

ORIA 개방형솔루션위원회 정례회의(4차) 개최 결과

('25.03.27.(목), ORIA 사무국)

I. 회의 개요

- (일시/장소) 2025.03.18.(화), 16:00~17:30 / 비대면 온라인(Zoom)
- (논의내용) Yonsei-VIAVI-SUTD 데모 소개, '25년 마일스톤 논의 등
- (참 석 자) 김성륜 개방형솔루션위원장, 위원, 사무국 등 14명
 - 김성륜 교수(연세대), 정희상 실장, 고남석 실장, 최성우 책임(이상 ETRI), 홍훈의 수석(솔리드), 김규수 부장(VIAVI), 이종민 본부장, 신희성 본부장(이상 HFR), 정성훈 이사(삼지전자), 김태운 책임(LG전자), 박영완 상무(켈컴), 최양수 상무(이루온), 김현수 매니저(사무국)

II. 회의 결과

□ 주요내용

① Yonsei-VIAVI-SUTD 데모 소개 : 김규수 부장(VIAVI)

- VIAVI 오픈랜 관련 활동 소개
 - 오픈랜, 6G, AI 분야에 집중하여 연구 활동을 진행 중
 - O-RAN Alliance 활동 및 PlugFest 진행, NTIA NOFO 프로그램 참여, 오픈랜 서비스 제공을 위한 VALOR랩 개소 등 전반 활동 중
 - VALOR랩은 모든 E2E 시험할 수 있는 환경을 제공하며 버추얼 랩과 물리적랩이 공존, OTIC 시험 전에 사전 테스트가 가능
- MWC 2025 Yonsei-VIAVI-SUTD 데모 소개
 - 이번 MWC는 AI, 디지털트윈, 6G 등이 주요 키워드로 나타났는데, VIAVI도 6G 아이টে을 가지고 몇 가지 데모를 진행

- 삼성, 노키아와 협력하여 에너지 세이빙, 시멘틱 커뮤니케이션 XR, 디지털트윈 AI 등 다양한 솔루션을 실험하는 데모를 소개
- 또한, VIAVI, 연세대, SUTD와 3자 협력을 통해 rApp, xApp 개발 등을 지원하는 AI RSG(RAN Scenario Generator) 솔루션을 소개

② MWC 2025 및 3GPP 6G Workshop Perspective : 김성륜 위원장

- 이번 MWC는 현재 시장 상황(통신사 수익률, 제조사 투자비용 등) 고려해서 차분한 분위기였음
- 3GPP 표준회의 및 6G 워크숍(3.10~14)에서 공식적인 6G 논의가 시작되었는데, 5G의 회의감을 넘어서는 것이 필요해 보임
 - 시장에서 5G에 이어 6G에 대해 의문을 가지고 있는데, 6G의 성공을 위해 스펙보다는 유스케이스를 확실히 할 필요가 있어 보임
 - 전체적으로 복잡한 설계보다는 시스템에서 일부 업그레이드하자라는 이야기가 있었고 클라우드 네이티브 아키텍처, AI 네이티브 디자인 등의 키워드가 중요할 것으로 판단됨
- AI-RAN Alliance가 3GPP에서 앞으로 영향력을 가질 것으로 보임
 - O-RAN Alliance가 3GPP에 종속되는 형태라고 보면 AI-RAN Alliance는 표준화는 직접 다루지 않지만 AI-RAN을 서포트할 수 있는 HW·SW를 포괄하여 광범위하게 영향을 미칠 것으로 판단됨

③ 위원회 2025년 마일스톤

- 위원회 활동 결과로 백서 발간(상반기 진행 예정)이 중요한데, 국내 오픈랜 생태계가 활성화되지 않은 상태에서 어떤 주제가 적절할지 또는 위원회 R&R 변경 등의 논의가 필요한 상황임
 - 위원회 R&R을 보면 6G 포럼에서 발간했던 오픈랜 백서와 유사해질 수 있어 의미가 없고, 새로운 트렌드(AI-RAN과 O-RAN의 관계 등)를 반영하기엔 R&R과 내용이 일치하지 않는 부분이 있음

