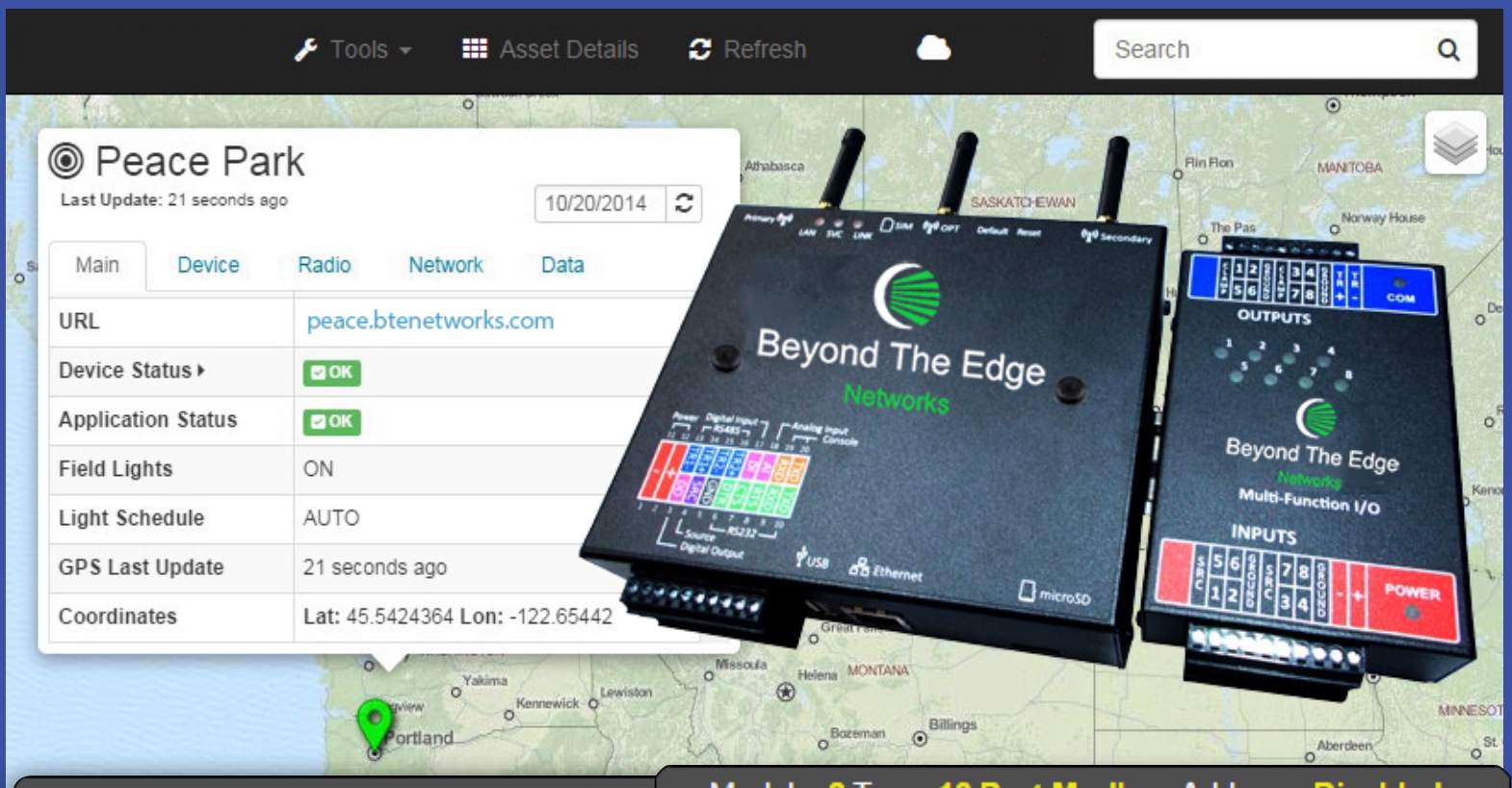
Beyond The Edge
Networks

Communicaton & Automation Products and Services



Emergency Notification System

Emergency State
None

Acknowledgement
Send

Module: 2 Type: 16 Port Modbus Address: Disabled

9. Battery Voltage	0.00 VDC	Numeric
10Engine Coolant Temp	-273.00 °C	Numeric
11Operating Hours	0.00 Hrs	Numeric

Module: 4 Type: 16 Port I/O Module Address: 99

25Fuel Flow	0.00 Gallons/Min	Pulse
26Main Voltage	0.00 VDC	Analog
27.	Off	Disabled
28.	Off	Disabled
29.	Off	Disabled
30.	Off	Disabled
31Input Power	On	Digital
32Emergency State	None	Digital

	Numeric
	Hex
	Hex
	Numeric
	Hex

Generator System Status

Engine State
Init

Engin

Engine Status

Battery Voltage
0.00 VDC

Engin

Oil Pressure
0.00 kPa

Beyond The Edge Networks

End-To-End Automation Solutions

www.btenetworks.com

Create Cost Saving and Revenue Producing Applications

BTE's communications and automation products provide an interlocking set of building blocks that work together to create complete and rapid end-to-end applications. For a large segment of M2M applications, this is the definition of the problem and the solution.

The Old Way: Slow and Complicated

Until now, M2M system designers have pieced together automation and communications equipment from multiple sources with layers of expensive and time consuming programming on multi-vendor hardware platforms. With skill and a bit of luck, all of their effort would result in a functional, operating endpoint; however, many times it did not. Historically, many M2M projects have failed due to the complexity of the multi-vendor integration effort.

