



# SRv6 MUP

Mobile User Plane

May2023

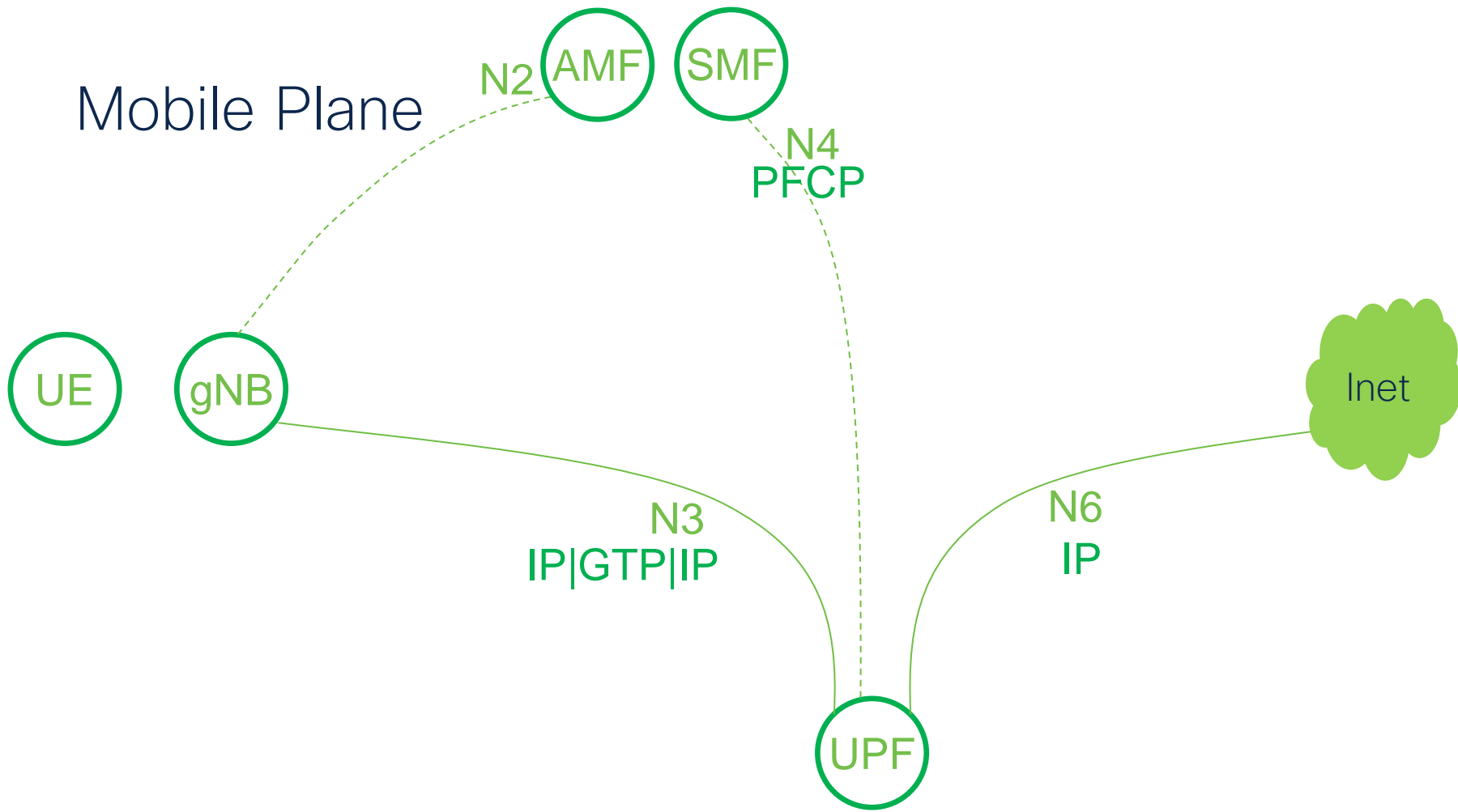
Jakub Horn

Principal Technical Marketing Engineer

