

# MTC'S DIGITAL POTENTIAL WITH THE OIL & GAS SECTOR



# WHO IS MTC



MTC is the largest mobile telecommunications operator in Namibia, with over 2.5 million active customers. For 26 years, MTC has grown revenue and retained customers by providing connectivity services and solutions to post-paid and pre-paid individual and business subscribers through its extensive telecommunications transmission and distribution network.

## LEADER IN INNOVATION

MTC has smart partnerships with industry leaders to keep up with technology and bring new concepts and services to Namibia. MTC's position at the forefront of innovation is demonstrated by its track record as the first to:

- Establish a 24-hour contact centre in Namibia
- Take to market a prepaid subscription service that bundles voice, SMS and data with its seven-day Aweh offerings
- Commercially launch LTE in Africa
- Successfully trial 4.5G technology in Africa
- Launch commercial use of LTE-A and 4.5G LTE in Africa
- Deploy self-help kiosks or vending machines for its products and services
- Deploy a payment gateway on the MyMTC app
- Foster a collaborative innovation drive with tertiary institutions and entrepreneurs



# DIVERSE AND BROAD MARKET BASE



**MOBILE**



**PUBLIC  
UTILITIES**



**PUBLIC  
SAFETY**



**FINANCIAL**



**GOVERNMENT/  
OTHER**

# AVIAT WIRELESS ACCESS APPLICATIONS

## TELECOM

- Digital Divide
- Rural Connectivity
- B2B Access Services
- Backhaul



## GOVERNMENT

- Smart Cities
- Defense
- Surveillance
- Intelligent Transportation Systems



## ENERGY- MINING

- Digital Oilfield
- Digital Mine
- Digital Grid
- Autonomous
- IoT & Industry 4.0 enablement

# THE SHIFT TO DIGITAL MINING/ OIL/GASS

- The mining industry is undergoing a significant shift towards digital transformation.
- Adoption of digital technologies is crucial for enhancing operational efficiency, safety, and sustainability in mining operations.
- Leveraging advanced technologies like **IoT**, **AI**, and **5G**, mining companies in Namibia can achieve substantial improvements in various aspects of their operations.

## Wireless Connectivity

A cornerstone for digital oil/gas, wireless connectivity facilitates seamless communication and data transfer between devices and systems.

## Streamlined Operations

Integrated digital solutions ensure smooth coordination between different components of mining operations, minimizing downtime and improving overall performance.



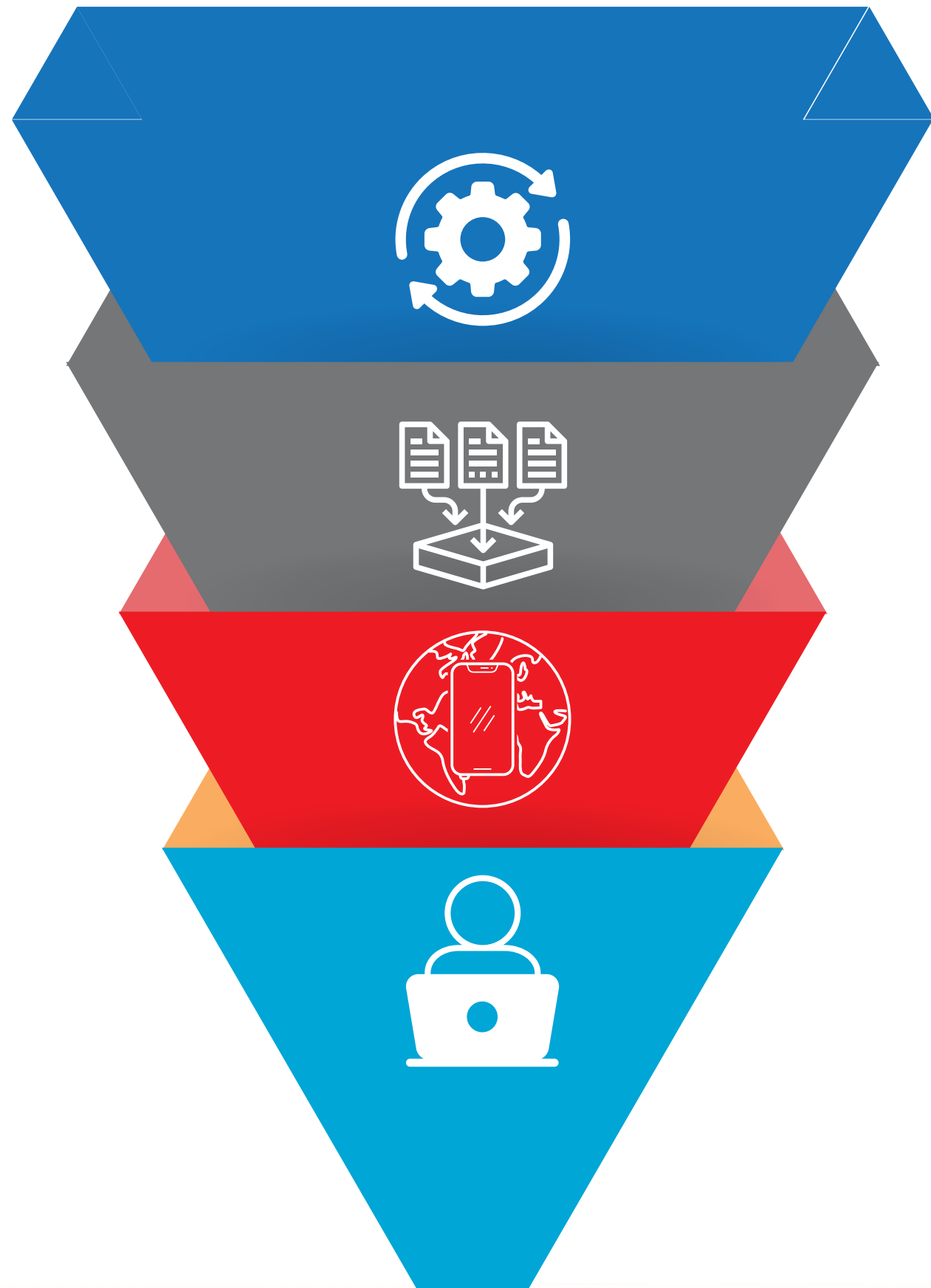
## Optimized Processes

Digital technologies enable automation and optimization of mining processes, leading to increased productivity and reduced operational costs.

## Data-Driven Decisions

Real-time data collection and analysis provide valuable insights for making informed decisions, enhancing resource management and operational efficiency.

# THE CORE OF DIGITAL OIL/GASS WIRELESS CONNECTIVITY



## AUTONOMOUS OPERATIONS

- Wireless solutions enable the remote control and automation of mining equipment.
- This leads to increased efficiency and reduced human intervention in hazardous areas, enhancing worker safety.

## REAL-TIME Data Analysis

- Continuous monitoring of equipment and environmental conditions.
- Real-time data collection and analysis improve decision-making, boost safety, and optimize resource management.

## INTEGRATION OF Fixed & Mobile Operations

- Seamless communication between stationary infrastructure and mobile assets.
- Ensures smooth coordination and enhanced operational efficiency across the mining site.

