How to Migrate to Liferay Experience Cloud Self Managed

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Introduction

Adopting a cloud strategy in the coming years should be a top priority for enterprises wanting to stay competitive. The benefits of cloud computing, such as flexibility, reliability, and cost-savings, mean an investment in cloud services should be part of a long-term growth strategy for many businesses.

Migrating an on-premises Liferay DXP instance to Liferay Experience Cloud Self-Managed (SM) helps enterprises not only add value to their DXP solutions but also enables them to achieve operational benefits and more rapidly meet business needs.

Customers who are on Liferay DXP will be able to benefit from Liferay Experience Cloud SM:

- Optimizing infrastructure costs.
- Achieving faster time to market.
- Leveraging existing assets.

This document will cover how to migrate a Liferay DXP on-premises instance to the cloud, several important tips for the process and what's needed for project success.

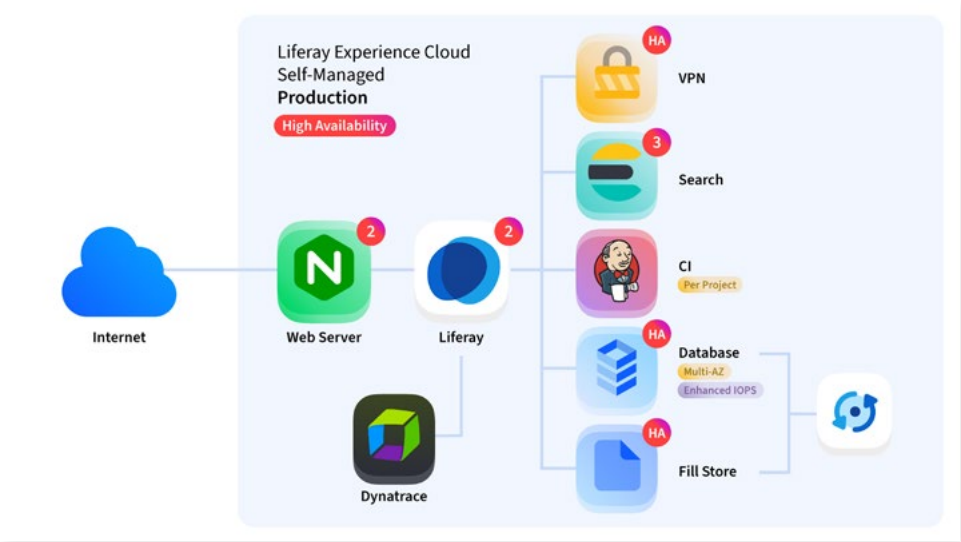
Liferay Experience Cloud SM

The Stack

Liferay Experience Cloud SM comprises a set of services that are delivered out-of-the-box for the customer:

- Liferay DXP (all supported versions)
- Liferay Enterprise Search (search engine)
- Nginx (web server)
- MySQL 5.7 (database)

The goal is to provide a complete provisioned solution so that businesses can start delivering solutions right away without the need to install many different services.



Data Management

In order to move a project onto Liferay Experience Cloud SM, data from the existing instance must be migrated to the new environment in the cloud, so that users do not notice a change in content. This process includes migrating the data stored in the database along with the filesystem that contains all files and documents from the Liferay Documents and Media repository.

The following sections will walk through how to migrate a database as an important step in achieving a successful deployment Liferay Experience Cloud SM.

Freeze Window

Before migrating any data, a freezing window should first be set to avoid changes to the actual Liferay instance. Doing this prevents users from creating web content or uploading documents during the migration process that should not be transferred to the cloud.

Database Migration

Liferay DXP is a versatile platform that is compatible with many databases (see Compatibility Matrix), including MySQL 5.7, SQL Server, Oracle, Postgres, and others. DXP Cloud was designed with a technology stack in mind that aims to be scalable, resilient, and straightforward and thus uses MySQL 5.7.

Any Liferay DXP on-premises instances that use another one of the supported technologies must first be converted into MySQL 5.7 format before it can be imported into a Liferay Experience Cloud SM environment.

There are many software solutions that can convert a database into MySQL 5.7 format. While Liferay cannot explicitly recommend a solution, as individual database implementations may vary, two possible options are DBeaver, which is a universal tool that handles almost all databases and can migrate data from each of them, and Pentaho Data Integration, codenamed Kettle, which consists of a core data integration (ETL) engine and GUI applications that allow the user to define data integration jobs and transformations. In most cases, either one of these solutions will be able to move data from an on-premises database to MySQL 5.7 dump format to import into Liferay Experience Cloud SM easily.

Copying the Document Library

Once the database has been converted to MySQL 5.7, the document library folder should be copied and a compressed archive of it created. It's essential that dumping the database and making a copy of the document library occur at the same time as it will ensure that database records are synchronized with the files from Liferay Documents and Media.

