Framework and Data Model for OTN Network Slicing

draft-zheng-ccamp-yang-otn-slicing-00

Co-authors:
Haomian Zheng (Huawei)
Italo Busi (Huawei)
Aihua Guo (Futurewei)

Contributors:
Henry Yu (Huawei)
OTN Slicing Use Cases

• OTN provides hard pipes with deterministic SLA.

• OTN slicing is needed to support OTN-specific use cases like:
  • Leased Line Services with OTN
  • Co-construction and Sharing
  • Wholesale of optical resources
  • Vertical dedicated network with OTN
OTN Slicing Framework

• An OTN slice is a collection of OTN network resources that is used to establish a logically dedicated OTN virtual network over one or more OTN networks

• Some of the SLOs of an OTN slice are expressed in OTN-specific way. Generic SLOs follow the definition in
  • Bandwidth – number / type of ODU/OSU slots
  • Resources/labels – OTN tributary slots + tributary ports

• Relationship with the IETF network slice YANG model (draft-liu-teas-transport-network-slice-yang-01) is for further investigation
  • Possible to augment the model defined by draft-liu-teas-transport-network-slice-yang-01
OTN Slicing Interfaces

- OTN slice controller (OTN-SC) may be deployed either outside or within an SDN controller
  - Translating slice configuration into OTN TE topology or TE tunnel requests at the MPI, or
  - Interact with higher- or lower-level slice controller in a recursive manner
- Interaction between OTN-SC and IETF network slice controller is for further study
  - An IETF network slice controller may use an OTN-SC to provision OTN slices to support end-to-end slicing
OTN Slicing Mode

• Link-based slicing
  • A link is dedicated to a single OTN slice

• Tributary slot-based slicing
  • Multiple OTN slices can share an OTN link but use different time slots
YANG models

• TBD

• Considering augmenting draft-liu-teas-transport-network-slice-yang-01
Next Step

- YANG model definitions
- Comments and co-authorship are welcome.

Thanks!