1. How can we limit the number of CPUs provided to a container?

a) Using --cap-add CPU.

b) Using --cpuset-cpus.

c) Using --cpus.

d) It is not possible to specify the number of CPUs; we have to use --cpu-shares and define the CPU slices.

1. How can we limit the amount of memory available to a container?

a) It is not possible to limit the amount of memory available to a container.

b) Using --cap-drop MEM.

c) Using --memory.

d) Using --memory-reservation.

1. What environment variables should be exported to start using a trusted environment with the Docker client?

a) export DOCKER\_TRUSTED\_ENVIRONMENT=1

b) export DOCKER\_CONTENT\_TRUST=1

c) export DOCKER\_TRUST=1

d) export DOCKER\_TRUSTED=1

1. How can we increase the number of replicas of a service running one instance (mark all the correct answers)?

a) This is not possible for global services.

b) By updating the number of replicas with docker service update --replicas <NUMBER\_OF\_REPLICAS> <SERVICE>.

c) The number of replicas can be increased using docker service scale <SERVICE>=<NUMBER\_OF\_REPLICAS>.

d) We can use docker service scale up to create a new replica.

1. How many replicas does a global service run on nodes if we specify the node.role!=worker constraint?

a) Worker and manager nodes will run one replica.

b) Only workers will run one replica.

c) Only manager nodes will run one replica.

d) No nodes will run any replicas.

1. How do we stop all replicas of the service web server, which is currently executing three replicas?

a) Using docker service stop webserver.

b) Using docker rm service webserver.

c) Using docker service update --replicas 0 webserver.

d) None of the preceding answers are correct.

1. If we publish a service on port 8080 using -P, which nodes will expose port 8080?

a) No node will expose a service on port 8080.

b) All nodes will publish port 8080.

c) We should use privileged containers to expose port 8080.

d) We must use --network=host to publish ports below port 30000.

1. What step should we follow to remove the leader node from the cluster?

a) Ensure all tasks run on other nodes by executing docker node update --availability=drain <LEADER\_NODE>.b

b) Remove the node from the cluster as the leader by executing docker swarm leave on the node.

c) Demote the leader node to a worker and then execute docker swarm leave on the node.

d) Once the node is out of the cluster, we can remove it completely using docker node rm <OLD\_LEADER\_NODE> from any available manager.

1. Where do we specify that DevOps users can run a container using only images signed by the admin group from our Docker Enterprise registry?

a) On **Universal Control Plane's** (**UCP's**) RBAC, we allow DevOps users to run their images.

b) On DTR's image repository, we add image pulling access to DevOps.

c) Image access should be configured on **Docker Trusted Registry** (**DTR**), and DevOps users should be able to at least read this repository. On UCP, we allow only images signed by the admin group on the cluster and add at least scheduler access for DevOps users to their private collection.

d) This is not possible on Docker Enterprise.

1. What step is required to access images stored on a secure registry that is using a self-signed certificate?

a) We can configure our registry as "insecure" in Docker Engine's daemon.json file.

b) We should disable Content Trust to allow image pulling from unsecured registries.

c) The best option is to trust self-signed certificates. We will add DTR's created **Certificate Authority** (**CA**) into our system's trusted-CA list.

d) We cannot use self-signed certificates, therefore we always require an Enterprise-signed certificate.

1. *User A* executed docker service scale --replicas 5 webserver, while *user B* executed docker service update --replicas 3 webserver. How many replicas will be running after both executions?

a) None of the commands will work.

b) The webserver service will run three replicas.

c) The webserver service will run five replicas.

d) The webserver service will run eight replicas.

1. Which of these lines creates a volume named DATA?

a) docker volume create --driver local DATA.

b) docker create --volume DATA.

c) Volumes must be created during container execution.

d) None of the options are valid.

1. How can we ensure that a minimum of memory is available to run a container using soft limits?

a) We cannot ensure a minimum of memory is available for a container.

b) Using --memory.

c) This must be configured on your operating system.

d) We use --memory-reservation.