BTE's Rapid Development Environment and Architecture

In BTE's application architecture, the BTE Router, serves as the communications and applications platform. Its proven communications capabilities travel to your remote site on the same platform that is providing your application logic. Build endpoint solutions by choosing from prebuilt application packages such as Navigation (LBS) Services or Irrigation Control. Or, add the capabilities of a software based PLC using BTE's Automation Control software and build your own monitoring and control application using menu based development tools. As your system's requirements grow, expand its capabilities with external I/O modules that provide connectivity for most industrial sensors.

Ease of Access and Management

When you are ready to put your endpoints in the cloud, BTE's CloudTrak provides the ultimate cloud based management system: one-click access to location information, machine name, IP address, and application and platform status of every endpoint you are managing. One more click on a specific machine icon and you are connected directly to the endpoint's control panel and administrative tools.

Explore how BTE's portfolio provides you with a single vendor alternative to the traditional patchwork approach of M2M system implementation

Beyond The Edge Networks

Cellular Automation Control

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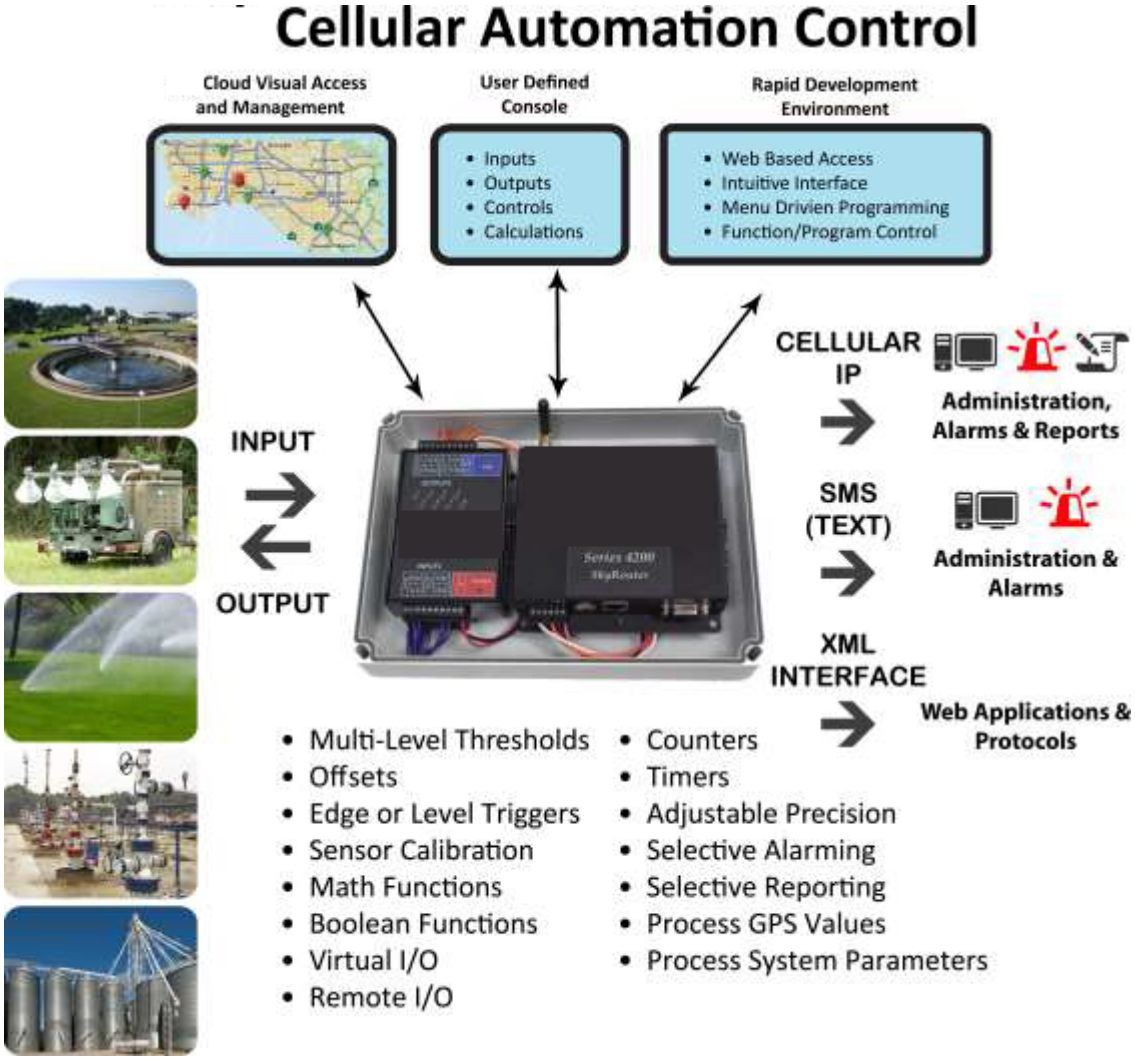


Reliable Global Cellular Communications

- Connect serial (legacy) controllers
- Connect IP controllers and cameras
- IPsec encrypted communications

Automation Control - Software PLC Application

- Menu Based Rapid Development Environment
- Expandable I/O Connectivity

Cloud Services

- BTE CloudTrak – Visual Access and Management
- One-click network-wide status
- Immediate access to any endpoint
- Over-the-air updates

