SOLUTION GUIDE

D-Link Edge Cloud Solution
(D-ECS)

Introducing D-ECS
Network Agility for Enterprise IoT Management

Mobile 4G-LTE/5G technology is redefining versatility for wireless business applications and making on-demand network deployments possible. Prompting companies to explore the possibility of deploying mobile edge networks for existing business segments to streamline operations, increase output, and ultimately improve bottom lines. But will their enterprise networks be agile enough to reap the benefits?

Security, automation, scalability, and visibility are all critical components of network agility and digital transformation. IoT network deployment, management, and expansion can be very costly, time consuming, and create network vulnerabilities without these attributes.
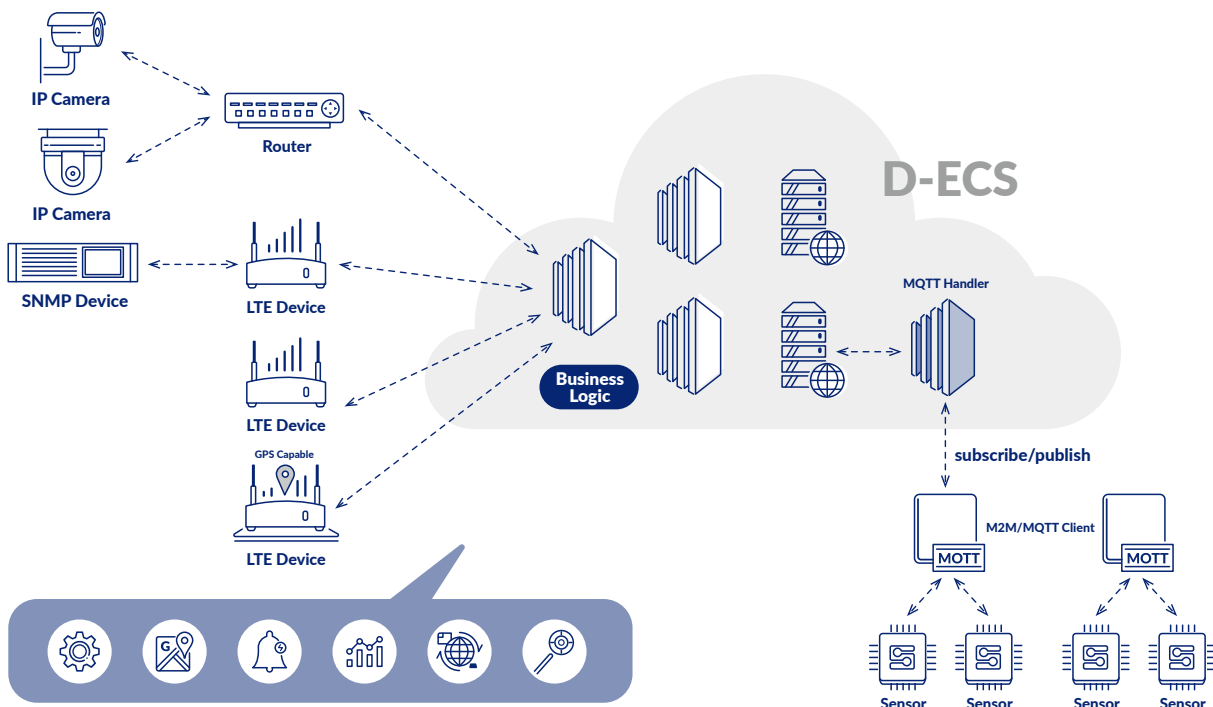
Connecting up to a million devices per square kilometre, 4G-LTE/5G is ideal for enterprise networks wanting high-density and low-latency connections. D-Link's Edge Cloud Solution (D-ECS) has all the tools for high network agility to ensure every device stays reliably connected.