1. What is true about Swarm networking?

a) All overlay networks are encrypted by default.

b) Control Plane nodes use mutual TLS encryption to secure traffic.

c) An internal DNS can be consumed externally exposing its service.

d) All of the preceding options are true.

1. Which concept routes requests to containers running for a deployed service?

a) An ingress overlay network is used to route requests to different services' backends using a round-robin endpoint by default.

b) A docker\_gwbridge network is used to communicate with containers on different hosts.

c) An ingress overlay network is used to route requests to different services' backends using the service's virtual IP by default.

d) We must use a host network to route requests to containers.

1. Which of these sentences are true about signing images?

a) Image signing ensures image ownership.

b) Images can be signed using docker trust sign <IMAGE>.

c) All images will be signed if we set the Docker client to use Docker Content Trust on every command.

d) Image signing is based on the following keys: the owner key, the repository key, the snapshot key, and the timestamp.

1. What happens if we have a cluster where nodes have myapplication images locally but images have different hashes?

a) If we do not specify the image hash, each node will run tasks with its own image.

b) To ensure all nodes run the same image version, we will need to use --with-registry-auth for remote registries.

c) We will use signed images and Docker Engine on nodes that will use trusted content.

d) It is not possible to ensure that nodes will use the right image version.

1. Which of the following is true about global services?

a) Global services will only run one replica of the defined service on each node.

b) Global services will not provide high availability based on resilience.

c) Draining a node will not remove global services.

d) All of the preceding sentences are true.

1. Which of the following sentences are true about replicated services?

a) We need to specify the number of instances during service creation because it cannot be changed later.

b) Replicated services are the default service mode and they will run one instance if none was specified.

c) Replicated services can be stopped by setting the number of replicas to 0.

d) All of the preceding options are true.

1. Which of the following steps are required to create a Swarm backup?

a) Stop Docker Engine on any manager to ensure files are static.

b) Copy the /var/lib/docker/swarm directory content for backing up Swarm.

c) Raft logs should be backed up apart from normal files.

d) All of the preceding steps are required.

1. What have you learned about Swarm networking?

a) Overlay networks are deployed using UDP VXLAN tunnels.

b) By default, all service replicas will be equally reachable by an internal load balancer.

c) The internal DNS will allow all services to reach each other running on the same overlay network.

d) All of the preceding options are true.

1. We tried to create a service with five replicas but it is not working. We cannot reach the reconciliation phase because we get the following error: 1/1: no suitable node (scheduling constraints not satisfied on 5 nodes). What could be wrong?

a) The service's image does not exist.

b) We were using a private image and we did not provide authentication credentials.

c) We used constraints for deploying the service's tasks on specific nodes but none of them have the required labels.

d) None of the preceding options are true.

1. Which of the following is true about locking a Docker Swarm cluster?

a) The control, management, and data planes are secure.

b) A passphrase is required to unlock the /var/lib/docker/swarm data.

c) Executing systemctl restart docker will require the locking passphrase.

d) If a node reboots, Docker Engine will not restart automatically, hence we have lost the Docker Swarm quorum.

1. Which of the following is true about replicated services?

a) They will run one instance on each node.

b) Only replicated services can be upgraded using the rolling update feature.

c) They can be stopped using the Docker service update: --replicas 0 <SERVICENAME>.

d) We will use Go templates to be able to provide unique resources, such as volumes or hostnames, inside containers to ensure all replicas use their own resources.

1. Which methods are allowed to publish applications on Docker Enterprise?

a) We can use Interlock.

b) We can use an Ingress Controller.

c) We will publish each application container.

d) We can use the host mode to publish applications as if they were running directly at the host level.

1. Which of the following is true about Kubernetes' integration with Docker Enterprise?

a) Docker Enterprise provides Kubernetes out of the box.

b) We must choose which orchestrator to use in cluster nodes because only one is allowed at once.

c) We can run hosts in mixed mode to allow Kubernetes and Docker Swarm workloads, although it is not recommended for production.

d) We can upgrade Kubernetes components with common Kubernetes installation commands.