Communications + Automation =

Your Cloud Aware Application Solution

Beyond The Edge Networks

Rapid Deployment of Complete Cloud-Based M2M Solutions

www.btenetworks.com

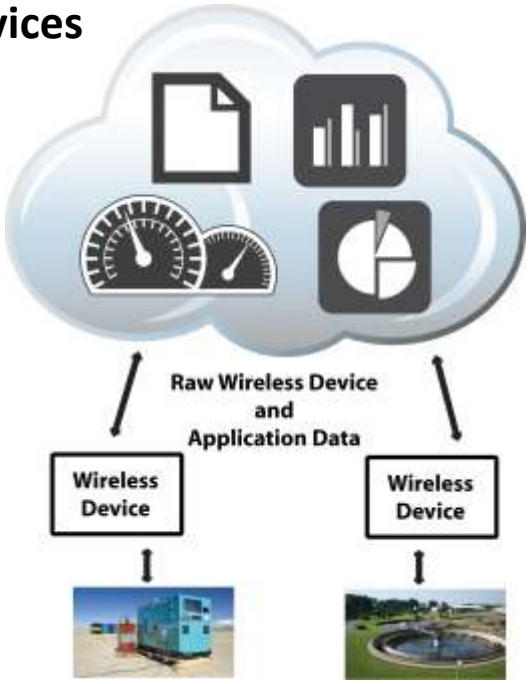
The Traditional Cloud

What's missing in these clouds?

- Location Awareness
- Application Management
- Rapid Development Tools
- End-To-End (Cloud) View

Device Cloud

Cloud Services



Today it is difficult to discuss automation projects without mentioning the cloud. Unfortunately, in the M2M market, many clouds are nothing more than groups of communications devices that address only the management of the devices and their associated network. They fail to address the actual mechanics of the M2M application and the associated presentation services. This is to be expected since devices in this class of cloud are not capable of hosting an M2M application and can only function as communications devices. There are other clouds that only address the presentation and miss the mark when it comes to either device or application awareness. Unlike traditional clouds, the BTE CloudTrak integrates the total solution into one package.

Traditional clouds rely on centralized application polling for raw information and polling large numbers of devices over cellular networks is not a recipe for success

Beyond The Edge Networks

Rapid Deployment of Complete Cloud-Based M2M Solutions

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The BTE CloudTrak Service

BTE's CloudTrak is a visual access and management system that provides a graphical location based view of the user's entire cloud: application, device, status, reports and alarms. Users can navigate through their cloud based application network from a location based dashboard showing the position and status of all managed endpoints. From this graphical representation of the cloud, users can access the overall health of their entire network and then drill down on the control panels of endpoints having problems.

Effective and Efficient Management of Assets

Exception reporting works very well in this model because the endpoint contains the complete application and all the control logic necessary to operate in a stand-alone mode. While the other clouds depend on their devices to transmit the application's entire data set to a centralized control point, the BTE CloudTrak service simply monitors a summary of overall status and then provides the rapid and concise navigation needed to manage the small number of endpoints that are not performing as expected.

The BTE CloudTrak

One-Click Information

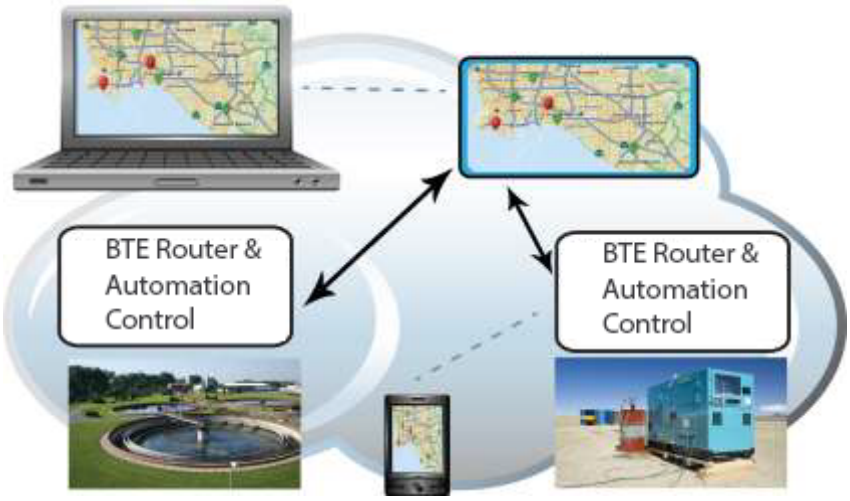
- Geographic Navigation
- Network, Device, Location Status

Graphical Drill-Down

- Device Control
- Application Control

Security – Multi-level Authentication + IPsec

Rapid Development – Hours not weeks



The BTE Router is an intelligent device capable of managing its own day-to-day operations and raise flags when exceptions occur. BTE's CloudTrak monitors the summary status of all network elements and provides the navigation to assist operations personnel in quickly identifying and correcting the endpoints in fault.

BTE's CloudTrak and BTE Routers provide confidence that your network is running smooth while efficiently managing the small number of endpoints that are not performing as expected

Beyond The Edge Networks

BTE Networks Complete Solution

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BTE Networks Controllers

A BTE Networks Controller is a complete entry-level automation and monitoring control unit packaged in a secure, weatherproof NEMA 4X enclosure. It provides all of the communications, logic, discrete IO, and Modbus I/O interfaces needed to manage and monitor a remote installation, interface with CloudTrak, and provide application defined alarms and management reports. The BTE Networks controller is delivered ready to install and can be factory configured with a range of pre-built applications and any customization defined in a customer specific Feature Pack.

BTE Networks Controller—BTES01

- 4G/LTE communications with 3G fallback, field programmable for all North American carriers
- VPN ready communications
- Bi-directional SMS capability
- One (1) discrete digital input
- One (1) Analog input
- One (1) discrete digital output
- Modbus control for all register types
- Unlimited virtual I/O
- All assigned I/O fully integrated with the installed automation application
- Low voltage DC input power
- Two (2) internal antennas

The BTE Networks Controller has arrived!

