

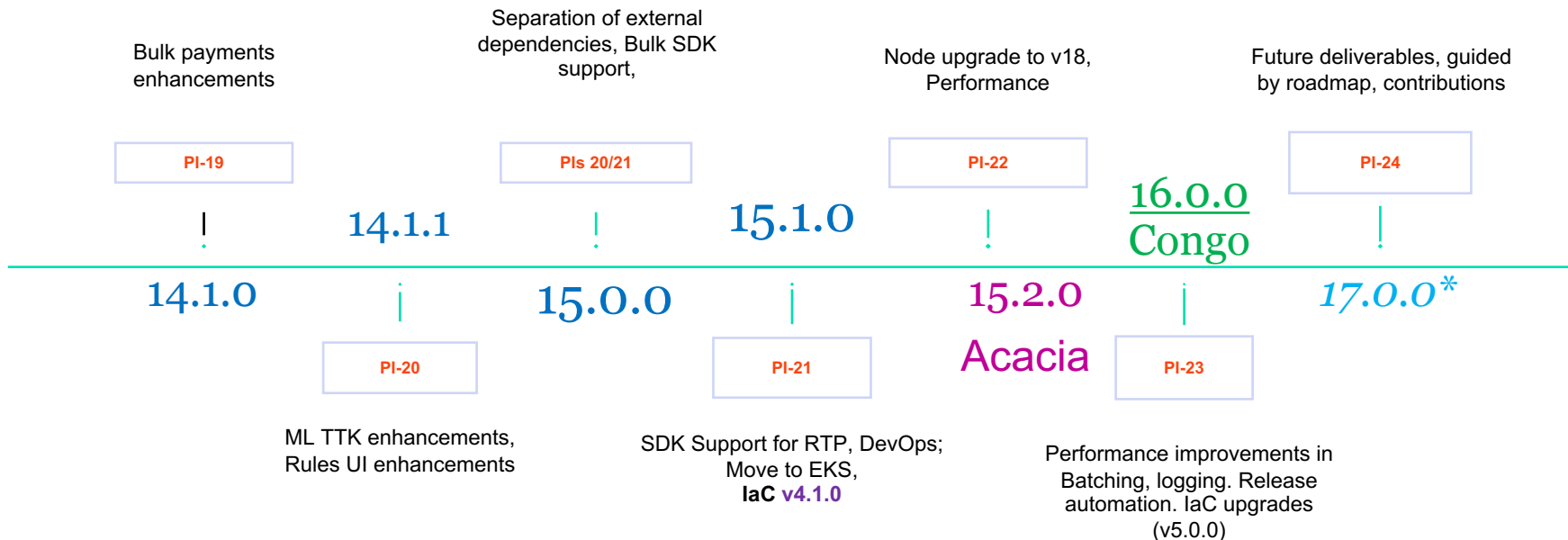


Mojaloop Releases & Core

PI-24 Community event, Nairobi

Mojaloop

PI-24 UPDATE



* Version numbers guided by SemVer

Agenda



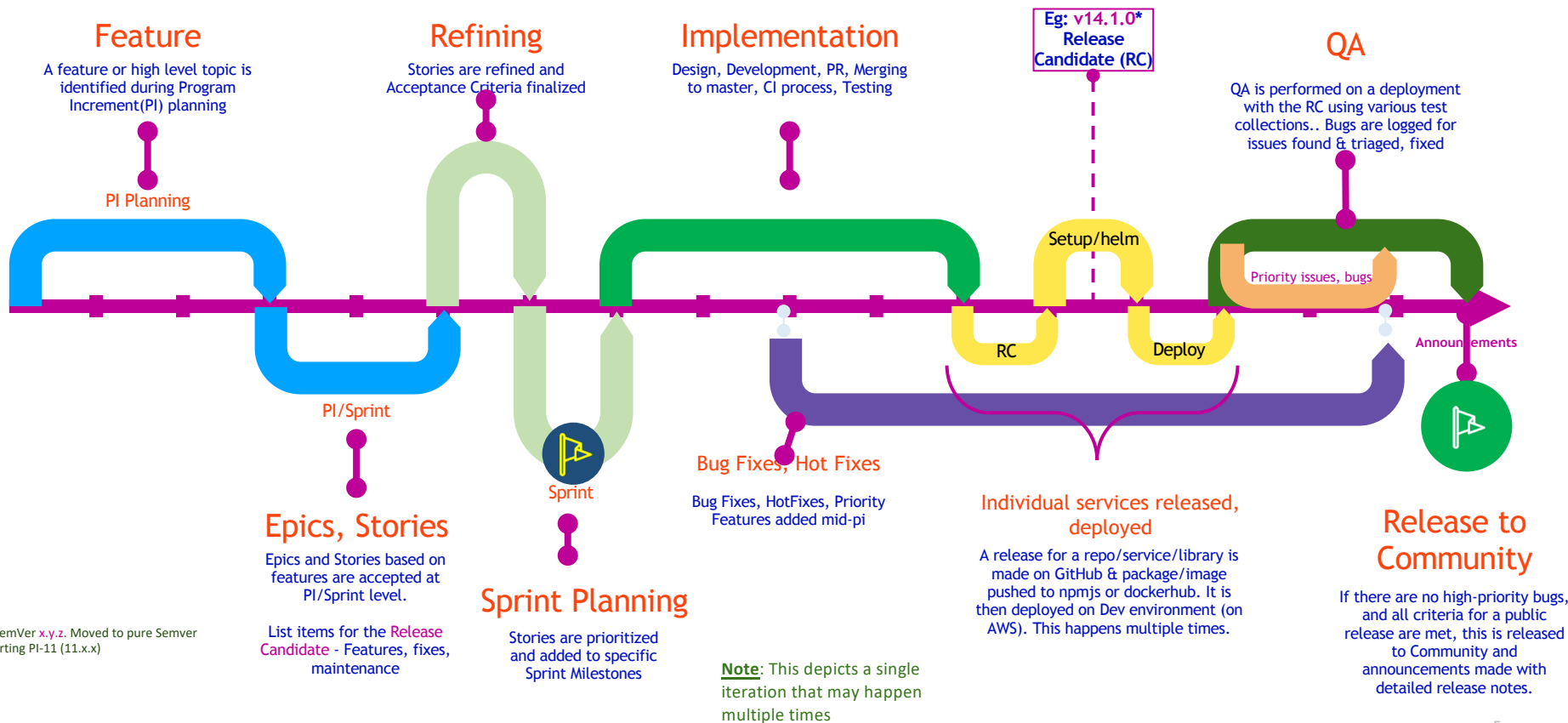
1. Mojaloop releases end-of-pi23 status
 - a. Inclusion of Performance enhancements
 - b. Release automation
 - c. Maintenance updates: nodejs upgrade, bug fixes
2. Mojaloop IaC update
3. Release Roadmap

Workstream Objectives



1. Automation of steps involved in Mojaloop release process to reduce overhead and efforts involved in Mojaloop releases
2. Enhancements done under perf-workstream to be included with Mojaloop releases
3. NodeJS upgrade of Mojaloop's services (not done in Mojaloop Acacia, v15.2.0)
4. Maintain Mojaloop Acacia - v15.2.0 and improve stability
5. Maintain Mojaloop's QA/Dev environments for bug fixes and other changes
6. Support existing implementers by fixing bugs and performing other maintenance related tasks