Multi-Protocol Solution

D-ECS is an advanced EaaS (Edge as a Service) cloud computing platform designed to help MSPs, SMBs and enterprises manage a variety of M2M devices via a broad spectrum of protocols such as:

- **SNMP for network monitoring**
- **TR069 and TR098 for CPE and ACS communication**
- **Eclipse MQTT broker for M2M device communication**
- **GPX metadata for GPS routing info**

IP Camera

Router

IP Camera

SNMP Device

LTE Device

LTE Device

GPS Capable

LTE Device

D-ECS

MQTT Handler

Business Logic

subscribe/publish

M2M/MQTT Client

MQTT

MQTT

Sensor   Sensor   Sensor   Sensor

EaaS

TR-069	TR-111	TR-098	TR-143

MQTT	GPS Information	SNMP

Overall Benefits

Ultra-Low Latency, Security and Reliability to Support
Mission-Critical Operations

01/

Easy to Manage and Scale

The D-ECS portal is compatible with a wide array of M2M and IoT devices. It allows device owners to quickly and easily deploy, configure, monitor, troubleshoot, and manage multiple networks remotely via a web portal.

02/

Great Network Control and Visibility

Gain an extensive understanding of your private network at a glance through real-time diagnostics, usage analytics and status reports. Enable control and analytics of broad or fine granularity, which can be presented in various formats.

03/

### Future Proof and Easy to Migrate to 5G

The D-ECS software platform has a 5G-native architecture that is compatible with future 5G devices.

Security

Mobile encryption makes data transmission inherently safer, and D-ECS extends this security measure for your network management with end-to-end encryption. D-ECS also offers role-based security and multi-tenancy to ensure access and permissions are only given to authorized users, providing centralized multi-tiered and multi-site network management.

- **End-to-End Encryption**
- **Multi-Tenant Access**
- **Role-Based Administration**
- **Dual-SIM Redundancy**
  (*product specific)
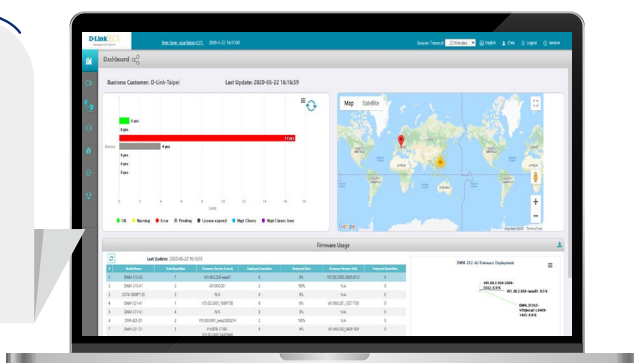
Redundancy

Network security extends beyond protecting sensitive information from unauthorised access. Cyberattacks, such as DoS (Denial of Service), can cause network failure, leaving an entire IoT device setup without connectivity. D-Link offers a selection of dual-SIM (quad-SIM for vehicle applications) mobile routers for network redundancy to ensure uninterrupted connectivity for mission-critical applications.

