

SUPA policy-based management framework

(SUPA: Simplified Use of Policy Abstractions)
draft-ietf-sup-a-policy-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

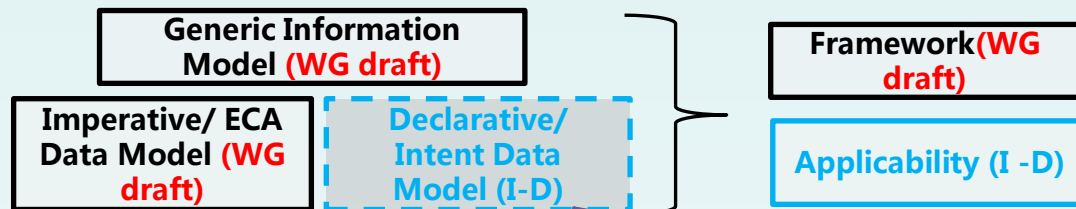
- Position

Milestones	
Date	▲ Milestone
Apr 2016	Submit the generic information model (Informational)
Apr 2016	Submit the policy-based management framework (Informational)
Aug 2016	Re-charter or close
Aug 2016	Submit the applicability document (Informational)
Jun 2016	Submit the set of YANG data models (Standards Track)

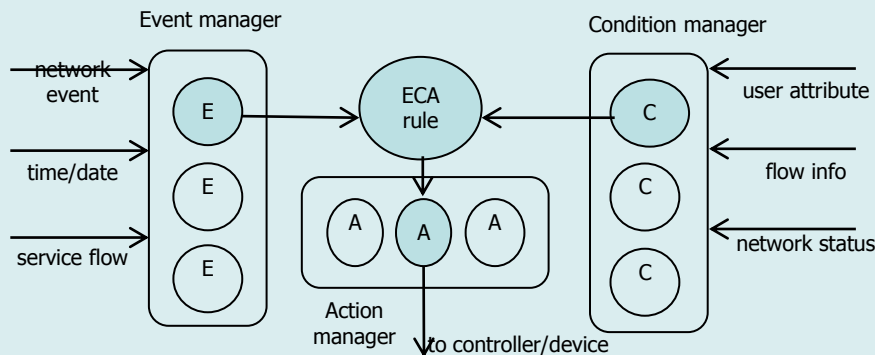
- History

- draft-karagiannis-supa-problem-statement & draft-zhou-supa-architecture & draft-zhou-supa-framework, 2014~2015
 - The above three were efforts before the WG created, thx for the efforts
- draft-klyus-supa-value-proposition-00, Mar 2016
 - Contained a brief section discussing about framework
- draft-liu-supa-policy-based-management-framework-00 , Apr 2016
 - Replaced first two and modified according to charter and discussion
 - Taken out of value-proposition and added detailed content to make a new standalone draft
- draft-liu-supa-policy-based-management-framework-01, Jul 2016
 - A figure explaining the relationship between policy – service – resource added
- draft-liu-supa-policy-based-management-framework-02, Jul 2016,
 - 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

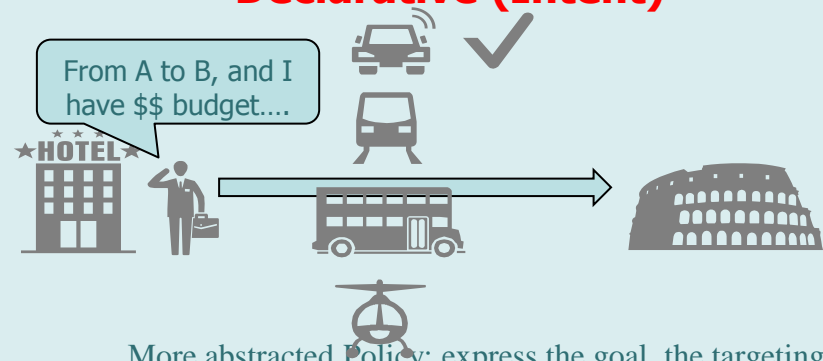


Imperative (ECA)



- › E.g. IF the **Event** is TRUE (Boolean clauses)
 - » IF the **Condition** is TRUE (Boolean clauses)
 - **THEN execute the Action(s)**

Declarative (Intent)



