



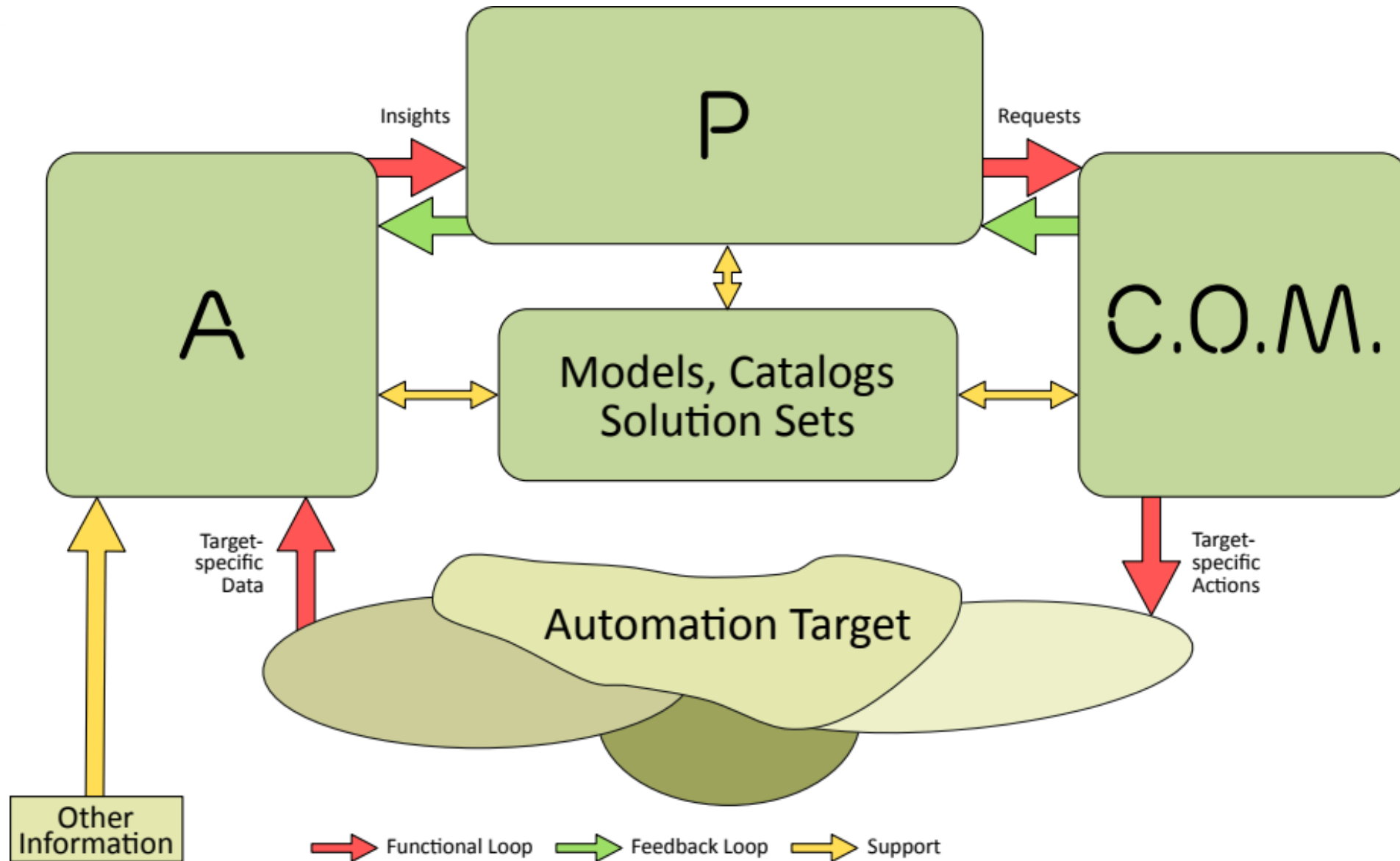
OPEN SOURCE NETWORKING DAYS

Singapore

Apex

An Adaptive Policy Engine for Next Generation Networks
Liam Fallon, Ericsson

COMPA: A Reference Architecture for Closed Loop Management





Adaptive Policy is the Concept

- Harmonize policy models
- Provide single execution environment
- Facilitate conflict processing
- Features
 - Context aware
 - Adaptive logic selection
 - Flexible clustering options
 - Flexible deployment options
 - Flexible policy deployment

