Software-Defined WAN for the IoT Era

Peplink Pepwave - Who We Are

= Distribution Partner

Taiwan: Contract Manufacturing from Tier-1 factory, and Peplink QA testing lab.

Headquartered in Hong Kong

Technical support office in Malaysia

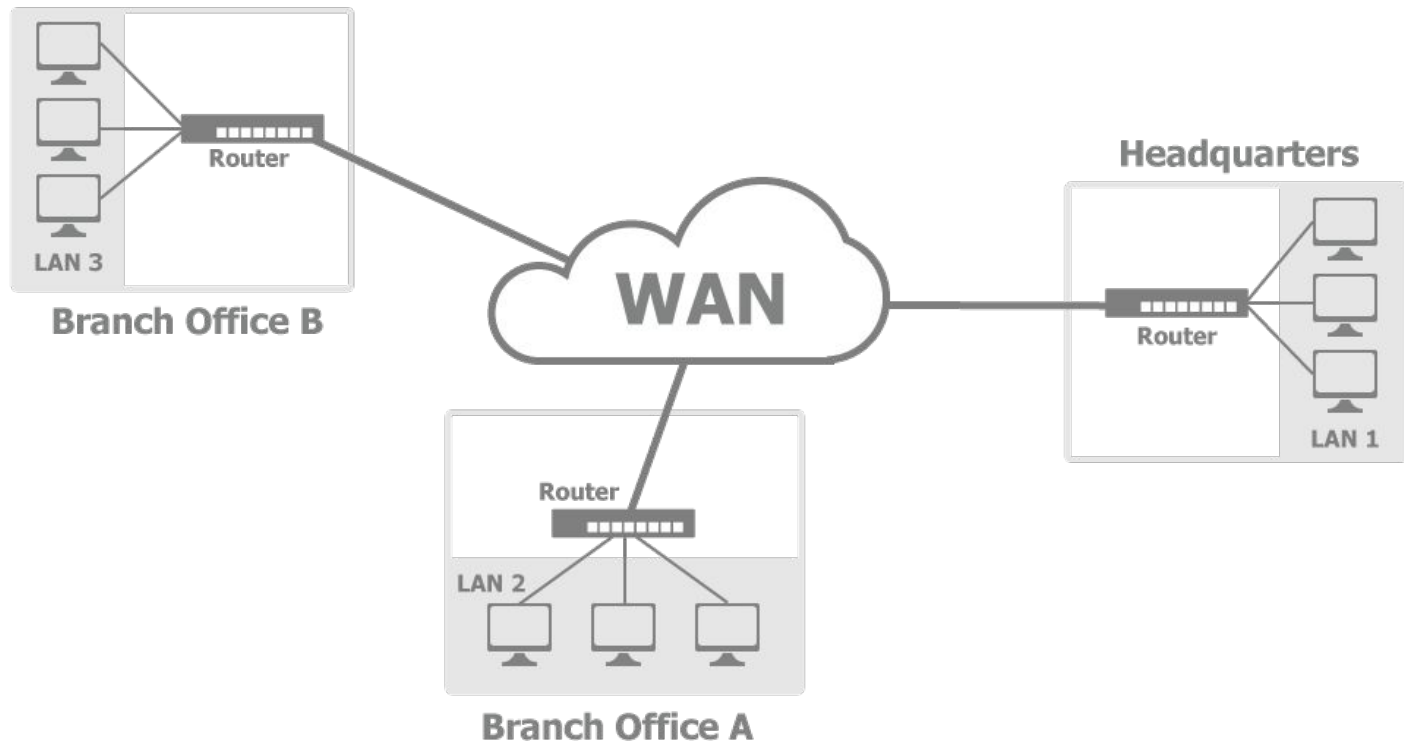US team based in MN (Customer & Partner Support)

- Founded in 2006, 104 people, 75 R&D engineers.

- 100% in-house engineering on hardware, software, RF and mechanical.

- Comprehensive SD-WAN routers for always-on connectivity.

