Operational Network Management for IEC/IEEE 60802

NETCONF Usage

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The following figure shows the steps that are typically performed in the scope of the CUC-CNC interaction.
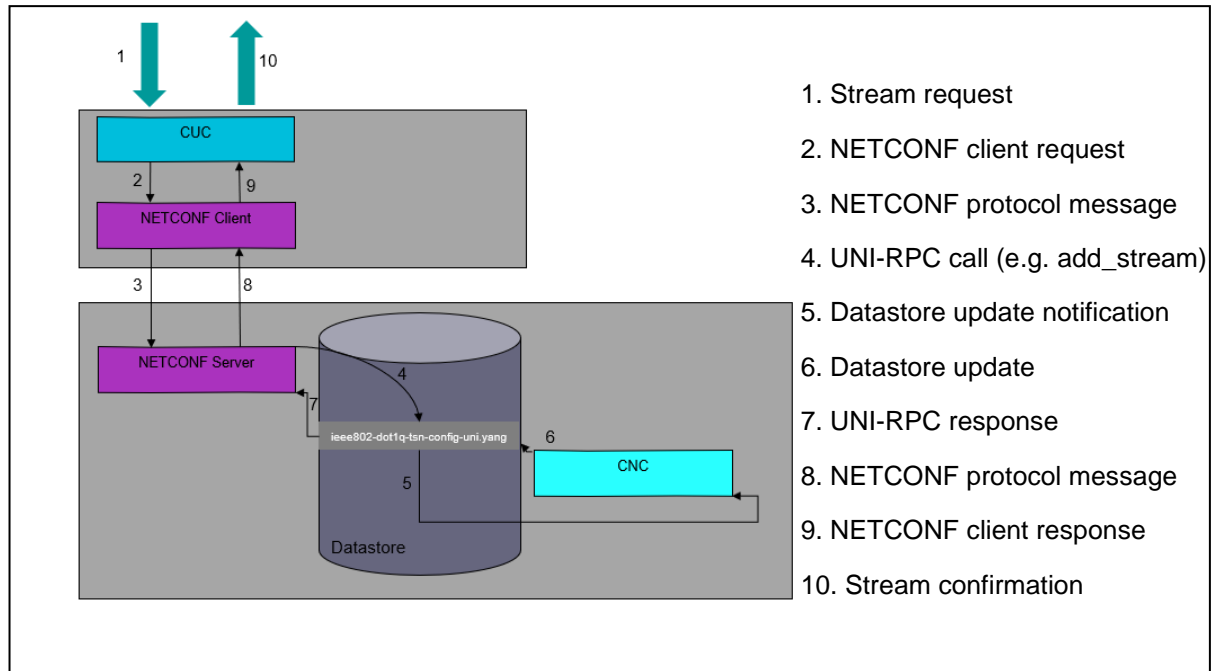

1. Stream request

2. NETCONF client request

3. NETCONF protocol message

4. UNI-RPC call (e.g. add_stream)

5. Datastore update notification

6. Datastore update

7. UNI-RPC response

8. NETCONF protocol message

9. NETCONF client response

10. Stream confirmation

Figure 28 – UNI Service Model

After the computation of the paths and the scheduling and/or shaping configuration has been done, the CNC configures the IA-Stations via NETCONF client. The typical steps that are performed in this process are shown in the figure below.
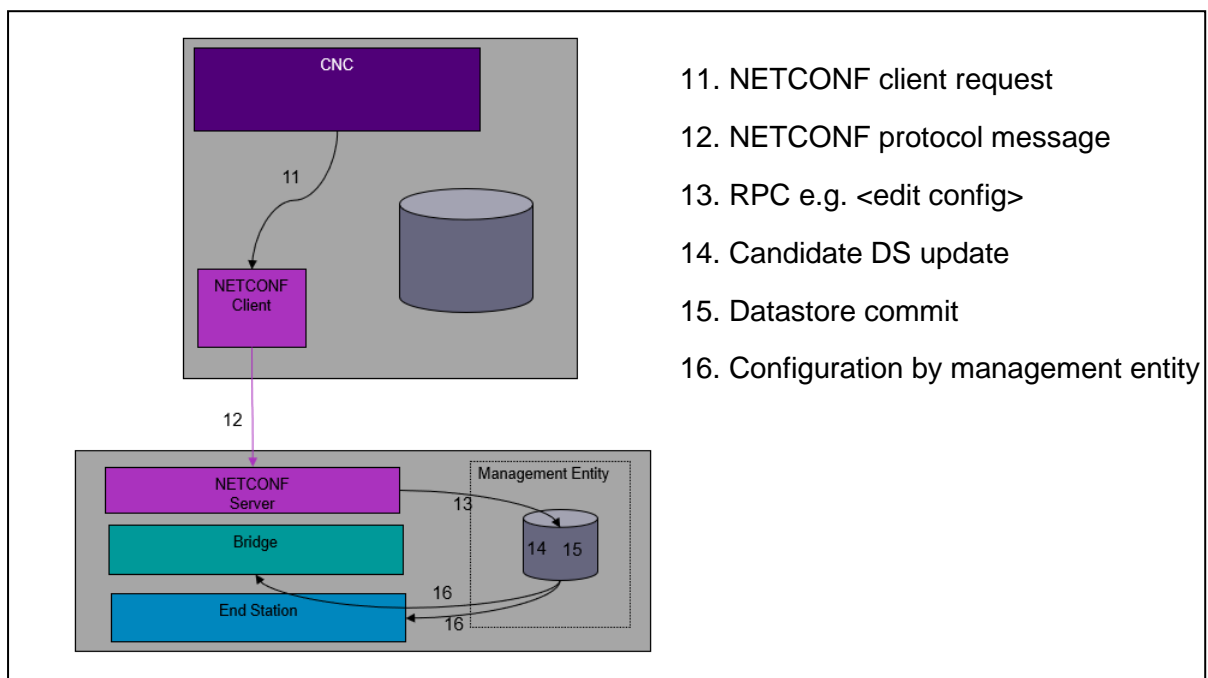

