NGFI architecture considerations

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Next Generation Fronthaul Interface - Use Cases & Scenarios			
Date: 2017-01-17			
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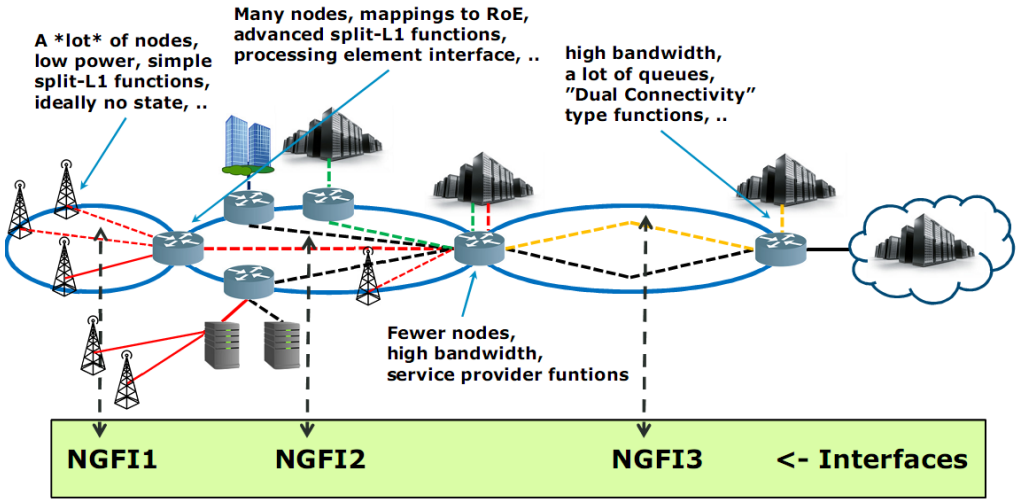
Background

Last NGFI f2f meeting

- Discussions of high level NGFI architecture
  - Mainly around the multi-interface frame work proposal by [Korhonen]
  - Question raised whether a logical view of a converged/unified interface needs be explored
  - Whether the proposed NGFI interfaces defined exist in multiple segments of the network

NGFI architecture discussion

Recapture of NGFI architecture proposal from [1]



NGFI1: A lot of nodes with ~10-25G links
- Tight network sync requirements up to 12.5 ns …,
- End-2-end latency tens of microseconds,
- Network aggregated bandwidth up to Terabytes, …

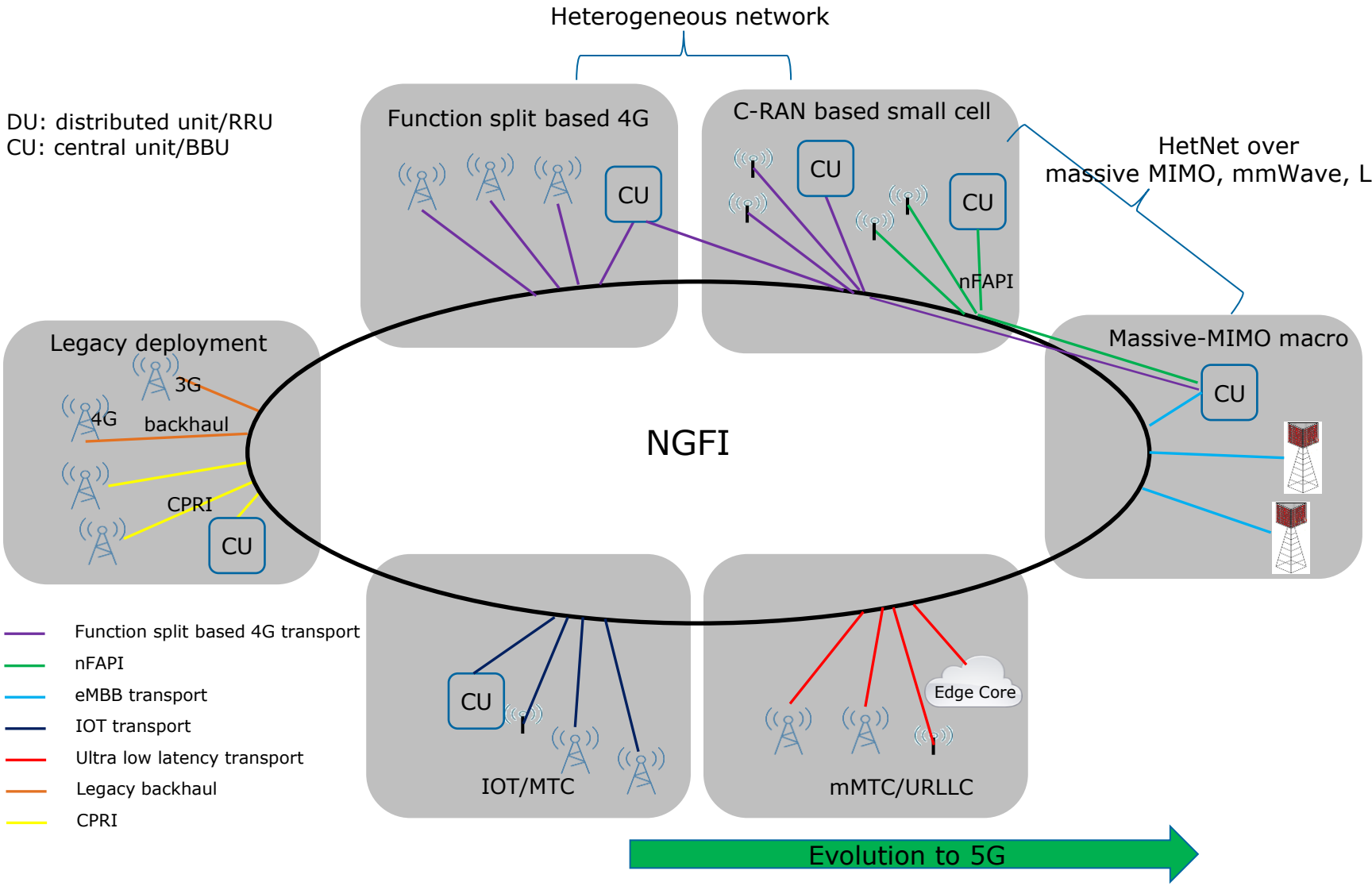
NGFI2: Many nodes up to 10G links up to close terabit scale
- Tight network sync requirements up to 12.5 ns …,
- End-2-end latency tens of microseconds,
- Network aggregated bandwidth in tens to hundreds of Giga bytes, …