peplink | PEPWAVE

Clients
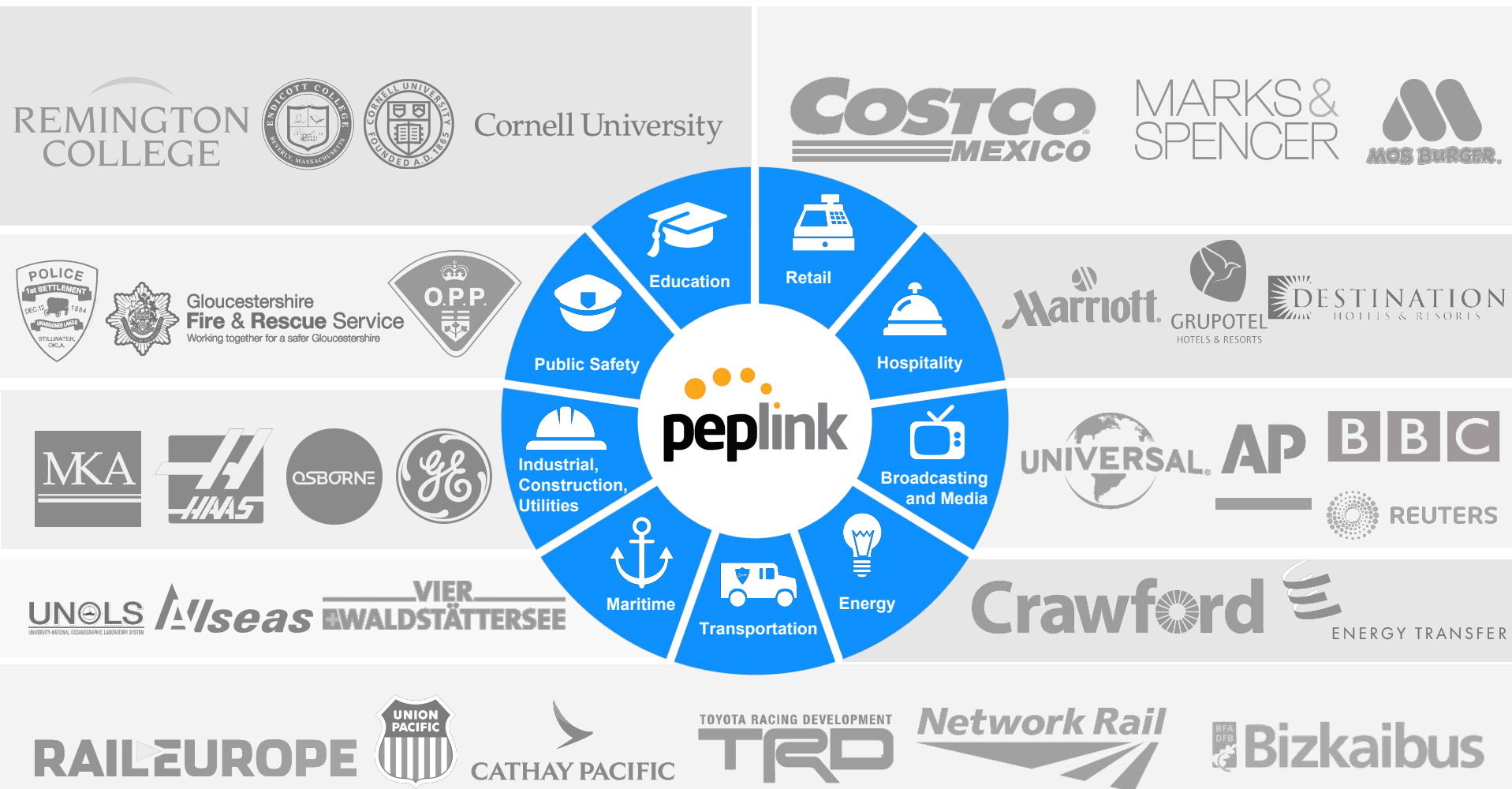
Routers: Helping You Connect

Routers connect your local network to the outside world:

- Local Network (LAN) = Computers, IP Phones

- Wide Area Network (WAN) = Public Internet, Private Leased Lines
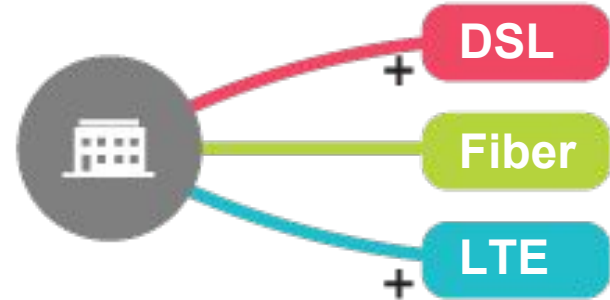
Traditional WAN vs SD-WAN

Traditional WAN

SD-WAN

MPLS

DSL +

Fiber

LTE +

Traditional WAN	SD-WAN
Expensive reliability	Extreme reliability at ⅕ cost
Low bandwidth	Combine links for bandwidth
Inflexible network	Freely add and remove links
Configure routers individually	Centrally manage entire network

