draft-ietf-detnet-architecture

Status update

Detnet working group, Prague, July, 2017

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Changes to architecture draft from -01 to -02

- Previous version (-01) uploaded 2017-03-13.

- Current version (-02) uploaded 2017-06-29.

- Major changes (01 to 02):
  - Chunks of text were moved around:
    - Coexistence and Fault mitigation moved from 4.x ⊟ 3.3.x.
    - 4.1 and 4.2 reorganized to incorporate the former 4.8.
  - A few chunks were added
    - A new section 4.1.2 Detnet data plane overview was added.
    - A new section 4.2.2. DetNet edge, relay, and transit nodes was added.
    - A new section 5.4. Packet encoding for service protection was added.

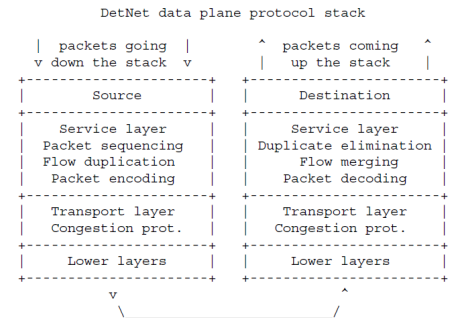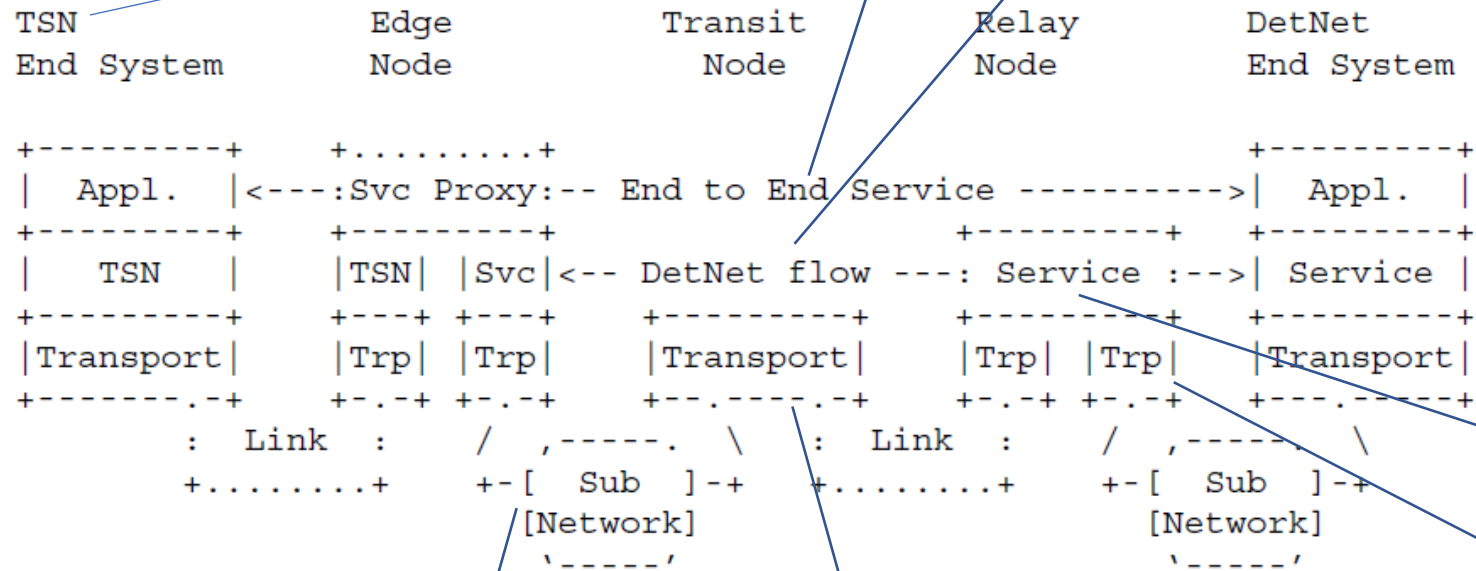- All changes were for clarity. No substantive changes to architecture.

Where we are?
Arch. components defined ...

3. Providing the DetNet Quality of Service (goals, mechanisms)

Some more:
4.8. Advertising resources, capabilities and adjacencies
4.9. Provisioning model
4.10. Scaling to larger networks
4.11. Connected islands vs. networks
4.12. Compatibility with Layer-2

4.2. DetNet systems (End systems, Edge, Relay, Transit)

4.3. DetNet flows

```
  TSN              Edge          Transit        Relay         DetNet
End System         Node           Node          Node        End System


+---------+    +.........+                              +---------+
|  Appl.  |<---:Svc Proxy:-- End to End Service --------->|  Appl.  |
+---------+    +---------+    +---------+    +---------+
|   TSN   |    |TSN| |Svc|<-- DetNet flow ---: Service :-->| Service |
+---------+    +---+ +---+    +---------+    +---------+    +---------+
|Transport|    |Trp| |Trp|   |Transport|    |Trp| |Trp|    |Transport|
+--------.-+   +-.-+ +-.-+    +---.-----.-+  +-.-+ +-.-+    +---.-----.-+
    : Link :    /  ,-----. \   : Link :    /  ,-----. \
   +........+  +-[  Sub  ]-+  +........+   +-[  Sub  ]-+
               [Network]                    [Network]
                 '-----'                       '-----'
```

```
        DetNet data plane protocol stack
| packets going  |       ^ packets coming ^
v down the stack v       |  up the stack  |
+----------------+       +----------------+
|     Source     |       |  Destination   |
+----------------+       +----------------+
| Service layer  |       | Service layer  |
|Packet sequencing|      |Duplicate elimination|
|Flow duplication|       | Flow merging   |
|Packet encoding |       | Packet decoding|
+----------------+       +----------------+
|Transport layer |       |Transport layer |
|Congestion prot.|       |Congestion prot.|
+----------------+       +----------------+
|  Lower layers  |       |  Lower layers  |
+----------------+       +----------------+
       v                        ^
        _____/
```

4.1. DetNet stack model

4.6. Service instance

4.7. Flow identification at technology borders

4.5. Queuing, Shaping, Scheduling, and Preemption

4.4. Traffic Engineering for DetNet

Open questions section

- Used to highlight some further work items of WG identified during architecture work
  - 5.1. Flat vs. hierarchical control: control plane
  - 5.2. Peer-to-peer reservation protocol: signaling
  - 5.3. Wireless media interactions: link technologies
  - 5.4. Packet encoding for service protection: further DetNet functions

- Considered not to be part of the architecture document

Document has been stable for a while

- Design team does not anticipate any significant changes.

- Authors suggest that
  - Remove section 5.
  - It's time for WG last call