

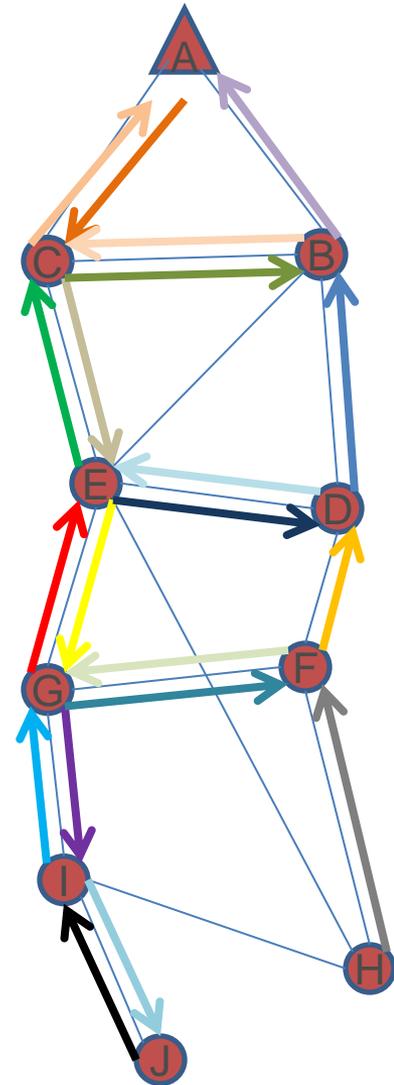
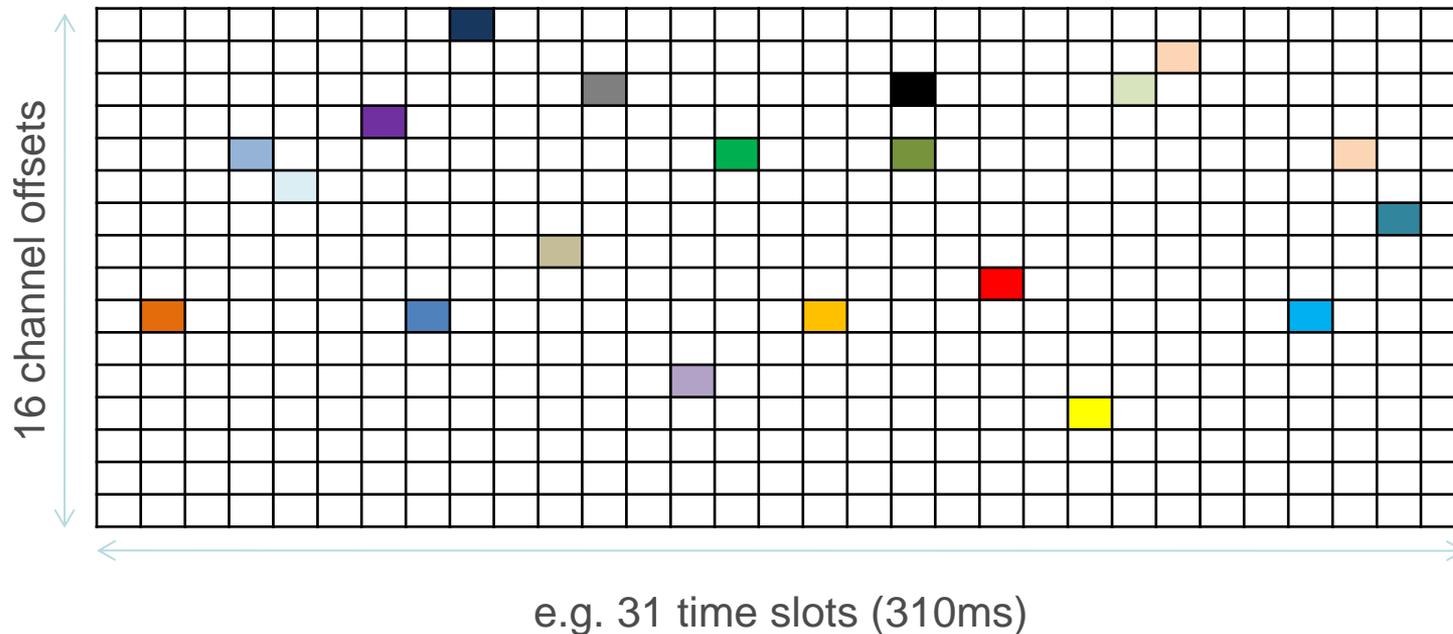
# On 6TiSCH