11. NETCONF client request

12. NETCONF protocol message

13. RPC e.g. <edit config>

14. Candidate DS update

15. Datastore commit

16. Configuration by management entity
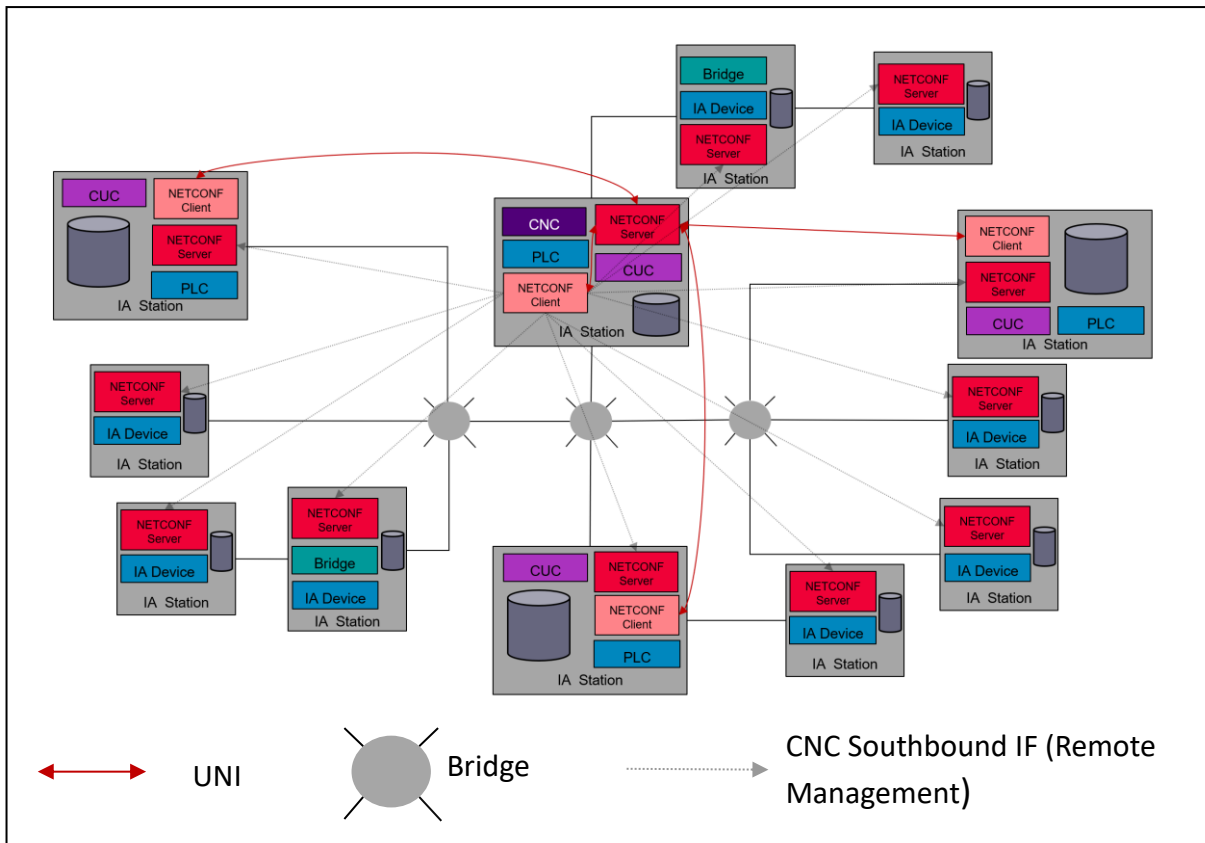
Figure 29 – CNC Southbound

Figure 30 – NETCONF USAGE

Instances of NETCONF servers and clients within a TSN domain are shown in the Figure 30. IA-stations that contain a CNC and/or CUC entity contain both a NETCONF server and a NETCONF client. All other IA stations contain a NETCONF server. NETCONF client at the CUC side is needed for the UNI. NETCONF server at the CNC side is needed to accommodate UNI as well as remote network management of the end stations and bridges that are contained in the same chassis as the CNC entity. The NETCONF client on the CNC side is needed for the southbound interface of the CNC i.e. for the remote management of the bridges and end stations in the scope of stream configuration. All IA-stations must have a NETCONF server to make remote management possible. The NETCONF server used by the CNC serves multiple NETCONF Clients (CUCs) within a single TSN domain whose requests clients can occur simultaneously.