Programmable Data Planes for Converged Access Infrastructure

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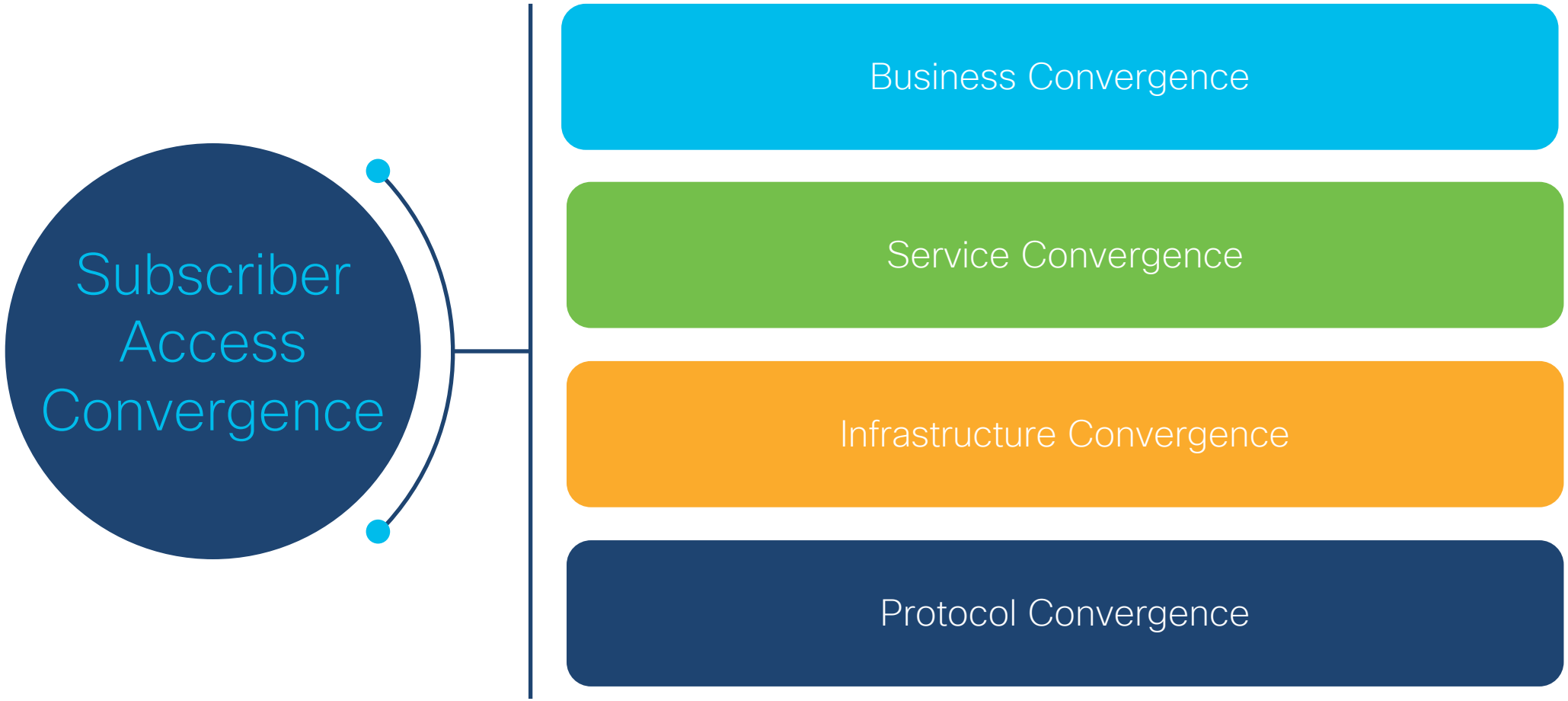
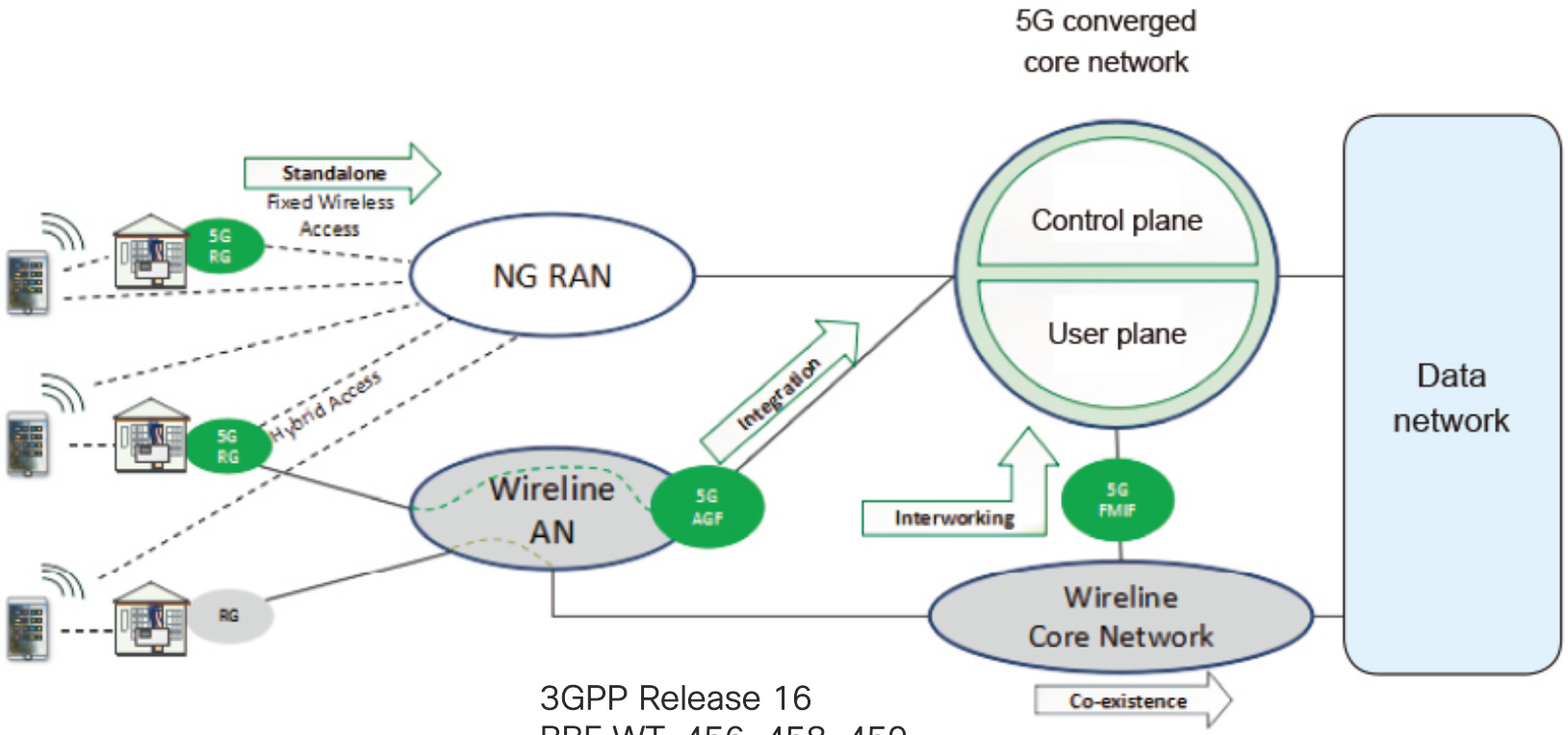
Agenda