SIM A

SIM B
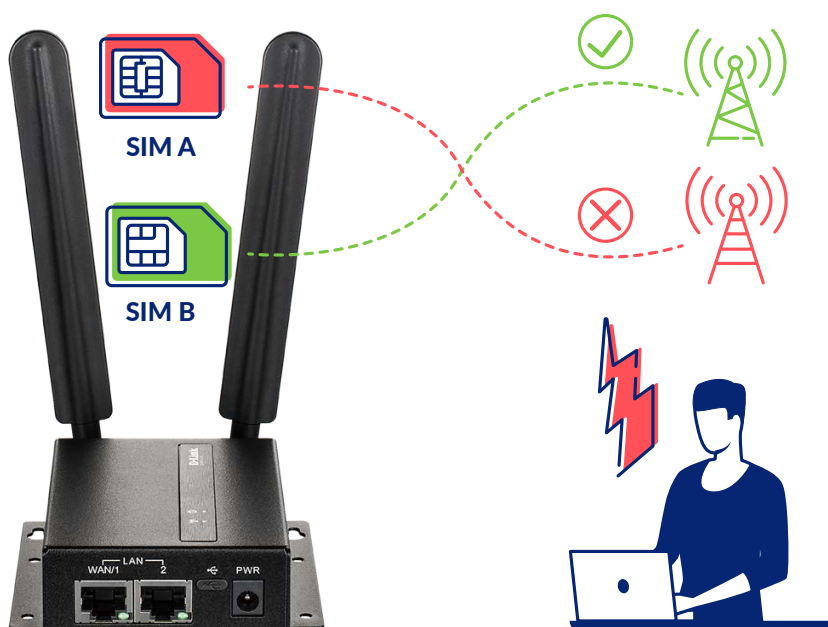
Automation

The high-density and low-latency nature of mission-critical applications, such as transportation and industrial IoT networks, is downtime intolerant. Automated network task services can alleviate administrators of routine maintenance tasks, allotting more time for network event monitoring and preventive maintenance. In addition to user-defined task schedules, D-ECS also features automatic failure detection and push alerts to help administrators resolve network issues quickly and efficiently.
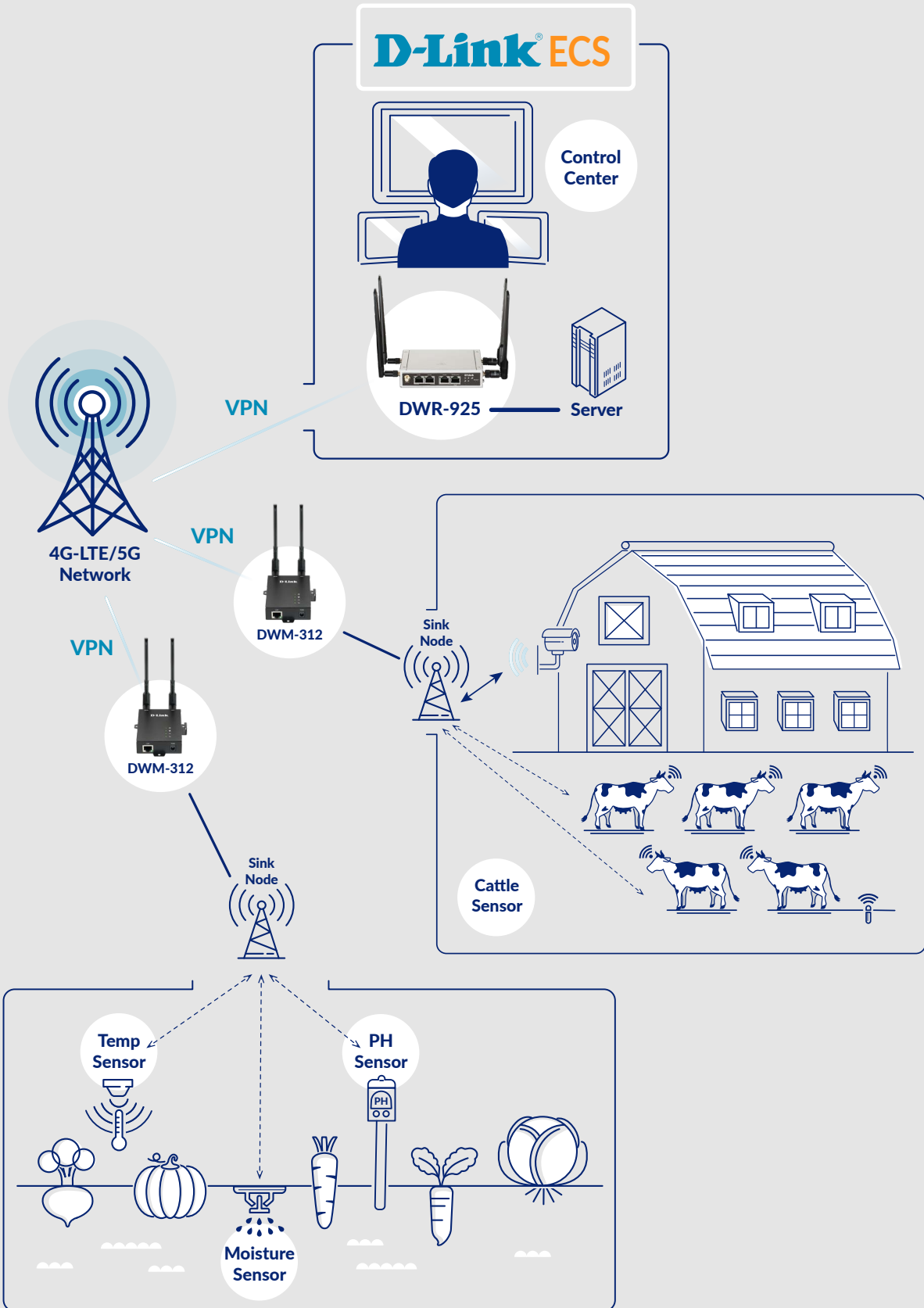
- **Configuration Updates**
- **Scheduled Firmware Upgrades**
- **Failure Detection/Alert**
- **Automated Reports**
- **Routine Reboots**
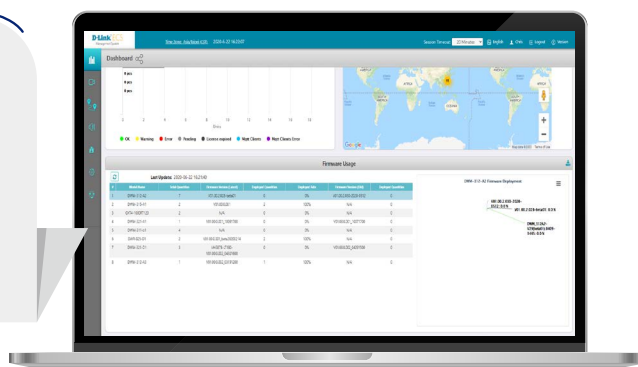
Smart Agriculture