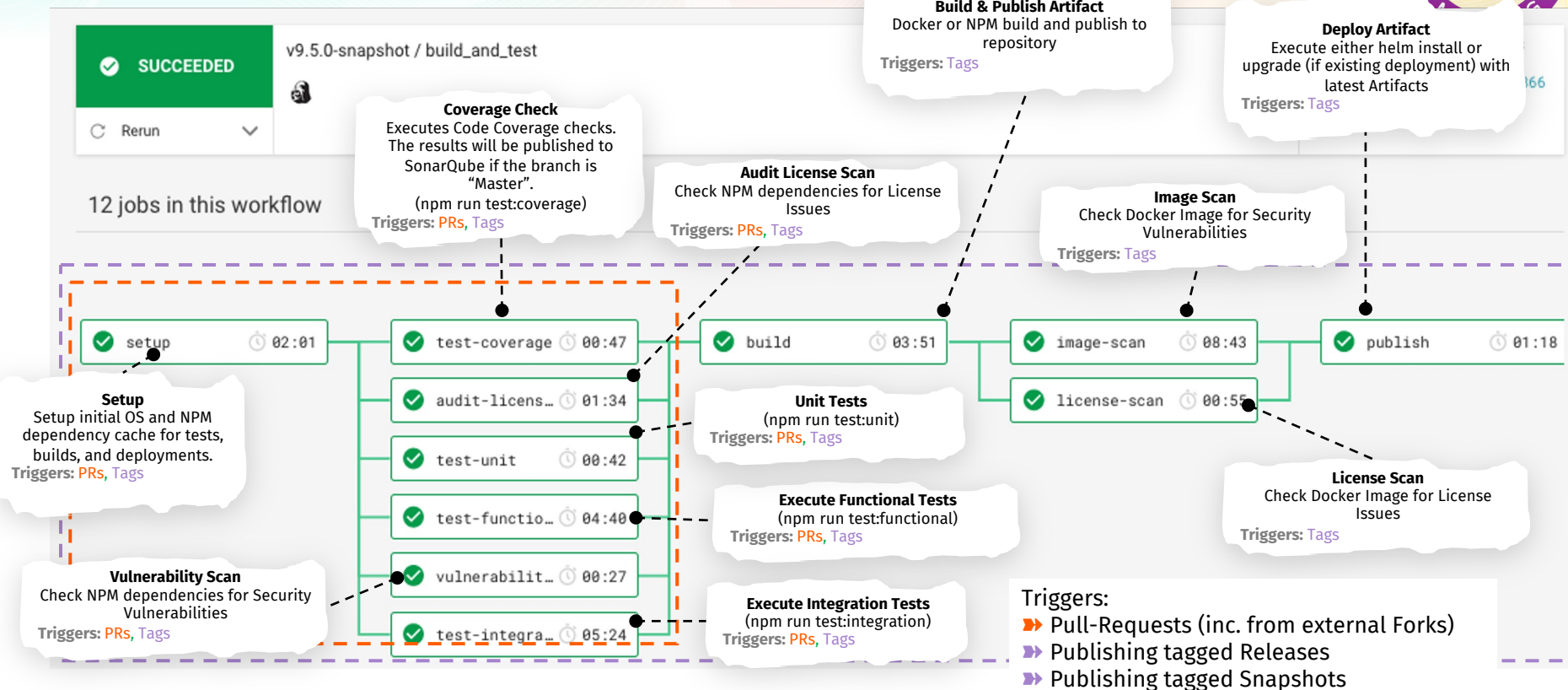
Mojaloop Release Process



Deployment Architecture: CI/CD Pipeline -



Ref <https://app.circleci.com/projects/project-dashboard/github/mojaloop>



Mojaloop Releases



github.com/mojaloop/project/issues/3748

Maps

Mojaloop Helm release v16.0.0 #3748

[Closed](#) [52 tasks done](#) elnry-sam-k opened this issue on Feb 1 · 1 comment

[Edit](#) [New issue](#)

elnry-sam-k commented on Feb 1 · edited · [Member](#)

Goal:

As a ML OSS adopter

I want to have a Mojaloop release v16.0.0 (version to be confirmed as part of the story) that is successfully validated by the Golden path tests

so that I can adopt and use a version of Mojaloop Switch services bundle that is tested and contains the latest features enhancements and bug fixes added in PI-22, 23 (includes Batching and other performance enhancements)

Acceptance Criteria:

- ☒ Update "APP VERSION" for each chart.yaml
- ☒ Helm RC Release is validated on Moja2 to achieve 100% result with TTK GoldenPath
- ☒ Helm RC Release is validated with PISP provisioning and test collection (TTK) with 100%
- ☒ Helm RC Release is validated with Bulk test collection (TTK) with 100%
- ☒ QA (Golden path) on deployments done on AWS Moja2 environment is done
- ☒ Bugs are logged based on observations, failures
- ☒ Bugs logged are fixed if critical to make subsequent releases in individual services (or Helm)
- ☒ All the changes needed for supporting the Helm Release are done
- ☒ Helm chart is published
- ☒ Release notes are published
- ☒ Test cases are published (TTK)
- ☒ TTK tests run successfully as Post-Hook jobs and Tests

Notes:

Complexity: Medium - Involves all core and supporting services
Uncertainty: Medium

Tasks:

- ☒ Deploy, validate RC on AWS Moja2
- ☒ Identify issues with QA Scripts if any - fix them and retest
- ☒ QA for bugs, regressions, log them
- ☒ Fix bugs logged if critical
- ☒ Validate with TTK GP collection
- ☒ TTK test-cases repo Release is published
- ☒ Release notes for helm RC is drafted
- ☒ Guidance for migration from Release (may have to be a separate story if sufficiently big / complex)
- ☒ Update release notes with Upgrade Strategy Guide link

Pipelines [Show 10 more](#)

mojaloop-project

Closed

Assignees

oderayi

Labels

[core-dev-squad](#) [oss-core](#) [PI-23](#) [story](#)

Projects

test-gh-project

Status: Done

Sprints

Sprint: Jan 29 - Feb 9, 2024
Sprint: Feb 12 - Feb 23, 2024
Sprint: Feb 26 - Mar 8, 2024
Sprint: Mar 11 - Mar 22, 2024

Milestone

No milestone

Estimate

5

Epics

Not inside an epic

Releases

Mojaloop v16.0.0 - ML Congo

Development

[Create a branch](#) for this issue or link a pull request.

Notifications [Customize](#)

Workstream progress can be tracked on Mojaloop [project repo](#)

Mojaloop Congo - v16.0.0



1. Core - Mojaloop Release ([Helm Release 16.0.0](#))

- Base use-cases: P2P, R2P, Bulk, PISP
- Settlement: Deferred-net, Continuous Gross
- Admin: (Participant Lifecycle API)

1. Bundled Mojaloop IaC Release ([Mojaloop IaC Release 5.0.0](#))

- Gateway & Load Balancers
- RBAC via Istio and Ory Stack
- Mojaloop Security (mTLS, JWS, ILP)
- Finance Portal
- Reporting
- Control Plane for CI/CD (GitLab)
- Technical Operational Dashboards
- Participant Onboarding Support (Connection Manager)





Release Automation

1. Automated Update of Helm Chart Packages with **updatecli**
2. Detection of Breaking Changes - DB Migrations, Default Configuration Changes
3. Generation of Changelog
4. Determination of Next Release Version Number
5. Generation of Release Note
6. Deployment of RC to OSS Test Environment
7. Release Candidate Validation with TTK
8. Creation of Release Candidate Pull Request
9. Bug Fixes, PR Reviews, Github Release

The automation scripts can be found here:

<https://github.com/mojaloop/helm/tree/main/.github/workflows>

v16.0.0 - Congo Latest

 oderayi released this 2 weeks ago v16.0.0 → e34bcf5 

Helm Release Notes

Date	Revision	Description
2024-02-06	0	Initial draft
2024-03-13	0	Initial release

0. Summary

Enhancements and breaking changes to the [v15.2.0 Release](#), which includes:

1. Performance improvement in Central Ledger via batching of position prepare and position fulfill messages
2. Performance improvement in ALS with the addition of participant requests caching, and logging fixes
3. Refactoring of Quoting Service into an event-driven service to improve performance
4. Helm chart: external KBs secret are now used for JWS signing key source if present
5. General maintenance, bug fixes, and Nodejs upgrades

