SUPA Policy-based Management Framework

(SUPA: Simplified Use of Policy Abstractions)

draft-ietf-supa-policy-based-management-framework-01

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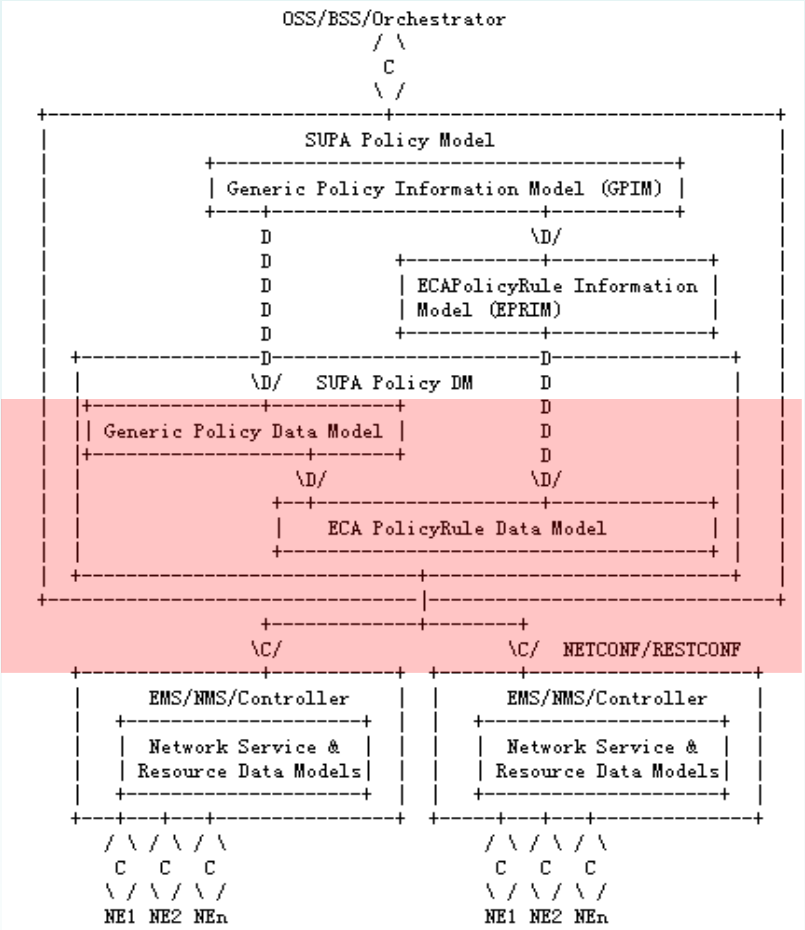
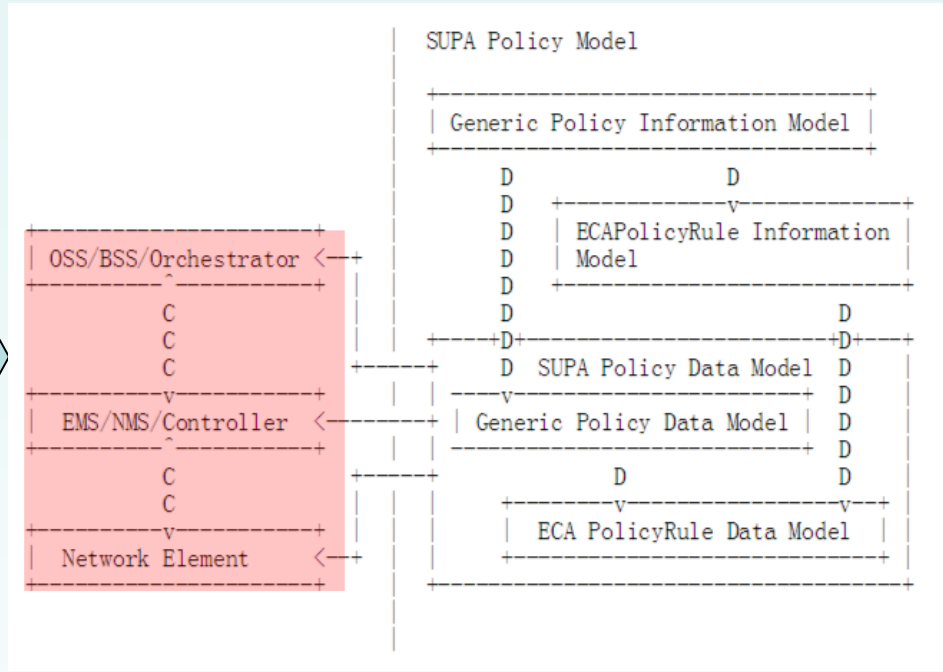
History