peplink | PEPWAVE
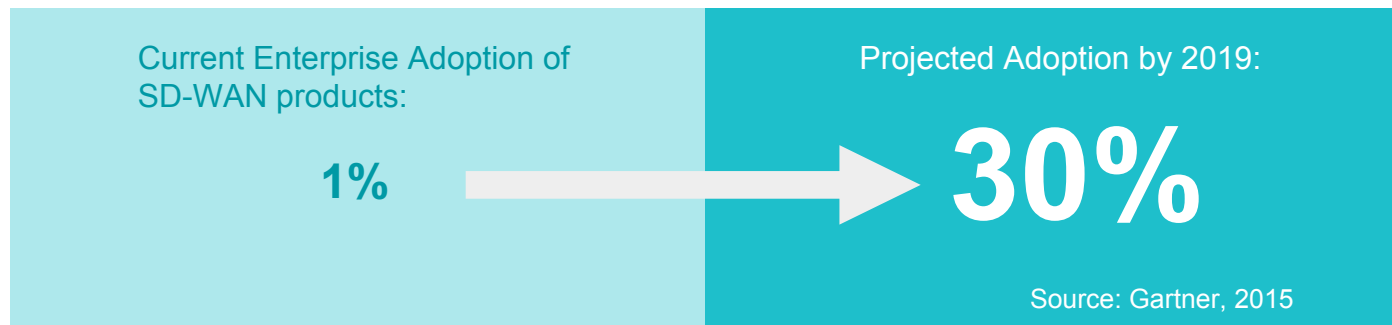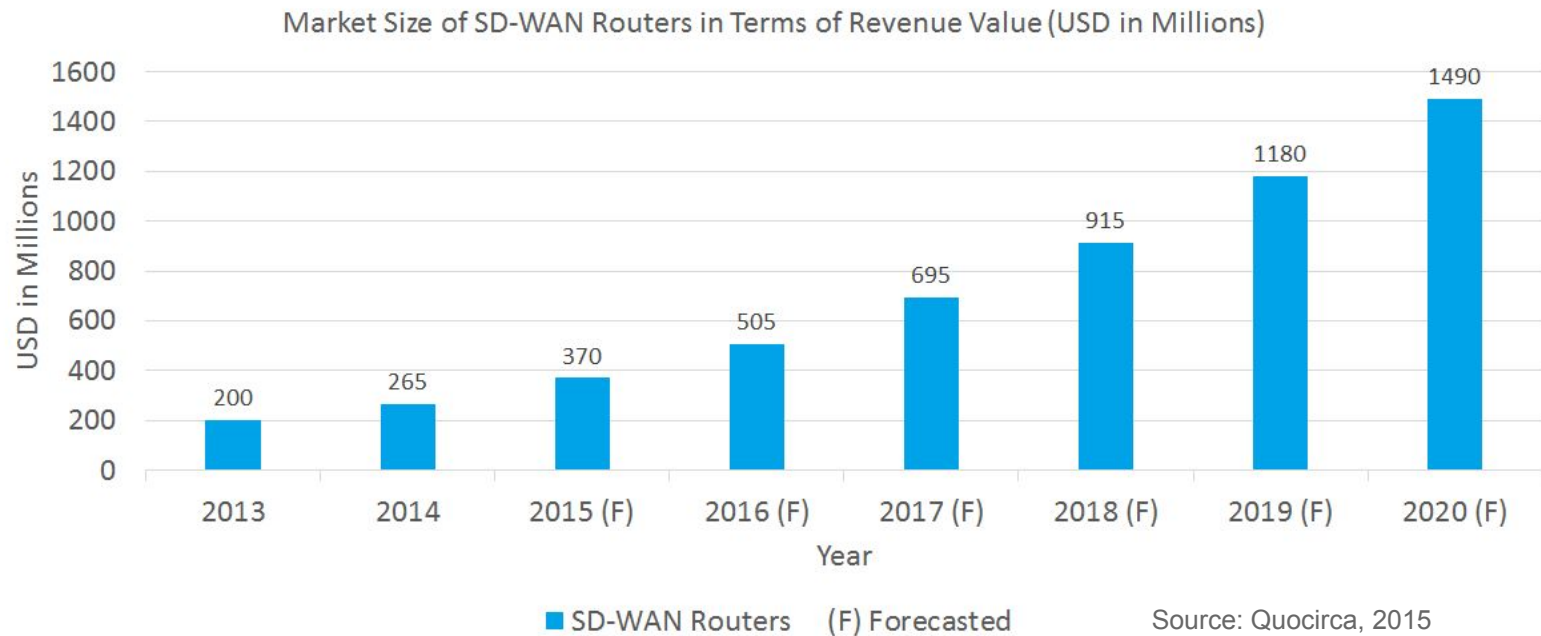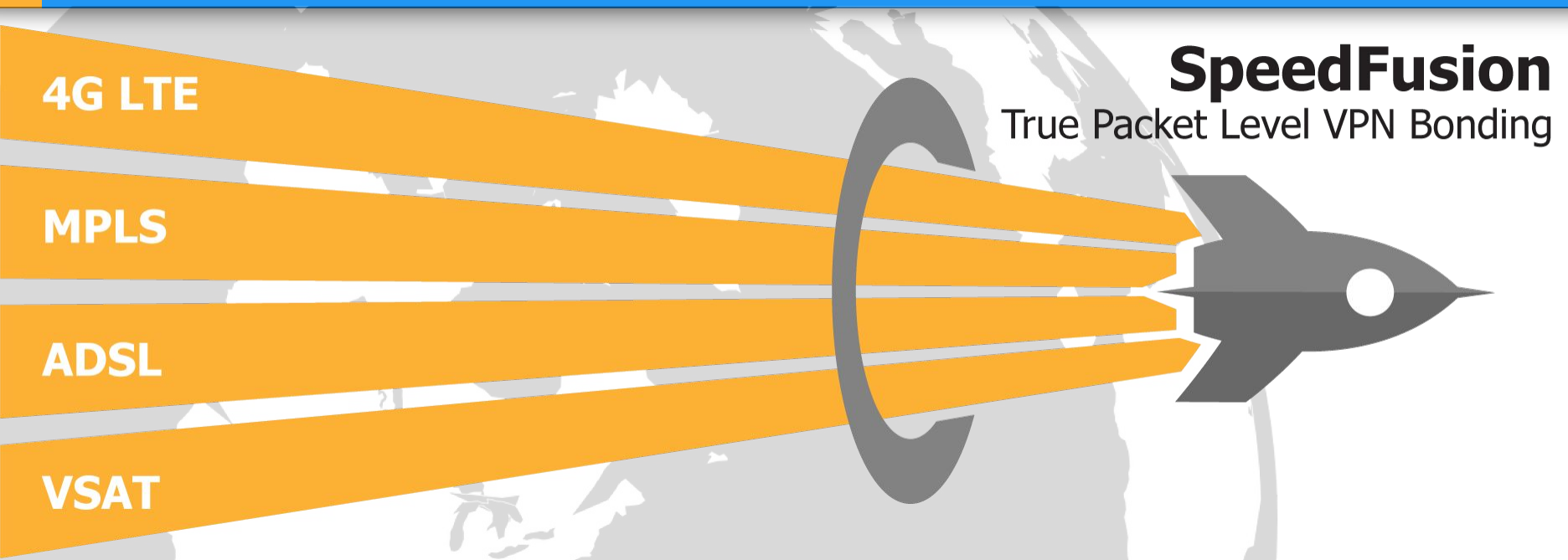
Characteristics of SD-WAN
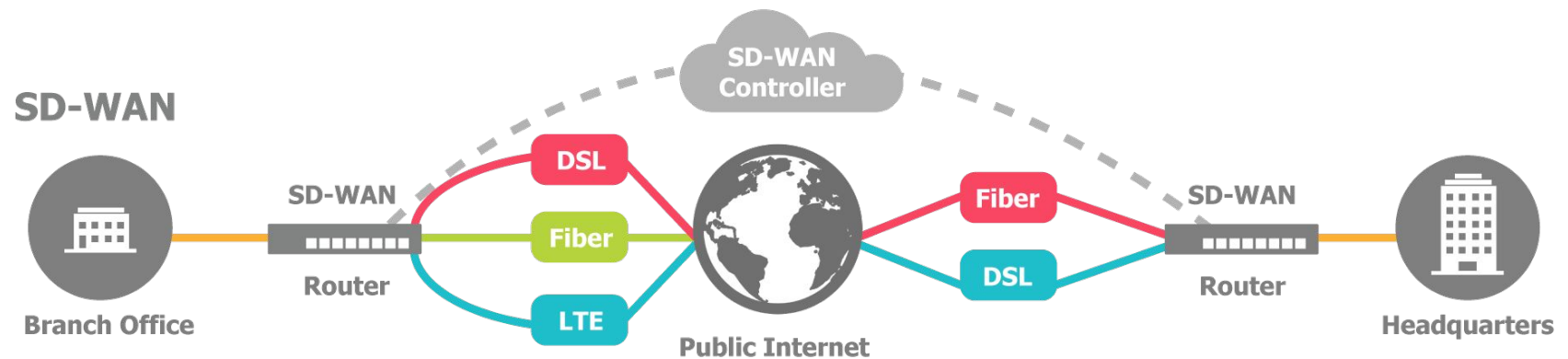
- **Multiple WANs**: Combine multiple WAN links of multiple types. Set up quickly, anywhere.

