inmarsat

CONNECTED HYDROELECTRIC DAMS

BGAN M2M CASE STUDY

AST Group and Inmarsat enables real-time monitoring and control for reservoirs in Peru

BGAN M2M

BGAN M2M ENABLES REAL-TIME REMOTE MONITORING AND CONTROL FOR 20 RESERVOIRS IN PERU

KEY BENEFITS OF BGAN M2M:

1. Reliability: operates on the Inmarsat L-band satellite and terrestrial global network, with 99.9% availability.
2. Performance: standard IP at a rate of up to 448 kbps with a low latency of 800 milliseconds.
3. Practicality: simple for field teams to configure, integrate and maintain.
4. Economy: low-cost terminal, low data rate billing plans without reconnection fees.

ABOUT THE COMPANY

The Mantaro Hydroelectric Complex is made up of two hydroelectric power plants, operated by a state-owned utilities company. The complex is Peru's main generation centre, supplying over 18% of the demand for the National Interconnected System (SEIN) and 15% of the country's power. Located in the region of Huancavelica, operations at the complex began in 1973.

THE CHALLENGE

In order to meet public demand, maintain efficiency and provide high-quality services in dense urban or remote rural areas across Peru, it is essential that operations at the Mantaro Hydroelectric Complex run smoothly.

However, due to its position in the remote region of Huancavelica, terrestrial communication is either unreliable or non-existent. This makes it difficult to access the real-time data and communications that support efficient monitoring, automation and management of assets at remote reservoirs, and impacts the ability to reduce equipment failure and downtime in an extreme weather event.

The remoteness of Huancavelica means that satellite is the only viable option for operating a SCADA system. This meant that 20 of the river water reservoirs required a new SCADA system to enable engineers to actively monitor, analyse and control the reservoirs' operational data in real time from the Control Centre located in Tablachaca.

AST Enabling Global Connectivity

THE SOLUTION

The hydroelectric company set about finding the right partners who could provide a reliable alternative to their existing connectivity methods. They chose to collaborate with Procetradi, a key provider of services for projects in the electricity and telecommunications sector, and The AST Group, a leading global satellite communications provider. The two parties worked together to deliver a solution that utilises the latest hardware and software to help the hydroelectric company overcome its connectivity challenges.

From a hardware standpoint, the Hughes 9502 one-piece terminals were installed as a first course of action. Operating over Inmarsat's BGAN machine-to-machine (M2M) satellite service, it enables remote monitoring and works seamlessly with many M2M solutions. Key to the decision to install BGAN M2M is that it enables the 20 remote Programmable Logic Controllers (PLCs) to communicate data directly back to a SCADA server in the control centre, for the team to monitor and take action remotely and instantly.

AST's IRIS remote terminal software management solution was also installed to enable real-time remote control of the satellite M2M terminals, reducing travel required to site and providing the means to deliver a global solution through a single web interface via a clear, simple management tool.

Without IRIS, diagnostics and network monitoring would be complex and time-consuming, and would also require engineers to physically visit the sites on a regular basis.

