

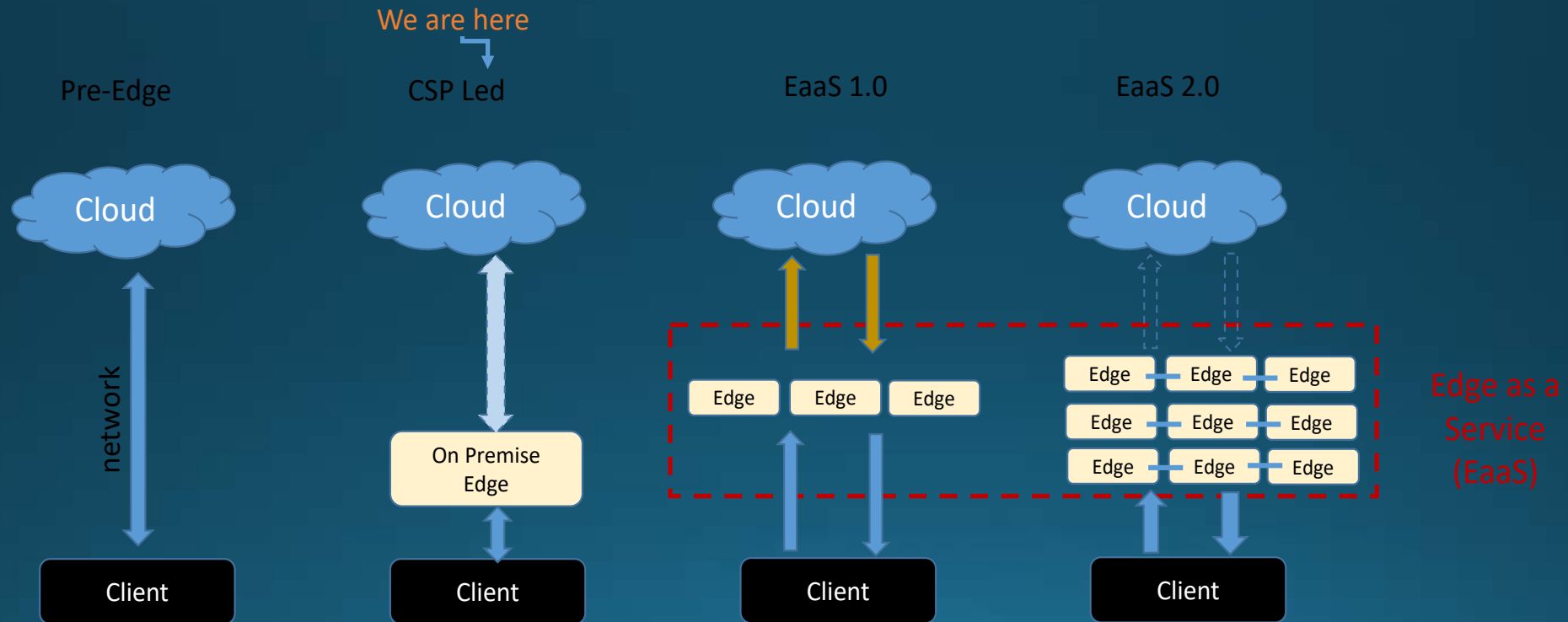


A 5G Americas White Paper

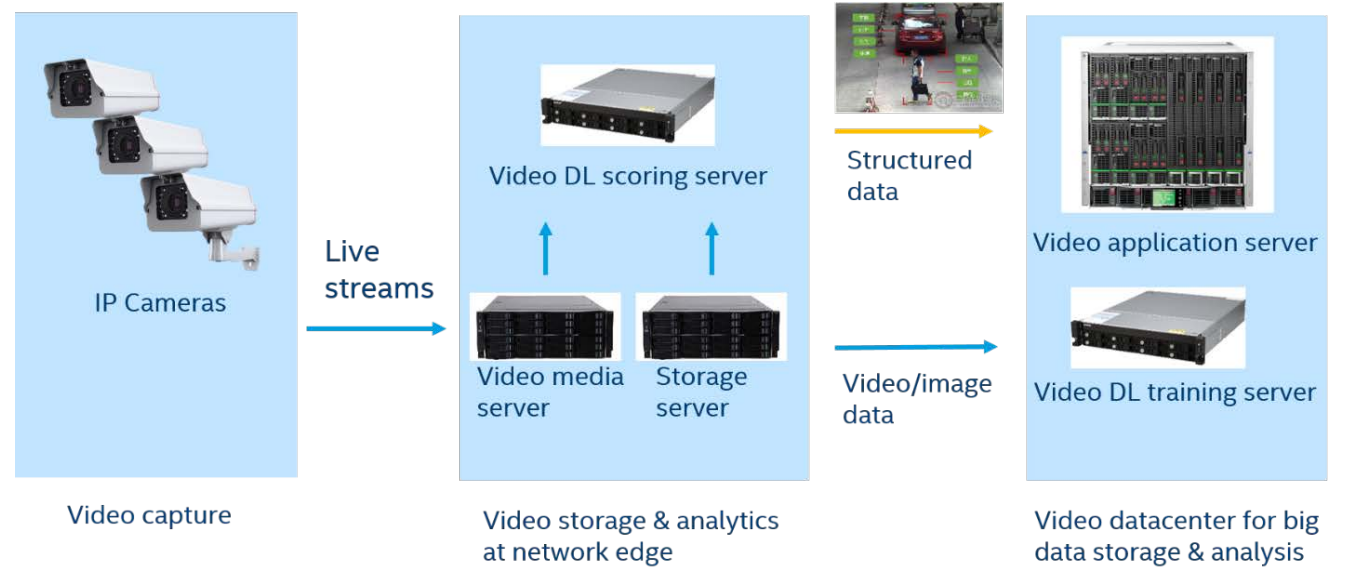
5G at the Edge

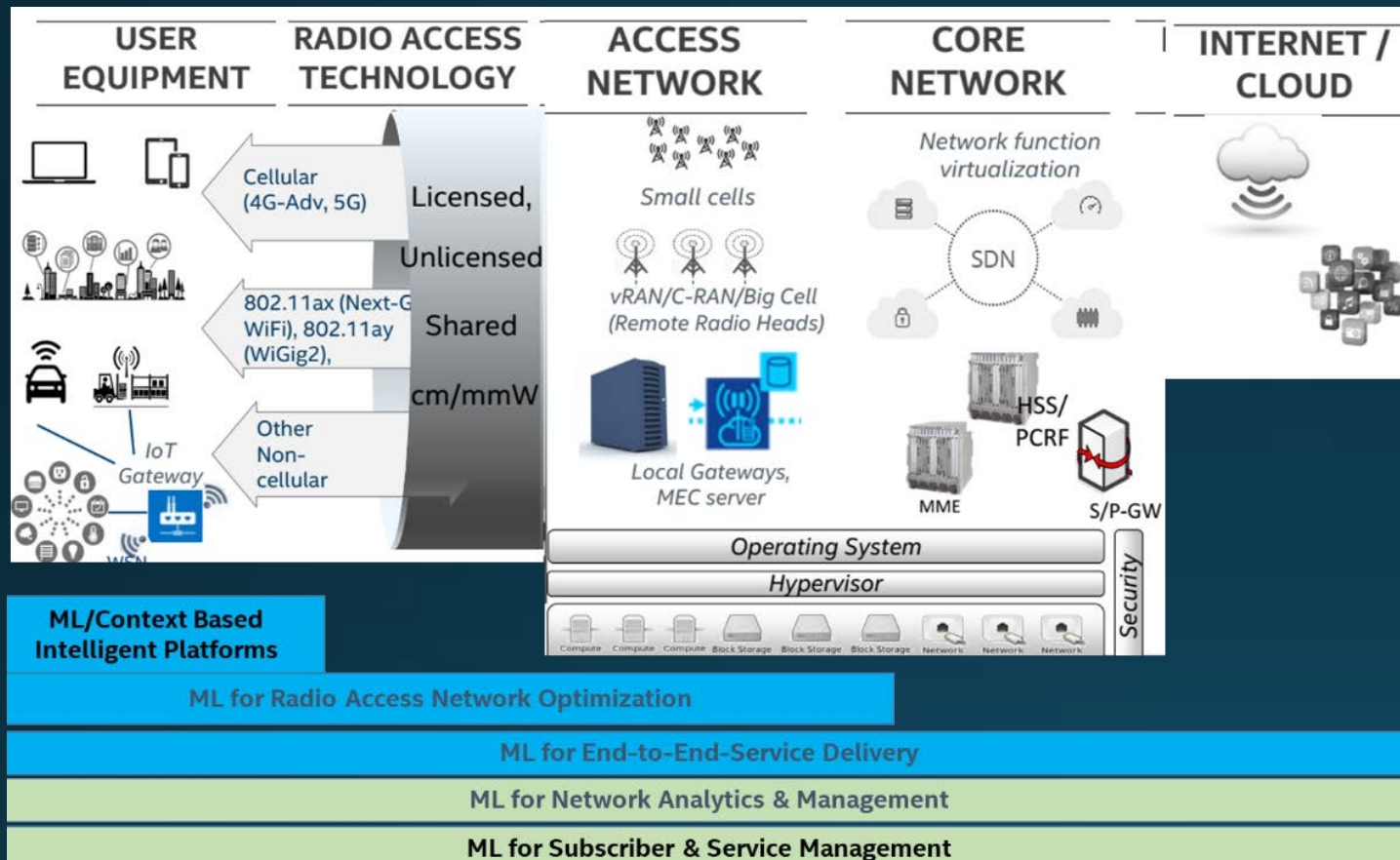


Expected Edge Evolution

