O-RAN Class Week 5

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Contents

Benefits of Open RAN

Lower Costs & Supply Flexibility

- Open RAN lets operators mix and match parts from different vendors instead of buying everything from one company.
- This reduces equipment costs and makes the supply chain more flexible.

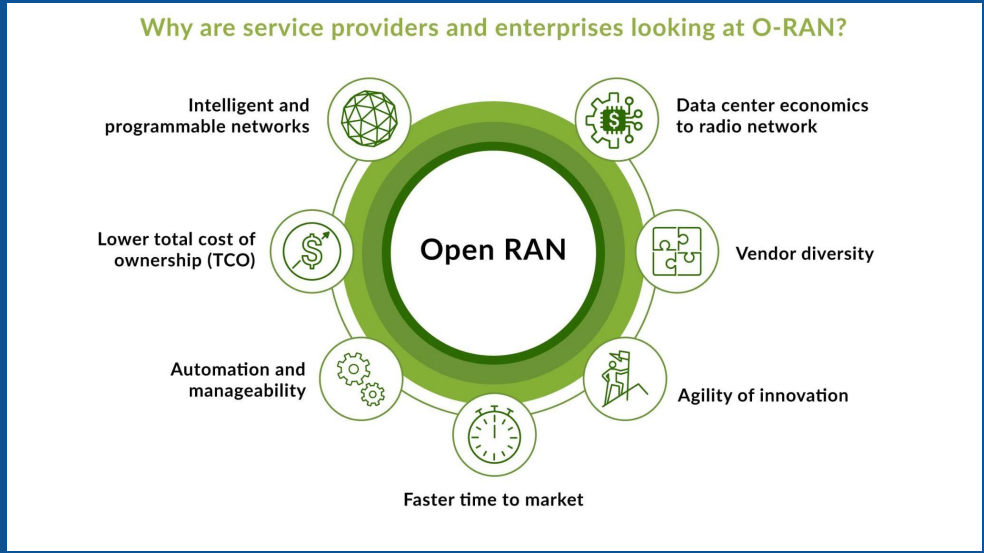


Image Source: https://www.juniper.net/us/en/research-topics/what-is-open-ran.html

Benefits of Open RAN

Enables New Business Models

- Open RAN supports private networks, shared infrastructure, and custom setups

"In an Open RAN system, the impact to the operator [is] minimized . . . We believe Open RAN will help unlock the full potential of 5G to enable greater flexibility, efficiency, and innovation in our mobile network and deliver next-generation connectivity."[1]
—Paul Smith, Jr., Director – Technical Staff, RAN Technology, AT&T

"...Open RAN, gives operators the flexibility to extend 5G to more users in a cost-effective, secure, and energy-efficient way. Nokia sees this flexibility as a way to stimulate greater innovation across industries in areas such as telemedicine and smart factories"[2]