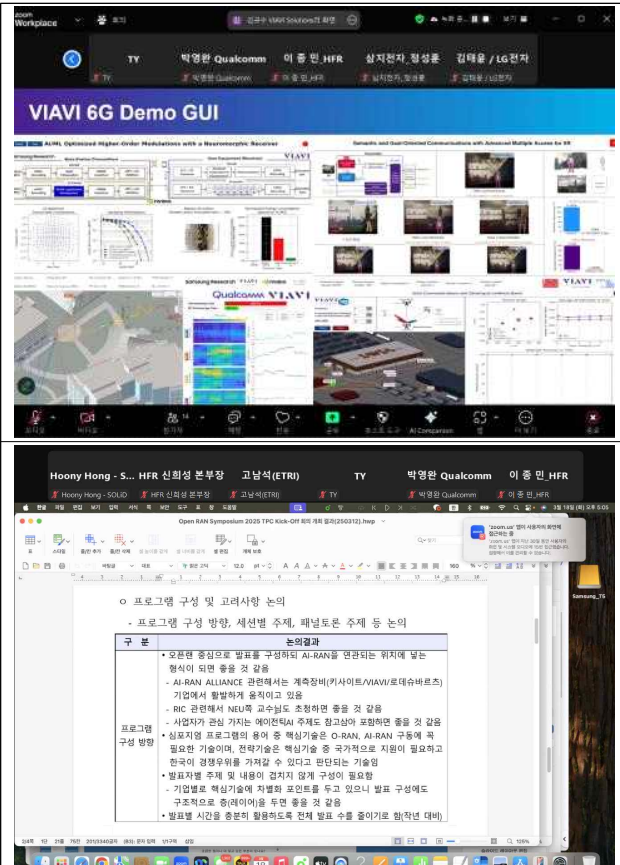
④ 오픈랜 심포지엄 2025 추진현황(개최 일시 검토 중)

- 현재 심포지엄 프로그램위원회(위원장: 이경한 교수)를 운영하고 있으며 오픈랜 장비 수요자인 해외 사업자(미국, 일본, 독일, 영국 등)를 초청을 준비하고 이에 맞춰 프로그램을 구성 중에 있음

□ 후속조치 계획

- 위원회 R&R 의견수렴 및 정리, 백서 발간 준비
- ORIA 개방형솔루션위원회 정례회의(격월로 진행)
 - (일시/장소) 2025년 5월 중(시간, 장소 미정)

Ⅲ. 회의 전경



참가자	
<input type="checkbox"/> 회의 데이터로 내보내기	
이름(원래 이름)	
사무국	Yangsoo Choi_ELUON
ETRI 정희상	Taeyoon의 iPhone
성륜 김	TY
dkkim	김태운
Hoony Hong - SOLID	박영완 Qualcomm (박영완)
김규수 VIAVI Solutions	이 중 민_HFR
HFR 신희성 본부장	삼지전자_정성훈
[ETRI] 최성우	
고남석(ETRI)	
김태운 / LG전자	

끝.

VIAVI Solutions Company Overview

Kyusoo Kim
Speaker Title
Date

About VIAVI Solutions

VIAVI Solutions (NASDAQ: VIAV) is a global leader in communications test and measurement and optical technologies.



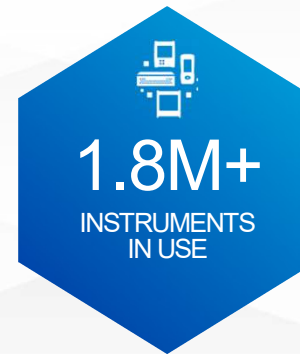
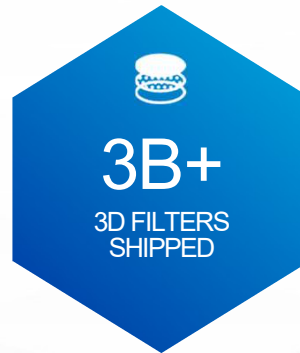
NETWORK & SERVICE ENABLEMENT

Our industry-leading solutions power tomorrow's network transformation – from fiber expansion and the wireless evolution to AI-powered zero-touch networks and cloud transformation that accelerate digitalization.

OPTICAL SECURITY & PERFORMANCE

We alter how light is transmitted, reflected, absorbed and shaped for mission-critical and high-volume optical applications ranging from anti-counterfeiting, consumer electronics and aerospace to industrial and automotive.

