4G LTE | Quick Solution Guide

BEC TECHNOLOGIES

Driving Global Transformation
to a CONNECTED WORLD

Introduction

BEC Technologies is a leading developer and manufacturer of next generation wired & wireless IP networking solutions for mobile operators, residential, enterprise and Industrial markets. BEC's comprehensive product portfolio of solutions incorporate xDSL, FTTH, 3G, 4G/LTE, Fixed Data Routers, VoIP/VoLTE Gateways, Rugged Outdoor, Industrial/M2M Connectivity, Public Safety, Fleet/Telematics and Cloud based remote device management. Our solutions are designed for high availability, reliability and secure connectivity all backed up with class-leading technical service and support.

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4G LTE Product Portfolio

Enterprise Access Router with AT&T Beam

8920AC

Enterprise Multi-Service LTE Routers

6300NEL

AT&T verizon T-Mobile

6300VNL

6500AEL

Outdoor 4G LTE Multi-Band Routers

RidgeWave 6900

RidgeWave 6950/6955

M2M/IoT Multi-function Multi-carrier LTE Routers

AT&T verizon

MX-200

MX-650

AT&T

MX-1000

Tools for Rapid Deployment and Management

Mobile Management App

BECloud

Cloud based Management System

Benefits of BEC 4G LTE Products

1 Advanced Fixed-Wireless Antenna Technology

BEC's Indoor LTE routers incorporate the SX Series Antenna Technology, delivering up to a 40% increase in signal reception and efficiency, providing dramatically superior range and optimized network capacity. Operators can slash operational costs by eliminating the need for external antennas.

BEC's Outdoor 4G LTE routers employ a unique dual-polarized wide beam width panel antenna with low cross polarization and high isolation, specifically for fixed wireless broadband applications. BEC's Dual Polarized Multiple MIMO antenna technology allows service providers to offer services whether the application is LOS (Line of Sight) or NLOS (Non-Line on Sight).

2 High Availability and Network Resilience

Normally found only in enterprise-class solutions, the BEC Indoor LTE Routers provide Multi-WAN connectivity and Auto failover functionality to ensure maximum connectivity and minimum service interruption. This feature provides seamless automatic failover with traffic prioritization, automatically route to the secondary WAN interface within seconds, in the event of a connectivity failure of the primary WAN interface and fallback when the primary WAN connection is restored. This functionality operates regardless if the primary connection is LTE or a wired connection such as fiber, Cable or DSL.

3 Integrated VoIP and Advanced Telephony Features

Voice over Internet Protocol (VoIP) is becoming popular among business / SOHO / Home with its flexibility phone coverage and to lower operating costs than traditional PSTN phone lines. BEC VoIP LTE router is equipped with two (2) on-board phone connections with integrated QoS to guarantee excellent quality calls at all time even during heavy data traffic. BEC's VoIP advance outbound features such as Speed Dial Plan provides custom hotkey to store frequently used phone number like dialing an extension number, T.38 / G.711 Fax offer reliable and seamlessly fax over the Internet, and more to extend the outbound calling capabilities. The inbound features include: Call Waiting, 3-way Calling, Caller ID, Call Forwarding, etc., help to manage calls in an easy way and never miss a call.

4 Advanced Quality of Service (QoS) Mechanisms

LTE Quality of Service (QoS) has become an important part of network planning & design when deploying 4G/LTE Fixed broadband wireless for data & voice services. BEC LTE routers support a QoS framework based on the EPS bearer model. Default bearers are supported for best effort services and multiple dedicated bearers using GBR (guaranteed bit rate) resource types and QoS class of identifiers (QCI) are supported for real-time voice and video applications that require dedicated network resources. BEC's comprehensive QoS capabilities, leverage IP QoS concepts and standards such as DiffServ along with the LTE QoS framework to achieve the best QoE (Quality of Experience) for each subscriber.

