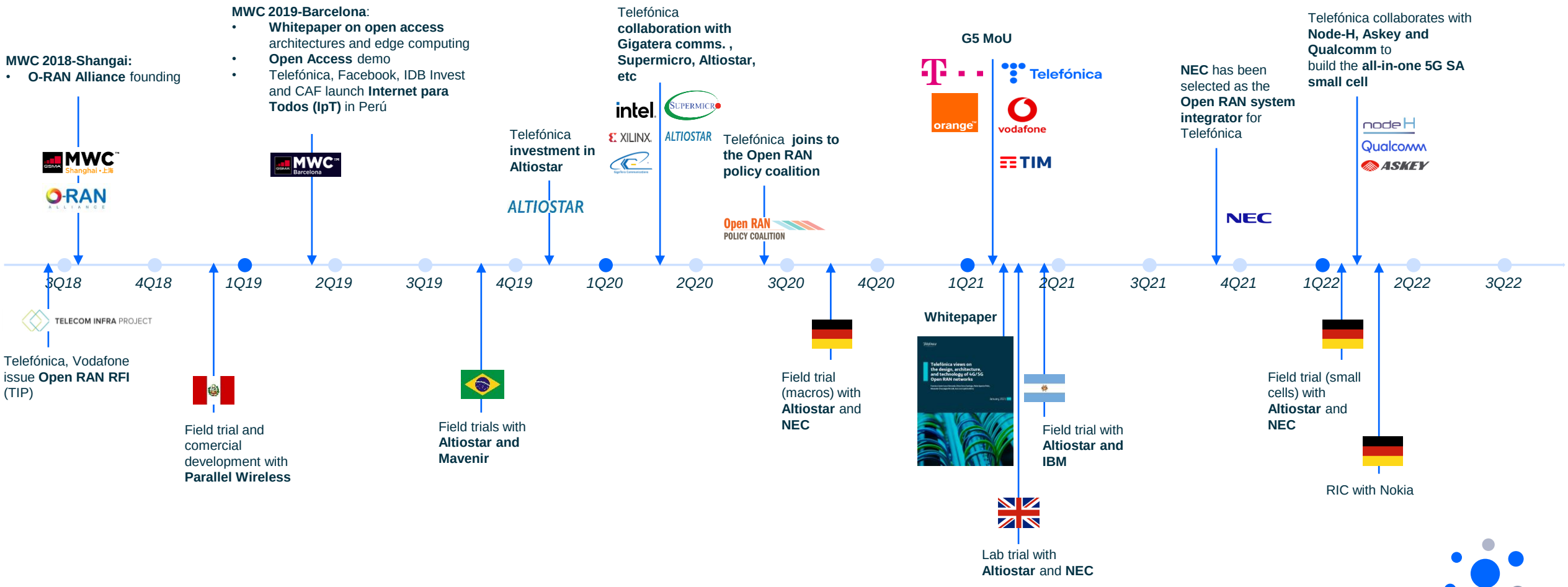
Scaling the network transformation with Open RAN