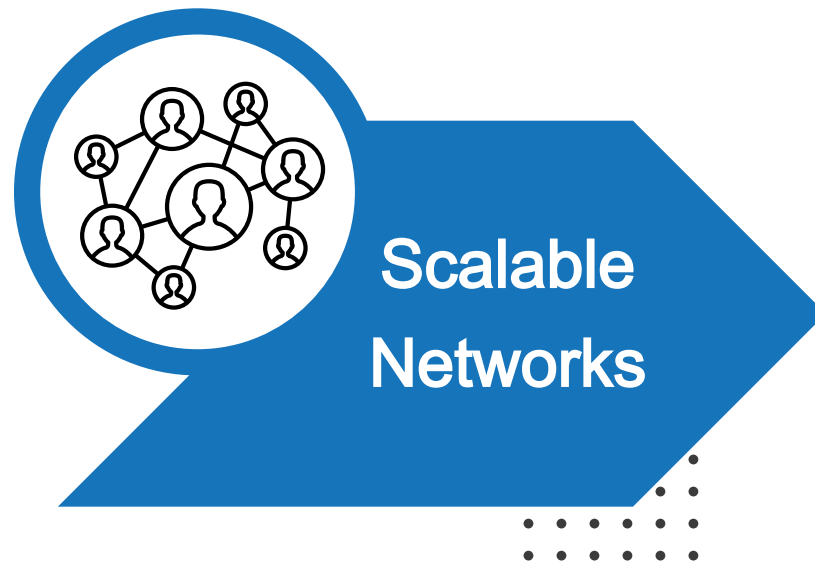
## REMOTE WORKER Support

- Connected worker solutions enhance safety and productivity for personnel.
- Real-time communication and monitoring ensure compliance with safety regulations and provide immediate support in case of emergencies.

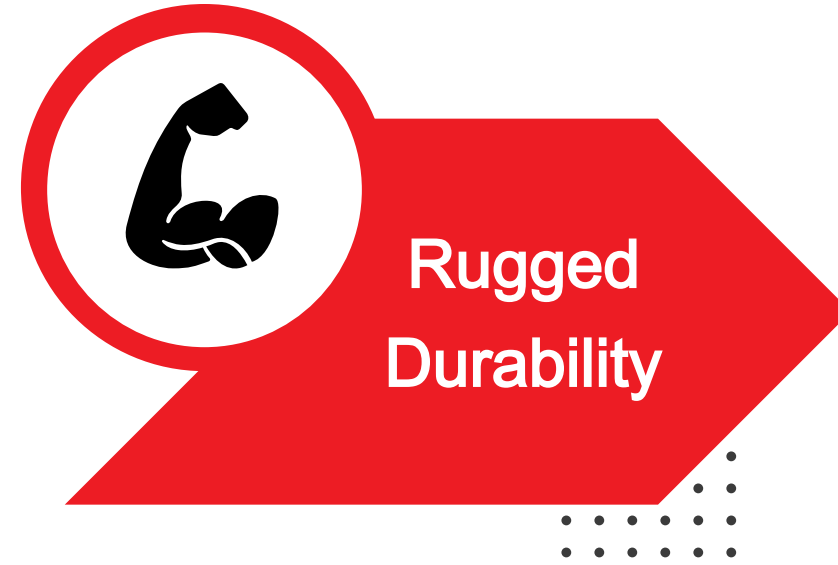
make the connection

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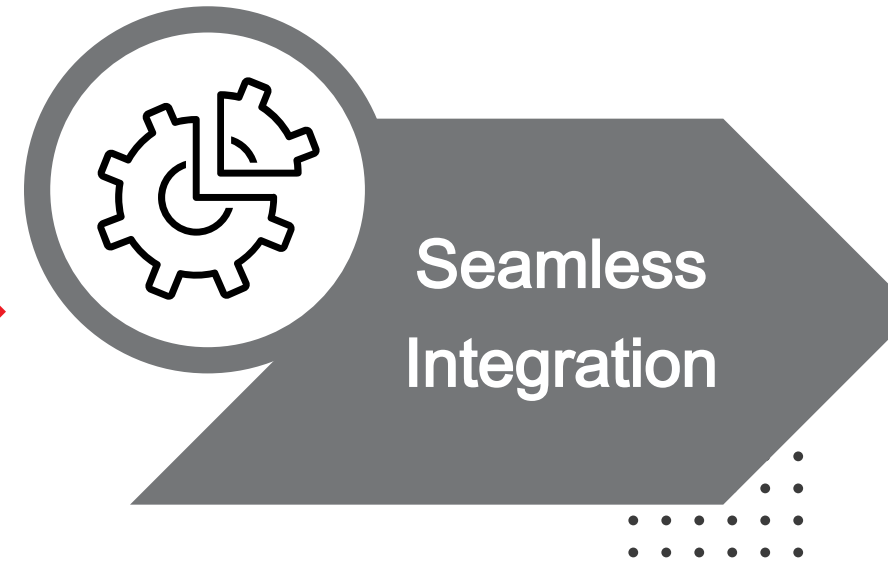
# OVERCOMING CONNECTIVITY CHALLENGES IN MINING/OIL/GASS



- Ability to expand the network as the digital mine grows without losing performance or reliability.
- Flexible infrastructure that adapts to the evolving needs of mining operations.



- Solutions designed to withstand harsh mining conditions such as extreme temperatures, dust, and moisture.
- Ensures consistent and reliable performance in challenging environments.



- Ensures smooth transitions to digital operations, integrating with existing systems and infrastructure.
- Compatibility with legacy systems to avoid disruptions during the digital transformation process.



- Robust protocols to protect sensitive data and operations from cyber threats.
- Comprehensive security measures to safeguard against unauthorized access and data breaches.

# AVIAT – THE WORLD’S MOST TRUSTED MICROWAVE COMPANY

## Who

### WE ARE

The Leading Global Microwave Specialist  
Industry leading Wireless Access Solutions  
70 years of industry experience  
200+ Technology Patents  
NASDAQ: AVNW

## Where

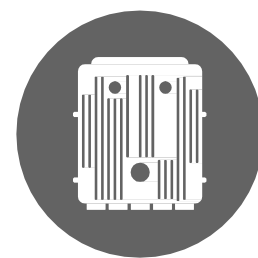
### WE ARE

Headquarters in Texas, USA  
R&D in Slovenia, NZ, Canada, and USA  
Production in USA, Thailand, Taiwan  
Presence in >30 countries  
>5,000 customers worldwide  
Deployed in >350 mobile networks  
2 million systems deployed

## What

### WE DO

5G Wireless Backhaul  
Enterprise LTE / 5G Wireless Access  
Public Safety Networks  
Utility Transport Networks  
Long-Haul Backbone  
Network-wide Operations  
Global turnkey services



