# Software: The Common Ground

In today's world where everything is connected, all companies are now software companies. Whether they manufacture refrigerators or medical devices or offer one of the many online services we all use to connect with our family, friends and business associates, the one component they all have in common is software. Providing a constant flow of better software anywhere on the planet has become paramount to a company's success. A company's software must continuously improve in terms of software quality, consistency, security and global reach. To meet that challenge, companies must have sound DevOps practices in place. While some have built up their software development organizations with DevOps in mind, others are struggling to retool their infrastructure to meet the ever-growing demand for better software.
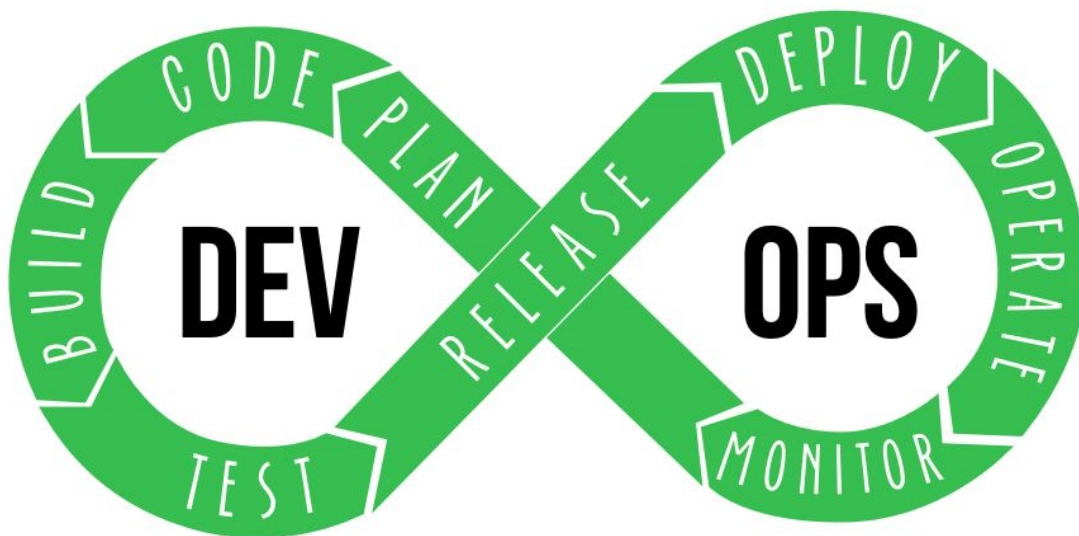

Over time, the methodologies of software development have changed. The "Waterfall" paradigm has been mostly replaced by "Agile," and data centers lled with complex servers that are hard to maintain have been replaced with services hosted with cloud providers that can scale on demand using tools and technologies such as Kubernetes. This white paper will discuss the future of DevOps, The JFrog Platform.

A PLATFORM FOR LIQUID SOFTWARE

The software industry is undergoing a transformation in which release cycles keep getting shorter, and software updates are getting smaller and more frequent. JFrog envisions that companies will eventually transition from periodically transferring packages to continuously transferring micro-deltas of software. This is the liquid software revolution of continuous updates, and it is this vision that drives JFrog's design and implementation of the Platform. The Platform is designed to meet the growing needs of companies to develop and distribute software and provides DevOps teams with the tools needed to create, manage and deploy software with ease. These tools cover everything from CI/CD tools, binary management, artifact maturity, security and vulnerability protection, release management, analytics and distribution.
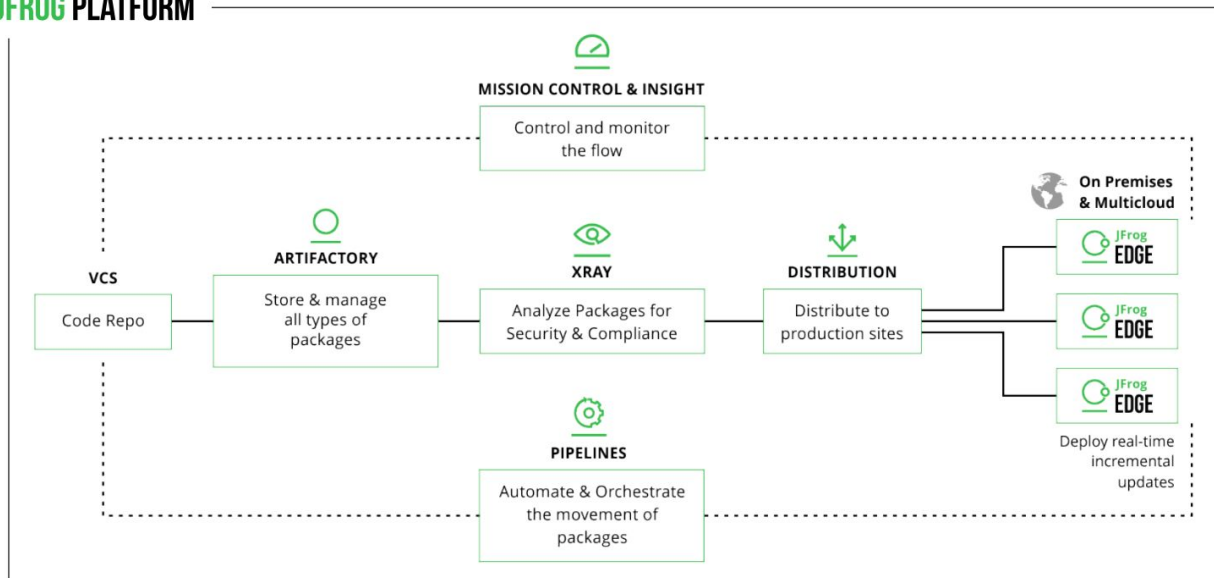
JFROG ARTIFACTORY - BINARY REPOSITORY MANAGER