- **Routing Intelligence**: Intelligently load balance traffic between each link.

- **Central Management**: Manage your entire network from a centralized location.

- **Network Security**: Build a secure overlay, i.e. Virtual Private Network (VPN) over public networks.

A Rapidly Rising Technology

Market Size of SD-WAN Routers in Terms of Revenue Value (USD in Millions)

Source: Quocirca, 2015

Current Enterprise Adoption of SD-WAN products:

1% → **30%**

Projected Adoption by 2019:

Source: Gartner, 2015

peplink | PEPWAVE

The Peplink SD-WAN Advantage

4G LTE

MPLS

ADSL

VSAT

SpeedFusion
True Packet Level VPN Bonding

Bandwidth Bonding technology combines multiple links into a single fast, reliable private connection.

- Connection speed: is the combination of each link's individual speed.
  (10Mbps + 10Mbps = 18Mbps)

- Reliability is the combination of each link's uptime.
  (97.26% + 97.26% + 97.26% = 99.998% reliability)
  (10 days of downtime a year reduced to 0.0075 days)

peplink | PEPWAVE
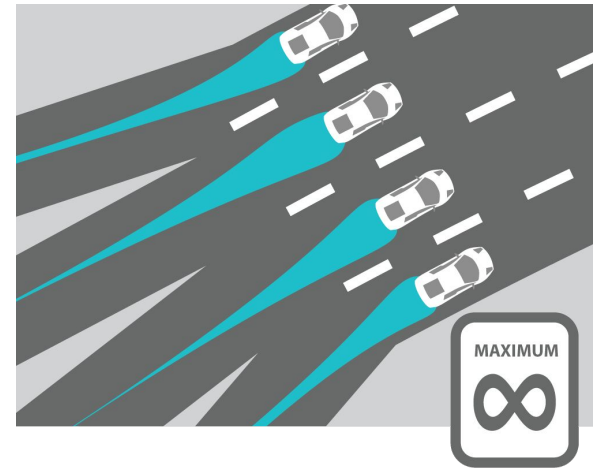
SpeedFusion: 3 Core Technologies

Hot Failover

Live backup links. If one link fails, others take its place **without session interruption**.
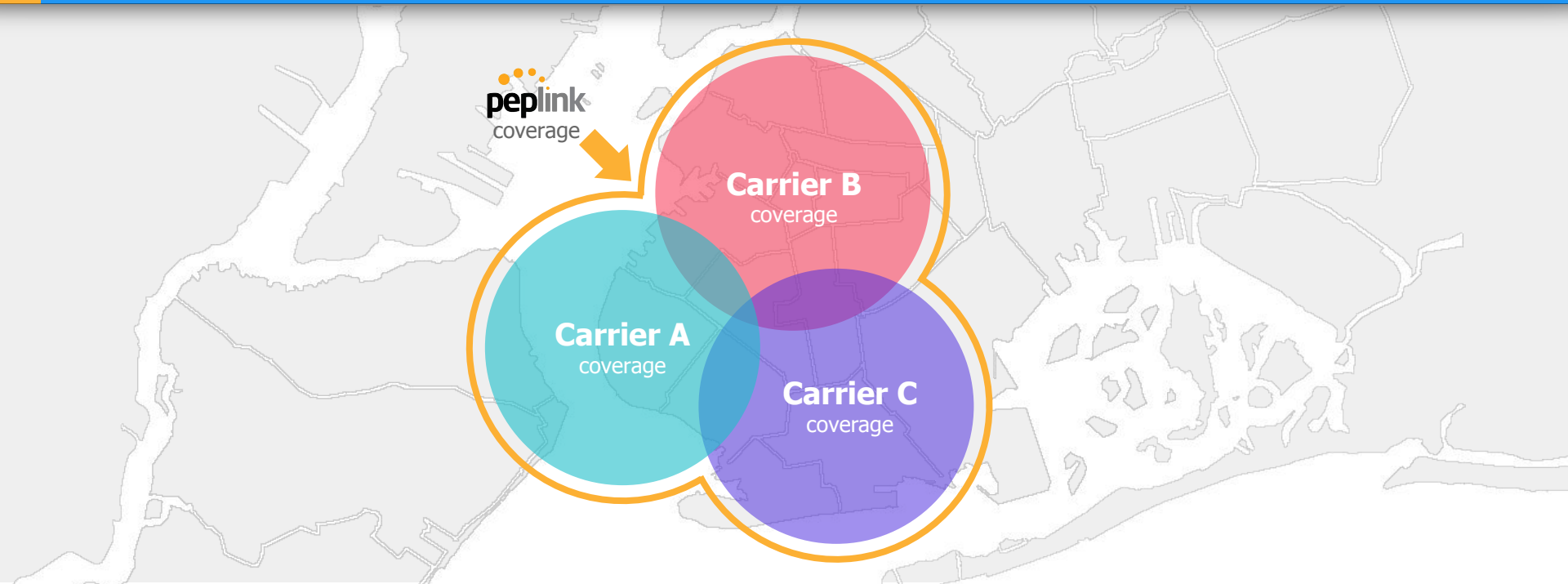
WAN Smoothing

Combining multiple links to build the **most reliable connection** possible.

Bandwidth Bonding

Combining multiple links to build the **fastest connection** possible.

peplink | PEPWAVE

Benefit: Increased Mobility

- Use SpeedFusion to combine the coverage of multiple carriers.

