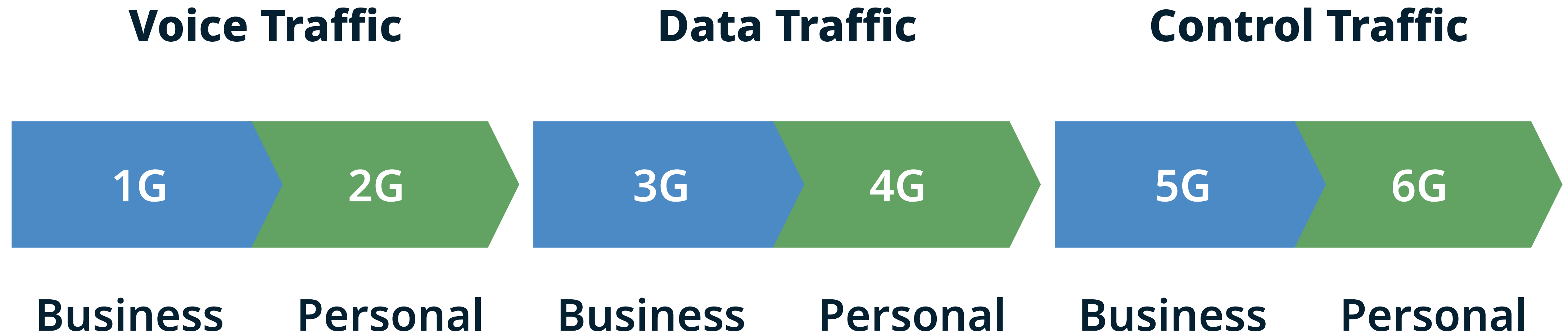


A Trustworthy Platform for 6G Networks

Michael Roitzsch, Jana Eisoldt

Evolution of Mobile Communication



Personal robotics as key use case: **sensing** and **low-latency** processing

Low latency requires computation at the edge of the network.

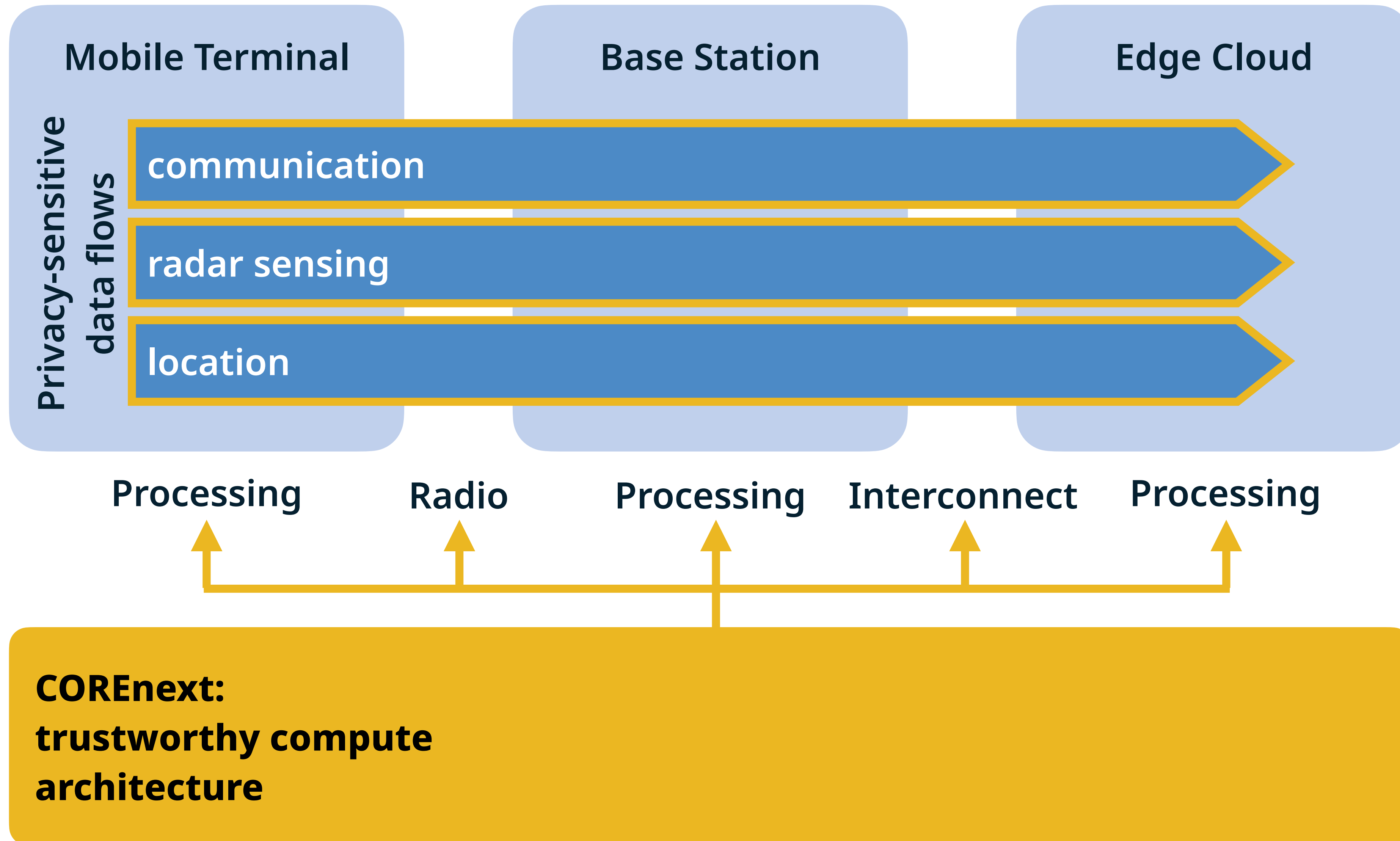
Edge compute and sensing require fundamental **trustworthiness**.

