Subscription Drafts

IETF #100 - NETCONF WG

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With Thanks to…

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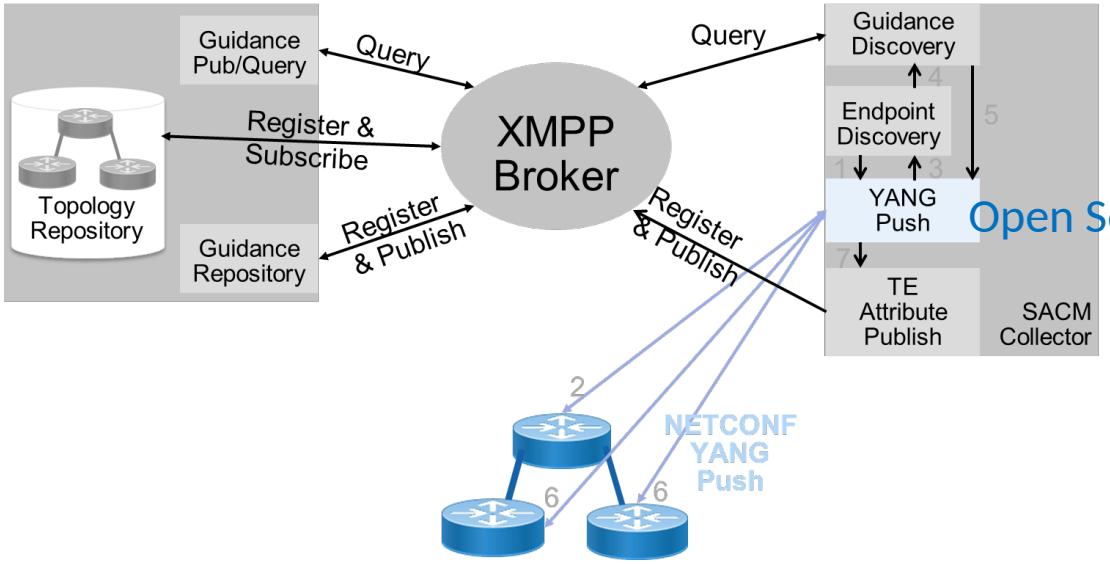
Hackathon 100 Results
SACM + Telemetry via YANG Push

Winner: Best Cross WG collaboration

- SACM
- NETCONF
- CoRE

Device discovery
Topology maintenance
Security events



Open Source

On Change subscription

- L2 link neighbors
- Hardware/software inventory

NETCONF WG Subscription Drafts

8. Custom Subscription to Event Streams
   draft-ietf-netconf-subscribed-notifications

9. YANG Datastore Subscription
   draft-ietf-netconf-yang-push

10. NETCONF Support for Event Notifications
    draft-ietf-netconf-netconf-event-notifications

11. RESTCONF & HTTP Transport for Event Notifications
    draft-ietf-netconf-restconf-notif

12. Notification Message Headers and Bundles
    draft-ietf-netconf-notification-messages

.

Overview (covered in this presentation)
draft-voit-netconf-subscription-and-notif-overview