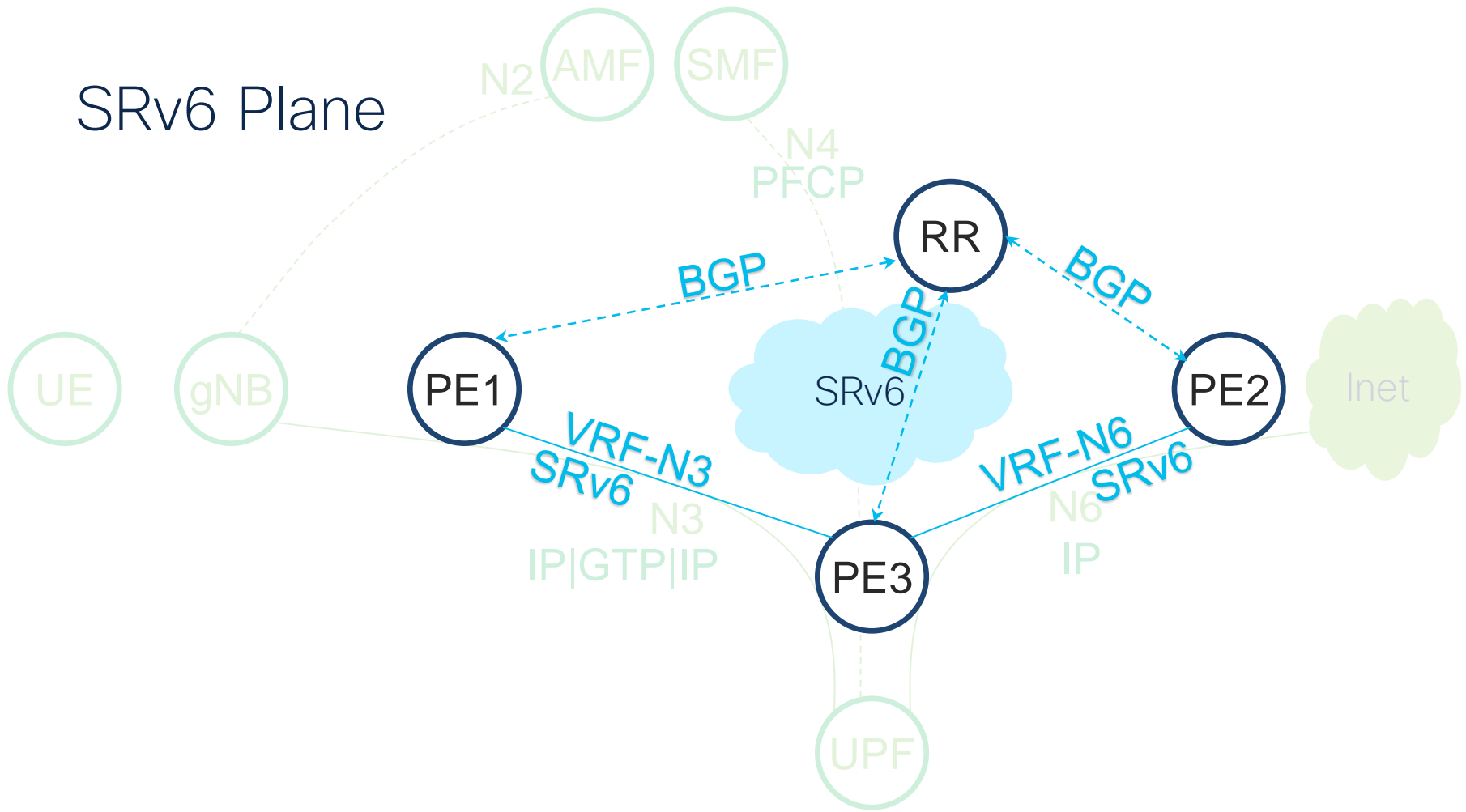
# Content

- Current 5G and SRv6 network
- MUP Concept
- Collapsed MUP
- Conclusion
- Current Status