- History
  - Adopted by SUPA WG after Berlin IETF meeting, **draft-ietf-supa-policy-based-management-framework-00**, Aug 2016
  - **draft-ietf-supa-policy-based-management-framework-01,** March 13, 2017
    - transferred the -0 editable version into xml for future convenience,
    - Answered and addressed most comments from the list and off-list
    - Updated two arch figures
    - Added explanation to solve misunderstanding issue
    - Clear typos

SUPA Policy Model creating and distributing- updated





Updates:

1.added C arrow from GPDM and EPDM to controllers

2.split the design time and running time in this figure

3.show all the cases in charter : take OSS/BSS/Orch/EMS/NMS/Contrl//NE into consideration

4.changed the sentence explaining D arrow

Relationship between Policy-Service-Resource - updated

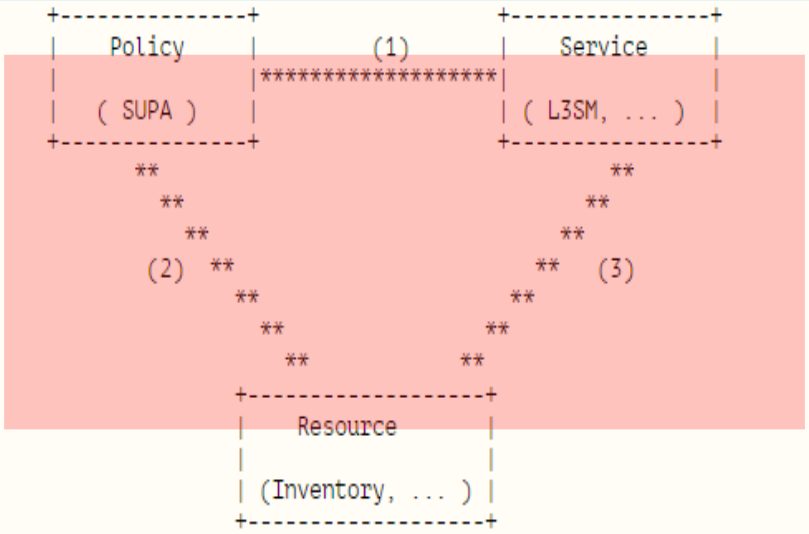


Figure 3 Relationship among Policy, Service and Resource

In Figure 3:
(1) policy manages and can adjust service behavior as necessary
(2) policy manages and can adjust resource behavior as necessary
(3) resource hosts service; changing resources may change service behavior as necessary

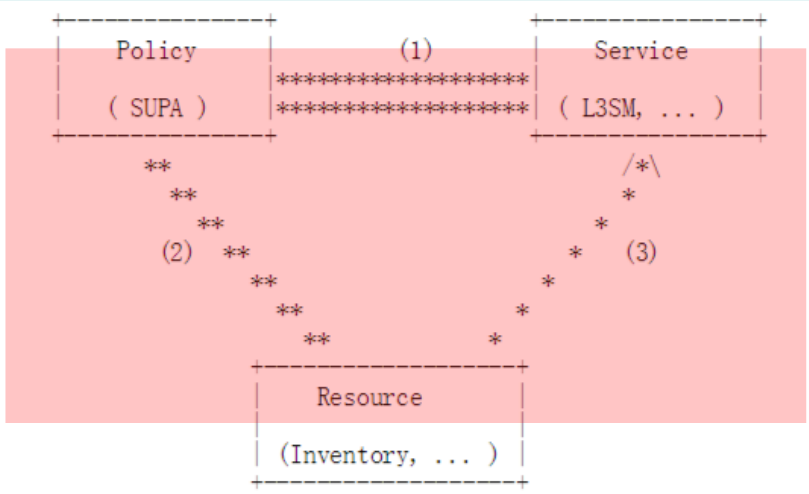


Figure 3: Relationship between Policy, Service and Resource models

In Figure 3:

(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

- ✓ Policies are used to control the management of resources and services, while data from resources and services are used to select and/or modify policies during runtime.
- ✓ Lines (1)&(2) connecting policy to resource and policy to service are both navigable in both directions, while Line (3) connecting resource to service is different as it's navigable only from resource to service
- ✓ (1:1..n) in (1) and (2) below figure 3 shows one policy rule is able to manages and can adjust one or multiple ervices/resources.

Comments and next step

- Thanks to many reviewers, comments received and addressed on the following aspects
  - Comments to figure 2 & 3 //done and see below
  - Structure of section 2.3 issue //done
  - Explanation on the term snippet //done
  - Typos , editorial issue //done and we also updated reference
- Open questions for the group was closed and got rough consensus
  - Figure 2 to reflect below two points? //Yes, the figure was updated
    - "SUPA… be input to a network management function (within a controller, an orchestrator, or a network element)" in the charter
    - running time and design times
- Next step
  - Ask for more reviews and submit a stable version.