DetNet BoF  
IETF-91 – Hawaii

Pascal Thubert

# CSMA vs. TDM and Scheduling

- Schedule => direct **trade-off** between throughput, latency and power consumption.
- A **collision-free** communication schedule is typical in industrial applications.
- But requires network synchronization, and de-sync means long isolation



# Requirement for a new standard

- Industrial requires standard-based products
- Must support equivalent features as incumbent protocols
- Must provide added value to justify migration
- 6TiSCH value proposition
  - Design for same time-sensitive MAC (802.15.4e TSCH)
  - Direct IPv6 access to device (common network mgt)
  - RPL Distributed routing for scalability (for monitoring)
  - Large scale IPv6 subnet for mobility (50K +)

# 6TiSCH: IPv6 over TSCH MAC

Active IETF WG, 4 WG docs being adopted

Define an Architecture that links it all together

Align existing standards

- (RPL, 6LoWPAN, PANA?, RSVP, PCEP, MPLS)

over 802.15.4e TSCH

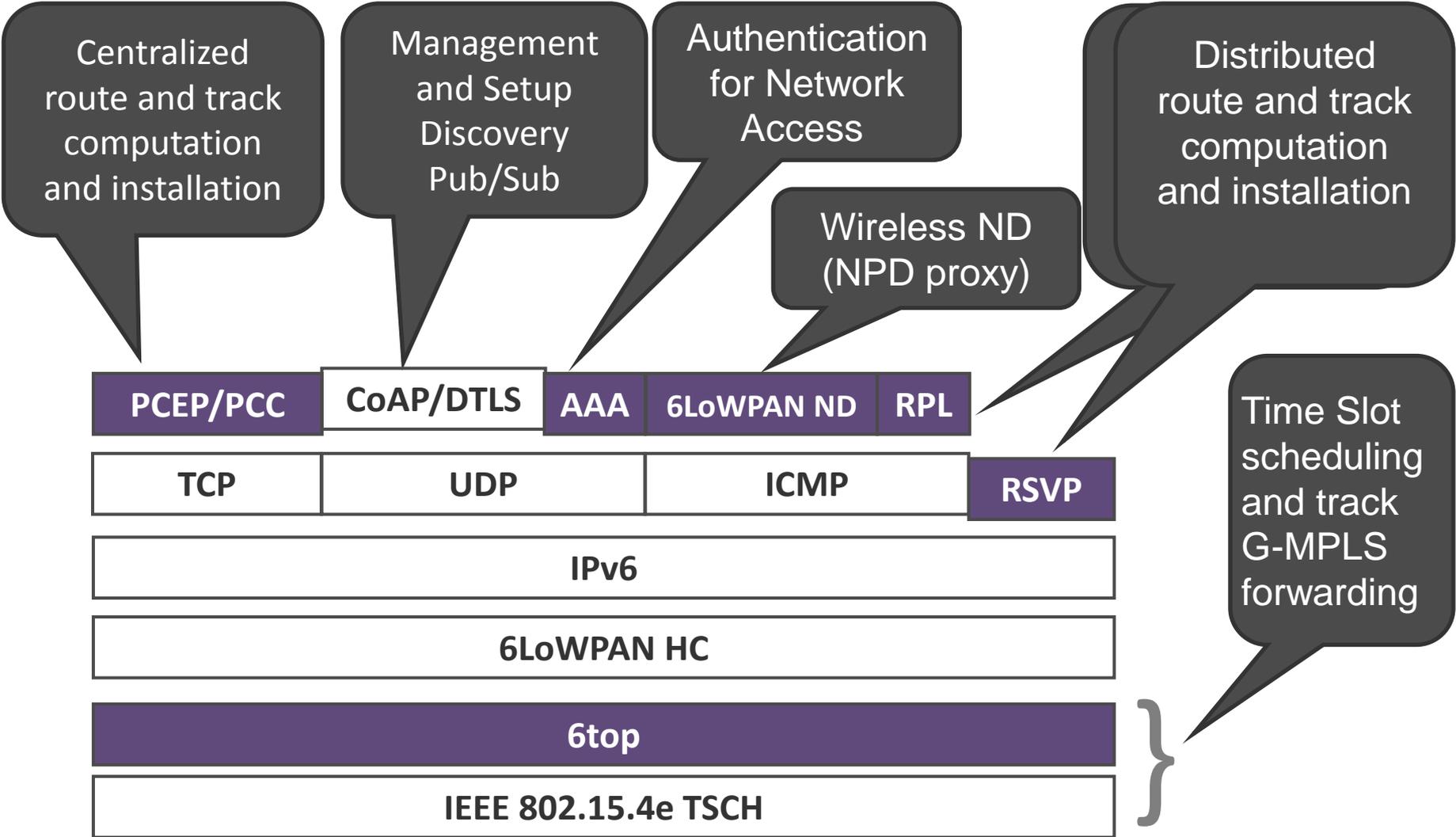
Support Mix of centralized and distributed deterministic routing