1. Access Technology
2. Key Drivers
3. Hybrid Model
4. P4
5. Next Steps



Fixed Mobile Convergence
BBF & 3GPP Standardization



3GPP Release 16
BBF WT-456, 458, 459

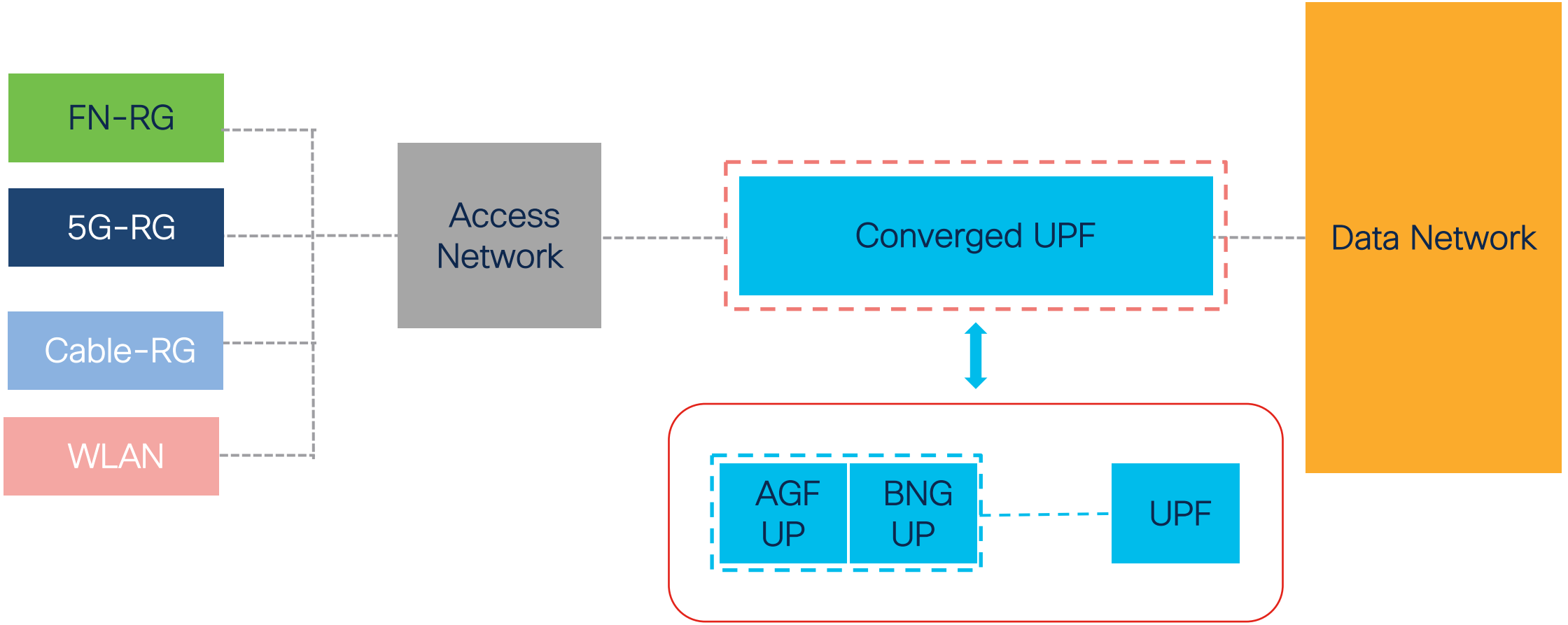
Common Control Plane

Common billing, charging quota

Common Access platform

Converged core:
standalone, interworking, co-existence

Architecture Convergence



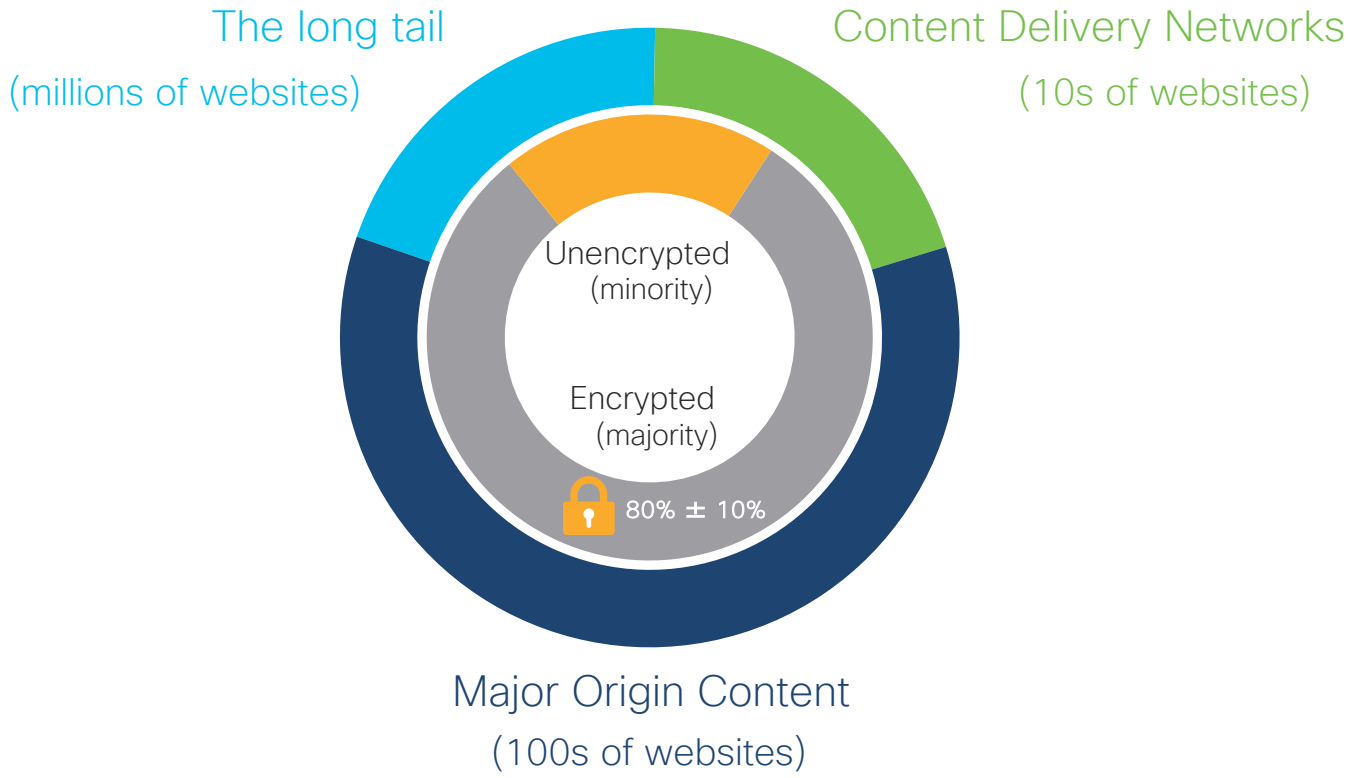
Internet Traffic is changing

~3x+ average connection speeds FWA

~10x+ average speeds on 5G

~90% encrypted traffic on Internet

Number of sessions/flows per unit of BW will be 5x the TCP sessions