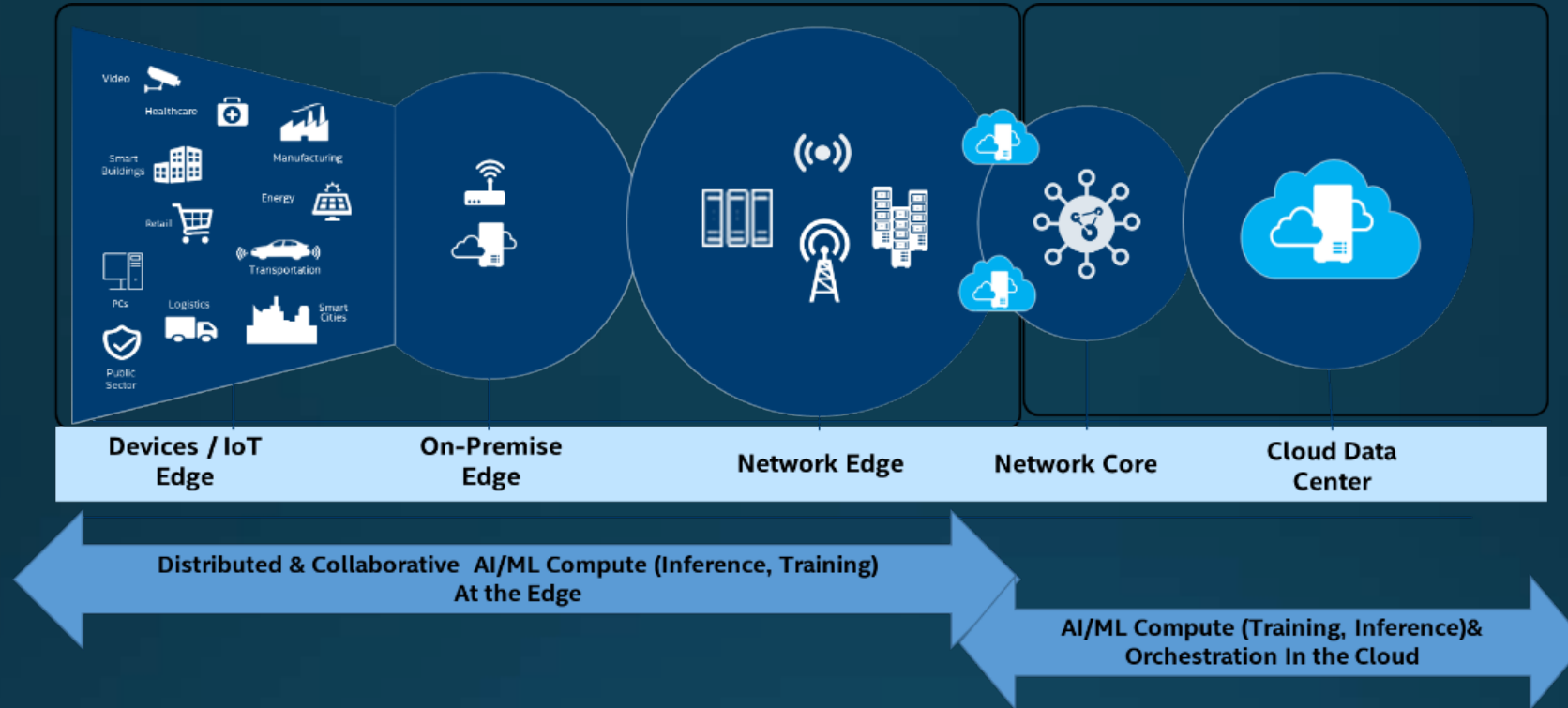


Smart City Video Analytics System



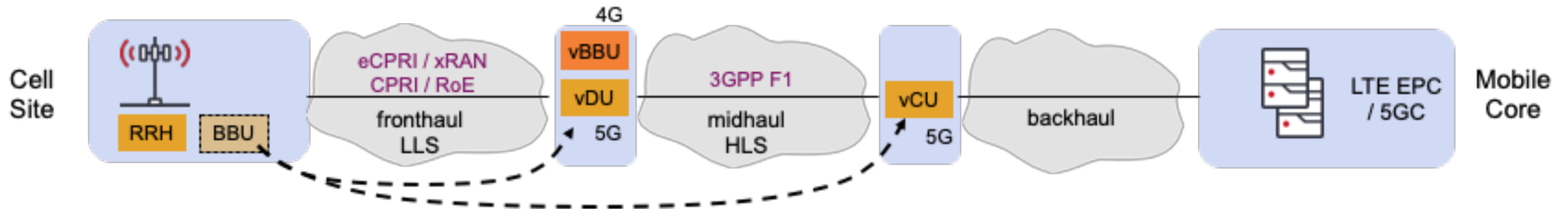


Machine Learning Enhances 5G Networks End-to-End