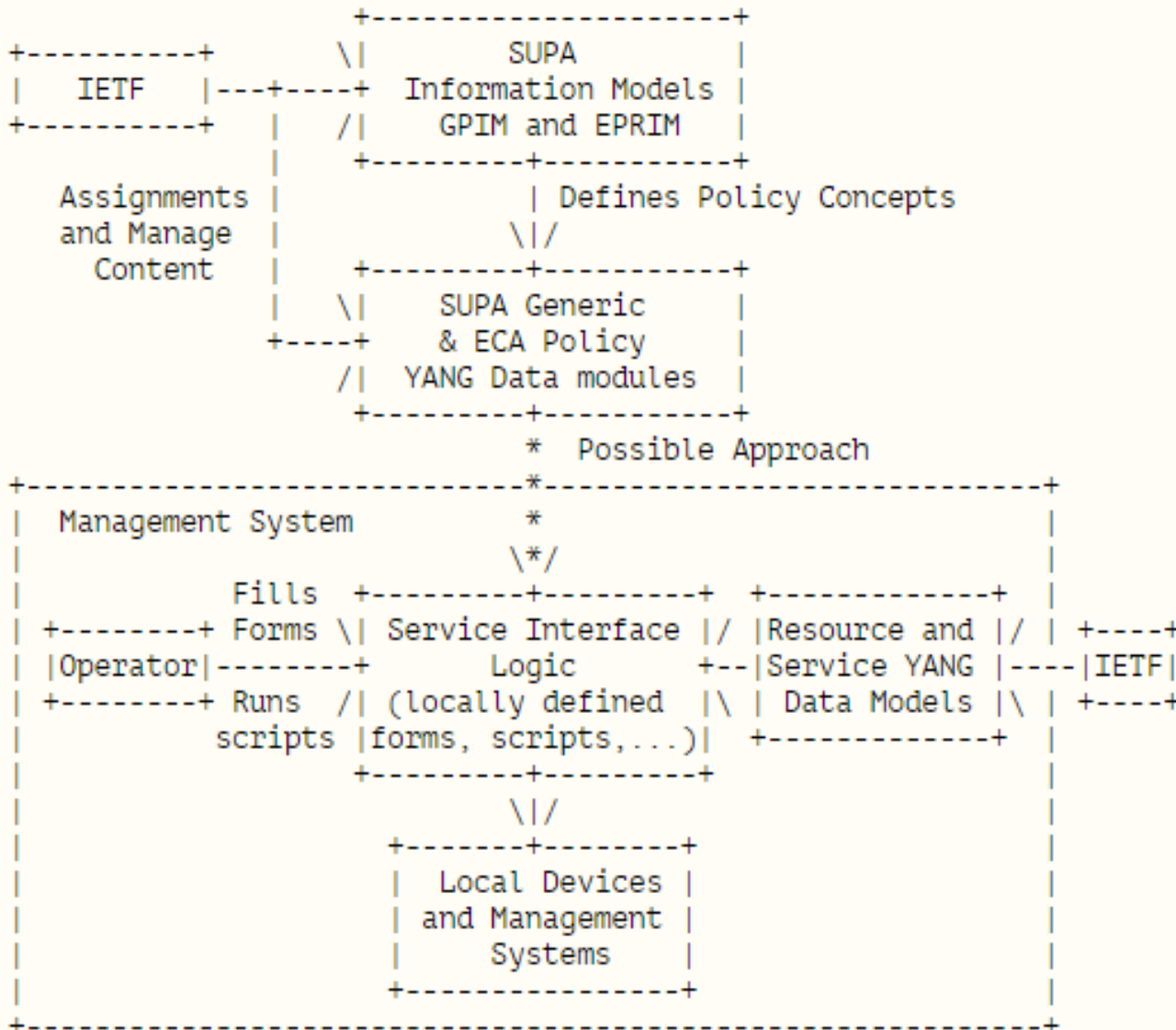
More abstracted Policy: express the goal, the targeting state
 Declarative/Intent in industry:
 SUPA charter: Declarative policies that specify the goals to achieve but not how to achieve those goals
 ODL NIC: provides generalized and abstracted policy semantics instead of Openflow-like flow rules