VIAVI Solutions by the Numbers



VIAVI Market Leadership

For Complex Network and Sensing Issues

#1 TEST AND MEASUREMENT



Fiber



Enterprise



Cable and
Access



Metro and
Transport



Lab Production
and Manufacturing

#1 WIRELESS AND AVIONICS



5G Test and
Assurance



Location
Intelligence



Land-Mobile and
Military Radio



Aerospace, Nav/Comm,
and Transponder

#1 SECURITY, SENSING, AND AUTHENTICATION



3D Sensing



Anti-Counterfeiting



Spectral
Sensing



Automotive



Government
and Aerospace

VIAVI Technology Growth Areas

Keeping Pace with Market Drivers and Customer Demand



FIBER

- Industrial IoT
- FTTx
- Hyperscale Data Centers
- High Speed Internet
- Photonic Computing



5G – 6G NETWORKS

- RAN-to-Core Lab Solutions
- NTN
- Enterprise Networks / P5G
- Service Assurance / AIOps
- NITRO / Analytics
- V2X / Smart Transportation
- Industry 4.0



AI / ML AUTOMATION

- Network Automation / Optimization
- AIOps
- Field Ops Service Bots
- Digital Twin
- AI Testing AI



CLOUD

- Cloud Native
- Cloud-Out to Edge
- Everything as a Service (LaaS, TaaS, SaaS)
- Autonomous Networks
- Intent-Based Instruments



3D SENSING

- Consumer Electronics
- Automotive
- Industrial
- Custom Optics



VIAVI O-RAN Market Leadership

VIAVI Wireless O-RAN Leadership

VIAVI Leadership in O-RAN

First test vendor to join xRAN Forum before it became O-RAN



Only test vendor with multiple leaders in O-RAN



Dr. Ian Wong
Co-chair, Test and Integration Focus Group



Dr. Reza Vaez-Ghaemi
Co-chair, WG9 – Open xHaul



Gordon Beattie, Jr.
Co-chair, Next-generation Research Platforms



Ultan Kelly,
O-RAN Software Community Technical Oversight Committee



Dr. Howard Thomas
Editor, WG4 and WG5 Interoperability Test Specs



Dr. Tsunehiko Chiba
Rapporteur, WG2 Energy Savings with Non-Realtime RIC

Lead editor and multiple authors in the definitive book on Open RAN



Dr. Ian Wong, Lead Editor with chapters from Dr. Sameh Yamany and Dr. Reza Vaez-Ghaemi

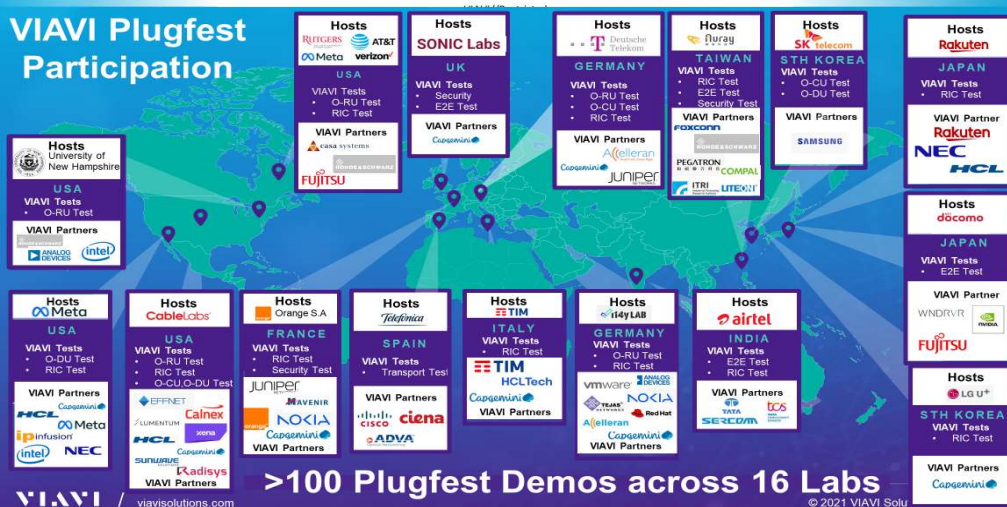
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VIAVI bring telco grade quality solutions & Interoperability to O-RAN & Cloud deployments

- O-RAN and V-RAN deployments do not inherently lower network quality requirements
- VIAVI validation solutions are built into customer CI/CD machinery operating 24/7, 365/year
 - Software robustness & reliability
 - Significant long term supporting investment

VIAVI Plugfest Participation



>100 Plugfest Demos across 16 Labs

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Industry Participation

WE PARTICIPATE IN:

- Major industry and research initiatives
- Contribution to the development of well-defined and harmonized standards
- Proof of concept trials
- Early-stage field deployments



NTIA Notice of Funding Opportunity - Recap

Overview:

- The Innovation Fund is a **ten-year, \$1.5 billion grant program, advancing open wireless network technologies**. Today's wireless equipment market is concentrated. Some of the leading suppliers pose security risks. Open solutions can revitalize this ecosystem. The Innovation Fund, funded through the CHIPS and Science Act of 2022, will make major wireless investments, as part of the Biden-Harris Administration's "Investing in America" agenda.