Wireless Transport



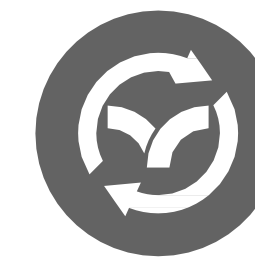
Access



Routers



Software

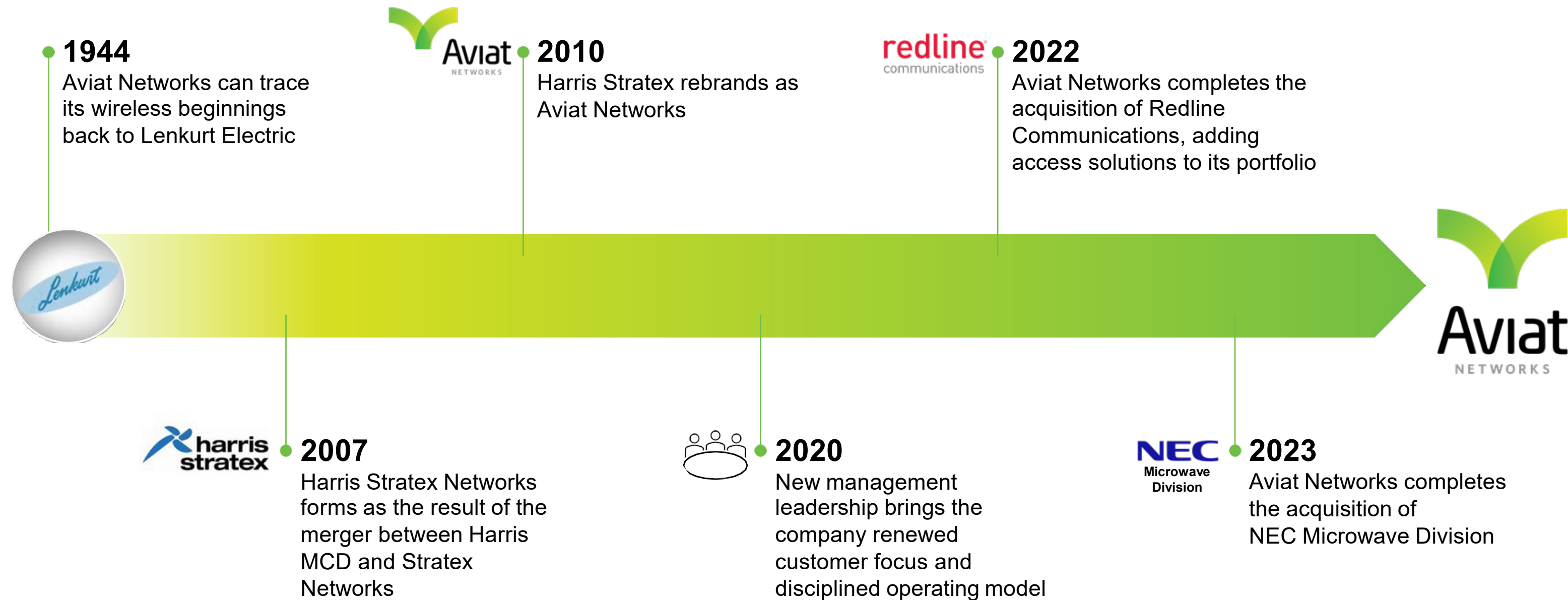


Services





# OVER 75 YEARS OF EXPERTISE



***A Long History of Wireless Leadership***



# AVIAT NETWORKS WIRELESS ACCESS SOLUTIONS

## POWERFUL



## VERSATILE



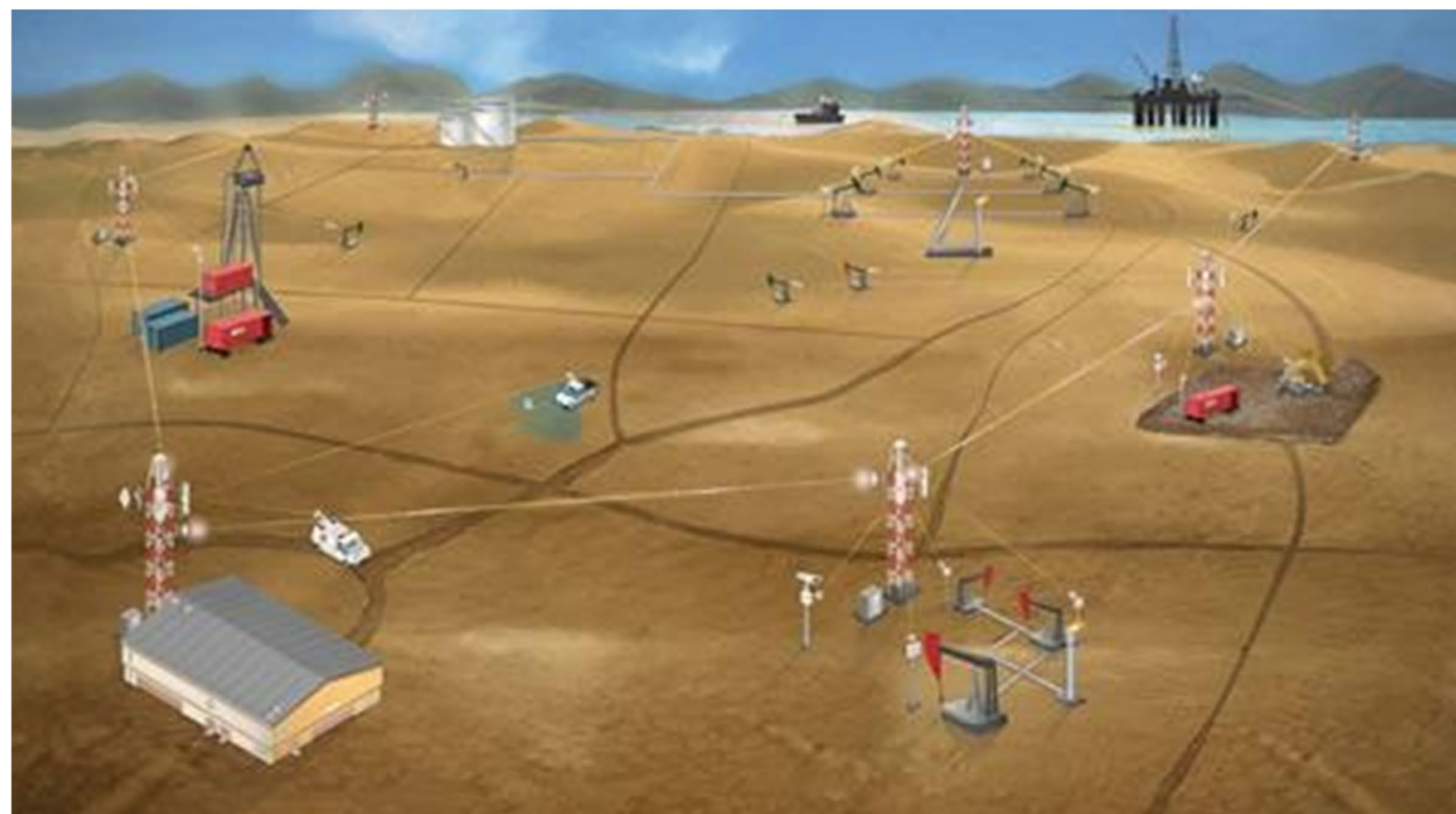
## RELIABLE



- Aviat provides the most powerful, rugged and reliable wireless networks using leading-edge technology to deliver the lowest total cost of ownership to organizations building private wide-area networks.