- Seamlessly transition between different 2G, 3G, and 4G networks.

- Supports both USB modems and SIM cards.

- Support two carriers per cellular modem with redundant SIM slots.

Benefit: Cost Savings

$$$

MPLS

Average Savings:

85%

lower network cost

$$

Bonded DSL / Cable   Bonded DSL / Cable
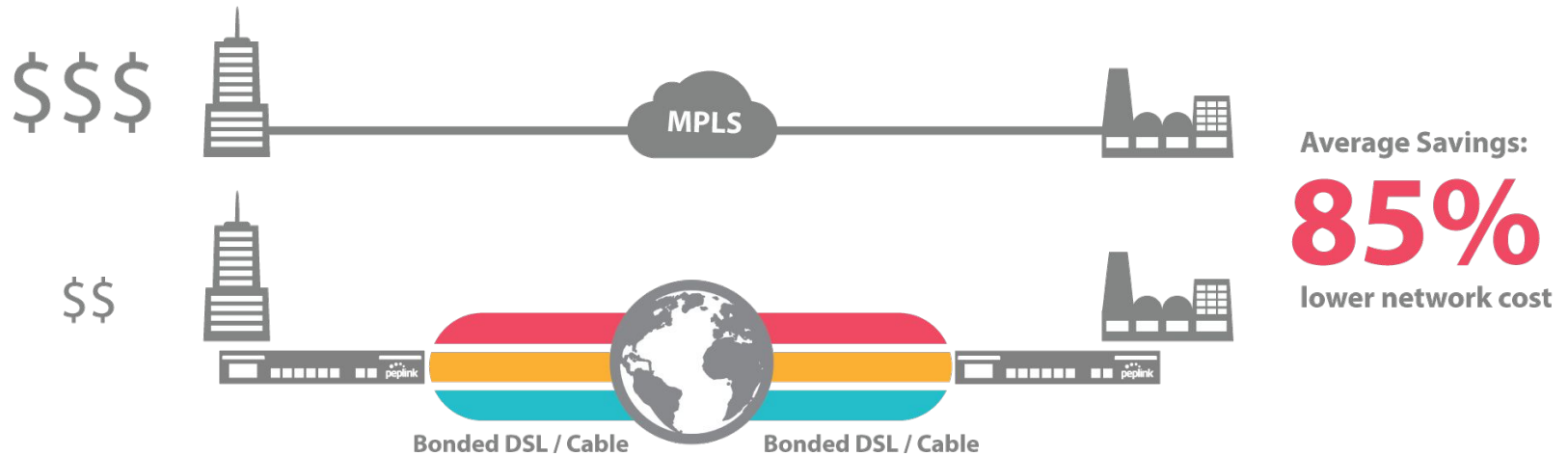
Use SpeedFusion to combine multiple WAN links into a single SD-WAN

- Combine the bandwidth of all WAN links

- Enhance VPN performance and reliability

Build MPLS-grade secure private network over consumer Internet WAN links

peplink | PEPWAVE

Use Case: Video Surveillance

2 Connect your camera using 802.11af passive PoE Output.

3 Balance or FusionHub at the data center connects to patrol vehicles using bandwidth-bonded VPN.

SpeedFusion
Bandwidth-Bonded VPN Connection

4G LTE

4G LTE

Land Line

1 Connect to head office using 2 cellular modems, supporting up to 4 carriers at a time.

Street - **MAX HD2 IP67**
Outdoor-capable cellular router
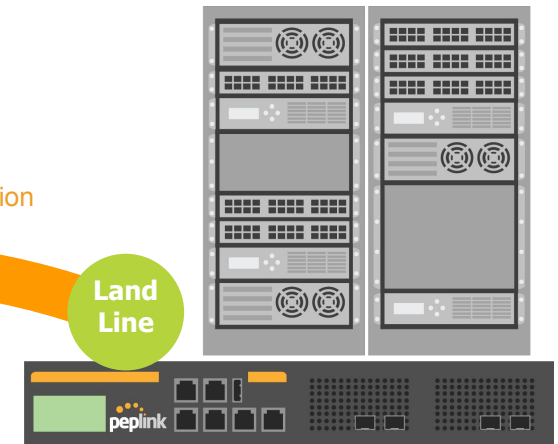
HQ - **Balance 2500** or **FusionHub**