The Innovation Fund will:

- **Promote** 5G+ technologies that are secure, open, and virtualized.
- **Advance** the deployment of open and interoperable equipment.
- **Support** the integration of networks with multiple brands of equipment.
- **Identify** criteria to decide if equipment follows open standards.

NOFO #1:

- Value of **\$140M**
- The first Notice of Funding Opportunity (NOFO #1) had two focus areas:
 - SRFA #1: Research and Development (R&D), and
 - SRFA #2: Testing and Evaluation (T&E).

NOFO #2:

- [This Notice of Funding Opportunity \(NOFO\) \(\\$450M\)](#) is the second in a series that the National Telecommunications and Information Administration (NTIA) will issue and administer under the Innovation Fund. This NOFO is divided into two (2) specific research focus areas (SRFAs):
 - **SRFA 1: – Open Radio Unit (RU) Commercialization:** Projects funded under SRFA 1 will focus on accelerating the development of open RU products to the point where they meet carrier needs and are ready for commercial trials; and
 - **SRFA 2: – Open RU Innovation:** Projects funded under SRFA will focus on improving the overall performance and capabilities of open RUs through targeted research and development.

\$21.7M NTIA Funding for VIAVI VALOR™ in Chandler

VIAVI Automated Lab-as-a-Service for Open RAN (VALOR)

FIRST to market Digital Twin Testing to expand O-RAN testbed



Lab-as-a-Service (LaaS) & Testing-as-a-Service (TaaS) for O-RAN with Digital Twin technology



Addresses two major Open RAN testing gaps with affordable, accessible pay-as-you-go subsidized fee structure:

- Pre-certification, pre-badge development and system verification with ongoing testing
- Pre-deployment realistic and commercial grade performance testing



Services: Conformance, Performance, Scale, IoT, E2E, Security from cloud-based environments for preliminary testing to extensive multi-cell load-and stress testing for O-RAN components