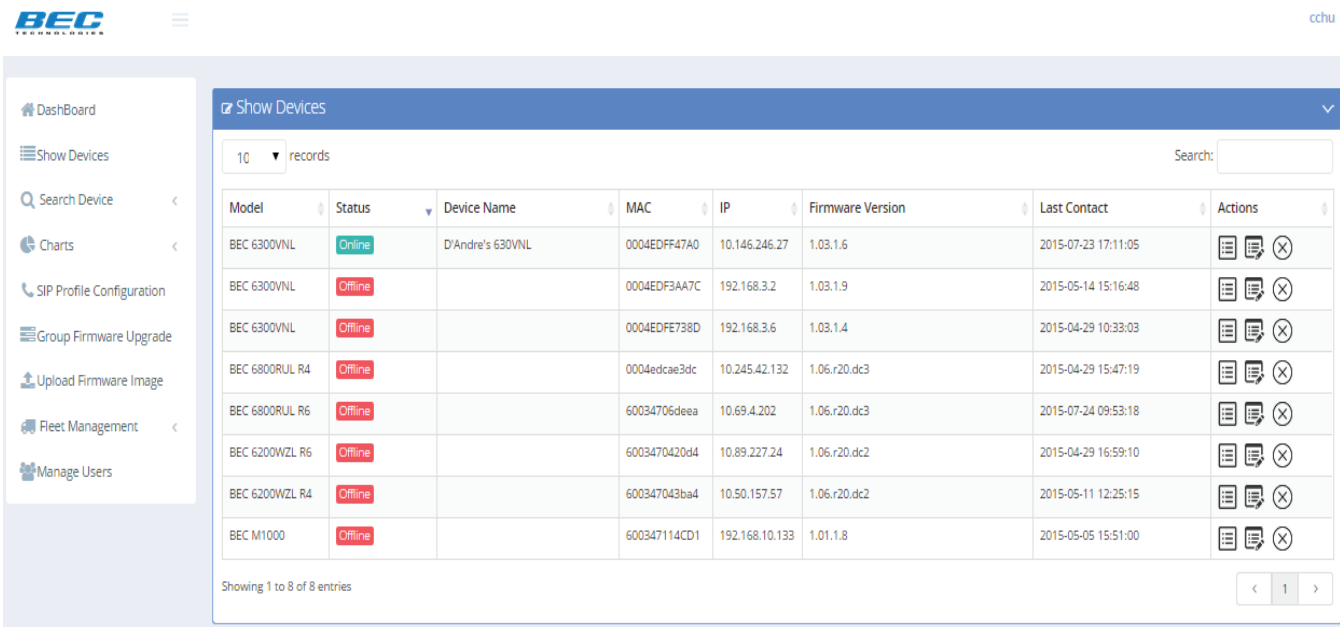
5 IPv6, the Path to the Future

Implementation of IPv6 is growing significantly and multiple transition methods are required to support the coexistence and migration from IPv4. With BEC IPv6 enabled devices, service providers easily adapt IPv6 and expand in scope and size of their network.

BEC LTE Remote Management System

Cloud-Based
LTE Remote Management System

BEC's LTE Remote Management System (LCMS) is a centralized management platform designed to offer Service Providers remote access and management of BEC LTE Fixed routers, VoIP gateways, Outdoor LTE routers and M2M modem multi-service gateways. With its comprehensive management tools, the BEC LCMS can minimize deployment, lower support expenses and maximize the operational efficiency and profitability for a service provider.



A Value Added Feature of BEC Products

Designed to allow BEC's customers to enjoy the benefits of remote CPE management without hefty expensive server and software integration costs or extensive training. BEC LCMS has an ease-of-use graphic user interface and is ready to use. The BEC LCMS is available for purchase to all customers who purchased models within the following product series: 6200WZL, 6300VNL, 6500AEL, RidgeWave 6900 Series and the MXConnect Series.

Remote CPE Configuration

BEC LCMS provides access to critical information for LTE network diagnostics and troubleshooting, such as: signal quality measurements (RSSI, RSRP, RSRQ and SINR), network status/APN, location ID and Cell ID. Additionally, service providers have the ability to remotely configure the LAN settings such as IP address, DHCP address, DNS server, etc. This will help the technical support staff to quickly determine LAN side issues reported by subscribers. BEC LRMS also provides advance functionality to configure the subscriber's wireless LAN settings, particularly helpful when addressing wireless security configuration.

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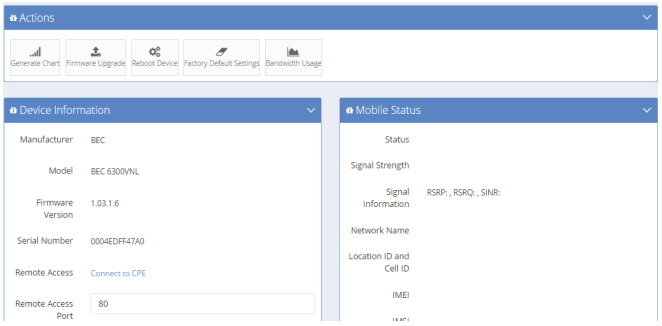
BECloud
Cloud-Based
LTE Remote Management System