NGFI3: fewer nodes; terabit scale, 100 G links
- Network sync requirements in backhaul class…,
- End-2-end latency measured in scales of millisecond,
- Network aggregated bandwidth in hundreds of Gigabytes, …

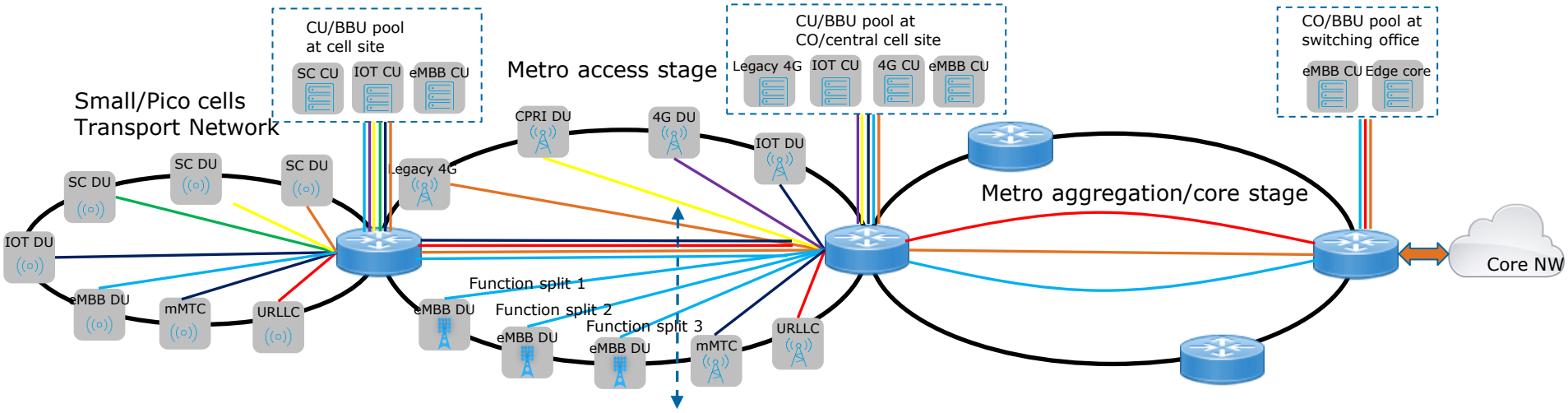
NGFI1,2,3 are defined as:
- Each to be located at different stages of aggregation in the packet switched NW
- Each to be mapped to a class of service
- Each associated with class requirement parameters: BW, latency, jitter, etc.

[1]tf1_1608_korhonen_practical_approach_2.pdf

Recapture of NGFI use cases & deployment scenarios



Proposed Reference Architecture: Practical consideration



- Use cases are applied to the NGFI architecture proposed by [1]
- Incomplete effort, so possibly more scenarios may still be found
- CUs can be located at any aggregation stage/nodes in real deployment, creating complicated scenarios across the transport Network
- Possible CU/BBU pool switching for load balancing/pooling
- Various types of transport traffics (or COSs) occur at each stage of aggregation
- No clear relations of the NGFIs to the classes of services ➔ One interface (or COS) per stage of aggregation assumptions of NGF1, NGFI2, and NGFI3 doesn't seem to hold. -→ flows and splits could be repeated across the interfaces
- All proposed NGFI (1, 2 and 3 proposed by [1]) interfaces must support all traffic flows

- Function split based 4G transport
- nFAPI
- eMBB transport
- IOT transport
- Ultra low latency transport
- Legacy backhaul
- CPRI

Motion #4

- Adopt architecture in Slide 9, tf1_1701_cai-tazi_architecture-considerations_2.pdf as a reference model to the high level logical NGFI architure for service flow development and subsequently a starting point to defining NGFI interfaces.
- Mover: Abdellah Tazi
- Seconder: Tony Tam

- Yes: _12__ No: __0_ Abstain: _0__ (technical motion needs >= 2/3)

(Chair did not vote, motion passed)