VIAVI Solutions

How AI/ML can improve efficiency and dynamics in 5G and 6G networks

Jahreskonferenz der 5G.NRWeek

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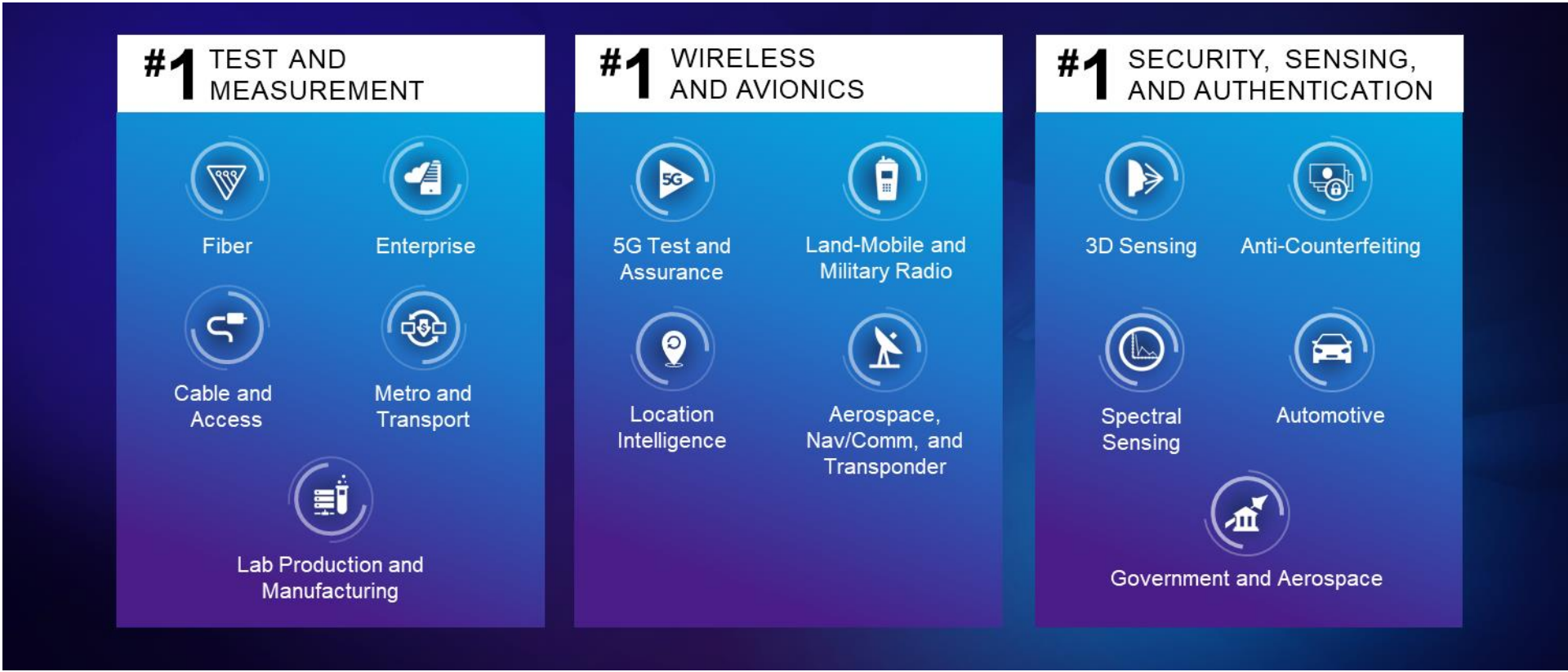
VIAVI Solutions – Member of 5G.NRW Network

Solving Complex Network Issues and Challenges



VIAVI//Restricted

AI and ML – general considerations

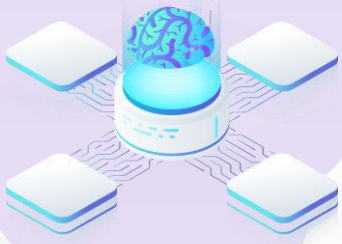
Requirements

- Cloudification, disaggregation
- Reduce Fault finding, Root-Cause-Analysis
- Cost reduction
- Dynamic networks
- Environmental requirements

Bottlenecks

- Individual domains and silos per domain, area, etc.
- Missing E2E view (UE, RAN, Transport, Core)
- Network Complexity
- Massive workload
- Time consuming interactions

