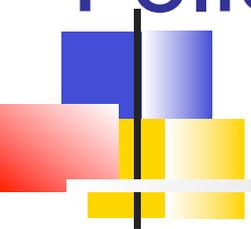
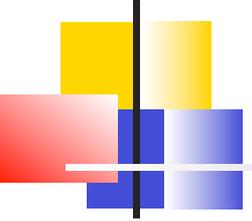


Gap Analysis of Simplified Use of Policy Abstractions (SUPA)

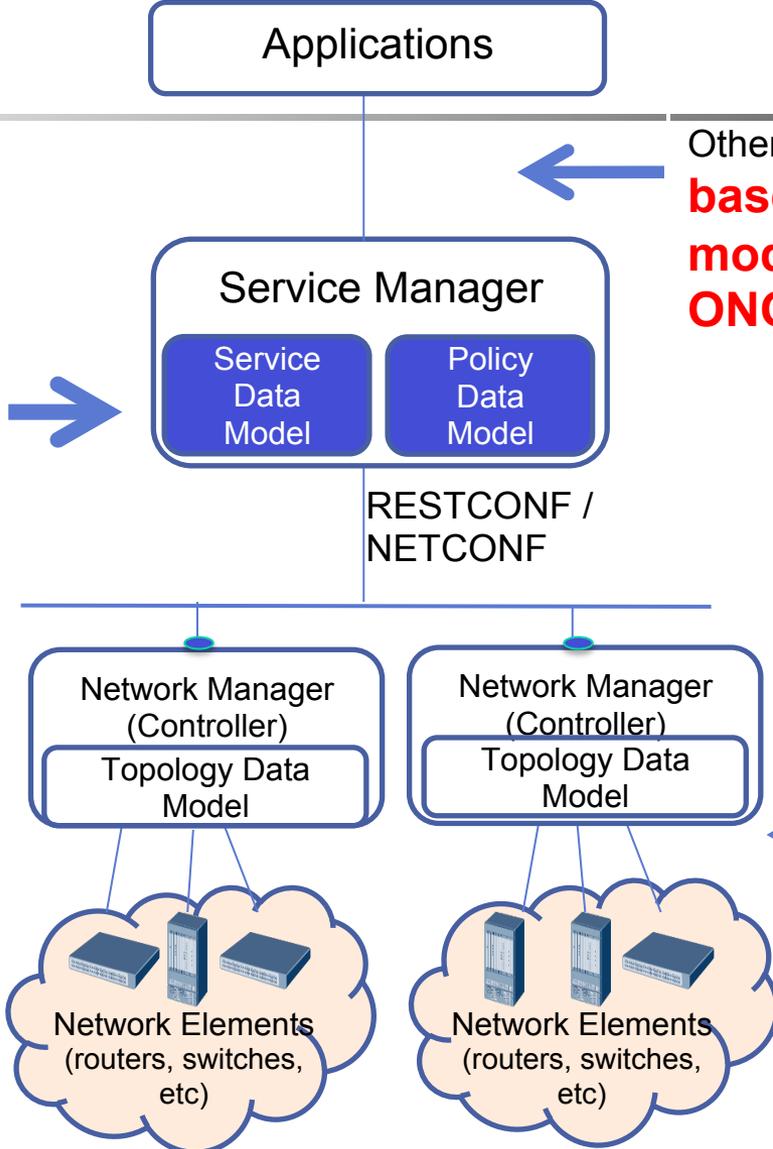


Presenter: Jun Bi
draft-bi-sup-a-gap-analysis-02
IETF 92 SUPA BoF
Dallas, TX
March 23, 2015

SUPA Gap Analysis - Relationship to other WGs and Orgs



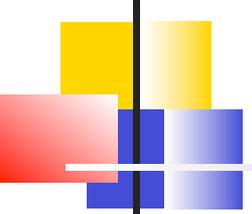
■ : SUPA scope
SUPA focuses on: **policy driven service management and network resource view**



Other Organizations: **Intent-based open source modules (E.g. ODL, ONOS projects)**

Other WGs (I2RS, IDR, PCE, etc.) **focus on: network element centric view (e.g. Protocol independent topologies)**

SUPA Gap Analysis – related WGs in IETF



- I2RS

- The main goal is to allow the external modification of a **routing system** by an external controller.
- Includes RIB, filter-based RIBs, protocol independent topology information (L1, L2, L3, Service topology)
- **Provides protocol-based management interfaces that SUPA can use, but does not itself work on policy management**

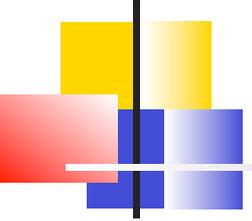
- ALTO

- defined an architecture for exposing topology information
- it's not clear if it could be adapted easily for **other purposes than providing cost maps** in the context of ALTO

- TEAS

- responsible for **MPLS-based Traffic Engineering** – the control of traffic flows in an MPLS network
- the main focus is to cover YANG models for a traffic engineering database³

