UNIVERSAL HARDWARE PLATFORM
MISSION-CRITICAL APPLICATIONS
SUMMARY OF B2G REQUIREMENTS

- Universal Functionality & Topology
- Bandwidth Efficiency and Performance
- HTS Compliant Architecture
- Multipurpose Terminals
- Traffic and Management Security
- Mobility and Portability
- Superior Reliability and Availability
- Localization Options
WHY USE **UHP** FOR MISSION-CRITICAL APPLICATIONS?

- **One-for-all** technology: Software-Definable Satellite Router
- Ready for integration with **manpack** antenna systems
- **Ultra-fast start** and extended operational temperatures
- **Ruggedized outdoor Hub** for field-deployable networks
- Support of C-, X-, Ku- and Ka-bands, including **HTS**
- **Mesh** capability: eliminate double bandwidth allocation
- **QoS**, support for VoIP and Video over TDMA with controlled jitter
- **Ultra-low latency** VSAT system with round-trip delay about 570 ms for TDMA
- Support of **OpenAMIP** and other protocols to interface with mobile antennas
AIR TRAFFIC CONTROL

- Reliable connectivity for flight controllers
- Support of real-time data, voice and video
- Single-hop Full-Mesh TDMA topology
- Round-trip delay below 570ms
- Dynamic bandwidth allocation
- Single-carrier or MF-TDMA network
- Efficient modulations and ACM
- 1:1 automatic redundancy of terminals
- No single point of failure
BORDER CONTROL & EMERGENCY RELIEF

- Fixed, fast-deployable and mobile terminals
- Support of real-time data, voice and video
- Backhaul for fast-deployable cellular networks
- Dynamic TDMA bandwidth allocation
- Star, Multilevel or Mesh topologies
- Dedicated and on-demand SCPC channels
- Efficient modulations and ACM
- Secure AES-256 encryption of traffic
- 1:1 automatic redundancy of terminals
UNIVERSAL HARDWARE PLATFORM

DISRUPTIVE INNOVATIONS
SOFTWARE DEFINED NETWORK

- Universal routers for all network roles
- Dynamic SW-definable mode of operation
- Quick and easy transfer/swap of the functionality SW licenses
- Reduced CAPEX for spare parts and network upgrades
- Quick and easy field replacement and change of network topology

- Powerful L3/L2 router with 190’000 pps
- Mesh: eliminate double bandwidth allocation
- Multiple configuration profiles
- Embedded Computer for advanced applications and traffic processing
- Sophisticated QoS with VLAN management and built-in 2G, 3G & LTE backhaul optimization
BANDWIDTH EFFICIENCY

- Dual DVB-S2X demodulators with separate IF inputs
- Up to 500 Msps DVB-S2X ACM up to 256APSK
- Integrated high-speed DVB-S2X modulator for SCPC return channel
- Proprietary encapsulation with 99% efficiency and advanced QoS
- Up to 20% savings on bandwidth

- Multichannel MF-TDMA LDPC demodulator
- 12 MODCODs with QPSK, 8PSK & 16APSK
- Data rates up to 27 Mbps/terminal
- Hubless and Mesh topologies
- Highest TDMA efficiency of 96% and flexible frame structure
- >20% advantage over other TDMA implementations
MULTI-SPOT HTS HUB

- Designed for multi-spot HTS networks
- Based on low-CAPEX universal controllers
- Required functionality is activated by SW license as network develops
- Easy SW license transfer between teleports, beams and satellites
- Cost-effective scalability up to 64 spot-beams and 500 000 terminals
- Self-healing network architecture
- Dynamically assigned network roles
- Automatic M:N local and geographic redundancy
- M:N site diversity with multiple teleports for increased availability
- Saves over 40% of Hub CAPEX due to functionality SW license reuse
DUAL-GATEWAY

- Hierarchical multilevel topologies with basic STAR terminals
- Direct connectivity of the terminal with the Hub and respective Gateway
- Unlimited number of regional Gateways
- High spectral efficiency of all TDM channels of the Hub and Gateways
- Compatible with multi-sport HTS satellites and dual-band solutions
- Dual-Gateway ensures more than 50% savings compared to Mesh network
BEAM SWITCHING

- Preconfigured, locally-stored coverage maps and network parameters
- Automatic round-robin and map-based switchover between satellites or beams
- Change of mode of operation when required
- Automatic adjustment of uplink power and Doppler effect compensation up to 1300 km/h
- Communications with mobile antenna based on standard OpenAMIP protocol
- COTM terminal retains the same IP address after switchover to another hosting network
QUALITY OF SERVICE

- Classification of IP packets
- Customized action rules
- Traffic policy manager
- Multichannel hierarchical traffic-shaper:
  - CIR – committed data rate
  - MIR – maximum data rate
  - MIR to CIR slope factor
  - Day/Night CIR change
- Multiple Tx priority queues with Class-Based Queueing