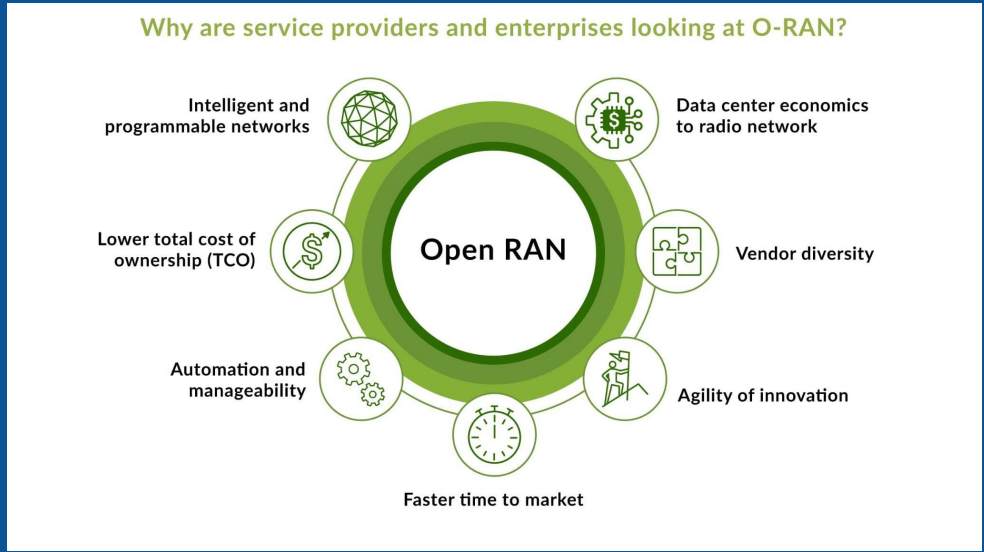


Image Source:https://www.juniper.net/us/en/research-topics/what-is-open-ran.html
1:https://www.business.att.com/learn/articles/open-ran-a-modern-approach-to-mobile-networks.html
2:https://www.nokia.com/mobile-networks/ran/anyran/open-ran/open-ran-explained/

Benefits of Open RAN

More Innovation from More Companies

- With open standards, new and smaller vendors can build RAN components.
- This increases competition, speeds up innovation, and gives operators more options.

More choices, better performance, and lower costs

Open RAN creates a level playing field for hardware manufacturers and software developers, no matter the size of their business.

Hardware manufacturers:

- Create platform-agnostic hardware
- Opens the market for a wider range of customers

Software developers:

Innovative developers will create specialized solutions for specific use cases or the wider market.

Conclusion: More hardware and software choices – at better prices – to suit the unique needs of your business as it evolves.

Image Source:https://www.business.att.com/content/dam/attbusiness/insights/infographics/open-ran-inforgraphic.pdf

Key challenges and considerations for O-RAN adoption

- Interoperability
  Devices from different vendors must work smoothly together. This requires strict testing, certification, and ongoing maintenance.

- Security Risk
  - Disaggregation and multiple vendor components increase the attack surface.
  - This necessitates end-to-end security measures, which may reduce expected cost benefits.
  - There's a lack of confidence in smaller vendors' ability to offer 24/7 support, potentially shifting the support burden to service providers.

