- Embedded Cellular Modem
- M2M
- Modem Copper POTS Replacement
- Protect Capital Expenditures (CAPEX) with Minimal Operations Impact

Legacy 2- and 4-Wire Copper Circuit - Seamless 4G/LTE Only/XLTE w/ 3G Cellular Conversion

The Problem

Older water supply systems with equipment in the field connected by analog modems to Plain Old Telephone Service (POTS) copper lines are experiencing service delays, dependability issues, and increasing Operational Expenditures (OPEX).

Due to the phase out of copper wire line based circuits and limited data throughput, coupled with longer outage times for repair of down circuits, waste and water companies must move to new TCP/IP enabled transport, without having to replace their embedded equipment or change their back office procedure. Placement of legacy water equipment can be found from several floors below ground in wet well locations, to remote reservoirs, pump stations and other systems points all with copper plant that is inaccessible, and deteriorating.

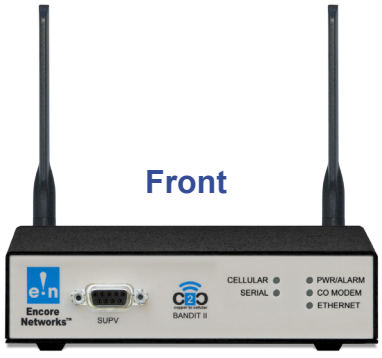
Faced with new hurdles, from gaining reliable access to their older water system equipment, Capital Expenditure (CAPEX) shortages, and non-TCP/IP solutions, waste and water companies must move their existing infrastructure to a cost effective, secure, and dependable digital IP backhaul without disrupting the existing equipment and operations or without an expensive equipment overhaul.

The Solution

The solution is the Encore Networks industrially hardened BANDIT-2 C2C™ copper to cellular router. The BANDIT-2 C2C™ provides IP, VPN, Encryption, Firewall, Ethernet connectivity, conversion of legacy analog data via serial protocol such as Modbus and DF1, and an end point facing Central Office analog modem transported via an embedded 4G/LTE Only/XLTE w/3G Fallback cell modem on either a private or public cellular IP network. The Encore Networks solution is easy to implement, and eliminates the OPEX costs of the 2 and 4-wire copper lines while preserving CAPEX. The switch from a 2-wire copper paired POTS line to a cellular data connection is simply done by unplugging the analog modem connected equipment from the copper line jack, RJ-11/demarc, and terminating it on the BANDIT-2 C2C™ for traditional analog dial out/in modem connections. Bypassing older 4-wire Data Service Units (DSU) is simply done by unplugging the serial data cable from the PLC/CPE and plugging directly into the serial port of the BANDIT-2 C2C™. In both cases the BANDIT-2 C2C™ handles the analog modem/serial data communications and conversion of the data for transmission over a private or public 4G or 3G cellular network using a secure VPN with IPSec encryption to ensure end-to-end security.

The BANDIT-2 C2C™, using its dual antennas for signal diversification and the ability to be installed over 1500' away from the existing 2-wire analog modem with twisted copper pair, makes for an easy installation in the most difficult areas. The BANDIT-2 C2C™ is capable of delivering IP/Ethernet based services at a fraction of the cost with its configurable Ethernet port addressing future TCP/IP based services at the site. Increased bandwidth allows for additional equipment such as High Definition security video and newer intelligent waste and water infrastructure equipment for M2M and SCADA communications.

BANDIT-2 C2C™



(Specifications subject to change)

save energy
copper to cellular
Buy America Compliant
UTC Member
VPNC CERTIFIED
RoHS

encore networks™

TECHNICAL SPECIFICATIONS

ENCORE NETWORKS

Security Appliance Features	**Integrated router/firewall/VPN**		
	NAT, PrAT, eNAT-T		
	VPN (up to 30 simultaneous tunnels)	IP Sec (RFC 2401) with DES (56 bit), 3DES (168 bit) and AES (256 bit)	
		G- RE (RFC 1701)	
		SLE (Selective Layer Encryption)	
Protocols	**WAN Serial**	Frame Relay	
		Asynchronous and Synchronous PPP	
		MLPPP	
		X.25	
	IP Ethernet	IP Routing (RIP v1/v2) or Static Routing	
		IPSec and SLE VPN	
		VPN Split Tunneling	
		DHCP Client/Server/Relay/BootP	
		IP QoS and traffic prioritization	
		VRRP (RFC3768)	
		VLAN	
		802.1q VLAN tagging	
Data Modem Port	Bell103, Bell212, V.21, V.22, V.22 bis, V.23, V.32, V.32 bis, V.34		
	LS/GS		
	Polarity Reversal		
	V.42 with Error Correction - MNP 2-4		
	V.42 bis w/ Data Compression & MNPS		
	Rotary/DTMF		
Serial Legacy Support	One DB25 port		
	Supports multiple asynchronous and synchronous legacy protocols		
	One DB9 serial console port supporting EIA/TIA RS232		
	Protocol support for BiSync, X.42, DNP3, MODBUS, CDC, S/NET, CONITEL, ABB, and most electrical industry proprietary protocols; inquire for additional protocols		
Physical Ports	**Serial**	1 DB25 port (RS232) User port	
		1 DB9 port (RS232) console or User port	
	CO Modem	1 RJ11	
	Ethernet	1 10/100 BASE T	
	Wireless - Embedded	4G LTE	
		EVDO	
		HSDPA	
		2 Antennas for Diversity	
Electrical	**Power Supply Options**	7.5 watts maximum	
		DC: 12VDC, 24VDC, 48VDC	
		AC: 100-240VAC, 50-60Hz (with external adapter)	
Environmental	**Temperature:**	**Industrially hardened:**	-40° C to +85° C - DC
			-30° C to +70° C - AC
		Commercial-grade: 0° C to +50° C	
		Cellular Wireless: -40° C to +70° C	
		Non-Operating: -40°C to +85°C	
	Humidity: 5% to 95% non-condensing		
	Altitude: Up to 10,000 ft. (Up to 3048 m)		
Mechanical	**Height:** 1.5 in. (3.81 cm)		
	Width: 6.0 in (15.24 cm)		
	Depth: 4.4 in. (11.18 cm)		
	Weight: Less than 1 lb. (Less than 0.45 kg)		
	Installation Type: Desktop		
Standards Compliance	**RoHS Compliant**		
	PCI Compliant		
	EMC	FCC Part 15	
		EN 55022: 1998	
		EN 55024: 1998	
	Product Safety	UL/CSA 60950-1	
		CAN/CSA-C22.2 No. 60950-1-03	
		EN 60950-1	
	NERC CIP (003, 005, 007, 009) Compliant		
	Part Number: B2000-C2C-0000-0		

Consult your area sales representative for available features and optional modules.

encore·networks™

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