KEYNOTE

How one-stop testing Can Boost Your Bottom Line in Open RAN

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How one-stop testing boosts open RAN bottom line

Although we need testing and validation, the multiplication of efforts across the globe is killing the ecosystem and slowing the adoption of open RAN

Stéphane Téral | June 15, 2023

Open RAN is a long bumpy journey

Although the market grew 50% YoY in 2022, it was a major slowdown and global sales came short of hitting our forecast of almost $2B.

Open RAN accounted for 3.2% of global RAN sales in 2022.

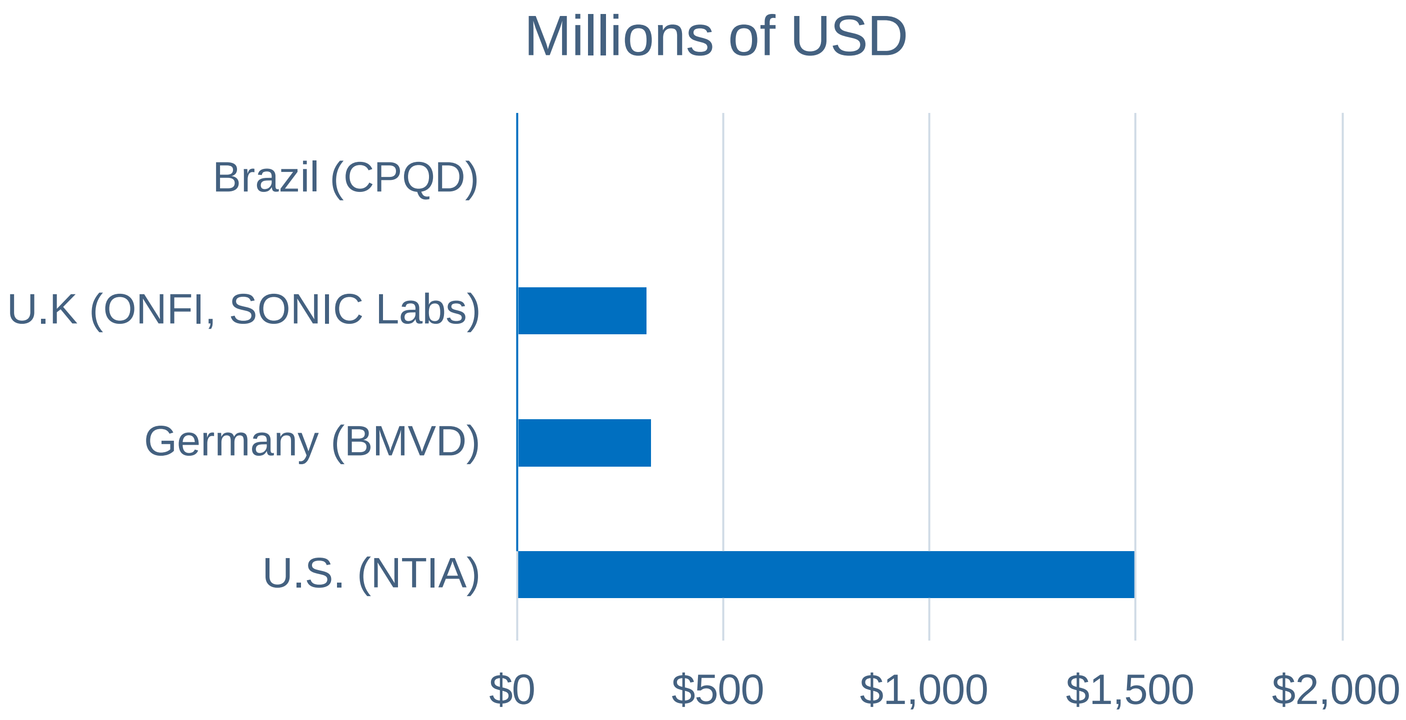
- **Very few actual rollouts BUT tons of testing & validation efforts**
  - At least 100 service providers are actively testing & validating open RAN
  - Many countries and companies are pouring money into testing & validation
    - Japan is leading with its one-stop test OTIC
  - The bulk of these efforts focus on the same issues! No one is really benefiting, the ecosystem is struggling
    - Consolidation / restructuring / exit is happening
- **Bottom Line: stop the bleeding, like Japan, open your OTIC to your competitors**

Everyone on this map is conducting testing & validation, so are those not on this map

1&1, DISH and Rakuten Mobile do/did their own before turning up a new site and/or a service

Many countries & companies are pouring money in testing & validation facilities

Just a few examples



Source: LightCounting/TÉRAL RESEARCH

NORTHROP GRUMMAN

- Opened a 5G lab in San Diego in January 2022.
- DoD sponsored effort, $1.25M grant awarded to:
  - Radisys $600k
  - Mavenir $550k
  - Capgemini $400k
  - Fujitsu NC $150k
  - Signal System Management $150k