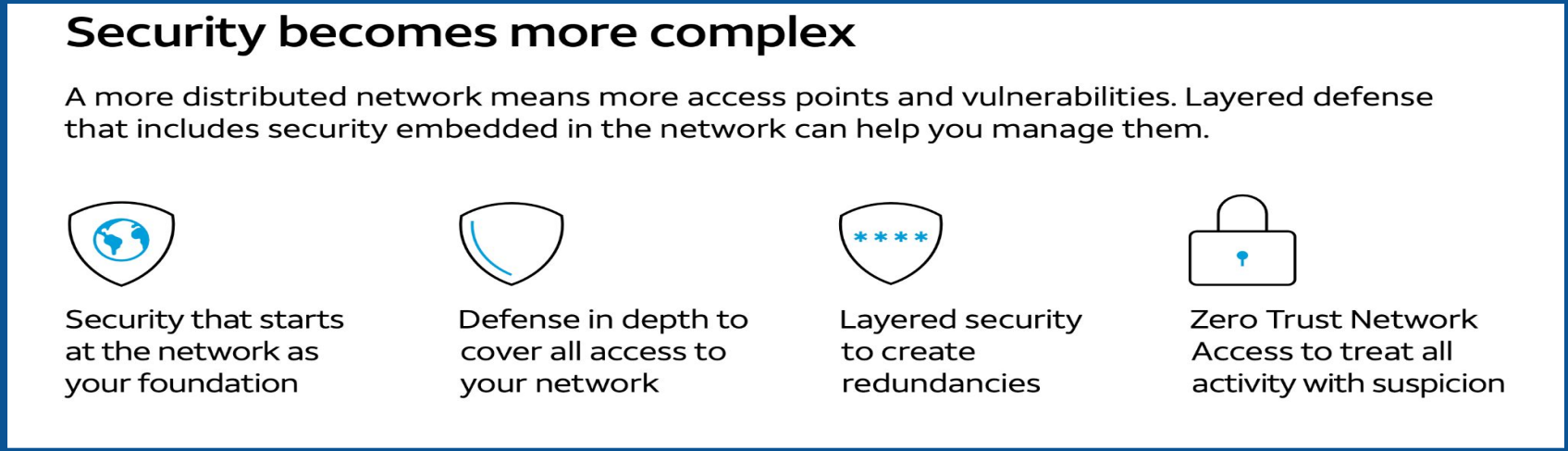
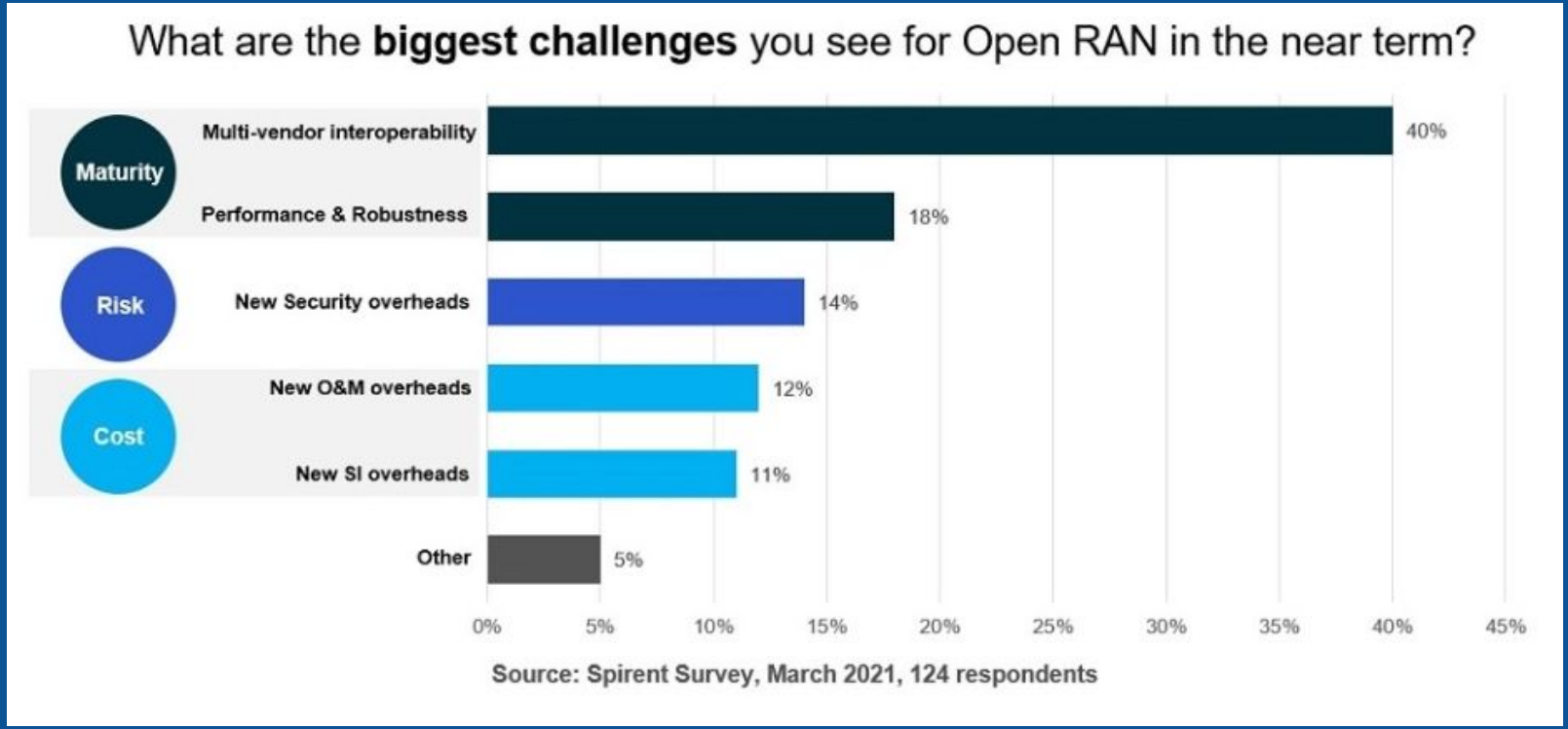


Image Source:https://www.business.att.com/content/dam/attbusiness/insights/infographics/open-ran-inforgraphic.pdf