1. What is the difference between docker image import and docker image load for uploading an image to a Docker host?

a) There is no difference between the commands.

b) Both import the same image content.

c) docker image import will only retrieve image layers containing binaries, libraries, and configurations for the process but without any meta-information about how to launch the process, what volumes to use, what ports should be used, and so on.

d) We can only use docker image import to create new images.

1. How can docker build avoid the use of cached image layers?

a) Docker will always use cached information. It is not possible to avoid using image caching.

b) By default, image caching is disabled, therefore we need to apply --use-caching to ensure caching is enabled as it will speed up the building process.

c) To avoid image caching, we can use --no-cache. This way, the build will not use any previously saved layers.

d) All of the preceding sentences are wrong.

1. How can we download all of the images from a repository?

a) It is not possible. We need to make a list of all the images with their tags and retrieve them one by one.

b) Every time we execute docker image pull, we download all the images and their layers, regardless of whether we are going to use them or not.

c) We can use docker image pull --all-tags to retrieve all repository-associated images.

d) None of the preceding sentences are right.

1. How can we filter running containers based on a specific image?

a) There is no option for this. We use the Linux grep command to filter specific base images for containers.

b) We will use the ancestor key to list all the running containers using a specific image.

c) We will use the image key to list all the running containers using a specific image.

d) None of the preceding sentences are right.

1. How can we push a locally built image to a remote registry?

a) We need to know the registry's **fully qualified domain name** (**FQDN**) or its IP address.

b) We tag the image with the registry FQDN or IP, the username or group, and the repository where the image will be stored.

c) If the registry uses TLS/SSL certificates, we load its CA in our system to be able to trust them or we can configure it using the insecure-registries key.

d) All of the preceding sentences are correct.

1. Which option will bind an already-created DATA volume inside a container, under the /data directory?

a) -v DATA:/data

b) --mount type=volume,source=DATA,target=/data

c) --mount DATA:/data

d) --volume type=volume,source=DATA,target=/data

1. How do we expose a web server container on the host's port 80 (the nginx:alpine image exposes port 80)?

a) docker container run --cap-add NET\_ADMIN -p 80:80 -d nginx:alpine

b) docker container run --net=host -d nginx:alpine

c) docker container run -P nginx:alpine

d) docker container run -d -P 80:80 nginx:alpine

1. Which of these keys requires a passphrase to unlock it while signing images?

a) Timestamp

b) Target

c) Snapshot

d) Root

1. What is a Docker bundle and what is included inside those ZIP files?

a) A Docker bundle provides client binaries and configurations for administrators.

b) All users have their own Docker bundle and it includes all the environment files required for the user.

c) A Docker bundle includes only environment scripts and we will ask administrators for certificates.

d) A user's Docker bundle includes all the environment files and certificates required for using the CaaS platform.

1. Which is the best node distribution if we have to deploy a cluster with seven managers with distributed high availability?

a) Four manager nodes in a data center and three manager nodes on a different one.

b) Two managers in a data center, two managers in a second one, and three in another.

c) All managers should be in the same data center.

d) We cannot manage distributed availability with 7 nodes; we need at least 9.

1. Which concept is responsible for managing external to internal load balancing for Docker Swarm services?

a) Router Mesh

b) Ingress Controller

c) nodePort

d) clusterIP

1. What are the differences between the COPY and ADD Dockerfile primitives?

a) COPY adds files in read-only mode.

b) COPY can be used to download files from external services.

c) ADD can be used with packaged and compressed files and they will be decompressed in the layer's root filesystem.

d) ADD and COPY are completely equal, but ADD is newer.

1. How can we deploy two applications using the same docker-compose.yaml file?

a) We cannot deploy two applications using the same docker-compose.yaml file.

b) Docker Compose can deploy two applications using projects to ensure applications run using different volumes and ports.

c) We can use environment variables for fixed resources to avoid any resource usage conflicts.

d) The only option to avoid application component conflicts is to deploy applications on different clusters.