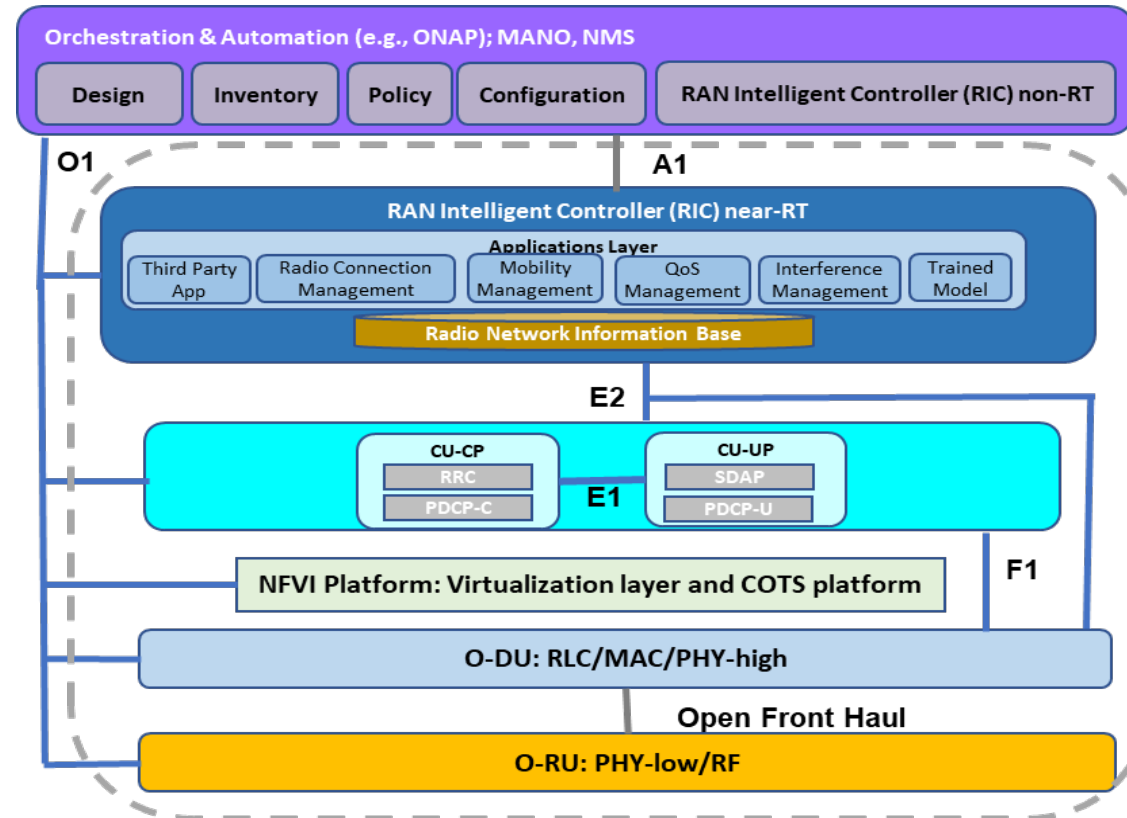


Edge computing uses AI/ML with training and orchestration across the network

Split RAN architecture



O-RAN architecture



INDUSTRIAL IoT DATA PROCESSING LAYER STACK