Joint Communication and Sensing

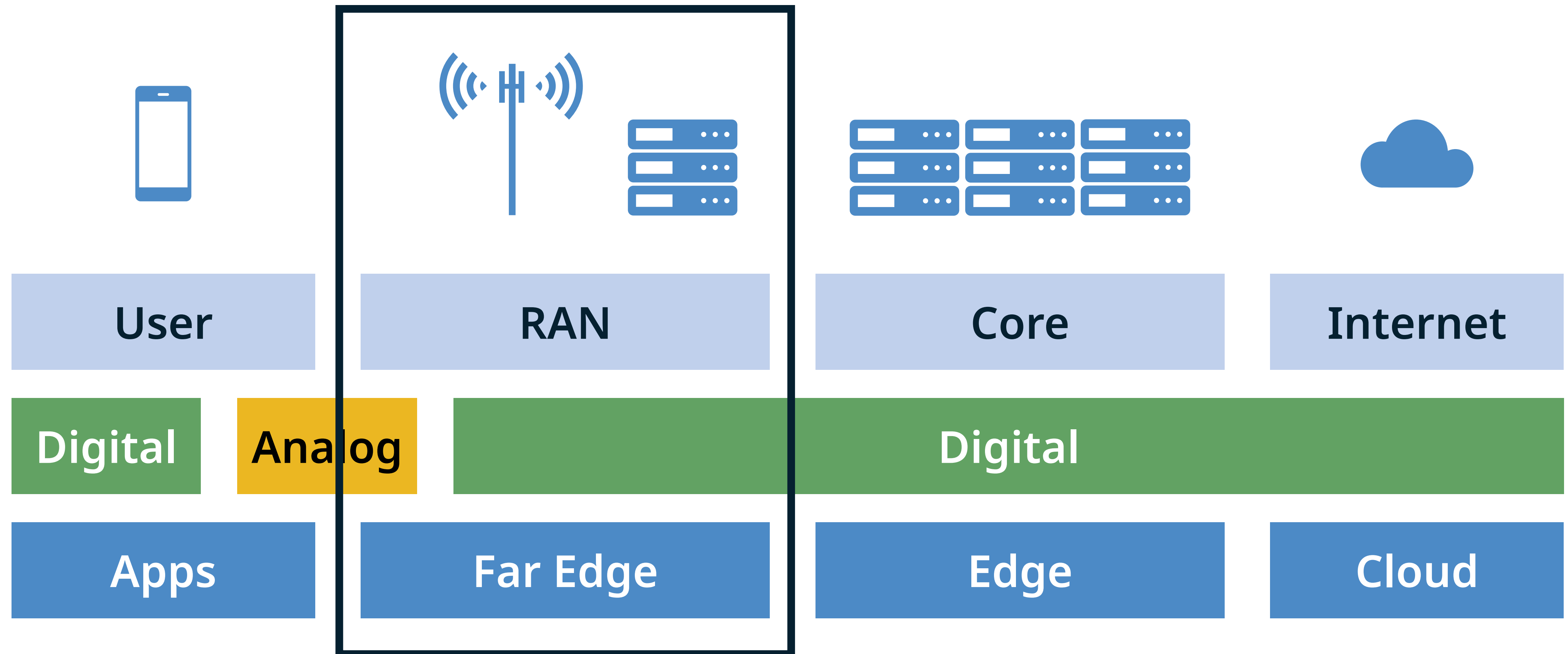
- base stations use signal processing to turn radio reflections into positions
- **RADAR-like functionality** and communication using the same frequencies
- also possible for high-performance terminal devices (phones, XR glasses)
- **privacy implications:** constant surveillance, including bystanders
- business model implications: operators see this as a revenue stream...