1. What is required to deploy DTR?

a) A Docker Enterprise license from Docker Hub and an appropriate repository URL

b) Docker Enterprise Engine and Docker UCP

c) Docker Engine, a DTR license, and Docker Content Trust

d) All of the preceding options

1. How do we enable debugging on Docker Engine?

a) By executing the Docker daemon with the -D argument

b) By setting the debug key to true in the config.json file

c) By enabling experimental features in daemon.json

d) None of the preceding options

1. How do we only list containers created from an alpine:3.10 image?

a) docker container ls image=alpine:3.10

b) docker ps --format ancestor=alpine:3.10

c) docker container ls --filter ancestor=alpine:3.10

d) docker container ls --filter image=alpine:3.10

1. Which of the following is true about privileged containers?

a) Resource limits will be avoided (CPU, memory, and disk I/O).

b) They always run the container as the root user.

c) These containers run with all available capabilities.

d) They run using the host's kernel namespaces.

1. Which of the following is true about Swarm join tokens?

a) Once created, we have to store them in a secure place because they are not recoverable.

b) We can generate new ones to get new values for new nodes if we lose them using docker swarm join-token recreate.

c) We can recover them whenever we need them using docker swarm join-token.

d) Join tokens will be automatically updated on all nodes once they are regenerated.

1. Which endpoints are provided to verify DTR and UCP nodes' health?

a) DTR provides /\_ping, /nginx\_status, and /api/v0/meta/cluster\_status.

b) DTR and UCP provide /status.

c) DTR and UCP provide /\_ping.

d) DTR provides /status and UCP provides /\_ping.

1. Which command allows us to review and recover lost space due to "dangling images" and dead containers?

a) docker system rm

b) docker system prune

c) docker image rm --filter="dangling"

d) docker container rm -a

1. Which primitive combination creates the command line that will effectively finally run inside a container?

a) ENTRYPOINT will set the script or binary to be launched and CMD will be used if ENTRYPOINT is not defined.

b) CMD always overwrites the ENTRYPOINT definition.

c) Using a combination of ENTRYPOINT to define the script or binary to be launched and RUN as arguments.

d) CMD will add arguments to the defined ENTRYPOINT only if ENTRYPOINT is configured using the exec format.

1. Which of the following is true about secrets?

a) They will only be available on manager nodes, so workloads with secrets must run on these nodes.

b) They are ephemeral and deployed on on-memory filesystems.

c) They are encrypted even for administrators, so they cannot be recovered from the control plane.

d) If we need to change a secret, we need to create a new secret and update the service with this new one.

1. How can we ensure that a specific image is deployed in production?

a) By using the image's hash for deploying containers.

b) Signing images will ensure their tagging and provenance.

c) Specifying the right tag is enough to ensure its content.

d) By using docker image history to review commands used to generate the image.

1. Which of the following sentences about container isolation are true?

a) The host's hardware resources, such as memory and CPU, are granted using cgroups.

b) To ensure a container's limits, we need to use operating system security modules.

c) Only the root user is allowed to deploy containers with unlimited resources.

d) Privileged containers will avoid defined process' capabilities and execution user.

1. How can we ensure an image's content immutability?

a) By using signed images.

b) Defining immutable tags in DTR.

c) By using image scanning.

d) Images cannot be immutable.

1. Which of the following sentences are true about overlay networks?

a) DTR deploys an overlay network, dtr-ol, to route a cluster's internal communications.

b) Overlay-defined networks are only present on manager nodes when there is not a task connected to them.

c) interlock-extension connects to services' defined networks to route requests to appropriate backends.

d) Docker Swarm overlay networks are encrypted and deployed using VXLAN.

1. What does the HEALTHCHECK --start-period=15s CMD curl --fail https://localhost:8080 | exit 1 line in a Dockerfile do?

a) It will execute the defined curl command every 15 seconds, and if it fails three consecutive times, it will mark the container as unhealthy.

b) It will wait 15 seconds for the first execution and then Docker Engine will run the defined curl command every 30 seconds, and if it fails three consecutive times, it will mark the container as unhealthy.

c) This line does not do anything; health checks must be configured for each container.

d) Docker Engine will run this probe every 15 seconds and if it fails, it will restart the container.