Design 6top sublayer for L3 interactions

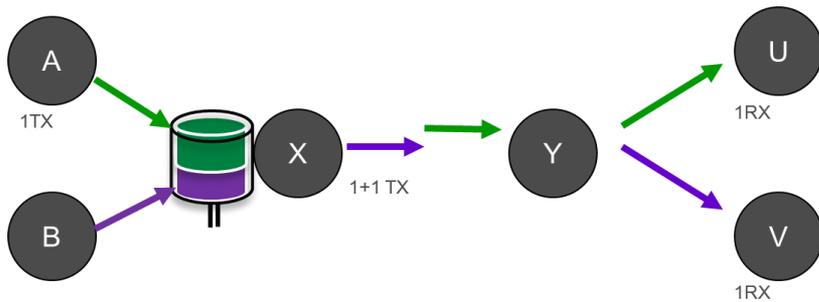
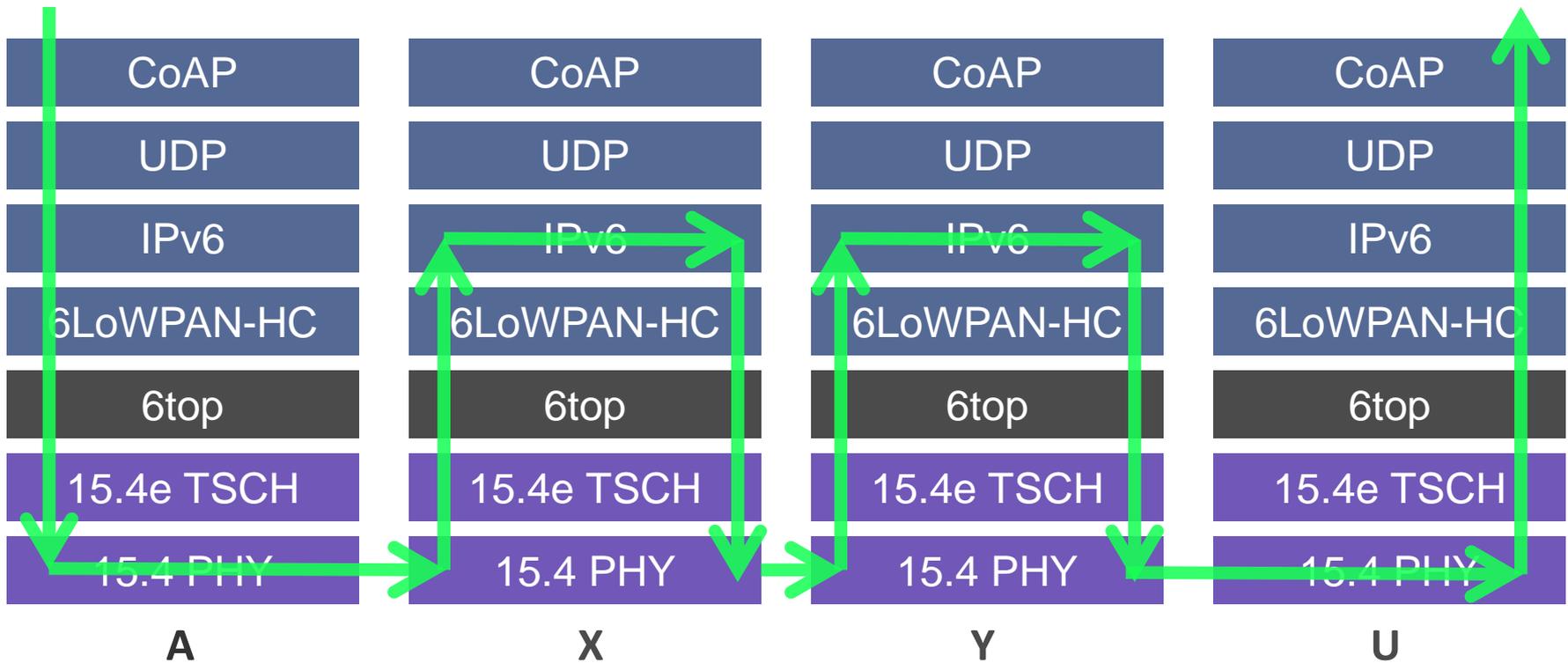
Open source implementations (openWSN...)