EU Project COREnext



Topology of a Mobile Communication Network



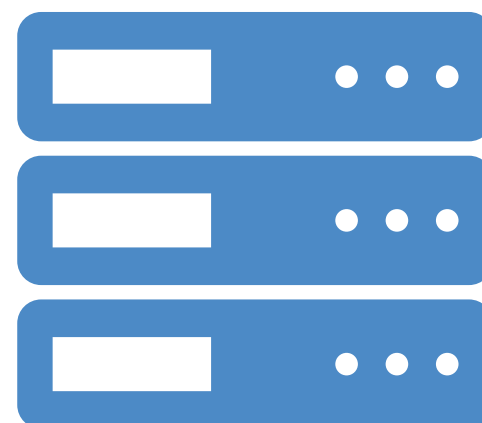
Current Vendor Lock-In



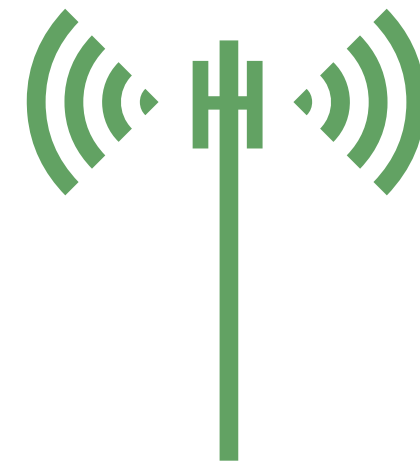
Ericsson



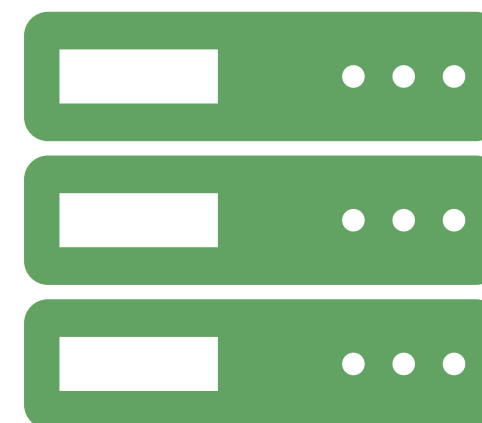
010
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Nokia



010
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Huawei



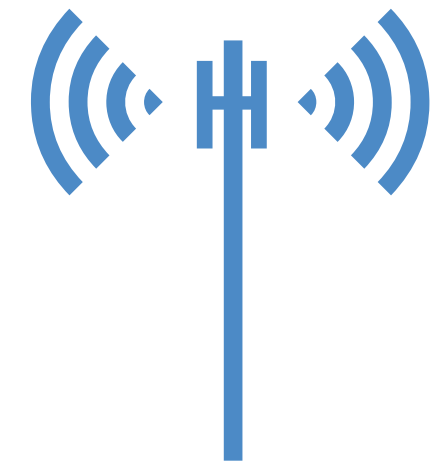
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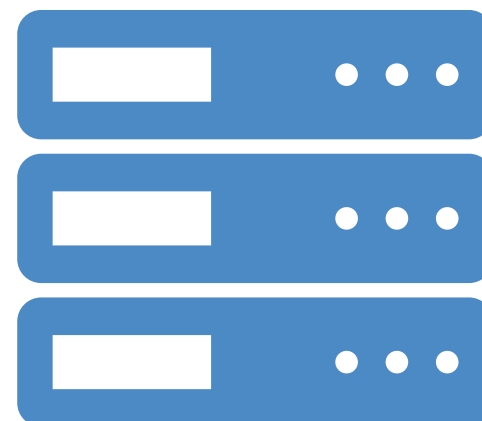
O-RAN Standard