JFrog Artifactory is the heart of the Platform. As a scalable, universal, binary repository manager that automatically manages your artifacts and dependencies through the application development and delivery process, it plays a central role in your DevOps ecosystem in general and in the Platform in particular. Through a highly available clustered solution and a variety of multi-site replication capabilities, it provides consistent and reliable access to your artifacts globally. With a powerful REST API and integration into any CI/CD ecosystem, Artifactory empowers you to release software faster with a fully automated CI/CD pipeline.
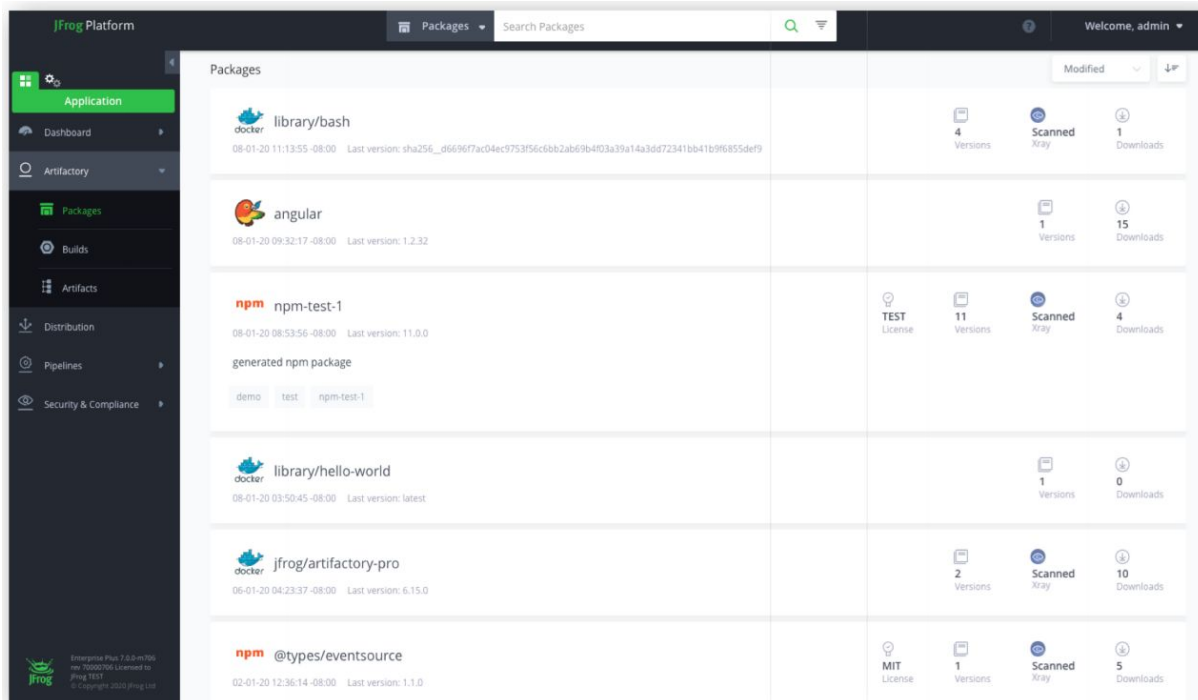
Package Browsing and Artifactory as a Docker Registry

Artifactory, as part of the JFrog Platform features an optimized replication algorithm. Replication is used in a variety of use cases to synchronize repositories between remote Artifactory instances. Depending on repository size this may require the transportation of huge quantities of data. Since the speed of transportation is limited by bandwidth and network latency, this is a process that may take hours and even days to complete. The new replication algorithm optimizes replication when distributing software with JFrog Distribution, dramatically reducing the load on the network and the time taken to synchronize release bundles from a source Artifactory instance to target instance or a set of Edge nodes.

JFROG XRAY -
SECURITY AND COMPLIANCE

JFrog Xray increases trust in your software releases by providing automated and continuous governance and auditing of software artifacts and dependencies throughout the software development lifecycle - from development, through testing, and on to production. As scanning for security vulnerabilities and license violations has become a critical step in any DevSecOps organization, Xray reinforces security standards through deep recursive scanning of artifacts to provide impact analysis and protection from vulnerabilities. As a sentinel guarding software security, Xray is a mission-critical part of your DevSecOps toolchain. As part of the JFrog Platform, Xray can be installed as a High Availability (HA) cluster with multiple active/active nodes.

If any node becomes unavailable, the cluster automatically distributes the workload among the remaining nodes thereby providing unparalleled stability and reliability. Xray contains a very large amount of data about known vulnerabilities in open source packages. Similar to Artifactory, Xray can scan many different binary and package types such as Docker, Java, NPM, Go and many others, ensuring what goes into your builds and your releases doesn't contain any high-risk vulnerabilities or license violations. Xray's main source of data for these vulnerabilities comes from VulnDB, which is the most timely and comprehensive vulnerability intelligence and includes new vulnerabilities discovered even before they are socially published. Xray also features a large repository of independent data, and is constantly in connection with public and private partners to keep the vulnerabilities database up-to-date from as many sources as possible.

Xray offers a much easier and integrated way to protect your code at every stage of the development cycle, and with the Platform, Xray can be installed in a HA configuration to meet the highest demands for scale, stability and performance.

Contact us: info@jfrogchina.com