VMware Cloud Director Availability is a powerful solution built to offer simple, secure, and cost-effective onboarding, migration, and disaster recovery services “to” or “between” multi-tenant VMware clouds.

For production deployments between an on-premises vSphere environment and a Cloud Director service with Oracle Cloud VMware Solution environment, you need to deploy the following set of appliances at the source and destination sites.

For additional instructions on how to use VMware Cloud Director Availability please visit the documentation.

1. For production deployments. You need to deploy and configure dedicated VMware Cloud Director Availability Replicator appliance or appliances, it exposes the low-level data replication engine primitives as REST APIs.
2. A single appliance that contains the following services:
   - VMware Cloud Director Availability Replication Manager - a management service that operates on the vCenter Server level and understands its concepts for starting the replication workflow of the virtual machines. It must have TCP access to the Lookup Service and all the Replicator appliances.
   - VMware Cloud Director Availability Replicator appliance with embedded VMware Cloud Director Availability Portal - provides the primary interface for the cloud and on-prem replication operations. It understands the VMware Cloud Director service (VMware Cloud Director) level concepts and communicates with its API through VMware Cloud Director LB.
3. Simplifies provider networking setup by channeling all incoming and outgoing traffic for a site through a single point - the VMware Cloud Director Availability Tunnel appliance. The traffic is both management and monitoring for the replication data (LWD traffic).
4. You must set an IP and port in the local site that is reachable for remote sites and forward it to the private address of the VMware Cloud Director Availability Tunnel appliance, port 8048 by using destination network address translation (DNAT).
   - By using a public IP on the tunnel, you can migrate into the environment with any Internet connectivity.
5. VMware Cloud Director Availability Replication Manager for Tenants (On-premises Sites), which contains the details for the VMware Cloud Director Availability Appliance availability.
6. For Cloud Services Providers, an existing vCloud Usage Meter agent hosted at an on-premises cloud can be used. There are two options for collecting the VMware Cloud Director Availability Replication usage data:
   - Use the VMware Cloud Director Availability Endpoint (Tunnel public IP address), root credentials and the Allow admin access from anywhere option set.
   - Use another public address for directly accessing the VMware Cloud Director Availability Replicator appliance, root credentials and the Do not allow admin sessions from the Internet option set.

The unikernel network interface (unik) of your ESXi hosts needs to have vSphere Replication and vSphere Replication NFC options enabled so it can handle the replication traffic.

<table>
<thead>
<tr>
<th>Port Number</th>
<th>Protocol</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>9048/9047</td>
<td>TCP</td>
<td>Used for redirecting external traffic management to the VMware Cloud Director Availability Tunnel service.</td>
</tr>
<tr>
<td>8044</td>
<td>TCP</td>
<td>Used by the ESXi hosts for replication traffic to the destination VMware Cloud Director Availability Replicator.</td>
</tr>
<tr>
<td>8046</td>
<td>TCP</td>
<td>Used for VMware Platform Services Controller® communication management from the VMware Cloud Director Availability vApp Replication Manager and VMware Cloud Director service destination with Oracle Cloud VMware Solution SDDC.</td>
</tr>
<tr>
<td>8043</td>
<td>TCP</td>
<td>Used for VMware Cloud Director Availability vApp Replication Manager management from the VMware Cloud Director Availability Replicator.</td>
</tr>
<tr>
<td>8044/8048</td>
<td>TCP</td>
<td>Used for vCloud Availability vApp Replication Manager management from the vCloud Availability Replicator.</td>
</tr>
<tr>
<td>8045</td>
<td>TCP</td>
<td>Used by the VMware Cloud Director Availability Replicator service for replication traffic to the destination ESXi hosts.</td>
</tr>
<tr>
<td>445/443</td>
<td>TCP</td>
<td>Used for VMware Cloud Director Availability Tunnel appliance.</td>
</tr>
<tr>
<td>443</td>
<td>TCP</td>
<td>Used for VMware Cloud Director Availability tunnels used to communicate and manage the VMware Cloud Director service.</td>
</tr>
</tbody>
</table>

Key:
- The unikernel network interface (unik) of your ESXi hosts needs to have vSphere Replication and vSphere Replication NFC options enabled so it can handle the replication traffic.
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For production deployments between an on-premises VMware Cloud Director environment and a Cloud Director service with Oracle Cloud VMware Solution, you need to deploy the following set of appliances at the source and destination sites.

For additional instructions on how to use VMware Cloud Director Availability please visit the documentation.

1. VMware Cloud Director Availability Replicator appliance or appliances. It exposes the low-level data replication engine primitives as REST APIs.
2. A single appliance that contains the following services: - VMware Cloud Director Availability Replication Manager – a management service that operates on the vCenter Server level and understands its concepts for starting the replication workflow of the virtual machines. It must have TCP access to the Lookup Service and all the Replicator appliances. - VMware Cloud Director Availability wksp Replication Manager - a management component with embedded VMware Cloud Director Availability Portal, provides the primary interface for the cloud and on-premise replication operations. It understands the VMware Cloud Director service (VMware Cloud Director) level concepts and communicates with its API through VMware Cloud Director LB. - Other Management Appliances - simplifies provider networking setup by channeling all incoming and outgoing traffic for a site through a single point - the VMware Cloud Director Availability Tunnel appliance. The traffic is both management and monitoring for the replication data (LWD traffic).
3. You must set an IP and port in the local site that is reachable for remote sites and forward it to the private address of the VMware Cloud Director Availability Tunnel appliance, port 8048 by using destination network address translation (DNAT). By using a public IP on the tunnel, you can migrate into the environment with any Internet connectivity.
4. For Cloud Services Providers, an existing vCloud Usage Meter agent hosted at an on-premises cloud can be used. There are two options for collecting the VMware Cloud Director Availability usage data:
   - Use the VMware Cloud Director Availability Endpoint (Tunnel public IP address), root credentials and the Allow admin access from anywhere option set.
   - Use another public address for directly accessing the VMware Cloud Director Availability Cloud Replication Management appliance, root credentials and the Do not allow admin sessions from the Internet option set.

Key

Logical placement shown, existing VMware Cloud Director service multi-tenant environment.