



Hungarian Telecom Providers Turn to Satellite to Extend TETRA Emergency Response Network

When a historic flood struck Hungary in 2010, the nation's new emergency response strategy was put to the test. With communications networks unavailable in damaged areas, Hungarian telecom provider Pro-M leveraged satellite-based connectivity to help more than 23,000 first responders coordinate rescue efforts. The satellite network, managed by Hungaro DigiTel and built on the iDirect platform, provided a critical lifeline that helped Hungary's government better protect the well being of its citizens.

Like many countries worldwide, Hungary has adopted Terrestrial Trunked Radio (TETRA) as the communications standard for first responders. The radio-based mobile telecommunications system combines Push to Talk (PTT), group communication services, mobile telephony, message sending and mobile data services through a single unit. TETRA has been embraced by government agencies, emergency services, public safety agencies and military to enable high-security communications in the field via fixed local base-stations.



"With the support of Hungaro DigiTel and iDirect, we had the communications support we needed in an extraordinary situation. We were able to respond quickly and efficiently, leading a coordinated rescue effort."

Béla Kozma
CEO, Pro-M Zrt.



Satellite Overcomes Distance, Terrain and Cost Challenges

TETRA networks are connected across cellular base stations. The goal is to create an emergency communications network that is always available with 100% geographical coverage. But in many rural areas TETRA networks need to be extended through a complementary wireless technology. In some case, microwave networks can address this challenge. But as Pro-M and the Hungarian government realized, TETRA systems cannot be fully realized without satellite broadband.

The reason is that microwave links are highly limited by line-of-sight coverage. If the terrain is flat and unobstructed, they can cover up to 30 miles at best. As a result, establishing a microwave connection can be costly to deploy and manage. If a single link goes down, the broader TETRA network can be compromised.

For TETRA service providers, satellite connectivity can be more cost-effective than microwave and able to cover much greater distances. Satellite can seamlessly extend TETRA service to areas without requiring the extensive cost or timeframe associated with microwave links. A satellite link can also be rapidly deployed, able to establish a connection to a portable base-station within minutes.

Reliable, High-Speed Coverage Anywhere

Today, iDirect's IP-based satellite platform offers TETRA service providers broadband coverage anywhere they need it. First responders have full communications capabilities with voice, data and video whether in a densely populated urban area where the infrastructure is damaged, or a remote and isolated location where no infrastructure exists. In addition, the iDirect Platform is built from the ground up around IP, allowing it to seamlessly integrate into core



In 2010, Hungary experienced historic flooding, putting its emergency response capabilities to the test.

MPLS and IP backbone networks.

One operator that has leveraged iDirect's satellite platform to support TETRA service is Hungaro DigiTel (HDT), Hungary's largest satellite service provider. HDT has operated an iDirect network since 2006 from its teleport near Budapest. Given the country's limited terrestrial infrastructure, many of HDT's customers in the financial, oil and gas, and government sectors count on vital satellite connectivity to support their core operations.

HDT's customer, Pro-M Zrt. (Pro-M), is the telecom provider responsible for implementing and managing Hungary's TETRA-based EDR (Unified Digital Radio Communication System), as the EDR integrator and operator since January 2007. Pro-M supports the radio coverage of outlying areas in Hungary via 265 fixed and five mobile EDR base stations to ensure congestion-free emergency communication. The mobile base stations enable Pro-M to quickly extend TETRA communications to virtually any location, enabling efficient and secure performance of critical operations for Hungary's emergency and law enforcement agencies.

The current users of the EDR service include the National Police Command, the Hungarian Customs and Finance Guard, the Fire Service, the National General Directorate for Disaster Management, the National Ambulance Service, the Hungarian Army and the National Security Services.



Pro-M's satellite-enabled mobile base station vehicle stands ready to provide TETRA communications.

On the Scene in the Wake of Crisis

A recent example of the effectiveness of Pro-M's mobile base stations involved a large flood in Hungary that affected one-third of the country's geography, especially the East and Northeast regions. In 2010, an exceptionally high volume of rainfall caused several floods that exceeded the highest flood levels recorded in the past 100 years.

Using HDT's iDirect network, Pro-M provided connectivity flood control vehicles in the areas most severely stricken by the flood. One of the worst floods occurred at the intersection of two rivers in the small village of Rozsaly. Within six hours of being requested, a Pro-M SATELLITE mobile base station vehicle travelled the 300km distance from its storage location to Rozsaly and was operating at full capacity.

The mobile base station provided stand-by emergency connectivity that enabled communication and cooperation between the various flood control forces, including more than 23,000 workers consisting of police, firefighters, soldiers, water management crews and volunteers. This operation lasted for one week, providing secure and reliable communication for all of the flood protection personnel.

Making Strides in Protecting Lives

Today, service providers are building out national TETRA systems to support immediate, always available communications for emergency personnel. Satellite broadband technology ensures TETRA-based services can seamlessly cover any location, even those that are out of the reach of fixed base stations. And with the efficiencies, reliability and flexibility that iDirect's IP-based satellite platform delivers, service providers can meet even the most demanding end-user requirements, especially when it counts the most.

iDirect Satellite Connectivity Extends and Protects TETRA Networks

iDirect provides high-speed IP communication via satellite that is completely independent of terrestrial infrastructure. First response, medical or any other emergency team can have full communication capability — whether the emergency is in a densely populated urban area where the infrastructure is damaged or a remote and isolated location where no infrastructure exists. iDirect helps service providers deliver:

- Fast deployment on short notice
- High bandwidth reliability
- Toll-quality voice communications
- Permanent links to Base Stations in remote and rural locations
- Broadband connectivity onboard emergency vehicles
- Built-in encryption that ensures data security



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