1. New Features

- [mojaloop/#3426](#) add participant req caching, enable cache metrics, log fixes ([mojaloop/#465](#)), closes [mojaloop/#3426](#)
- [mojaloop/#3427](#) add oracle endpoint db caching and oracle request caching ([mojaloop/#467](#)), closes [mojaloop/#3427](#)
- [mojaloop/#3441](#) nodejs upgrade ([mojaloop/#252](#)), closes [mojaloop/#3441](#)
- [mojaloop/#3636](#) batching implementation for position prepare messages ([mojaloop/#968](#)), closes [mojaloop/#3636](#)
- [mojaloop/#3524](#) add position fulfill to binprocessor ([mojaloop/#990](#)), closes [mojaloop/#3524](#)
- [mojaloop/#3524](#) add reserve action to fulfil logic ([mojaloop/#992](#)), closes [mojaloop/#3524](#)
- [mojaloop/#3666](#) refactor quoting service into an event driven solution to improve performance ([mojaloop/#321](#)), closes [mojaloop/#3666](#)

Performance



Performance Workstream changes included in Mojaloop Congo (laC)

1. Account Lookup Service - **caching**
2. Quoting service - using **Kafka with caching**
3. Transfer - position handler **batching**
4. Kafka **library** enhancements
5. Kafka **deployment** and **partitioning** strategies
6. POD **affinities** and **scaling**
7. Mojaloop Connector - **SDK** performance tweaks
8. Performant **Gateway**

[Mojaloop Release announcement](#)

Bundled Mojaloop IaC Release

Framework of Frameworks Approach



This [next generation IaC](#) provides a CI/CD platform for delivering kubernetes clusters

1. Cloud-agnostic
2. 100% open source
3. Out-of-the-box standard components for:
 - a. Storage
 - b. Secure Configuration Management
 - c. Service Mesh
 - d. Authz and Authn
4. Strive for zero framework dependencies in application code

The CI/CD platform is called Control Center.

Bundled Mojaloop IaC Release

Framework of Frameworks Approach



Control Center provides the following components as shared services for all environments

1. Gitlab server and CI for storing configuration and building environments.
2. Wireguard mesh network for secure tunnels between environments and control center and well as providing connectivity for operators to switch environments.
3. A private registry for docker images and potentially other components such as helm charts, debian packages, etc.
4. Vault for securely storing sensitive data for the control center and environments.
5. Minio for s3-compatible object storage

Bundled Mojaloop IaC Release

Framework of Frameworks Approach



Improved performance & more secure

- New ingress and egress gateway (Istio)
- POD affinities
- Taints/Tolerations

Unified RBAC solution for all components (Ory Stack with Keycloak)

- Mojaloop, Financial Portal, Connection Manager, Payment Manager

Varied Deployment Stacks

- Cloud, Managed Cloud and On premise

Multi-Environment Control Center

- Deployment Pipelines, Scalability
- Application Lifecycle Management
- Common Services Provided to all Environments: Vault, Object Storage (minio), Registry (Nexus), OIDC Integrations

Monitoring and Alerts

- Infrastructure, Kubernetes, Databases, Stream Processor fully monitored
- Alerts and issue management integration
- Custom and open source Dashboards fully integrated per application deployment

Bundled Mojaloop IaC Release

Framework of Frameworks Approach



IaC v5.0.0 Release Features

1. **v16.0.0** mojaloop support with integrated post deployment testing via TTK.
2. Bare metal improvements to support node labeling to provide node affinity capabilities as well as use of taints/tolerations.
3. Refactored Monitoring Stack making use of operators for Prometheus and Grafana.
4. Added Ory stack as generic authorization framework for the switch including Finance Portal, MCM and PM4ML. Used in conjunction with Istio and Keycloak.
5. Completed removal of WSO2 by using Istio stack.
6. Onboarding support for external participants using PM4MLs, Connection Manager, Istio and Ory. Addresses MTLS, JWS, IP filtering.
7. Pre-configured OIDC connectivity for Gitlab users to authenticate/authorize for vault, grafana and argocd (new istio virtual service endpoint now for argocd as well).
8. PM4ML iac improvements to provide for multiple pm4mls with different characteristics to be deployed into the same cluster.