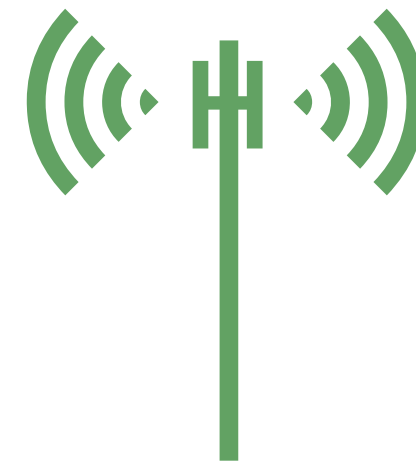
Ericsson



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Nokia



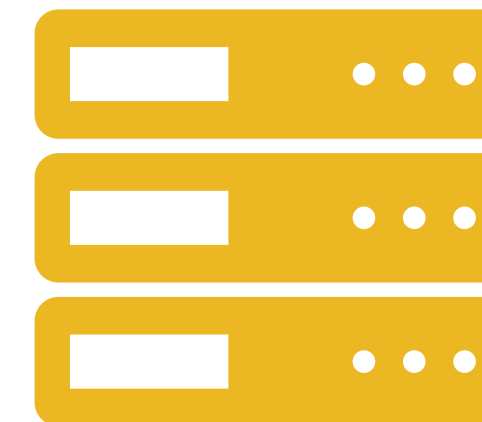
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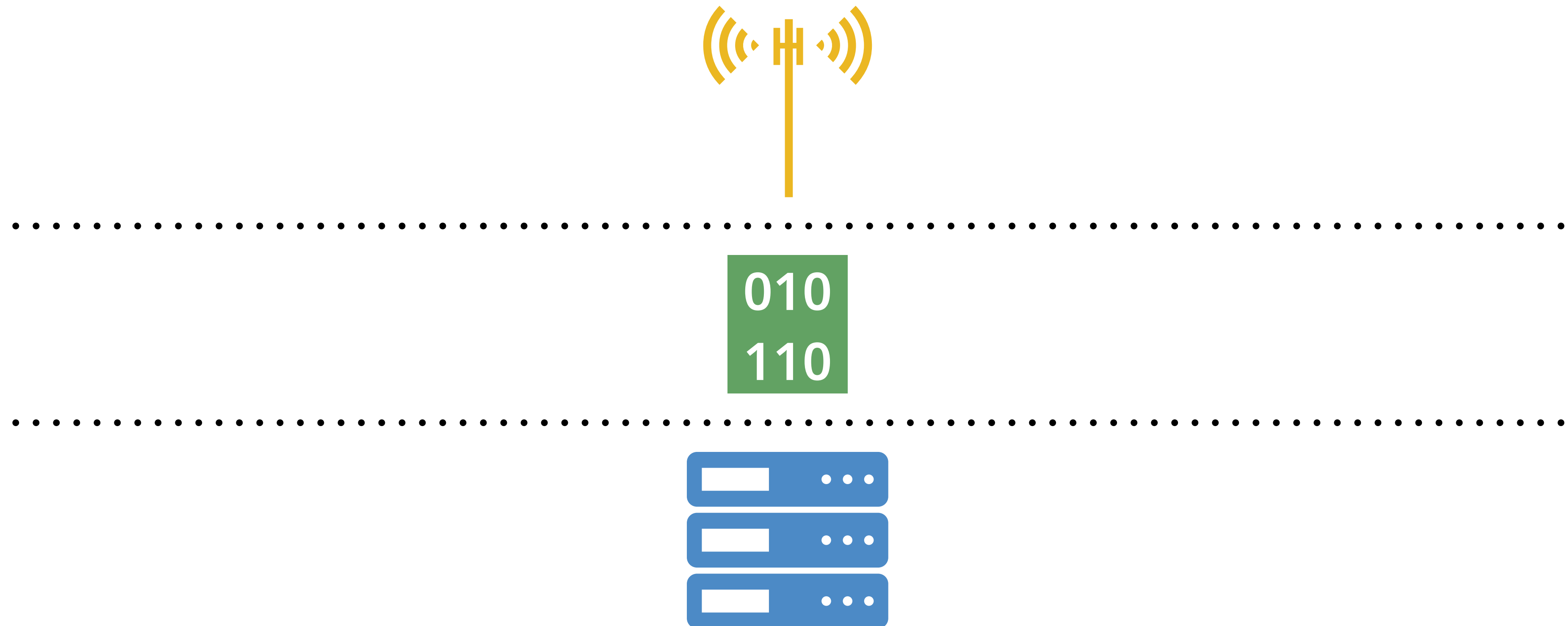
Huawei