# ENABLING DIGITAL OILFIELD TRANSFORMATION

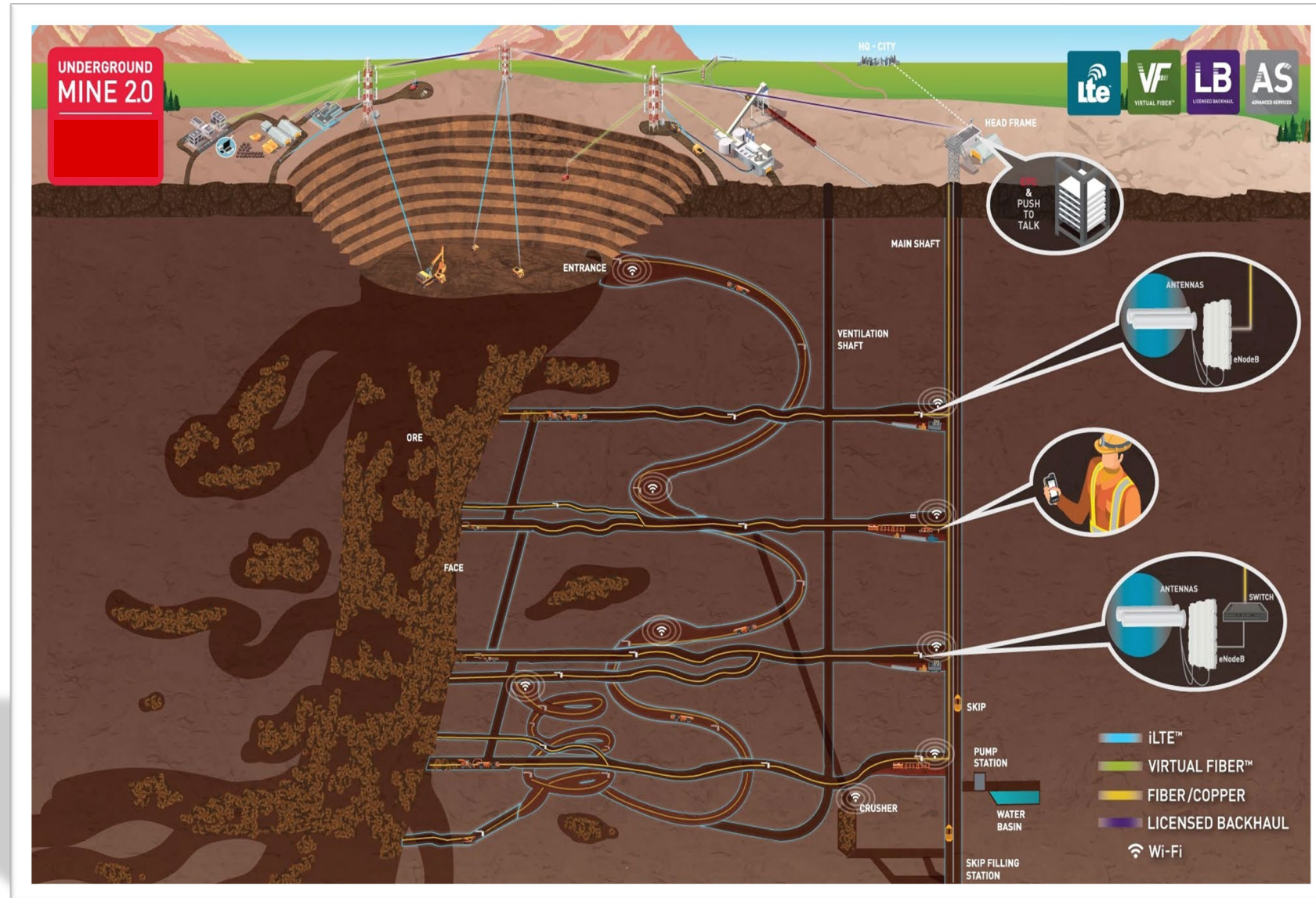
## Digital Oilfield



- Onshore & Offshore specific solutions
- Single, secure infrastructure for IT & OT
- Increased productivity via connected people & machines
- Remote Drilling, Operations, Inspection
- Real time process optimization and asset reliability
- Lower CAPEX/OPEX VS Legacy systems
- Simplified network operations & Connections

# ENABLING DIGITAL MINE TRANSFORMATION

## Digital Mine



- Surface, Underground, site-to-port
- Always “on- grid” people & Machines
- Adding Voice, Video & Data to “Air & Water”
- All mine assets and site are “connected”
- Autonomous Processes & vehicles backed by Autonomous fault recovery & redundancy
- Push-To-Talk migration & integration

# AVIAT'S VALUE PROPOSITION

- Absolute Reliability
- Military-Level Security
- High Capacity and Scalability
- Versatile and Flexible Connectivity
- Remote Management and Ease of Use
- Cost-Effective Solution (TCO)
- Enhanced Operational Efficiency
- Integrated Digital Architecture
- Advanced Management System



## TELECOM – WISPs

Best Performing PMP System  
Highest Revenue per MHz  
Reliable in unlicensed spectrum