PEPWAVE

peplink | PEPWAVE

Use Case: Remote Walkie-Talkie
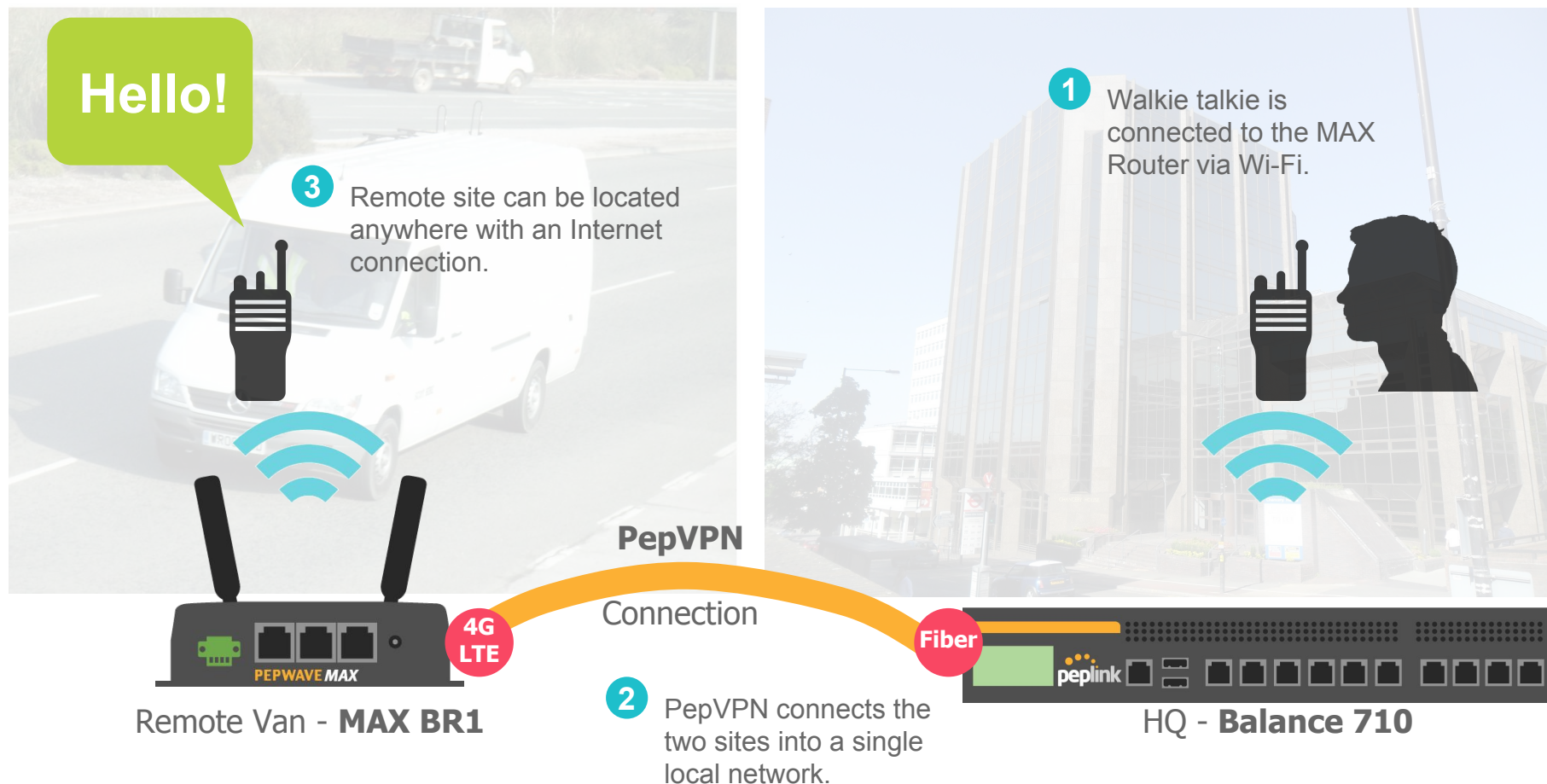
Use Case: Remote Metering

Remote Sites - **BR1 M2M**

2 Data collection done on InControl

API

Customer App

1 The BR1 M2M converts RS232 serial signals without the need of a dedicated serial converter.

Reports

Functionality

peplink | PEPWAVE
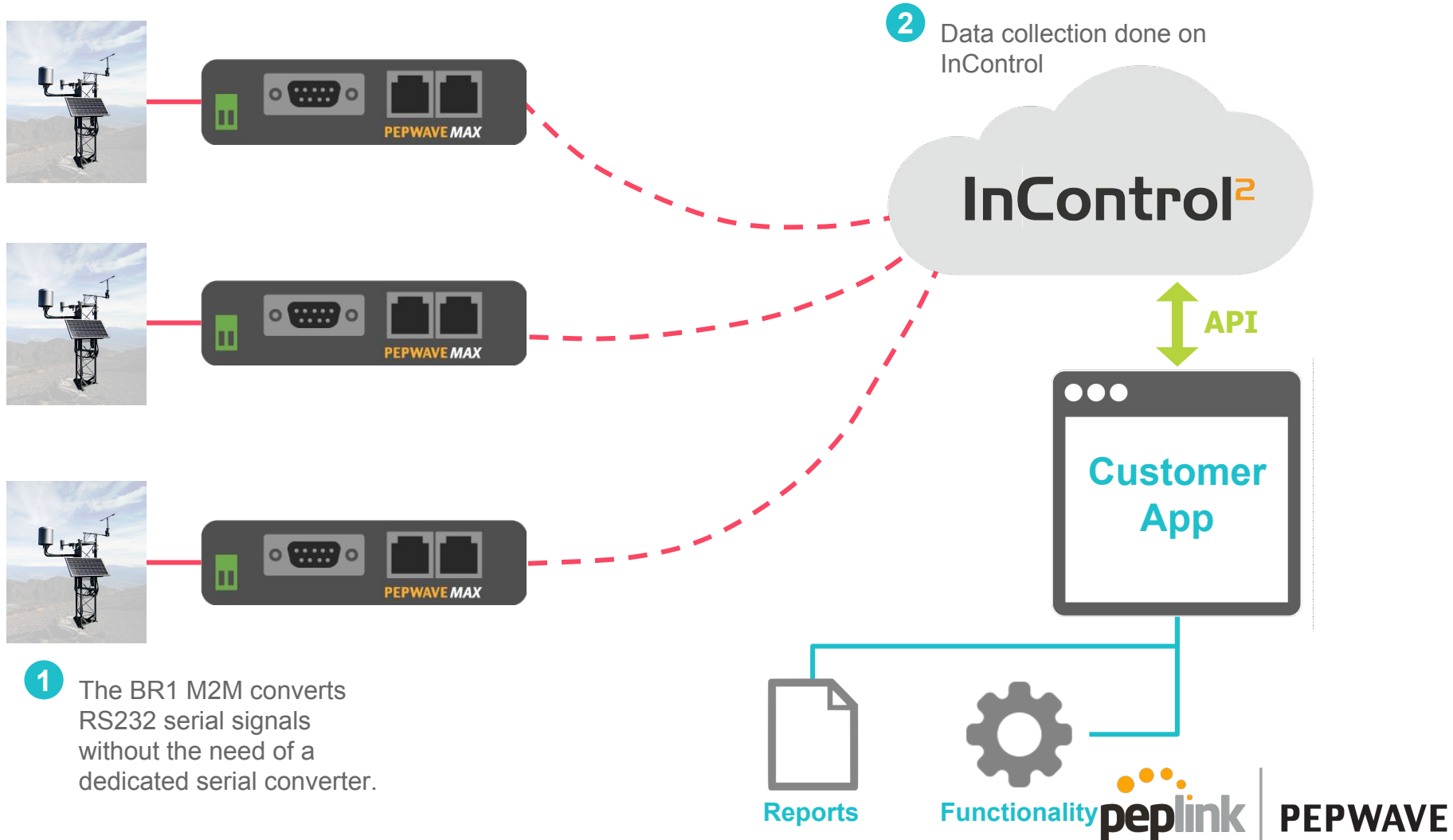
Use Case: Out-of-Band Management