Bundled Mojaloop IaC Release

Framework of Frameworks Approach



v5.0.0 Release GitHub Repos:

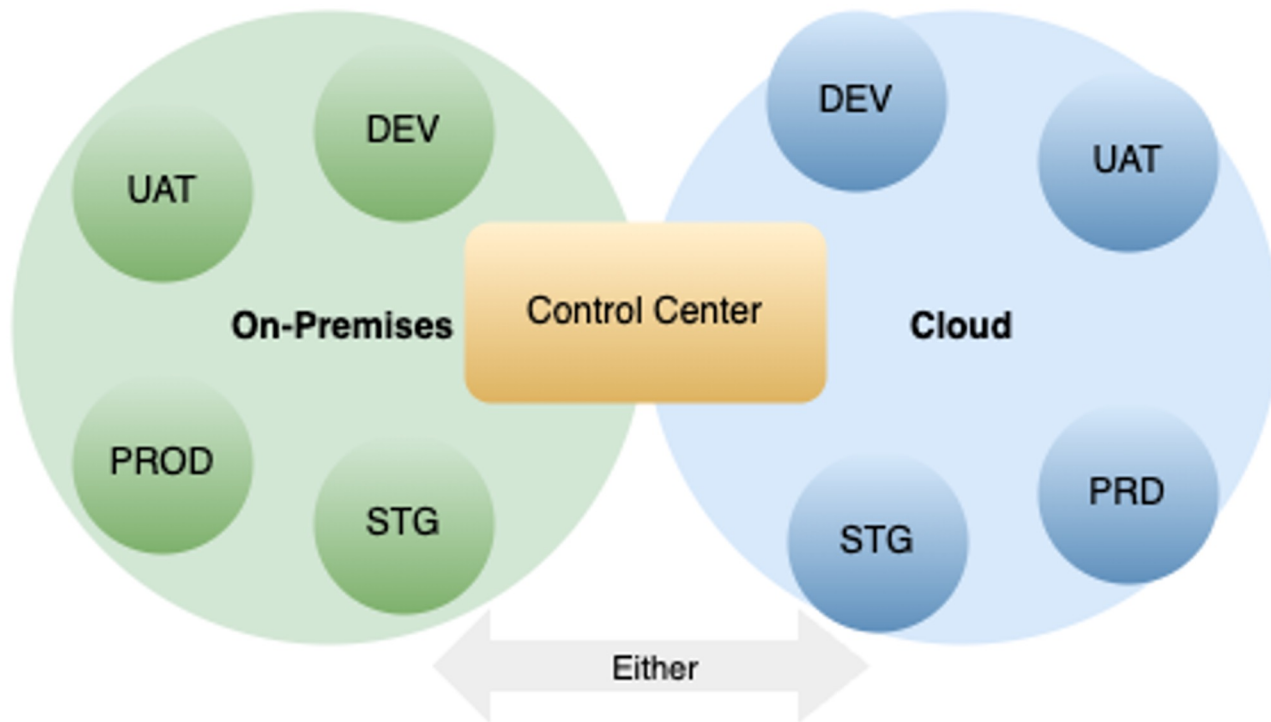
1. <https://github.com/mojaloop/control-center-util> (for bootstrapping control center)
2. <https://github.com/mojaloop/iac-ansible-collection-roles> (ansible playbook and roles for both control center and kubernetes clusters)
3. <https://github.com/mojaloop/iac-modules> (terraform modules for building control center and kubernetes clusters as well as the argocd applications and deployable templates.
4. Comprehensive documentation with step-by-step instructions for deploying Mojaloop using next generation IaC (including IaC v5.0.0) available here: <https://github.com/mojaloop/iacv2-docs>
(Feedback and suggestions welcome)

