Oracle Cloud Infrastructure Compute Maintenance, Live Migration and Migration reboot

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Purpose of this presentation

This presentation explains what happens to a Virtual Machine (VM) or Bare Metal (BM) server in the event of planned or unplanned outages.

This presentation discusses Standard shapes and DenseIO shapes with NVME local disks.

It is important to understand the Oracle does not protect local NVME disks included in DenseIO shapes.

The following processes are discussed:
Live Migration
Reboot Migration
Manual Migration

Oracle Cloud Infrastructure: Compute Planned Maintenance

Maintenance: Planned Maintenance for Virtual Machines & Bare Metal

Live migration – For VMs

- Performed by Oracle as part of infrastructure maintenance event
- No downtime to VM
- Oracle automatically copy VM to new healthy system.
- All instance properties are retained.

Reboot migration – For VMs and Bare Metal

- Performed by Oracle as part of infrastructure maintenance event
- The instance is stopped, migrated to a healthy host, and restarted.
- Scheduled: a date is set and can be changed / proactive reboot
- Customer to Backup NVME to block storage. NVME-based SSD is permanently deleted.
- Instance is stopped, migrated to a healthy host, and restarted
- Restore SSD for DenseIO from backup

Rebuild in Place

- Performed by Oracle as part of infrastructure maintenance event
- Scheduled: a date is set and can be changed
- The instance is stopped, rebuilt on the same physical hardware, and restarted. Downtime required.
- A rebuild in place **preserves instance properties** that are tied to the physical hardware, such as the MAC address or universal identification number. A rebuild in place also lets you **retain the locally-attached NVMe-based** SSD on a dense I/O instance. If not, then backup NVME and restore to new system.

Detail: Infrastructure maintenance

Maintenance: Planned Maintenance for Virtual Machines & Bare Metal - nvme devices

Some compute instance shapes in Oracle Cloud Infrastructure such as VMDenseIO and BM.DenseIO include locally attached NVMe devices.

Customer to Backup NVME data to OCI block storage.

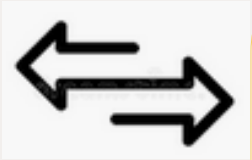
Caution

NVMe devices are not protected in any way; they are individual devices locally installed on your instance. Oracle Cloud Infrastructure does not take images, back up, or use RAID or any other methods to protect the data on NVMe devices. It is your responsibility to protect and manage the durability of the data on these devices.

Detail: Protecting Data on NVME devices

Oracle Cloud Infrastructure: Manual Migration

Manual Migration for Virtual Machines & Bare Metal



Manual Migration

- Use case: Migrate to newer shape, ex BM.DenseIO.E4.128 to BM.DenseIO.E5.128
- Performed by customer.
- Terminate compute instance.
- Retain boot vol.
- Customer to Backup NVME to block storage.
- Launch a new instance from the retained boot volume.
- Restore NVME from backup from block volume

Detail: Infrastructure maintenance

Oracle Cloud Infrastructure: Unplanned outages

Unplanned outage of Virtual Machine and Bare Metal
- Recovery due to Infrastructure failure

When the underlying infrastructure for an instance is unhealthy, Oracle Cloud Infrastructure **automatically** attempts to recover the instance.

•**Virtual machine (VM) instances:** -> Live migration is done first, if fails then Reboot migration will be performed by Oracle. VM.DenseIO shapes are recovered using Reboot Migration. If reboot migration is used, local NVMe data is still lost.

• **Bare metal instances:** -> Reboot migration is done, if this process fails then customer must manually migrate the instance.

Note!!!

DenseIO VM instances are recovered by rebooting the instance on the same physical host. If recovering a DenseIO instance on the same physical host isn't possible, Oracle Cloud Infrastructure notifies you to reboot migrate or delete (terminate) the instance within 14 days. If reboot migration is used, **local NVMe data is still lost**. If you don't delete the instance before the deadline, Oracle Cloud Infrastructure disables the instance on the deadline and deletes it within the next seven days. The boot volume and remote attached data volume are preserved. Ref: https://docs.oracle.com/en-us/iaas/Content/Compute/References/infrastructure-maintenance.htm

Infrastructure Maintenance document

Unplanned outage of Virtual Machine and Bare Metal
- Recovery due to Infrastructure failure

Prerequisites for Reboot Migration

- Ensure that any block volumes defined in /etc/fstab use the recommended options.
- Ensure that any File Storage service (NFS) mounts use the nofail option.
- If you use the Oracle-provided script to configure secondary VNICs, ensure it runs automatically at startup.
- If the instance uses a dense I/O shape, **back up the locally-attached NVMe-based SSD:**
  - Create and attach one or more block volumes to the instance.
  - Copy the data from the NVMe devices to the block volumes.

Reboot migration – For VMs and Bare Metal

- Performed by Oracle as part of infrastructure maintenance event
- The instance is stopped, migrated to a healthy host, and restarted.
- Scheduled: a date is set and can be changed / proactive reboot
- Customer to Backup NVME to block storage. NVME-based SSD is permanently deleted.
- Instance is stopped, migrated to a healthy host, and restarted
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Sources: https://docs.oracle.com/en-us/iaas/Content/Compute/References/infrastructure-maintenance.htm#infrastructure-maintenance

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Thank you

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