

# IRG5140+ Cellular LTE Router

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 [perle.com/products/routers-gateways/irg5140-cellular-lte-routers.shtml](http://perle.com/products/routers-gateways/irg5140-cellular-lte-routers.shtml)

## Enterprise-Class Edge Cellular Router

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- LTE Router for Primary or Failover Connectivity
- Out of band management for remote troubleshooting
- LTE-A Pro for 10x faster downlink speeds and 3x faster uplink speeds
- Cloud Hosting -- Deploy and manage your network from the cloud
- 4-port 10/100/1000 Ethernet
- Network connectivity via LTE, Ethernet, and USB 3.2
- Advanced feature set with NO Annual Fees



**The Perle IRG5140+ LTE Router** has the most comprehensive set of features, functionality, and performance to provide **primary or failover back-up connectivity** to remote infrastructure and assets. This DIN Rail mountable, rugged, high-performance Cellular Router, with dual-SIM slots, is easily deployed with no need for training because of the intuitive web GUI. For advanced admin scrips, CLI commands are also available.

The IRG5140+ LTE Router provides fast and reliable network connectivity where wired options are impossible to deploy or require a backup. This is crucial for enabling a wide range of applications while ensuring the highest degree of security to protect the integrity of critical services. Reduce the cost of downtime and service calls, and bringing distributed sites online faster. With support for **Data, SMS, Voice, and Video**, the IRG5140+ can be integrated into any enterprise cloud, building, industrial, or mobile location network infrastructure.

- Building and process automation controllers, Internet of Things (IoT)
- Smart grid assets (meters, switches, controllers), Telco infrastructure controllers
- SCADA, Distribution management systems, Remote data loggers, flow meters, sensing equipment
- Digital signage, ATMs, POS, Kiosks, Temporary "pop-up" stores
- Video surveillance, Mobile hotspots
- Fleet management, GPS/GNSS Location tracking, Taxis, vehicle area networking (VAN)
- Transit systems, Buses, Metro Subways, Railways

## Cellular Band Operation Certified Worldwide over 4G LTE, DC-HSPA+, HSPA+, HSPA, and UMTS (WCDMA)

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The Perle IRG5140+ Router is LTE-A PRO CAT12 with 600Mbps downlink and 150Mbps uplink speeds. 24x LTE Bands and 9x UMTS/WCDMA Bands are support for extensive carrier compatibility.

## An Edge Router with Enterprise-Grade Routing Capabilities

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Perle does not charge any annual subscription or license fees to maintain operation, download software updates, or access features. The IRG5140+ router has all the of the advance routing functionality found in the most advanced enterprise routers. **Extensive protocol routing support** means it can be easily deployed in hierarchical or large mesh network structures. A fast CPU and lots of memory ensure the router can handle a consistent and heavy workload all day long.



- RIP, RIPv2, RIPv6, OSPFv1/2/3, BGP-4, VRRP
- When BGP peering with multiple ISPs, the IRG5140 delivers carrier-grade routing performance that is capable of handling the full internet routing table
- IPv4 & IPv6
- OpenVPN & IPSec VPN
- DHCP & DHCPv6
- IP Passthrough for deployments requiring the router to operate in Gateway or Bridge mode
- Route between any interface (LTE, Ethernet, or USB)
- Reduce unwanted network traffic by creating collision and/or broadcast domains



## Integrated Zone-Based Policy Firewall

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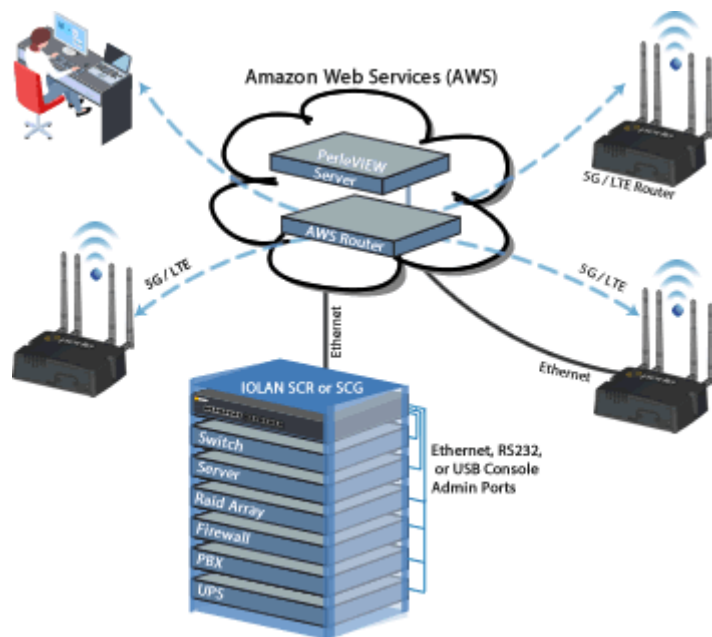
The IRG5140 built-in firewall offers intuitive policies for multiple-interface routers to **protect inside networks from unauthorized access** by users on an outside network. The firewall also protects inside networks from each other, for example, by keeping a human resources network separate from a user network. If there are network resources that need to be available to an outside user, such as a web or FTP server, these resources can be placed on a separate network behind the firewall, in a demilitarized zone (DMZ). The firewall will allow limited access to the DMZ, but because the DMZ only includes the public servers, any attacks there will not affect the inside network. The firewall controls when inside users access outside networks (for example, access to the Internet), by allowing only certain addresses out, by requiring authentication or authorization, or by coordinating with an external URL filtering server. A deny-all (blacklist) policy can be used to prohibit traffic between firewall security zones until an explicit policy is applied to allow desirable traffic. Router ports are assigned to zones and firewall inspection policies are applied to traffic moving between the zones. Firewall inter-zone policies come with considerable flexibility and granularity so that different firewall inspection policies can be applied to the same router port.

## High Availability Access and Enhanced Security with 2 Factor Authentication

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With multiple concurrent VPN sessions and 2 Factor Authentication, Perle IRG5140+ LTE Routers enable secure communications to multiple back-end systems.

- Remote authentication (RADIUS, TACACS+, LDAP) management, integrates with enterprise-grade systems to control access to devices in the field.
- Software image CRC control protects the software upgrade process against unwanted software corruption and malware
- High-speed OpenVPN, IP Security (IPsec), Triple Data Encryption Standard (3DES), and Advanced Encryption Standard (AES) encryption for data privacy over the Internet.
- Intrusion prevention enforces security policies in a large enterprise or service provider networks.
- Perle's cloud-based centralized management solution puts all your network and IT infrastructure into a single application and provides secure reliable access and visibility during normal operations and critical network failures. Scalable to suit any business requirement, [Cloud Centralized Management](#) reduces human error and guarantees repeatability.