AI/ML-based decisions and actions



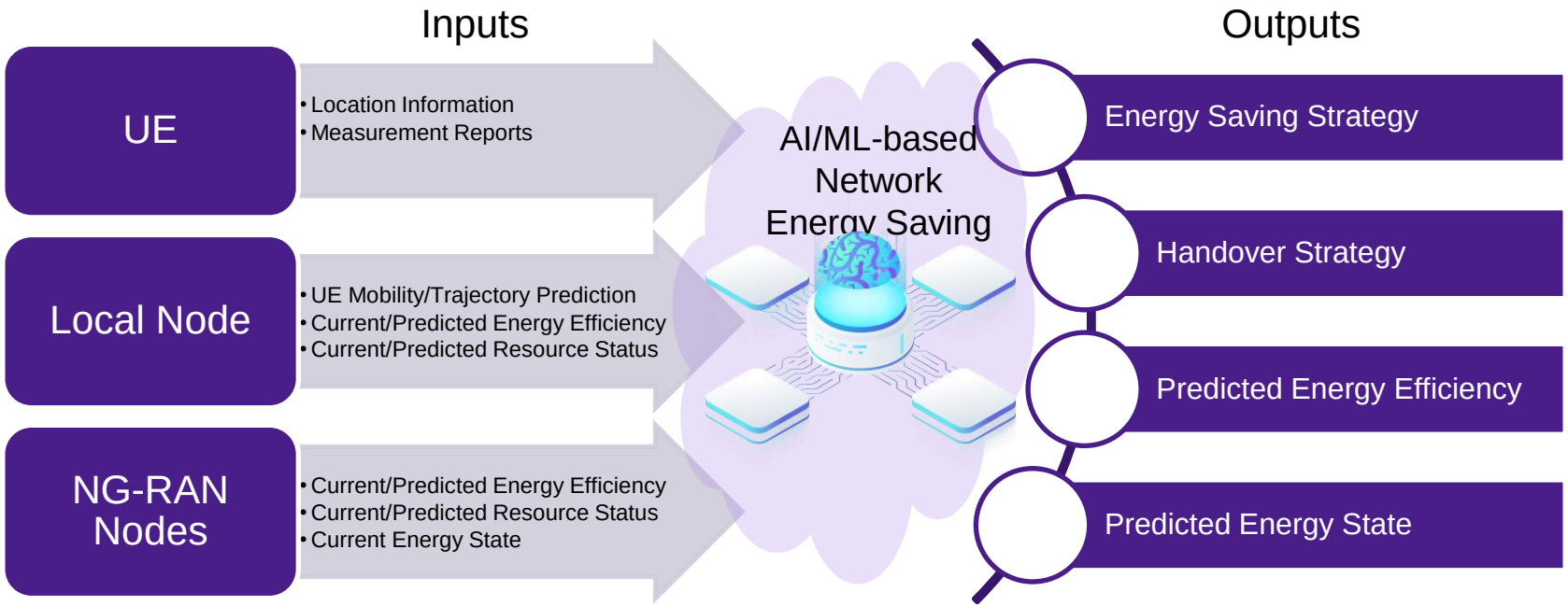
Expected improvements

- Single Pane of Glass approach
- Combined horizontal and vertical view and interaction across
- Reduce complexity for human interaction
- Noise reduction for RCA
- Faster service implementation

AI

Performance Optimization Through Application at the RAN

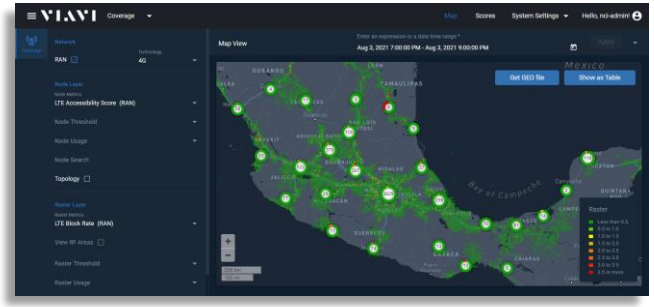
5G: Specify data collection enhancements and signaling support within existing NG-RAN interfaces and architecture (including non-split architecture and split architecture) for AI/ML-based Network Energy Saving, Load Balancing and Mobility Optimization

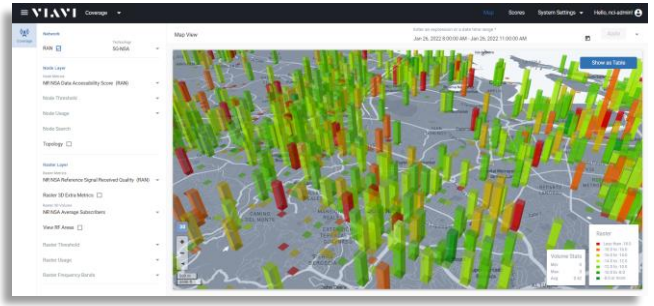


AI

Effective O&M and lifecycle management

- **Network Functions should expose not only PM & FM, but as available and possibly forecasted available capacity.**
- **‘AI Training’ data and Digital Twin possible to be generated from the O&M framework.**





Location Intelligence

- **Automated insights** on the performance of **RAN**
- Geolocated **subscriber experience centric** analysis
- 24x7 data ingestion enable **continuous whole-network visibility.**
- Comprehensive data feed enable CSP’s data analysis and modeling