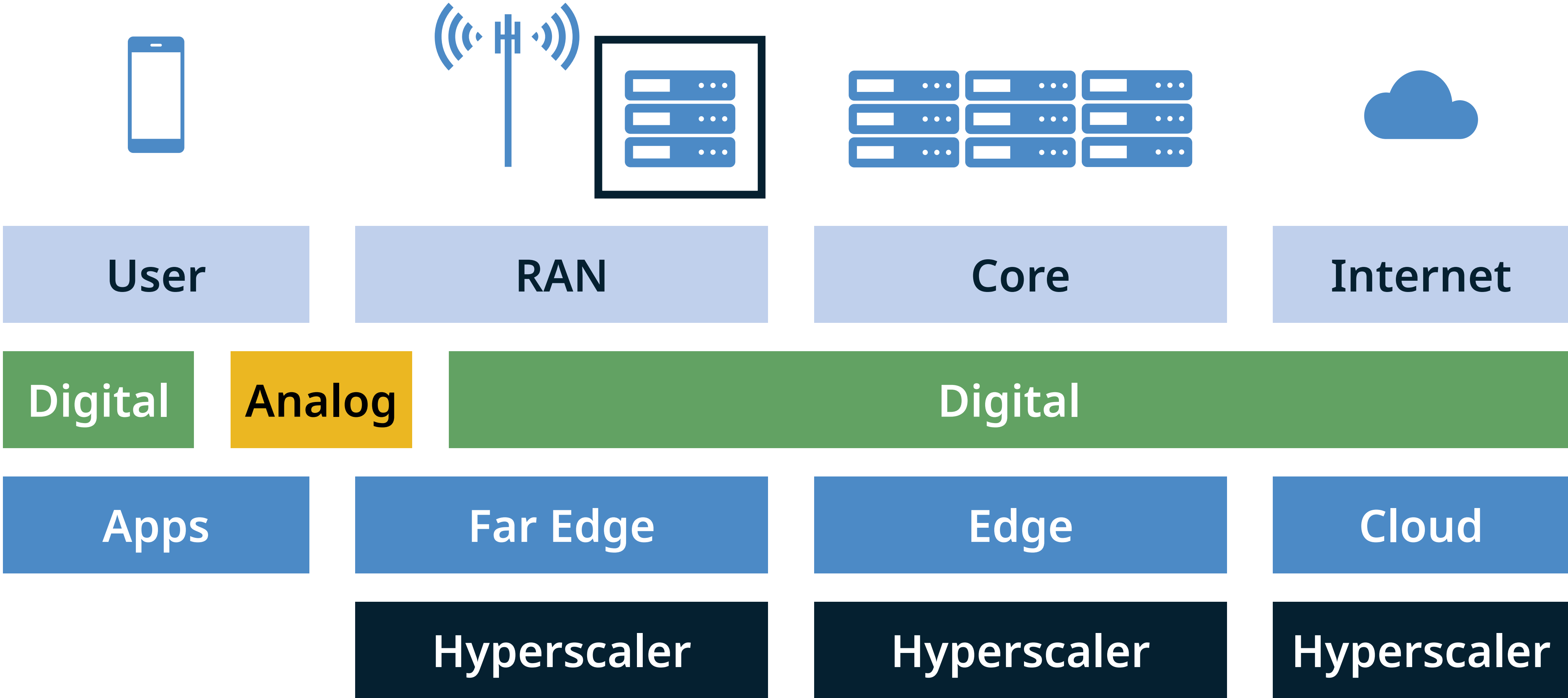
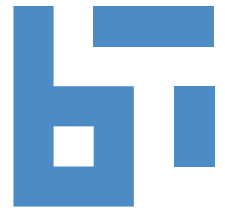
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O-RAN Standard