## GPS / Global Navigation Satellite System (GNSS) Included

GPS and GNSS (Galileo, Glonass, and Beidou) are included by default in the IRG5140+ Router. This enables **real-time location tracking** of remote assets. Also, you can get **real-time network clock updates** in the router, or any attached equipment, for accurate time-stamp usage in time-sensitive applications.

## Cutting-edge design certified for a wide range of deployment scenarios

High-performance components and features enable customers to take advantage of broadband network speeds while running **secure concurrent data, voice, and video services**. The IRG5140+ router has **high MTBF rates** because it is developed with certified high-end components to provide superior reliability and uninterrupted operation.

### Primary or failover back-up connectivity

Perle is the only company to offer LTE edge routers with all of the enterprise-grade features and protocols needed to be a fully functional primary or failover back-up LTE Router. If the main network connection goes down for any reason, the Perle IRG5140+ router provides an always-on, cost-effective redundant connection. The relatively low cost of LTE for branch continuity means a greater return on investment and scalability for multiple locations. Simply put, an IRG5140 LTE Router ensures maximum uptime, cost-effective scalability, and ease of deployment and management with limited IT resources.

### Compact light-weight design

Deploy in many different environments where space, heat dissipation, and low power consumption are critical factors. The native DIN-Rail mounting bracket ensures easy installation.

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**Rugged Environment Certifications**

- Corrosion resistant metal case with an IP20 ingress protection rating
- Shock and vibration resistance certified to MIL-STD-810G, SAE J1455 & EN 61373
- Hazloc per IECEx/IECx, ATEX, & ANSI/ISA Class 1 Div 2
- -40°C to +70°C operating temperature

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**Railway Deployment**

The Perle IRG5140 LTE Router is fully approved and certified for Railway rolling stock application deployments. It is perfectly suited for installation directly in the train or subway cabin, or the enclosures found in metro tunnels and alongside rail tracks.

- European Certifications EN50155 & EN50121
- International Certifications IEC60571 & IEC62236
- Cellular tower connectivity can be established and maintained at up to 100 meters per second (360km/224mi per hour)

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**Dual-SIM LTE Failover for true Business Continuity**

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The Perle IRG5140+ Router comes with redundant SIM slots to ensure reliable network connectivity and cellular multihoming support in LTE and HSPA-based networks. This is particularly useful:

- When the primary carrier contract data cap has been exceeded, the IRG5140 will automatically switch over to a back-up data plan.
- When the IRG5140 is deployed in a mobile environment long-distance roaming can be enabled and used.
- When there is a lack of coverage, or carrier network failure, the IRG5140 will automatically switch over to a back-up carrier.

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**More Features and Benefits**

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**WAN Connectivity**

LTE and 10/100/1000 Ethernet

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**Central Management Configuration**

The IRG5140+ Router uses **PerleView**, a web-based server configuration tool that simplifies setup and deployment. Centralized management capabilities give network managers visibility and control over network configurations at remote sites. Other Perle IRG5140+ management capabilities include:

- Fast Setup - Available when the router is in factory default (initial) configuration
- Web Manager - Available using a browser
- CLI - Command Line Interface
- SNMP - Using a Network Management System
- **No ongoing monthly or yearly licensing fees**

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**Software Feature Set: IRG5140 Cellular LTE Routers**

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All features and functionality are included in the base price of the product. There are no additional costs or fees.

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## Functionality

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Gateway (IP Passthrough Bridging), Switching, Routing

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### Routing / Switching Protocols

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IPv4/IPv6, Static Routing, RIP/RIPNg, NAT, OSPFv3, BGP-4, IPv6 Encapsulations (GRE, 6in4), VRRP, Port Routing, STP, MSTP, PPPoE V6, LLDP

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### IP Applications

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DDNS, DNS Proxy / Spoofing, relay, client, Opt. 82,

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NTP & SNTP (versions 1, 2, 3, 4) with support from GPS, GNSS & Network Carrier timing

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DHCP / DHCPv6 server & BOOTP for automated network-based setup

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### VLAN & VPN

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VLAN, IPSec, OpenVPN, VPN Failover (16 concurrent VPN tunnels)

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### GPS & GNSS Reports

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GPS for tracking equipment over RS232, USB, and Ethernet

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NMEA 0183 v3.0, TAIP, CSV

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### LTE Applications

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Private LTE / CBRS - ability to select a specific band for LTE connection

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### Firewall & Security

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Built in Zone-Based Policy Firewall

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Access Control Lists (list & ranges & time)

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Filter based on MAC Address, IP, Port, Protocol, User

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AAA, LDAP, Radius, TACACS+

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802.1x

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Layer 2 MAC address filtering

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Certificate Support (X.509)

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Port Forwarding

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BGP Communities

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### Security Features

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Security via remote authentication (LDAP, Radius and TACACS+)

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Trusted host filtering (IP filtering), allowing only those hosts that have been configured in the host table access to the router.

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Idle LTE port timers, which close a connection that has not been active for a specified period of time

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Ability to disable services (for example, Telnet, TruePort, Syslog, SNMP, Modbus, HTTP) for additional security

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Ability to individually disable network services that won't be used by the SSH client/server connections (SSH 1 and SSH 2)

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Logging via syslog

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Ability to disable Ping responses

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Ability to setup Access Lists (ACL's) to restrict traffic

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Ability to set up firewalls to restrict incoming and outgoing packets

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SSH client/server connections (SSH 1 and SSH 2)

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SSL/TLS client/server data encryption (TLSv1/1.1/1.2 and SSLv2)

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Ability to setup Virtual Private Networks (VPNs)

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Wireless cellular security using PAP or CHAP authentication

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Dynamic DNS with DYNDNS.org

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Domain Name Server (DNS) support

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Email alert notification

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SSH connections (supported ciphers are Blowfish, 3DES, AES-CBC, AES-CTR, AES-GMC, CAST, Arcfour and ChaCha20-Poly1305)

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SSL/TLS connections

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RIP authentication (via password or MD5)

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OSPF

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2F Authentication

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Management Access Control

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SNMPv3

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DMZ

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FIPS 140-2

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Secure HTTP/HTTPS/FTP/Telnet Authentication Proxy

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## Logging, Reporting & Alerts

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Sys Log, Event Type, Report Type, Alerts & Monitoring, Triggers Status Screen Report, Data Usage, Diagnostic

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## Management

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PerleVIEW Management, WEB (HTTP/HTTPS), SNMPv1/v2/v3, RESTful API, SMS Control, Load Balancing, CLI/Piping, Login Banner, E-mail, Ping, Telnet, FTP, Connection on Demand

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Automatic check for software updates.