Beyond The Edge Networks

BTE Networks Complete Solution

www.btenetworks.com

BTE Networks Controller—BTES02

The BTES02 offers a range of AC and DC power options and comes equipped with battery backup. Ideal for an installation with more complex requirements.

- 4G/LTE communications with 3G fallback, field programmable for all North American carriers
- VPN ready communications
- Bi-directional SMS capability
- Eight (8) programmable multi-function inputs (analog, pulse or digital)
- One (1) analog input
- One (1) digital input
- Nine (9) discrete digital outputs
- Modbus control for all register types
- Unlimited virtual I/O
- All assigned I/O fully integrated with the installed automation application
- Low voltage AC or DC input power
- 1.3 Amp hour battery backup with charging circuitry
- Two (2) internal antennas

The BTE Networks Controller has arrived!

Beyond The Edge
Networks

The Hardware To Make It Go

www.btenetworks.com

The Latest BTE Router - IE8550

BTE's IE8550 is without a doubt the most comprehensive cellular application platform available today.

With its large memory footprint, variety of LAN connections, selection of development tools, and an externally accessible micro-SD socket, the IE8550 is ready to meet your application requirements on three distinct levels.
Out of the box, the IE8550 is a complete cellular router, a single SKU providing communications, security, location, and protocol support.

With an advanced serial PAD feature and BTE's unique suite of SMS maintenance commands it is in a class by itself. Carrier Switching provides on-board support for all North American LTE networks and is accomplished through a simple administrative web screen .

Monitoring and control applications are quickly deployed with BTE's Automation Control, a no-coding, rapid development toolset that gets maintainable solutions to market faster and at a lower cost than legacy PLC approaches. Automation Control is a software PLC type application based on an intuitive, menu based rapid development environment.

The IE8500 Series has arrived!

The Latest BTE Router - IE8550 (continued…)

For specialized applications requiring custom coding BTE supports a downloadable cross-compile development environment, a tested source distribution, and a fully documented tool chain.

The IE8550 is code and application compatible with BTE's IE8500 Ethernet Server. This means that both Automation Control and coded applications developed for wireless networks are easily transferred to wired or hybrid networks. In addition, whether it is operating as a communications device or as an application controller, BTE's CloudTrak system is available to provide a detailed visualization of network,platform, and application operations.

BTE IE8550
Router Feature

- LTE Bands 2,4,5,13,17,25
- HSPA Bands 1,2,4,5,8
- CDMA Bands 0,1,10
- GPRS - Quad Band
- GPS -Active or Passive Antenna
- SMS – MO/MT
- Ethernet, USB (host), USB (client), RS232, RS485
- Micro-SD card slot
- Firewall with TCP/UDP port forwarding
- LAN Addressing - Class C address range
- DIN rail mountable
- Web Based Administration
- Built-in serial PAD – TCP/UDP
- Over-The-Air Updates
- Linux 3.4 OS
- Multiple time source selections
- DC Power – 9 – 24VDC
- Private Labeling Available (Volume Requirements Apply)

Beyond The Edge Networks

The Hardware To Make It Go

www.btenetworks.com

The IE8500 Application Server

BTE's IE8500 Application Server meets your product development needs at the level you choose. Straight out of the box, the IE8500 is a ready-to-use Linux device server, ready to bring your serial and USB devices onto an IP network. The built-in serial PAD feature simplifies the conversion of legacy serial protocols and the externally accessible micro-SD provides vast amounts of economical storage.

Many industrial and commercial applications will be well served by BTE's Automation Control application for the IE8500. This no-coding, rapid development toolset is based on an intuitive menu driven rapid development environment that brings maintainable industrial solutions to market faster and at a lower cost than legacy PLC approaches.
For more advanced applications requiring custom coding, BTE supports a downloadable Linux cross-compile development environment, a tested source distribution, and a fully documented tool chain. The development release supports all of the IE8500's communications interfaces, and because it is Linux, opens the door to the wealth of open source applications and utilities available.

The IE8500 is code and application compatible with BTE's IE8550 Cellular Application Server. This means that both Automation Control and coded applications developed for wired networks are easily transferred to wireless or hybrid networks.

The IE8500 Series has arrived!

The IE8812 Multifunction I/O Module

BTE's multifunction I/O module provides the flexibility required to serve a wide range of analog and digital input requirements and industrial rated output control to manage everything from indicator lamps to motor start/stop operations, all under the Automation Control application.

The model IE8812 is an RS485 controlled module that has 8 digital/PCM outputs and 8 digital/analog/pulse inputs. RS485 addressing and the functioning of each individual pin is established under program control by the Automation Control application. Pull-up circuitry can be connected to each input or left open for analog or pulse inputs. Daisy chain power and communications connections are provided to support multiple I/O modules or other RS485 devices.

BTE's IE8812 I/O module can be easily interfaced with almost any industry standard sensor including: 0 – 5VDC, 4 – 20 ma current loop or 0 – 10VDC as required.

Detailed specifications at the end of the document

Beyond The Edge Networks

The Hardware To Make It Go

www.btenetworks.com

The W1401 PowerMinder

Cellular communications and automation equipment is often located well beyond the reach of the power grid; deployed on solar/battery installations. PowerMinder significantly reduces power consumption in selected BTE Router models by managing a schedule of when the BTE Router will be actively connected to the network and when it can be placed in a low power standby mode of operation. Designers of solar and battery powered applications will find this feature particularly useful to minimize the solar panel and battery requirements at each remote site.