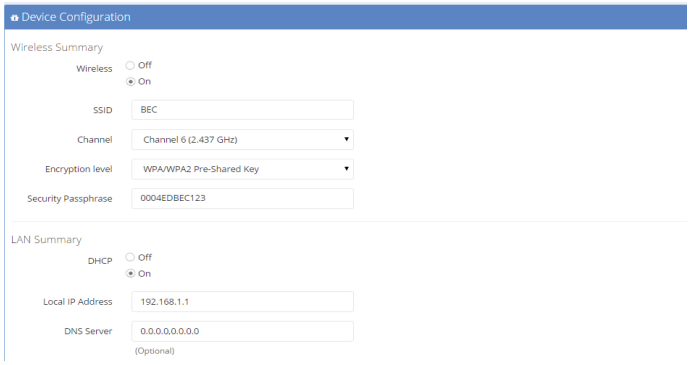
Service Upgrade and Maintenance

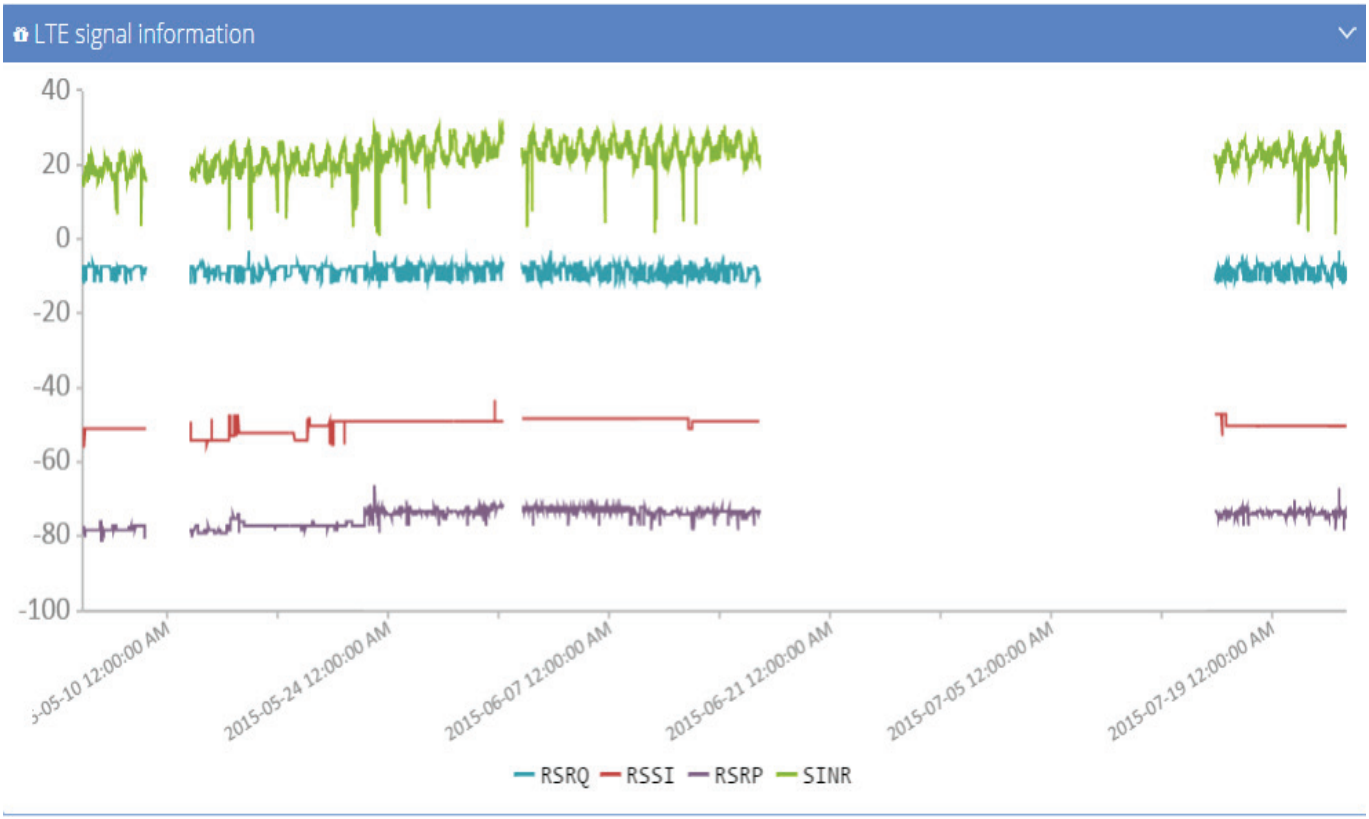
BEC LCMS can perform firmware or configuration upgrades in real time. With access to their private firmware management folder on the server, service providers can store and manage custom firmware releases and configuration files specific for each of their broadband service offerings.