Bundled Mojaloop IaC Release

Framework of Frameworks Approach



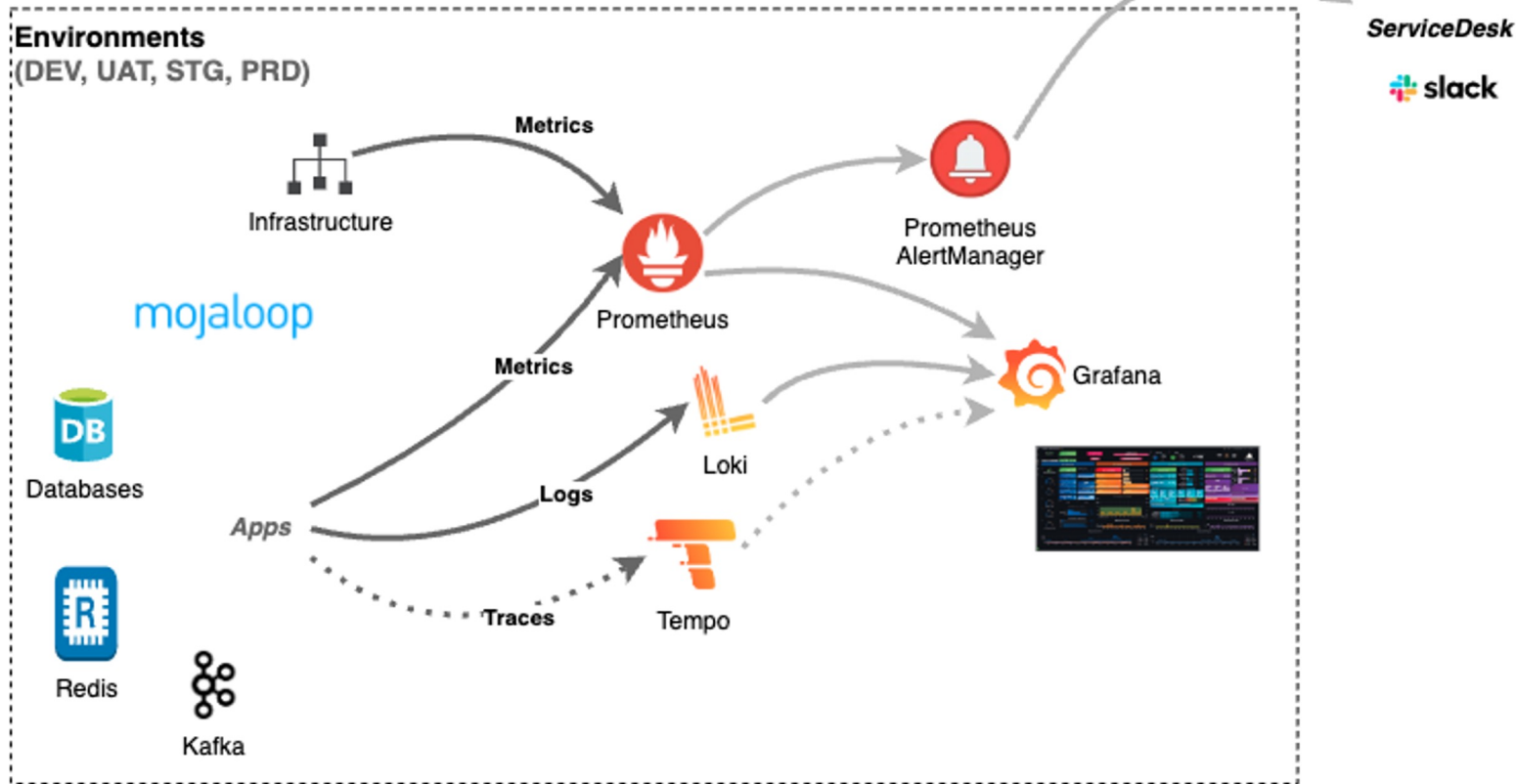
Hub Operator Domain



Cloud
Managed Cloud
On-Premises

Bundled Mojaloop IaC Release

Framework of Frameworks Approach



Thanks to Contributors



Aaron Reynoza (INFITX)

Chris Law (INFITX)

David Fry (INFITX)

Eugen Klymniuk (INFITX)

Kalin Krustev (INFITX)

Kevin Leyow (INFITX)

Oscar Cobar (INFITX)

Sijo George (INFITX)

Sridevi Miriyala (INFITX)

Steven Oderayi (INFITX)

Vijay Kumar G (INFITX)