## GOVERNMENT/DEFENSE

Large Area Coverage  
Complete LTE Network  
Handhelds, Vehicles & PTT



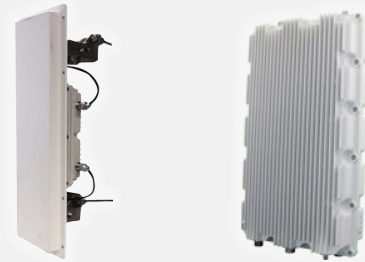
## ENERGY - MINING

Low-cost roll-out – low OPEX  
Stable & Reliable  
Large Capacity for M2M & IoT

# Aviat Wireless Access Product Portfolio

## Industrial

Base Stations



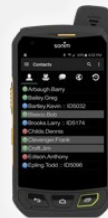
Fixed Wireless Access



Nomadic



Mobile



## Commercial

Base Stations



Fixed Wireless Access



## Accessories



Antennas



Cables



AVIAT NETWORKS  
Mounting Kits

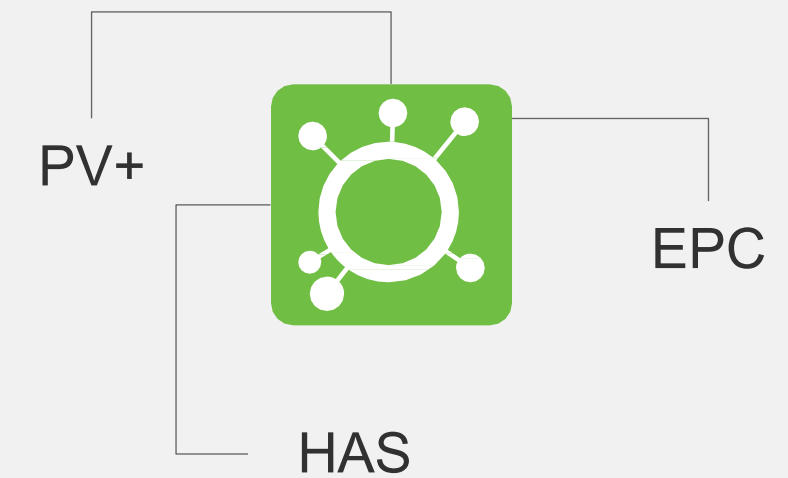


PoEs



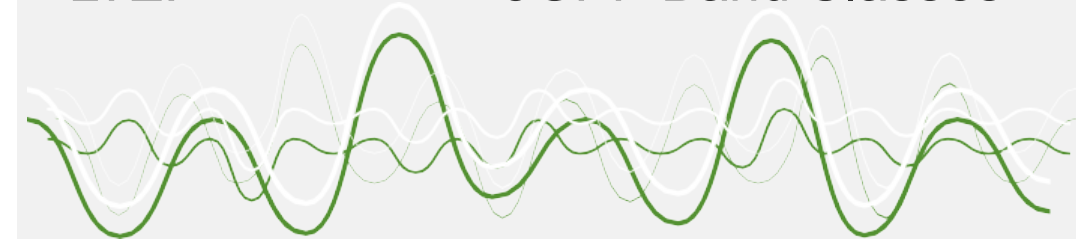
Surge Protectors

## Software



## Frequencies

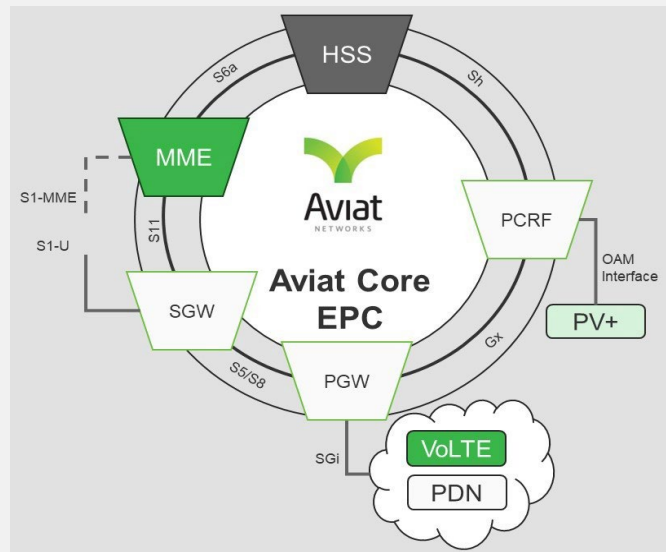
Virtual Fiber™: 470 to 5875 MHz  
LTE: 3GPP Band Classes



Mobile, Fixed and Nomadic Wireless Access Solutions

# LTE – 3GPP COMPLETE PRIVATE MOBILE SOLUTION

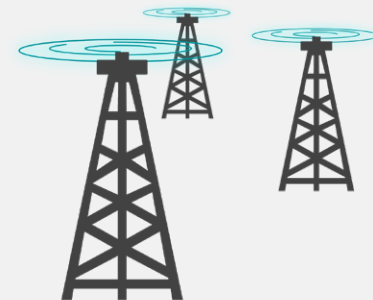
## Core Network



## Transport Network



## Mobile Network



## User Devices



### Aviat Core EPC/VoLTE

- LTE/5G Evolved Packet Core (EPC)
- A complete stand-alone system
- Centralized, Distributed, Synced HSS, Cloud, Imbedded

### Aviat Licensed Backhaul

- Point to point or multipoint
- Nomadic backhaul
- Industrial – deploy anywhere

### Cell Site Radios

- LTE eNB Cell Sites
- Tx power options
- Long Range
- Compact
- Low power consumption
- Industrial – deploy anywhere

### Mobile Devices

- Standard LTE units focused on s customer market segments



# PRIVATE LTE APPLICATIONS



## OIL & GAS

- Offshore Platforms, Vessels, & FPSOs
- Onshore Drilling Operations
- Refineries, separation, & collection



## PUBLIC SAFETY

- First Responders
- Emergency Response Teams
- Fire, Police, Paramedics, Ambulance



## MINING

- Open Pit Operations
- Crushers & Processing
- Field offices



## WATER UTILITIES

- City-wide water storage facilities
- Wastewater treatment facilities
- Pipeline monitoring & control



## SPORTING EVENTS

- Stadium coverage
- Municipal sporting events
- Temporary venues



## RURAL 4G/DIGITAL DIVIDE

- Stadium coverage
- Municipal sporting events
- Temporary venues



## ELECTRICAL

- Generation facilities
- Field offices / Substations
- Strategic field locations



## MILITARY

- Rapid deploy Combat Outposts
- Forward Operating Bases
- Mobile Units
- The Connected Soldier



# RAS Extend Marine

- Designed for use with marine vessels
- Geo-tracking
  - Use with Network Topology Awareness from sectors
  - Includes geofencing
- Resistant to harsh marine environments (i.e. salt, fog, etc.)
- Integrated dual GPS receiver/antenna
  - Provides bearing even when stationary
- Support for all frequency bands
  - 2.1/2.5/3.5/5GHz with 2' (60cm) parabolic
  - 600MHz with 18" (46cm) panel



# THE INTELLIGENT ENERGY OPERATIONS

## THE PROBLEM

To meet the increasing and challenging demands of collaboration, visibility, safety, and enhanced oil recovery, Oil & Gas companies require a reliable and versatile network infrastructure that offers high performance and security and supports multiple end devices which are often moved to different locations around the field. simultaneously.

## WHY AVIAT

Aviat's purpose-built mobile, fixed and nomadic industrial wireless network solutions have been designed for reliable operations in the most challenging locations, with user experience at the heart of everything we do. All of this coupled with our detailed operational knowledge.



DIGITAL OILFIELD 2.0

redline communications



OFFSHORE

PIPELINES

DRILLING

SAFETY & SECURITY

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AVIAT NETWORKS

- ilTE™
- VIRTUAL FIBER™
- LICENSED BACKHAUL
- Wi-Fi

MOBILE WORKFORCE

WELLHEAD AUTOMATION

FIELD OFFICE



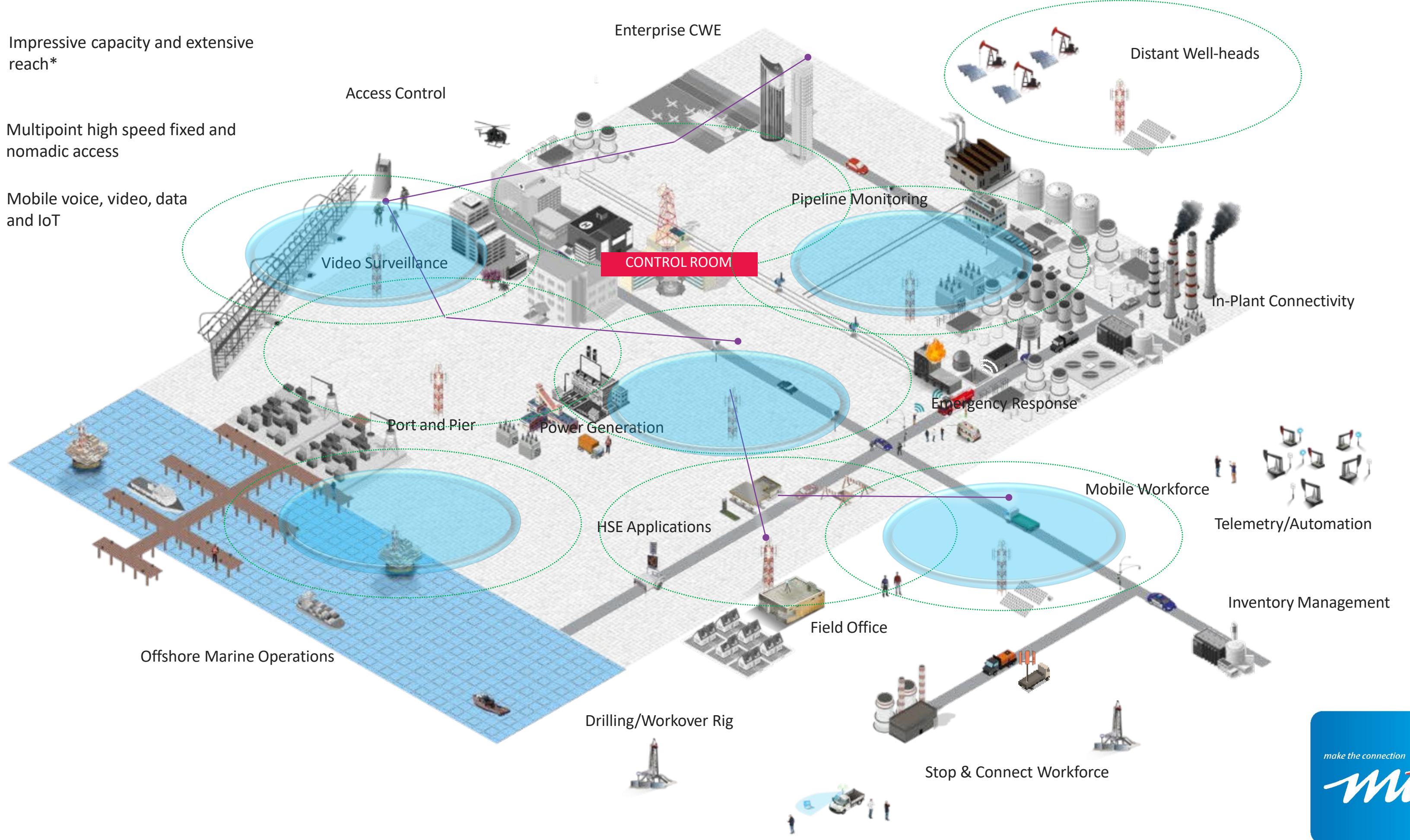
Impressive capacity and extensive reach\*



