SUPA value proposition

Maxim Klyus, NetCracker
John Strassner, Huawei Technologies
SUPA Proposition I-D

Motivation

- Combine all existing research work which was done in previous I-Ds

- Prepare one concise document which clearly shows existing SUPA framework and value

- Show basic examples of the Generic Policy applicability

Status of the I-D

- I-D was not updated since it was the point by itself for SUPA charter definition and discussion

- Updates needed to be done:
  a) Intent-based policy part should be removed
  b) Policy framework should be addressed to single domain management
  c) Update SUPA framework and related pictures in the I-D
Problem Statement

Challenges
- Complicated network infrastructure operation and management
- Hard to deploy new and manage existing network services
- Difficult to adapt new technologies to existing network operation and management ecosystem
Problem Statement

SUPA GPIM – Generic Policy Information Model

Unified technology independent operation and management framework based on CA and/or ECA policies will help to solve the challenges and improve existing SP network infrastructure management.
SUPA Framework

OSS Network Objects Database represents SP Network

Filtering NE and Defining Rules

SUPA GPIM Defines Policy (CA or ECA) for the set of Network Objects

SUPA Policy

- Selecting the set of NEs based on specific policy
- Defining rules how to handle configuration for selected set of NEs
- Feeding selection result and rules to internally implemented translation system

POLICY REPRESENTATION

INSERT NetworkObjects_DATABASE
L4_ACL = “permit snmp 10.10.0.0/16 any” /* rule we need to apply*/
where NetworkObject_TYPE = router /* set of NetObj*/

OSS Orchestration or Translation System under the OSS
(Selecting appropriate IETF YANG DM and building configuration snippets based on selected NEs and Rules)

Applying Configuration to NEs
Generic Policy Application Examples

SUPA Generic Policy

- Rule-based
- Event, Condition, and Action clauses
- Vendor Independent
- Technology-agnostic
- Real-time network management
Generic Policy Application Examples

SUPA Generic Policy

CA

(A) Disable SNMP
(C) for all aggregation switches

Select all aggregation switches from OSS database. Send SNMP Disable rules to internally implemented Translation System / OSS Orchestration for these switches, which generates configuration snippets by using appropriate IETF YANG Data Models

ECA

(A) Balance inbound traffic
(C) on edge-links
(E) in case of edge-interface load more than 70%

Select all edge routers from OSS database where interface utilization with incoming traffic is more than 70%. Send Load Balancing Rules for these routers to internally implemented Translation System / OSS Orchestration, which generates configuration snippets by using appropriate IETF YANG Data Models
Value and Benefits of SUPA

Vendor and Technology Independent Policy Framework


Unified Network Infrastructure Policy Management

Increased abstraction enables simpler and effective network infrastructure management for operators.

Real-time and event-based Network Management

Network infrastructure can automatically changes based on context monitored by policy at the current moment of time.

New Independent Network Management Layer

Policy can help to build intermediate layer between SP and Subscribers for unified and shared management. Policy-holders can provide an instruments to Policy-users for their network resource management.
Deliverables and goals

- **Generic Policy Informational Model**
  - SUPA framework defines a generic structure for imperative policies CA and ECA. This is converted to generic YANG data models. The IETF produces the models, and IANA is used to register the model and changes.

- **Generic Policy Framework**
  - Define how to construct Generic Policies for Network Infrastructure (Functions, Services and Intermediate layer)
  - Define a set of YANG data models that express the concepts defined in the generic policy information model in concrete data models. These models will be designed to be generic and extensible.

The SUPA is a way to make the alignment for the Network Infrastructure Management based on Unified Policy approach