ML Releases: PI-23 update for reference



Acacia

Congo

v15.0.0
(PI-20/21)

v15.1.0
(PI-21)

v15.2.0
(PI-22/23)

v16.0.0
(PI-23)

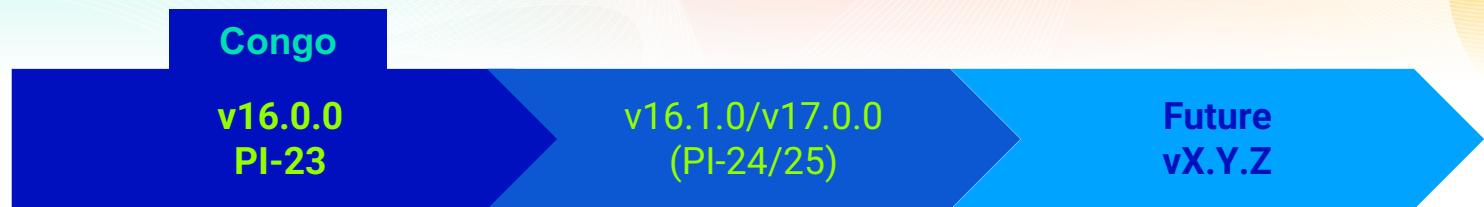
1. Separations of **external backend dependencies** from Mojaloop Helm charts
2. Utilise **externalised secrets** for **password** management ([#3082](#))
3. **Bulk SDK** functionality **support** out-of-the box
4. **laC v4.0.x** with **support** for Mojaloop v15.0.0 & **passwords** with **Special Characters** managed by **HashiCorp-Vault**
5. **Finance Portal v3 (BoF v3.0.0)** fixes for **passwords** with **Special Characters**

1. Test against **upgraded QA/Dev** with K8s v1.26/1.27
2. Refactored QA/Dev env **ease of maintenance** with **EKS**
3. Enhanced **SDK support** for **Request-to-Pay (R2P)**
4. Follow-up **bug-fixes**
5. **laC v4.1.0** with **support** for Mojaloop v15.1.0

1. **Upgraded** QA/Dev env & Tested against **K8s v1.28**
2. General **maintenance**
3. Node **upgrade** (v18 **LTS**)
4. **Performance** setup, profiling and document bottlenecks (perf workstream)
5. **Performance** Stream improvements (enhancements, fixes, instrumentation, & contribs)
6. Automated, CI tests on ML releases with **Helm snapshot** support

1. General **maintenance**
2. Node **upgrade** for supporting services not updated in v15.2.0
3. **Performance** enhancements done by perf-workstream included
4. **Automated** CI steps on **Mojaloop releases**
5. **laC** changes - new and refactored version

Release Roadmap: MLF Product, Community and work-stream



1. Performance enhancements done by perf-workstream included
2. IaC changes - new and refactored version
3. *Automated CI steps on Mojaloop releases (not included in the release but used in the process)*
4. General **maintenance**
5. Node **upgrade** for supporting services

1. Merchant payments features
2. Include enhancements from the **FX workstream**
3. Include enhancements from the **Performance workstream**
4. General **maintenance**

1. **Settlements** improvements
2. PISP **Bulk** API support ([#109](#))
3. Enhance **tracing** components to use latest **open-tracing** standards
4. Automated **CI** testing on Helm PRs & Releases - completed
5. **Migrate Chart** (i.e. BoF) to **Helm** repo, and clearly **rename Finance Portal components** part of BoF
6. **Patch** notification support for failures

How we work



1. Messaging: [Short-term - Slack](#); [Community central](#) - announcements
2. GitHub: Issues for longer form discussion; Issue tracking, Project
3. Documentation
 - a. Markdown on GitHub for specifications and documents with long life.
 - b. Sequence diagrams: Plant UML, DrawIO, etc...
4. Our [Git process](#) (forking/branching WF), the CLA
5. Quality gateways
6. Apache 2.0 License for code
7. API specifications: docs.mojaloop.io/api , Change requests, Solution Proposals
8. Scaled Agile Framework (SAFe)