CLOUD LAYER

Big Data Processing
Business Logic
Data Warehousing

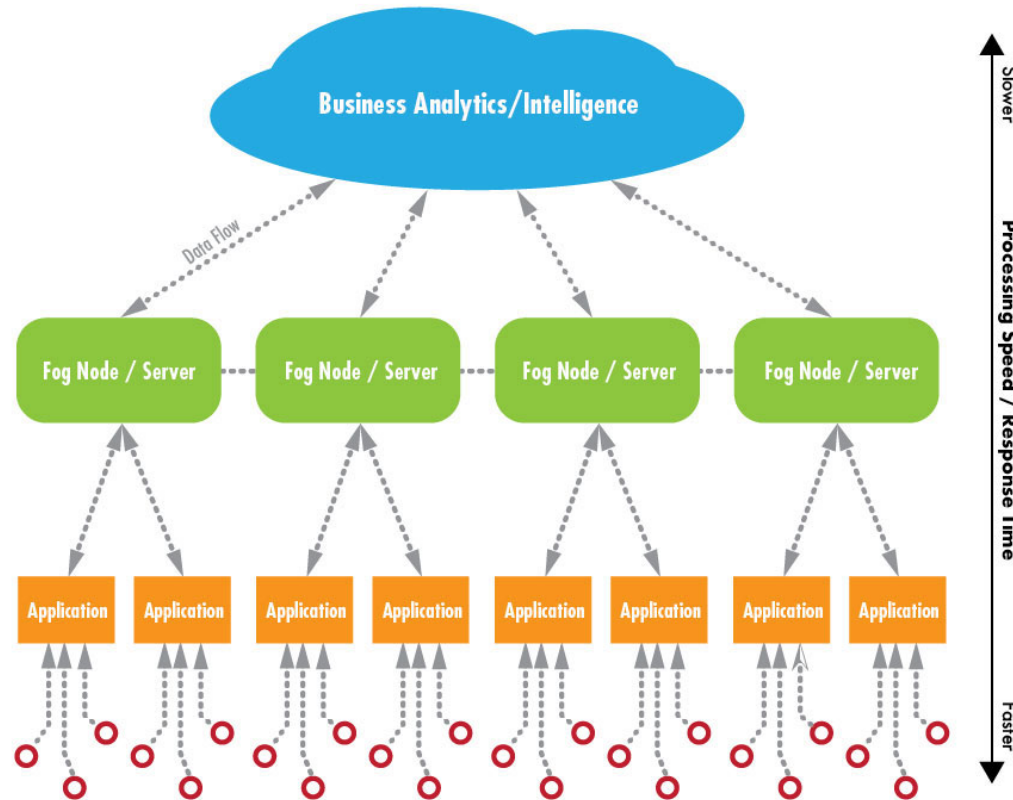
FOG LAYER

Local Network
Data Analysis & Reduction
Control Response
