YANG Datastore Telemetry (YANG Push ~~Lite~~ 2)

draft-wilton-netconf-yang-push-2-00

NETCONF WG IETF 125, Mar 2025

Rob Wilton (presenting)

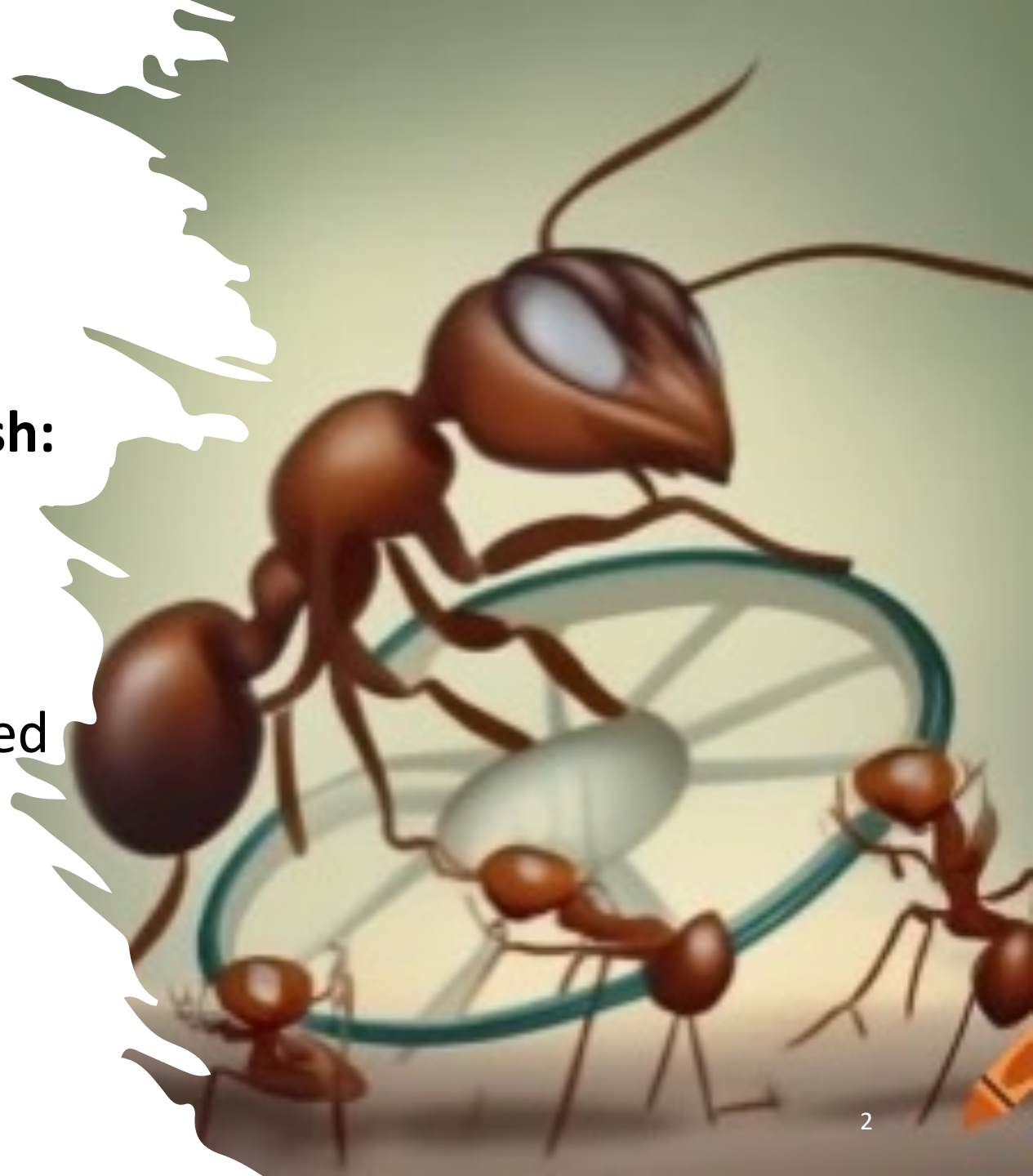
Authors/Contributors:
Thomas (Swisscom), Holger (DT), Benoit (EverythingOps)
James (Nokia), Ebben (Juniper),

I E T F

What is Yang Push Lite?

Goal: to build an updated YANG Push:

- Simplify YANG Push (drafts + protocol)
- More alignment with gNMI
- More alignment between configured & dynamic subscriptions
- Merge in recent YP extensions
- Allow for more efficient implementations



Why?

What about RFCs 8639 & 8641?

What about gNMI?

What Not?

Not starting from scratch

(for the protocol)

Not reinventing the wheel, but there is refinement

What has changed since -lite-02 (IETF 124)?