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Software updates available over FTP, HTTP, HTTPS, SCP, SFTP, and TFTP

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## I/O Capabilities

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One I/O configurable as digital input or Pulse Counter

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One normally open (NO) relay contact

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## Hardware Specifications: IRG5140 Cellular LTE Routers

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Products can be purchased with or without antennas and with or without power cords. All functionality is included in the base price of the product. Additional accessories are sold separately.

### Cellular

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<b>LTE</b>	LTE-A PRO CAT12. 600Mbps downlink and 150Mbps uplink speeds
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<b>Frequency Bands</b>	<b>4G/LTE Bands (24)</b> 2100(B1), 1900(B2), 1800(B3), AWS(B4), 850(B5), 2600(B7), 900(B8), 1800(B9), 700(B12), 700(B13), 850(B18), 850(B19), 800(B20), 850(B26), 700(B28), 700(B29), 2300(B30), 1500(B32), TDD B41, TDD B42, TDD B43, TDD B46, CBRS B48, 1700(B66)
<b>Data &amp; SMS Operation over: 4G LTE with fallback networks DC-HSPA+ / HSPA+ / HSPA / UMTS (WCDMA)</b>	<b>3G HSPA/HSPA+ Bands (9)</b> 2100(B1), 1900(B2), 1800(B3), AWS(B4), 850(B5), 800(B6), 900(B8), 1700(B9), 850(B19)
	<b>Public Safety Bands</b> Bands 26, 28

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<b>Cellular Antenna</b>	Frequency Range: 704-902-928-960/1427.9-1575.42/1710-2170/2400-2480-2690MHz Gain: 3 dBi Impedance: 50 ohm Voltage Standing Wave Ratio: <3.0 (typical) Radiation: Omni-Directional Connector: SMA Male (Swivel) Dimensions: 135.6 x 20.1 mm / 5.34 x 0.8 in
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<b>SIM</b>	Dual Mini-SIM 15 x 25mm (or 2FF )
<b>GPS / GNSS</b>	
<b>GPS / GNSS</b>	Wide-band GNSS: 1559-1606 MHz GPS: 1575.42 MHz / GLONASS: 1602 MHz / BeiDou: 1561.098 MHz / Galileo: 1575.42 MHz / QZSS: 1575.42 MHz Simultaneous tracking: Up to 30 channels Active GNSS antenna support Reports: NMEA 0183 V3.0, TAIP
<b>GPS / GNSS Passive Antenna</b>	GNSS Applications: GPS, Glonass, Galileo, Beidou Frequency Range: 1561MHz~1606 MHz Gain: 4 dBi (typical) Impedance: 50 Ohm Voltage Standing Wave Ratio: 2.0 (typical) Polarization: RHCP SMA (M) straight Dimensions: 41.9 x 47.3 x 16.3 mm / 1.65 x 1.86 x 0.64 in RG-174 Cable Length: 5 m / 16.4 ft
<b>10/100/1000 Mbps Ethernet RJ45 Copper</b>	
<b>Ports</b>	4 x 10/100/1000 Ethernet RJ45 Copper
<b>Speed</b>	Software selectable 10/100/1000 Ethernet, Auto Software selectable Half/Full/Auto duplex
<b>Ethernet Isolation</b>	1.5Kv Magnetic
<b>Standards</b>	IEEE 802.3 for 10Base-T, IEEE 802.3u for 100Base-TX and 100Base-FX, IEEE 802.3ab for 1000Base-T, IEEE 802.3x for Flow Control
<b>Processing Type</b>	Store and Forward
<b>MAC Address Table Size</b>	8K
<b>VLAN ID range</b>	1 to 4000
<b>USB</b>	
<b>USB-C</b>	1 x USB 3.2 Type-C with a transfer rate up to 5Gbps Configurable for Ethernet over USB
<b>Power Connector</b>	
<b>Two Digital Inputs</b>	Type 3 isolated Digital Input & Pulse Counting VDC: 0 for $\leq 1V$ , 1 for $\geq 2.7V$
<b>One Alarm Relay</b>	Normally Open (NO) dry contact: 1A @ 24VDC



<b>Platform Specifications</b>	
<b>Microprocessor</b>	Dual Core ARM 1.2GHz
<b>RAM</b>	1GB DDR4
<b>Flash</b>	4GB MMC
	Power 1: indicates power status
	Power 2: indicates power status
	WWAN: indicates Wireless Wide Area Network status
	GNSS: indicates Global Navigation Systems for GPS, Galileo, Glonass and Beidou status
	VPN: indicates VPN presence (for Router Models: IRG5520x & IRG5540x only)
<b>LED Indicators</b>	Internet: indicates Internet connectivity
	Operating Temperature: -40°C to 70°C / -40°F to 158°F
	Storage Temperature: -40°C to 85°C / -40°F to 185°F
	Operating Humidity: 0% to 95% non-condensing
	Storage Humidity: 0% to 95% non-condensing
	Operating Altitude: 3048 m / 10,000 ft
	Cooling: EN 60068-2-1
	Dry heat: EN 60068-2-2
	Damp: EN 60068-2-30
	MTBF: > 287,215 hours (Calculation model based on MIL-HDBK-217-FN2 @ 30°C/86°F)
<b>Environmental Specifications</b>	Heat Output (BTU/HR)
<b>Enclosure</b>	Aluminium
<b>Mounting</b>	DIN Rail (Mounts to standard 35 mm DIN rail in accordance with DIN EN 60175 vertically or horizontally) Panel / wall mount attachment bracket is optional
<b>Ingress Protection Rating</b>	IP20
<b>Power</b>	
<b>Power Input</b>	12/24/48 VDC Nominal (9.6 to 60 VDC Range) Dual Input

<b>Power Connector</b>	8-Pin Removable Terminal Block: 4-Pins for power 4-Pins for Alarm Relay and Digital Input
	
<b>Power/Current Consumption</b>	Standby (no activity / all ports shutdown): 3.9mA / 46.8mW Idle Mode (connected/no Activity): 0.30A / 3.620W Typical Use (connected/with Activity): 0.33A / 3.98W
<b>Power Line Protection</b>	Surge: 8KV (EN61000-4-5 common mode), 2KV (EN61000-4-5 differential and common modes)
<b>Reverse polarity protection</b>	YES
<b>Weight &amp; Dimensions</b>	
<b>Product Weight &amp; Dimensions</b>	Weight: 0.38kg / 0.84lbs Dimensions: 120 x 90 x 45 mm / 4.72 x 3.54 x 1.77 in
<b>Shipping Weight &amp; Dimensions</b>	Weight (with Antenna): 0.61kg / 1.35lbs Weight (without Antenna): 0.58kg / 1.28lbs Dimensions: 195 x 170 x 70 mm / 7.67 x 6.70 x 2.75 in
<b>Regulatory Approvals</b>	
<b>Shock &amp; Vibration</b>	MIL-STD-810G (Shock: test method 516.6. Operational Vibration: test method 514.6) EN 61373 (Shock, Vibration long-life / functional-random)
<b>Hazloc</b>	IECEX/IECx, ATEX Class 1 Zone 2, Directive 2014/34/EU ANSI/ISA 12.12.01, Class 1 Division 2 Groups A-D, ISA 12.12.01-2015
<b>Railway</b>	EN 50155: 2017 Clause 4.3.6 EN 50121-1: 2017 EN 50121-3-2: 2016 EN 50121-4: 2016 IEC 60571:2012 For Clause 12.2.8 & 12.2.9 IEC 62236-1: 2018 IEC 62236-3-2: 2008

