Why model Provisioning as a separate functional entity?

- Because it is an often existing entity in today's network configuration workflows
- Even more importantly: It is a common entity to all TSN configuration models

(see next slides)
Task: “set up TSN-enabled converged network”
- For Stream traffic and
- For non-Stream traffic

Based on:
- IEEE Managed Object definitions and
- Standard Network Management Protocol

Task: “set up path (incl. resource allocation)”
- Stream traffic only
Task: “set up TSN-enabled converged network”
  - For Stream traffic and
  - For non-Stream traffic

Based on:
  - IEEE Managed Object definitions and
  - Standard Network Management Protocol

Task: “set up path (incl. resource allocation)”
  - Stream traffic only

Figure 46-3—Fully centralized model
Task: “set up TSN-enabled converged network”
- For Stream traffic **and**
- For non-Stream traffic

Based on:
- IEEE Managed Object definitions and
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Task of each device on the path: “set up path (incl. resource allocation)”
- Stream traffic **only**
Task: “set up TSN-enabled converged network”
• For Stream traffic **and**
• For non-Stream traffic

Based on:
• IEEE Managed Object definitions and
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Task: “set up path (incl. resource allocation)”
• Stream traffic **only**
Inter-Domain TSN Streams Considerations in Context of Provisioning Entity
(created during Oct 30th, 2020 60802 System Spec Meeting)

- Same Provisioning Entity may still result in different policies being active in different TSN Domains
- Generic inter-domain communication only possible with proxies at the domain boundaries

Inter-Domain Stream consideration:
From TSN Domain with preemption to Qbv with stream-granular time slots in the network
(worst-case scenario when taking black box approach)
Case 1:
Provisioning Entity
(Domain A)

Case 2:
Provisioning Entity
(Common)

Case 1:
Provisioning Entity
(Domain B)

TSN Domain A

TSN Domain B

Configuration A

Configuration A

Inter-Domain Stream

Policy A
• VLAN
• Time Sync
• Preemption
• Schedule Traffic
• TSN Domain boundary protection (repro, metering)
• ...

Same policies lead to same TSN Domain configuration, which may allow merging of Domains or alternatively eases Inter-Domain Communication
What does the Provisioning Entity configure exactly?

→ Next slide focuses on **TSN Domain**, **VLANs** and **Time Sync**
→ Additional aspects may need to be configured as well, e.g. Preemption, Qbv, etc.
Set up Stream VLAN(s) with TE-MSTID
- Learning disabled
- Default drop
  → CNC controls paths (FDB)

Set up Non-Stream VLAN(s) with STP
- Learning enabled
- Default flood
  → STP controls paths (ports)

Stream Reservation:
In centralized model, CNC maps TSN Streams into Stream VLANs by…
- Adding Stream DA to FDB for on-path Bridges
- Returning Stream DA, VLAN ID and PCP for TSN Stream to CUC
- Policy-specific: Qbv config, etc.

Tasks of the Provisioning Entity:
- Set up gPTP Domain(s) under control of BMCA
- Set up gPTP Domain(s) under control of Provisioning Entity
- Set up a Station’s TSN Domain ID

Source: 60802-industrial-use-cases-0918-v13
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Tasks of the Provisioning Entity:

1. Set up gPTP Domain(s) under control of BMCA
2. Set up gPTP Domain(s) under control of Provisioning Entity
3. Set up a Station’s TSN Domain ID

Open Points:
- Which entity(ies) manage Stream DAs?
- Which entity responsible for topology information?
- Who defines Policies?
- How do Policies relate to the 60802 Ind. Profile?
Tasks of the Provisioning Entity:

- Set up gPTP Domain(s) under control of BMCA
- Set up gPTP Domain(s) under control of Provisioning Entity
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Open Points:
- Which entity(ies) manage Stream DAs? → CNC
- Which entity responsible for topology information? → TDE
- Who defines Policies?
- How do Policies relate to the 60802 Ind. Profile?

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Thank you!

Questions?