

# BANDIT 2™ C2C™



## 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.

# TECHNICAL SPECIFICATIONS

<b>SECURITY APPLIANCE FEATURES</b>	Integrated router/firewall/VPN NAT, PrAT, eNAT-T VPN (up to 30 simultaneous tunnels) <ul style="list-style-type: none"> <li>· IP Sec (RFC 2401) with DES (56 bit), 3DES (168 bit) and AES (256 bit)</li> <li>· G- RE (RFC 1701)</li> <li>· SLE (Selective Layer Encryption)</li> </ul>
<b>PROTOCOLS</b>	WAN Serial <ul style="list-style-type: none"> <li>· Frame Relay</li> <li>· Asynchronous and Synchronous PPP</li> <li>· MLPPP</li> <li>· X.25</li> </ul> IP Ethernet <ul style="list-style-type: none"> <li>· IP Routing (RIP v1/v2) or Static Routing</li> <li>· IPsec and SLE VPN</li> <li>· VPN Split Tunneling</li> <li>· DHCP Client/Server/Relay/BootP</li> <li>· IP QoS and traffic prioritization</li> <li>· VRRP (RFC3768)</li> <li>· VLAN</li> <li>· 802.1q VLAN tagging</li> </ul>
<b>DATA MODEM PORT</b>	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
<b>SERIAL LEGACY SUPPORT</b>	One DB25 port Supports multiple asynchronous and synchronous legacy protocols One DB9 serial console port supporting EIA/TIA RS232 Protocol support for DNP3, IEC 60870-5-101/103/104, MODBUS, CDC, S/NET, CONITEL, ABB, and most electrical industry proprietary protocols; inquire for additional protocols
<b>PHYSICAL PORTS</b>	Serial <ul style="list-style-type: none"> <li>· 1 DB25 port (RS232) User port</li> <li>· 1 DB9 port (RS232) console or User port</li> </ul> CO Modem 1 RJ11 Ethernet <ul style="list-style-type: none"> <li>· 1 10/100 BASE T</li> </ul> Wireless - Embedded <ul style="list-style-type: none"> <li>· 4G LTE Only</li> <li>· EVDO</li> <li>· HSDPA</li> <li>· 2 Antennas for Diversity</li> </ul>
<b>ELECTRICAL</b>	Power Supply Options <ul style="list-style-type: none"> <li>· 7.5 watts maximum</li> <li>· DC: 12VDC, 24VDC, 48VDC</li> <li>· AC: 100-240VAC, 50-60Hz (with external adapter)</li> </ul>
<b>ENVIRONMENTAL</b>	Temperature: <ul style="list-style-type: none"> <li>· Industrially hardened: -40° C to +85° C - DC, -30° C to +70° C - AC</li> <li>· Commercial-grade: 0° C to +50° C</li> <li>· Cellular Wireless: -40° C to +70° C</li> <li>· Non-Operating: -40° C to +85° C</li> </ul> Humidity: 5% to 95% non-condensing Altitude: Up to 10,000 ft. (Up to 3048 m)
<b>MECHANICAL</b>	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)
<b>STANDARDS COMPLIANCE</b>	RoHS Compliant PCI Compliant EMC FCC Part 15, EN 55022: 1998, EN 55024: 1998
<b>PRODUCT SAFETY</b>	UL/CSA 60950-1 CAN/CSA-C22.2 No. 60950-1-03 EN 60950-1 NERC CIP (003, 005, 007, 009) Compliant

Specifications subject to change without notice

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