

NMDA Base Notification for Intent based configuration update

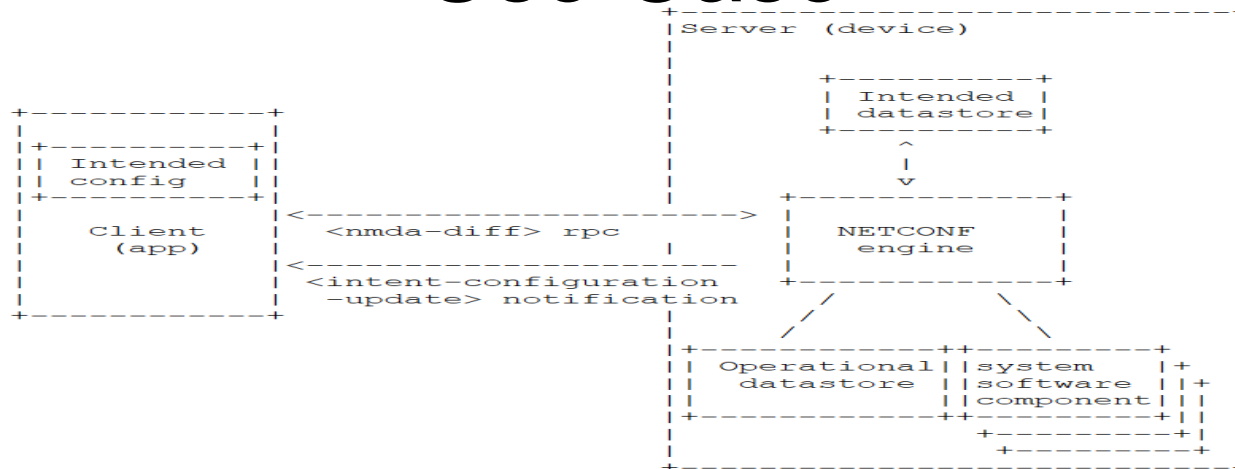
draft-wu-netmod-base-notification-nmda-03

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Motivation

- NMDA architecture allows Data propagated from one datastore to another
- NMDA Diff can be used to compare differences between datastores and but **lack capability to verify whether network configuration from intended or other source take effect,i.e., network configuration verification.**
 - Doesn't tell client applications the source of failed configuration node and
 - the reason why the configuration changes were not applied.
- This draft defines 1 NMDA specific notification to report network configuration verification event
 - Track some of misconfiguration issues in the network configuration verification, i.e.,some configurations that could not be applied to <operational> due to either validation issues, or missing resource etc;
 - But it can not be used to cover all misconfiguration cases
 - E.g.,maintain consistency in basic Network configurations
 - E.g., device links are consistent on both sides of the connection
 - Forwarding loop in the network topology

Use Case



- Present in <intended> and not present in <operational>:
 - If a client creates an interface "et-0/0/0" but the interface does not physically exist at this point, the interface will appear in <intended> but does not exist in the <operational>.
- Present in <operational> and not present in <intended>:
 - When the interface card is physically inserted, the system may add the current value of the interface's MTU
- System internal interactions with hardware is needed within the server to **verify**
 - Missing object in <operational> is caused by mis-resource or remnant Configuration, etc.
 - Missing object in <intended> is added by the system to <operational>.

Module ietf-nmda-notifications

notifications:

```
+---n intent-configuration-update ←
  +--ro app-tag?                string
  +--ro src-ds?                 identityref
  +--ro dst-ds?                 identifyref
  +--ro (filter-spec)?
  | +--:(subtree-filter)
  | | +--ro subtree-filter?    <anydata>
  | +--:(xpath-filter)
  |   +--ro xpath-filter?     yang:xpath1.0 {nc:xpath}?
  |--ro apply-result           enumeration
  +--ro fail-applied-object* [edit-id]
    +--ro edit-id              string
    +--ro operation            enumeration
    +--ro object?              ypatch:target-resource-offset
    +--ro value?               <anydata>
    +--ro errors
      +--ro error* []
        +--ro error-type       enumeration
        +--ro error-tag        string
        +--ro error-app-tag?   string
        +--ro error-path?     instance-identifier
        +--ro error-message?   string
        +--ro error-info?     <anydata>
```

Relation with NMDA diff:

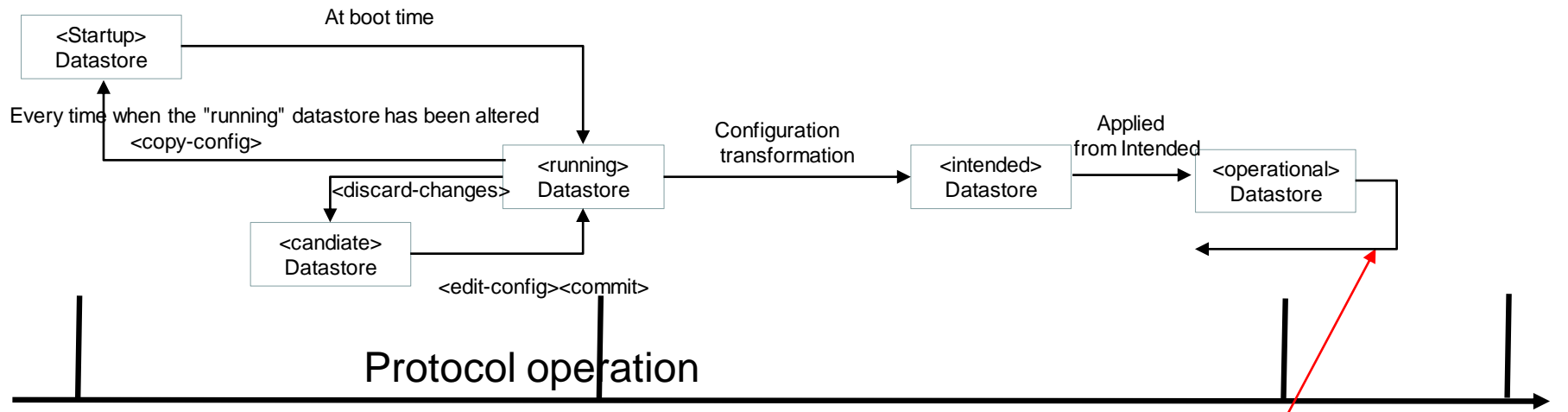
NMDA Diff is used to compare the difference between datastores while this notification is used to verify whether network configuration takes effect and report network configuration verification event or misconfiguration event.

Use additional tag to identify each intent configuration update besides source host, session id, e.g., same datastore, different time point

Report network configuration verification event using errors grouping defined in ietf-restconf module and fail-applied-object

NMDA specific Notification Position

Datastore workflow



Protocol operation

The sequence of Event Notifications



Report event related to system internal interactions with hardware, interaction with protocols or other devices

Next Step

- Request to accept draft as WG item
- Or Merge into NMDA diff draft?

Update Until IETF 105

- Move from netconf to netmod before IETF 103 and replace draft-wu-netconf-base-notification-nmda-02
 - Can work together with NMDA diff based on NETCONF discussion
- Presented in netmod session of IETF 103 and got a few feedback from netmod session and mailing list
 - Validation errors cause an error response to the commit RPC.
 - Do We need to use Username in the notification? Clarification: Yes, it is used to identify management session.
 - <intended> MUST be valid config data tree and is usually immediately updated and validated when data is written into <running>.
- Presented in netmod session of IETF104 and lack sufficient review and discussion from netmod session