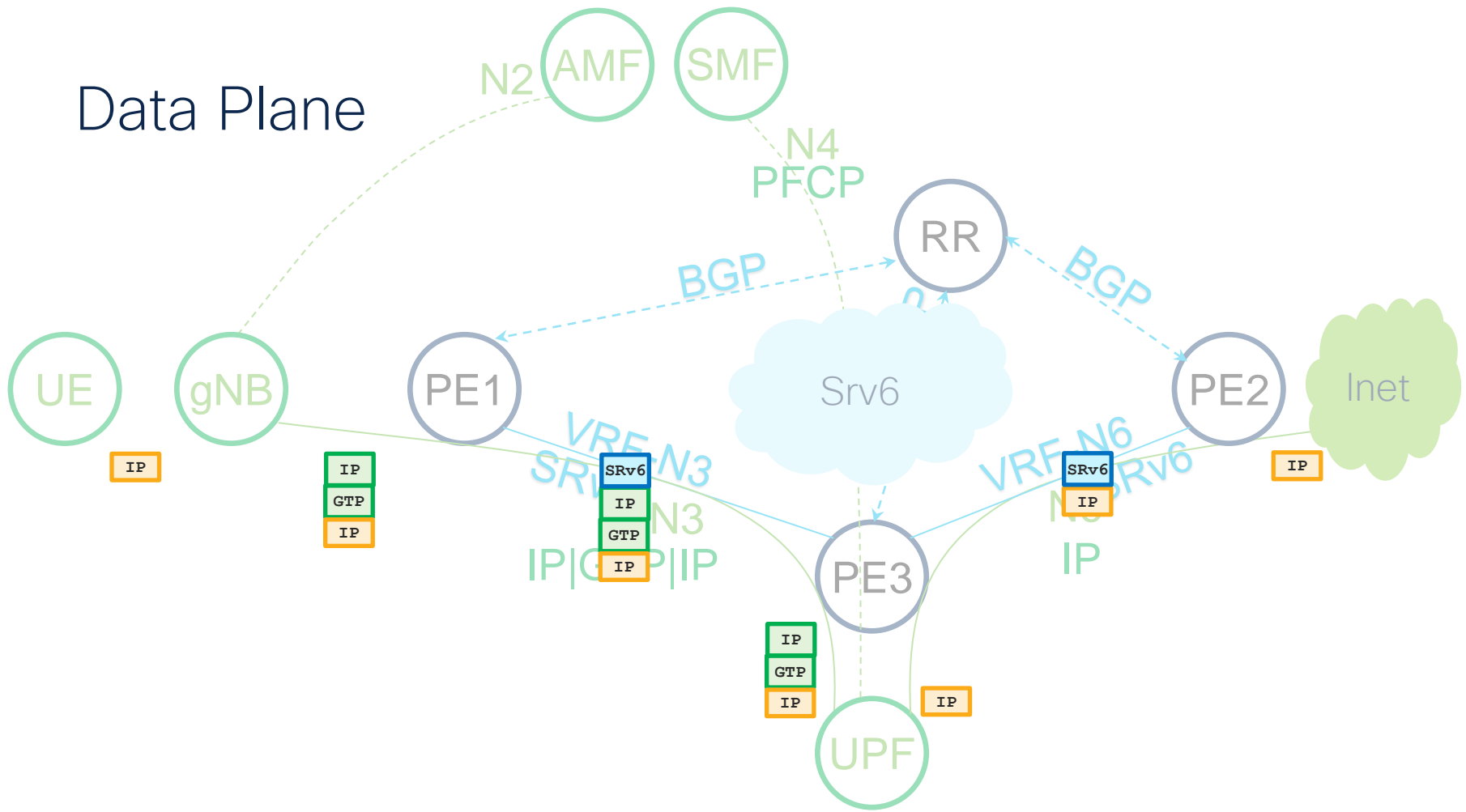
# Mobile Plane



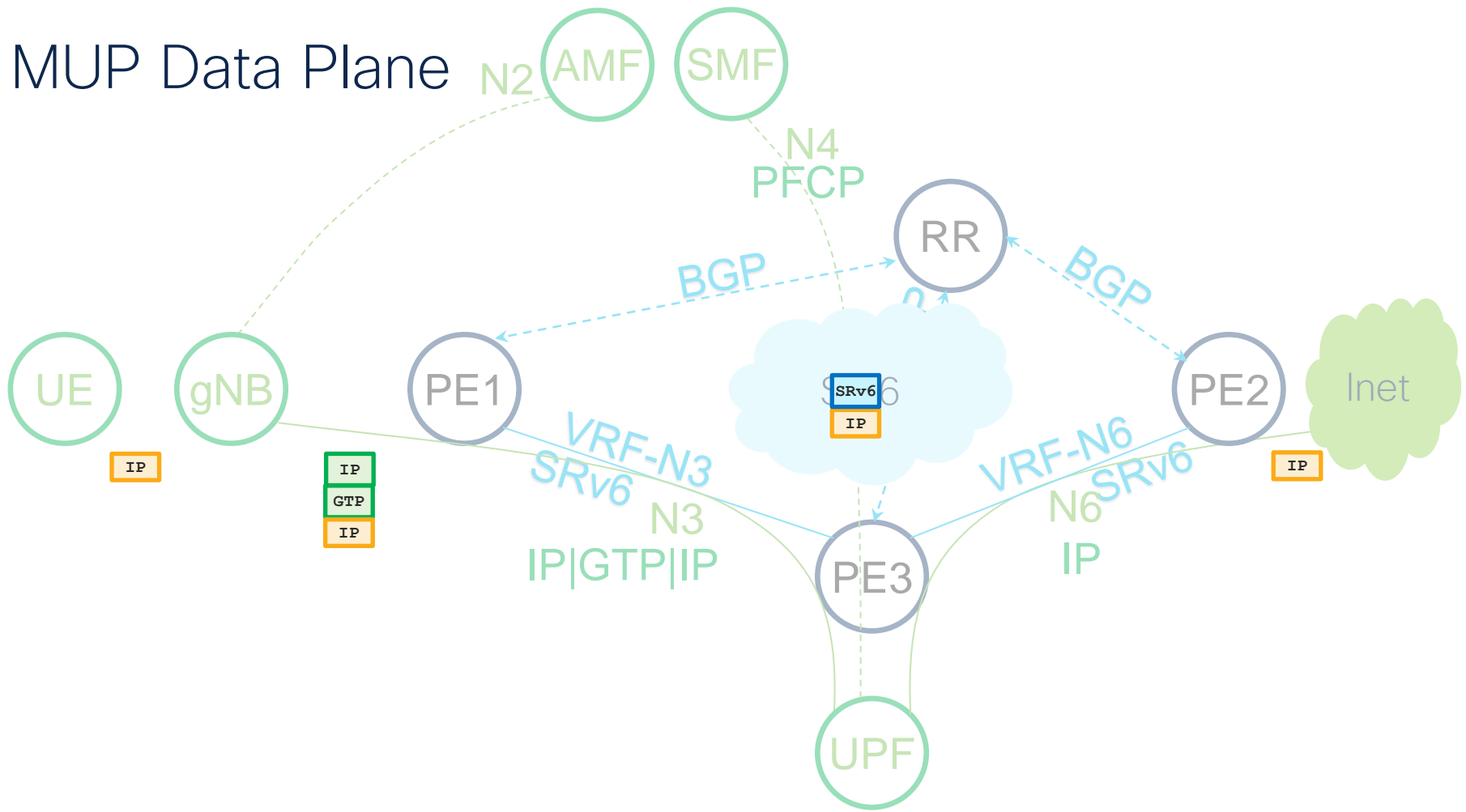
# SRv6 Plane



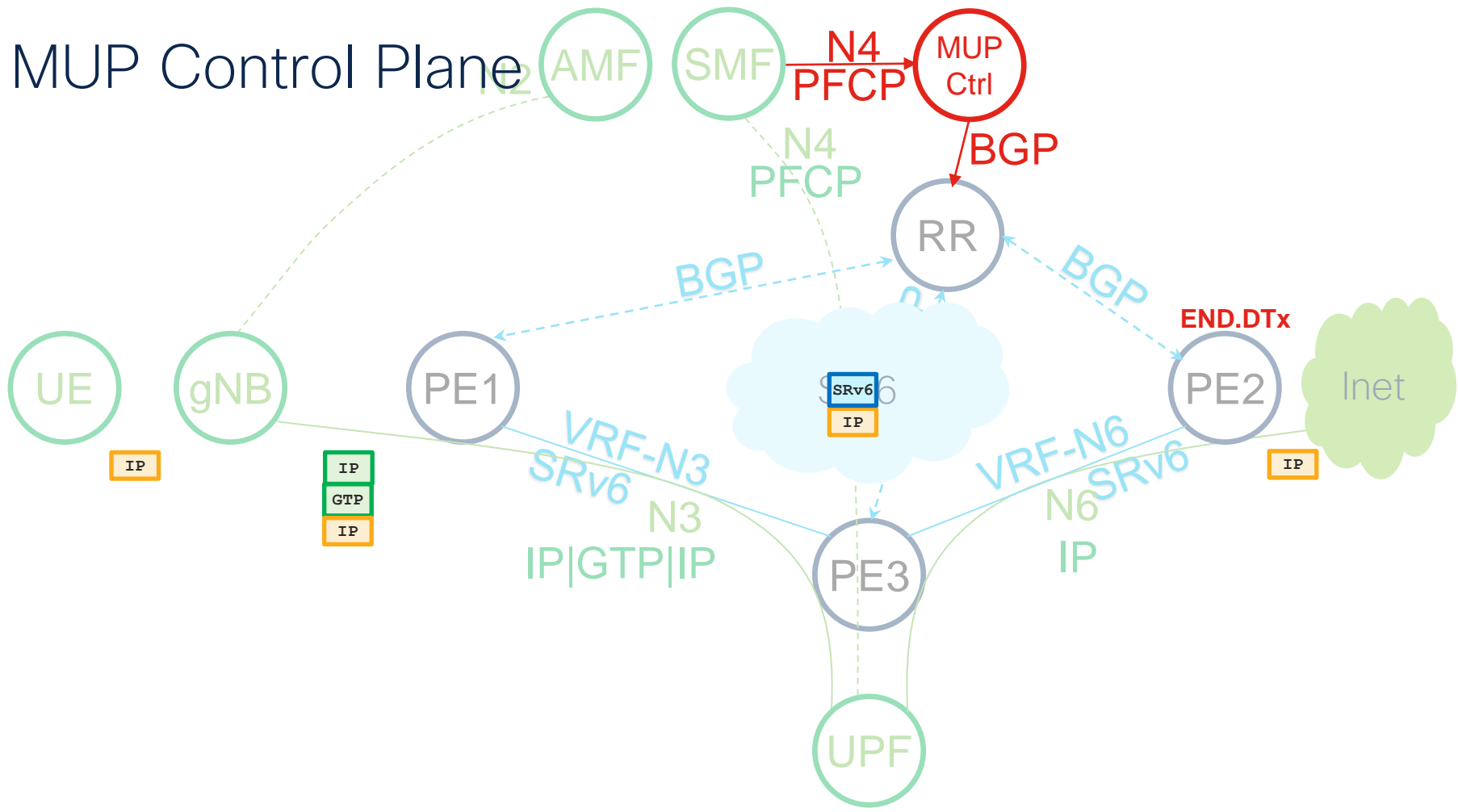
# Data Plane



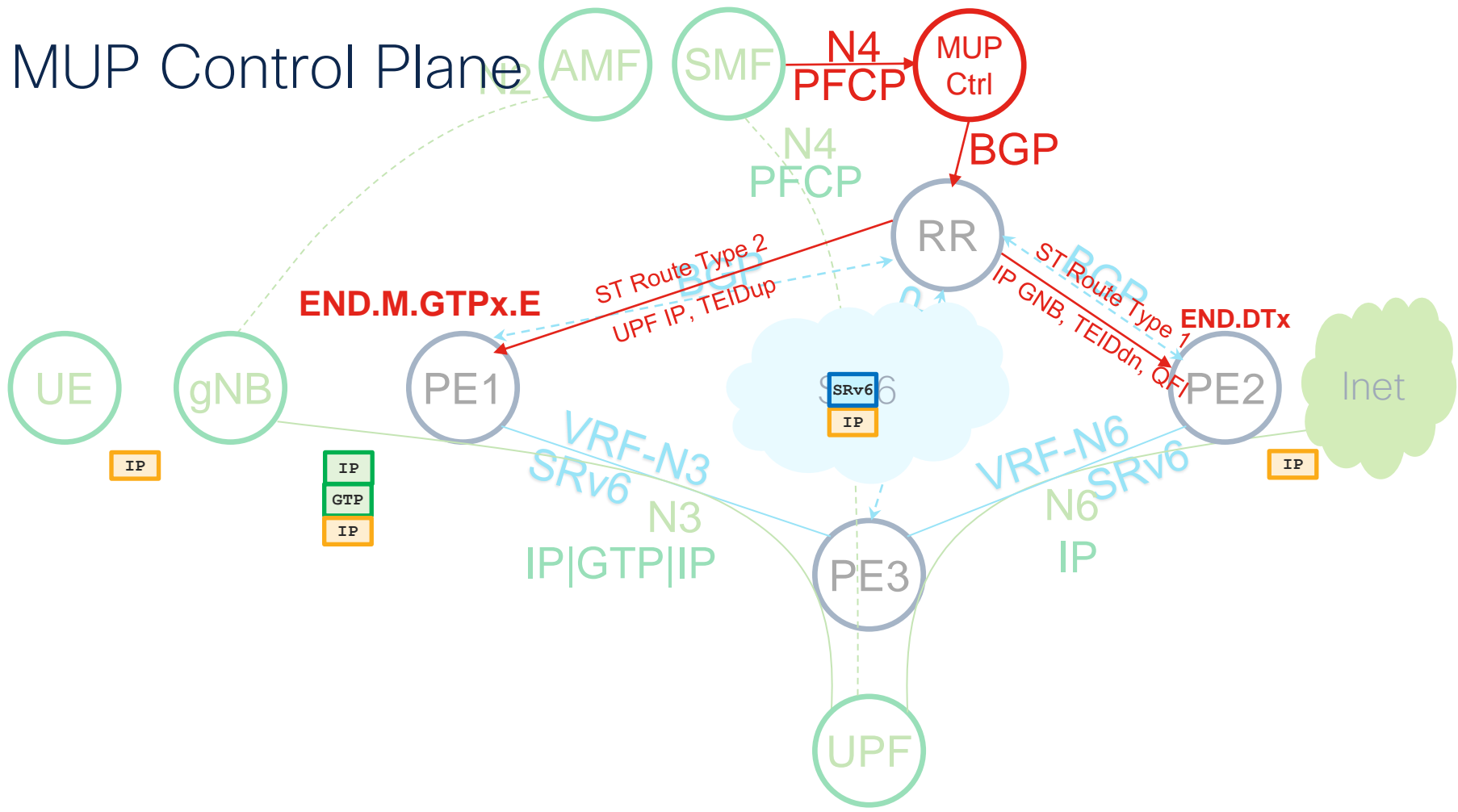
# MUP Data Plane



# MUP Control Plane

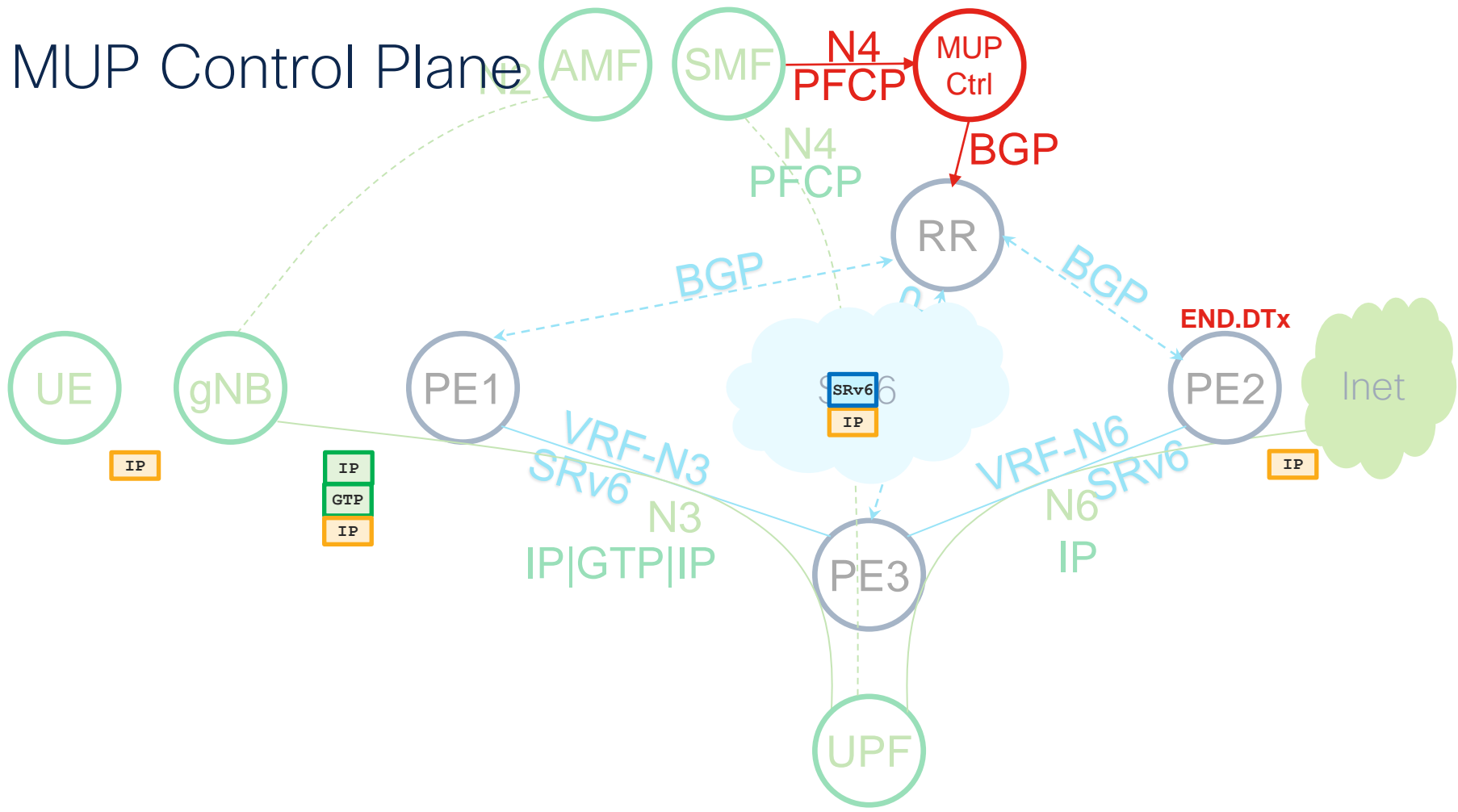