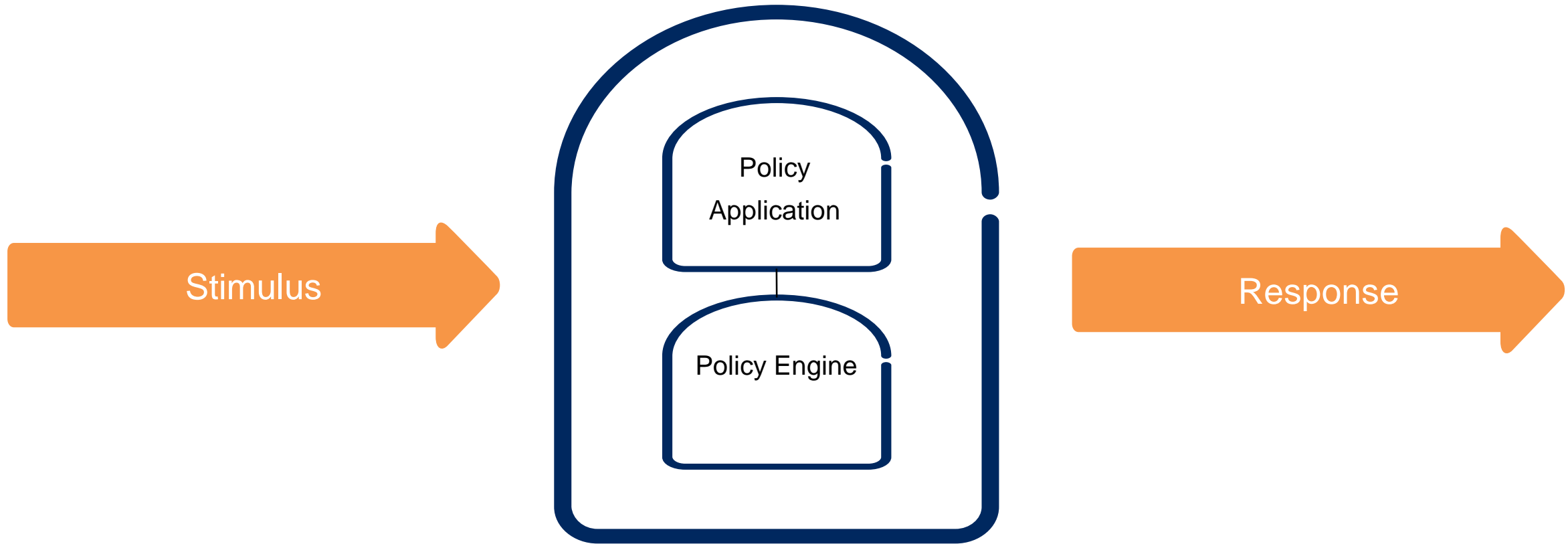
Apex is the Implementation

- Fully featured policy engine
- Many logic executors
 - Java, JavaScript, Python, MVEL, Ruby
- Integrated access to context
 - shared information
- Flexible deployment options