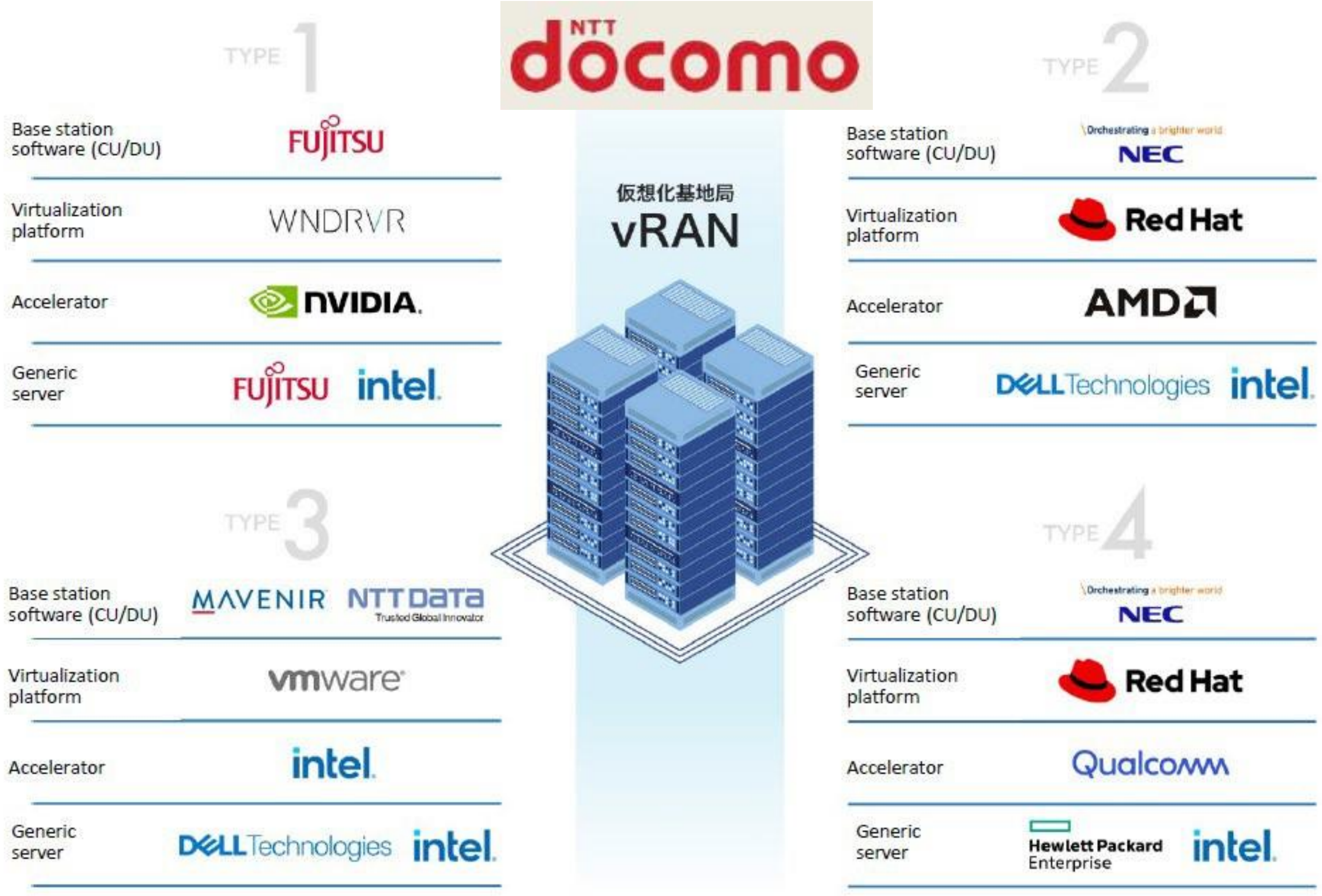
SPIRENT Communications

- June 5, 2023, announced a partnership to test O-RAN RUs.

Japan is in the driver's seat

In 1Q23, Rakuten Symphony opened an open RAN Customer Experience Center at its offices in the UK.

NTT docomo opened its lab to whoever needs help to speed up the process; then came OTIC.



With a minimum cost, service providers can have access to NTT docomo's lab which provides a pre-integration service covering end-to-end testing, including chipsets.

