

NGFI Enhancement

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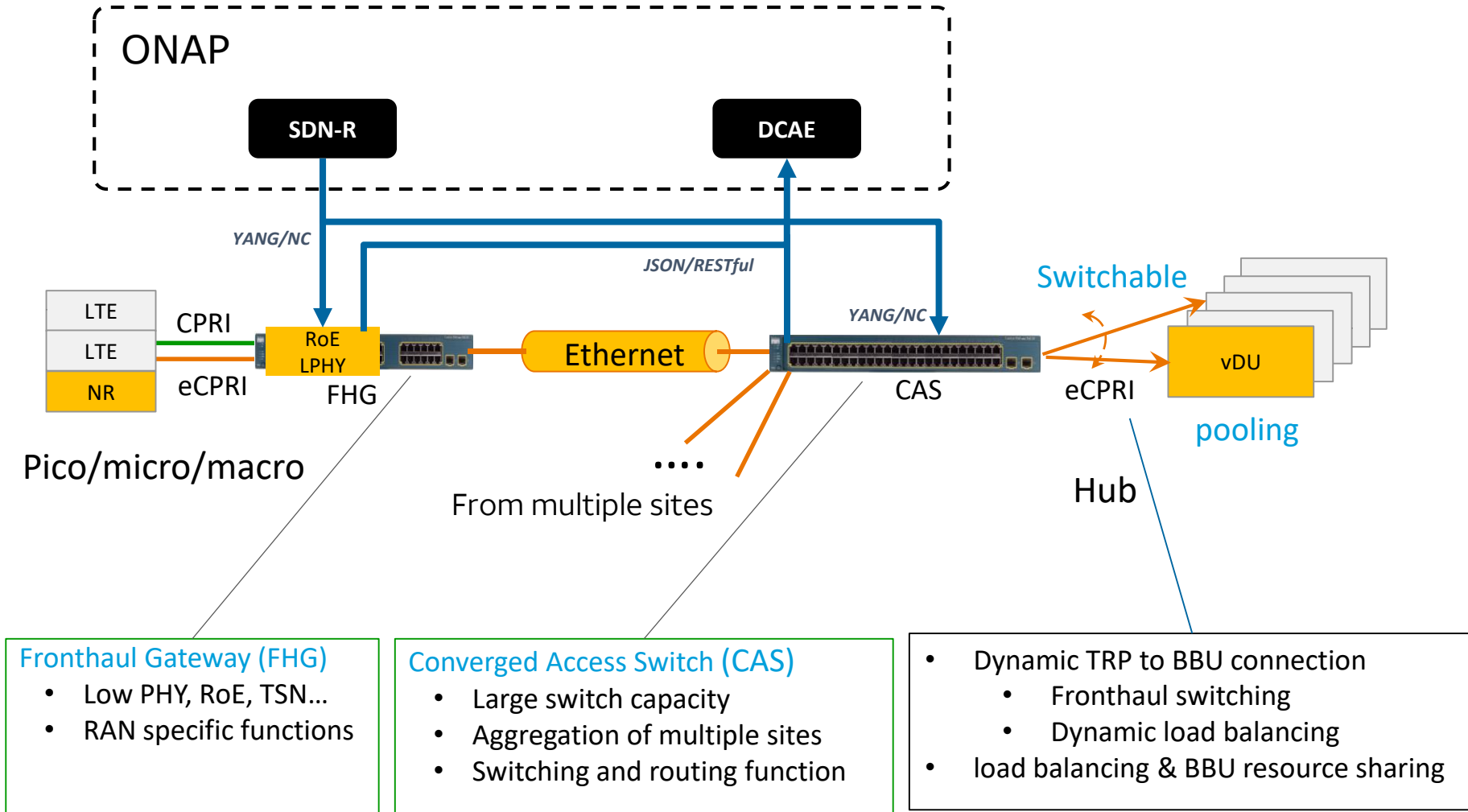
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Background

- IEEE 1914.1 NGFI R1 spec is approaching to completion
- what we do for next phase (R2) effort?
- NGFI R1 spec has focused on high level specification of transport network architecture, deployment model, and requirements under consideration of various function split options.
- The R2 effort, if there is any, is proposed to enhance the usefulness of the spec in practical deployment, by:
 - Further detailing and enhancing the architecture and requirement specifications
 - Provide recommendation to some transport solutions & profiles