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

How SUPA is used



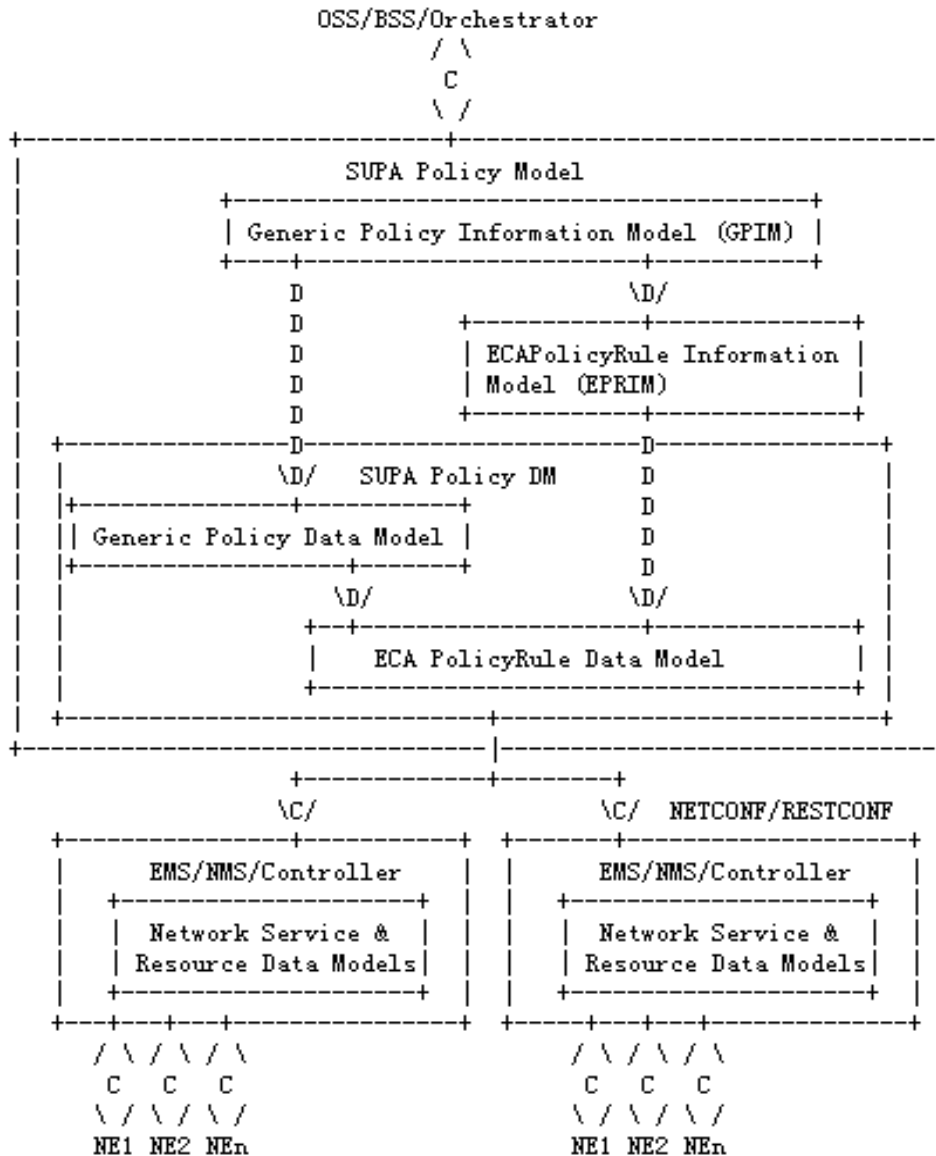
GPIM, as well as the combination of the GPIM and EPRIM, is converted to generic YANG data modules.

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

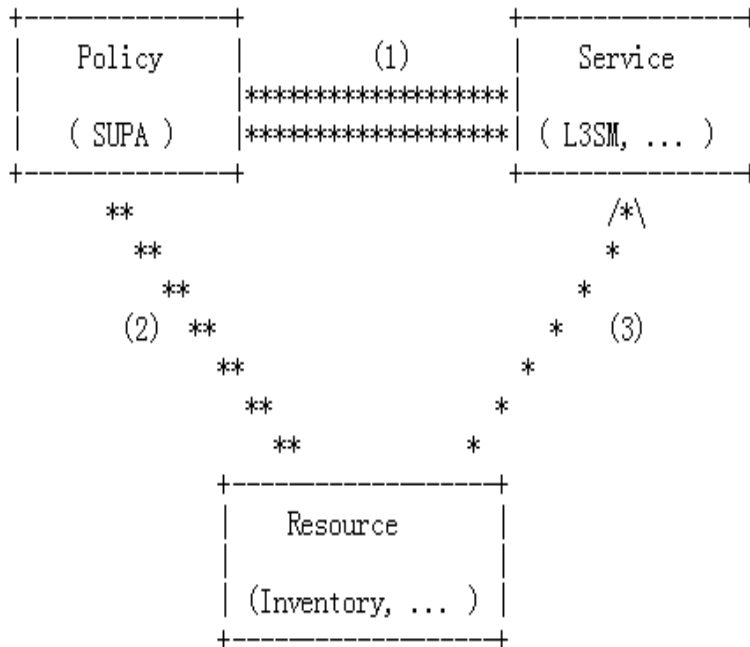
A set of Generic Policy Data Models and ECA Policy Rule Data Models are then created from the GPIM and EPRIM.

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

ECA policy use case	Event	Action
Traffic optimization	Link threshold alarm Link traffic polling	TrafficSteering (controller, RESTful API inf) Redirect/ block/ split (NE)
Address management	Address pool threshold alarm Address pool utilization polling	Address pool allocation/reclaim

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.