SUPA policy-based management framework

(SUPA: Simplified Use of Policy Abstractions)
draft-ietf-supapolicy-based-management-framework

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Background - Network Policy

- **Policy in IETF context**
  - a set of rules that define how services are designed, delivered, and operated within an operator's networking environment
  - IETF SUPA WG Charter

- **Policy Model** – the carrier describe such a set of rules

- **Policy Types**
  - Imperative: ECA – Event, Condition, Action
  - Declarative: intent-based, goal

- **Oct 2015, IETF SUPA WG formed:**
  - defines a data model, to be used to represent high-level, possibly network-wide policies, which can be input to a network management function (within a controller, an orchestrator, or a network element).
SUPA Framework Background

- **Position**

- **History**
  - draft-karagiannis-supapolicy-based-management-framework-00, Apr 2016
    - Re-charter or close
    - A figure explaining the relationship between policy – service – resource added
    - Addressed comments, sent to reviewers for another round of review
  - Adopted by SUPA WG, Aug 2016, now is under updating and reviewing
Policy – ECA/Imperative vs Declarative/Intent

Imperative (ECA)

- Event manager
- Time/Date
- Service Flow

> E.g. IF the Event is TRUE (Boolean clauses)
  » IF the Condition is TRUE (Boolean clauses)
  o THEN execute the Action(s)

Declarative (Intent)

- From A to B, and I have $$ budget....
- More abstracted Policy: express the goal, the targeting state

In charter: ECA/Imperative policy explicitly express E/C/A
Out of scope: Declarative/Intent policy Express what should be done without telling how
However, work on Declarative/Intent policy is considered to start after SUPA re-chartering

SUPA Policy-based Network Management
How SUPA is used

GPIM, as well as the combination of the GPIM and EPRIM, is converted to generic YANG data modules.

SUPA Generic & ECA Policy YANG Data modules together with the Resource and Service YANG data models are used by the Service Interface Logic.

Service Interface Logic creates appropriate input mechanisms for the operator to define policies for creating and managing the network configuration.

Operator interacts with the interface, which is then translated to configurations.
SUPA Policy Model creating and distributing

GPIM defines generic policy concepts, as well as EPRIM

A set of Generic Policy Data Models and ECA Policy Rule Data Models are then created from the GPIM and EPRIM.

These YANG data model policies are distributed by Network Manager/Controller to control the configuration of network elements.

//C – communicate based on
//D - derived from

We are still updating this figure, comments are welcome.
Relationship between Policy-Service-Resource

(1) policy manages and can adjust service behavior as necessary (1: 1…n)

(2) policy manages and can adjust resource behavior as necessary (1: 1…n)

(3) resource hosts service; changing resources may change service behavior as necessary
Comments and next step

- Thanks to many reviewers, comments received on the following aspects
  - the GPIM (or the combination of the GPIM and the EPRIM)” or its equivalent appears a number of times //discussing
  - Explanation on the term snippet or change other words //done
  - structure of section 2.3 issue //done
  - Polishing figures //done
  - Typos, editorial issue //done

- Next step
  - Submit a new version with above comments addressed
Interested in review or contribution? Questions?

Google Images “SUPA” 😊
# Event & Action in ECA policy use case

<table>
<thead>
<tr>
<th>ECA policy use case</th>
<th>Event</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic optimization</td>
<td>Link threshold alarm</td>
<td>TrafficSteering (controller, RESTful API inf)</td>
</tr>
<tr>
<td></td>
<td>Link traffic polling</td>
<td>Redirect/ block/ split (NE)</td>
</tr>
<tr>
<td>Address management</td>
<td>Address pool threshold alarm</td>
<td>Address pool allocation/reclaim</td>
</tr>
<tr>
<td></td>
<td>Address pool utilization polling</td>
<td></td>
</tr>
</tbody>
</table>
Those should be kept in mind…

- Out of scope of this working group are:
  - The specification of a new policy protocol or a new data modeling language.
  - Design of protocol-specific policies and specific design for embedded policies in network elements (which are usually interpreted in isolation, and often at timescales that require optimization for specific purposes).
  - Specific handling of policies (although the application document will provide some examples). Therefore the specification of a policy engine that maps a specific policy instance to actual configuration snippets is also out of scope.

- Declarative policies that specify the goals to achieve but not how to achieve those goals (also called "intent-based" policies) are out of scope for the initial phase of SUPA but may be considered in future phases of SUPA.