# MUP Control Plane

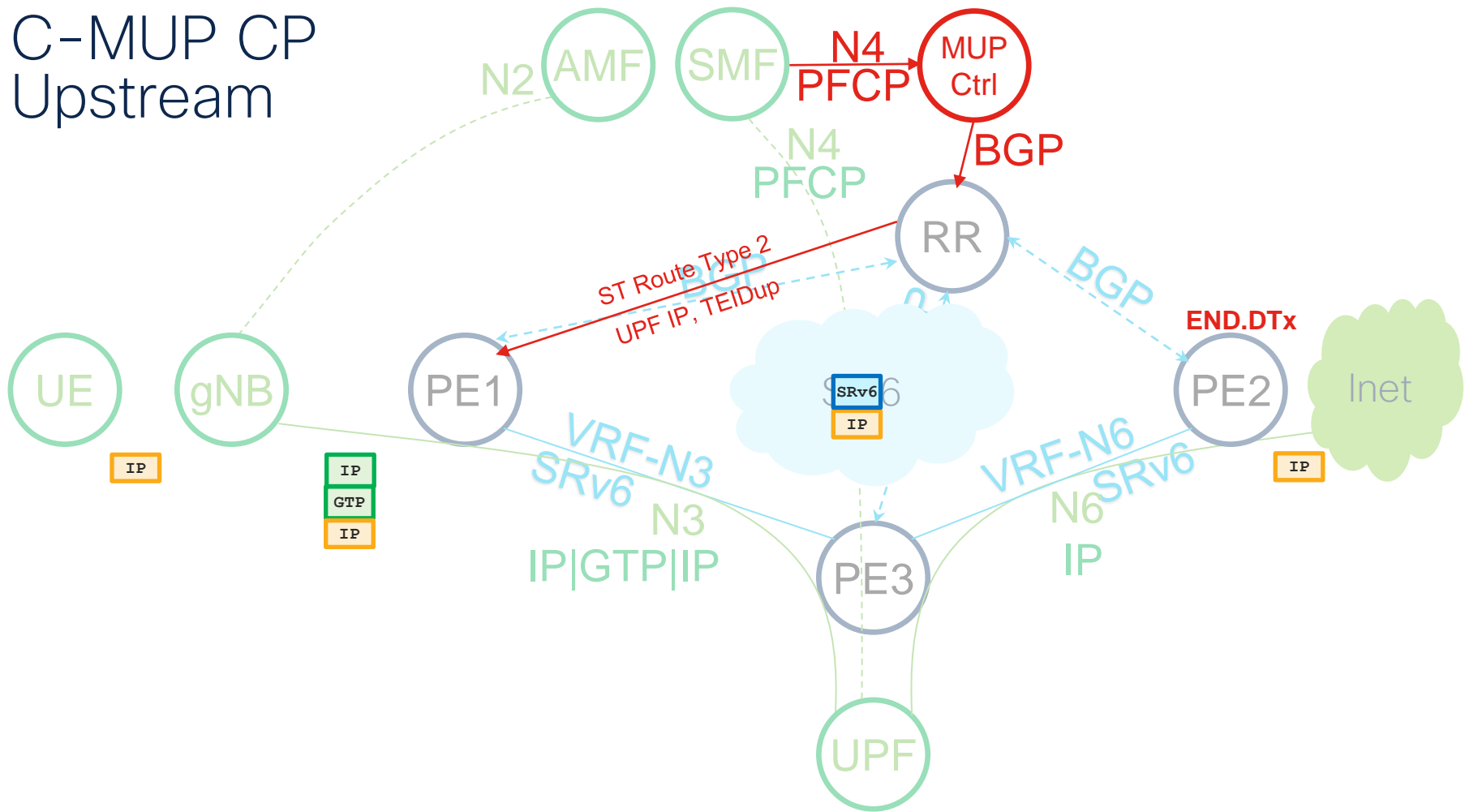




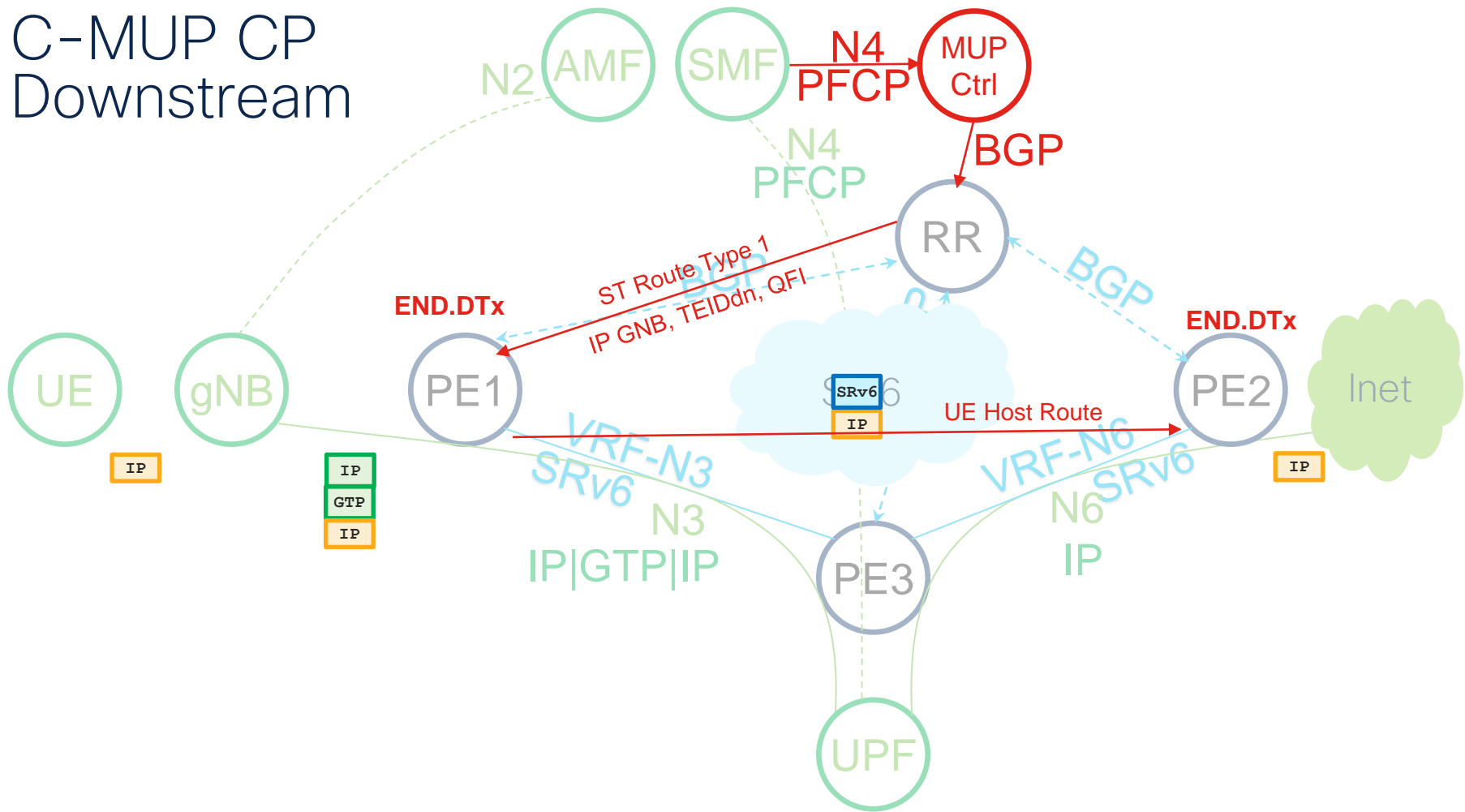
# MUP Control Plane



# C-MUP CP Upstream



# C-MUP CP Downstream



Conclusion

# 7% fiber discount thanks to lower MTU Overhead

Average Inner Packet Size	700	
	Transport Overhead [Bytes]	
SRv6 MDG	40	