V A L O R TM

VIAVI Automated Lab-as-a-Service for Open RAN

VIAVI & 6G



VIAVI 6G/AI/Digital Twin Demos in MWC25

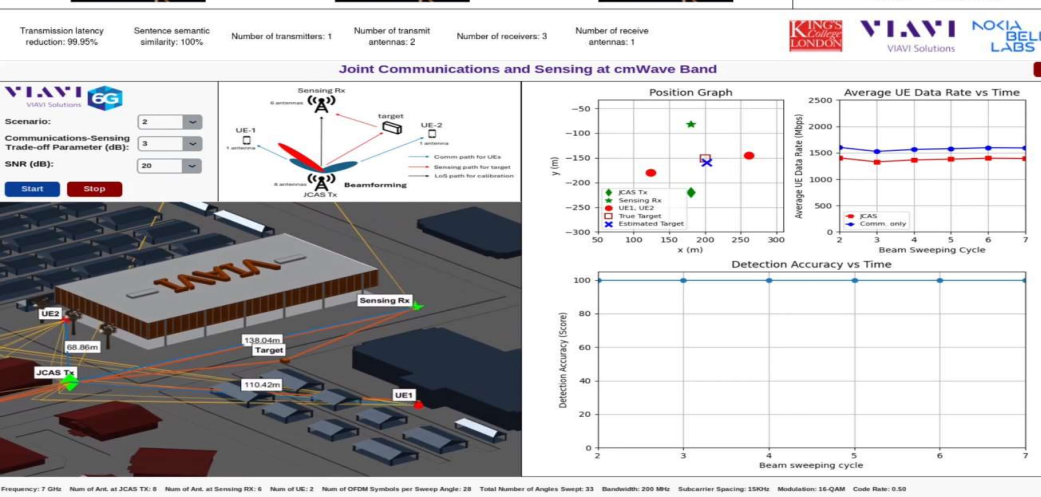
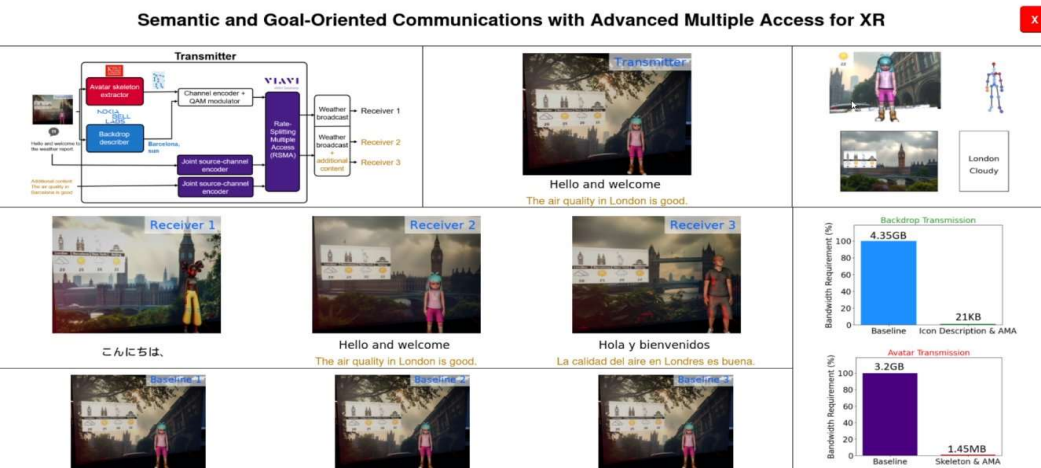
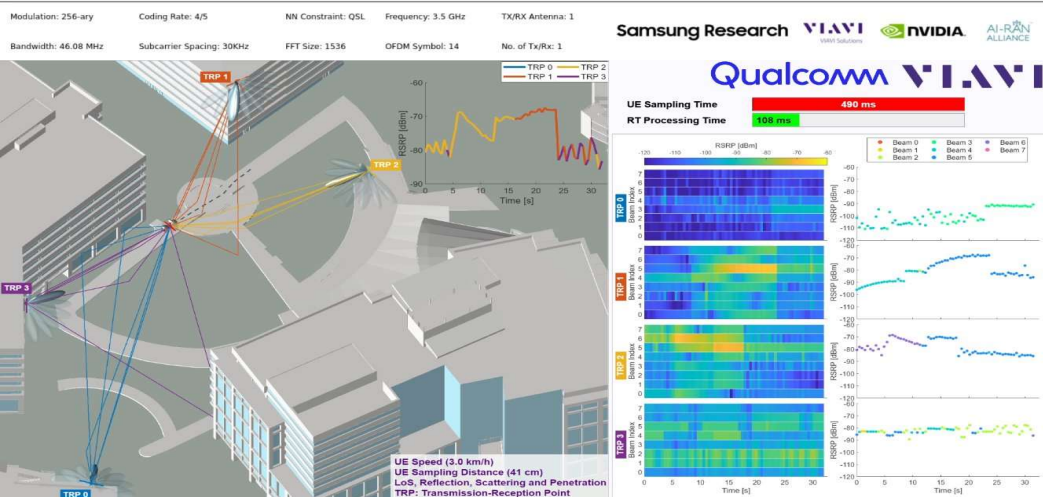
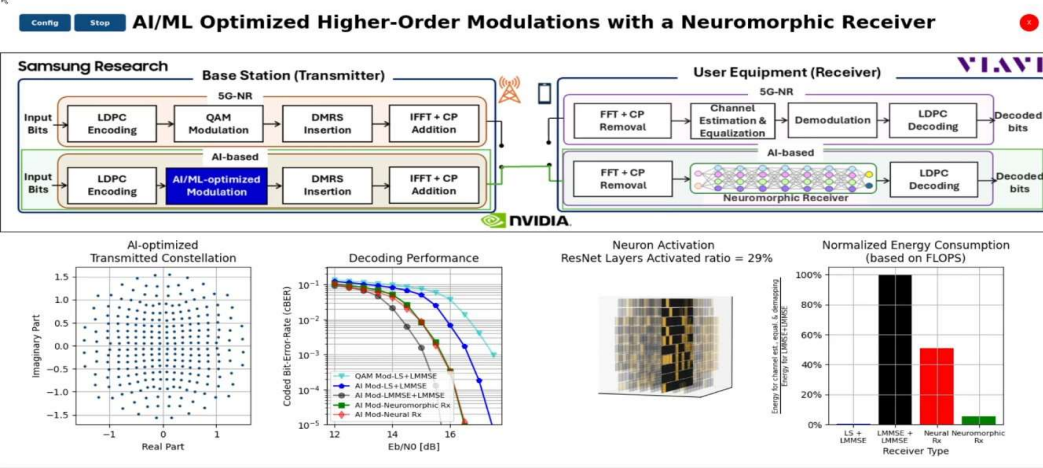
- ❑ AI/ML Optimized Higher-Order Modulations with a **Neuromorphic Receiver**
- ❑ Goal-Oriented and **Semantic Communications** with Advanced Multiple Access for XR
- ❑ **Real-time Raytracing** empowered
Augmented Perception: Sensing-enhanced Communications at Scale
- ❑ Networking Digital Twin Testing Solutions on **Joint Communications and Sensing**
- ❑ **AI testing AI solutions**
- ❑ 6G Position Enhanced AI/ML-based **Beam Management** for FR3 cmWave

