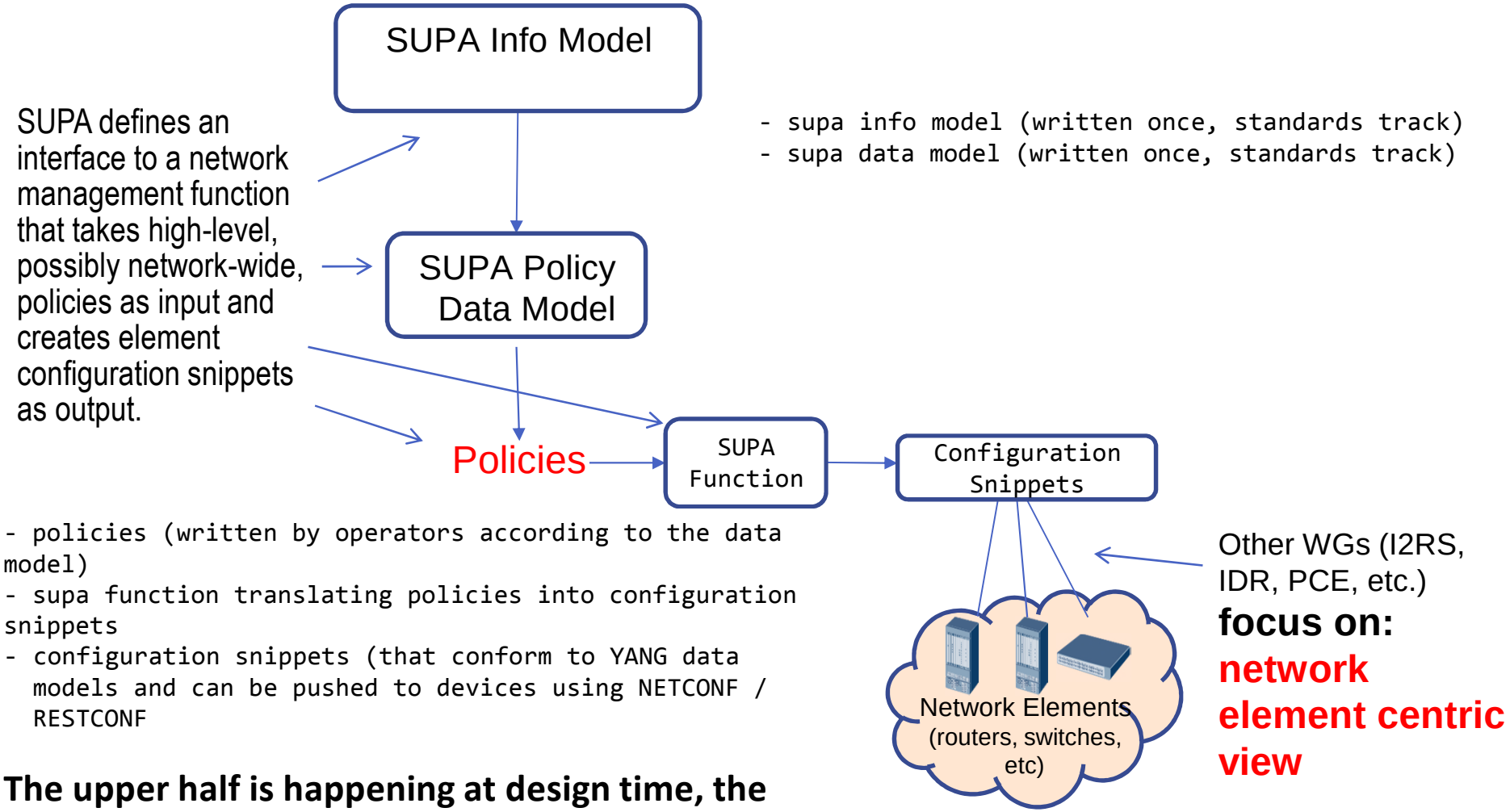
Relationship to other WGs

SUPA Gap Analysis - Relationship to other WGs



The upper half is happening at design time, the bottom part is happening at runtime