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BTE Router Applications ECPlus

www.btenetworks.com

EC-Plus

From factory floor commissioning through the latest over-the-air firmware update, ECPlus provides cost saving solutions that span the entire life cycle of a cellular installation. In short, ECPlus addresses the unseen portion of the total cost of ownership iceberg; the OPEX piece. So what is in ECPlus?

Screen Editor – Provides a user-friendly tool to modify system and application control parameters and to get a quick view of the various log files.

LAN Device Status - Allows users to issue and monitor an ICMP ping command sent to a connected device on the LAN side or to any public IP address over the WAN. This tool allows users to easily verify LAN integrity and the responsiveness of a connected device through a web screen. It is an easy and useful tool for installation and service personnel.

WAN Usage Tracking – This feature tracks the amount of data transmitted and received over the cellular network. It also provides alarm thresholds and responses on a per-billing cycle basis. If optioned to do so, it can even turn off your data transmission until the source of an overrun is determined. Alarms are transmitted by email and SMS. Units that are disabled can also be re-enabled using an SMS command. Avoiding overrun on limited data plans can easily save you hundreds and even thousands of dollars a month.

Logging Facilities – The network logging feature records important network parameter changes such as RSSI, service type, SSID, IP address and others with a network time which allows for easy alignment with Network Operator log files. A web based interface simplifies log review. It is an invaluable feature for troubleshooting difficult or intermittent network problems.

Advanced Port Forwarding – This feature augments the standard port forwarding facility of the BTE Router by providing a mechanism to either route multiple ports to a single LAN address or to route a sequential range of input ports to a sequential range of LAN addresses. The benefit is that it simplifies port forwarding for complex configurations.

PowerMinder – PowerMinder provides the scheduling feature that controls the wake/sleep schedule for BTE's W1401 PowerMinder control unit. PowerMinder allows the Router to sleep in an ultra-low power mode until it is scheduled to wake up and transmit. PowerMinder can dramatically reduce power consumption for solar/battery installations.

If you're serious about reducing the operational costs of managing cellular endpoints, ECPlus is the toolset you need

Beyond The Edge Networks

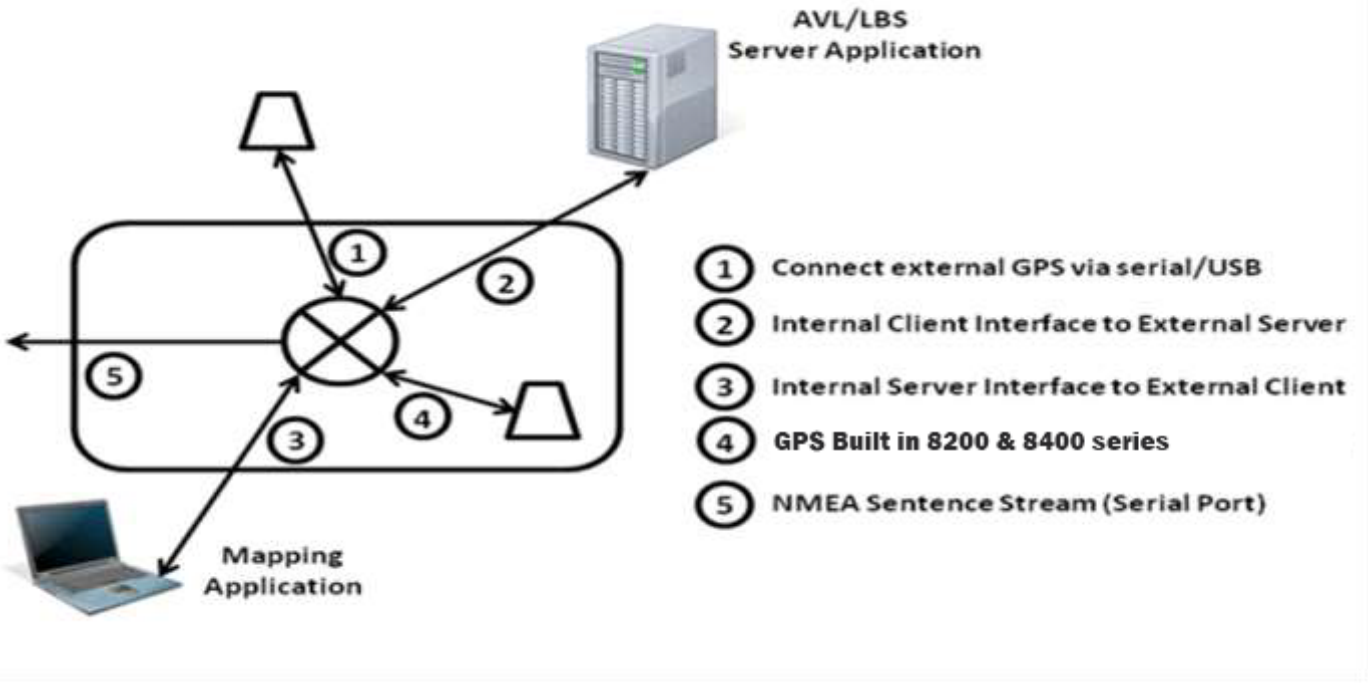
BTE Router Applications
Navigation Services

www.btenetworks.com

Navigation Services

BTE's Navigation Services application is a general purpose GPS tracking application that can be installed on any BTE Router. When installed, the application is administered from BTE Router's Application environment using a web browser. The application operates with the internal GPS capabilities of the IE Series models 8200 and 8400, as well as an external GPS unit on all BTE Routers.

The application is capable of simultaneously updating an AVL server application and a client application such as Microsoft's Streets and Trips or DeLorme. The figure below shows the architecture of a IE8200 using the full set of capabilities available in the Navigation Services application. The application currently supports a number of leading AVL/LBS server applications. Additional server application interfaces are easily produced as required.