VIAVI Marconi Labs

Mobile World Congress, Barcelona
3-6 March 2025



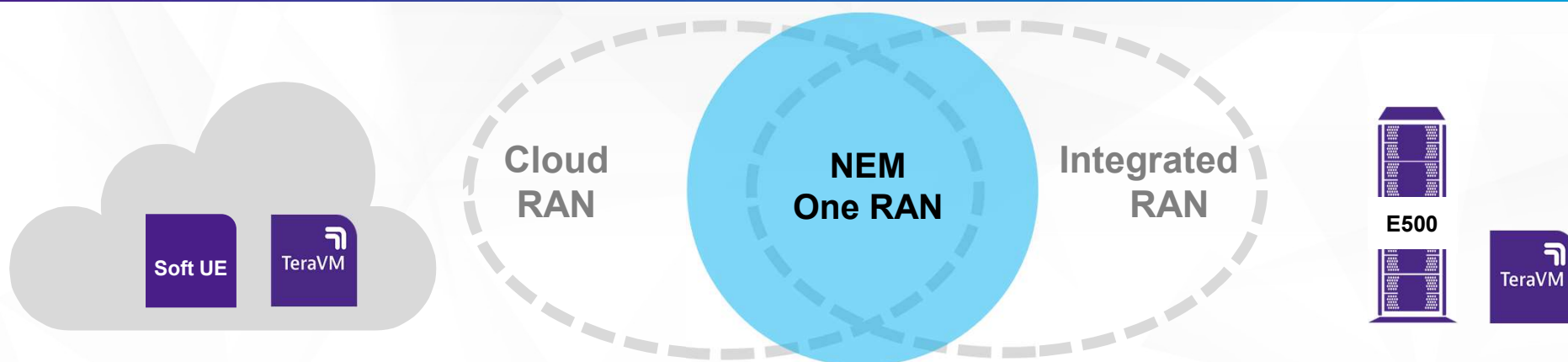
VIAVI 6G Demo GUI



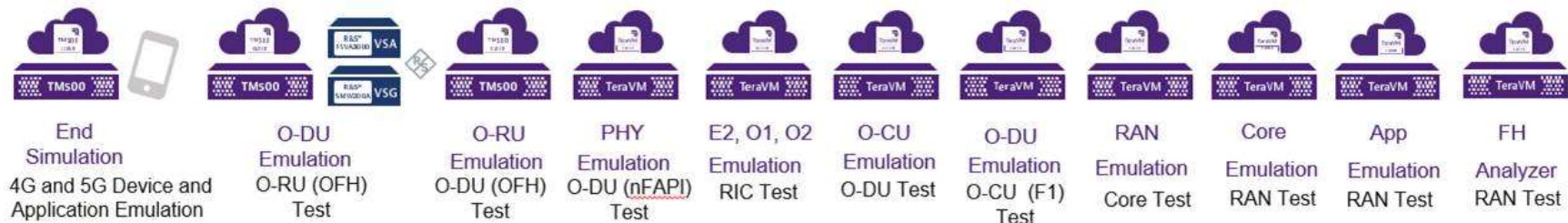


AI-based 5G Beamforming for Mobility-Aware Interference Mitigation and Power Saving

VIAVI can address all RANtoCore Validation needs



Complete set of Base Station and Core Network Test Solutions & Services for 4G/5G, Open RAN and Cloud Networks

