Application Brief

Air Traffic Control Communications

The continuous increase in air travel creates a challenge for air traffic control authorities to maintain and upgrade their communications infrastructure to ensure the highest level of air and ground safety. ATC requires a unique mix of communication services to enable effective management of ground and aerial control, as well as ensuring always-on connectivity between airports, national control centers and aircrafts. Another challenge is presented by the need to deliver voice, data, radar, guidance systems, video, telemetry, and other traffic, using a wide variety of interfaces, network infrastructure and technology generations.

Above all, given the critical nature of ATC systems, their communications must ensure reliable and secure operations at all times.

Multiservice Platforms for Secure, Uninterrupted ATC Communications

RAD's field-proven Service Assured Networking solutions have been widely deployed in airports and regional ATC sites to enable robust ATC communications, using the Megaplex high capacity multiservice access platform, the Airmux sub-6GHz high capacity wireless system, the SecFlow ruggedized security switch-routers and the RADview network management system. Together, these secure-by design solutions support intra-airport multiservice connectivity, wireless mobility and high capacity operational networks, while enabling future capacity expansion to meet ATC's evolving needs.

The Megaplex delivers AFTN data, direct speech (DS), Telex (TTY), radar data (RD), extended range VHF (ER), and VHF data link (VDL) traffic, together with other voice, video and IP services, using industry-standard interfaces. It efficiently transports traffic over copper, fiber, microwave, or satellite links, using a ruggedized enclosure specifically built to withstand the rigors of field operations. The Megaplex supports fail-safe operations with ISDN, VSAT and Ethernet backup, and ensures smooth, cost-effective migration to next-generation packet networks with hybrid TDM and Ethernet architecture.

Typical Application

- Intra-airport multiservice voice and data communications
- Communication services for air traffic control (ATC) operational networks

Typical Users

- Airports, civilian and military aviation authorities

RAD

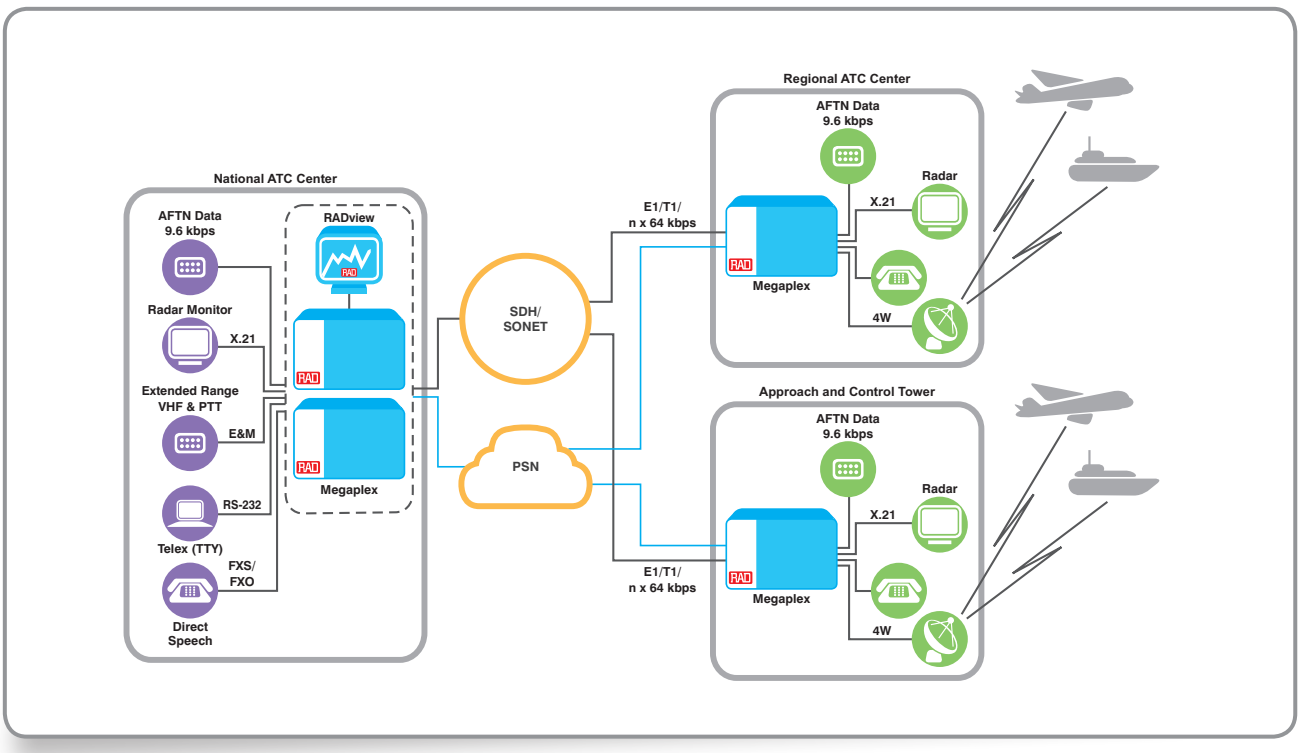
Your Network's Edge

In addition, the Megaplex allows future applications and functions to be added as needed, using a field-pluggable x86 server. It is strategically located to provide ATC cyber security and features a wide range of advanced protection mechanisms including authorizaiton, authentication, encryption, firewall, anomaly detection, and more.

