DC/OS Installation Checklist

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DC/OS System Requirements

Installation Requirements

We recommend one Bootstrap node, at least 3 Masters and as many Agents (ideally, 6 or more) as you can afford to provision.

The complete list of (minimum) hardware and software requirements for each type of node (Bootstrap/Master/Agent):
https://docs.mesosphere.com/installing/custom/system-requirements/

Note: It is imperative that you meet **all** the prerequisites listed in the link above for a successful DC/OS installation

Specific Hardware Requirements

Disk Space and Performance Characteristics for `/var/lib/{mesos,docker,dcos}`

An important prerequisite to note is that the bulk of the disk space on the DC/OS agents will be consumed from `/var/lib/mesos` for Mesos and `/var/lib/docker` for Docker containers, respectively; so please ensure that we have enough disk space with the desired performance characteristics (RAID/SSD) allocated to `/var/lib/{mesos,docker}`

Ideally, separate out the partitions/LVMs for `/var/lib/mesos` and `/var/lib/docker` on the Agents so that disk full errors don't affect broader operations.

Ideally, separate out the partition/LVM for `/var/lib/dcos` on the DC/OS Masters onto an SSD, for better performance of the Zookeeper and Mesos replicated logs.

`/opt` must not be mounted on a separate partition/volume

`/opt` must be directly on the root (`/`) filesystem because of this limitation of `systemd`: https://lists.freedesktop.org/archives/systemd-devel/2016-May/036646.html

The DC/OS systemd units are installed to `/opt/mesosphere` and then symlinked into `/etc/systemd/system`

If `/opt` is on a different partition/volume `systemd` will fail to discover these units (during the initialization of the ramdisk at boot time) and DC/OS will not automatically restart upon reboot.

Specific Software Requirements

Linux Distribution

- RHEL/CentOS 7.3 with all the latest patches applied (yum upgrade) or CoreOS Stable
- SELinux must be disabled or set to permissive
- All node hostnames (FQDN and short hostnames) must be resolvable in DNS & both forward and reverse lookups must succeed.
- NTP for clock synchronization must be configured enabled on all nodes
- Docker Engine must be installed on all DC/OS nodes.

Docker Engine

Docker Engine `1.13.x` can be installed if using DC/OS 1.9 and RHEL 7.3
Docker Engine `1.11.2` **must** be installed if using DC/OS 1.8 or RHEL 7.2

Note: Please only use the *official* Docker repos and RPMS and not the RHEL/CentOS repos and RPMS.

Linux Filesystem

In order for OverlayFS to work properly on RHEL/CentOS/OEL you must format the `/var/lib/docker` filesystem as XFS with the `-n ftype=1` option passed to `mkfs.xfs`

References:

https://github.com/docker/docker/issues/10294#issuecomment-164563912
https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/7/html/7.2_Release_Notes/technology-preview-file_systems.html

HTTP Proxy

Since the release of DC/OS 1.8 you can now define your proxy setup in `config.yaml`

Reference:
https://docs.mesosphere.com/installing/custom/configuration-parameters/#use-proxy

Docker on Bootstrap, Masters and Agents

To enable HTTP Proxy support for Docker you'll have to place the environment variables as shown in the example below, into `/etc/systemd/docker.d/http-proxy.conf - https://docs.docker.com/engine/admin/systemd/`

```
sudo mkdir -p /etc/systemd/system/docker.service.d

sudo tee /etc/systemd/system/docker.service.d/http-proxy.conf <<-'EOF'
[Service]
Environment="HTTP_PROXY=http://proxy.example.com:3128/"
"HTTPS_PROXY=http://proxy.example.com:3128/"
"NO_PROXY=localhost,127.0.0.1,*.example.com"
EOF

sudo systemctl daemon-reload
sudo systemctl restart docker
sudo docker info
systemctl status docker
```

Local Docker Registry

To prepare the DCOS nodes (bootstrap, masters and agents) to use a local docker registry:

```
sudo mkdir -p /etc/systemd/system/docker.service.d
sudo tee /etc/systemd/system/docker.service.d/override.conf  <<-'EOF'
[Service]
```

```
EnvironmentFile=-/etc/sysconfig/docker
EnvironmentFile=-/etc/sysconfig/docker-storage
EnvironmentFile=-/etc/sysconfig/docker-network
ExecStart=
ExecStart=/usr/bin/docker daemon -H fd:// $OPTIONS \
         $DOCKER_STORAGE_OPTIONS \
         $DOCKER_NETWORK_OPTIONS \
         $BLOCK_REGISTRY \
         $INSECURE_REGISTRY \
         --storage-driver=overlay \
         --insecure-registry
registry.marathon.l4lb.thisdcos.directory:5000
EOF
```

Copy your Docker Registry's TLS certificates, *if needed*, to all nodes (bootstrap, masters and agents):

```
sudo mkdir -p
/etc/docker/certs.d/registry.marathon.l4lb.thisdcos.directory:5000
sudo cp <Your_Docker_Registry_SSL_Certificate>
/etc/docker/certs.d/boot.dcos:5000/ca.crt
sudo systemctl daemon-reload
sudo systemctl restart docker
sudo docker info
sudo systemctl status docker
```

Note: Replace `registry.marathon.l4lb.thisdcos.directory` with the `hostname:port` of your Docker Registry server

Reference:
https://github.com/docker/distribution/blob/master/docs/insecure.md#using-self-signed-certificates