ACCESSNET-T IP on Ugandan Airport

Entebbe International Airport runs secure with TETRA

Customer
Civil Aviation Authority Uganda (CAA)

Project time period
2012, 2016

Products
- TETRA radio system ACCESSNET-T IP
  Scalable, distributed switching
  architecture
  Application gateway (AGW)
  Telephony gateway (TGW)
  TETRA Vocoder Function (TVF)
- 1 base station DIB-500 R4.1 High Power
- 1 Additional Component Rack (ACR)
- Network Management System (NMS)
  NMC-511 FaultManager
  NMC-512 SubscriberManager
  NMC-513 PerformanceManager
  NMC-515 ConfigurationManager
  NMC-522 DownloadManager
- Dispatcher (TCAD)
- Tetra Voice Recorder (TVR)
- Private automatic branch exchange
  (SIP/E1 gateway)
- TETRA gateway

Description of solution
Installation and commissioning of the feature-rich, reliable TETRA radio system ACCESSNET-T IP with connection to the TETRA radio system operated by the police

AIRPORT

First airport in Africa using ACCESSNET-T IP ▸▸

Entebbe International Airport is Uganda's most important airport and the focal point for air traffic in the country and in this region. The airport is close to the city of Entebbe, some 40 km south-west of the capital Kampala with its population of 1.5 million. Right beside the airport is Lake Victoria, the largest lake in Africa and the third-largest lake in the world. The "airport on the equator" is so called because it is almost exactly on the equator (latitude 00.020 North).

The airport is very important: there are flights to numerous African destinations as well as to international hubs such as Dubai, Amsterdam or Frankfurt. This aspect is apparent from the number of international passengers that has increased every year since 2002 and has more than quadrupled since then. The headquarters of the Civil Aviation Authority (CAA) are also at the airport. Reliable voice communication is an absolute must for smooth, efficient operations at an airport. The employees on the tarmac, in baggage handling, the airport fire service and, last but not least, the air traffic controllers in the control tower: without radio coverage it would not be possible to coordinate and handle some 28347 civilian flight movements.

Our solution in detail ▸▸

The TETRA radio system ACCESSNET-T IP offers all the functions necessary for the reliable, cost-efficient operation of an airport, for example quick call setup times, high voice quality and call functions such as group calls. In this way the airport employees can always be reached; around 300 to 500 radio subscribers use the radio system.

The airport employees and the police communicate across systems using group calls via the seamless TETRA gateway to the TETRA network run by the Ugandan police. In critical situations, quick coordination between the airport staff and the emergency services is possible. The solution provided is smart and effective by connecting the Hytera radios MT680 in both systems via a so-called „back-to-back" solution. Both systems are independent of each other and are managed separately, for instance the subscriber data.

The airport employees can also make calls to the public telephone network, the necessary SIP (Session Initiation Protocol) private automatic branch exchange is connected to the telephony gateway on the base station. For reliable radio coverage at the airport, the powerful base station DIB-500 R4.1 is used in the high power variant. Additionally, an expansion rack with voice recorder and private automatic branch exchange (PABX) is used.

Thanks to the flexible system architecture of ACCESSNET-T IP and the distributed switching architecture, all the necessary function blocks and gateways run directly on the base station and do not require any additional hardware. For interruption-free radio operation, the main control channel is of redundant design (MCCH redundancy) such that the operation of the base station is ensured even if a carrier should fail or suffer problems.

To protect against possible power fluctuations, all hardware components such as the base station and also workstation computers are connected to an uninterruptible power supply (UPS). The comprehensive network management system (NMS) enables the efficient management and reliable operation of the radio system.

In 2016 the CAA expanded the functionality of the network management system so that network configuration and performance monitoring could be undertaken autonomously. Training was provided on the efficient use of the radio system in the training center in Bad Münder, Germany.

As a result, with ACCESSNET-T IP, Entebbe Airport has a modern TETRA radio system that optimally supports work processes and operations. Reliable radio coverage at the airport, powerful radios and numerous features support flight operations and the related activities. The TETRA gateway and telephony gateway permit communication with the "outside world" if necessary.
Entebbe International Airport will take on an even more important role in future: it is planned to expand and extend the airport successively until 2034. During this expansion, it is expected the radio system will also be aligned with the new, increased requirements.

Uganda: Data and facts

Geography
_ African landlocked country, surrounded by Kenya, Sudan, Congo, Rwanda and Tanzania
_ Capital Kampala
_ Area: 241,559 km2

Population
_ 34,856,813 inhabitants (2014)
_ Of them 6,426,013 in cities, in the capital Kampala 1,516,210 (2014)

About Entebbe International Airport and CAA
_ Airport opened 1951
_ In 2012 the airport received an award for extraordinary growth in transportation
_ The CAA is the winner of numerous best aviation authority awards
_ Civilian/commercial aircraft movements: 28347 (2016)
_ Number of international passengers: 1,511,207 (2017)

TETRA for Entebbe International Airport: Highlights of our solution

+ Seamless integration with the Ugandan police TETRA network
+ All function blocks on the base station, no need for additional hardware
+ Comprehensive network management

Precisely what you need: Solutions from Hytera Mobilfunk GmbH ⇒

Each of our mobile radio systems is a customized solution with optimal performance. No matter how difficult the conditions are, or who is the manufacturer of the terminals. Customers in more than 40 countries on four continents are already using our solutions: in industry, in the oil and gas business, in energy supply, in public security and local public transit systems, at airports and for military applications. Besides the first-class technology from Hytera Mobilfunk GmbH, they particularly value one aspect: our holistic, customer-oriented project management with which we solve problems before they occur.

"As an airport, a reliable voice communication system is essential for efficient coordination of ground operations amongst the various departments. The ACCESSNET-T IP provided by Hytera has met user expectations."
Aidah Namuyanja, Technical Officer, CAA

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