More info about SUPA usage

- Within the IETF
  - will have several policy-based modules in I2NSF
  - would like to see others in SACM and SFC, and am currently starting talks in those groups
- Outside of the IETF
  - the MEF will be reusing and adding to SUPA in its Policy-Driven Orchestration efforts
  - a new ETSI ISG (ENI) focusing on Network Intelligence will be reusing SUPA
  - there are several H2020 programs that are reusing SUPA

Interested in review or contribution? Questions?

Google Images “SUPA“ ^

About ETSI ISG ENI

(Experiential Networked Intelligence)

Challenges

- Automating complex human-dependent decision-making processes,
- Determining which services should be offered, and which services are in danger of not meeting their SLAs, as a function of changing context
- Defining how best to visualize and how network services are provided and managed in order to improve network maintenance and operation
- Providing an experiential architecture (i.e., an architecture that uses AI and other mechanisms to improve its understanding of the environment, and hence the operator experience, over time)

Standardization Goals

- Describe answers to the aforementioned challenges to improve the experience of operators and network administrators focusing on improved policy and automation
- Specify a policy-based, model-driven architecture that defines functionalities to assist orchestration on adapting offered services to changing user needs, business goals, and environmental conditions at scale
- Propose an approach that enables the networked experience to be measured and presented to operators and other stakeholders
- Propose recommendations to other SDOs on how this architecture may be realized

Objectives

- Identify the requirements (e.g., from operators and network administrators) to improve operator experience
- Specify an architecture that is used to apply adaptive and intelligent service operation and management, which uses dynamic policy management to assist the orchestration of service management and resource management at scale,
- Propose a standard definition on how the networked experience is measured and projected/presented to operators and other stakeholders
- Propose recommendations to other SDOs on how this architecture may be realized

Official release of ETSI ENI

New ETSI group on improving operator experience using Artificial Intelligence

Sophia Antipolis, 21 February 2017

ETSI is pleased to announce the creation of the Industry Specification Group 'Experiential Network Intelligence' (ISG ENI).

The purpose of the group is to define a Cognitive Network Management architecture that is based on the "observe-orient-decide-act" control model. It uses AI (Artificial Intelligence) techniques and context-aware policies to adjust offered services based on changes in user needs, environmental conditions and business goals. The system is experiential, in that it learns from its operation and from decisions given to it by operators to improve its knowledge of how to act in the future. This will help operators automate their network configuration and monitoring processes, thereby reducing their operational expenditure and improving the use and maintenance of their networks.

Operators see human-machine interaction as slow, error-prone, expensive, and cumbersome. Programming different devices and building agile, personalized services makes it increasingly complex to integrate different standardized platforms in their network and operational environment. These human-machine interaction challenges are considered by operators as barriers to reducing the time to market of innovative and advanced services. They also lack an efficient and extensible standards-based mechanism to provide contextually-aware services (e.g., services that adapt to changes in user needs, business goals, or environmental conditions).

"*The unique added value of the ETSI ISG ENI approach is to define new metrics to quantify the operator's experience; this enables the optimization and adjustment of the operator's experience over time, taking advantage of machine learning and reasoning.*" says Ray Forbes, convenor of ETSI ISG ENI.

The group's work will include the requirements of the operator's experience in and across legacy and virtualized networks including 5G networks, and a model-driven architecture that supports adaptive and intelligent service operation through Cognitive Network Management. Different types of policies will be

The group's work will include the requirements of the operator's experience in and across legacy and virtualized networks including 5G networks, and a model-driven architecture that supports adaptive and intelligent service operation through Cognitive Network Management. Different types of policies will be reviewed to drive adaptive behavioral changes using various AI mechanisms. Existing mechanisms will be augmented and improved by using the networked intelligence defined by the ENI system.

This new group will drive innovative technologies in network telemetry, big data mechanisms to gather appropriate data at the right speed and scale, and machine learning for intelligent analysis. Innovative policy-based, model-driven functionality will also be needed to simplify and scale complex device configuration and monitoring.

Participation in the Experiential Network Intelligence Industry Specification Group is open to all ETSI members as well as organizations who are not members, subject to signing ISG Agreements. For information on how to participate please contact ISGsupport@etsi.org

The first meeting of the ISG ENI will take place at the ETSI premises in Sophia Antipolis, France, on 10-11 April 2017. The full list of members and participants in ISG ENI is available at: https://portal.etsi.org/TBSiteMap/ENI/ListOfENIMembers.aspx

About ETSI

ETSI produces globally-applicable standards for Information and Communications Technologies (ICT), including fixed, mobile, radio, aeronautical, broadcast and internet technologies and is officially recognized by the European Union as a European Standards Organization. ETSI is an independent, not-for-profit association whose over 800 member companies and organizations, drawn from 67 countries, determine its work programme and participate directly in its work.

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http://www.etsi.org/news-events/news/1171-2017-02-new-etsi-group-on-improving-operator-experience-using-artificial-intelligence

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.