A number of leading AVL/LBS server applications are currently supported; additional server application interfaces are easily integrated

Beyond The Edge Networks

BTE Router Applications
INTPlus / Irrigation Control

www.btenetworks.com

INT-Plus

The INTPlus application enables the power of the BTE Router's XML interface for application and/or protocol development. BTE's XML interface provides Read/Write access to all BTE Router parameters and data available through the standard HTML administrative interface. In addition, when the Automation Control application is installed, the XML interface provides Read/Write access to the inputs and outputs defined by Automation Control.

All modern browsers contain an XML parser. By using INTPlus, an application designer can quickly create a web based interface to either the BTE Router internal parameters or a specific Automation Control Configuration.

Irrigation Control

BTE's Irrigation Control application is a BTE Router resident application that controls water irrigation through commercial and residential irrigation systems. The application maintains up to nine daily schedules, each capable of managing up to 45 separate irrigation zones. It monitors an inline flow meter to precisely control the amount of water applied to each zone. Daily reports are transmitted by email. Alarms are issued by both email and SMS.

The Irrigation Application provides turf and maintenance personnel with a set of precision tools to significantly reduce water consumption. In addition, missing and/or blocked sprinkler heads can be quickly identified by analyzing the daily reports.

For more information contact:
BTE Networks Inc.
(844) 800-6387
www.btenetworks.com

Develop application protocols and interfaces using XML with INTPlus and con-trol industrial and commercial irrigation System with BTE's Irrigation Control application

Beyond The Edge Networks

BTE Router Applications
Automation Control

www.btenetworks.com

Automation Control

BTE's Automation Control application is a firmware application available for the BTE IE8200/IE8400 series BTE Router that customers use to create and manage complex logic controlled applications at wireless endpoints. For many people, it is easiest to think of Automation Control as a software PLC residing on a BTE Router.

Automation Control – Key Features	
Industry standard sensors	Digital, Analog, Pulse Inputs
Multi-level thresholds	Digital and analog outputs
Hysteresis Offsets	Edge or level triggers
Sensor calibrations	Adjustable precision
Programmable timers and counters	Precise timing reference
Math Functions	Selective alarms
Boolean Functions	Selective Reports
Virtual I/O	Process GPS values
Remote I/O	Process System Parameters

Automation Control provides the logic and control necessary to create automation applications that evaluate analog, digital, and pulse inputs and control output devices based on the sensor inputs and the sophisticated programming logic provided by the Automation Control application.

While the logic and control functions available within Automation Control provide the power of a PLC, programming is greatly simplified by a menu based rapid development environment presented through a series of web screens. This browser based rapid development environment can be used to create and deploy applications in hours that would normally take many weeks using a conventional PLC.

Day-to-day operation and monitoring of Automation Control applications are provided through a user-defined control panel that labels and displays inputs, outputs, and controlling buttons. The BTE Router's multi-level log-in capabilities makes it possible for operational personnel to have access to the control panel only while application developers have permission to make changes to actual application logic.

Manage complex logic controlled applications, much like a PLC, but without the complicated programming

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BTE Router Applications
CloudTrak

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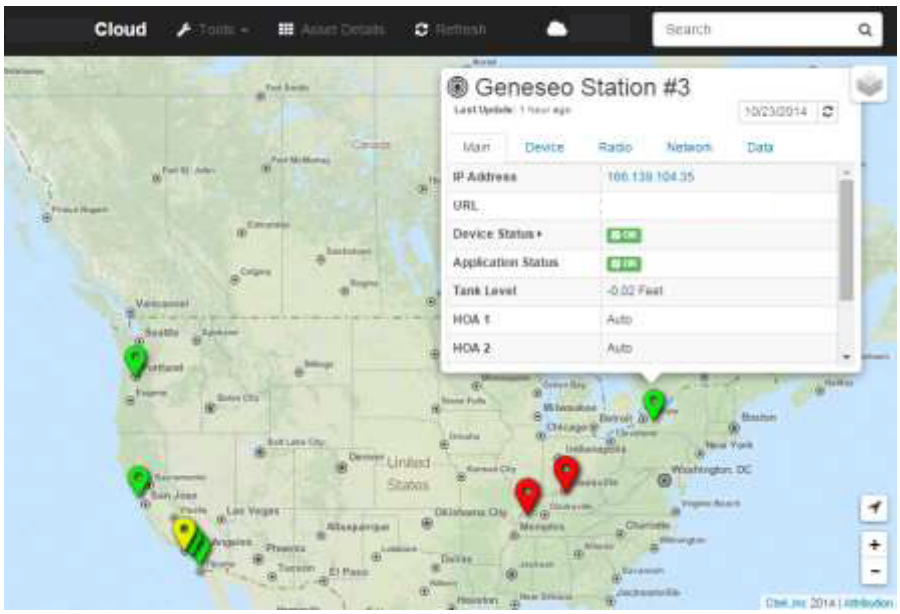
The BTE CloudTrak Service



BTE's CloudTrak stands conventional cloud thinking on its head. Conventional clouds attempt to centralize the device, application, and network knowledge on a server application using layers of abstraction. BTE Cloud uses the intelligence inherent in the endpoint device to update a common presentation mechanism. Endpoint devices continue to operate autonomously while at the same time providing users with a network-wide view of their enterprise.

