DTU Library

Policy Framework Prototype for ONOS

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NGPaaS

This prototype allows Service Providers to define topology-wide and SDN-based (ONOS) network policies, by means of abstracting the underlying ONOS implementation and the use of generic interfaces. This prototype disaggregates the policy manager and the policies as different ONOS apps that communicate through REST, allowing the addition of new policy types without affecting the policy manager. Currently, 3 policy types are supported: Firewall, NAT and Connectivity.

Policy Model and Policy Lifecycle
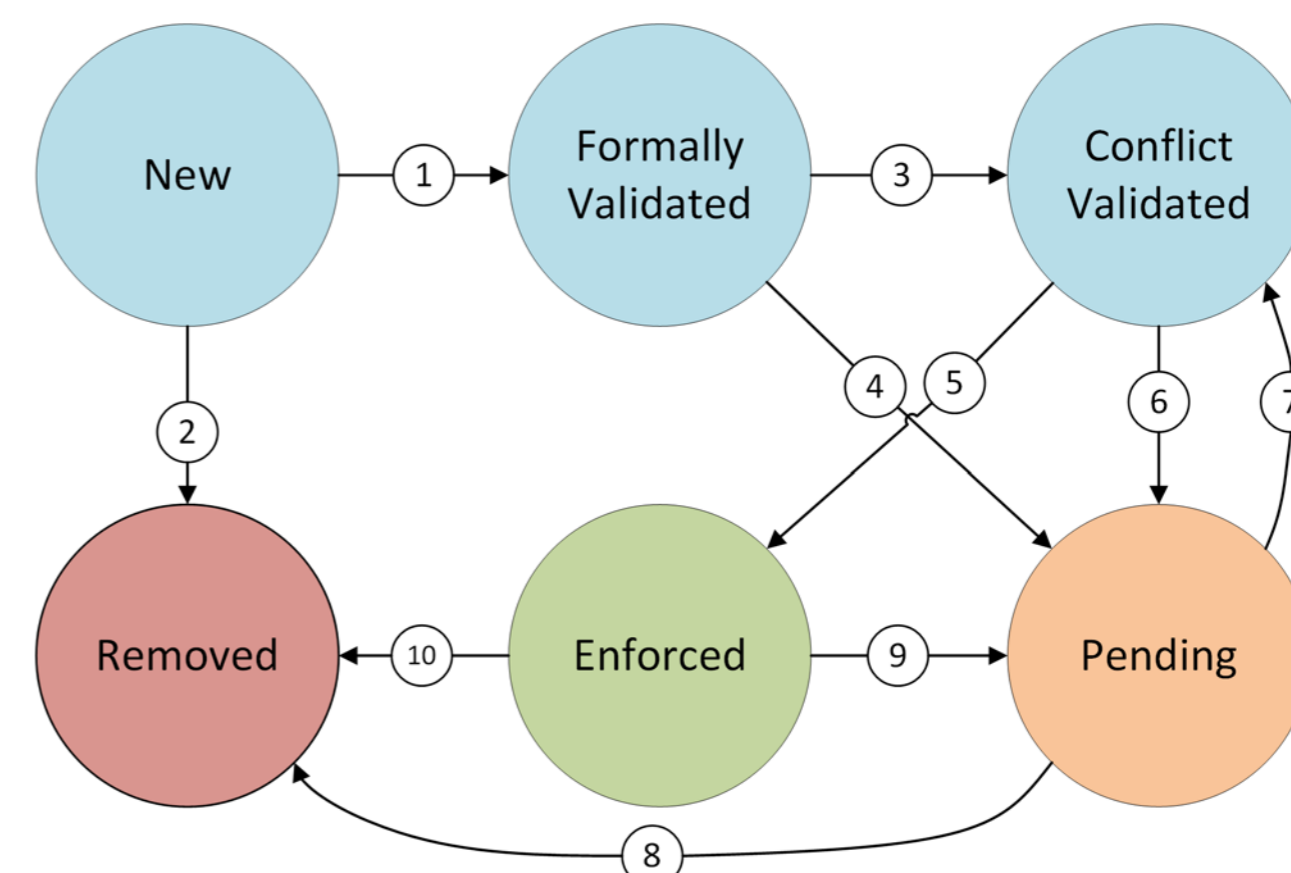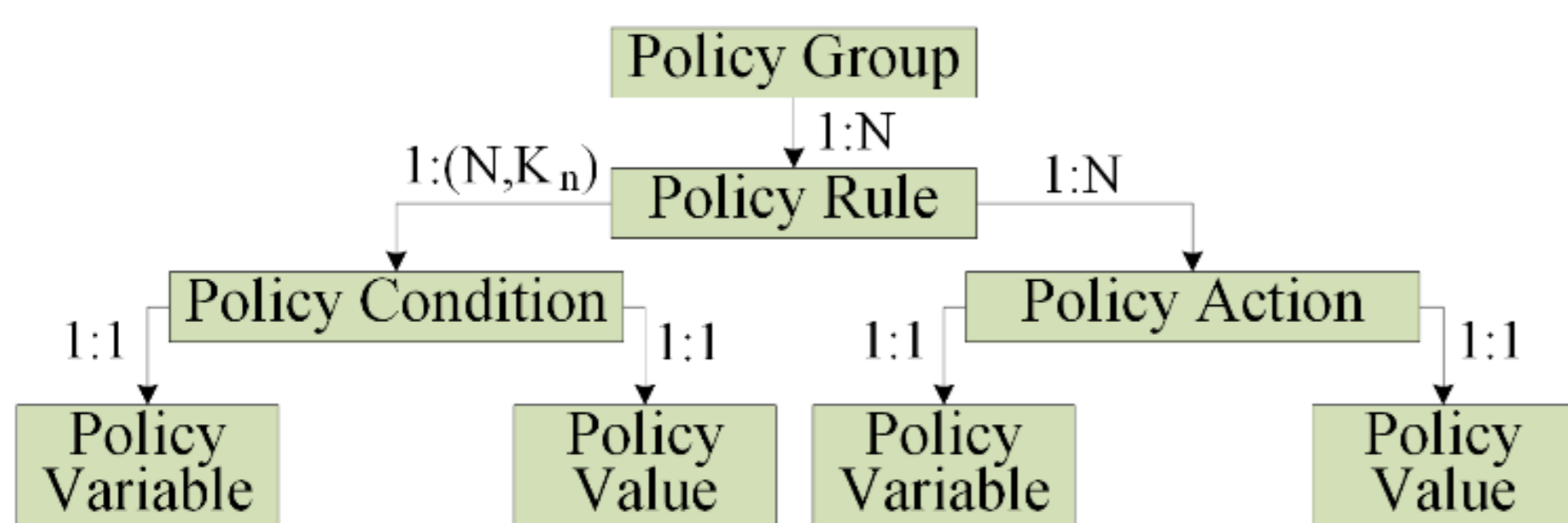
- Loosely based on the Policy Core Information Model (PCIM) (RFC 3060 and RFC 3460)