CPE Diagnosis and Service Monitoring

With the diagnostic features provided in the BEC LCMS service providers can retrieve real time connection data to troubleshoot issues with the quality of service reported. Technical support staff can easily perform IP ping tests and reboot the subscriber's CPE for troubleshooting purposes.

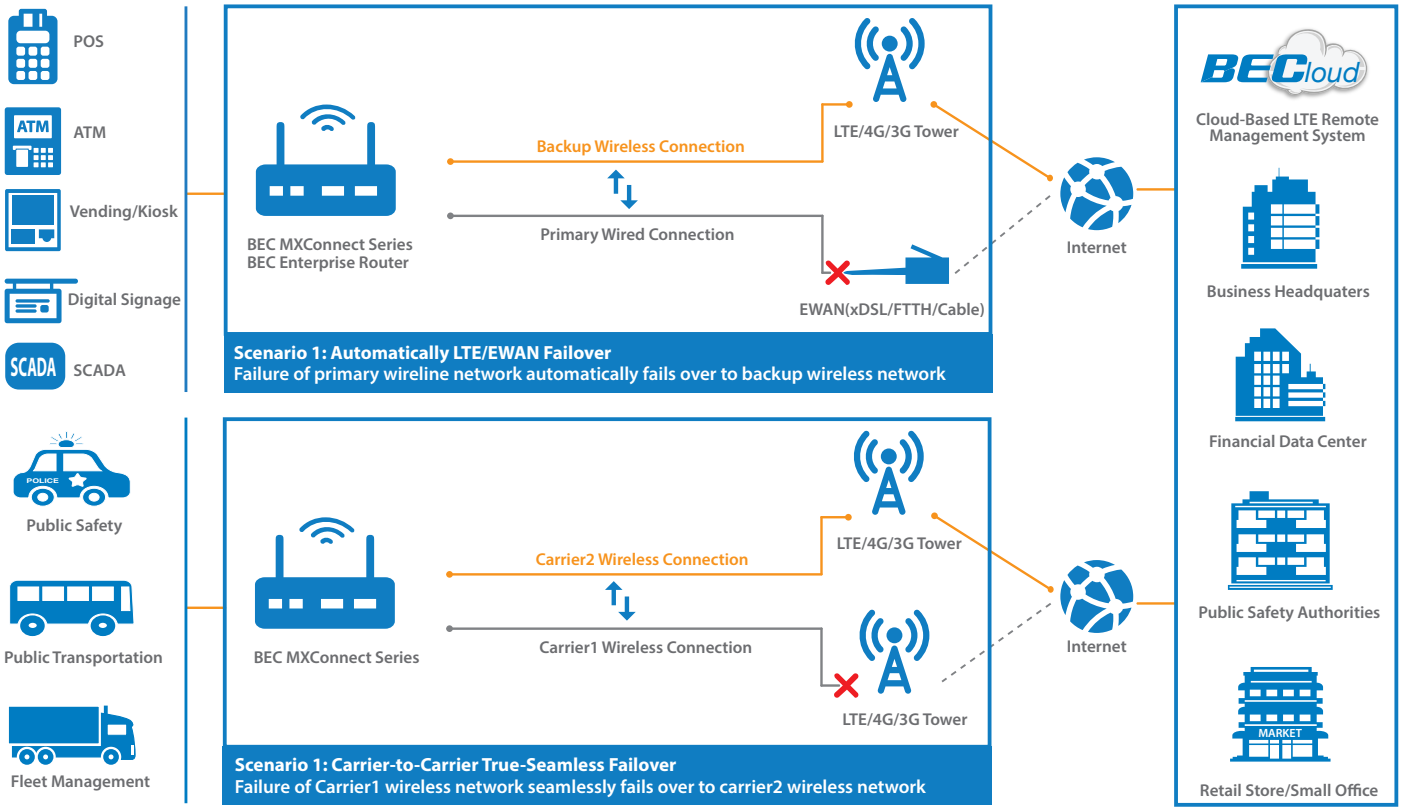




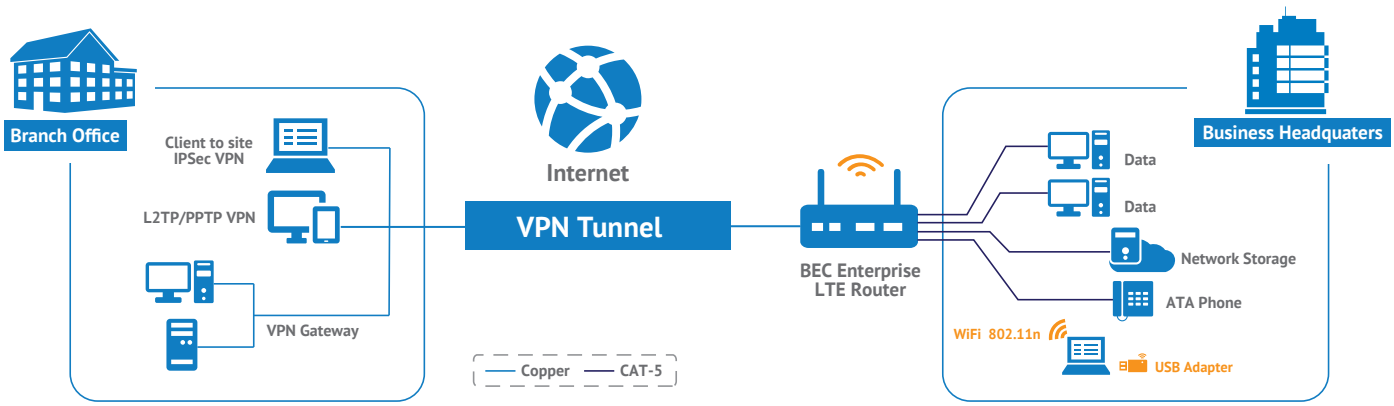


4G LTE Product Applications

Mission Critial Communication and Enterprise Failover Service



VPN Branch Office Connectivity Solution



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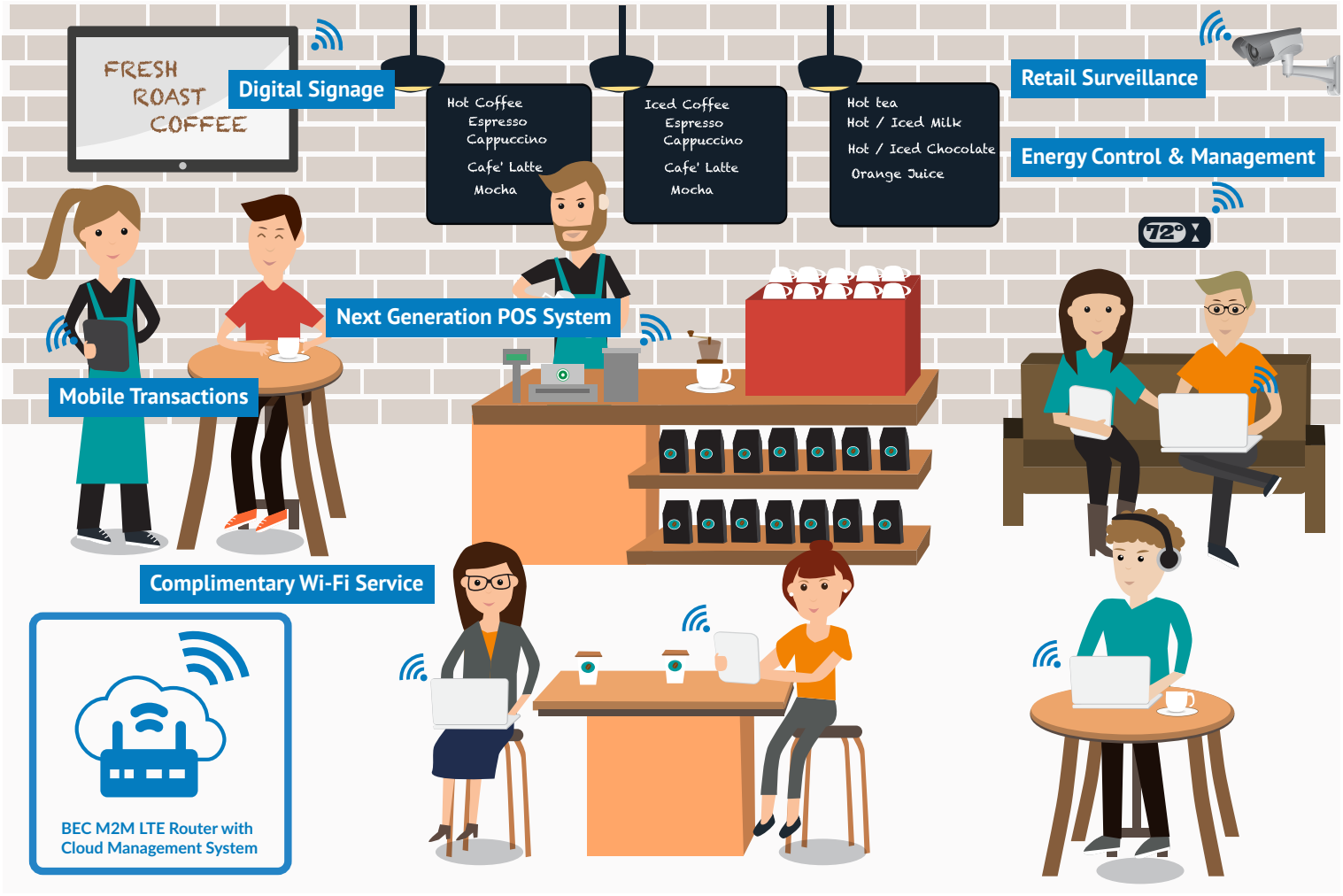
Retail Business Connectivity Solutions



