

Revolutionary Water Management



Overview

EVERY ORGANIZATION NEEDS TO DO MORE WITH SMALLER BUDGETS, AND WATER UTILITY COMPANIES AROUND THE WORLD ARE NO DIFFERENT. Recent manpower reductions require more aspects of the business to be remotely monitored and controlled. In today's environment, it also means that water supplies require enhanced security including monitoring and video surveillance to ensure that public water supplies remain safe.

A secure and reliable broadband communications infrastructure was needed.

Challenge

The Mission Critical aspects of controlling, monitoring and managing these facilities require communication links to connect a large number of devices over vast geographical areas. Leased Line services, once the prevalent solution, are high in cost and provide only between 2 to 10Mbps capacity. Upgrading to fiber is time consuming and prohibitively expensive. ADSL services do not provide sufficient throughput and reliability for mission critical applications because they are reusing legacy infrastructure. Cellular based systems and satellite broadband are found to be unreliable because they have poor coverage and capacity issues. VHF and UHF radio solutions do not provide the required bandwidth. In addition, a number of legacy leased line services are being retired in 2018.

Requirements

Co-Channel Radio Communications Systems (<http://www.co-channel.co.uk/>) was contacted by a local water district to address their needs. Designing and building communications systems for more than 30 years, Co-Channel worked with the water company to develop a solution.

In a geographic area covering 2,400 square km (1,000 square miles), the water company had more than 6,600 km (4,000 miles) of main lines supplying more than 1.1 million people with 282 million liters (74 million gallons) of water per day. Their operation was comprised of 68 water sources including:

- 14 raw water reservoirs
- 16 treatment works
- 164 pumping stations
- 139 covered storage reservoirs

"A national carrier is retiring their sub-2 Mbps services, and network operators need a cost effective solution. PTP provides an attractive alternative to copper based services which have traditionally proved to be unreliable in rural service where outages can be days and in some cases weeks until service is restored."

John Crawford, Managing Director - Co-Channel Radio Communication Systems

Coordinating this widespread network of pumping stations, reservoirs and mains required reliable connectivity. The solution needed to provide sufficient bandwidth to support the following simultaneous applications:

- Security Closed Circuit TV (CCTV)
- Monitoring of intruder alarms
- Control of access to facilities
- Voice over Internet Protocol (VoIP)
- Wide area radio communications
- Extension of corporate network
- WiFi access at selected locations
- Building Management Services (BMS) including lights, energy management, heating management

Solution

Co-Channel proposed a backbone infrastructure of Point-to-Point (PTP) wireless broadband technology, with predominantly PTP 800 operating in the licensed 6 – 38 GHz spectrum and in some locations PTP 600 equipment operating in the unlicensed 5 GHz band. As the network owner and operator, the water district would be able to achieve a higher throughput than they could using leased line technology, and at a dramatically lower cost by purchasing the equipment instead of paying recurring monthly subscription costs.

Wireless solutions give the water company significantly more control and flexibility, which enables them to make adjustments as their needs evolve. The system also outperforms their previous solution in reliability and availability, key factors given the mission critical nature of managing the water supply for a million people.

Results

Since the initial deployment of PTP links in 2008, the network has grown to over 45 links in 40 locations. In total the link length end to end is 330 Km (205 miles) with the total link distance between farthest points of network 113 Km (70miles). The network provides a high bandwidth low maintenance solution and with use of resilient links, achieves high reliability to all remote locations.

Working together, the water company and Co-Channel continue to see opportunities to expand the network as new devices are added to manage the water supply and demand for connectivity continues to increase.



“Our customer needed secure broadband to manage their water district. Cambium’s PTP products delivered the connectivity they needed for mission critical operations.”

JOHN CRAWFORD, MANAGING DIRECTOR - CO-CHANNEL RADIO COMMUNICATION

SYSTEMS

PROFILE

Water district serving 1 million



CHALLENGE

Improve efficiency, Improve safety, Reduce costs

SOLUTION

- PTP 800 licensed backhaul links
- PTP 600 unlicensed backhaul links

APPLICATION

Communications backbone infrastructure for

- Data transfer
- Video surveillance security
- VoIP communication
- Alarm reporting
- Access control

BENEFITS

- Higher throughput
- Increased reliability
- Attractive Return on Investment (ROI)