Root initiated routing state in RPL
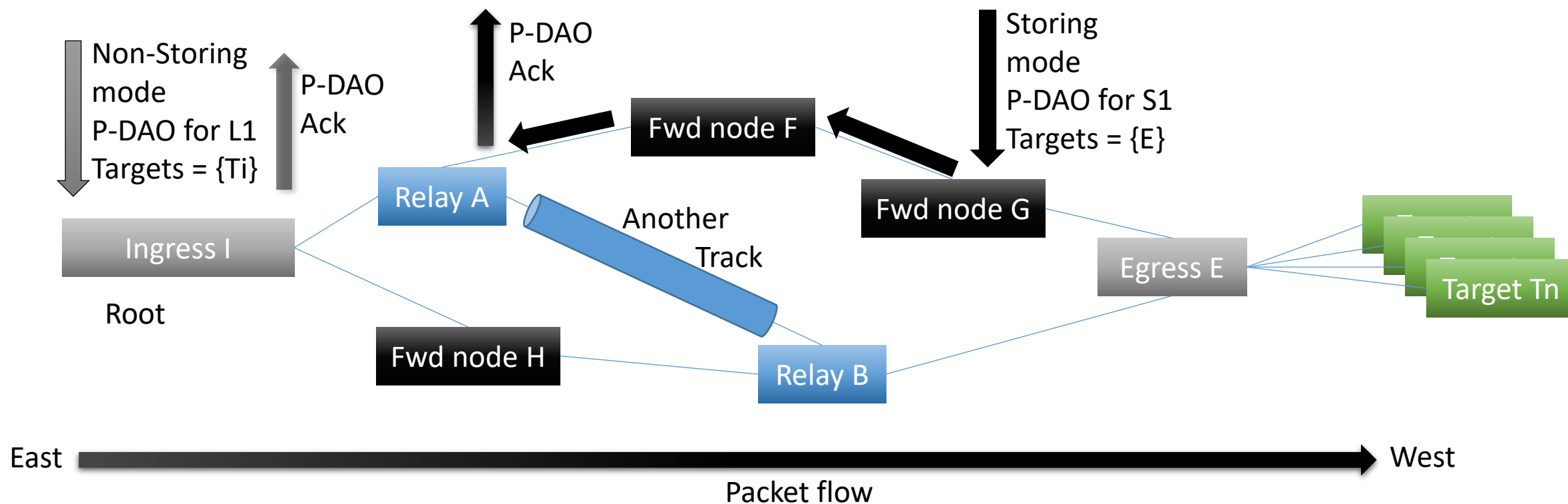
draft-ietf-roll-dao-projection

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IETF 113

Presenter: Pascal Thubert, remote.

The RPL Track: A DODAG rooted at Ingress

Non-Storing mode
P-DAO for L1
Targets = {Ti}

P-DAO Ack

P-DAO Ack

Storing mode
P-DAO for S1
Targets = {E}

Fwd node F

Fwd node G

Relay A

Another Track

Ingress I

Root

Egress E

Target Tn

Fwd node H

Relay B

East ➡ West

Packet flow

Targets	{Tx}	Legs	L1 = I->A->E to {Ti} , L2 = I->B->E to {Ti} , L3 = I->A->B->E to {Ti}
Segments	S1 = A=>F=>G to E , S2 = I=>H to B	SubTracks	Any Set ⊂ {L1, L2, L3} but { }

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Some rules

- Track is set up by installing Legs and Segment
  - with the same Track ID
- Non-Storing Mode P-DAO signals a Leg
- Storing Mode P-DAO signals a Segment
- Storing Mode P-DAO enables loose hops
  - in Non-Storing main DODAG (typically TrackId is Global instance ID)
  - in Tracks (typically TrackId is Local instance ID to track Ingress)
- Track Egress is implicit Target in Non-Storing Mode
- Leg hop is either a Segment of this Track or another Track

Status of the draft

- Latest rev is draft-ietf-roll-dao-projection-24
- 21: Includes IOT-DIR review by <u>Toerless</u> (before IETF 112)
- 22: Michael's review
  - Terminology (stretch, Tracks, ..)
  - Clarification (Building Tracks…)
  - Loose source routing benefits
  - New flag 'D' in DODAG conf option to signal "Projected Routes Support"
  - Mapping to DetNet:
    - **Relay Nodes as the hops of a Leg**
    - **Forwarding Nodes as the hops in a Segment that join the Relay nodes**

Status of the draft (cont.)

- -23: Li's review, first round with questions left opened
  - Clarifications
  - Introducing P-DAO ACK
  - Introducing the bidirectional flag in Sibling Info Option (SIO)
- -24: More of Li's review, treated as GitHub issues
  - Allows more than one target options, will reach 1st + undefined subset.
  - Use of the bidirectional flag in Sibling Info Option (SIO) / what if dup
  - Michael's edits on Amends and Extends. Michael becomes co-author
- Since: Rephrasing terminology on Legs and SubTracks
  - Legs are loose hop sequences from Track Ingress to Egress
  - SubTracks (of a Track) are collections of Legs of the Track

Next

- Remous-Aris' Review
  - Items …

- WGLC; please consider:
  - Need for new status codes
  - Missing flows, e.g., Error flows

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