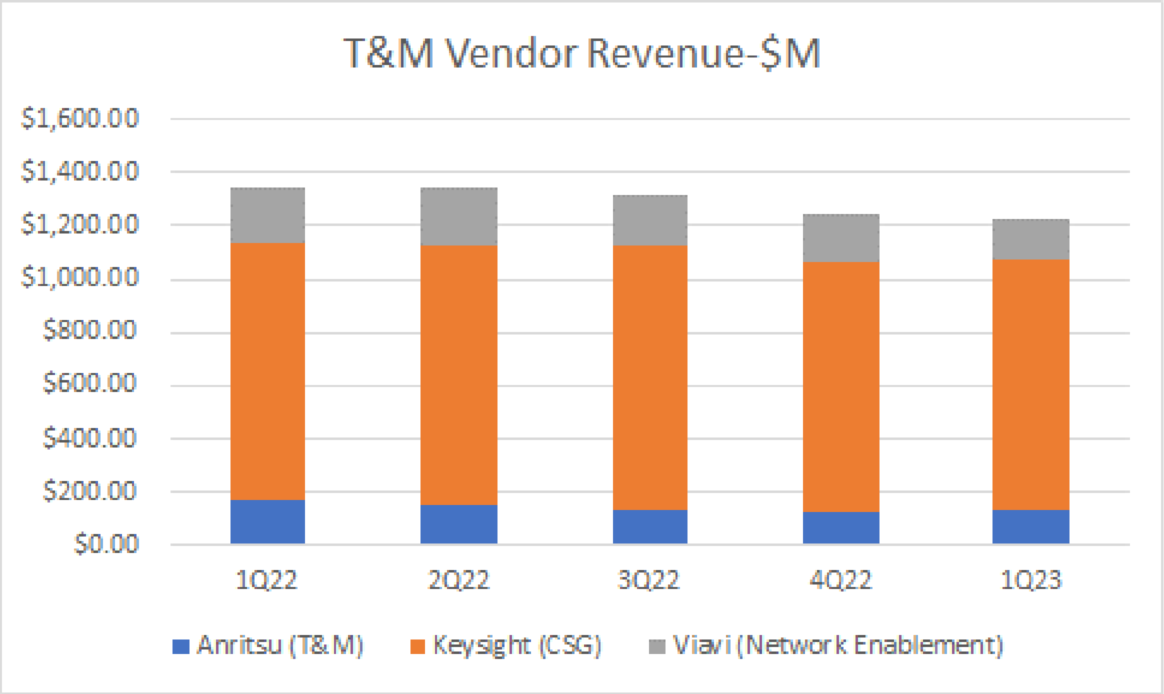
NTT docomo, **KDDI**, **SoftBank** and **Rakuten Mobile** are collaborating on testing and certification in **Japan's OTIC** [Open Testing and Integration Center].

TÉRAL RESEARCH
WIRELESS INDUSTRY ANALYSIS

No one is benefiting, the ecosystem is struggling

Everyone works on interoperability, RAN feature parity and integration issues

Life after 5G: “maturing 5G to 5G-A”, Open RAN, and 6G



Source: LightCounting/TÉRAL RESEARCH
Note: Spirent Communications and Rohde & Schwarz don’t provide quarterly data