- A priority is also assigned to each policy.

- Conditions provided in CNF (OR set of ANDs) or DNF (AND set of ORs).

- Pushed to the Policy Manager in JSON format through the REST API.

- **Formal validation**: are variables and values of Conditions and Actions valid?

- **Conflict validation**: do policies with dependent conditions have different action(s) and same priority?

- **Context validation**: can the infrastructure accommodate the policy?

Policy Framework Architecture
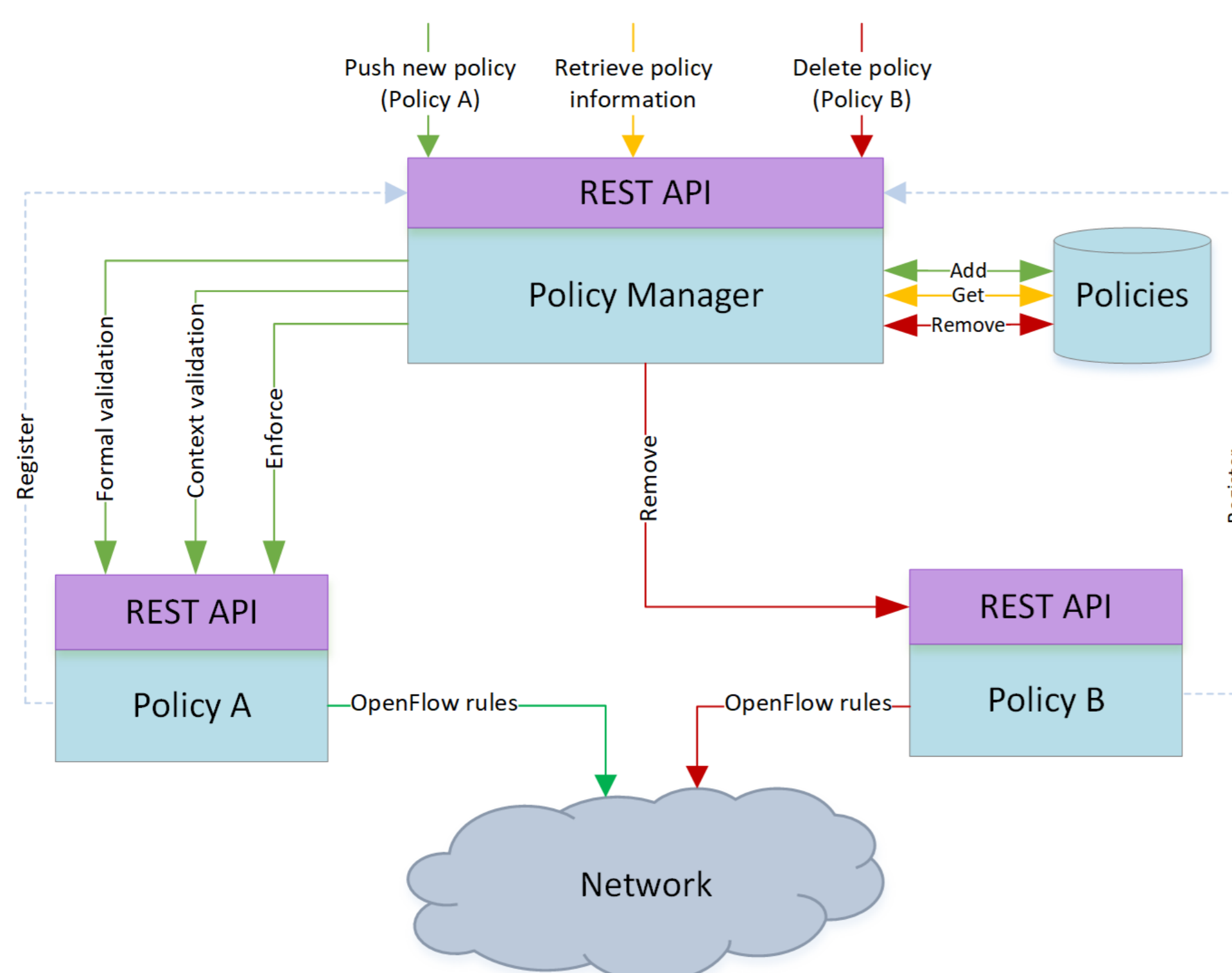
Policy Manager REST API endpoints	
GET /policies	**GET** /policytype/register/{policyType}
GET /policies/active	**POST** /policies
GET /policies/id/{id}	**PUT** /policies/{id}/priority/{newPriority}
GET /policies/state/{state}	**DELETE** /policies/deactivate/{id}
GET /policies/type/{type}	**DELETE** /policies/{id}
GET /policies/types	**DELETE** /policies
GET /policies/num	**DELETE** /policytype/deregister/{policyType}
GET /policies/activate/{id}	

Policies REST API endpoints	
POST /formalvalidation	**POST** /enforce
POST /contextvalidation	**POST** /remove

Project Info

Timeline	1.6.2017 – 31.05.2019
Website	http://ngpaas.eu
Twitter	http://twitter.com/NGPaaS_5GPPP
Youtube	https://www.youtube.com/channel/UCqlGeERucSED252rfUj8W6A
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Current and next steps

- Integrate with the Telco PaaS.

- Add a GUI to the Policy Manager.

- Add new policy types.

- Cross-policy type conflict validation.