No Internet Access

1 The router's Internet is down, but the network could still be remotely managed using a BR1 M2M.

Router

Console Port

Local Switch

2 Simply connect a BR1 M2M to any router's console port.

BR1 M2M

PEPWAVE *MAX*

3G

```
Router>enable
Router#configure terminal
Router(config)# interface GigabitEthernet0/1
Router(config-if)# ip address dhcp
Router(config-if)# no shutdown
Router(config-if)# exit
Router(config)# line vty 0 4
Router(config-line)# privilege level 15
Router(config-line)# login local
Router(config-line)# transport input telnet
Router(config-line)# transport input telnet ssh
```

3 Use InControl to remotely access the router's console via telnet or ssh.

peplink | PEPWAVE

Award Winning Mobile Command Unit Connectivity

- Deployed Balance 580 to 6 mobile assets and Balance 1350 to HQ
- Connectivity: Public Safety private LTE, commercial LTE, VSAT, microwave broadband
- **Winning Factors**
    - SpeedFusion aggregated bandwidth allows for high definition media streaming and other vital real-time information delivery
    - Always online - connection redundancy is now possible

"The Mobile Command Units have now found a more efficient way to get the job done!"
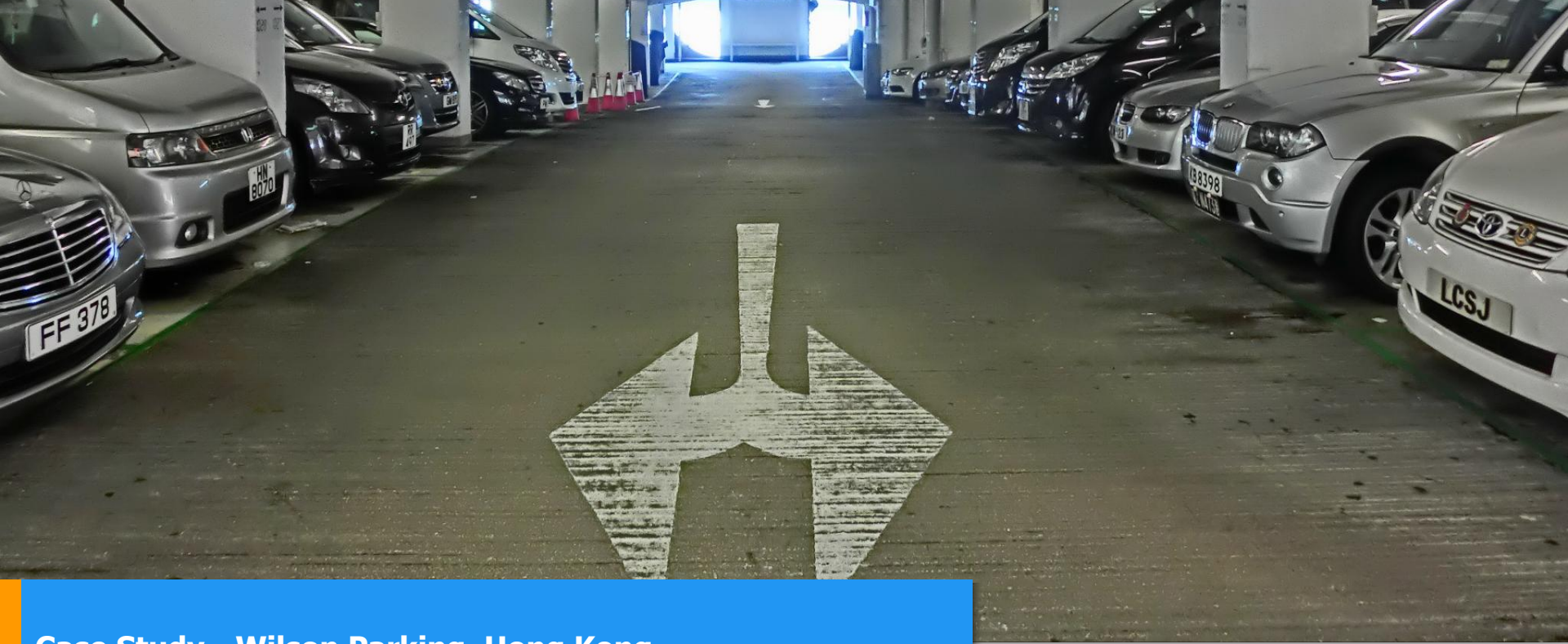-Sergeant Bryan Rudel, Harris County Sheriff's Office.

peplink | PEPWAVE

Instant Connectivity For Remote Worksites

- Deployed a combination of MAX 700, MAX HD2, MAX HD4 and MAX On-The-Go depending on work site environment
- **Winning Factors**
  - Flexibility allows Bowen to choose available types of cellular connectivity for the location
  - Network deployment is instant and available as soon as the team arrives
  - Predictable budgeting

"Every construction team is now spoiled!" -Paul Bravard, Network and Systems Administrator. Bowen Engineering.

