



FlexRAN Overview

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ONAP Developer Forum

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Agenda

- Overview of FlexRAN
- Demo with ONAP

TRANSFORMING THE NETWORK END-TO-END

ONE ARCHITECTURE ACROSS THE NETWORK, FROM DEVICE TO CLOUD



VIRTUALIZED **SOFTWARE-DEFINED** **CLOUD-READY**

ENABLING ONE COMPUTE PLATFORM FROM EDGE TO CLOUD –
PLACED WHERE IT IS NEEDED



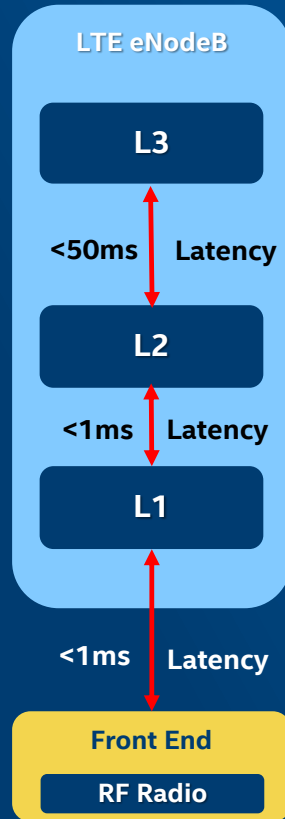
LTE Radio Access VNF Architecture

Functionality of LTE eNodeB

L3: Packet Processing, GTP, IP/UDP, Cipher and integrity

L2: Real Time Resource Scheduling and Packet Framing, HARQ

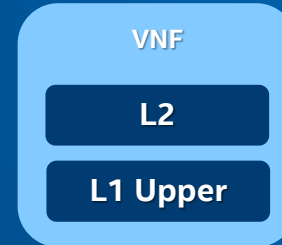
L1: Real Time Signal Processing



LTE eNodeB Decomposed to VNFs

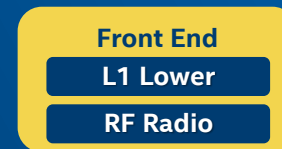


Non-Real-time L3 functionality grouped together in single VNF



Real Time Components Deployed together

L1 & L2 Can be integrated into single VNF or Separate VNFs but generally deployed together



L1 Lower functionality can be optionally moved to Front End HW Accelerator or Integrated into RRH - Reduce Front Haul BW Requirements