Key Drivers

Cost

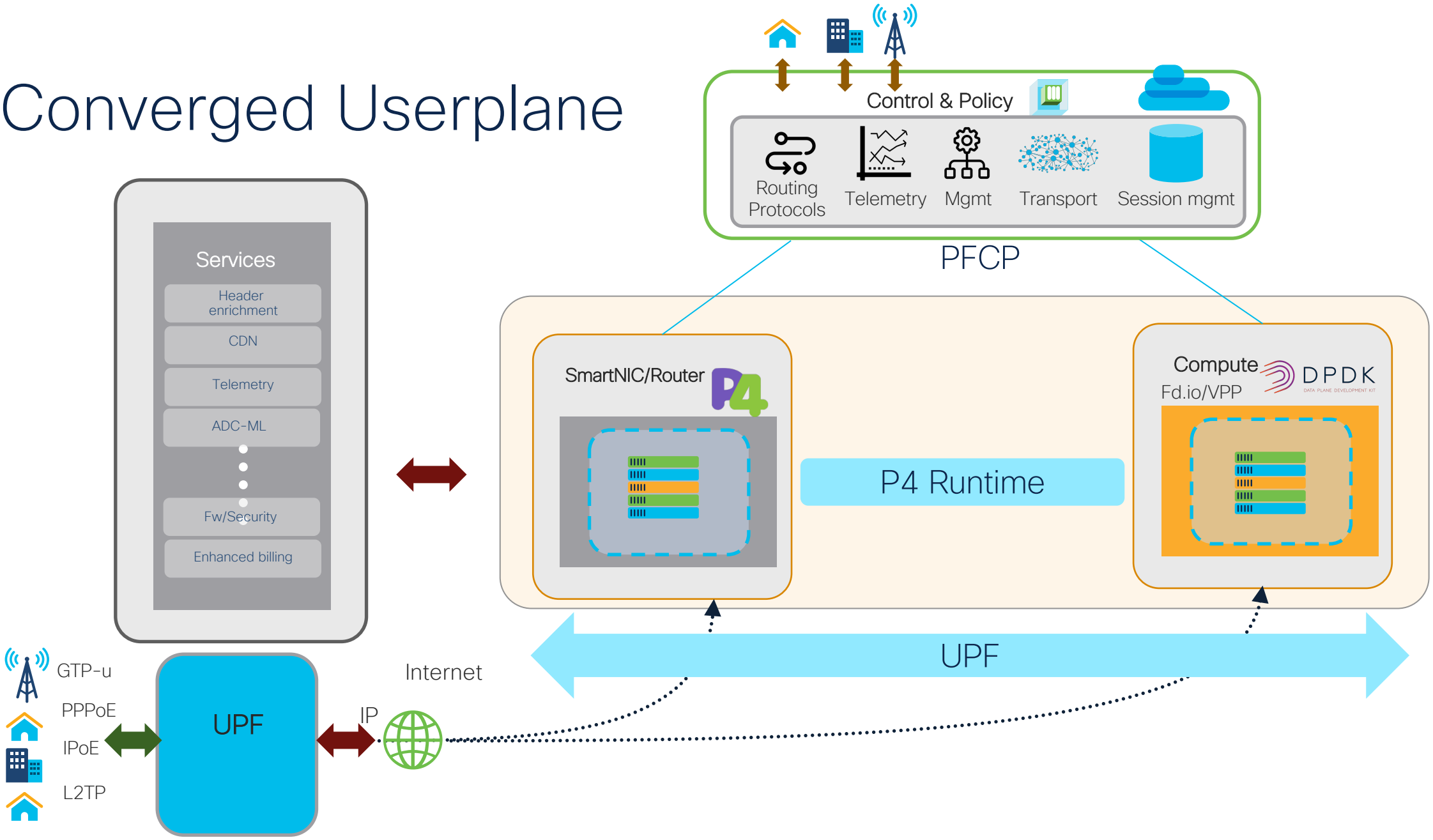
Power

Features

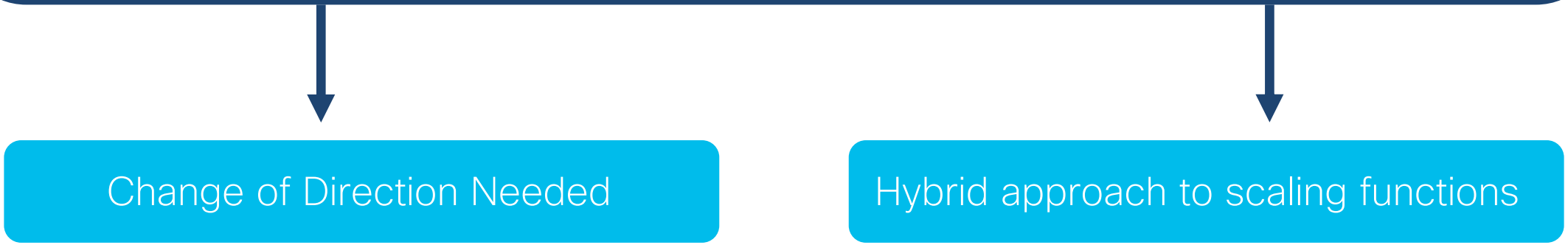
Use Case Specific

“faster session throughputs, reduced end-point scale and different-flexible packet touch resulting in significantly improved cost per session”

Converged Userplane



Enhancing Highspeed Packet processing with Cloud-computing Infrastructure and Abstractions (via P4)



P4/P4 runtime enhancements
for Subscriber Gateway Functions

Flow & Service

- ML-AI & Crypto subsystems interfacing with Packet processing
- Stateful flow processing in addition to switch/port abstractions
- Services capabilities with differential treatments & BW Mgmt including security

Telemetry & Monitoring

- INT, S-INT, E-INT
- Multi-layered, sampled, probabilistic approaches broadening coverage and visibility
- Compressing/enriching the telemetry information
- Improvements to reduce volume, eliminate noise

Summary

A hybrid approach to a Converged UPF is the way forward

Next Steps

Work with community to drive P4 / P4-runtime enhancements for the Subscriber Access converged UPF

Thank you

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The bridge to possible