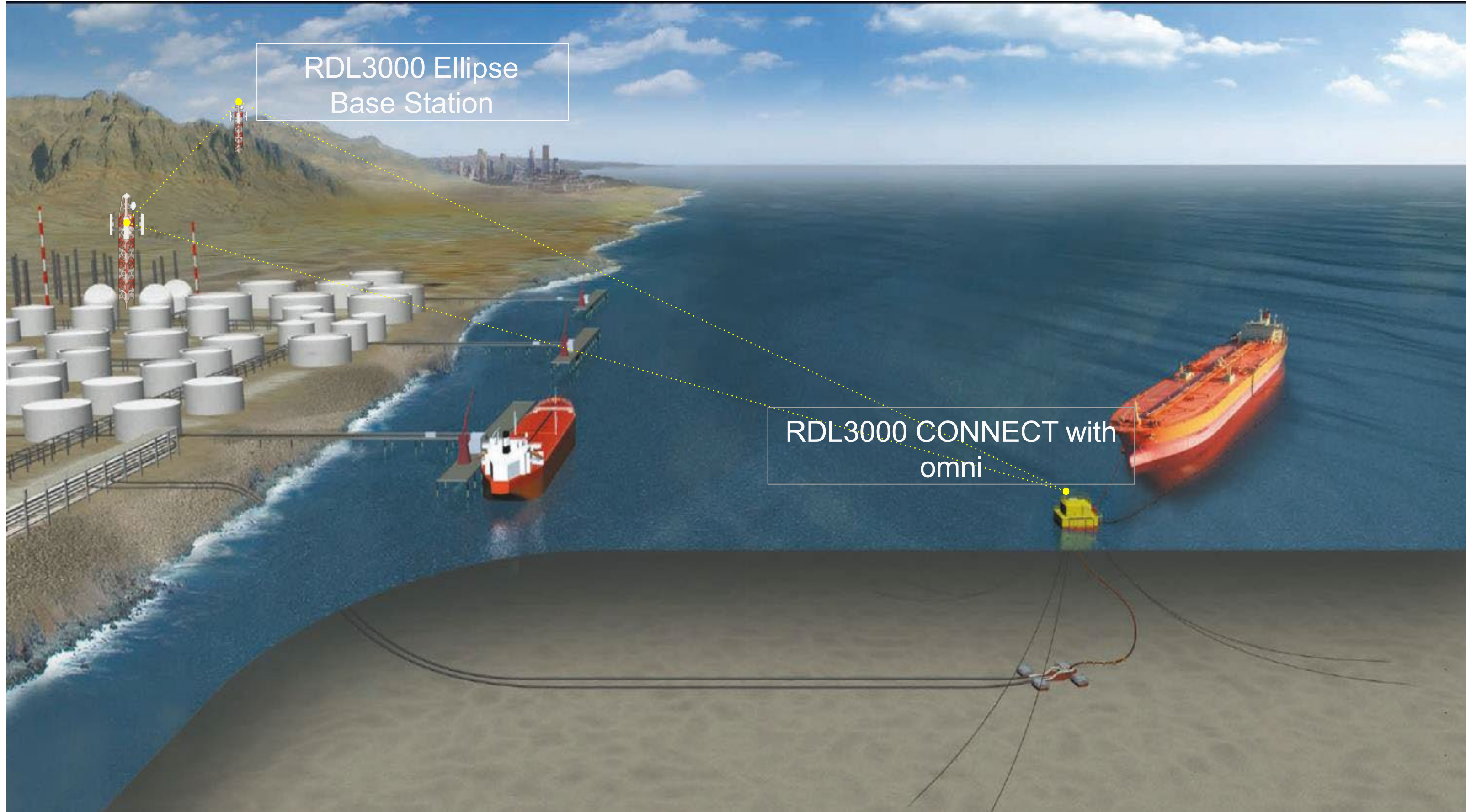
Multipoint high speed fixed and nomadic access



