Next Steps with
draft-ietf-teas-ietf-network-slices

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Changes in -05

• Issue #1 Connectivity Matrices
  • Clarified definitions for P2P, P2MP, MP2P, MP2MP
  • Added a new matrix Any-to-Any (A2A)
  • Aims
    • Make the general case model tunnel connectivity
    • Support a VPN type of service
  • A2A is not based on tunnel connectivity, it is a routable full mesh
  • Discussion on next slide
    • Can we now handle every type of service you want to offer?
    • Does A2A make MP2MP and MP2P unnecessary?
    • Kiran’s new question (SLOs in P2MP service)

• Issue #3 SLOs/SLEs per Sender/Receiver
  • Closely tied to Issue #1 (discussion on next slide)
The Types of Connectivity Matrix

- **P2P** One sending CE and one receiving CE
  - All traffic injected at the sending CE is intended to be received by the receiving CE. Like a private wire or a tunnel
  - The SLOs and SLEs apply at the sender (and implicitly at the receiver)

- **Bidirectional P2P** Two CEs: each may send to the other
  - Two sets of SLOs and SLEs: each applies to one of the CEs as a sender

- **P2MP** One sending CE and more than one receiving CE
  - All traffic from the sending CE is intended to be received by all the receiving CEs. This is like a P2MP tunnel or multi-access VLAN segment.
  - There is one set of SLOs and SLEs that apply at the sending CE (and implicitly at all receiving CEs)

- **MP2P** One receiving CE and (N - 1) sending CEs
  - All traffic injected at any sending CE is received by the single receiving CE. This is like a set of P2P connections all with a common receiver.
  - Each sending CE has its own set of SLOs and SLEs (the combination of those SLOs and SLEs gives the implicit SLOs and SLEs for the receiving CE)

- **MP2MP** Each of N CEs can be a sending CE: traffic is delivered to all of the other CEs
  - Each sending CE has its own set of SLOs and SLEs (the combination of those SLOs/SLEs gives the implicit SLOs/SLEs for each/all of the receiving CEs since each receiving CE is expect to receive all traffic from all/any sender.

- **A2A** Any sending CE may send to any one receiving CE or any set of receiving CEs
  - There is an implicit level of routing in this connectivity matrix that is not present in the other connectivity matrices
  - The matrix must determine to which receiving CEs to deliver each packet
  - The SLOs/SLEs apply to individual sending CEs and individual receiving CEs
    - There is no implicit linkage and a sending CE may be “disappointed” if the receiver is over-subscribed.
Changes in -05

• Issue #2 Connectivity Matrices per Slice
  • We wanted to allow an operator to choose
    • One slice per matrix
    • Multiple matrices per slice

• Issue #4 Service Definition
  • The definition of an IETF Network Slice Service was polished in -05
  • Main issues were about endpoints (see #5) and connectivity matrices per slice (see #2)

• Issue #5 Endpoints
  • Figure and description inserted per discussions on the list and at interim
  • Added 3.2.1 “Ancillary CEs” to embody “service functions” – traffic sources/synchs within the provider’s network

• Issue #6 Realization Process
  • Figure and description inserted per discussions on the list and at interim
  • Modifications per emails from Med, Joel, and John D

• Issue #7 Workflow
  • No change made per agreement to not include any further explanation

• Editorials
  • Fix “customer” not “consumer”
  • Fix “IETF Network Slice Service”
Further Issues for Further Resolution

• Proposed for the next revision...
  • Wholesale editorial pass on the document
    • There are some very stale sections unchanged from -00
    • There is a degree of duplication
    • Tidy up remaining language around “end points”, “NSE”, “CE”, Service Demarcation Point
    • Usual spelling and grammar
  • Converging with RFC 8309 (next slide)
  • Clarifying “technology-agnostic” (further slide)
  • Editorials from Med, John D

• Further work
  • Worked examples of how construct a few simple services
  • Any other issues
NBI/SBI

- This terminology gets confusing
  - It is context-specific (your northbound is my southbound)

- Med proposed to align with RFC 8309 and reference L2SM/L3SM
  - Pretty simple idea
  - Same terminology for all “IETF Services”

- Is the SBI based on a Network Model or a Network Configuration Model?
  - Compare with L2NM and L3NM

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Figure 2: Interface of IETF Network Slice Controller

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Figure 3: Interface of IETF Network Slice Management Architecture
What is Technology-Agnostic/Specific

• What we know:
  • How the service is provided is not the business of the customer
  • The same service can be provided in multiple different ways
  • The same service can be provided over multiple different technologies

• But:
  • The traffic supplied by the customer is of a specific technology
    • Maybe packet type or encoding of an input stream (such as Attachment Circuit)
    • Thus, the service has a technology-specific aspect
  • The Access Circuits are of a specific technology
    • Thus, if the AC is part of the service, there is a technology-specific aspect
    • The AC may itself be sliced

• Simply clarify this by stating all of these points?
  • Or remove discussion of technology agnosticism?

• “The service is agnostic to the technology in the underlay network”
Raise your other issues here

• Or send mail to the list
The plan...

-06 as described
  - I would plan to do this in November

Pre-last call major review
  - All interested parties give the document a thorough reading
  - Maybe run this through to the end of December

-07 to catch all issues raised
  - First couple of weeks in January

Possibly ready for WG last call by end of January