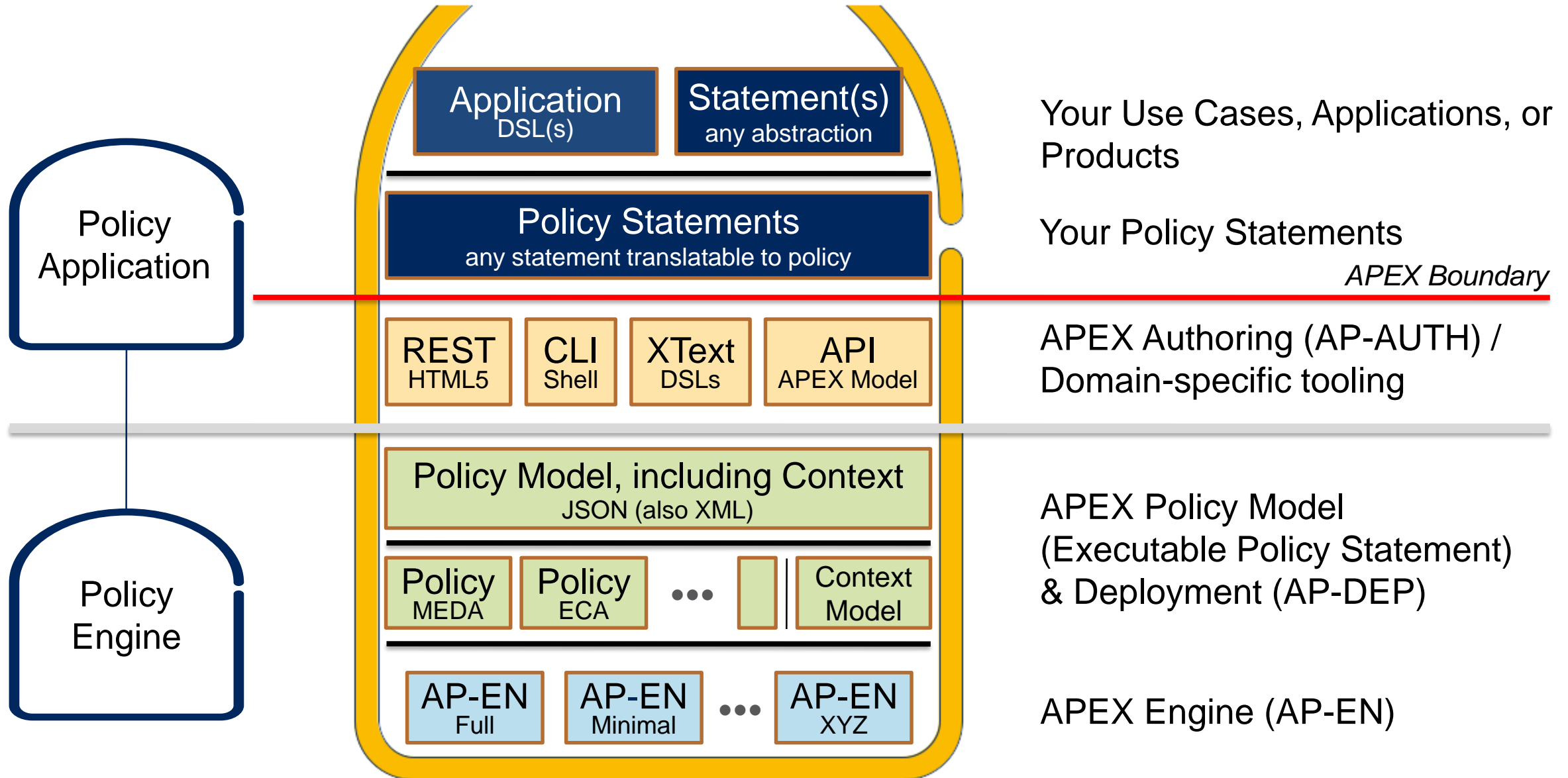


- Flexibility similar to programming languages, rule engines, workflows etc.
- Fully context-aware, adaptable, and adaptive decision making
- Facilitates intelligent conflict detection and mitigation
 - at authoring time, deployment time, and runtime
- Event-sourced system
 - connectable to virtually any trigger/actioning system
- A simple, flexible, event-sourced state machine as execution model
- Light, fast, scalable policy engine
 - Engine: 131 kB, Core+services: ~800 kB (optimizable for deployment)
 - Everything (APEX + all external dependencies): ~97 MB
 - Performance: > 150k Policy Transactions per second (non-optimized system)

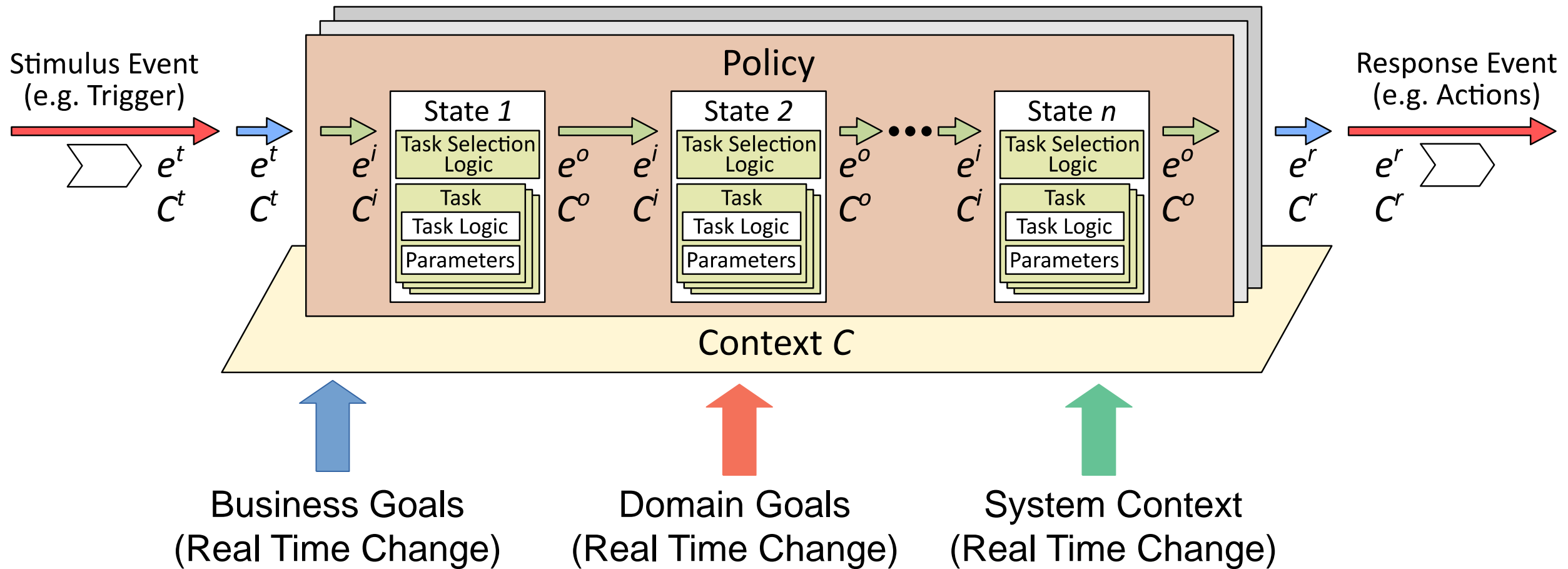
Deployed Policies: Policy Engine and Application