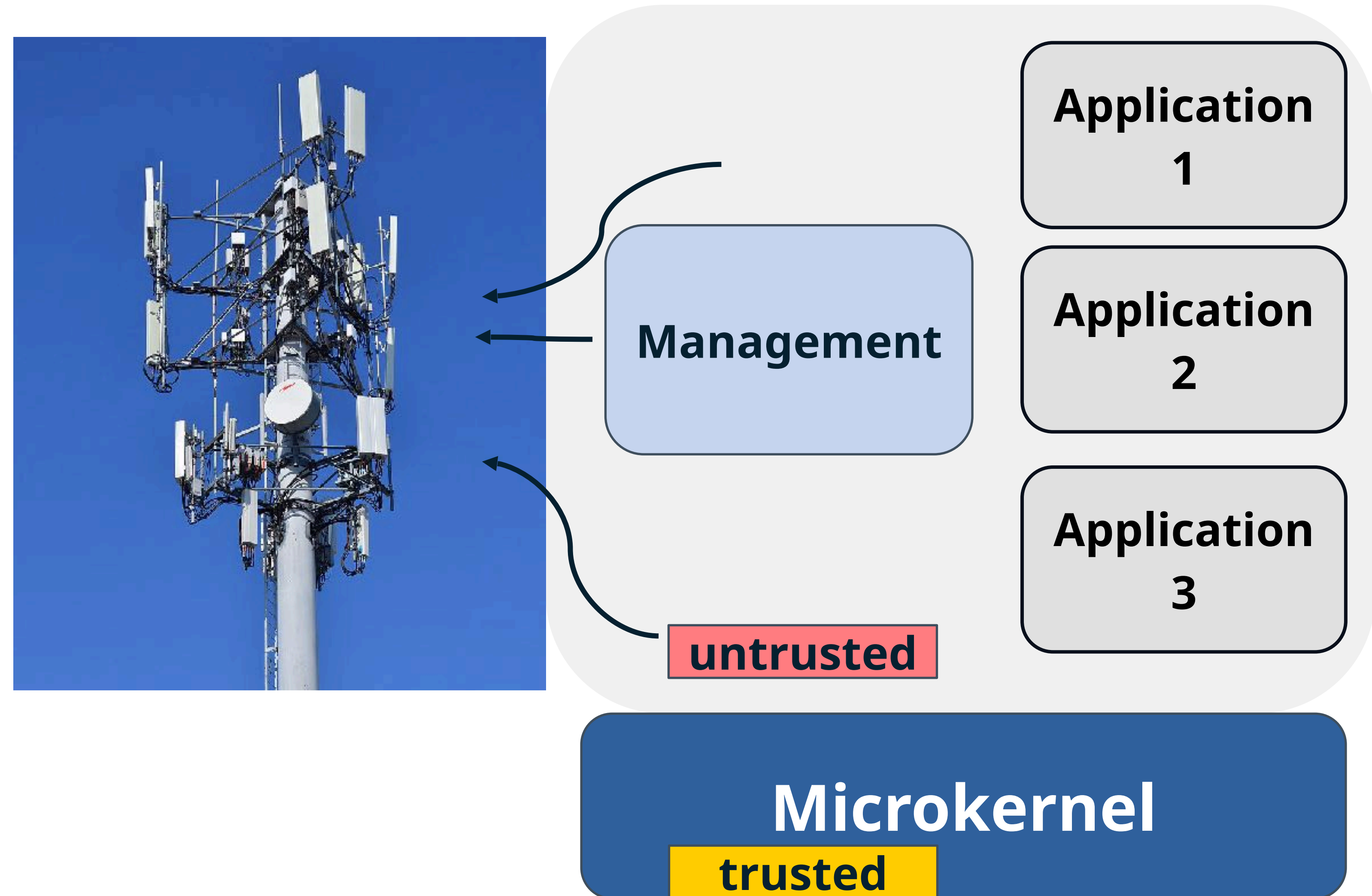


Topology of a Mobile Communication Network



Vector artwork by Vecteezy

Trustworthy Execution of O-RAN Applications





Motivation

- O-RAN uses traditional container environments