	IEC 62236-4: 2018
	FCC 47 Part 15 Subpart B, Class A
	ICES-003 Issue 6 Class A (Canada)
	ANSI C63.4 Class A (Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz)
	EN61000-3-2: 2014 (Limits for Harmonic Current Emissions)
	EN61000-3-3: 2013 (Limits of Voltage Fluctuations and Flicker)
	CISPR 32:2015/EN 55032:2015 Class A (Electromagnetic compatibility of multimedia equipment - Emission requirements)
<b>Emissions</b>	EN61000-6-4 (Emissions for industrial environments)
	CISPR 35:2016/EN 55035:2017 (IR)
	EN 61000-4-2:2009 (ESD) +/-8 kV (Contact and Air) Operating mode: powered on
	EN 61000-4-3: 2006 + A1:2007 + A2:2010(RS)
	EN 61000-4-4:2012 (EFT) 2 KV (Criteria A)
	EN 61000-4-5:2014+AMD1:2017 (Surge) 2KV (line to earth), 1.5KV (line to line)
	EN 61000-4-6: 2013 (CS)
	EN 61000-4-8: 2009 (PFMF)
	EN 61000-4-9: 2016 (PMF)
	EN 61000-4-11: 2004 + A1:2017
	EN 61000-4-16
<b>Immunity</b>	EN 61000-6-4: 2007 + A1: 2011
	UL/IEC 61010-1 UL/IEC 61010-2 UL/EN/IEC 62368-1 (previously 60950-1) CAN/CSA C22.2 No. 62368-1
<b>Safety</b>	
<b>Cellular / Radio Standards</b>	EN 301 489-1 (V2.1.1:2017-02), ETSI EN 301 489-1 V2.1.1 (2017-02)

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EN 301 489-17 (V3.2.0:2017-03), ETSI EN 301 489-17  
V3.1.1 (2017-02)

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EN 301 489-19 (V2.1.1:2019)

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EN 301 908-1 v11.1.7:2018-12, ETSI EN 301 908-1 V7.1.1  
(2015-03) (Radiated emissions RF control and monitoring)

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EN 301 908-2 v11.1.2:2017-08, ETSI EN 301 908-2 V11.1.2  
(2017-08) (RF conducted)

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EN 301 908-13 v11.1.2:2017-07, ETSI EN 301 908-13  
V11.1.2 (2017-07) (RF Conducted)

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EN 62311:2019, IEC 62311 Ed. 1.0 b:2007 (Human  
exposure restrictions for radio frequency electromagnetic  
fields)

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**Cellular/Telecom  
Regulatory Approvals** FCC/ICES, RED, PTCRB/CTIA, CE

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**Carrier Certifications** Verizon, AT&T

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**Environmental  
Specifications** Reach, RoHS3 and WEEE Compliant

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**Other**

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**ECCN** 5A992

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**HTSUS Number** 8517.62.0020

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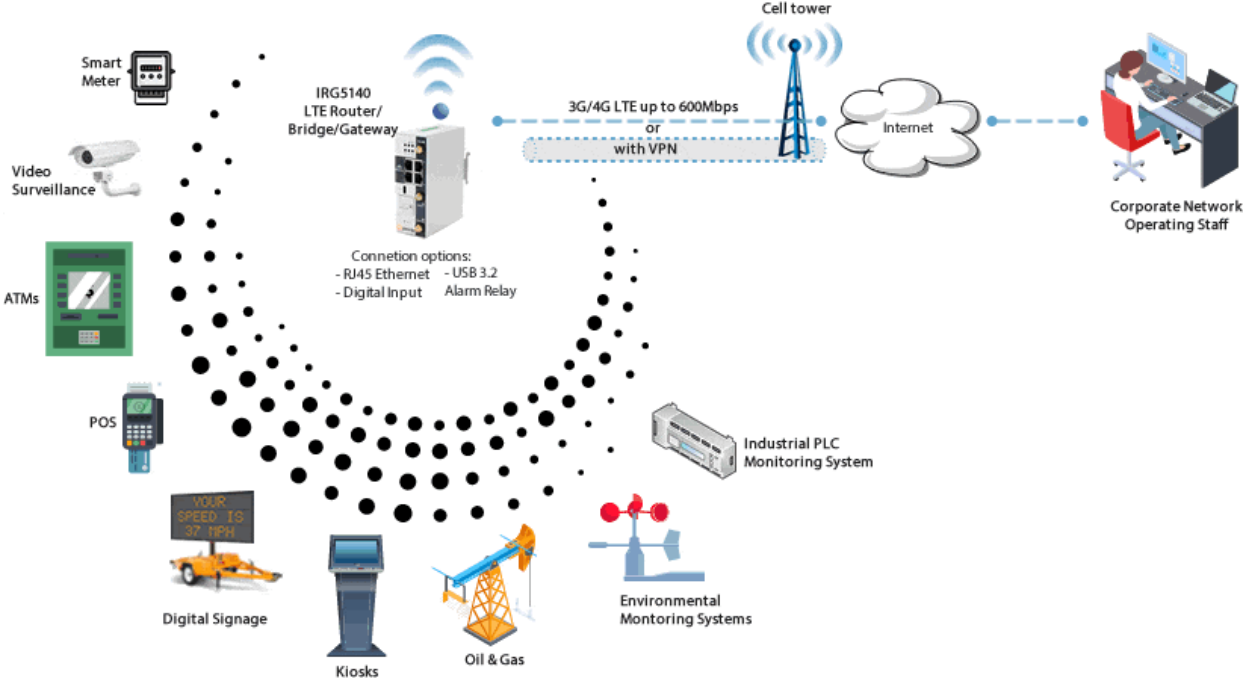
**Warranty** 2 Years

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**M2M / IoT LTE Connectivity**