Virtualization/Standardization

EDGE LAYER

Large Volume Real-time Data Processing
At Source/On Premises Data Visualization
Industrial PCs
Embedded Systems
Gateways
Micro Data Storage

Sensors & Controllers (data origination)



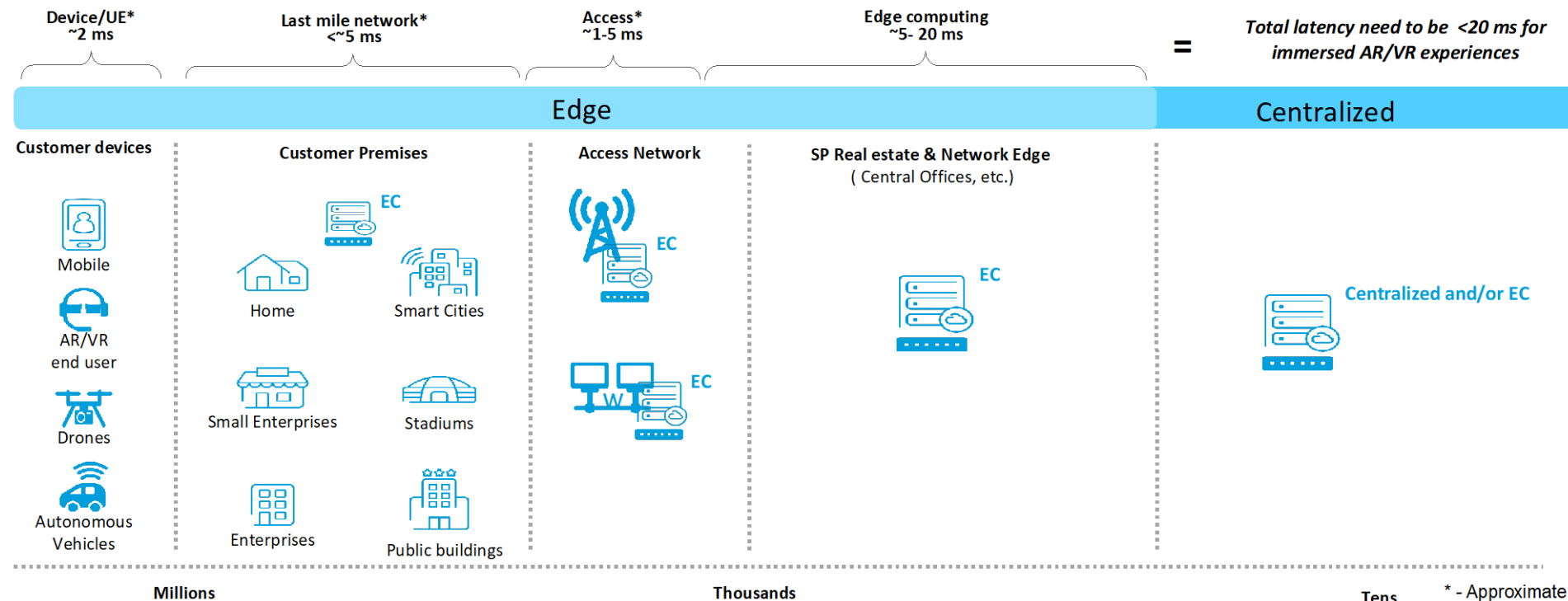
Courtesy of WinSystems, www.winsystems.com

Layer stacking

Cloud, fog, and edge layers interact to manage new applications.