1. Which of the following is true about Docker Engine access?

a) By default, only owners of a Docker socket are allowed to run containers on a standalone host.

b) We can allow users to run containers allowing their access to either Docker Engine's Unix socket or the API's TCP port (enabled by default).

c) Anyone allowed to log in to the host is also allowed to run containers.

d) Only the root user is allowed to run privileged containers on a host.

1. How can we modify ports published on an already-deployed service?

a) It is not possible; we have to remove the service and create it again.

b) We can only change ports if the service is running using the host's network (--net=host).

c) We use docker service update --publish-add <NEW\_PORT> --publish-rm <OLD\_PORT>.

d) None of the preceding answers are correct.

1. How can we ensure that the web server Docker service runs one instance of NGINX on all cluster nodes?

a) By using docker service create --type=global --instances=1 --name=webserver --image=nginx:alpine.

b) By using docker service create --mode=global --name=webserver nginx:alpine.

c) UCP can ensure that administrators run any service on all nodes in the cluster with a tick on allow run on manager nodes.

d) docker service create --name=webserver --image=nginx:alpine is enough for executing one instance on all nodes.

1. How do we set a repository named myregistry/myorganization/baseimages, available for internal users, where images are owned and managed by DevOps group users?

a) We need to create an organization with the name myorganization.

b) We will create myregistry/myorganization/baseimages as a public repository.

c) We configure DevOps team users as admins of the myregistry/myorganization/baseimages repository.

d) The myregistry/myorganization/baseimages repository will be created as private for myorganization users.

1. How can we review ports published for a container named webserver?

a) Using docker container ls --filter name=webserver.

b) Using docker container port webserver.

c) Using docker container inspect webserver --format="{{ .NetworkSettings.Ports }}".

d) All of the preceding answers are correct.

1. Which concept is responsible for managing internal load balancing for Kubernetes?

a) Router Mesh

b) Ingress Controller

c) Interlock

d) clusterIP

1. Which resources are used to link pods with Kubernetes' defined volumes?

a) persistentVolume

b) persistentVolumeClaim

c) storageClass

d) persistentDataVolume

1. Which labels are required to deploy a service with Interlock?

a)com.docker.lb.port

b) com.docker.interlock.port

c) com.docker.interlock.hosts

d) com.docker.lb.backend

1. How can we publish services externally in Kubernetes?

a) Using Interlock

b) Using Ingress Controllers

c) Using the nodePort service

d) Using a clusterIP resource

1. How do we know how much space is used by containers and volumes in our system?

a) By using docker system prune

b) By using docker system df

c) By using docker container df

d) By using docker volume df

1. Which role should be set in UCP for the DBA team to allow them to create their own volumes?

a) Scheduler.

b) View Only.

c) Only UCP administrators can create volumes and other cluster resources.

d) Restricted Control is enough to create volumes on their private collection.

1. Which flag should be used to configure all available FQDNs for UCP?

a) --san

b) --external-name

c) --external-url

d) --ucp-url

1. A user cannot push images to our DTR internal registry. What should we verify?

a) Docker login access.

b) That the DTR CA certificate should be trusted.

c) We should verify whether the image's repository does exist.

d) That the image has vulnerabilities and DTR's image scanning rejects the user's image.

1. Which internal networks are deployed for DTR?

a) docker\_gwbridge

b) dtr-ol

c) ingress

d) dtr-internal

1. Which Kubernetes resources provide an application's resilience?

a) Deployment

b) ReplicaSet

c) Pod

d) Replicated

1. What does the docker swarm --force-new-cluster command do?

a) It is used to recover a cluster in failure situations. It will set all managers as workers, leaving just one manager node.

b) This command will destroy the cluster. It is used to remove the entire cluster.

c) --force-new-cluster should be used to stop all services deployed on worker nodes.

d) An application's services will not be impacted by this command. This command just affects the control plane.

1. Which sentences are true about Docker Swarm and Kubernetes networking?

a) An ingress overlay network will be encrypted by default.

b) Mutual TLS communications ensure control-plane security in Docker Swarm.

c) A Kubernetes network is isolated with networkPolicy resources out of the box.

d) Kubernetes uses certificates to ensure security for user access and the internal control plane.