Open RAN for Vertical Industries

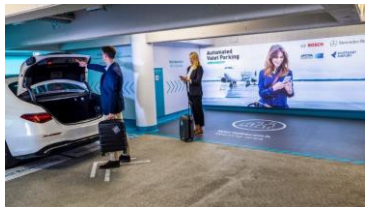
Dr. Andreas Mueller | Robert Bosch GmbH

Open RAN for Vertical Industries

Driving Forces Behind Open RAN for Vertical Industries

Images: Bosch





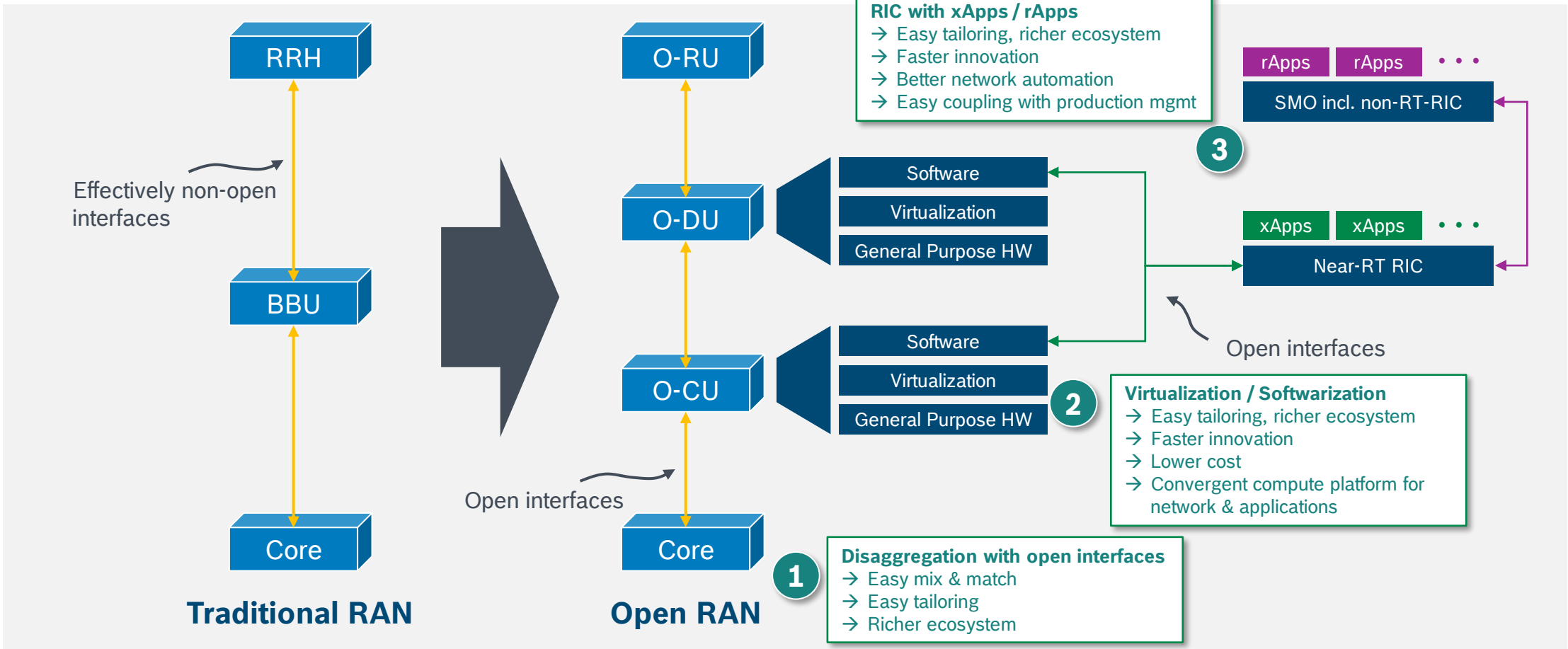

- Very heterogeneous requirements & constraints, even within one vertical domain
- Many use cases / problems represent only niche markets → not attractive for big players
- Use cases & requirements may even change over time (e.g., industry 4.0)
- Often only local connectivity is needed, but with very demanding requirements
- Purely RoI-driven investment decisions → very cost-sensitive
- General trend towards virtualization & softwarization, incl. edge computing

There is a need for highly flexible & customizable solutions with a rich ecosystem of vendors

BOSCH

Open RAN for Vertical Industries

The Promises of Open RAN for Vertical Industries / Private NWs



RRH: Remote Radio Head, BBU: Baseband Unit, RAN: Radio Access Network, RU: Radio Unit, DU: Distributed Unit, CU: Centralized Unit, RIC: RAN Intelligent Controller, SMO: Service Management & Orchestration, RT: Real-Time

BOSCH

Open RAN for Vertical Industries

The Promises of Open RAN for Vertical Industries / Private NWs

Open Source Software

White Box Hardware

Basis for richer ecosystem, faster innovation, higher security and lower cost

<u>But</u>: Still a long way to go

BOSCH

Open RAN for Vertical Industries

Example: Open RAN & Private 5G for Industry 4.0

Open RAN may efficiently support the high heterogeneity and need for flexibility required for Industry 4.0 and many other application domains!

[1]Service Management & Orchestration [2]RAN Intelligent Controller [3]General Purpose Processor

BOSCH

Open RAN for Vertical Industries
Private 5G & Open RAN | Remaining Challenges

Performance Limitations

Performance sufficient for mission-critical vertical applications?

Support for large bandwidths?

What level of PHY acceleration is needed?

End-to-End Integration

Is an easy mix-and-match a realistic vision?

Who takes care of E2E integration?

Who takes care of liability & support?

Energy Efficiency

Can we significantly improve energy-efficiency in future?

What is the carbon footprint along the entire lifecycle?

Can application-specific tailoring help?

Open RAN for Vertical Industries

Coming Up Next: Private 5G / Open RAN Testbed at Bosch

Planning of a major Open RAN testbed for the Bosch research campus in Renningen under way

Basis for exploring and unlocking the full potential of Open RAN & private 5G and for bringing application & network intelligence closer together!

BOSCH

„We have come to stay ☺!“

Dipl.-Ing., M.Sc.
Dr. Andreas Mueller

Corporate Sector Research and Advance Engineering
Distributed Systems (CR/ADI1.1)

andreas.mueller21@de.bosch.com
Tel.: +49-711-811-20836

5G

#LikeA**Bosch**