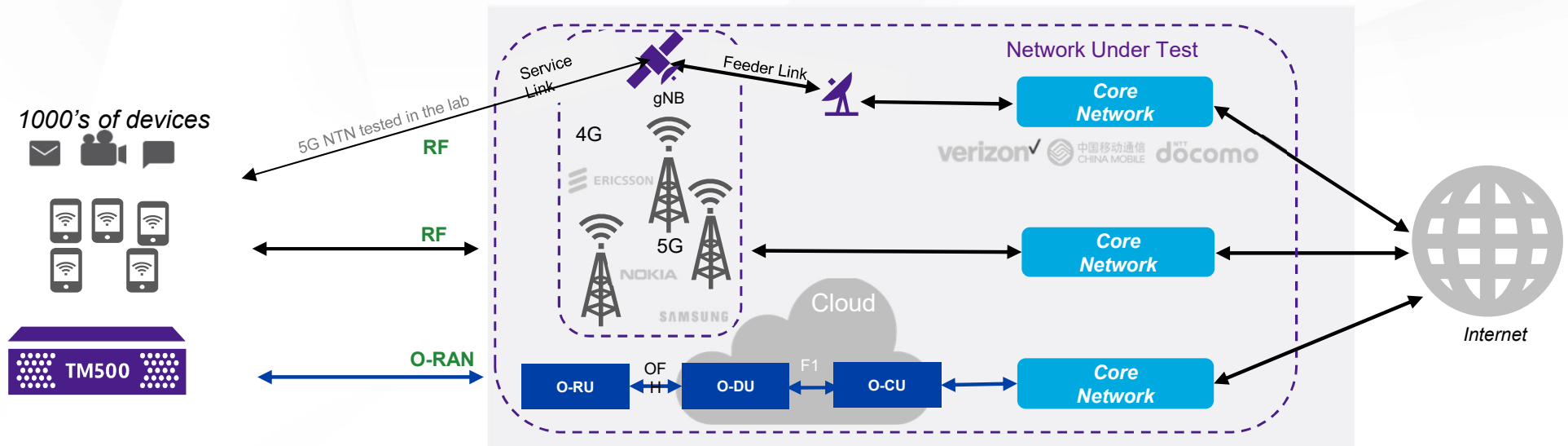


Flexible deployment via Server hardware or cloud-native platforms, (TaaS, SaaS, LaaS, Security)

at the lowest risk & cost of test through digitization & shift left software solutions

Diversity of TM500 family – how it is used

Comprehensive E2E validation of 4/4.5 & 5G, Private 5G, NTN, Cloud, O-RAN networks



Functional Test

Do basic communication protocols and interfaces work as per the specifications



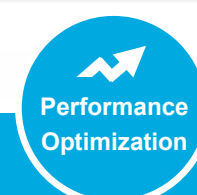
Application Emulation

Does the network work E2E when real data applications (RDA) are added (e.g. voice, video)



Capacity Test

When the network is stressed with 1000's of UE's with RDA, does it work as expected?



Performance Optimization

Are the maximum data rates, latency and QoS targets achieved? Where are the bottle necks?