Agricultural Technicians can schedule automated network tasks, such as firmware updates, device reconfiguration, and reboots to optimise mobile connectivity for a wide range of M2M sensors collecting vital environmental data, such as soil, daylight, and water conditions, to make informed decisions and maximise productivity.

D-Link ECS

Control Center

DWR-925 ——— Server

VPN

4G-LTE/5G Network

VPN

DWM-312

Sink Node

VPN

DWM-312

Sink Node

Cattle Sensor

Temp Sensor

PH Sensor

Moisture Sensor

Scalability

Scalability is the network's ability to expand quickly (or even relocate) to meet business operations needs. D-ECS takes scalability to a higher standard with Zero Touch Deployments using cloud management for effortless network expansions. Able to support a virtually unlimited number of edge devices, D-ECS is ideal for managing 4G-LTE/5G networks.

- Zero Touch Deployment
- On-Demand Scalability
- Unlimited Network Expansions
- Batch Cloud Configuration
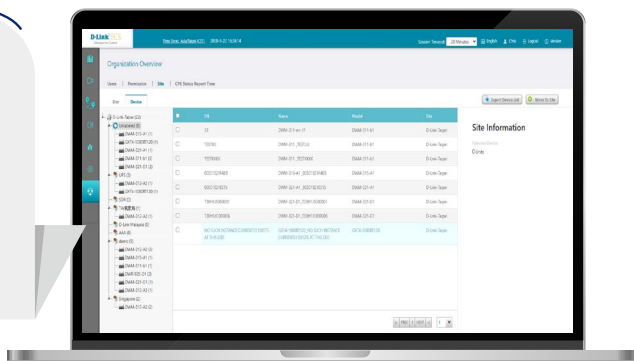
4G-LTE/5G Service Providers:

Operators can upload account information and ship devices directly to customers. Once powered on, the device will automatically download configuration files over the cloud. Zero Touch Deployment means no wires to run, no settings to configure, and no technicians required.