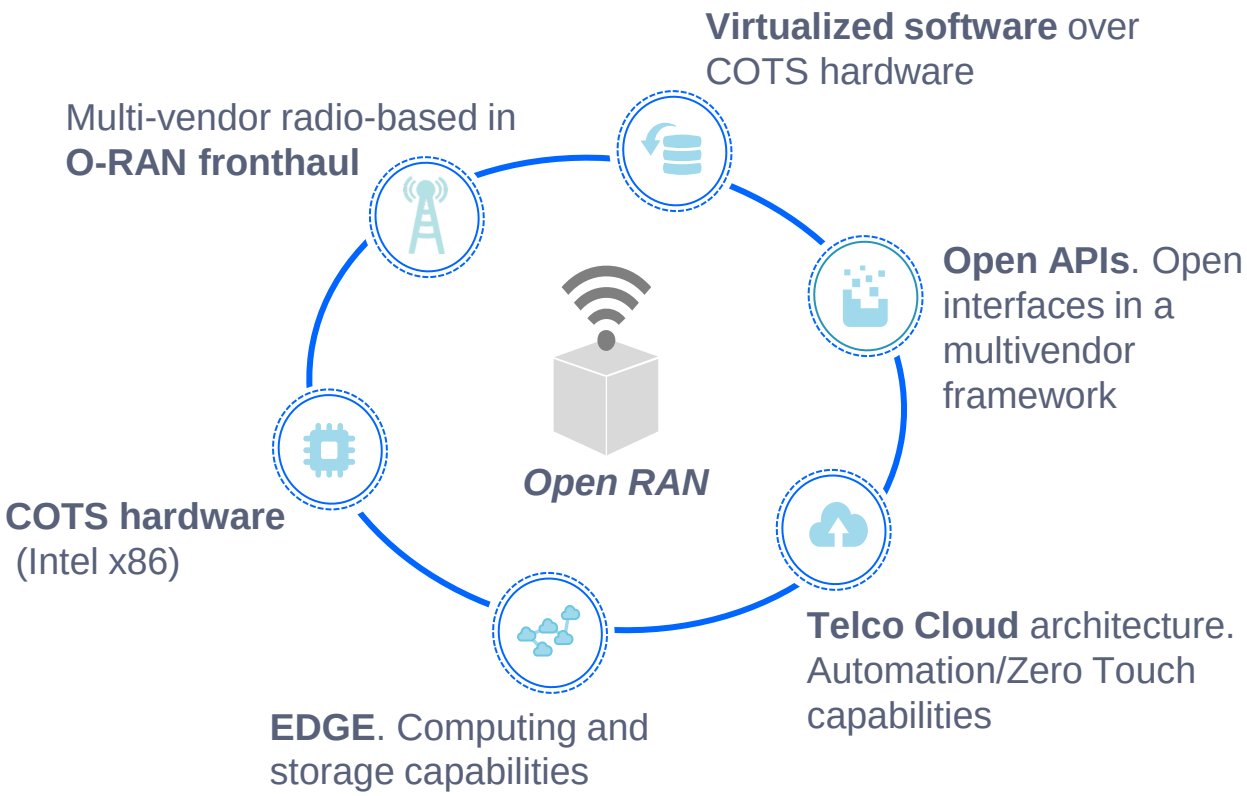
MWC 2022

Transformation is now

A continued activity around Open RAN during the last four years through partnership, trials and architecture definition



Open RAN concept: Enabling the evolution of our access while managing our vendors map



Open RAN will help network operators to expand business models…

- ✓ **Reduce the vendor lock-in**
- ✓ **Enrichment of the RAN ecosystem**
- ✓ Virtualized and flexible RAN architectures allowing new **uses cases**, **differentiated features**, **automation capabilities and network slicing**
- ✓ **More cost-efficient** (medium/long term)
- ✓ **Boost innovation**

…but has challenges related with the time to market and extra integration costs

- x **Industry readiness,** brownfield solution requires time to be industrialized
- x **Time to carry out interoperability tests** will be significant until the model gets mature
- x **Integration with legacy infrastructure and systems** (OSS) might be complex
- x **New skills** (cloud techniques, integration, etc) and new requirements to service providers

Aligning industry around Open RAN to ensure the readiness of the solution for large scale networks roll-out

Standardization bodies

- Open RAN is made possible through standardized open network interfaces

O-RAN ALLIANCE
SCF
TELECOM INFRA PROJECT
GSMA
Open RAN POLICY COALITION

Operators

- Operators need to provide technical requirements for Open RAN architecture

Telefónica
T
orange
vodafone
TIM
Rakuten

Vendors

- Roadmap acceleration
- Partnerships that enable e2e Open RAN solution

ALTIOSTAR
intel
Parallel Wireless
MAVENIR
NEC
vmware
IBM
redhat LINUX

Governments

- Policy measures in support of open RAN
- R&D investment programs

Non-exhaustive lists

Introducing Open RAN in Telefónica in 3 phases

Phase 0
Pilots
(~10-20 sites per OB)
2020-2022

Phase 1
Initial deployments
(~200 sites per OB)
2022/2023

Phase 2
Massive deployments
Beyond 2023

30-50%
of RAN growth with Open RAN
2023-2025

TEF OBs

MWC 2022

We have selected initial Open RAN hardware and software vendors to succeed in real deployments

RAN software	ALTIOSTAR 4G 5G	• **4G/5G features** ensuring that performance is on par with current RAN vendors
DU hardware	SUPERMICRO 4G 5G Silicom Ltd. Connectivity Solutions	• DU server with 2U and **300 mm depth, full front access** • **Hardware accelerator card based on eASIC and Time Sync NIC card**
RRU/AAU	Comba 4G NEC 5G Airspan	• **O-RAN fronthaul** solutions • RRU: single/dual/triple frequency bands (category A) • AAU: 32T32R, 64T64R (category B)
Chipset	intel DU XILINX Radio	• **Ice Lake SP** (10 nm) chipsets to build three different DUs (20/32/36 cores) for different 4G/5G scenarios
CU hardware	DELL Hewlett Packard Enterprise	• Synergies with other network functions
CISM	redhat LINUX vmware	• Solution based on **containers**
System integrator	NEC	• **Management of overall project** and **responsible of e2e solution**

The ongoing activities of Open RAN have provided us some “lessons learned”

1. Time to carry out interoperability tests
2. Multivendor environment
3. Site design in high-capacity scenarios
4. Parity of Open RAN software with traditional vendors
5. Containers based solution
6. Effective automation
7. Savings in initial deployments
8. System integrator role

- The intense activity around Open RAN (product design, pilots, industry messages, etc) has given us some **important lessons** indicating that there are **challenges and concerns** that must be solved before the massive adoption of Open RAN
- **Open RAN** is continuously **evolving** and **getting improved** to be on parity with traditional vendors. There is still a journey where we are **learning** and implementing best practices **following standards and industry guidance**


Telefónica