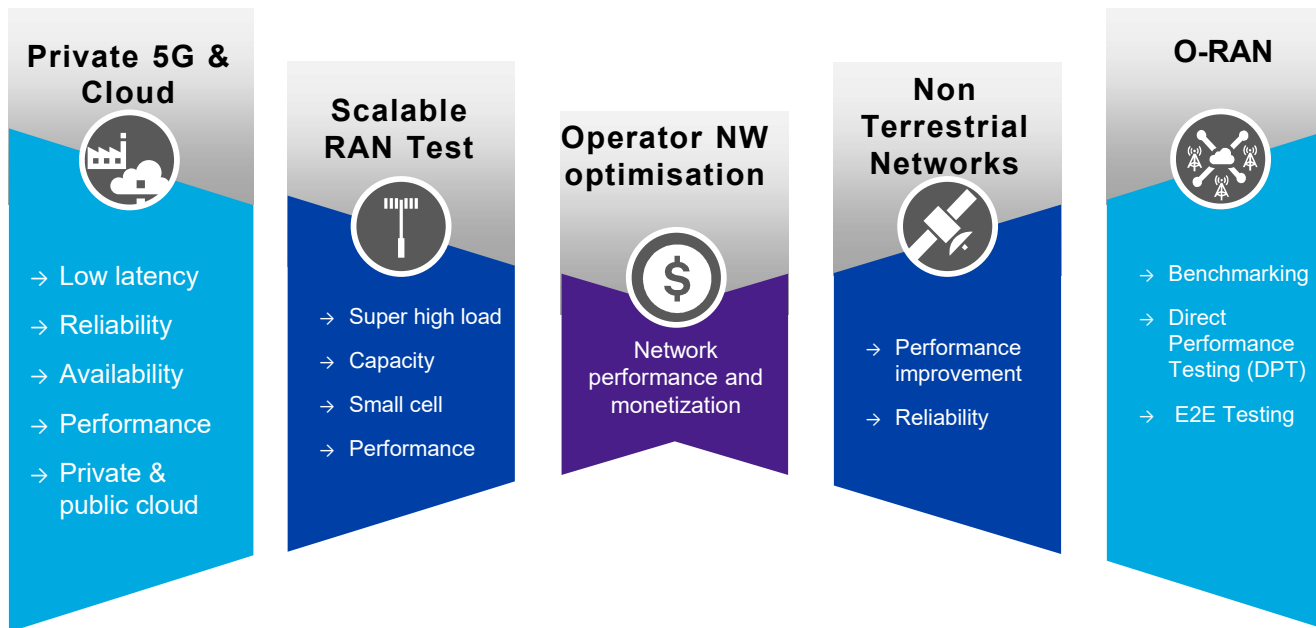
Regression Test

Is the network stable from end-to-end? Are the results repeatable?

TM500 - Network Testing for 20 years, world's first 3G Test System

TM500 family

Any Network, Multiple Verticals, Common Software



Network Test Leadership

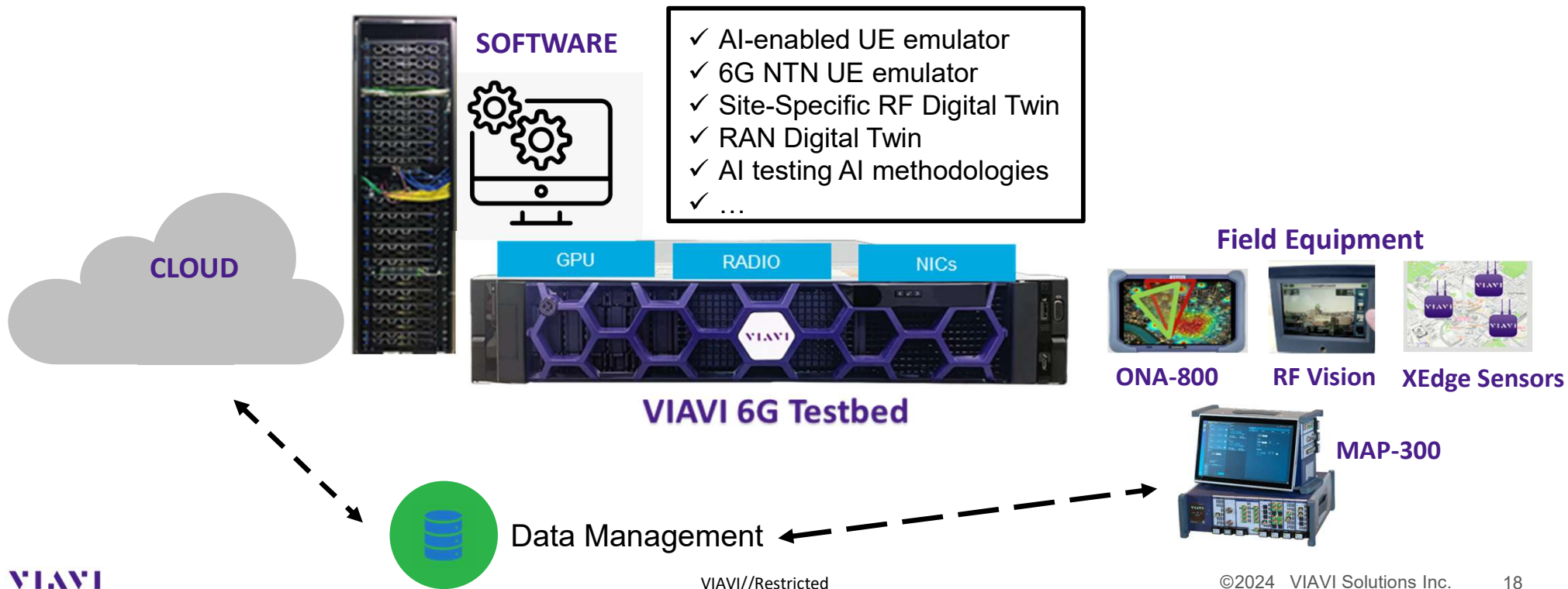
#1 world wide for RANtoCore Test
install base across all major NEMs

TM500 family values

- **Established SW quality and stability**
- **Flexibility serves multiple industry verticals**
- **Performance without compromise**

6G Testbed

- Support Research and development of new/evolved technologies for 6G
- Enable smooth migration from existing 5G to 6G
- Provide efficient and effective AI testing solutions



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