



SIEMENS



Reference



Industrial Communication

Qatar: the land of sand, sun and a rugged network

Siemens works with 3W Networks to build a reliable communications infrastructure in Qatar

In recent years, new sources of gas from Qatar have started to be sent to a refinery in the industrial city of Dukhan. As a result, data communications of a major Qatar oil and gas company needed to be expanded, most notably to gather and analyze data from where the gas is extracted and transferred via pipeline. This includes many remote locations that cannot be manned and which are exposed to the extreme heat and harsh conditions of the desert.

To assist the engineering, procurement and construction (EPC) company responsible for the overall bricks and mortar infrastructure, 3W Networks was brought onboard to put an industrial-strength Internet in place. The task was to effectively incorporate the new gas sites into a Dukhan area network using fiber optics as a backbone.

3W Networks was a wise choice given its long experience in such projects. Established in 2001 and with offices in nine countries, it is the largest telecommunications, safety and security systems integrator operating in the Middle East, Africa and Asia Pacific. The company has provided integrated turnkey solutions for not just the energy sector, but also the transportation and telecom industries.

As it has done so often for more than a decade on projects across the region, 3W Networks turned to Siemens to help meet the challenges posed by the unique requirements of this project.



3W office in Dubai, U.A.E.

[siemens.com/ruggedcom](https://www.siemens.com/ruggedcom)

The challenge

Delivering performance and reliability when facing extreme heat and severe space and power limitations in remote, unmanned locations.

Mr. Walid Gamali is Chairman and Chief Executive Officer of 3W Networks. He says there were a number of aspects of the project that made it particularly challenging. First, for main sites housing many monitoring and management applications, switches were required to handle heavy loads of traffic, and without requiring air conditioning. Then there were the remote locations, which were especially challenging.

“Remote sites run on solar power, so they have to use as little power as possible. You can’t waste power on fans to keep equipment cool, so all installed devices have to withstand very hot temperatures, and you need products themselves that don’t consume much power,” he explains. “Further, these sites are very small, so devices must be quite compact yet still reliably handle all the traffic.”

The solution

RUGGEDCOM RSG2300 for main sites, RUGGEDCOM RS969 for remote sites and RUGGEDCOM NMS to manage and monitor the entire installation.

Mr. Gamali says it was an easy decision to choose RUGGEDCOM products given the challenges of the project. For the network’s main sites, where there was space for a cabinet to be installed, he describes how the RUGGEDCOM RSG2300 was ideal. “The large port capacity of the RSG2300 was what we needed,” he says, noting that nine of the switches were purchased. “And yet it is also very rugged so it can withstand the very hot temperatures that it is exposed to.”

For the unmanned remote sites, he adds, with their even more challenging requirements, the RUGGEDCOM RS969 was the obvious choice, and 11 of these devices were purchased. With limited space, these compact products could be installed in shelters mounted on DIN rails. And the fact that the shelters were powered by solar energy was not an issue for the RUGGEDCOM RS969.

“The RS969 switches have very low power consumption and can withstand extreme heat. It was the optimum product for us,” he says. The final piece of the puzzle was RUGGEDCOM NMS – network management software.

“It’s a simple software using Windows as opposed to a more complex network management system,” notes Mr. Gamali. “So it’s the right product that ideally fits the purpose.”

RUGGEDCOM products in the Dukhan network

RUGGEDCOM RSG2300 – This utility-grade, fully managed, 32-port, 19” rack-mounted Ethernet switch is designed to operate reliably in electrically harsh and climatically demanding utility substation and industrial environments. It is immune to electromagnetic interference and electrical surges and with an operating temperature range of –40°C to +85°C, it does not require a fan.

The device has four modular gigabit uplink ports. Its modular flexibility offers 10BaseFL/100BaseFX/1000BaseX fiber and 10/100/1000BaseTX copper port combinations. It can support multiple fiber connectors (ST, MTRJ, LC, SC) without loss of port density. Optional front or rear-mount connectors are available to make the device highly versatile for any application. It is packaged in a rugged galvanized steel enclosure with industrial grade DIN, panel, or 19” rack mounting options.