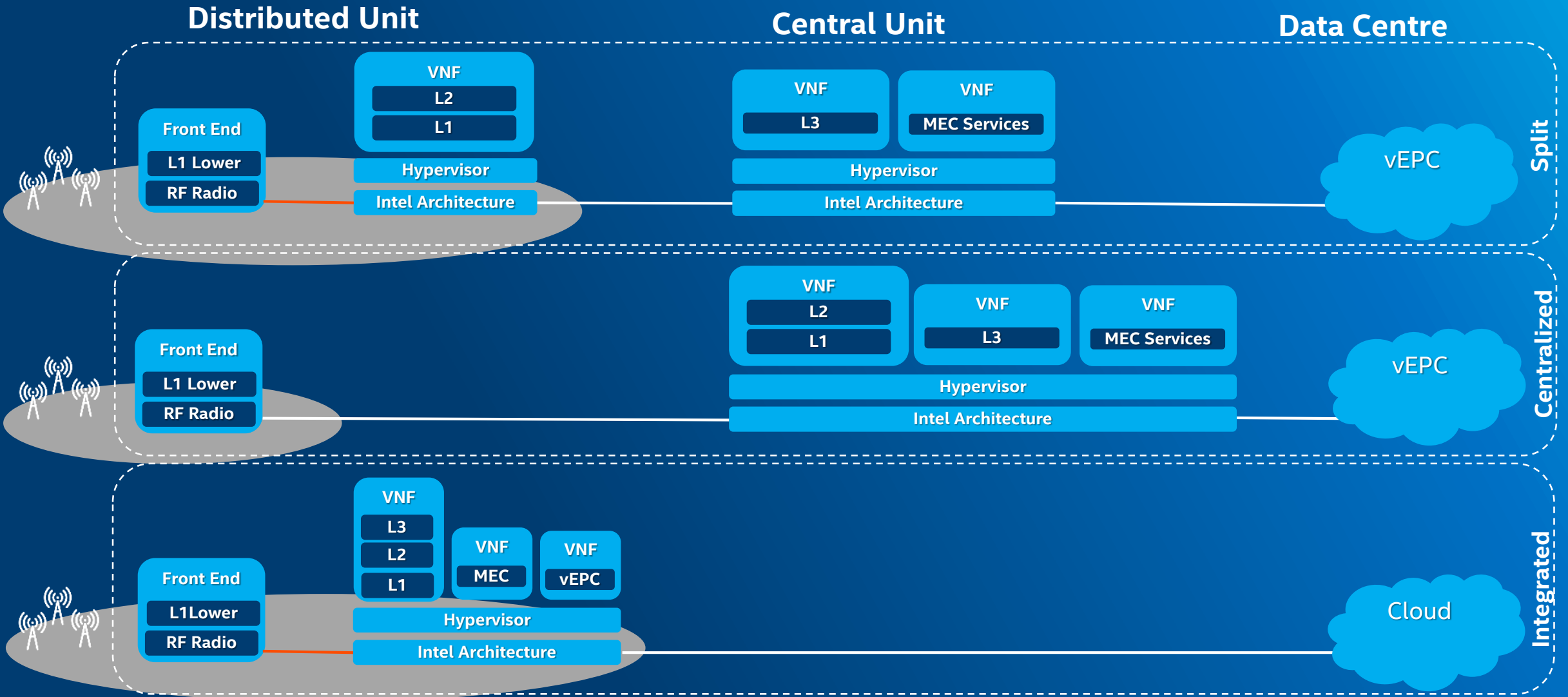


Multiple Cells now serviced by VNF to achieve pooling gains

Flex RAN SW targets multiple VNF and multiple configurations
Many ways to split eNB and gNB functionality Flexibility is key!

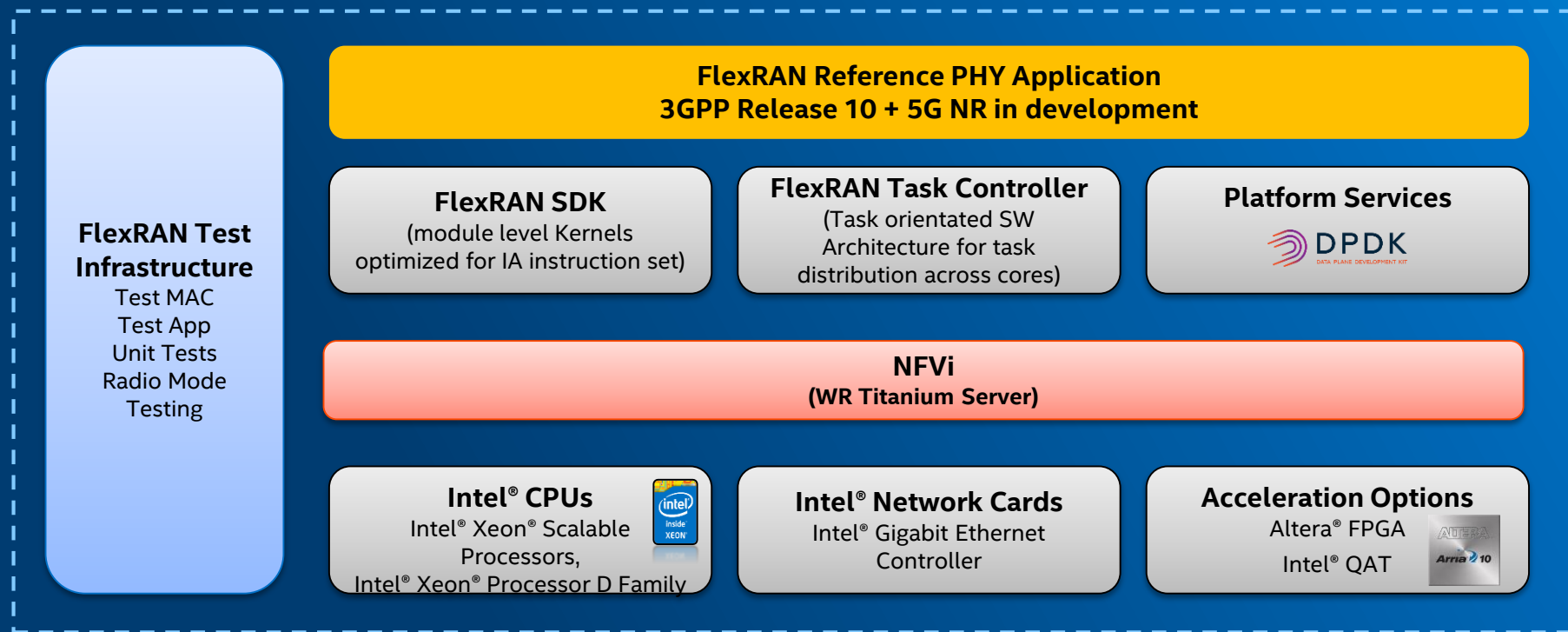
* High Level functional splits shown, other splits possible within functional layers shown
* Data Plane only, not considering Control Plane