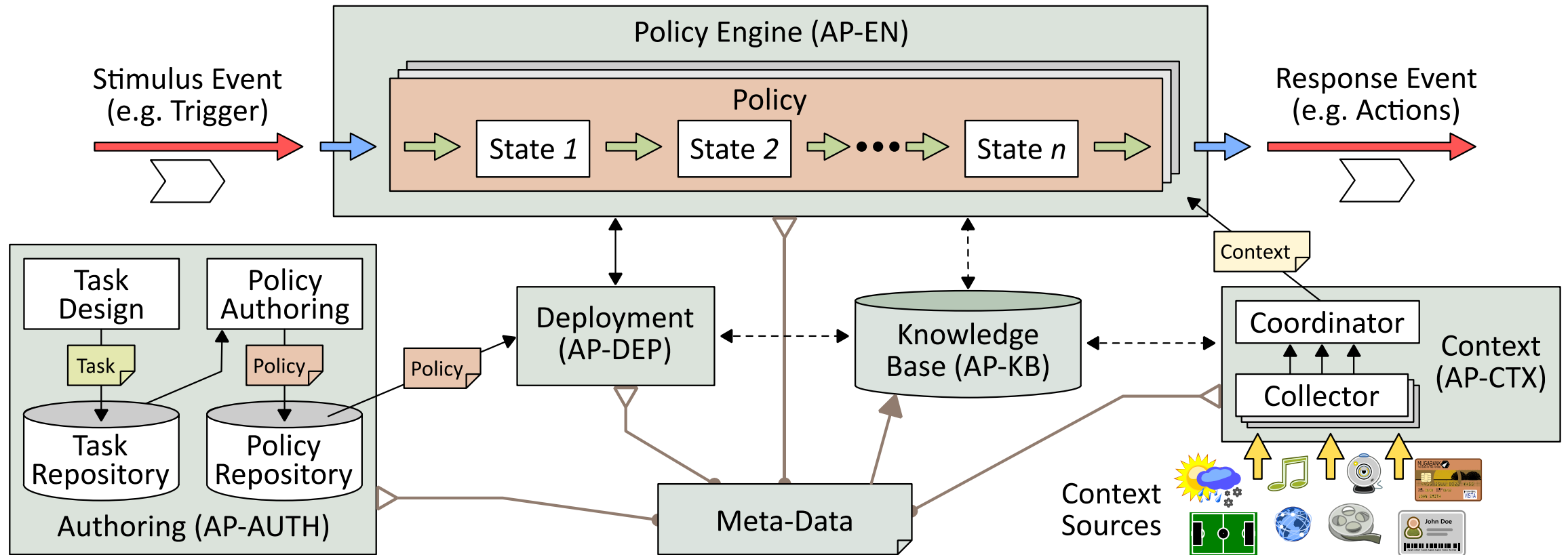
Deployment Details

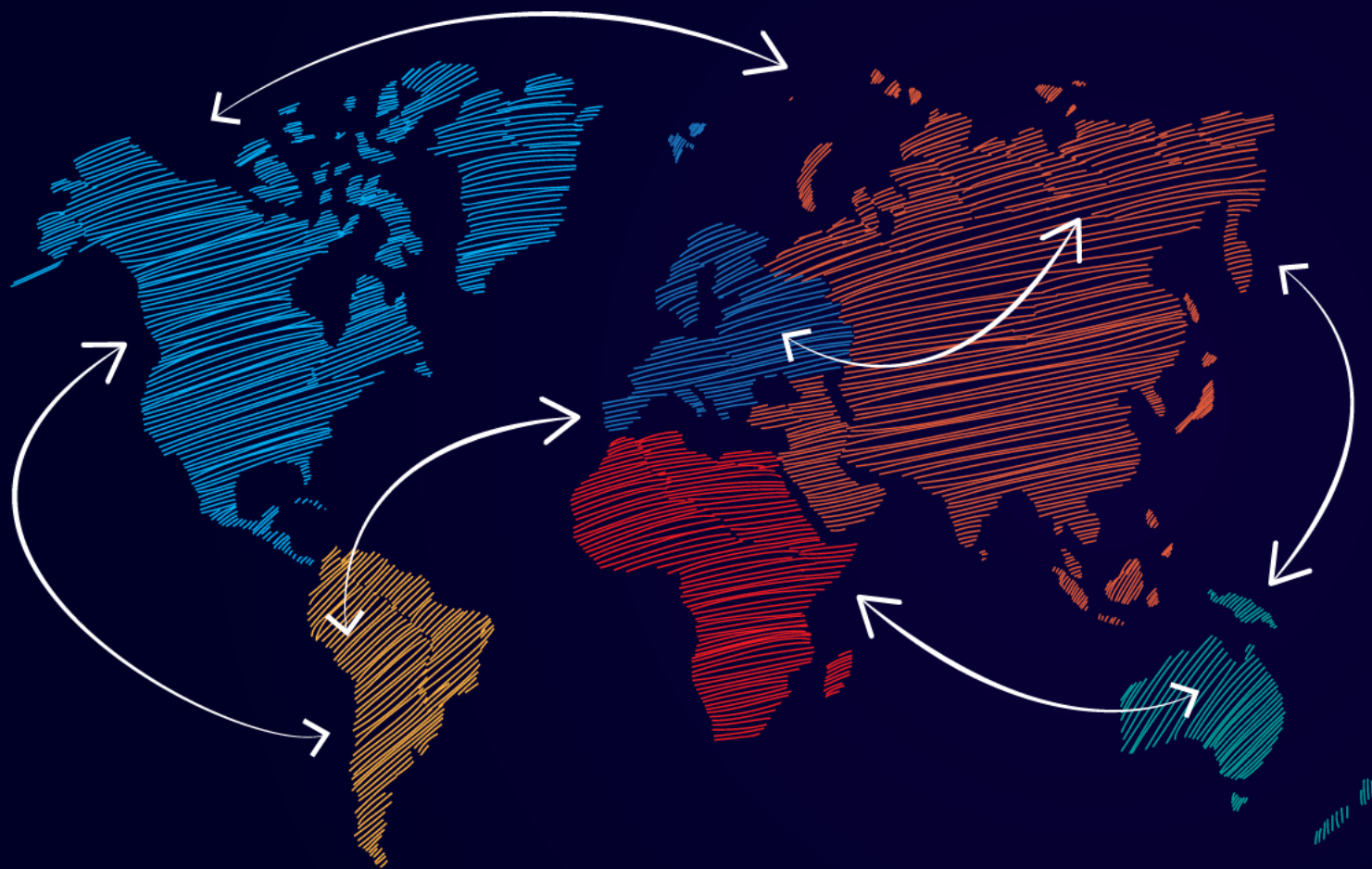


Apex Event Flow and Context



Apex Components and Flow in the ONAP Policy Framework





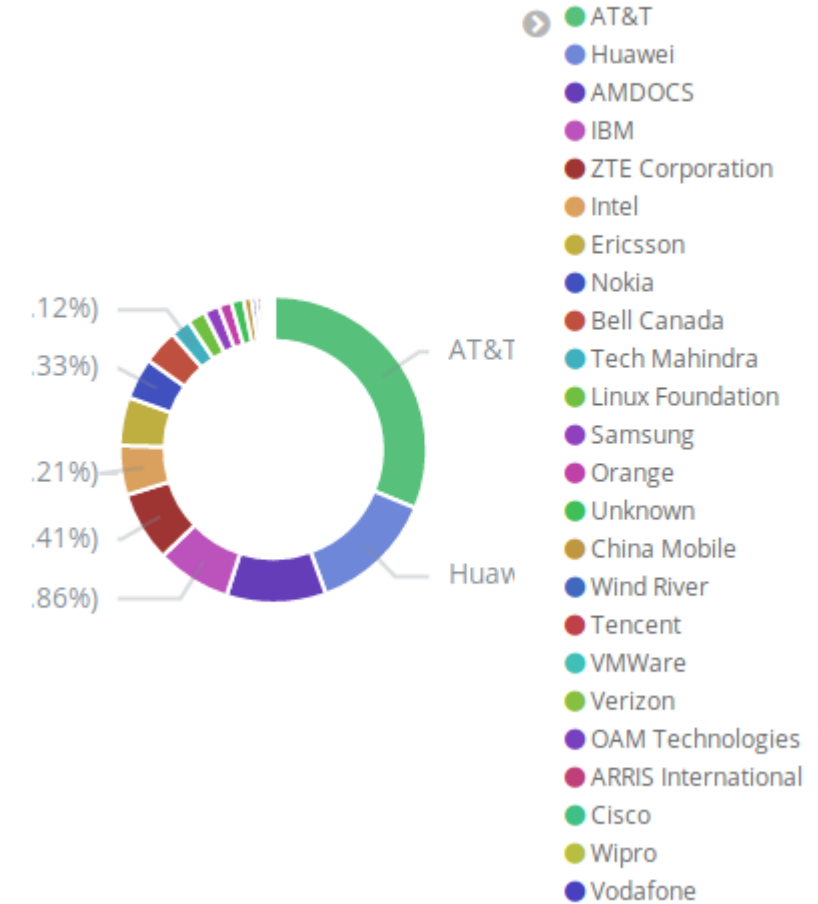