RUGGEDCOM RS969 – This is a 10-port, MIL-STD, fully managed Ethernet switch with full cyber security features. It has two fiber optic Ethernet ports and eight Fast Ethernet copper ports in a MIL-STD 901D-rated package. It is rugged so that it can reliably operate in harsh environments and is protected against vibration and shock. Further, it has an IP66/ IP67 degree of protection against strong jets of water (IP66) and brief immersion in water (IP67). It is immune to electromagnetic interference and electrical surges, and has an operating temperature range of –40°C to +85°C, without requiring a fan.

RUGGEDCOM NMS – This is an enterprise-grade network management software based on the OpenNMS platform packed with features. This solution is specifically designed for the communications industry for operation in rugged environments, providing a comprehensive platform for monitoring, configuring and maintaining mission-critical IP-based communication networks.

The results

Products that have done their job despite harsh conditions and constraints, all backed by the strength of Siemens.

Initial discussions and design work on the project began in late 2009, and the actual implementation started about a year later. The project was completed in early 2013.

Since then, the RUGGEDCOM products have delivered what was promised – with strong, reliable, cost-effective and efficient performance, despite all the challenges posed by the natural environment, along with the space and power constraints.

“Everything is operating and being maintained very well,” says Mr. Gamali. “These are good, reliable products – and there are dedicated staff looking after the communications equipment who are able to frequently visit us to ensure everything is operating perfectly.”

He adds that although the 3W-RUGGEDCOM relationship goes back many years, it has been taken to a new, higher level now that RUGGEDCOM is part of the Siemens family.

“The brand recognition of Siemens and the Siemens presence and large footprint in the region helps a lot with customers,” Mr. Gamali explains. “The Siemens name has a great deal of credibility and acceptance in the marketplace. The Siemens brand has a tremendous reputation of reliability and support – so that the product selection never has to be justified.”

The future

More oil and gas opportunities, plus new frontiers with smart grid initiatives and intelligent transportation systems.

Based on the long-standing trusted partnership between Siemens and 3W Networks, Mr. Gamali describes how he is “interested in a great range of RUGGEDCOM products that can penetrate not just the oil and gas sector, but the industrial sector in general.” In particular, he refers to electric utilities and transportation companies.

“We see opportunities with smart grid projects and also intelligent transportation systems”, he notes. “With the low power consumption, high temperature rating and form factor – meaning its small size – you can use RUGGEDCOM products in metros, trains, buses and automobiles”

Case study at-a-glance

Customer: established in 2001 and with offices in nine countries, 3W Networks is the largest telecommunications, safety and security systems integrator operating in the Middle East, Africa and Asia Pacific.

Challenge: to address the requirements of a major Qatar oil and gas company, 3W Networks needed dependable switches for a critical network that includes unmanned remote areas; the switches have to endure extreme heat, be very compact and have multiple ports to handle heavy network traffic.

Solution: nine RUGGEDCOM RSG2300 19”rack-mounted layer 2 switches from Siemens, with their high-capacity 32 ports, were deployed at the main sites; eleven RUGGEDCOM RS969 layer 2 switches with an IP67 degree of protection were installed at the remote sites, where a compact switch with low power consumption was essential; and RUGGEDCOM NMS was chosen as a platform to monitor, configure and maintain the network.

Results: despite extremely challenging environmental conditions and space constraints, the products have been working efficiently and reliably since 2013.

Future: 3W Networks and Siemens are planning to grow their partnership even more in the coming years, incorporating more products into an increasing number of oil & gas projects. They are also planning to establish themselves in other sectors such as electrical utilities and transportation.

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Subject to change without prior notice
PDF
FAV-5-2016-PD-PA-V01
Case Study
Produced in Canada
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