13. UDP based Publication Channel for Streaming Telemetry
draft-ietf-netconf-udp-pub-channel

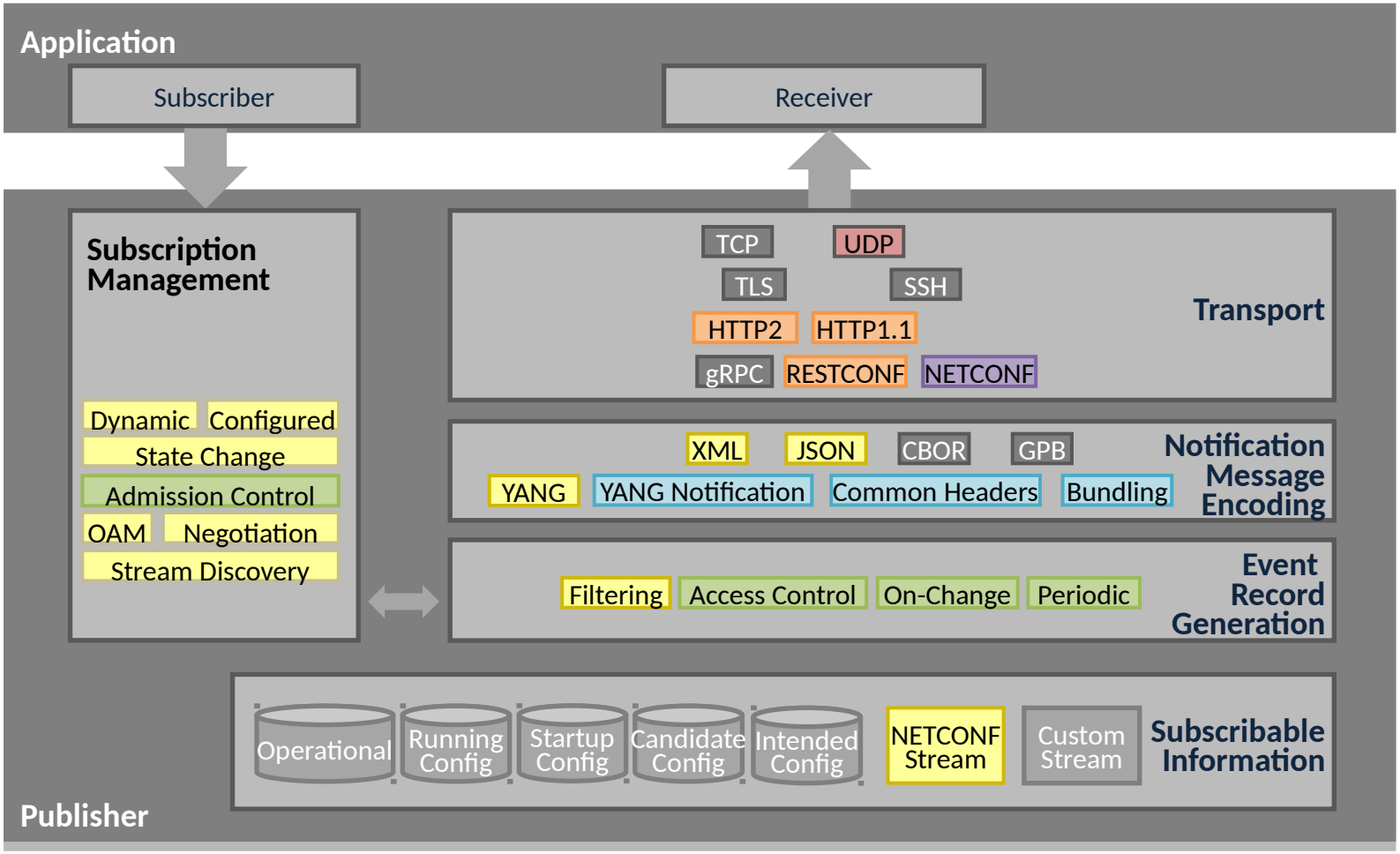
14. Subscription to Multiple Stream Originators
draft-zhou-netconf-multi-stream-originators

15. YANG PUSH Based Generalized Network Control Automation Problem Stmt.
draft-bryskin-netconf-automation-framework

16. Coap Transfer
draft-birkholz-yang-push-coap-problemstatement

17. Smart filters for Push Updates - Problem Statement
draft-clemm-netconf-push-smart-filters-ps

Adopted Drafts in Layered Framework



Legend

draft-ietf-netconf-yang-push	draft-ietf-netconf-udp-pub-channel
draft-ietf-netconf-subscribed-notifications	draft-ietf-netconf-netconf-event-notifications
draft-ietf-netconf-notification-messages	draft-ietf-netconf-restconf-notif

draft-ietf-netconf-subscribed-notifications

Updates since IETF #99

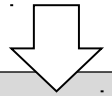
- v07, based on review comments
  - Model returns to string for stream
  - Model returns to explicit filter subtyping
  - RFC5277 exclusively used for one-way notifications (i.e., defer new encoding to draft-ietf-netconf-notification-messages)
  - SYSLOG identity removed
  - JSON & XML become optional features
  - Xpath and Subtree filtering become optional features
  - Added explicit state-machine for configured subscriptions
  - Cleaned up examples and terminology
- Issue SN#6 closed. Configured subscription key as integer

draft-ietf-netconf-subscribed-notifications

Issue SN #4

Can Transport vary across different receivers of a single configured subscription?