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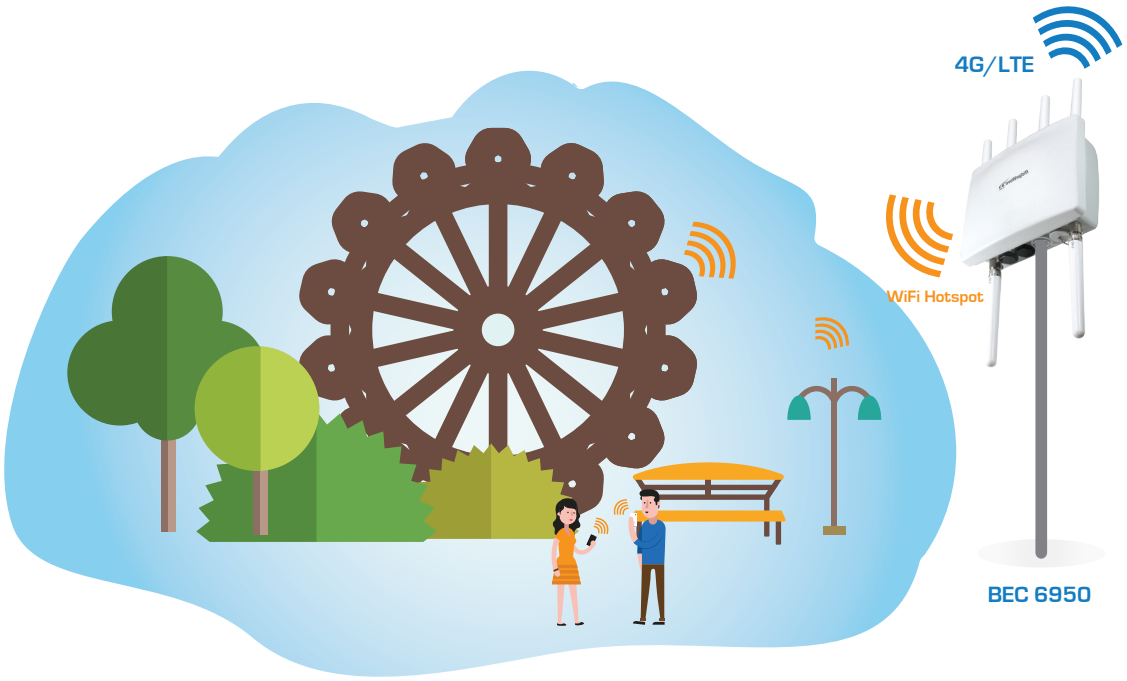
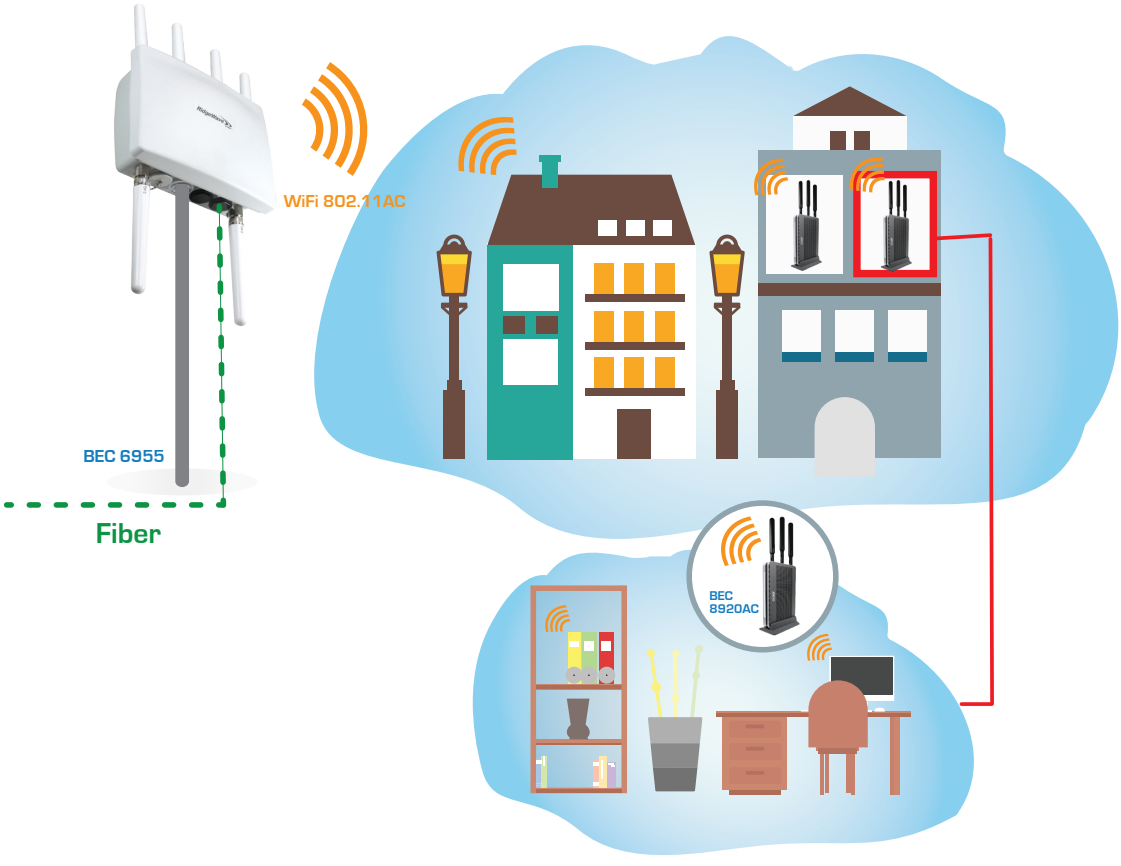
Wireless Gigabit Community-Based Broadband Connectivity Solutions