SUPA Gap Analysis – related WGs in IETF

- **I2RS**
  - Defines programmatic interface to routing system for highly reliable pull of data. I2RS has protocol independent modules (RIB, Filter-Based RIB, Topology)
  - SUPA does not directly interface to the routing system. Rather, SUPA uses data produced by I2RS (e.g., topological information) to construct its policies.
- **ALTO**
  - defined an architecture for exposing topology information
  - SUPA does not generate data that is similar to ALTO. Rather, SUPA could use ALTO data as part of its policies to configure services and/or resources.
- **TEAS**
  - Responsible for Traffic engineering Topology model and related protocols.
  - Both TEAS and SUPA use YANG data models. SUPA does not generate traffic engineering (TE) data. However, SUPA could use TE data as part of its policies for configuring resources and/or services. SUPA could also define policies that define which service, path, and link properties to use for a given customer, and consequently

SUPA Gap Analysis – related WGs in IETF

- **IDR and BESS**
  - IDR defines the network protocols and extends network services that are based on BGP. IDR and BESS create YANG data models for BGP
  - SUPA could utilize IDR/BESS models to obtain information on BGP configuration and status, or to do to configuring BGP-based resources and/or services.
  - SUPA information model could also define policies that help govern different aspects of BGP protocol and services defined by BESS and IDR.
- **SFC**
  - defines a mechanism where traffic is classified before going through an ordered set of services
  - Both SFC and SUPA use YANG data models. SUPA could define policies that augment the functionality of SFC in several different ways
- **NVO3**
  - proposes a way to virtualize the network edge for data centers in order to be able to move virtual instances without impacting their network configuration
  - SUPA could define policies that define how the logically centralized network virtualization management entity (or entities) of NVO3 behave

SUPA Gap Analysis – related WGs in IETF

- **L3SM**
  - defines an L3 VPN service model that can be used for communication between customers and network operators.
  - The implementation of network services is often guided by specific policies, and SUPA provides a tool that can help with the mapping of L3 VPN service requests to L3 VPN configurations of network elements.
- **Previous IETF Policy Models**
  - ***SUPA is technology-neutral, previous Policy RFCs weren't.***
  - SUPA defines a common structure from which both ECA and declarative policies can be defined and combined; this was not possible in previous RFCs.
  - Previous Policy RFCs do NOT define metadata, and do NOT enable policies to formally define obligation, permission, and related concepts.
  - Finally, SUPA uses software patterns, which previous policy RFCs didn't.

SUPA Gap Analysis - Related work outside the IETF

- **Open Daylight NIC Project**
  - Open Daylight network controller implements a number of models through its service abstraction Layer (MD-SAL) based on draft IETF Yang models.
  - Open Daylight is an open source project.
  - Two of these are relevant to SUPA, and are described below.
- **Open Networking Foundation**
  - The ONF created a group responsible of defining northbound interfaces, but this hasn't lead to the publication of standards in this area so far.
  - A blog entry on the ONF web site showed an interest in using the principle of intents at ONF, but no details were provided on the status of this project.
  - A members-only whitepaper was recently published.

SUPA Gap Analysis - Related work outside the IETF

- **OpenStack Group-Based Policies**
  - The Group Based Policy project defines an application-centric policy model for Open Daylight that separates information about application connectivity requirements from information about the underlying details of the network infrastructure.
  - The model is positioned as declarative, but uses a relational approach to specifying policy.
- **OpenStack Congress**
  - provides a way to define complex policies using extensions to the Datalog language.
  - SUPA's propositional logic statements are simpler but more limited than Congress, while SUPA's first-order logic statements are more complex but more powerful than those of Congress.
  - If desired, a Congress model could be easily added to SUPA.

SUPA Gap Analysis - Related work inside and outside the IETF

- **The IB-NEMO Project**
  - IB-Nemo is a language (a set of commands) to express intent from an application to network management system with minimal operations. IBNemo's 'intent' expresses a desired topology and its properties.
  - IB-Nemo protocol = http+ user commands (node, link, flow)
  - ODL Nemo project has a release of the protocol code at: https://wiki.opendaylight.org/view/NEMO:Main
  - OPNFV has use case for this protocol https://wiki.opnfv.org/requirements_projects/vimnbi
  - In contrast, SUPA provides a information model to represent ECA and declarative policies. SUPA declarative policies are executed using formal logic. SUPA has not proposed a language.
- SUPA – 'intent' essentially means the usage of first order logic expressions where intent allows unbound variables and parameters that are essentially expanded by a search to find a configuration that satisfies the given constraints.

Conclusions: the Value of SUPA

- SUPA defines an interface to a network management function that takes high-level, possibly network-wide policies as input and creates element configuration snippets as output.
- Policies embedded in the configuration of network elements are not in the scope of SUPA.
- The SUPA information model generalizes common concepts from multiple technology-specific data models, and makes it reusable.

Q&A

Thanks!