Outline

- Main update in revision 3
- Supported operational models
- Model I semantic and operation
- Model II semantic and operation
- Next steps
Main Update in version 03

- Support of two operational models (Model I and Model II)
- Document re-structured
- Many clarifications
- Specification of Data Model and Protocol Operation
- Advanced set of supported features
  - traffic treatment, QoS, administrative control, query, notifications
- YANG models and tree for operational Model I (Base and QoS)
  - Needs update
  - To be added for operational Model II
Supported operational models

- Adopted two operational models
  - Model I: Client interacts with Agent to build unambiguous rules for Data-Plane treatment
  - Model II: Client interacts with Agent to control the setup of tunnel, host routes, QoS

- Support for both operational models enables tailored implementation and deployment

- Semantics of both models extensible
Model I – Data Model

- Model to maintain rules on Client/Agent level
  - A **Rule** is made of one or multiple traffic descriptors (TD), one or multiple traffic treatment actions (Properties) and a rule identifier/key (Port-ID)
  - All traffic matching a traffic descriptor is treated per the treatment actions of the associated Port
  - In addition to treatment action properties, a port has **Administrative properties** associated (session state, bi-directionality of a rule, group management)
  - Each port has **Operational data** associated, which reflect the status of an enforced rule in the Data-Plane (e.g. enabled, disabled, virtual)
Model I – protocol operation

- Data-Plane Rules management
- Monitor registration
  - Register/De-register a monitor
- Probe (Client → Agent) and Notification (Agent → Client)
  - Request / Report status of a monitor
- Query (Agent → Client)
  - Request the update of an outdated rule
- Status response
  - Indicate the status of processing a message to the sender
Model I – protocol attributes

- Traffic treatment properties
  - Encapsulation, IP address/Port re-writing, insert/strip Network Service Header, next hop, QoS

- Protocol-specific properties
  - IP-IP encapsulation, GTP-U encapsulation, GRE encapsulation

- Monitors and Events Notification
  - Registration of Monitoring Attribute
  - Registration of reporting kind (Probed, Periodic, Scheduled, Threshold)

- Administrative properties
  - Administrative state: enabled, disabled, virtual
  - Clone reference: use a copy of the referred rule to create a new rule
  - Port bi-directionality (boolean)
  - Session state (Complete, Incomplete, Outdated)
  - Result Code (Success, Failure)
Model II – protocol operation

- Tunnel Interface Management
  - Create/Modify/Delete forwarding tunnel

- Policy Route Management
  - Create/Modify/Delete policy route
  - Add/Delete Traffic Selector

- IP Route Management
  - Create/Delete IP Route

- IP QoS Management
  - Allocate/Deallocate QoS Resources
  - Insert/strip Network Service Header
Model II – protocol attributes

- Tunnel Attributes
  - Tunnel interface MTU, Encapsulation type, Payload type

- Route Management Attributes
  - Input/Output interface, Next Hop, Traffic Selector, Dest IP subnet/mask

- QoS Attributes
  - AMBR, GBR, Traffic Class, Service Path ID, Service Index
Current activity

- Investigate possible extension of Model I Data Model
  - More flexibility in defining Data-Plane rules

- Complete and harmonize features for Model I/II

- Update YANG model
Next Steps

- Feedback is appreciated at any time
- Complete current activity (previous slide)
- Post update soon after IETF95
- WG last call?