Edge Computing Placement

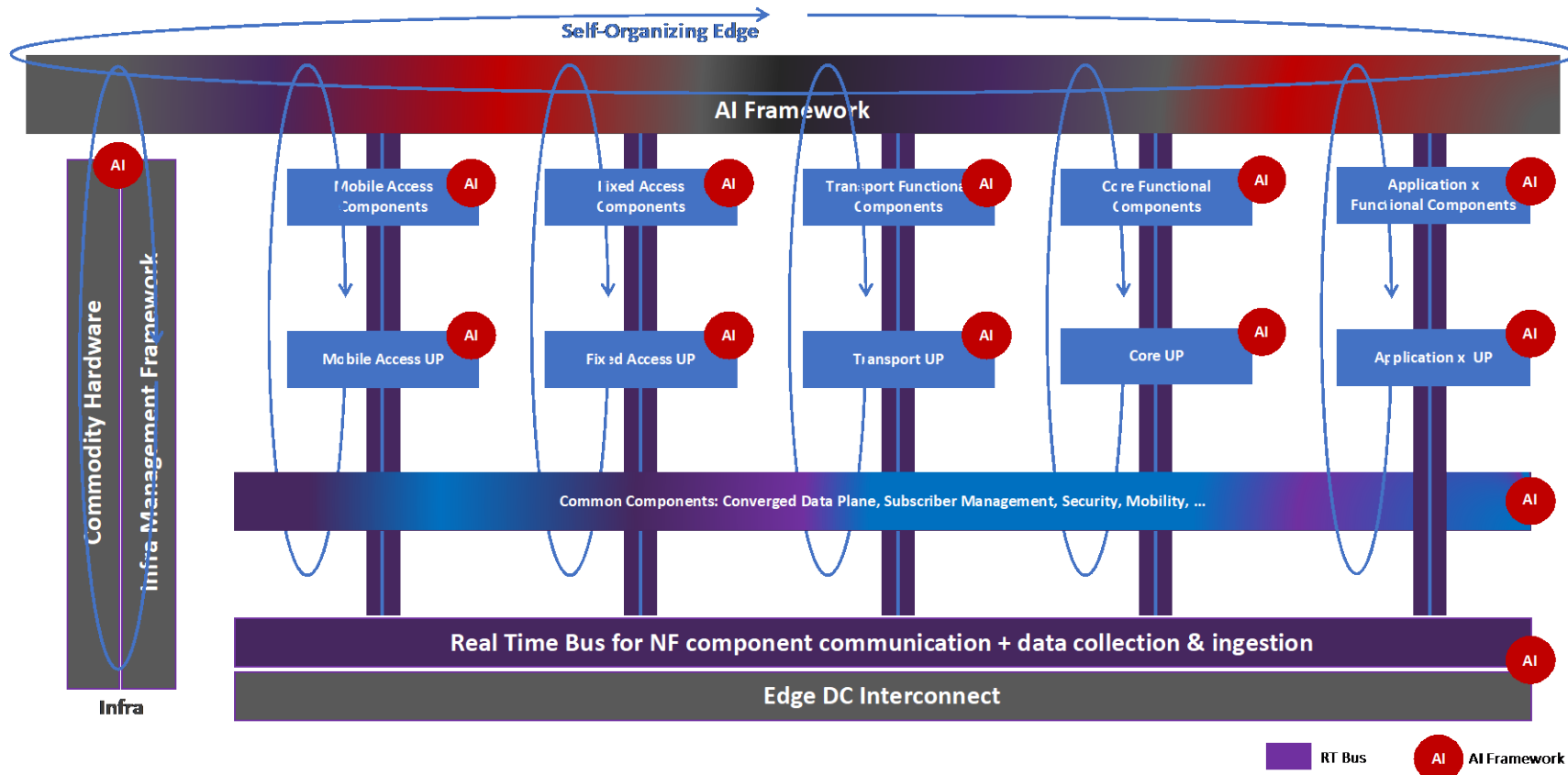
Placement varies depending upon the use case, latency, space availability, etc., Disaggregated RAN and Core allows Flexible placement of Control Plane and User plane components, e.g., O-RAN RIC and 5G UPF might be collocated at NG Edge



