

Technical preview

This document provides information on the technical preview of IBM Spectrum LSF 11.1.

Supported systems

IBM Spectrum LSF (LSF) supports the following systems.

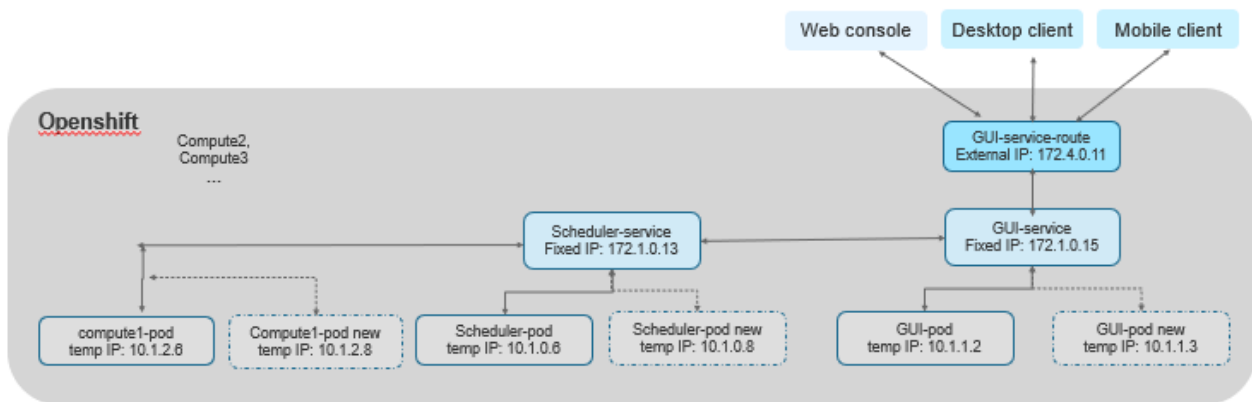
- Operating systems: Linux x64 operating systems that are running inside OpenShift or Kubernetes pods.
- Container platforms: RedHat OpenShift Container Platform 4.6 or later.

Multiple instances

Users can select any OpenShift or Kubernetes namespaces to deploy LSF. Users can also create another namespace and deploy LSF into it. Multiple instances can run simultaneously.

Deployment scenario

LSF supports the following deployment structure based on OpenShift 4.



Storage preparation

LSF requires the following persistent volume (PV) and persistent volume claim (PVC) configuration in OpenShift or Kubernetes before deployment:

- Storage type: Persistent volume claim
- Storage shared: NFS
- Storage permission: Read-Write-Many

LSF relies on a real shared file system to persist the system service and the user's application data. LSF requires the following PVC configuration:

```
lsfpvcname: "myslfpvc" # mandatory with fixed name - myslfpvc
```

Security context constraints

LSF supports the following pre-defined security context constraints (SCC):

- hostnetwork
- hostpath
- anyuid

Roles and personas

LSF supports the following roles:

- Host network: High performance
- Host path: High performance

LSF supports the following personas:

- Cluster administrator: Deploys the LSF cluster.
- LSF users: Interact with LSF, do not interact with OpenShift and Kubernetes.

Passive encryption of data with encrypted PV

LSF supports encrypt-enabled PV to protect the data. When a users prepare the NFS before deployment, they must prepare the encrypted NFS share disk for LSF to use.

Backup and recovery

LSF supports backup and recovery to protect a user's running environment and data.

The following steps describe the backup process:

1. Back up all the NFS directories by copying the entire NFS directory to a safe location.
2. Back up the Kubernetes namespace by using the Velero service. For more information, refer to the following website: <https://www.digitalocean.com/community/tutorials/how-to-back-up-and-restore-a-kubernetes-cluster-on-digitalocean-using-velero>

The following steps describe the recovery process:

1. Copy the NFS data from the safe location back to original location of the NFS directories.
2. Change the owner of all the files and directories to `lsfadmin` with the UID 1000321495.
3. Restore the Kubernetes namespace by using the Velero service. For more information, refer to the following website: <https://www.digitalocean.com/community/tutorials/how-to-back-up-and-restore-a-kubernetes-cluster-on-digitalocean-using-velero>

System validation

Validate the LSF installation as follows:

1. Check that all the pods are in running status by running the following commands:

```
oc get pod
oc get lsfclusters -o yaml
```

2. Check the LSF log files in the `/mylsfpvc/lsf/logs` directory to ensure that there are no errors.
3. Check that the LSF cluster is running from the login node by running the following commands and ensuring that there are no errors:

```
oc exec -it <login_pod_name> bash
lsid
bsub sleep 100
bjobs
```

4. Check that the LSF cluster is running from the web console.
 - a. From the OpenShift web console, find the LSF Console URL by selecting **Project (namespace) > Workloads > default-lsf-gui1 > Route URL location**, then click the URL.
 - b. From the LSF web console, log in with the administrator user name and password that is specified in the `cr` file (for example, `lsf-cluster-without-zones.yaml`).
 - c. Select **Workload > New > Generic > Input command to run**
 - d. Specify `sleep 100`, then click **Submit** to run the command.

- e. Check that the status of the new job changes from **pend**, to **running**, to **done**.

Exposed services and ports

LSF exposes the LSF GUI service (**lsf-gui**) and opens the following ports to the outside environment:

Table 1.	
Service port	Pod port
HTTP (80)	8080
HTTPS (443)	8443
8081	8081
8444	8444
6080	6080

Process and upload proof

LSF supports the formal Cloud Pak for Data process.

Trial licenses

LSF supports trial licenses by providing this trial package with trial entitlement that is attached in the IBM registry. The current trial license is for IBM Spectrum LSF Suite for Enterprise. Users can move to the official license for IBM Spectrum LSF Suite for Enterprise after deploying this trial package. For other editions, users have to redeploy IBM Spectrum LSF Suite using a new entitlement key.

Accessibility support

The LSF web console supports level 1 accessibility.