Urban Space/Public Park



MDU/MTU Broadband Service

Quick Product Overview

4G LTE Enterprise Router
with SX Antenna Technology and VoIP

BEC 6300NEL
BEC 6300VNL

AT&T verizon T-Mobile

- Frequency Bands: Support for most North America and Global LTE bands (FDD , TDD & 3G fallback options)
- Automatic failover between 4G Cellular and/or Ethernet WAN for network resilience
- Multi APN Service Selection and Service Management
- Advanced Quality of Service (QoS) Framework
- Enterprise Dynamic Routing and Secured VPNs
- Integrated VoIP and Advanced Telephony Features
- Carrier-Grade Wireless LAN with mSSID
- 4-Port Gigabit Switch
- SPI Firewall Security, DDoS and Packet Filtering
- Redundant Power Terminal for optional Battery Backup
- Management via HTTP, Telnet, SNMP and BEC LCMS

4G LTE Enterprise Router
with SX Antenna Technology and Hotspot

BEC 6500AEL

- Frequency Bands: Support for most North America and Global LTE bands (FDD , TDD & 3G fallback options)
- Automatic failover between 4G Cellular and/or Ethernet WAN for network resilience
- Multi APN Service Selection and Service Management
- Advanced Quality of Service (QoS) Framework
- Enterprise Dynamic Routing and Secured VPNs
- Carrier-Grade Wireless LAN with mSSID
- 802.11ac Wi-Fi Hotspot with Captive Portal
- Simultaneous Dual Band Wi-Fi (2.4 & 5GHz)
- Compatible with IEEE 802.11a/b/g/n
- 4-Port Gigabit Switch
- SPI Firewall Security, DDoS and Packet Filtering
- Management via HTTP, Telnet, SNMP and BEC LCMS

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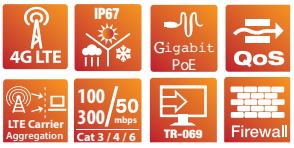
Outdoor 4G/LTE Wideband Router

Broadband Access without Boundaries

RidgeWave 6900

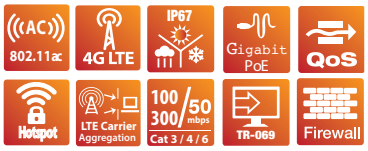


- Frequency Bands: Support for most North America and Global LTE bands (FDD , TDD & 3G fallback options)
- BEC SX-Series Wideband Multi-Element Adaptive Antenna
- Lightweight, compact and unobtrusive design
- Gigabit LAN Interface with IEEE 802.3at complaint PoE P.D
- Extended temperature range between -40°C to 60°C
- Precise alignment achievable with multi-angel, multi-position mount brackets
- Industrial-grade IP67 enclosure for hash weather conditions
- Management via HTTP, Telnet, SNMP and BEC LCMS