E2E Management & Orchestration is needed, e.g., Open Network Automation Platform (ONAP) to provide seamless automation across Edge Cloud and Centralized Cloud

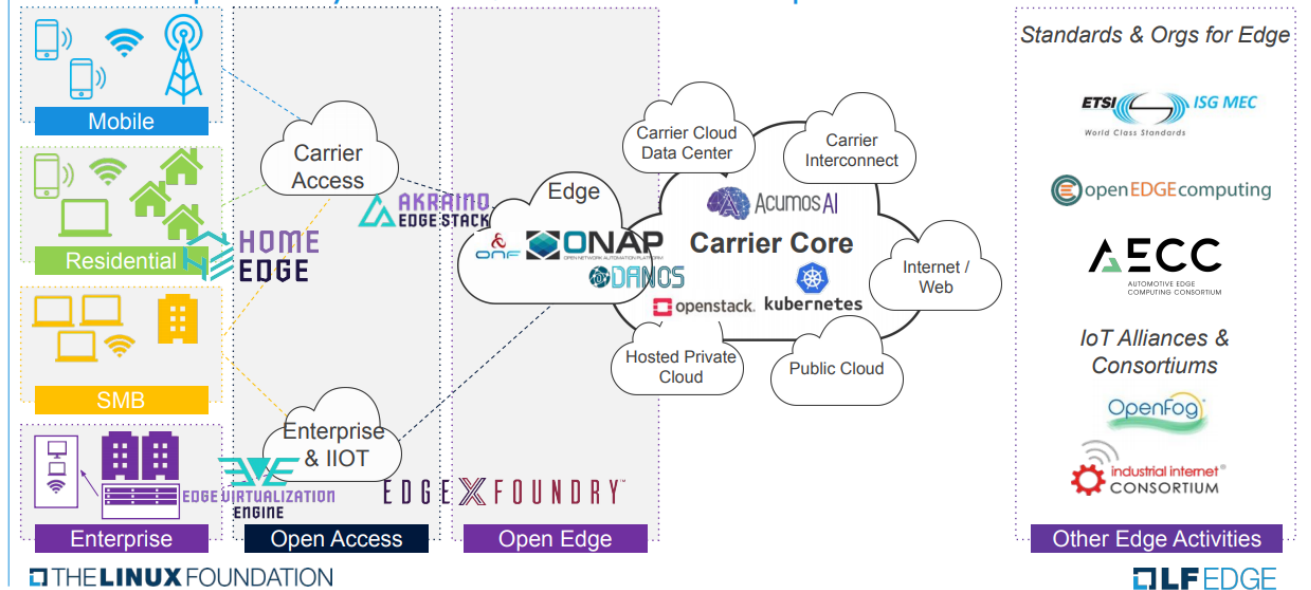
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Edge Development Platform and Marketplace



Bringing it all together

Bringing It All Together – LF Open Source Edge With Complementary Standards, Ref Arch and Ref Implementations



Key Ideas



Edge computing is important for, but is not a one-size-fits-all. Operators will deploy Edge to enable new services, applications and use cases.



5G incorporates edge computing into wireless networks with emerging open source initiatives and standards to manage data across the network, from radio access, transport, to the core - enabling powerful new capabilities like network slicing.



Edge computing uses innovative artificial intelligence and machine learning technologies to improve the management of data workloads across networks.



A new reference architecture for edge computing-enabled 5G systems is being shaped that will have broad implications for how wireless networks operate in the future.

Thank You!

www.5gAmericas.org