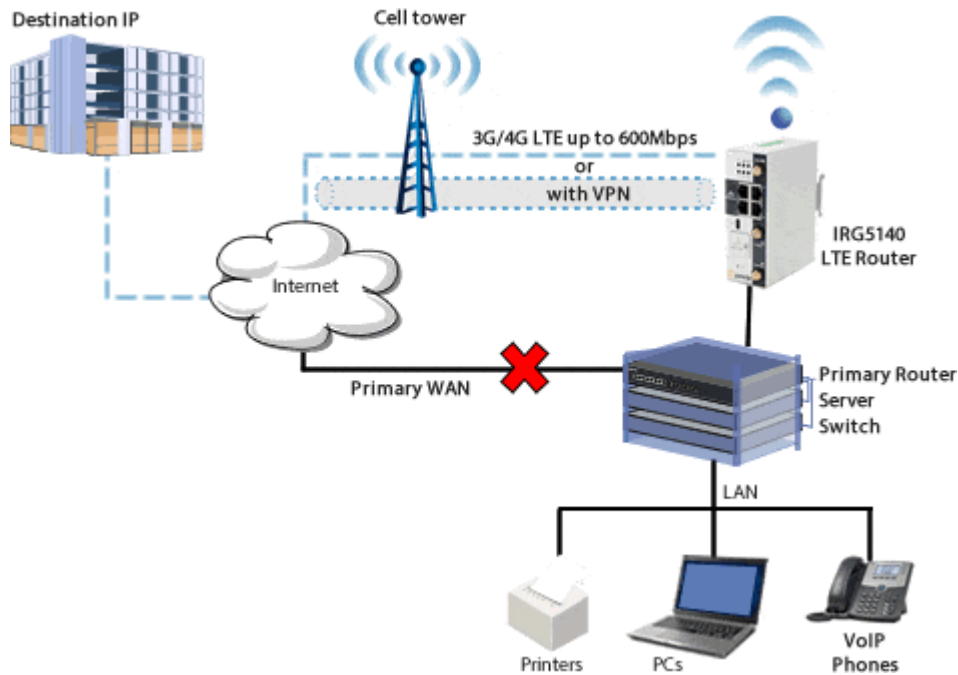
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The Perle IRG5140 LTE Router offers always-on M2M connectivity that is secure, reliable, cost-effective, and easy to deploy. Featuring an industrial-grade DIN-Rail housing, the Perle IRG51400 Router is a versatile and compact solution that provides 2G/3G/4G LTE connectivity with built-in GPS capabilities. The Perle IRG51400 Router is ideal for solving wireless connectivity challenges in a variety of vertical markets including video surveillance, digital signage, home security, oil and gas exploration, kiosks, smart grid, and many more.



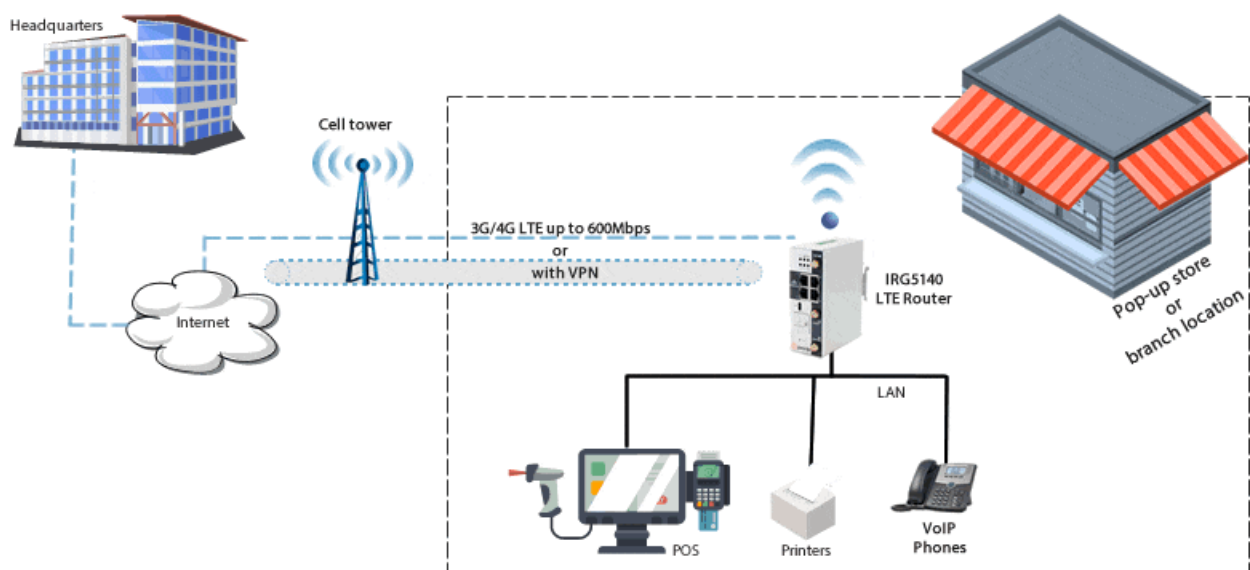
**LTE Failover & Out of Band Management with "Four-Nines" (99.99%Up-time)**

When the wired link is down, network access can be maintained with automatic failover to LTE. There are several ways to determine with the Primary WAN is down. One example, is to use the **Health Monitoring** function where the IRG5140 will ping a destination IP through the primary route. If there is no response, the IRG5140 router will initiate a direct connection using the back-up LTE route. The relatively low cost of LTE for business continuity means a greater return on investment and scalability for multiple locations that have limited IT resources. By deploying Perle IRG5140 LTE Routers, businesses will have on-demand network connectivity that is quick to deploy, simple to manage, and ensures maximum uptime.



## Primary Router Deployments

For pop-up stores or branch locations with limited IT resources, the IRG5140 Router is an easy to deploy solution. This single box will function as an LTE Router and a 4-port 10/100/1000 Ethernet Switch. **IPv4 and IPv6** is supported on both the WAN and LAN sides.