Quite a lot:

- Renamed to Yang Push 2 (can coexist with YP)
  - As per IETF 124 feedback
- Re-added subscription modified notification and modify-subscription RPC
- Updated update message format (merge/replace-by/deleted)
  - Same notification use for on-change and periodic subscriptions
  - Replace-by is preferred, better for clients
- Complete flag indicates end of periodic collection:
  - Can be used for on-change notifications as well
  - Event-time is used to correlate update msgs

What else has changed

- Subscription id is a string (used in all notifications)
  - No separate numeric-id, avoid complexity
  - dyn- reserved for dynamic subscriptions
- Removed by-reference filter for dynamic subscriptions:
  - Simplification + avoid complexity of handling config change
- Sync-on-start refinements:
  - Only sent after subscription started.
  - MAY be before any on-change notification, MUST be before on-change notifications for that data node.

More changes

- Updates to some examples (more to do)
- Limit to a single receiver per subscription:
  - Device can still internally optimize if same subscription is configured for 2 receivers.
  - Removed receiver-disconnected notification, simplifies state machine
- Distributed Notif Support:
  - Based on netconf-distributed-notif
  - Publisher-id is augmented in envelope, defaults to 0
  - Update-complete flag is per publisher
  - All clients must handling distributed publishers, publishers can choose

Key issue – Envelope draft depends on YP

Issue:

1. We don't want YP v2 to have dependencies on YP v1 YANG data models
2. ietf-yp-notification defines envelope and YP v1 config and YP v1 capabilities
3. draft-ietf-netconf-notif-envelope draft is post WG LC and implemented (4-5 implementations)

Choices:

1. Split ietf-yp-notification into 2 modules, envelope vs (config & capabilities)
   Impacts existing implementations and perhaps IETF timeline
2. Don't directly reuse ietf-yp-notification, define separate envelope for YPv2
   Note – we already copy rather than reuse other parts of envelope anyway for YPv2!
   Other YP extension drafts have been merged in YPv2 for a complete and simpler spec.

Conclusions:

- Some vendors & operators met and discussed on Sunday.
- **Our conclusion is that choice 2 is the better and most pragmatic path forward.**
- **Does WG agree?**

Key issue – Envelope draft depends on YP

?

What's left to do?

Still quite lot!

- Some text and examples cleanup (NACM, RPC errors)
- Merge in some of RFC 8640, RFC 8650
- Split out YPath
- 28 open issues to work through (some of them still significant):
  - Agree on atomic behaviour, equivalent to gNMI target-defined, etc)
  - Aim to align this behaviour with gNMI – which is underspecified

Plan

Continue work though main issues over the next few months:

- Bi-monthly meetings with authors
- Aiming for the core parts of the protocol to be stable enough to start implementing around IETF 126 …
- IIRC, outcome of IETF 124 showed good support for adoption =>
  - WG chairs, would now be a good time to run an adoption poll?

Backup slides

Backup slides

Github Repo: https://github.com/rgwilton/draft-yp-observability

Issues: https://github.com/rgwilton/draft-yp-observability/issues

Latest Draft: https://rgwilton.github.io/draft-yp-observability/draft-wilton-netconf-yang-push-2.html

A ***self-contained draft*** to define Yang Push 2:

- Starting with all relevant text from RFC 8639 and RFC 8641, + extensions
- Started reviews and meetings with other authors
- Main direction settled/agreed, but some issues to discuss & work through

YP Lite uses new module namespace for config, notifications and RPCs

What's in a name?
Is it really 'lite'? Or is it Yang Push v2?

YANG Push Solution	Pages	YANG Push 2 solution	Pages
RFC 8639 – Subscribed Notifications	77	Not used/replaced	
RFC 8641 – YANG Push	58	**draft-wilton-netconf-yang-push-lite (replaced)**	**126 (- issues)**
RFC 8640 – Dynamic YP over NETCONF	19	Will merge in	2 (est)
RFC 8650 – Dynamic YP over RESTCONF	-	TBD?	
draft-ietf-netconf-yp-transport-capabilities-05	16	Incorporated	
draft-ietf-netconf-distributed-notif-16	22	Plan to incorporate	5 (est)
draft-ietf-netconf-yang-notifications-versioning-09	31	Will incorporate	2 (est)
Total (excluding transports/YL augments)	**223**	**Total (excluding transports/YL augments)**	**135 (est)**

RFC 5277 - NETCONF Event Notifications	33	**draft-ietf-netconf-notif-envelope-03**	45
draft-ietf-netconf-https-notif-15	-	Optional. Needs YPL version (augment new path)	-
draft-ietf-netconf-udp-notif-23	-	**Optional: Needs YPL version (augment new path)**	-