Ericsson in ONAP

Ericsson Contribution to ONAP

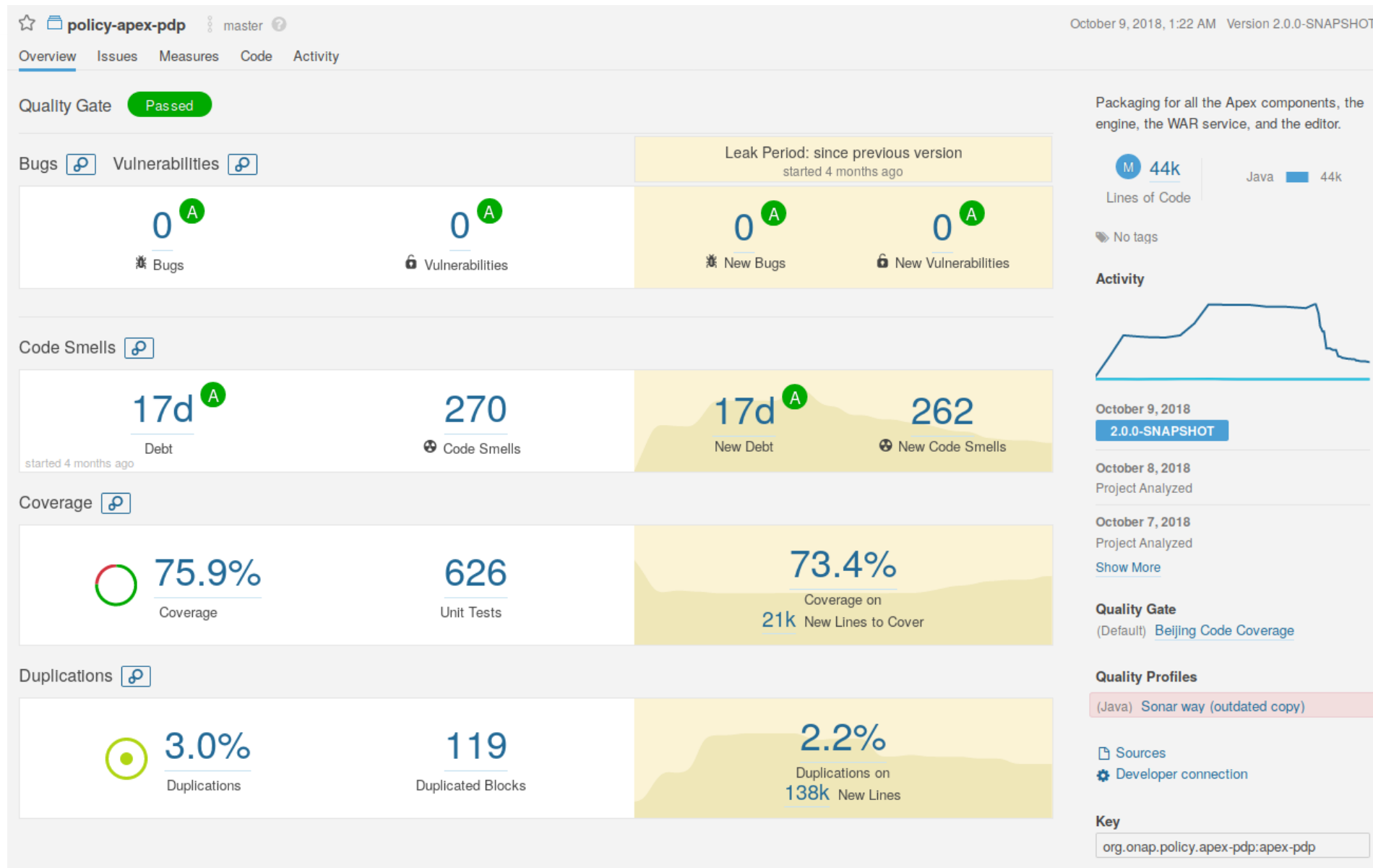


- Ericsson is 7th largest contributor to ONAP
- For the Casablanca Release in Policy
 - Ericsson contributed Apex
 - Ericsson developed the Policy Deployer for all policies
- Ericsson is also contributing to the following ONAP projects
 - Integration
 - SO (Service Orchestrator)
 - APPC (Application Controller)
 - SDC (Service Design and Creation)
 - DMaaP (Data Movement as a Platform)