SUPA Gap Analysis – related WGs in IETF



- BESS

- aims at providing a protocol for the provisioning of L3VPN and L2VPN solutions based on BGP
- Only focus on BGP extensions to YANG models and data models for **BGP-enabled services**

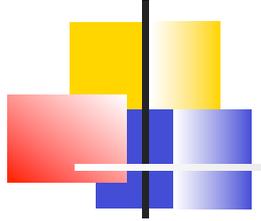
- SFC

- defines a mechanism where traffic is classified before going through an ordered set of services
- **does not cover policy-based definition and management of the SFC**

- NVO3

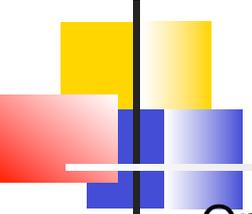
- to move virtual instances without impacting their network configuration
- does develop a set of protocols and/or protocol extensions that enable **network virtualization within a data center** (DC) environment that assumes an IP-based underlay
- proposes a way to virtualize the network edge for datacenters in order to be able move virtual instances without impacting their network configuration
- **not offer policy based operations or new models for applications to use**

SUPA Gap Analysis – related WGs in IETF

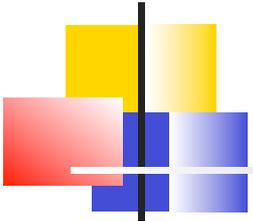


- Discussion
 - Several WGs provide technology specific mechanisms (TEAS, BESS, ACTN) that ideally **can be leveraged by a generic policy driven service management solution**
 - Other working groups
 - provide **key building blocks** (e.g., the generic topology work chartered in the I2RS working group)
 - deal with **specific aspects such as the chaining** of data plane traffic manipulation functions (SFC)
 - develop set of protocols and/or protocol extensions that enable **network virtualization within a data center** (DC) (NVO3)
 - export of typically aggregated **topology information to distributed file sharing or streaming** applications (ALTO)

SUPA Gap Analysis - Related work outside the IETF (1)

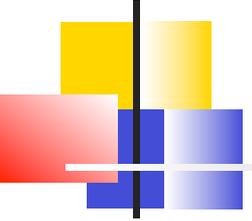
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-
- Open Daylight Group Based Policy
 - Separates information about application connectivity requirements from the underlying details of the infrastructure
 - Aimed at expressing application needs using a generic policy model
 - **More relational than declarative**, but could be used to describe a large amount of possible scenarios
 - Open Daylight NIC Project
 - Provides a more abstract view (the “intent”) of what a policy does, as opposed to how the policy is implemented
 - There are several proposals that describe data models and syntax; no higher level semantics are currently defined
 - **ODL does not define standards** -- not the proper forum to seek the standardization of interfaces and models.
 - Open Daylight NEMO Project proposal shows **requirements to intent based network modeling**
 - ONOS Intent-based Framework
 - API being defined; **no model or language yet**

SUPA Gap Analysis - Related work outside the IETF (2)



- Open Networking Foundation
 - So far, published interface standards for the southbound, also works on northbound activities, but these are different than policy based service management activities
 - describes an abstraction directly above the hardware layer, a forwarding abstraction, and is therefore not suitable for exposure at higher levels.
 - hasn't yet led to the publication of standards in northbound interface area
- OpenStack Congress
 - A policy language based on extensions to Datalog, which is a declarative language that is a subset of first-order logic
 - Congress provides powerful query capabilities, and is used to state facts about the systems being managed
 - Congress is meant to work with all other OpenStack projects. Each OpenStack project has its own form of domain-specific policy, so Congress is used to coordinate their actions and information

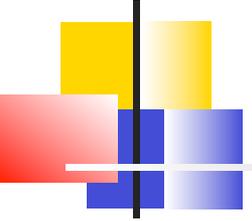
SUPA Gap Analysis - Related work outside the IETF (3)



- TM Forum

- ZOOM project is defining extensions to the TM Forum Shared Information and Data model
 - Policy architecture work proceeding
 - Rich models of Service, Resource, and Policy finished
 - Modeling and enriching concepts from NFV
- **TM Forum does not work on protocols**
 - SUPA needs at least a discovery protocol and a knowledge exchange protocol
- TM Forum does some work on data models
 - **These are largely orthogonal to what the IETF is working on; TM Forum has very little Yang experience**

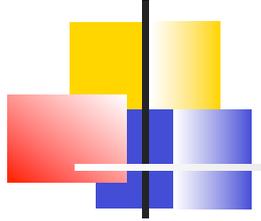
SUPA Gap Analysis - Related work outside the IETF



■ Discussion

- Ongoing projects outside IETF demonstrate the need to develop service level abstractions and policies
- it is **desirable** to host this work within the IETF - towards **a common interoperable and standardized solution**
- IETF working groups are **not directly working** on service-focus generic policy driven service management

Q&A



Thanks!