Key Benefits of Ctek's SkyCloud Architecture	
Intuitive	Navigate to endpoints using a map based paradigm
Reliable	No single point of failure to disable mission critical endpoints
Secure	No single point of ingress to disrupt a network or application
Simple	Add devices from any vendor using a simple XML protocol
Self-Provisioning	A simple registration puts your device in your cloud
Economical	Reporting is by exception and highly configurable
Immediate	Your cloud right now - absolutely no programming required

BTE's Cloud provides you with an end-to-end view of the devices, the networks, and the applications; in short the entire cloud

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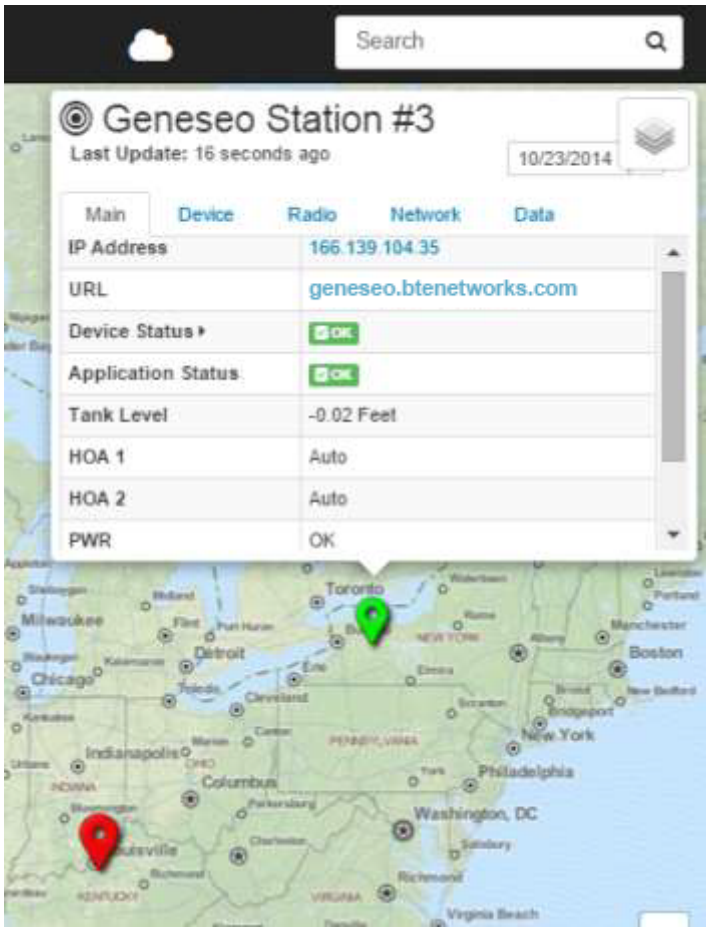
BTE Router Applications Cloud

www.btenetworks.com

BTE CloudTrak users are greeted with a geographical display of pins representing their devices. Pin colors are set by the endpoints and provide a top-level overall view of the health of your network. A single click on any pin displays a pop-up organized with five tabs that are capable of presenting a wealth of knowledge about the device, its application, and the network on which it resides. Application specific attributes provide a simple mechanism for the endpoint to display values and or status.



To facilitate the analysis of network trends or intermittent problems, BTE CloudTrak maintains multi-day history of dynamic parameters that are accessed on the endpoint's pop-up using a calendar. In an era when networks are being continuously re-engineered to accommodate new wireless technologies, this feature helps to eliminate the guesswork in network troubleshooting.

BTE CloudTrak devices are accessible in both a peer-to-peer and a hub and spoke model. Peer-to-peer access is achieved by connecting to any member of the user's cloud and then requesting a cloud-wide view. A hub and spoke (portal) mechanism is provided for networks and customers wishing to provide a BTE CloudTrak view from an existing web site or portal.

BTE CloudTrak provides facilities for networks and/or sales channels to re-brand BTE CloudTrak's visual and reporting features. BTE CloudTrak is available from BTE and our channel partners as a SaaS offering and is also available under license for stand-alone implementations.

BTE's CloudTrak puts your solution on the cloud effortlessly, without programming

Beyond The Edge Networks

Case Studies
The Results That Make The Case

www.btenetworks.com

Wastewater Lift Stations

A BTE Systems Integrator specializes in working with utility companies on a variety of water and wastewater issues. They also work with private developers that are installing water and wastewater infrastructure.

When they began designing the Pump Station Pilot (their next generation lift station product) they selected BTE's Router, Automation Control software, and I/O module to be the basis of their new platform. Using BTE's products, they designed and now manufactures a turn-key lift station product that manages wet well levels by sequencing between 1 and 4 pumps using a wear leveling function provided by BTE's Automation Control. Municipalities using the Pump Station Pilot receive daily spreadsheet reports on the operation of each station, as well as real time alarms on a number of critical events. Municipal wastewater technicians are able to remotely access and control each station to determine the station's status and to address special situations as needed. For their customers the net result has been a higher level of efficiency and a dramatic reduction in the number of truck rolls required. Today, the Pump Station Pilot is deployed at hundreds of locations across four states.

For more information contact:

BTE Networks Inc.
(844) 800-6387
www.btenetworks.com

Beyond The Edge Networks

Case Studies
The Results That Make The Case

www.btenetworks.com

State DOT Signage

A western state's DOT had a requirement to manage highway warning signs in remote mountain pass locations. Since their sign locations were not powered from the grid, they had an additional requirement to minimize the power consumption on these solar/battery powered sites.

BTE's Router, Automation Control, I/O module, and PowerMinder were selected for this project. Using this combination of products, the fully integrated application is capable of turning signage on and off, changing sign messages, and reporting on the installation's status. Using the PowerMinder, DOT personnel were able to establish schedules when the cellular communications would be active and available for management, thereby significantly minimizing the power requirements and solar panel size.