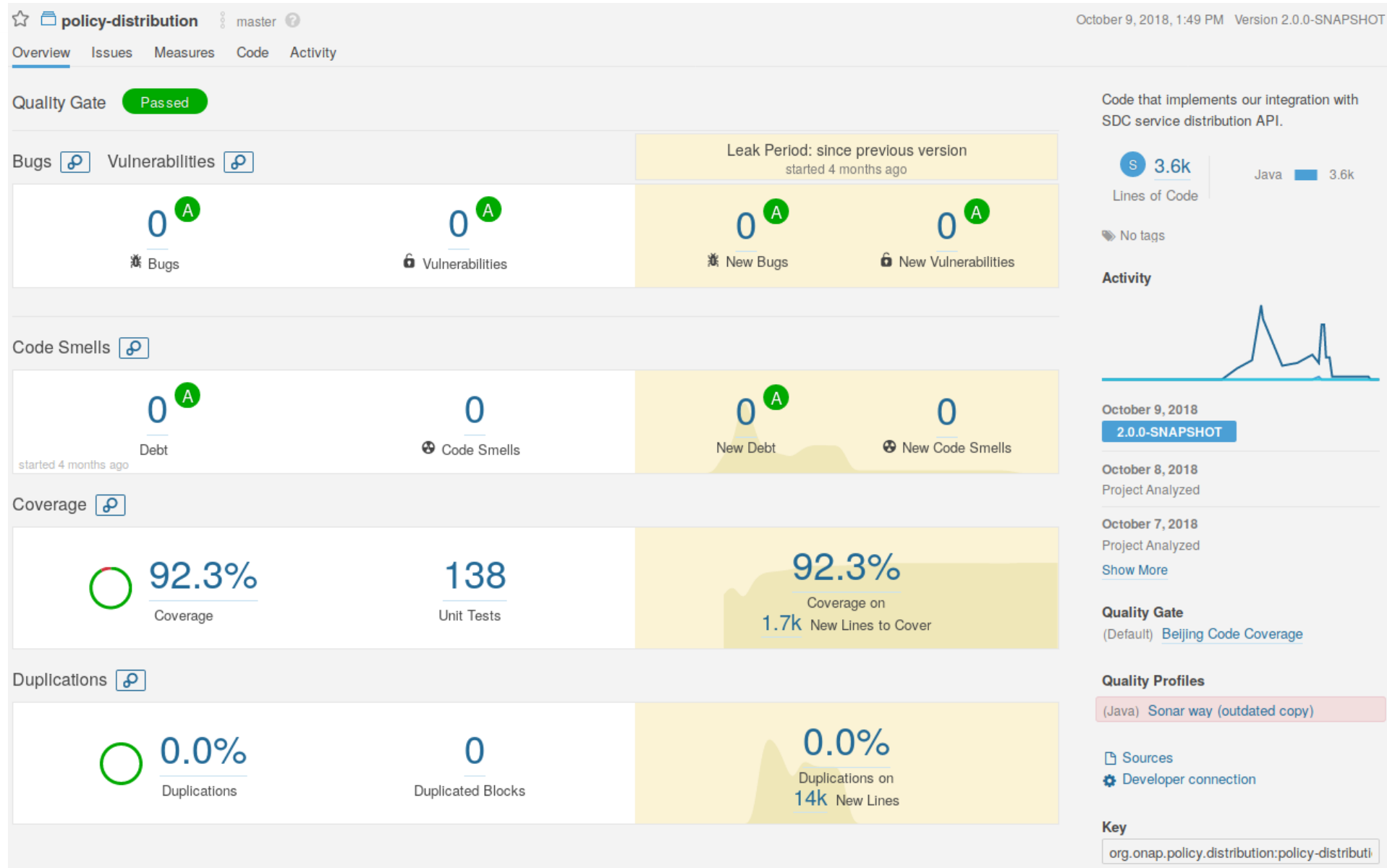
Organizations

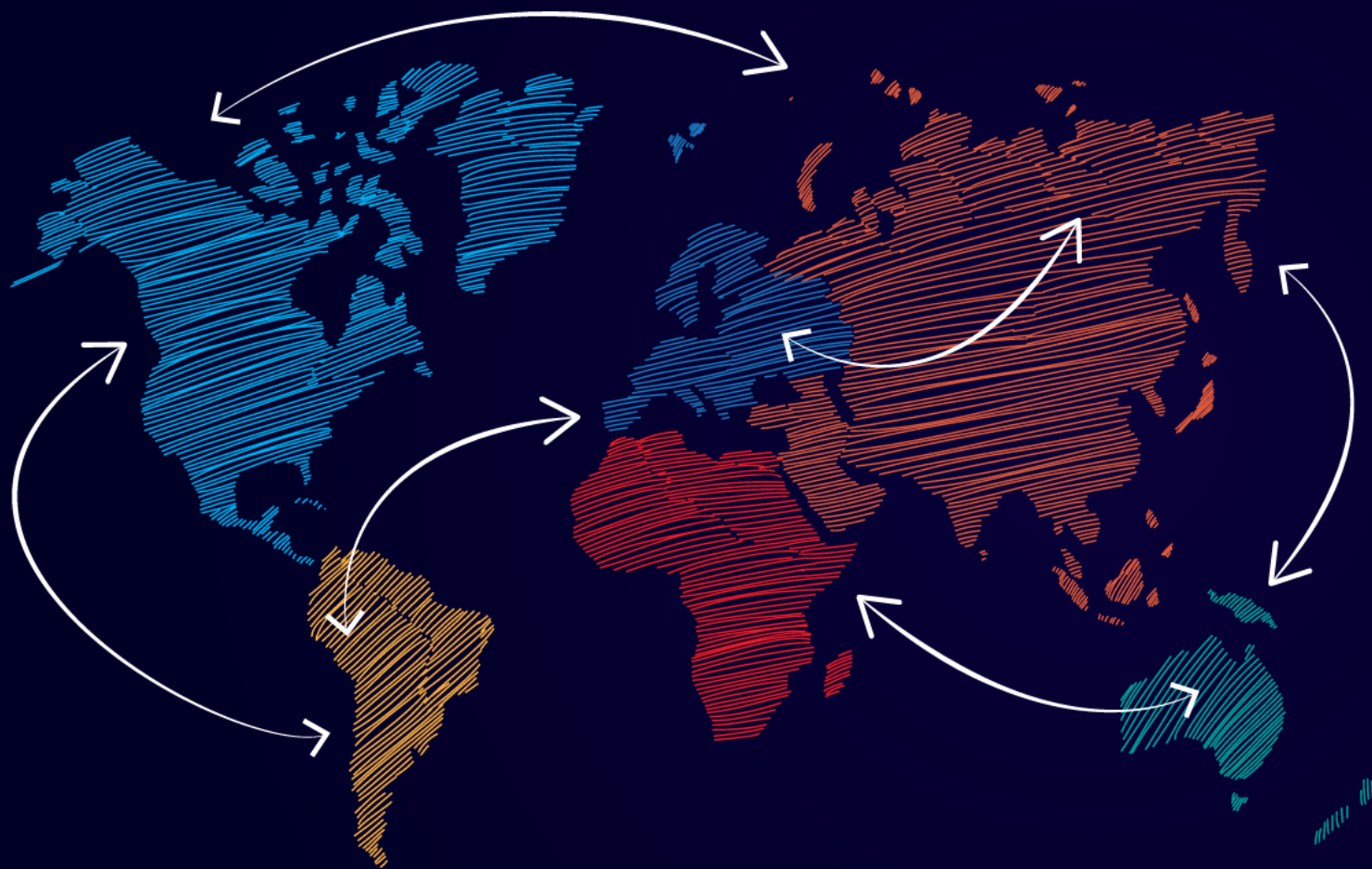


Apex Sonar Statistics <https://sonar.onap.org>



Policy Distribution Sonar Statistics <https://sonar.onap.org>





Apex Resources



[Source Code in ONAP Gerrit](#)

[Documentation in “Read the Docs”](#) (Link may change after release)