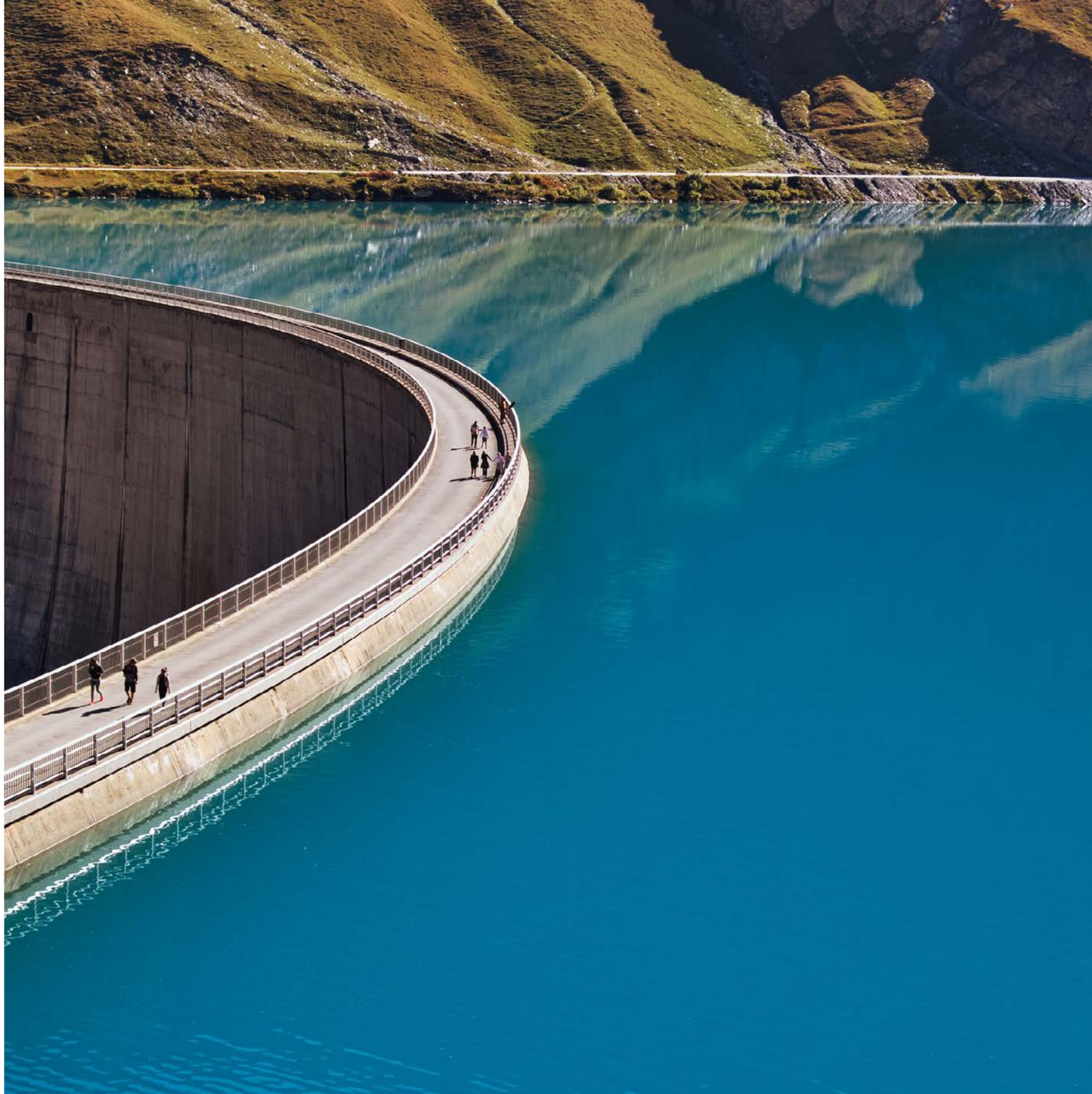
Any data that is collected is then passed through AST's INTEGRA Network, offering an additional layer of security that gave Procetradi the ability to identify, protect and filter any unwanted communication to or from the Hughes 9502 terminals.

THE RESULTS

The collaboration between Inmarsat, AST and Procetradi is expected to produce impressive results for the hydroelectric company. The solution offers secure access to remote locations, bringing the ability to identify and detect service issues in real time and implement the best resolution remotely. Ultimately, this will improve operational efficiency and service delivery, ensuring that public demand is met and high-quality services are guaranteed across Peru.

An additional benefit of the SCADA system being connected to Inmarsat's BGAN M2M satellite service is that it will significantly decrease operational costs by reducing the need to deploy field engineers to lagoons, which are located in very high-risk areas. It will also improve the performance of the hydroelectric plant by helping to reduce response times to any issues, meaning downtime will be significantly less frequent in the long run.

Finally, the new technologies in place also bring a much higher degree of data security and confidentiality. To segregate the client's data, AST created a closed communications group which allows for remote-to-control-centre communication and prevents traffic from flowing over the internet. Bespoke IP address assignment provided by AST's INTEGRA Network helped Procetradi integrate and expand the hydroelectric company's IP network to remote sites in a simple and reliable way, bringing increased visibility and control.



HOW TO BUY

Inmarsat products and services are available through select Inmarsat distribution partners and service providers.

Visit our website to find the right partner for you.

inmarsat.com/enterprise

inmarsat.com/enterprise

BGAN M2M Case Study. January 2021