For more information contact:

BTE Networks Inc.
(844) 800-6387
www.btenetworks.com

Beyond The Edge Networks

Case Studies
The Results That Make The Case

www.btenetworks.com

Remote Generator Monitor and Control

When the Department of General Services at one of the nation's largest cities needed to monitor and control hundreds of remote generator assets, they turned to BTE Networks. BTE is a developer of embedded wireless modules, and a resource for premium integration support. BTE is also an industry leader in delivering wireless products, services, and solutions to the emerging machine-to-machine industry.

BTE provided the city with a turn-key solution using BTE's Router, Automation Control software, and I/O module. Current deployments of the Generator Monitoring Solution offers real-time alerts to notify city officials when a generator is in operation or in fault as the result of the engine block temperature, oil pressure, battery voltage, or main breaker fault. In addition, the solution monitors service door access, GPS location, and most importantly current fuel levels. Reporting and accumulating these exception alerts provides city officials with the necessary data to make intelligent decisions to dispatch employees to service equipment, deliver fuel, and maintain equipment health. Each monitoring unit also offers an emergency communications alert in the event city employees need immediate attention at any of the generator locations.

Remote Generator Monitor and Control (Continued…)

Every municipality, regardless of its size, is faced with the same challenges when it comes to addressing the critical needs of their community during a natural disaster or a power outage. Maintaining visibility into their backbone infrastructure, most importantly the communication systems of the local police, fire departments, and city officials is dependent upon emergency backup power generators.

All municipalities should expect the following benefits from a DCS Generator Monitoring Solution.

- Reduced number of truck roll outs saving time and money.
- Immediate alerts when a generators fail to operate
- Notification when generators are operating
- Fuel level status to determine and schedule fuel deliveries
- Preventative maintenance visibility of operating hours, low battery voltage, etc.

For more information contact:
BTE Networks Inc.
(844) 800-6387
www.btenetworks.com

Beyond The Edge Networks

BTE Router IE8500 Specifications Sheet

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LAN—Physical

- 1x Ethernet 1/100 - (RJ45)
- 1x RS232 (terminal block)
- 2x RS485 (terminal block)
- 1x USB Host—Full speed (Type A)
- 1x USB Client/Host—High speed (micro) supports RNDIS/EEM/ECM

Discrete I/O

- 1x Digital Input - 1x Analog input - 1x Digital Output - I/O Module Expansion Available

Storage

- Micro SD connection (externally accessible)

Platform

- OS – Linux 3.16.X
- Processor - ARM9 (Atmel)
- Memory (RAM) – 128 MB
- Memory (Flash) – 256 MB

Power and Environmental

- Operating and Storage Temperature Range - -30C to +70C - Humidity 90% non-condensing
- Input Power - 9 - 24 VDC

Dimensions

- 5.48"L x 4.72"W x 1.45"H.

Weight

- 10oz without wall power adapter

Beyond The Edge Networks

BTE Router IE8550 Specifications Sheet

www.btenetworks.com

WAN-Physical

- SMA Antenna Connector (x2 for diversity)

LAN—Physical

- 1x Ethernet 1/100 - (RJ45)
- 1x RS232 (terminal block)
- 2x RS485 (terminal block)
- 1x USB Host—Full speed (ype A)
- 1x USB Client/Host—High speed (micro) supports RNDIS/EEM/ECM

Wireless Frequencies

4G/LTE

- 700MHz (B13) (B17)
- 850MHz (B5)
- AWS (B4)
- 1900 (B2) (B25)

3G/WCDMA

- 850 MHz (B5)
- 900 (B8)
- AWS (B4)
- 1900 (B2)
- 2100 (B1)

3G/CDMA (1xRTT/EVDO)

- 800 MHz (BC0)
- 900 (BC10)
- AWS (BC1)

Location

- GPS/Glonass

SMS

- MO/MT

Discrete I/O

- 1x Digital Input - 1x Analog input - 1x Digital Output - I/O Module Expansion Available

Storage

- Micro SD connection (externally accessible)

Platform

- OS – Linux 3.16.X
- Processor - ARM9 (Atmel)
- Memory (RAM) – 128 MB
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- Operating and Storage Temperature Range - -30C to +70C - Humidity 90% non-condensing
- Input Power - 9 - 24 VDC

Dimensions

- 5.48"L x 4.72"W x 1.45"H.

Weight

- 10oz without wall power adapter

Beyond The Edge Networks

IE8812 I/O Module Specifications Sheet

www.btenetworks.com

Module General Specifications

Power - 6 - 24VDC (external source)

Control Interface - RS485 2 wire

Power Consumption - 100 ma excluding active outputs

Dimensions - 7.2 (with mounting tabs) X 4.0 X 1.5 inches

Environmental:

Temperature - minus 30 to plus 70 C

Humidity - less than 90% non-condensing

I/O Specifications

Configuration - I/O controller with eight open collector outputs and eight multi-mode inputs rated at 30 volts maximum that can be individually configured for pulse counting, digital inputs, or analog inputs.

Common Input Specifications

Maximum Input Voltage - 30 volts

Input Logic - Low <1 volt; High >4 volts

Sample Rate - 512 Hz

Pulse Inputs:

Minimum Pulse width - 3 msec

Maximum Pulse Count Stored between reads - 32767

Analog Inputs:

Analog Input Measurable Range - 0 - 5 volts

Analog Read Frequency - 20 Hz

Analog Input A/D Conversion - 12 bit with 10 mV offset

Digital Outputs:

Open Collector Output Rating - 30 volts 350 ma single output, 250 ma with all outputs on

Maximum Update Frequency - 60 Hz

Pulse Width Modulation - 7.8 KHz, 8 bit resolution