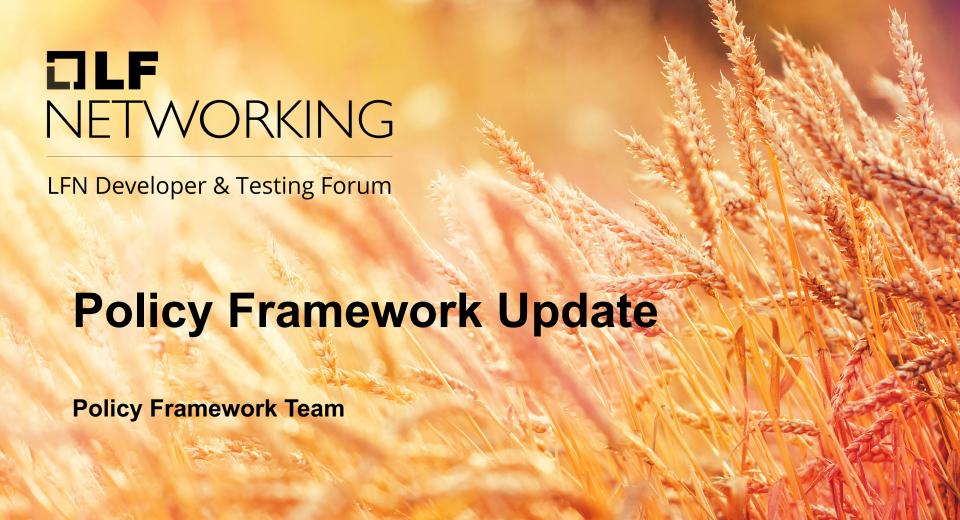# LF NETWORKING

LFN Developer & Testing Forum

Contents

- Istanbul Achievements
- Jakarta Items
- Summary

Merge CLAMP into Policy Framework project

- REQ-684 on Istanbul
- Preserve CLAMP functions in ONAP
- Reduce ONAP footprint
- Consolidate the UI (Control loop UI and policy)
- Enable code sharing and common handling for REST and TOSCA
- Introduces the Spring Framework into the Policy Framework

CLAMP Client Policy and TOSCA Handling

- Push existing policy(tree) into pdp
- Handling of PDP Groups
- Handling of Policy Types
- Handling of TOSCA Service Templates
- Push of Policies to PDPs
- Support multiple PDP Groups per Policy Type
- Tree view in Policies list
- Integration of new TOSCA Control Loop GUI into CLAMP GUI

Control Loop in TOSCA LCM

- Allows Control Loops to be defined and described in Metadata using TOSCA
- Control loops can run on the fly on any component that implements a participant API
- Control Loops can be commissioned into Policy/CLAMP, they can be parameterized, initiated on arbitrary participants, activated and monitored
- Components/Docker images for Control Loop runtime and participants released
- See the separate session on Tuesday

Policy Handling Improvements

- Support delta policies in PDPs

- Allow XACML rules to specify EventManagerService

- Sending of notifications to Kafka & Rest in apex-pdp policies

- External configuration of groups other than defaultGroup

- XACML Decision support for Multiple Requests

- Updated query parameter names and support for wildcards in APIs

- Added new APIs for Policy Audit capabilities

Other Improvements

- Apex-PDP:
  - multiple outputs support
  - reduce verbosity in .apex file
  - optimize logging
  - Kafka integration
  - engine instance dedicated to tosca policy

System Attribute Improvements

- Support for upgrade and rollback, starting with upgrade from the Honolulu release to the Istanbul release

- Consolidated health check

- Phase 1 of Spring Framework introduction

- Phase 1 of Prometheus introduction, base Prometheus metrics for all Policy components

- Documentation improvements for CSITs, Pairwise Tests, and smoke tests

General Policy Framework Improvements

LFN

- Monitoring Enhancements:
  - Metrics extensions and Prometheus support (General)
  - Improve monitoring capabilities in policy components (send app metrics to Prometheus)
- Actor Model extensions: Driven by internal/external needs (General)
- Recovery Enhancements: Detection and recovery of misbehaving control loop applications (PDP-D)
- Multi-cluster deployment investigations (General)
- Allow underlying database to be configured
  - Default continues to be MariaDB
  - other databases such as PostgreSQL will be possible to configure

Further Policy Framework Improvements

- Improve robustness of the Policy Framework OOM deployment by improving readiness probes
- Replacement of some Policy Framework utility libraries with Spring Framework support
  - Replace Lifecycle Management and REST implementation
    - CLAMP/Control Loop and PAP already done
    - Other components to be done in Jakarta and later releases
  - Introduce Spring Framework transactions
- Trial a distributed deployment of the Policy Framework
- PoC for persisting states in PDPs
- Improvements in XACML-PDP

Handling of Policy Type Metadata

- Rule sets and other metadata for policy types are preloaded, pre-configured, packaged at design time, or passed in all policies
- This improvement allows rule sets and other metadata for policy types to be set at run time
- Pass through mechanism for passing PDP-specific information
- Enables use of the Policy GUI to parameterize policies for all PDPs
- See the Policy Framework Wiki for more information

Database Related Issues

- Ability to group DB changes into a single transaction
- Use of a connection pull instead of single connections
- Move from dao-pattern to repository pattern
- Study on storing TOSCA models by mapping them directly to one document
  - We can use same Java model we have already defined
  - Less number of access to database thus improving performance
  - More maintainable
  - Can use Spring Framework persistence mechanisms directly

Database High Availability

- Investigation of database high-availability options
- Replication & Synchronization
- Failover
- Add support for Postgres
- Load Balancing & Proxy Considerations
- Backup and Restore Solutions

TOSCA Control Loop

- Support for Control Loop design
  - Onboarding of Control Loop Elements in SDC
  - Composition of Control Loops in SDC
  - Distribution and commissioning of Control Loops using the SDC
- Server Improvements
  - Spring Framework for Persistence
  - Better support for control loop updating
  - Statistics using Prometheus
- TCA Use case implementation
  - Support for Cloudify is being removed from DCAE in Jakarta
  - TCA based control loops planned to be implemented using TOSCA approach
- Proposal: Automation Composition Management
  - Proposed PoC in Jakarta
  - Generalization of the concept to include use cases beyond control loops
  - Use cases with arbitrary components working together to deliver a feature such as open loops or collections of features
- See the separate TOSCA Control Loop demo session for more information

Other Miscellaneous Improvements

- Policy GUI
  - Merge of the current three clients into a single container
  - Code coverage (policy-gui is on 67%, all other PF repos are on 80%)
- Test Documentation
  - Improvements started in Istanbul will continue
  - Target is to have all CSITs, smoke tests, and Pairwise tests documented
- Contract Testing
  - Contracts might be a useful way of proving the integrity of our APIs
  - Proposed investigation to see how we can marry Swagger and Contract Testing
- Release Process
  - Interim release of the Policy Framework was made in December
  - Scripts developed to aid the release process
  - See the separate Interim Release Session

LF NETWORKING

LFN Developer & Testing Forum

Summary

Summary and Thanks

- The Policy Framework is stable, with improvements being added as the framework evolves
- Challenges that remain are being addressed in Jakarta and subsequent releases
- Thanks to Jim Hahn for his tireless work on the Policy Framework and for performing the PTL role so well
- Thanks to the members and committers of the Policy Framework team for their commitment and professionalism
- Thanks to the participating companies for their support, particularly AT&T, Bell Canada and Ericsson
- Thanks to all our users for continuing to use the Policy Framework and to provide us with valuable feedback