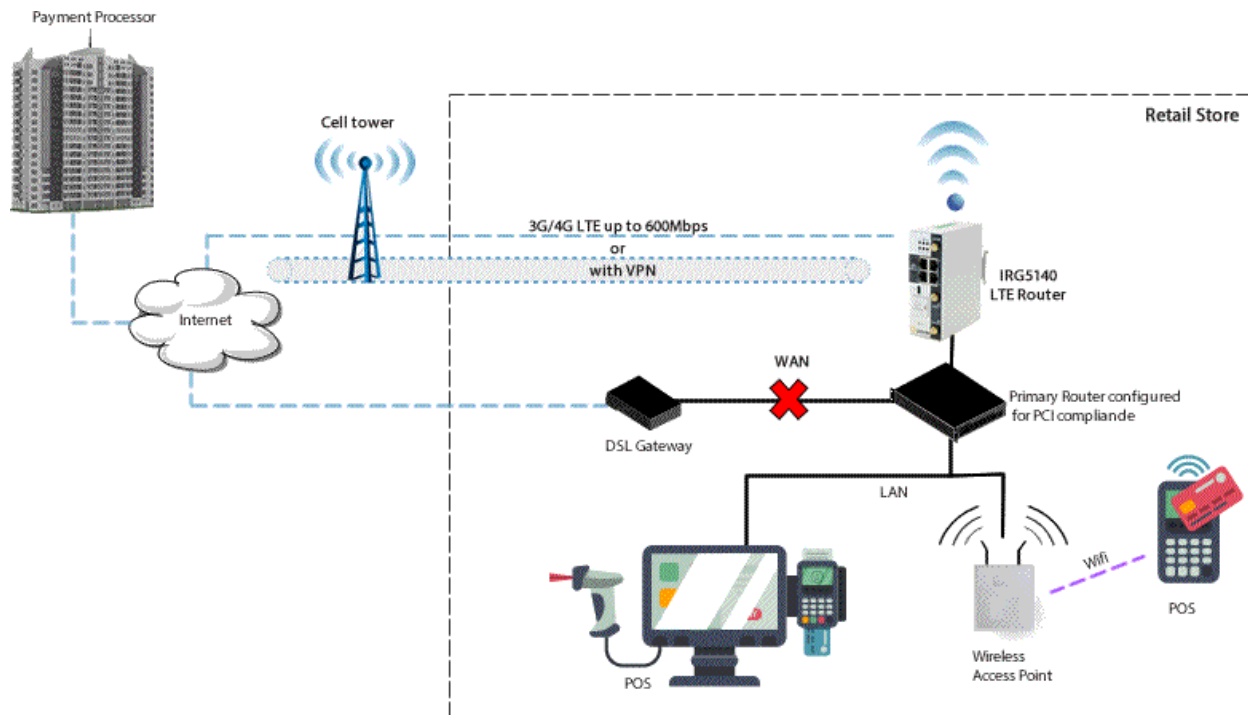


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## PCI Compliant LTE Failover

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The credit card industry requires retailers to comply with Payment Card Industry (PCI) standard to maintain a secure environment when processing payment card transactions. For these transactions, a Perle IRG5140 Router acts as a wireless data conduit (Gateway) for routers and POS (point-of-sale-terminals) that have been configured for PCI compliance. The USBnet is on a different subnet from the point-of-sale-terminal. All security protocols must be established from the point-of-sale terminal to the payment processor. Payment card terminals must be on a dedicated LAN or VLAN. The Perle IRG5140 Router configured on gateway mode must be connected to a router that is configured for PCI compliance.

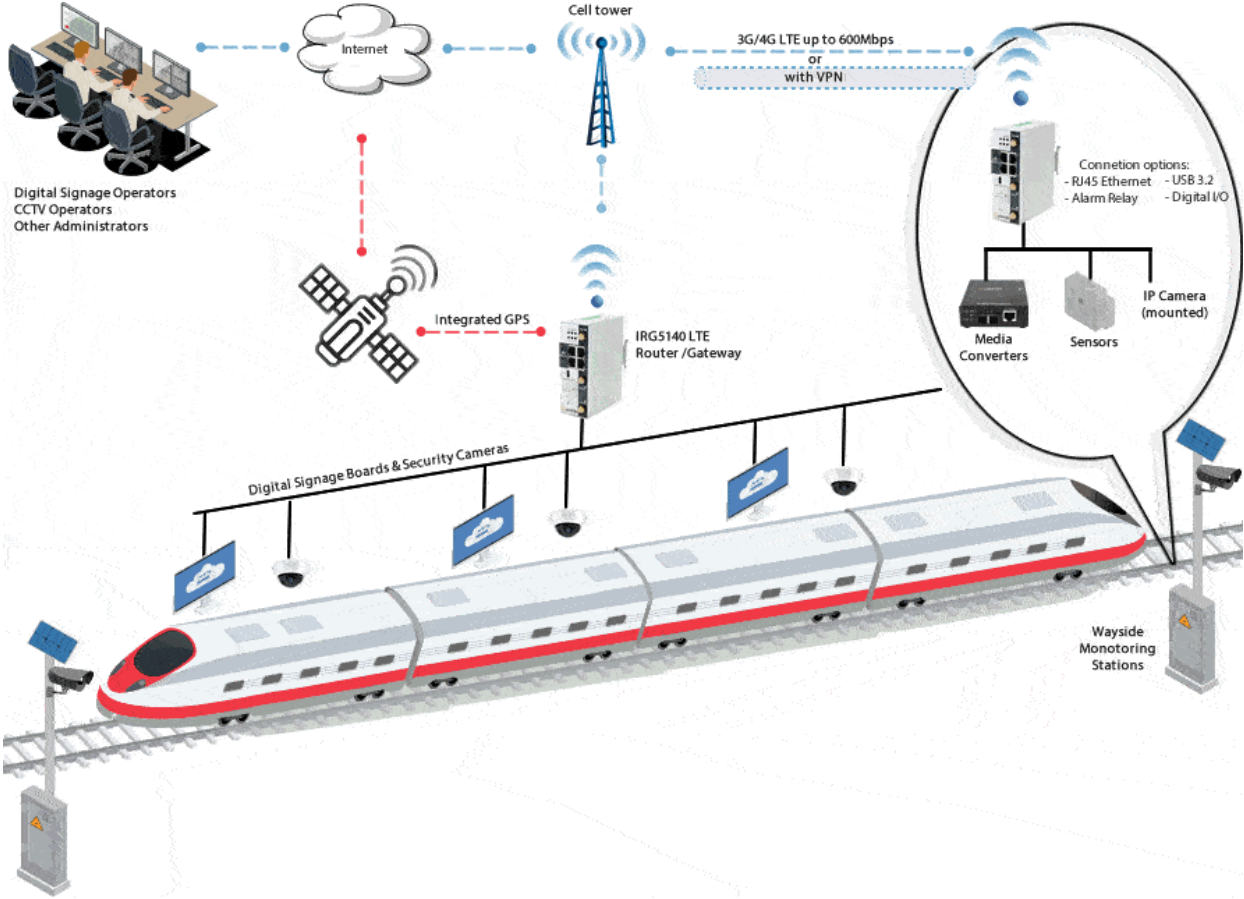


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## Communications Gateway for Railway