Current draft



Yes	No
• Fewer subscriptions (scale benefit) • Can convert transport without requiring an application to learn a multiple subscription ids • No duplication of content during transport conversion. • Potential confusion in allowing transport to vary, but encoding not to vary?	• Simpler model • But applications may need to create and track multiple subscription-ids for the same content. • Temporary duplication of content streams during transport change.

draft-ietf-netconf-subscribed-notifications

Issue SN #5

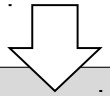
How to represent Source VRF of configured subscription?

Current draft

String	Leafref to “ietf-network-instance” `/network-instances/network-instance/name`
• Would populate with exact same name as would be in the leafref • Possible to name VRF which doesn’t exist	• Creates dependency on schema mount for subscriptions. • Source VRF is an optional capability, but publishers that don’t care about VRFs must still import. • Establishes model dependency to draft-ietf-rtgwg-ni-model

SN#6 - String or Integer for Subscription ID

Rough Consensus Declared



Integer for all contexts	Use string for configuration, integer for updates
• Need to partition integer space to avoid collisions/reuse.	• Receiver must match context from subscription-started state change notification as id is different from what was configured. • Receiver app must be able to force transport reconnect if subscription state is lost. • Configured subscription correlation across multiple receivers is more complex (automatically assigned integer won't be the same across publishers.) • String must be human readable, and also act as a key. • Larger model

- Note: there were *many* other option variations considered beyond these two (including an elegant but more complex proposal from Rob Wilton.) For slide brevity, the two most different are shown.

Updates since IETF #99

- -v11, based on review comments
  - Integrated draft-ietf-netmod-revised-datastores (as this work as caught up)
  - Returned to explicit filter subtyping of v00-v05
  - Scrubbed the examples
  - Resynch on-change RPC
  - Deferred the multi-line card issue to draft-zhou-netconf-multi-stream-originators
- Open Issue: YP#11: Shift to NMDA compliant structure
  - Recommendation: authors will release NMDA compliant model versions (allowing side-by-side comparison) once all pre-WGLC issues are closed.

Updates since IETF #99 based on Comments

- -06 revision
  - Normative text placed up front (pages 2-4)
  - Removed all JSON text
  - Clarifications in call home text for retries
  - All examples move to Appendix
  - Scrubbed the examples (there were many fixes / changes)

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Recommendation: Start WGLC

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draft-ietf-netconf-restconf-notif

Updates Needed (none posted since IETF #99)

- A new -04 revision must address the following:
  1. What does an 'ok' mean when sent after subscription-started for a configured subscription over HTTP2?

     Which one-way notification encoding to use for a receiver? 5277, or draft-ietf-netconf-notification-messages?
  - Still need guidance on transparency of GRPC mapping to RESTCONF (e.g., RESTCONF uses GET, not POST.)
  - Interactions with the YANG Push for CoAP transfer problem stmt?
  - Doc scrubbing (move normative text up front, extract examples to Appendices JSON only examples)
- No implementations yet.
- Recommend deferring WGLC until there is concurrent support of draft-ietf-netconf-notification-messages to solve (1).

draft-ietf-netconf-notification-messages

Updates since IETF #99

-v00 to -v02

- Alternative to 5277 one-way notification added
- Storage of default headers by notification type
- Backwards compatibility
- Discovering Receiver Support
  - Issue NM#1: Alternatives to use of client based capabilities discovery for NETCONF?
- Headers for module and notification-type
- yang-data encapsulation containers

- Upcoming: dialogs on specific headers
  - Signatures, attestation, others

Thank you!