentation for
  more information about load balancers and forwarding rules.

- See the Compute Engine Instance Templates
  (https://cloud.google.com/compute/docs/instance-templates) documentation for more
  information about instance templates.