Data Upload and Restore

The Liferay Experience Cloud SM Backup Service can be accessed in order to upload resources into the Liferay Experience Cloud SM infrastructure. Other configuration points exist and will be covered in this document, but the database and document library are the most significant in the migration process. Once uploaded, a backup should be available in the Liferay Experience Cloud SM Console and ready to be restored into any environment.

Leveraging Existing Assets

After all existing data has been moved to Liferay Experience Cloud SM, the next step is to migrate any specific configurations from Liferay (portal-ext.properties) and third-party systems that compose the Liferay DXP environment, such as the web server, search engine, and custom integrations.

Liferay Configuration

The Liferay configuration includes custom configurations made into your portal-ext.properties file. Each one of these configurations should be reviewed to address what needs to be changed due to any environmental impact.

Liferay Experience Cloud SM provides an easy way to take control of all the custom properties for all environments. These configurations are stored in a Git repository where users can track, manage and govern the custom properties to uniquely configure a Liferay instance. This allows users to also get rid of intricacies caused by several backup files, as all the changes will be version controlled.

Web Server Configuration

Additionally, the web server configuration needs a review to identify what to keep and what to remove. For instance, there may be several URL rewrites into web server applications. In some cases, these can be used as a cache for static resources, such as images, JavaScript and CSS files that deliver these applications without touching the application servers, getting a good distribution of computational load over the infrastructure.

Liferay Experience Cloud SM was designed by capitalizing on the many years of experience that the Liferay team has accumulated in managing complex IT scenarios. As a result, Liferay Experience Cloud SM provides a content delivery network (CDN) that will cache your static resources and the Liferay platform can handle all URL rewrites and redirects. However, all custom web server configurations must be converted into the appropriate Nginx configurations before migrating into Liferay Experience Cloud SM, which relies on Infrastructure as Code (IaC) principles, so that all of the infrastructure can be dynamically built from a Git repository.

Search Configuration

The Liferay platform has been using Liferay Enterprise Search since version 7.0. Users have been leveraging this powerful software for external indexing applications, such as those for enabling federated searches among several other systems outside of Liferay.

For any on-premise instances with installed plug-ins or configured Liferay Enterprise Search, users can follow the scripts and configuration files in the provided Git repository in order to apply these configurations.

External Integrations

Many of the uses of the Liferay platform involve external integrations with other systems, for instance, LDAP or SSO (Single Sign-On) services, an API gateway or business intelligence platform. However, these systems might be restricted to a private network. So Liferay Experience Cloud SM provides a built-in VPN service that allows for communication between Liferay DXP and the internal infrastructure to be quickly set up so that custom integrations can seamlessly talk to each other as if they were in the same network.

Deploying and Testing

After the data, configurations and external integrations have been moved to Liferay Experience Cloud SM, tests should be conducted to make sure that everything works as they did in the on-premises infrastructure. Liferay Experience Cloud SM provides the tools to easily set up a user acceptance testing (UAT) environment to simulate full deployment as many times as needed before going into production.

Deploy the Stack

Since Liferay Experience Cloud SM works based upon the IaC paradigm, leverage these principles to set up the configurations, specificities of the environment and custom plugins into a single Git repository, divided by two or more branches, to govern every change.

After pushing these resources, Liferay Experience Cloud SM Continuous Integration service will trigger the build of all services automatically, and this build will be available to deploy into any chosen environment with just a few clicks through the Liferay Experience Cloud SM Console.

Functional Testing

After the infrastructure has been deployed to a Liferay Experience Cloud SM UAT environment, secure access can be provided to specific users through Web Server Service to test all the systems in the solution and ensure that everything is working well, while preventing unauthorized access to UAT and DEV environments.

Performance Testing

The final, but crucial, step is to determine the limits of an application with performance testing.

The Liferay team understands how critical performance testing is for the success of any solution. To assist with this important step, Liferay provides Dynatrace, an industry-leading application performance management (APM) solution, out-of-the-box to help identify bottlenecks and needed improvements.

Dynatrace is by default available in the Liferay Experience Cloud SM High Availability Production environment; simply enable it and create scripts to generate a considerable load to find out the borderline before application performance is affected, with tools such as JMeter and Grinder.

An Enhanced Digital Strategy

Following these steps will help enterprises successfully move a Liferay DXP instance onto Liferay Experience Cloud SM. A move to the cloud with Liferay will ultimately improve time to market and enable companies to redirect their IT resources from infrastructure management to delivering new business value.

Moving Forward

Learn how the Liferay Global Services team can support your move to Liferay Experience Cloud SM with a migration analysis. Contact sales@liferay.com for more information.

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