[Live Documentation on Ericsson GitHub](#)

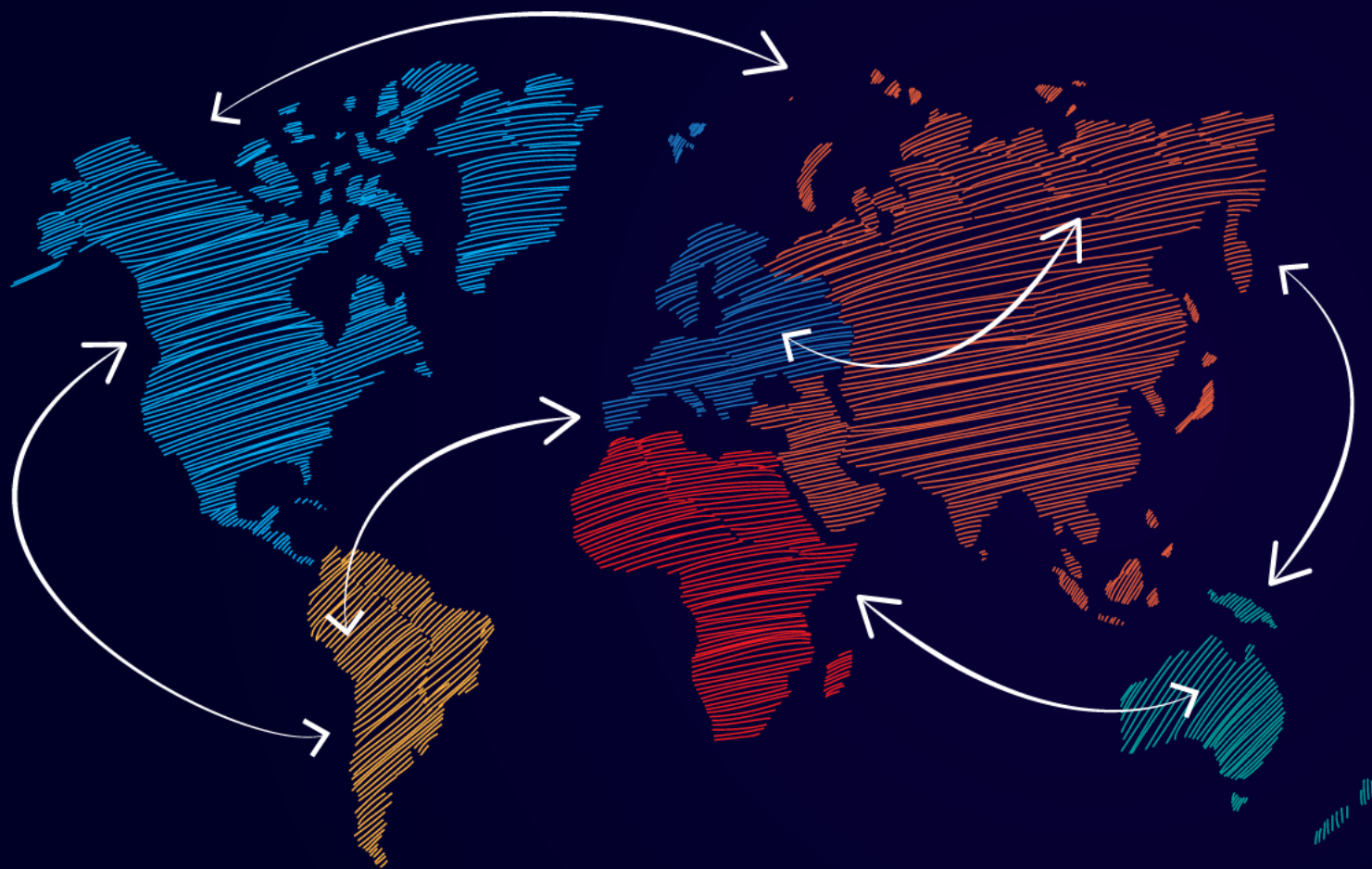
[Talk at ONAP Developer Forum](#)

- PDF at the bottom of the page

Related Papers

[In APEX Docs](#)

[Research Gate APEX Project](#)



Thank you and



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