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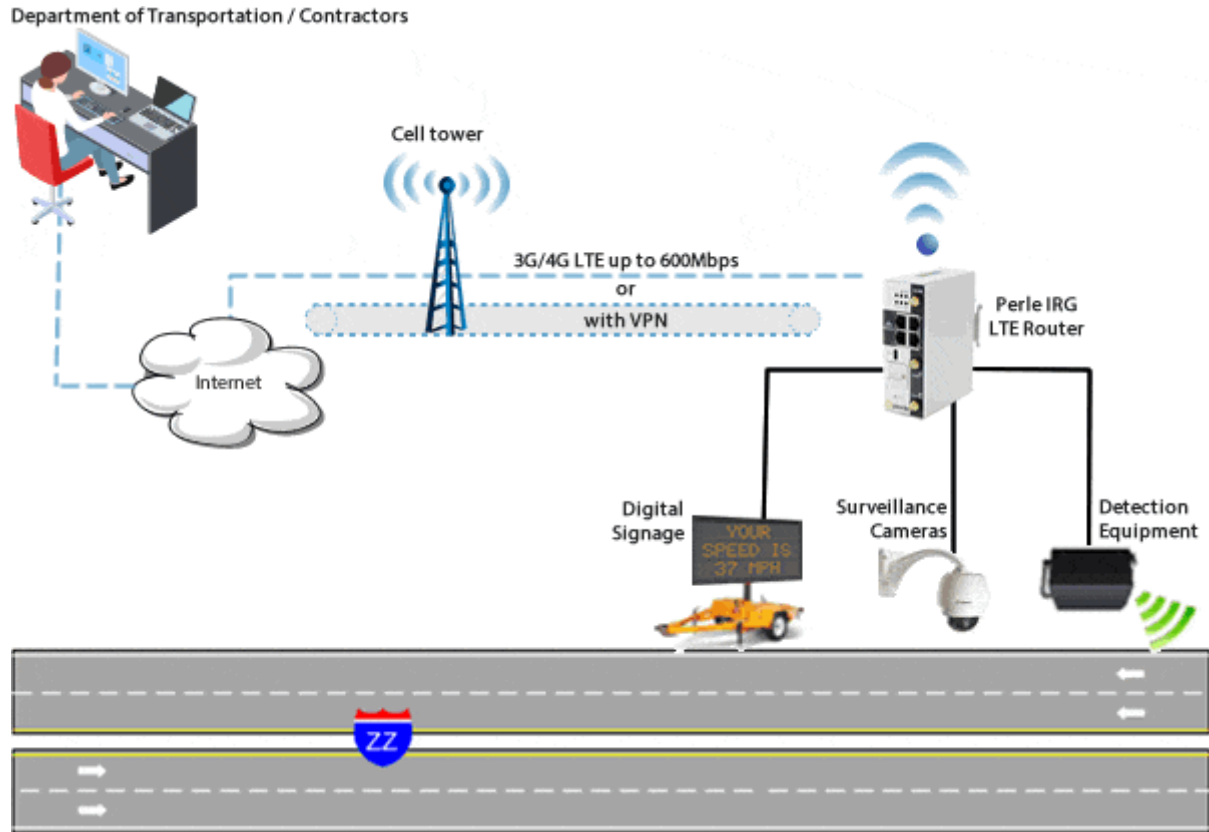
IRG5140 Routers are compliant with railway regulations and have the operating temperature, vibration, and emission certifications required for installation on trains, light rail, subways, and trams. They are perfectly suited for installation directly in the train or subway cabin, the dusty and humid environments of metro tunnels or, the enclosures found alongside rail tracks. Central administration centers can monitor rail traffic, switching status, track conditions, weather conditions, and security data gathered by the sensors and other equipment located in wayside monitoring stations. Onboard, connecting security cameras, informational displays, and other equipment allows for a wide variety of operational tasks to be undertaken by the control staff. With the ability to establish and maintain cellular tower connectivity at up to 100 meters per second (360km/224mi per hour), the IRG5140 LTE Router is ideal for any rolling stock application.



**Roadway Smart Work Zones (SWZ)**

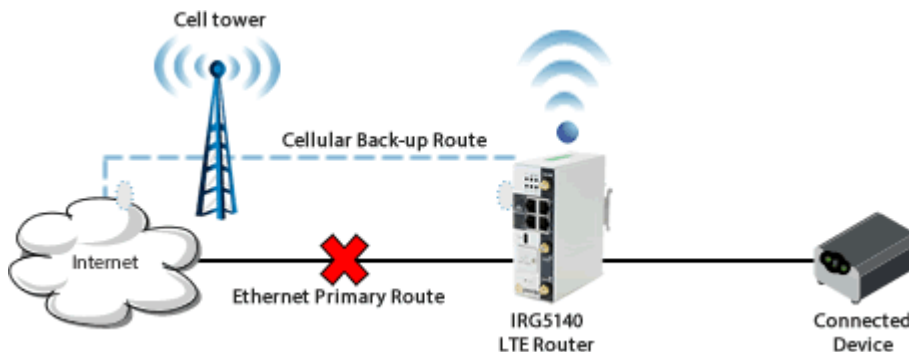


Intelligent Transportation Systems (ITS) and Smart Work Zones (SWZ) are used to monitor and improve roadway construction zones. An LTE Router enables the communication between the components of the system. Real-time information can be transmitted to Portable Changeable Message Signs (PCMS) to display traffic conditions, travel times, incident information, and advisory messages. Data can be collected from cameras and sensors near the work zone and sent to the central processing system.



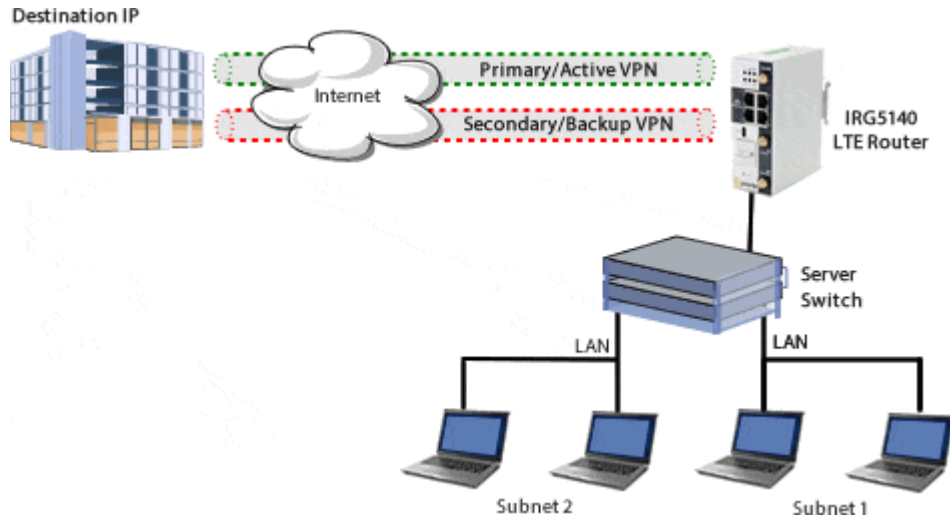
### Failover with Static Routing

Force specified traffic to use different routing rules to direct specified traffic from the IRG5140 Router, or a connected device) to a designated primary router. If the primary route fails the specified traffic uses a backup route.