Multiple companies and universities participating

# 6TiSCH Client stack



# Best effort routing



Bundle

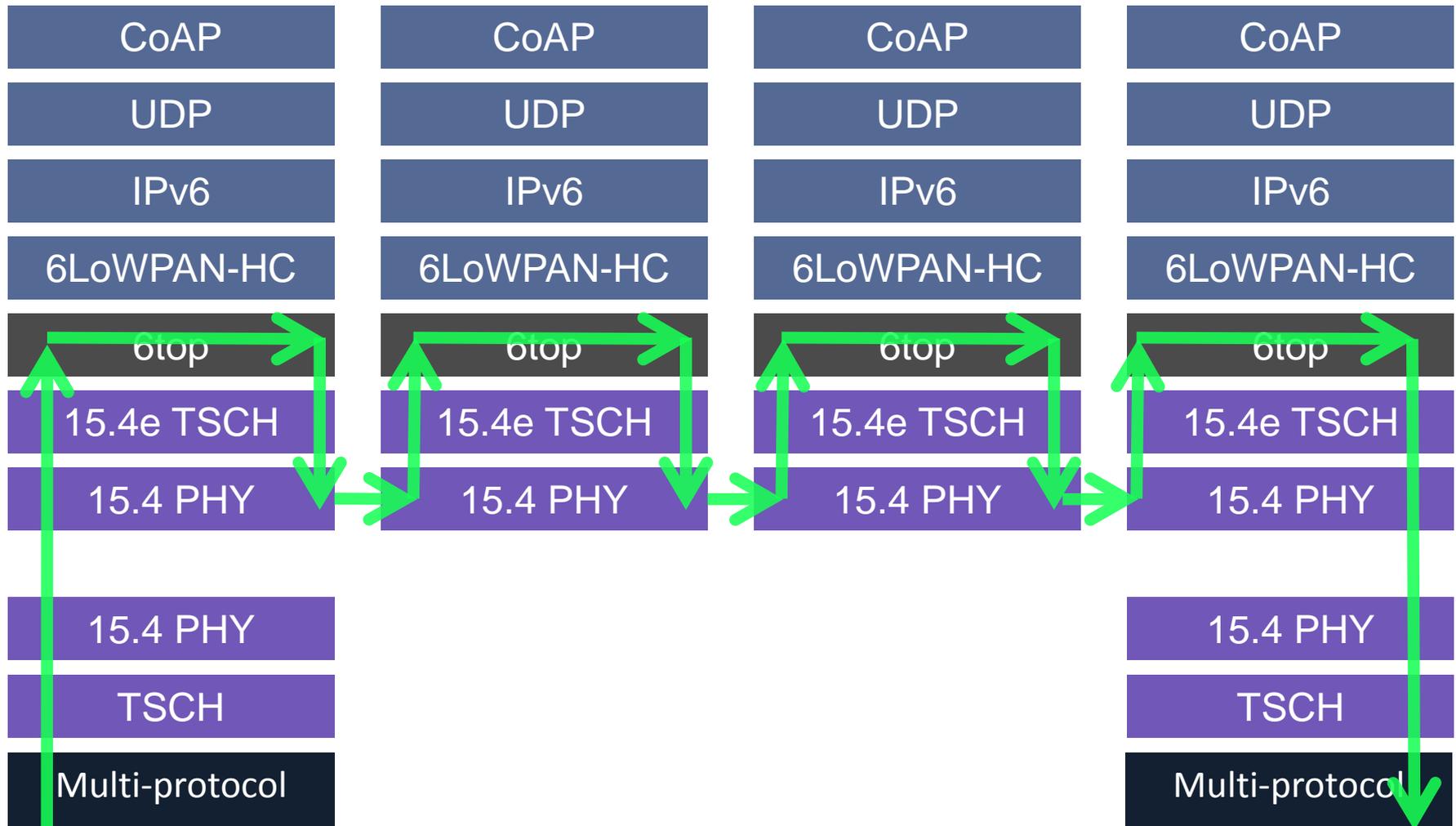
			X → Y			Y → V	
A → X					X → Y		Y → U
	B → X						

channelOffset

slotOffset



# Track Switching in Tunnel Mode





# Retracking after recovery