1

Upload Device Configuration

2

Ship Devices to Deployment Sites

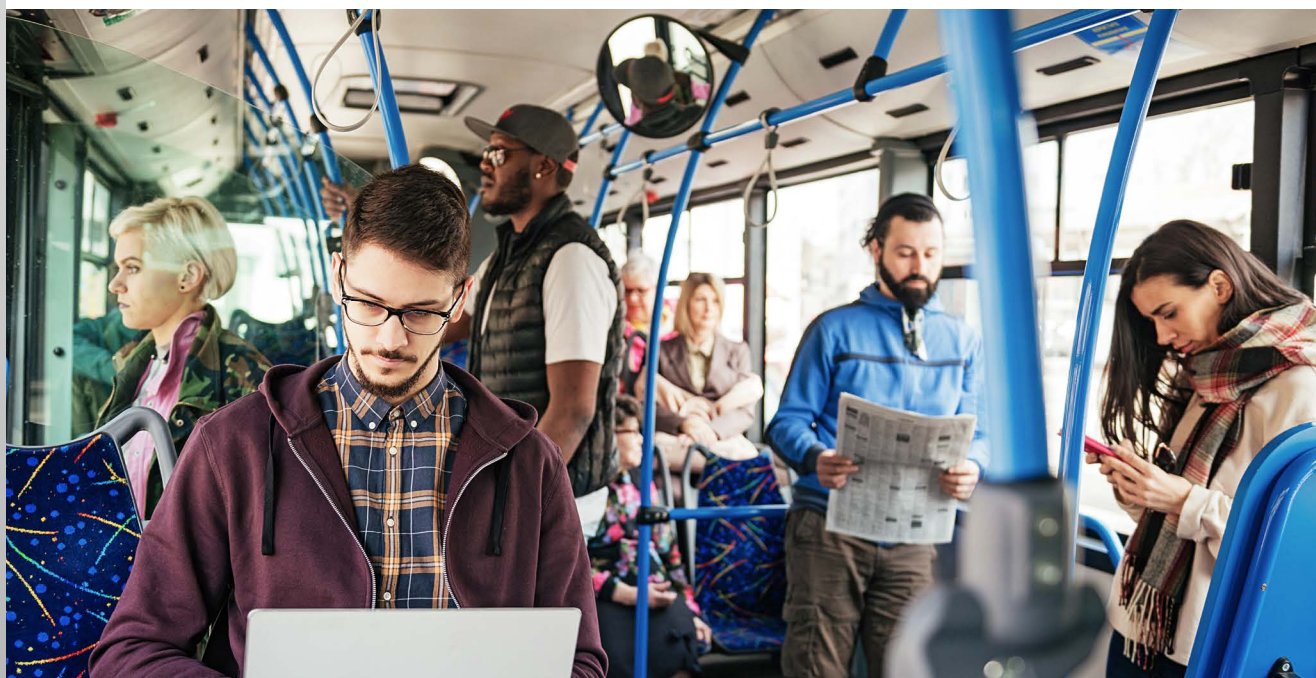**3**

Power On Devices

ON

CONNECTED
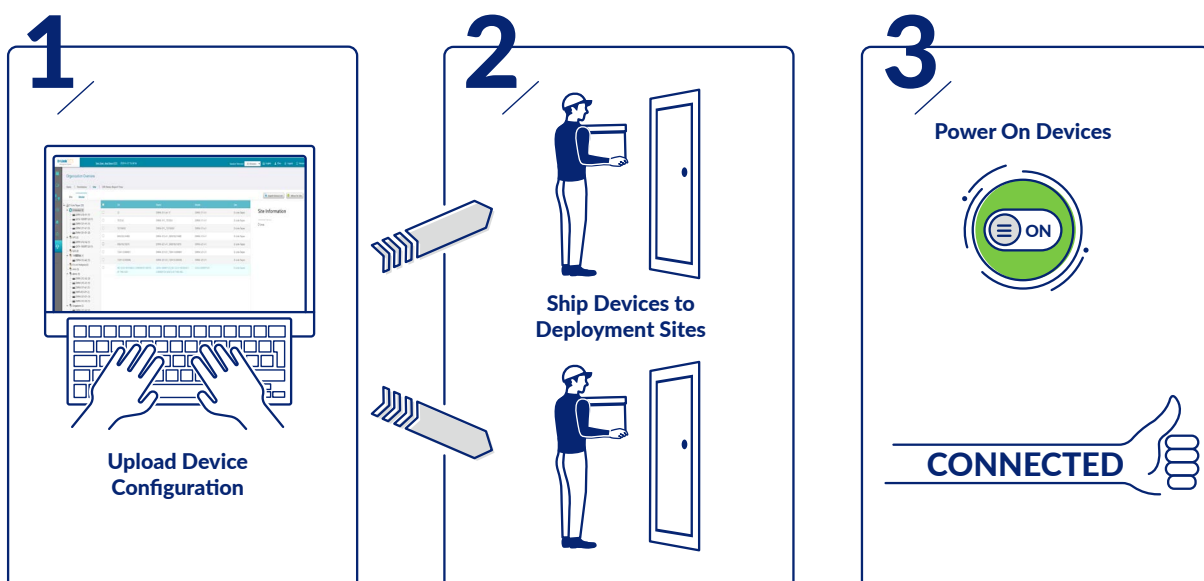
Visibility

Network visibility generally consists of a collection of visual tools used to monitor traffic and assess performance for efficient network management. Featuring a visualised network topology, D-ECS enables a comprehensive overview