GTPv4 over SRv6-VPN	84	
GTPv6 over SRv6-VPN	104	
SRv6 MDG transport efficiency gain over GTPv4 over SRv6-VPN		-6%
SRv6 MDG transport efficiency gain over GTPv6 over SRv6-VPN		-8%
Average SRv6 MDG transport efficiency gain		-7%

- Significant Economical gain
  - 7% lower overhead is equivalent to a 7% discount on fiber cost

# Benefits

- Only the router with Collapsed MUP needs new SRv6 uSID behavior
  - No change: gNB, 5G Control Plane, SRv6-VPN transport network, BR
  - Behavior may coexist with existing access device (e.g. CSR)
- Lower Cost:
  - PPS: HW instead of x86: 40 times cheaper capex and X times cheaper power
  - 7% discount on fiber due to lower MTU overhead
  - Reduction of fibers IP Core  $\Leftrightarrow$  DC
  - Simpler operation: classic SRv6-VPN vs UPF VNF
- Lower latency
  - Shortest-path HW pipeline provides much lower latency than detour via DC/VNF

# IP all the way to the CSR

- Significant economical gain
- Significant operation simplification

# Current Status

- Sep 2022 – Dataplane Demonstration
  - SiliconOne, Argon
- Mar 2023 – Controlplane interoperability Hackatlon (IETF)
- Apr 2023 – Controlplane dataplane integration (MPLS WC)
- Control Plane evaluation





The bridge to possible