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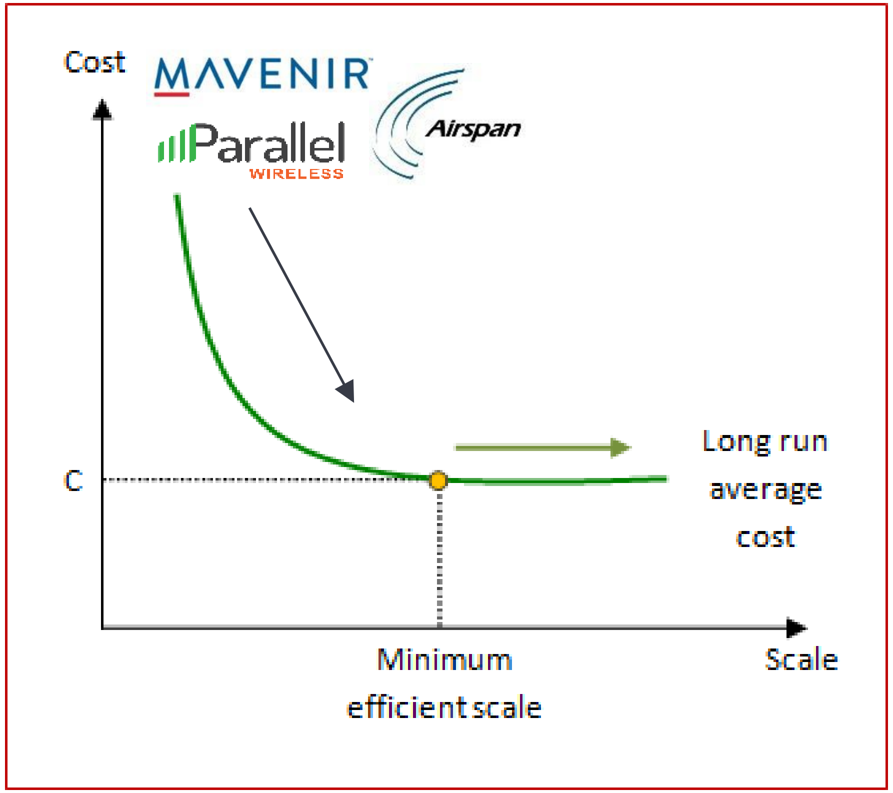
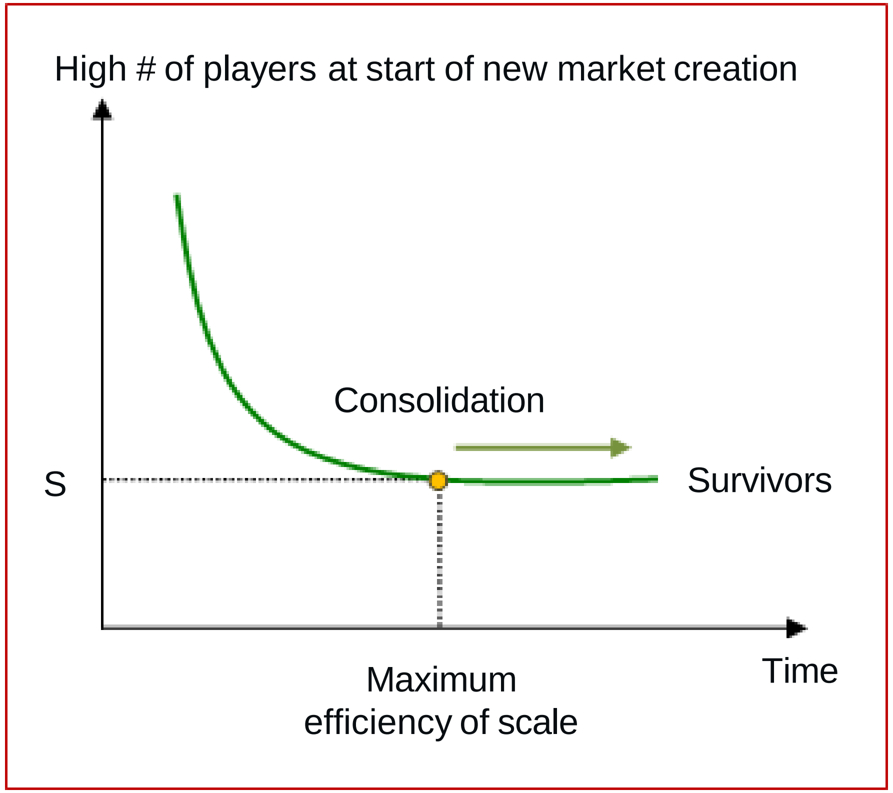
Stigler's Survivor Principle is in full display…

George Stigler argued that in the long-run, the average costs will decrease until a point where they can no longer do so and from which they will become constant.





Source: "Production and Distribution in the Short Run," George Stigler, 1933; with LightCounting/TÉRAL RESEARCH adaptation

…and consolidation/restructuring/exit is happening

Although the open RAN market is passing the $1B-mark, that's not enough to sustain all players in this swelling ecosystem

2020 | 2021 | 2022

ip access (a Mavenir company) → MAVENIR

Phluido → COMMSCOPE

ALTIOSTAR → Rakuten Symphony

BLUE DANUBE (An NEC Company) → NEC

aspire (Perfecting Networks) → NEC

cellwize → Qualcomm

RFS → Amphenol

STL exits the open RAN market

docomo $\xrightarrow{\$560M}$ NEC

MAVENIR has raised $954.6M in 9 rounds so far

If you lack both scale and scope, you're gone

That's why there is no surprise here! Only Parallel Wireless lacks scale and scope.

Was this the desired outcome?

Clear market leaders by sales

Tier 1: FUJITSU NEC ALTIOSTAR DELL Hewlett Packard Enterprise intel

Tier 2: MAVENIR NOKIA SAMSUNG

Tier 3: Airspan Comba KMW Parallel WIRELESS SERCOMM

is under attack, the big boys are joining the party:

AMD XILINX MARVELL Qualcomm arm NVIDIA

They all have scale and scope

Bottom Line: Time to stop the bleeding, adopt Japan's playbook

What if each EU OTIC opens its doors to the competitors? This would lower the costs, speed up the Open RAN adoption, and boost the ecosystem's bottom line

- **Germany is well positioned to achieve this:**
  - The 4 players are in the open RAN bandwagon
- **Spain looks promising**
  - Movistar, Orange and Movistar are in the open RAN bandwagon
- **France and Italy look challenging**
  - Orange and TIM, respectively, are in the bandwagon but bringing the others on board looks complicated

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