Deployment Architecture Examples



VNF deployment can be chosen for specific use case scenario's based on Network Architecture and Latency Requirements
E.G. Sub 6GHz versus mmWave, Enterprise Use Cases

FlexRAN SW Introduction



FlexRAN Reference Solution for Wireless Access

Consists of HW and SW building blocks for Virtualized LTE & 5G NR VNF solutions on Intel Architecture

FLEXRAN 4G LTE L1 Flow Diagram – Data Channels

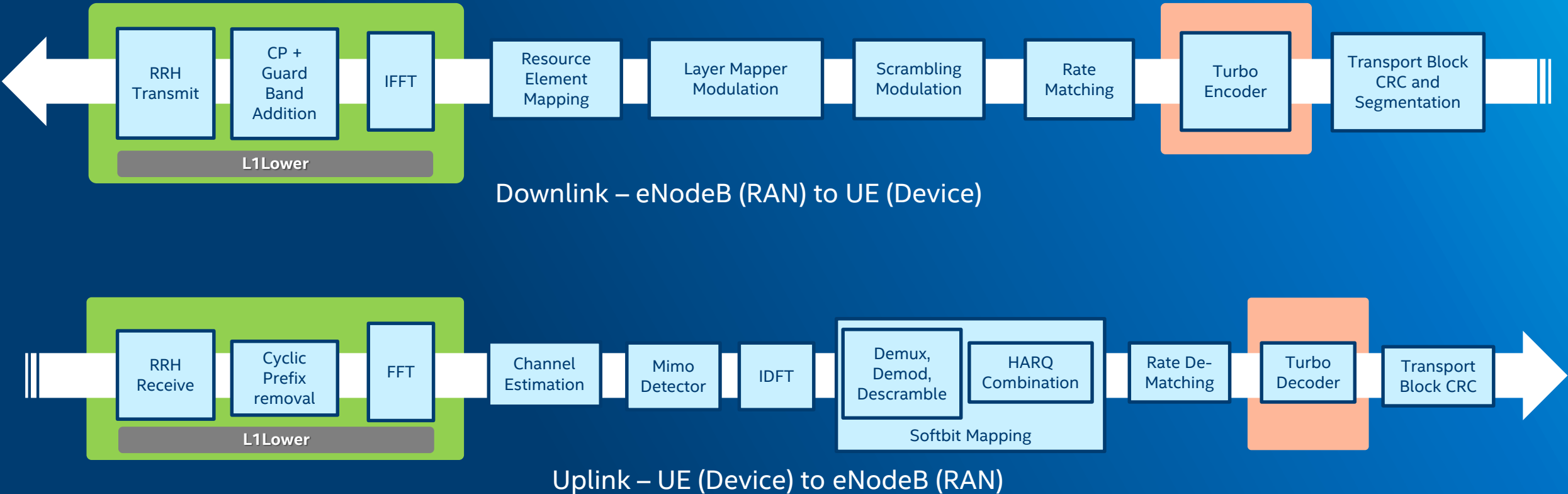
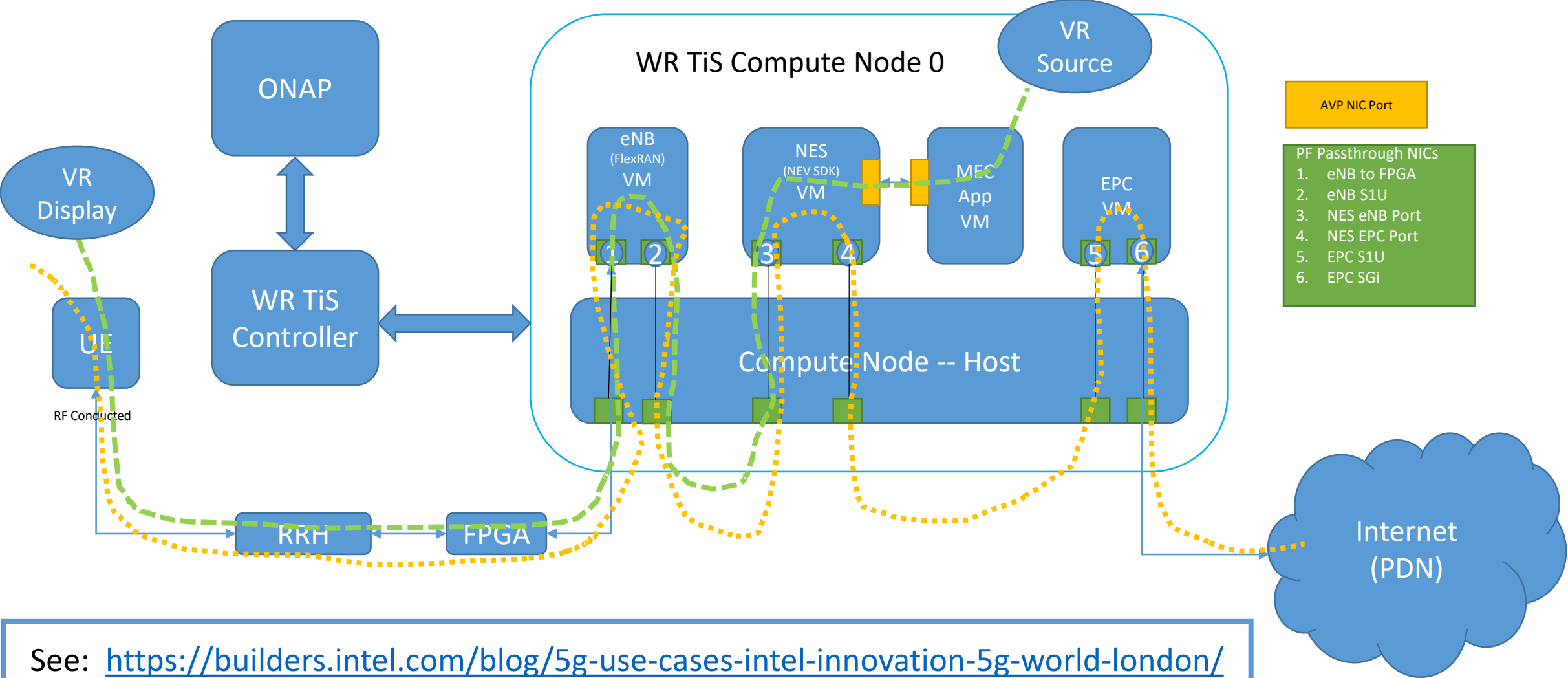


Diagram shows Data Channels only as example, full reference pipeline available including control channels.
 For full list of features see FlexRAN Release Notes
 5G NR in development

End to End Demonstration Setup (2018)



See: <https://builders.intel.com/blog/5g-use-cases-intel-innovation-5g-world-london/>

Reference Information

- For More Information:
 - FlexRAN: <https://software.intel.com/en-us/search/site/language/en?query=flexran>
 - Network: <https://software.intel.com/en-us/networking>
- Overview of FlexRAN video
 - <https://software.intel.com/en-us/videos/an-overview-of-flexran-sw-wireless-access-solutions>
- Intel® Network Builders
 - <https://networkbuilders.intel.com/>

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