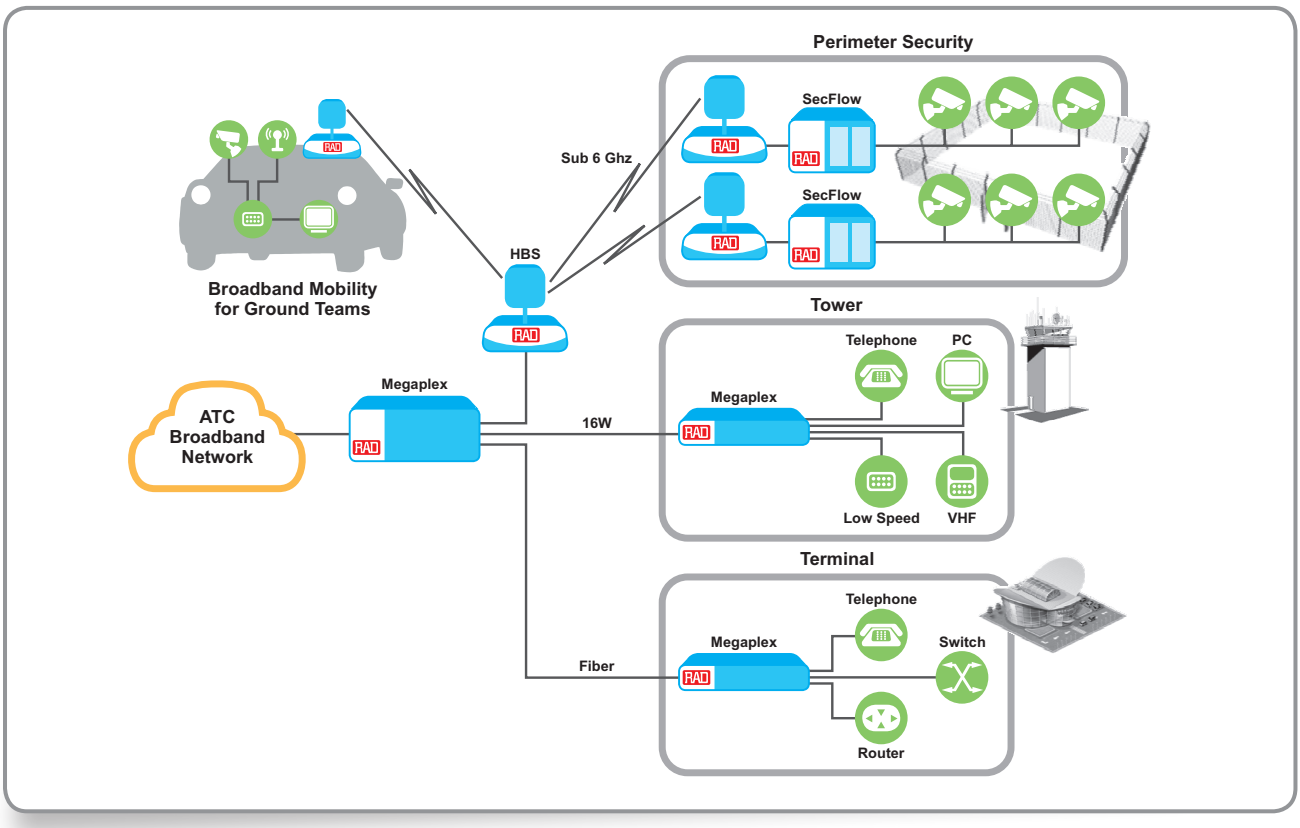
The Airmux-5000 enables reliable point-to-multipoint and broadband mobility communications for on-the-ground personnel and vehicles, such as security staff, O&M teams and first responders. The Airumx-5000 features smart antenna technology, including beamforming, nLOS/NLOS and MIMO to deliver high throughput, long range coverage and robust connectivity – even in remote facilities and difficult terrains.

The compact SecFlow integrate multiservice functionalities with built-in security mechanisms designed specifically for supervisory control and data aquisition (SCADA) applications controlling mission-critical operations. These devices support IP and Ethernet communicaitons, as well as legacy serial protocols, and feature a comprehensive cyber security suite.

The RADview management system provides easy planning, configuration and monitoring of the network and RAD's devices, offering an intuitive user interface and automated operations.



Air Traffic Control Operational Network with Multiservice Support



Intra-Airport Wireless Mobility and Cyber Security

Why RAD

RAD is a leader in communications solutions for air traffic control, with large successful ATC projects in China, Colombia, Indonesia, Poland, Sweden, the Ukraine, and other countries. Our Service Assured Networking solutions include best-of-breed tools for cyber security, mission-critical reliability and seamless migration to modern packet switched networks and applications. RAD has more than 30 years of proven experience, a significant worldwide presence in more than 150 countries, and an installed base of more than 13 million units. RAD is a member of the $1.2 billion RAD Group, a world leader in communications solutions.

Megaplex-4
Next-Generation
Multiservice Access Nodes

Airmux-5000
Point-to-Multipoint
Ethernet Radio

SecFlow-2
Ruggeedized SCADA-Aware
Ethernet Switch/Router

RADview
Carrier-Class Network
Management System

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