 - Strong isolation for untrusted components desirable
- Microkernel per default provides a high isolation
 - usage of L4Re as OS

Research Questions:

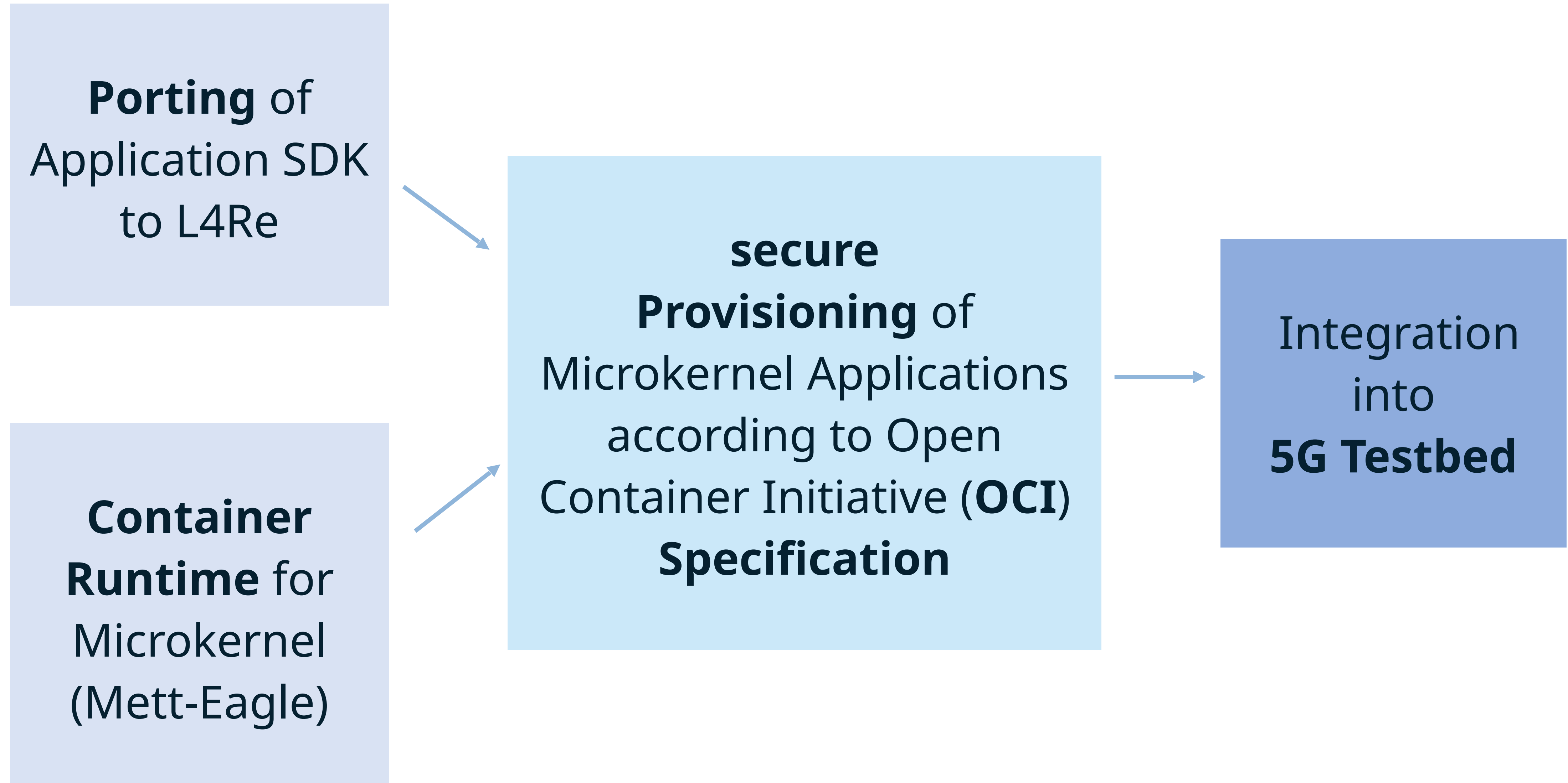
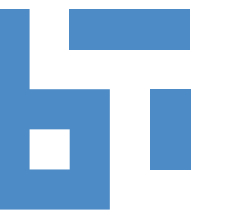
How do containers on L4Re look like?