Mobile voice, video, data and IoT



# SINGLE POINT MOORING CONNECTIVITY – ONSHORE TERMINAL TANKER LOADING



RDL3000 Ellipse  
Base Station

RDL3000 CONNECT with  
omni

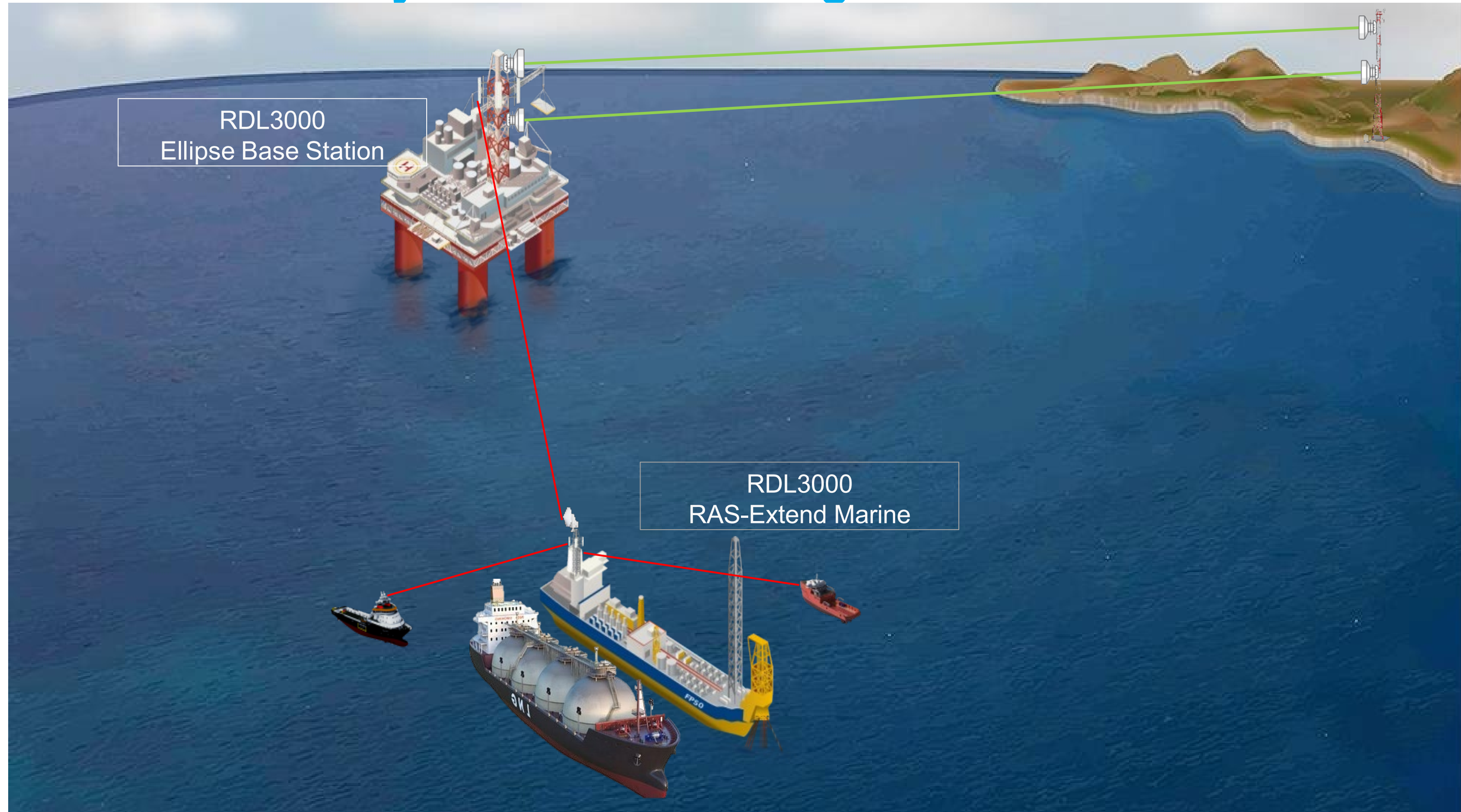
# SPM Installation



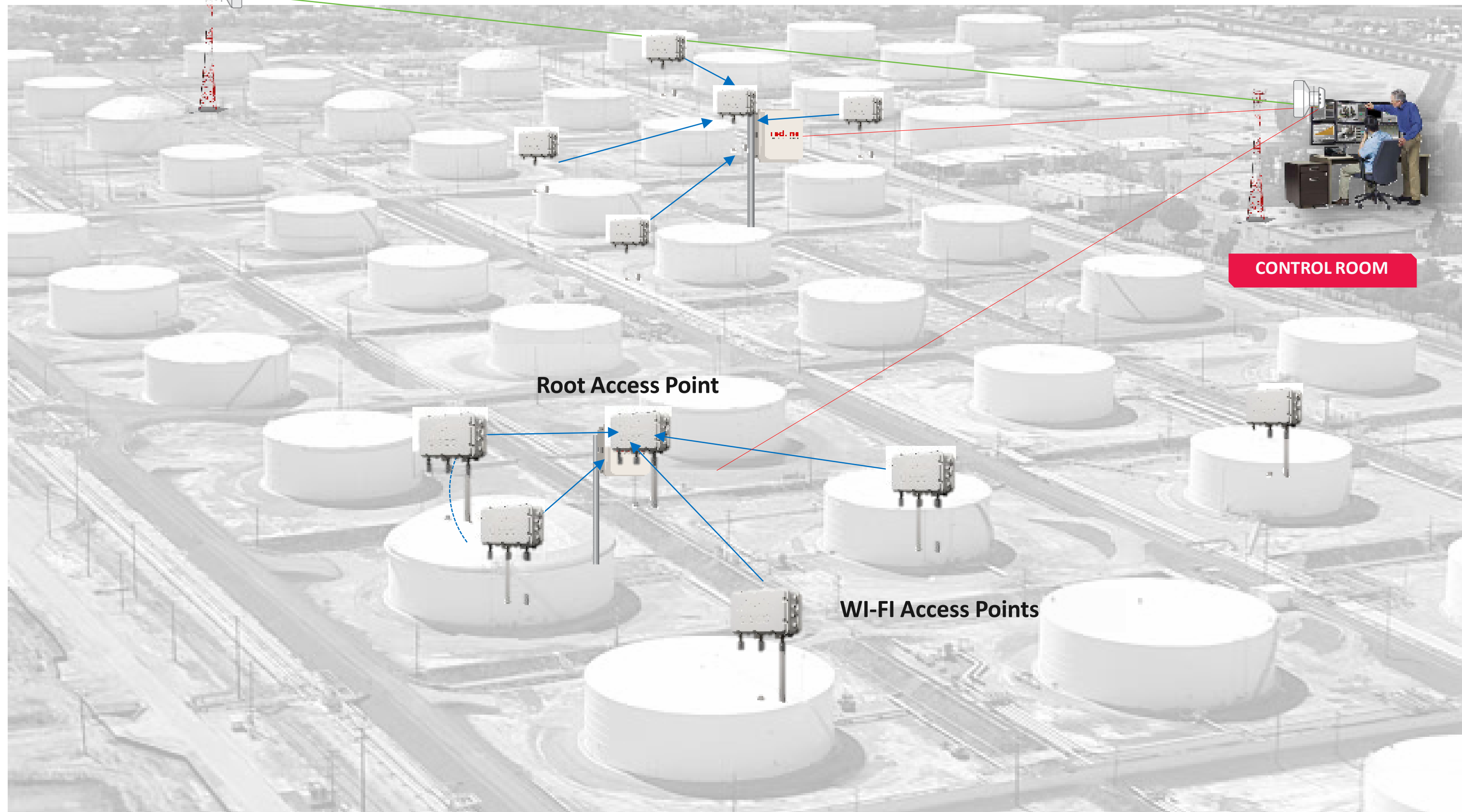
make the connection

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# FSO Connectivity – offshore loading



