SDN Layers and Architecture Terminology

draft-haleplidis-sdnrg-layer-terminology

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Draft Motivation

- Several frameworks are self-defined as ‘SDN’, and
  - most, if not all, have defined their own SDN layer model accompanied by distinct terminology
  - earlier work at the IETF fits well into the SDN sphere but uses different terminology
- What does “SDN” encompass exactly?
  - Which “layers” are key?
  - What are the interactions between the layers?
Draft Goals

- Create a reference document for SDNRG discussions
  - address “Survey of SDN approaches and Taxonomies” in the RG Charter for Potential Work Items
  - in contrast with an academic survey which expresses one’s pov, this is a document based on RG review and consensus

- Agreement on common terms as we move forward in SDN research
  - Create a reference layered model for SDN
  - Map current frameworks on SDN model
Draft Non-goals

- No new specification
  - Instead we focus on documenting what has already been specified at IETF and other relevant bodies

- No new standard
  - This is an informational draft
SDN

- Functionality Separation:
  - Model
  - Separate via interface
  - Service APIs northbound

- Applied to networking
- Why stop at the forwarding plane?
- What about management plane?
- Which protocols are a fit and where?
Reference Layer Model

Service Abstraction Layer (SAL)

Control Abstraction Layer (CAL)

Control Plane

Service Interface

Management Plane

Management Abstraction Layer (MAL)

Device Abstraction Layer (DAL)

Forwarding Plane

Network Device

Operational Plane
Current Draft

- Maps few frameworks to reference layer model as proof-of-concept
  - ForCES
  - NETCONF
  - I2RS
  - OpenFlow
Reference Layer Model

Service Abstraction Layer (SAL)
- RestAPIs, CORBA, NETCONF, I2RS
- ForCES
- OpenFlow
- NETCONF
- YANG

Management Abstraction Layer (MAL)

Device Abstraction Layer (DAL) *(ForCES Model)*
- Forwarding Plane
- Operational Plane
- Network Device
Moving Forward

- Comments / Feedback
  - Thanks to David Meyer, Salvatore Loreto and Sudhir Modali
  - Looking forward to your comments!

- Care to suggest text and join the effort?
  - map your framework and provide us with details/comments

- Request this document to be adopted as an RG document