Outdoor 4G/LTE Router with Hotspot

Broadband Access without Boundaries

RidgeWave 6950
RidgeWave 6955



- Frequency Bands: Support for most North America and Global LTE bands (FDD , TDD & 3G fallback options)
- BEC SX-Series Wideband Multi-Element Adaptive Antenna (6950)
- (2) Gigabit LAN Interface with IEEE 802.3at complaint PoE P.D
- Carrier grade 802.11ac Wi-Fi Hotspot with Captive Portal
- Simultaneous Dual Band Wi-Fi (2.4 & 5GHz)
- 802.11ac (Wave II) MU-MIMO
- Compatible with IEEE 802.11a/b/g/n
- Extended temperature range between -40°C to 60°C
- Industrial-grade IP67 enclosure for hash weather conditions
- Management via HTTP, Telnet, SNMP and BEC LCMS

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MXConnect Series

Advanced Industrial 4G/LTE Router

BEC MX-200

AT&T verizon

- Frequency Bands: Support for most North America and Global LTE bands (FDD , TDD & 3G fallback options)
- Automatic failover for network resilience
- 2-Port Gigabit Switch (Multiple LAN/WAN Configuration)
- RS-232 Interface for serial to IP applications
- Multi APN Service Selection and Service Management
- Advanced Quality of Service (QoS) Framework
- Enterprise Dynamic Routing and Secured VPNs
- Ultra-Compact Design (fits in palm of hand)
- Flexible input voltage (9V-56V) and extended temp range
- Management via HTTP, Telnet, SNMP and BEC LCMS

Targeted applications: Enterprise, Business Continuity, SCADA, Metering, Digital Signage, Remote Surveillance, ATMs, Vending Machines and Retail Point-of-Sales (PoS).

MXConnect Series

Smart Industrial 4G/LTE Universal Router

BEC MX-650

- Frequency Bands: Support for most North America and Global LTE bands (FDD , TDD & 3G fallback options)
- Automatic failover for network resilience
- ZigBee IEEE 802.15.4 / ZigBee PRO compliant
- 4-Port Gigabit Switch
- RS-485 Serial Interface, Configurable GPIO x 8 (DB15)
- Multi APN Service Selection and Service Management
- Advanced Quality of Service (QoS) Framework
- Enterprise Dynamic Routing and Secured VPNs
- Management via HTTP, Telnet, SNMP and BEC LCMS

Targeted applications: Building Control, Power & Energy Management, Smart Homes, Smart Grid, Digital Signage, SCADA

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MXConnect Series

Multi-Carrier 4G/LTE Router

BEC MX-1000

AT&T

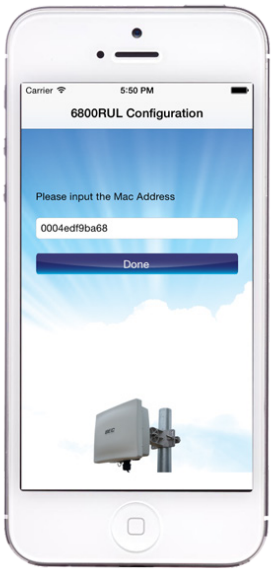
- Frequency Bands: Support for most North America and Global LTE bands (FDD , TDD & 3G fallback options)
- Multi Carrier Multi Radio for Concurrent Connectivity, True-Seamless Failover and Load Balancing
- 4-Port Gigabit Switch
- Carrier grade 802.11n Wi-Fi Hotspot with Captive Portal
- High performance GPS with concurrent-multi-GNSS engine
- Multi APN Service Selection and Service Management
- Advanced Quality of Service (QoS) Framework
- Enterprise Dynamic Routing and Secured VPNs
- Intelligent Ignition Sensing for In-vehicle applications
- Management via HTTP, Telnet, SNMP and BEC LCMS

Targeted applications: Enterprise, Business Continuity, Logistics/Transportation and Fleet, Public Safety/FirstNet

BEC SiteSmart Mobile Management App

Router Management in the Palm of Your Hand

Available on iOS and Android



The BEC SiteSmart Mobile Application is the mobile management utility for BEC LTE Multi-Service Gateways. The application is designed for technicians or installers who no longer want to be tethered to a desktop/laptop to access the gateways LAN interface.

- Site Installation Aides for Rapid
  -Deployment Cell Tower ID Display
  -Signal Assessment (Status, Signal Strength)
  -Network Information (Mode, Band)
  -IMEI, MSI and Firmware Details
- Access/Edit Wi-Fi Configuration
- Monitor Connected Network Devices
- View Device Status Information

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