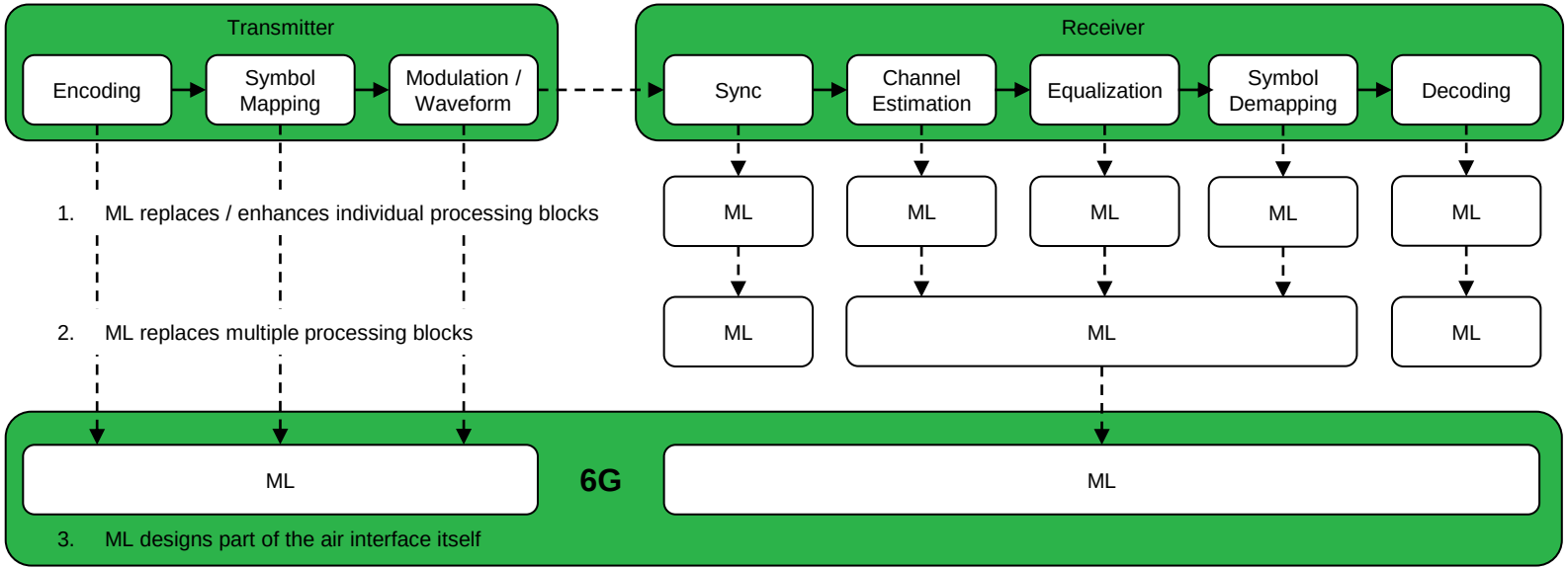
- Unified views of RAN, and automated workflows, intuitive for all skill levels
- Prioritize investigations based on key parameters such as areas of high utilization

AI

Performance Optimization Through Application at the Air Interface

5G: Initial use cases include beam management and prediction, positioning enhancements, and CSI compression and prediction

6G: Need to consider how the initial work on AI at the air interface may evolve towards an AI-native air interface in 6G



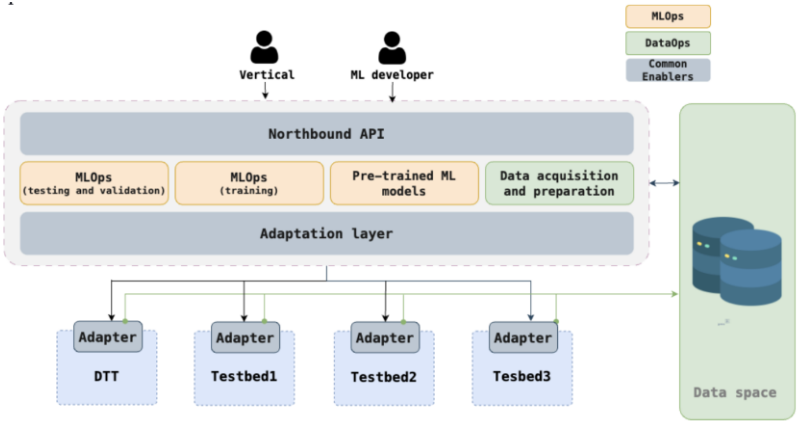
https://ieeexplore.ieee.org/document/9446676

AI – EU 6G Research

Effective O&M and lifecycle management

6G Data and ML operations automation via an end-to-end AI framework:
A Flagship AI for 6G research project of the HORIZON JU Research and Innovation Actions

Objective 1: Delivering a user-friendly e2e AI framework for DataOps and MLOps in 6G
Objective 2: Adopting Gaia-X federated open data architecture.
Objective 3: Building a framework for trustworthy AI/ML on top of 6G testbeds
Objective 4: Delivering plug-able adapters to easily integrate 6G testbeds.
Objective 5: Integrating a Digital Twin Testbed to generate representative datasets for 6G.
Objective 6: AI testing and validation methodologies for ethical and regulatory compliance.



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