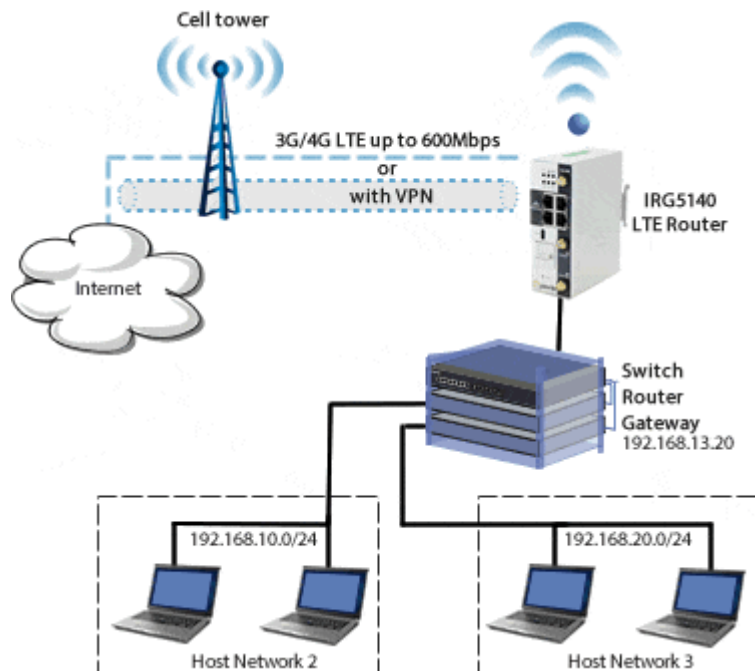
### VPN Failover

With DPD and VPN Failover configured in the IRG5140 Router, two VPN tunnels are configured but only one is active at a time. If DPD detects that the destination is not responding through the Primary VPN, traffic is automatically switched to the Secondary/Backup VPN. The VPN Failover feature will continue to ping the destination through the primary tunnel and, if configured to do so, will automatically revert back to the primary once it is up again. Status fields can be viewed to see the current status of both VPNs.



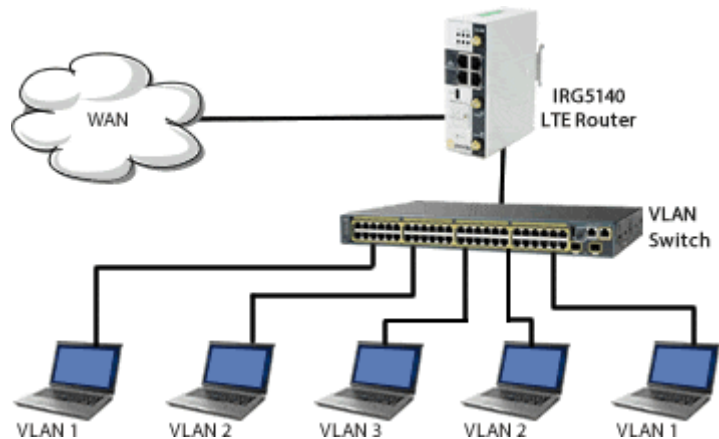
## Non-NATed Networks

The Perle IRG5140 Cellular Router can handle multiple non-NATed networks behind a connected router or switch.



## VLAN Support

The Perle IRG5140 Router supports up to 4000 VLANs on its Ethernet ports. VLANs are logical groupings of network devices that share the same broadcast domain. All devices on the same VLAN can ping each other without routing. There is no routing between VLANs.



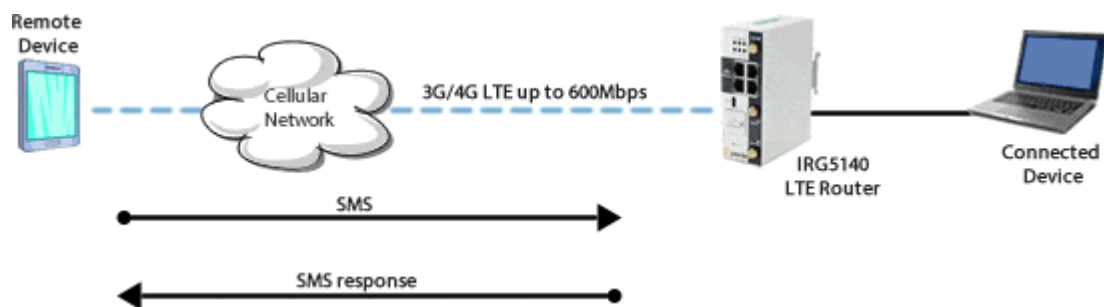
## Port Forwarding

Any unsolicited data coming in on a defined Public Port is routed to the corresponding private port and IP of a host connected on the LAN.



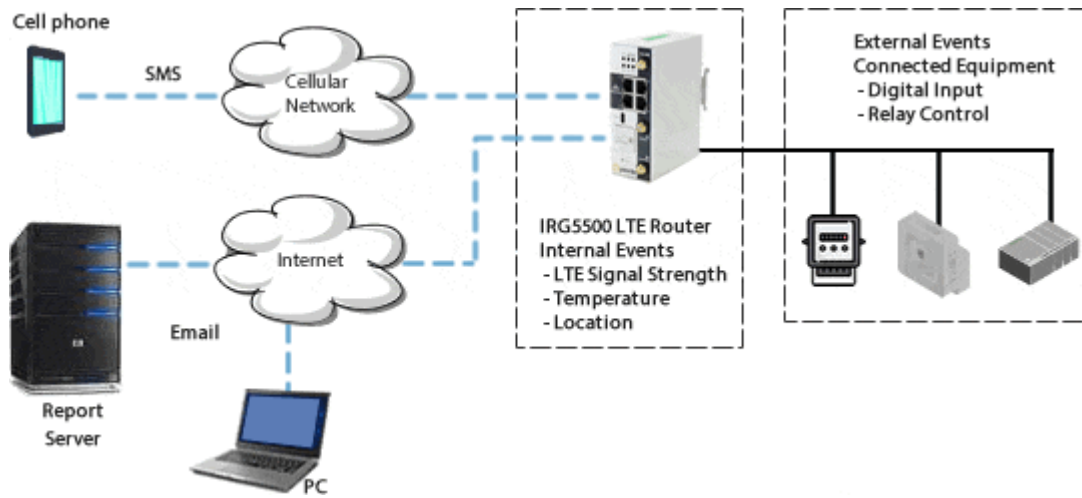
## SMS support

The IRG5140 Router accepts SMS commands for basic actions and status. The IRG5140 Cellular Router will send back an acknowledgement that the SMS command was received every time.



## Event Reporting

The IRG5140 Router can be configured to generate reports, or initiate actions, based on specified events. These events can be generated internally, or externally by devices attached to the IRG5140 digital inputs or alarm relay.



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