# BACKHAUL OF WI-FI ACCESS POINTS INSIDE PROCESSING PLANTS

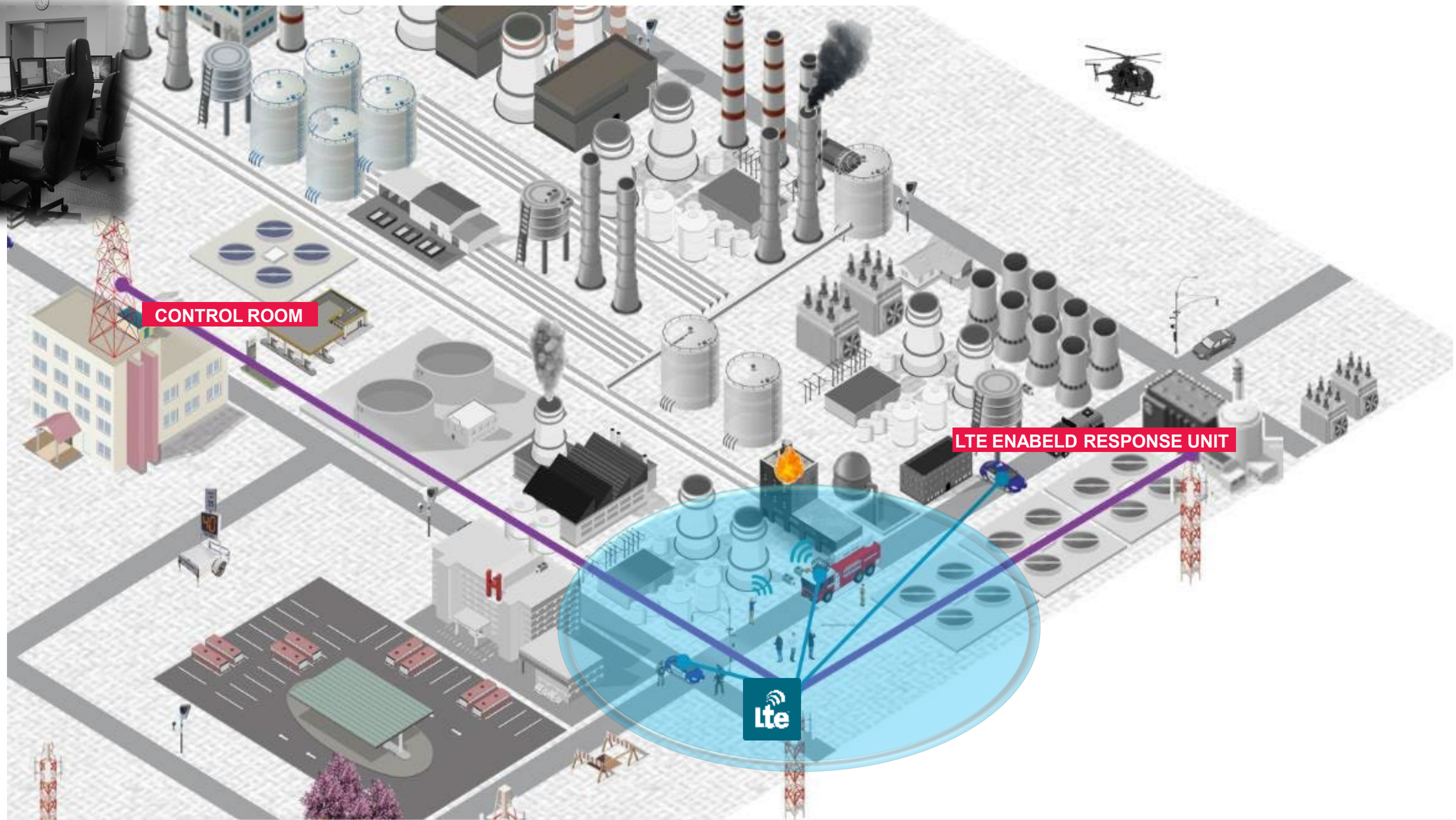




# MOBILE ACCESS INSIDE THE PLANTS - HSSE ▶



Dispatch Console  
Video Wall



# MOBILE ACCESS – INSPECTION, ROBOTICS



# Aviat Premises and Cloud-Based Software Tools

## DESIGN

Link Planning & Design

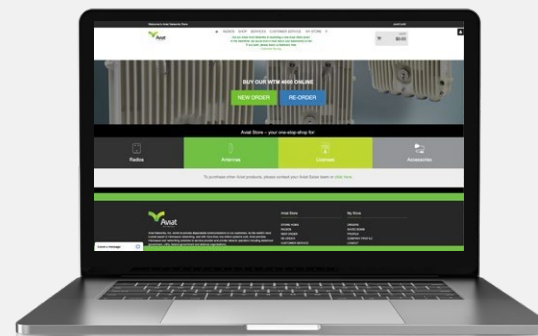


- Design Microwave, E-Band and Multi-Band links in the cloud
- 3rd party product support
- Advanced features, eg: MIMO
- Equipment look-up database
- Free to use



## STORE

Online Ordering with Fast Delivery

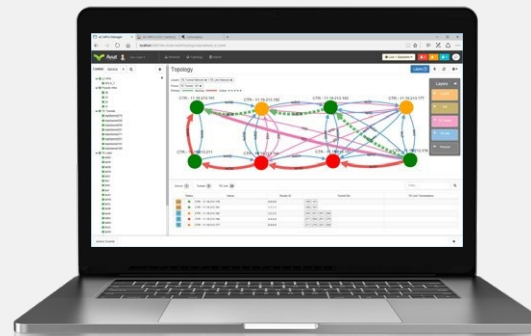


- Fast and easy online ordering
- BoM creation, including radios, antennas, licenses and accessories
- Fast delivery from stock
- Order tracking

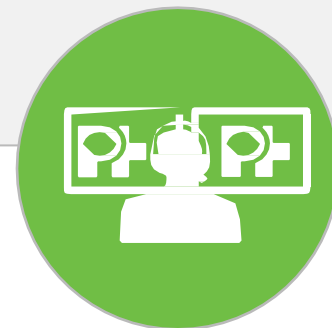


## PROVISION+

Element Management



- Single pane of glass for all Aviat Transport and Access products
- Multi-layer network visualization and troubleshooting
- RestConf NBI and SDN



## FAS

Frequency Assurance

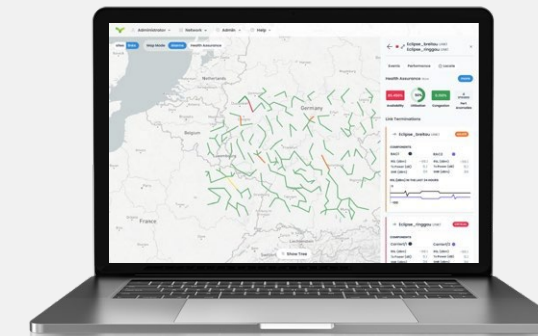


- Monitor and report interference
- Protect against WiFi-6E interference issues
- Improve link performance, protect against outages



## HAS

Health Assurance



- Reduces network downtime
- Predictive algorithms continuously analyze the network
- Identifies problems before impacts occur
- Simplifies capacity planning



# Aviat Value

- **Absolute Reliability**

- Industry-Leading Durability: lifecycle rating exceeding 20 years.
- Extreme Temperature Operation: -40°C to +75°C

- **Military-Level Security**

- High Security Standards
- Advanced Cryptography

- **High Capacity and Scalability**

- Supports Thousands of Devices
- Wire-Speed Processing: Optimized for massive IoT data traffic

- **Versatile and Flexible Connectivity**

- Multi-Frequency & Multi-Terrain Compatibility: 470 MHz to 6 GHz & all 3GPP bands and works in all terrains and weather conditions.
- Comprehensive Device Support: Compatible with TCP/IP and serial communications, supporting a diverse array of RTUs, PLCs, mobile devices, and M2M connectivity.

- **Remote Management and Ease of Use**

- Efficient Network Operations: Remotely manageable, instant, one-step provisioning from the field, no specialized hardware or skills.
- Low Power Consumption: Designed for energy efficiency, with low power requirements suitable for solar or alternative power sources.



make the connection

**mtc**

- **Cost-Effective Solution**

- Reduced Infrastructure Needs: Long-range point-to-multipoint operation minimizes the need for multiple towers, while compact, lightweight eNodeBs reduce installation costs.
- Single Unit Versatility: Serial and TCP/IP communications, simplifying infrastructure & reducing costs.
- Rapid Deployment: Deploys faster and at a much lower cost than traditional fiber & microwave solutions.



- **Enhanced Operational Efficiency**

- Unified Connectivity: Private LTE networks unify office & field operations, extending office applications to the field and ensuring connectivity for personnel, vehicles, and fixed assets.
- Real-Time Data Collection and Control: Enables management by exception, high-resolution video surveillance, and analytics at the network edge, enhancing operational efficiency.



- **Integrated Digital Architecture**

- Mobile and Fixed Connectivity: Supports connectivity for mobile devices, vehicles, sensors, and general machine-to-machine (M2M) communications.
- Virtual Fiber™ Backhaul: Proven globally, this solution backhauls the LTE network and offloads bandwidth-intensive applications, ensuring seamless integration with existing IP infrastructure.



- **Advanced Management System**

- Single 'Pane-of-Glass' Interface
- Integrated Functionality
- Advanced Analytics Tools
- Usability and Automation
- High Availability Configurations
- Managed Service Offering
- Flexible Deployment Options





THANK  
YOU!

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