Unbreakable VPN for Wilson Parking Lots

Wilson Parking

- 97 sites each with a Pepwave BR1 LTE using fixed lines with LTE as failover. 3 head offices each with a Balance 1350. Each head office supports 40-50 car parks
- 6 CCTVs, a monitoring workstation, POS and gate controls per car park
- **Winning Factors**
  - 100% fail proof: All 3 regional head offices are meshed to form the network core, and all 97 sites are fully connected for failover
  - High bandwidth enables high resolution CCTV video streaming
  - Remote sites where fixed lines are not available rely completely on cellular

Balance - Enterprise Grade Multi-WAN Routers

Branch / Small Offices	Small Businesses	Mid-Size Businesses	Large Enterprise / Campus

Balance 20/30/30LTE/50/One
- Recommended Users: 1-25
- Affordable Link Load Balancing

Balance 210/310
- Recommended Users: 1-50
- Bandwidth Bonding
- Drop-In Mode, HA

Balance 305/380/580/710
- Recommended Users: 50-2K
- Bandwidth Bonding
- Drop-In Mode, HA, LAN Bypass

Balance 1350/2500
- Recommended Users: 1K-20K
- Bandwidth Bonding
- Drop-In Mode, HA, LAN Bypass, 10G SFP+ Fiber, NIC Teaming

Common features: 7 Load Balancing Algorithms, AP Controller with Captive Portal, USB Tethering.

peplink | PEPWAVE
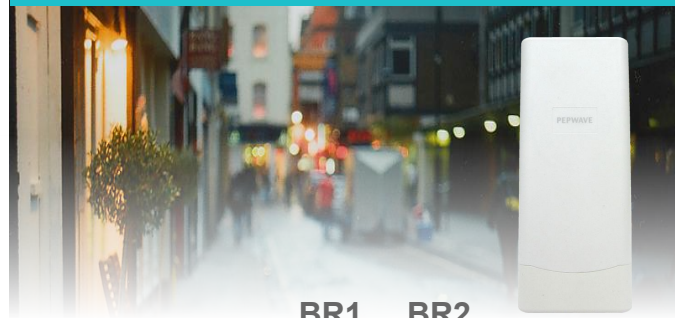
MAX - Business Rugged Series

General Purpose

BR1   **BR1 11ac**

Affordable Multi-Cellular LLB

BR2   **BR4**

Outdoor LTE, Outdoor 3G (2x cellular, 4x SIM)

BR1 IP55   **BR2 IP55**

Train Deployments

BR1 RS
-Train/Vehicle Certifications.
-Extreme ESD.

Ruggedized MiFi

BR1 slim
-Powered by micro USB
-Bank, optional DIN mount.

M2M, IoT

BR1 M2M
-RS232 interface.
-Optional DIN rail mount.

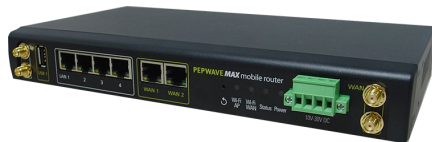## Enterprise Grade Failover

BR1 ENT
-No Wi-Fi.
-High Throughput.

Branch Office VPN

BR1 Pro

peplink | **PEPWAVE**

MAX - Mission Critical / Heavy Duty

HD2
- Dual LTE, Quad SIM
- General Purpose

HD2 IP67
- Dual LTE, Quad SIM
- Super Rugged

HD2 mini
- Dual LTE, Quad SIM
- No Wi-Fi for extra security.
- 802.11af PoE Support

HD4
- Dual LTE, Quad SIM
- Redundant power supply
- 802.11af PoE Support

Common features: High Throughput, LTE-A support, MediaFast caching on certain models.
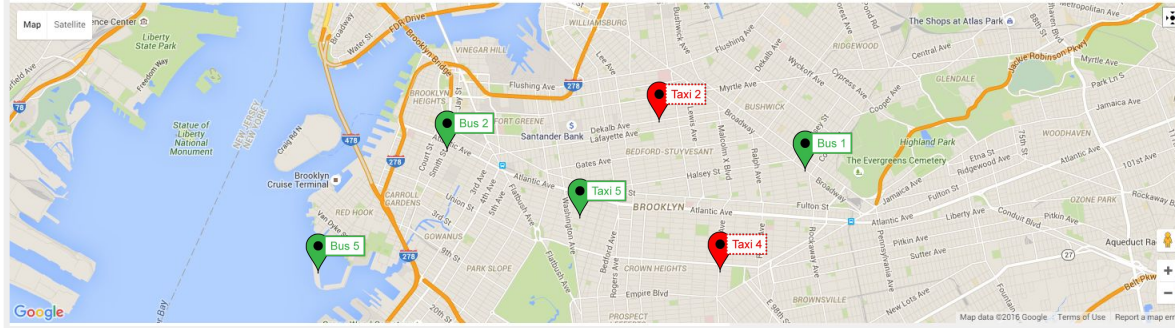
InControl² Cloud-Based Device Management

	FH for Taxis and Buses	-	Peplink FusionHub	now	4.1 kbps	1	6.2.1s002 build 1295	2015-11-25 18:28:26
	Taxi 2	Ad, Taxi	Group level settings	Pepwave MAX BR1	16 days ago	-	-	6.3.1 build 2023	2016-02-26 07:39:52
	Taxi 3	Ad, Taxi	Group level settings	Pepwave MAX BR1	22 days ago	-	-	6.3.0 build 1946 (Pending to update to "6.3.1 build 2023")	2015-12-18 17:38:54
	Taxi 4	Ad, Taxi	Group level settings	Pepwave MAX BR1	5 hours ago	-	-	6.3.1 build 2023	2016-03-11 23:23:27
	Taxi 5	Ad, Taxi	Group level settings	Pepwave MAX BR1	now	1.0 kbps	0	6.3.1 build 2023	2016-03-12 12:09:52

Download as CSV
Manage...

First Previous 1 Next Last

Map

Real-Time Dashboard

Using GPS tracking, see the location of each vehicle in your fleet in real time.

Bulk Configurator

Save hardware profiles and flash them onto all Peplink units in the same group.

1AD2-FB47-TK89

PEPWAVE

Group Usage Report

See how much data your network has been using. Find out which device is consuming the most data

Top Clients by Usage (192)

#	Name	Upl
1	android-faa69cb7c08ec832	
2	android-f2b2b9a87519c91b	
3	android-d3f526b5d282bd04	
	android-8ba3c805aea9571c	

peplink | PEPWAVE