How does secure provisioning look like?

How does the system perform?

How does it integrate into the overall Management System?

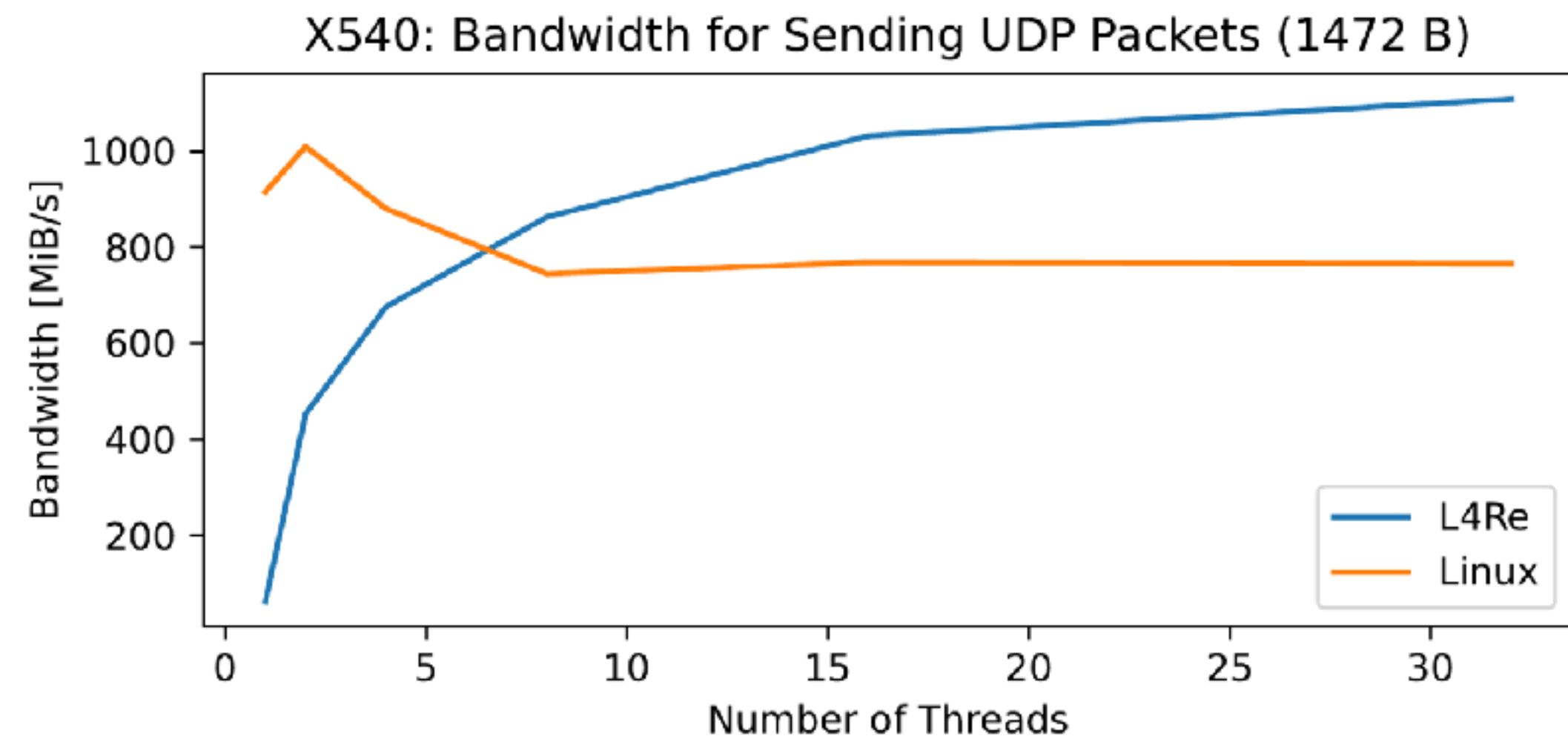
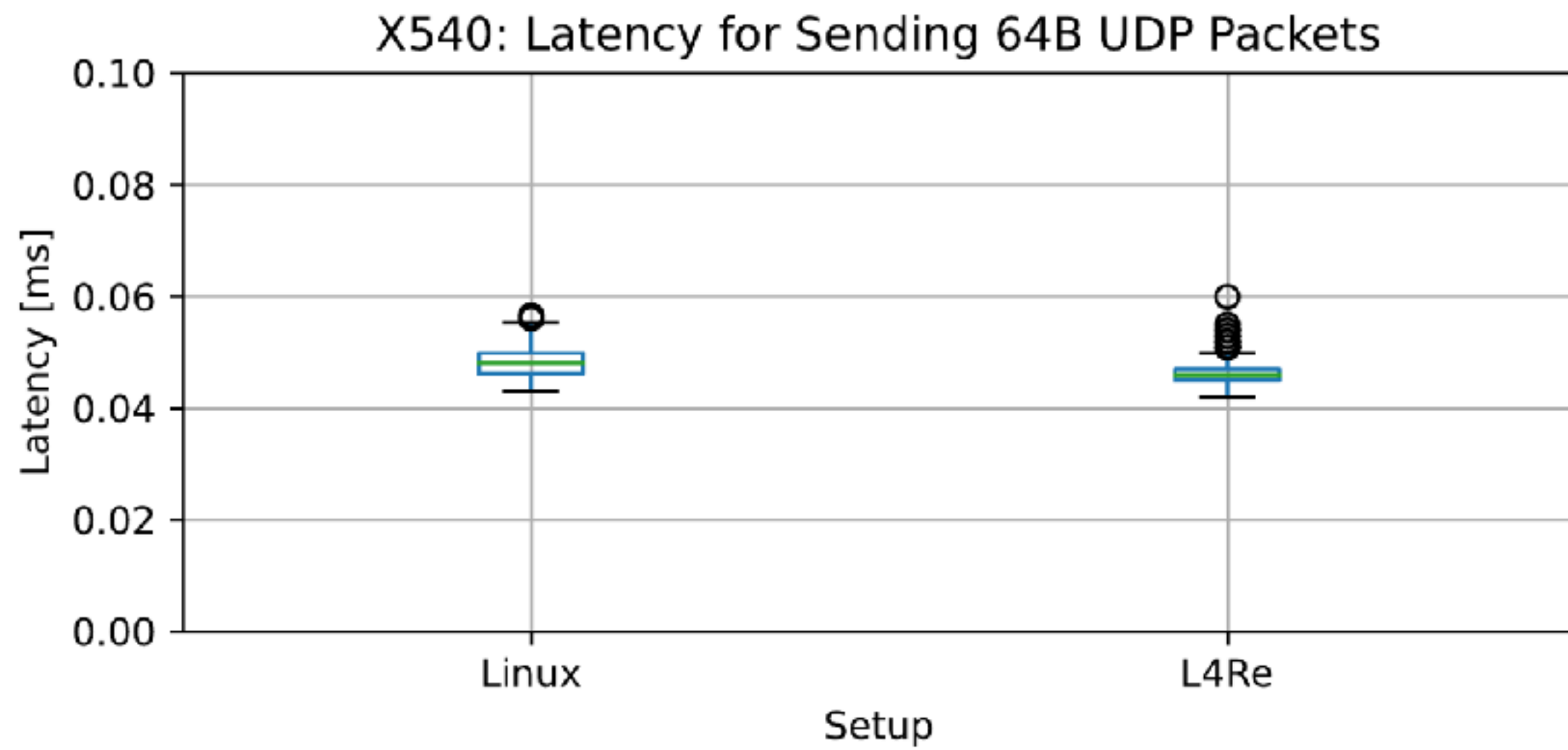
Next Steps



Preliminary Results



Aren't Microkernels too slow for that?



Credits: Till Miemietz