Example of Transport Deployment Architecture



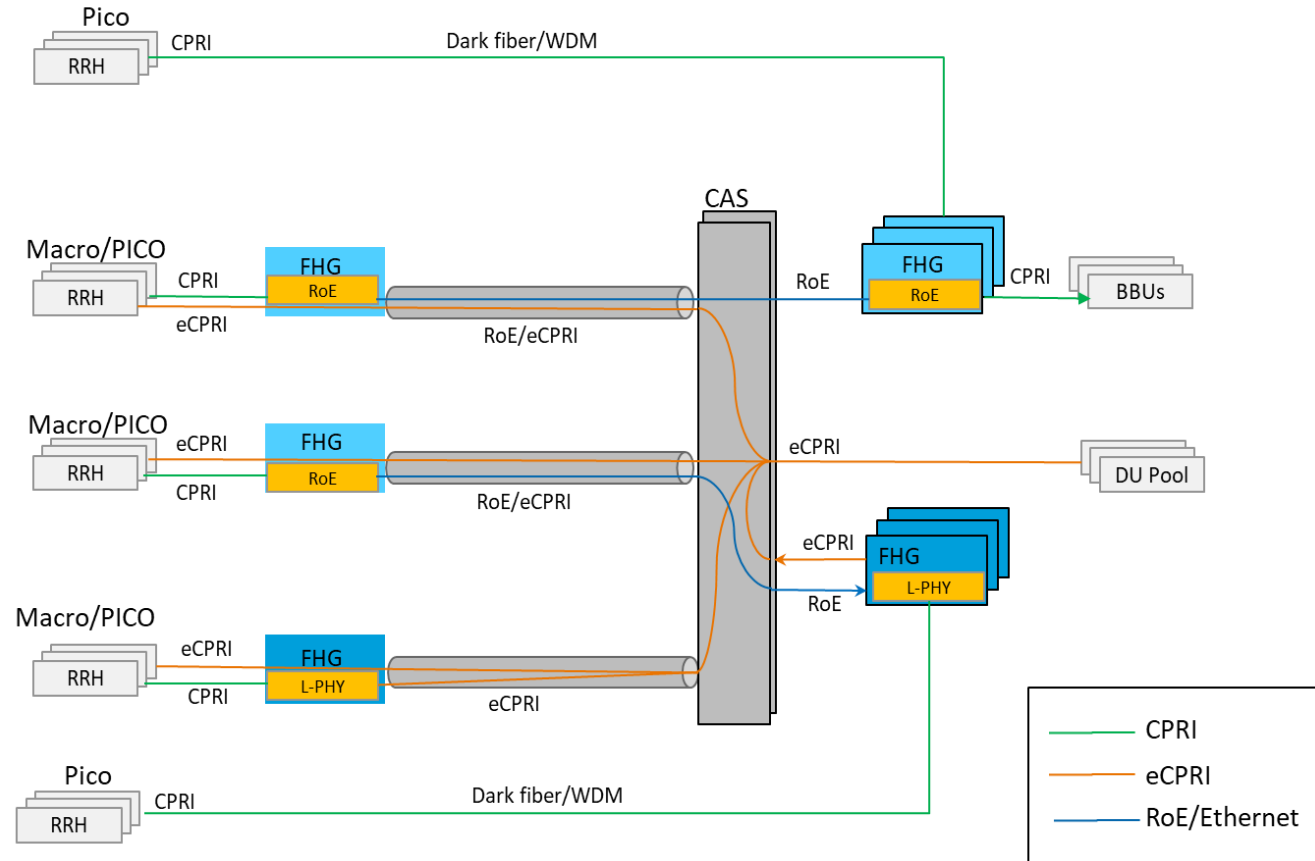
Mixed deployment scenarios

Target architecture

- CAS with large routing capability for efficient DU pooling, load balancing
- Multiple sites connected to CAS
- L-PHY at hub (or site) to enable LTE pooling with NR

Combability to early step deployment

- Direct fiber to FHG to achieve routeability to BBUs
- Rack mount at site with RoE enables co-existence of LTE and NR



Enhancement Topics for Discussion

- Transport Architecture to support
 - Fronthaul Gateway
 - RAN processing offloaded into transport Nodes (LPHY, Frequency Domain)
 - Support of BBU resource sharing/pooling/load balance
 - TSN (Time Sensitive Network)
 - Inter Node Transport (X2/E1)
 - Transport for disaggregated architecture (control plane vs us plane)
 - NSA vs SA
 - LTE & NR coexistence and migration
 - Protocol stack: Ethernet layer vs IP layer
 - Non-ideal fronthaul: PON/DOCSIS
- Transport Performance
 - Statistical Multiplexing/Over subscription
 - Frame loss categories
 - Frame variation categories
 - Resilience/Redundancy/Reliability

Enhancement Topics for Discussion

- Management
 - Fronthaul specific OAM architecture
 - Configuration & management of the transport specific functions:
 - Network slicing
 - Time Sensitive Network
 - RoE/LPHY
 - CPRI/eCPRI
 - Recommendation of Transport specific YANG models for the above
- Security
 - IP sec vs Mac sec, key delivery
 - what traffic to protect?
 - Hub-hub vs end-end encryption
- Network slicing
 - Recommendation of the network technologies for traffic distinction and isolation
- Fronthaul deployment related issues
 - RoE interoperability
 - Fiber Optics profiles

The way forward

How to cover the aforementioned topics (if some of them being decided important for ongoing 1914 future effort),

- What changes are needed in the 1914.1 PAR ?
- Or some of them can be part of 1914.3 extension topic ?
- Or should a new sub-work group (such as .x) be created?

RoE management interface

- Consistent interface design with other transport functions(such as L-PHY, ORAN-M-plane)
- Include Netconf/YANG model recommendation for RoE
 - Tunneling/line code aware/structure aware/time domain & frequency domain mappers
- It should fit current 1914.3a scope – YANG modes recommendation added as appendix