Key challenges and considerations for O-RAN adoption

- Maturity
  - Open RAN faces concerns about multi-vendor interoperability.
  - With evolving standards, there's a risk that vendors may introduce proprietary implementations, leading to complex system integration.
  - Providers emphasized the need for performance parity with traditional RAN, citing concerns like timing synchronization in disaggregated, multi-vendor environments.
- Cost Implications
  - Deployment and operations of Open RAN are more complex than traditional RAN.
  - Smaller vendors may not be able to manage integration challenges, requiring large SIs or SPs to step in.
  - There is growing concern that integration costs may outweigh Open RAN’s intended savings.
- Operational Readiness
  - Service providers must build in-house DevOps, automation, and operational skills.
  - This shift introduces high technical demands, requiring rapid acquisition of new expertise and processes.
  - Performance & Reliability
  - Open RAN setups must match the speed, latency, and uptime of traditional networks.

Key challenges and considerations for O-RAN adoption



Emerging O-RAN Use Cases

O-RAN's flexibility and potential cost savings make it possible to deploy networks in areas previously too remote.

- TIP & IpT brought internet to remote parts of Peru using Open RAN solutions

- Using Open RAN, Vodafone launched trials in Democratic Republic of Congo(6.2% of population online) and Mozambique.

Image Source:https://telecominfraproject.com/wp-content/uploads/IPT-Case-Study_F.pdf

The Evolving Open RAN Ecosystem

Expanding Vendor Base

- Companies like Parallel Wireless, Mavenir, Fujitsu, and NEC are leading in Open RAN solutions.
- Bigger vendors like Nokia and Ericsson are cautiously exploring Open RAN.
- Cloud-native players (like AWS and Microsoft Azure) are entering Open RAN through edge/cloud infrastructure integration.
- Chipmakers like Intel and Qualcomm are investing in Open RAN-compatible silicon and accelerator platforms.

The Evolving Open RAN Ecosystem

Rise of System Integrators & Testing Labs

- Firms like Accenture and Capgemini help operators assemble and manage Open RAN networks.
- OTICs (Open Testing & Integration Centers) are spread worldwide to test vendor interoperability.
- TIP (Telecom Infra Project) plays a key role in promoting Open RAN interoperability and use case validation.
- Rakuten Symphony and Jio Platforms are becoming influential players by offering Open RAN as a service globally.

AI and Automation

- AI-based tools (like xApps and RIC) help optimize network performance automatically and allows operators to adjust networks in real-time without manual work.

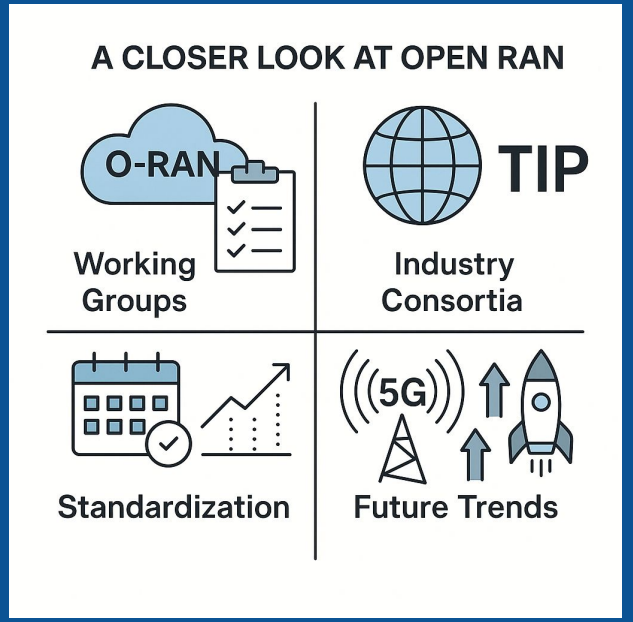
OPEN TEST AND INTEGRATION CENTRE

Image Source:
https://www.o-ran.org/otics
https://www.linkedin.com/in/abdelaziz-s-425a524/

Coming in week 6

Standardization and Future Trends

- A closer look at the O-RAN Alliance: Working groups and key specifications.
- The role of other industry consortia (e.g., TIP) in the Open RAN landscape.
- Ongoing standardization efforts and the roadmap for Open RAN evolution.
- Future trends and the potential impact of Open RAN on 5G Advanced and beyond.



Thank you!

Questions?