Gcloud 49 Command line interface to interact with Google Cloud Resources Most GCP services can be managed from CLI using Gcloud: Compute Engine Virtual Machines Managed Instance Groups Databases and ... many more You can create/delete/update/read existing resources and perform actions like deployments as well! (REMEMBER) SOME GCP services have specific CLI tools: Cloud Storage - gsutil Cloud BigQuery - bq Cloud Bigtable - cbt Kubernetes - kubectl (in addition to Gcloud which is used to manage clusters) Gcloud 50 Gcloud - Getting Started Installation Gcloud is part of Google Cloud SDK Cloud SDK requires Python Instructions to install Cloud SDK (and Gcloud) => You can also use Gcloud on Cloud Shell Connecting to GCP gcloud init - initialize or reinitialize gcloud Authorize gcloud to use your user account credentials Setup configuration Includes current project, default zone etc gcloud config list - lists all properties of the active configuration https://cloud.google.com/sdk/docs/install 51 Sets the specified property in your active configuration gcloud config set core/project VALUE gcloud config set compute/region VALUE gcloud config set compute/zone VALUE gcloud config set core/verbosity VALUE(debug) Syntax - gcloud config set SECTION/PROPERTY VALUE core, compute - SECTIONS project, region, zone - PROPERTIES Specifying core is optional as it is the default SECTION! gcloud config set project VALUE gcloud config set verbosity VALUE(debug) Get more details with gcloud config set --help Look for AVAILABLE PROPERTIES in the content Opposite - gcloud config unset gcloud config set 52 Playing with gcloud config set gcloud config set compute/region us-east2 gcloud config set compute/zone us-east1-b gcloud config list testing@cloudshell:~ (useful-device-303710)$ gcloud config list [component\_manager] disable\_update\_check = True [compute] gce\_metadata\_read\_timeout\_sec = 30 region = us-east1 zone = us-east1-b [core] account = testing@gmail.com disable\_usage\_reporting = True project = useful-device-303710 verbosity = info [metrics] environment = devshell 53 Scenario: You are working on multiple projects from the same machine. You would want to be able to execute commands using different configurations. How do you simplify this? gcloud config configurations create/delete/describe/activate/list Create new configuration: gcloud config configurations create NAME(dev) Activate specific configuration: gcloud config configurations activate NAME(dev) List Configurations: gcloud config configurations list Gcloud - Managing Multiple Configurations 54 gcloud command structure - Playing with Services gcloud GROUP SUBGROUP ACTION ... GROUP - config or compute or container or dataflow or functions or iam or .. Which service group are you playing with? SUBGROUP - instances or images or instance-templates or machine-types or regions or zones Which sub group of the service do you want to play with? ACTION - create or list or start or stop or describe or ... What do you want to do? Examples: gcloud compute instances list gcloud compute zones list gcloud compute regions list gcloud compute machine-types list gcloud compute machine-types list --filter="zone:us-central1-b" gcloud compute machine-types list --filter="zone:( us-central1-b europe-west1-d )" 55 gcloud compute instances create Creating Compute Instances gcloud compute instances create [NAME] Options: --machine-type (default type is n1-standard-1 - gcloud compute machine-types list) --custom-cpu --custom-memory --custom-vm-type(n1/n2) (Custom Machine) --custom-cpu 6 --custom-memory 3072MB --custom-vm-type n2 --image or --image-family or --source-snapshot or --source-instance-template or --source-machine-image (beta) --service-account or --no-service-account --zone=us-central1-b --tags (List of tags - Allow network firewall rules and routes to be applied to VM instances) --preemptible --restart-on-failure(default) --no-restart-on-failure --maintenance-policy(MIGRATE(default)/TERMINATE) --boot-disk-size, --boot-disk-type --boot-disk-auto-delete(default) --no-boot-disk-auto-delete --deletion-protection --no-deletion-protection(default) --metadata/metadata-from-file startup-script/startup-script-url --metadata-from-file startup-script=/local/path/to/script/startup OR --metadata startup-script="echo 'hello world'" shutdown-script --network --subnet --network-tier (PREMIUM (default), STANDARD) --accelerator="type=nvidia-tesla-v100,count=8" --metadata="install-nvidia-driver=True" (GPU) 56 Three Options: Option 1 (Centralized Configuration): gcloud compute project-info add-metadata --metadata=[google-compute-default-region=REGION | google-compute-default-zone=ZONE] Option 2 (Local gcloud configuration): gcloud config set compute/region REGION Option 3 (Command Specific): --zone or --region in the command Priority: Option 3 (if exists) overrides Option 2 (if exists) overrides Option 1 Compute Instances - Default Region and Zone 57 Typically list commands are used to list a set of resources gcloud compute RESOURCES list gcloud compute images/regions/zones/disk-types list gcloud compute instances/disks/snapshots list Most list commands support a few common options --filter="zone:VALUE" --sort-by (NAME, ~NAME) --uri ( ) gcloud compute images list --sort-by NAME --filter "PROJECT:(windows-cloud ubuntu-os-cloud)" Typically describe commands are used to describe a specific resource gcloud compute images describe ubuntu-1604-xenial- v20210203 --project ubuntuos-cloud gcloud compute regions describe us-central1 List and Describe commands https://www.googleapis.com/compute/v1/projects/windows-sql-cloud/global/images/sql-2019-webwindows-2019-dc-v20210112 58 Playing with compute instances gcloud compute instances list/start/stop/delete/reset/describe/move gcloud compute instances start example-instance gcloud compute instances stop example-instance-1 example-instance-2 gcloud compute instances delete example-instance --delete-disks=VALUE (all or data or boot) --keep-disks=VALUE (all or data or boot) gcloud compute instances move example-instance-1 --zone us-central1-b --destination-zone uscentral1-f Move a VM from one zone to another Playing with Compute Instances - gcloud 59 gcloud compute instance-templates create/delete/describe/list gcloud compute instance-templates create INSTANCE-TEMPLATE --source-instance=SOURCE\_INSTANCE --source-instance-zone (Which instance to create a template from?) Supports almost all options supported by gcloud compute instances create [NAME] --image or --image-family or --source-snapshot or --source-instance-template --service-account or --no-service-account --tags --preemptible --restart-on-failure(default) --no-restart-on-failure --maintenance-policy(MIGRATE(default)/TERMINATE) --boot-disk-size, --boot-disk-type --boot-disk-auto-delete(default) --no-boot-disk-auto-delete --deletion-protection --no-deletion-protection(default) --metadata/metadata-from-file startup-script/startup-script-url --network --subnet --network-tier (PREMIUM (default), STANDARD) --accelerator="type=nvidia-tesla-v100,count=8" --metadata="install-nvidia-driver=True" (GPU) Using Instance Tempate to create an instance gcloud compute insta