of network infrastructure at a glance with real-time monitoring and status reports. All edge device locations are also conveniently shown in an integrated Google map display.
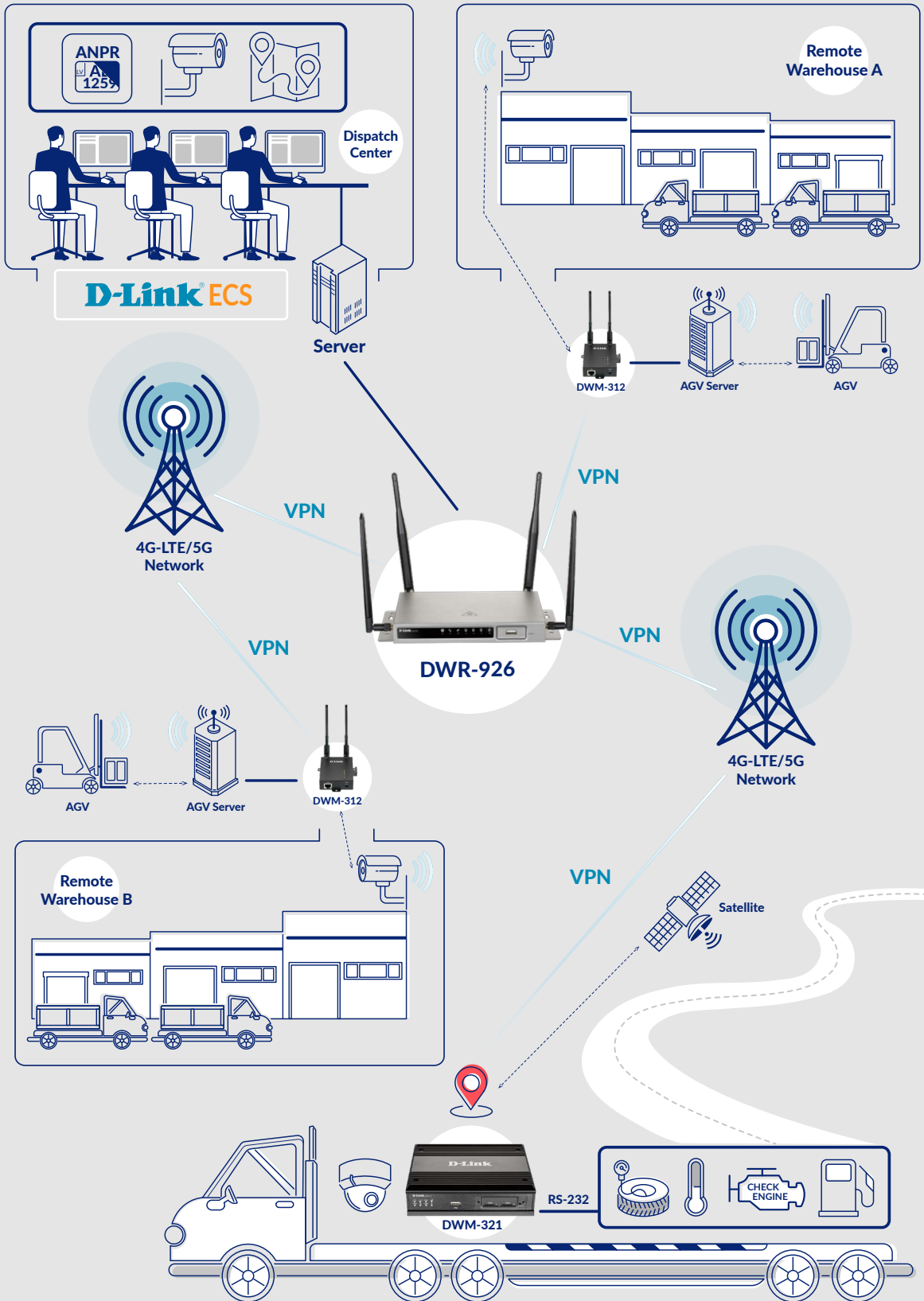
- Visualized Network Topology
- Map Display of Network Nodes
- GPS Location & Route History
- Event Filtering
- Searchable Event Log
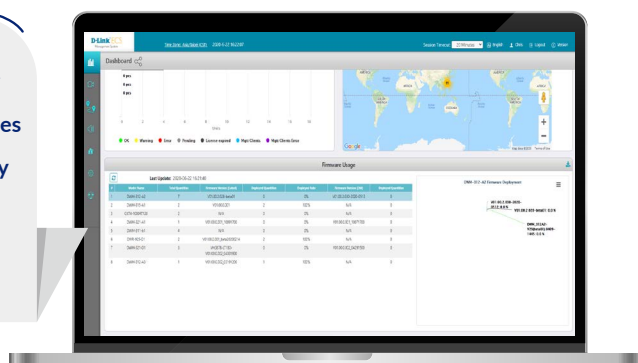
Transportation & Logistics Sectors:

Bus operators can connect onboard Passenger Information Systems (PIS) and offer internet access for passengers. Logistics dispatchers can use the GPS fleet tracking feature to immediately access current vehicle location and route history information (paired with DWM-321). Critical sensor information from vehicle monitoring systems can also be collected to ensure road safety, protect onboard cargo, and minimise vehicle downtime.

ANPR
A·
1259

Dispatch
Center

D-Link ECS

Server

Remote
Warehouse A

DWM-312   AGV Server   AGV

4G-LTE/5G
Network

VPN

VPN

VPN

DWR-926

VPN

4G-LTE/5G
Network

AGV   AGV Server   DWM-312

Remote
Warehouse B

VPN

Satellite

RS-232

CHECK
ENGINE

DWM-321

Featured Products

There is much research and development ahead for 4G-LTE/5G before organizations can fully realize the true potential. D-Link offers a range of mobile routers that work seamlessly with D-ECS to build a highly reliable network and achieve greater network agility. Dual-SIM routers with failover redundancy and rugged design are also available for mission-critical applications in demanding operating environments.

Model	DWM-311*	DWM-312	DWM-312W	DWM-321*	DWM-926*
Product Photo					
Product Name	4G LTE M2M VPN Modem	4G LTE M2M VPN Router	4G LTE M2M VPN Wi-Fi Router	4G LTE In-Vehicle Wi-Fi Hotspot	4G LTE Cat 4 M2M VPN Router
Connectivity	1 x SIM slots 1 x 10/100/1000 Ethernet LAN port	2 x SIM slots 1 x 10/100 Ethernet WAN/LAN port	2 x SIM slots 1 x 10/100 Ethernet WAN/LAN port 1 x 10/100 Ethernet LAN port	Four with Two (2) LTE built-in modems (HW: D1) Two (HW : A1) 1 x 10/100/1000 Ethernet WAN/LAN port 2 x 10/100/1000 Ethernet LAN ports	2 x SIM slots 1 x 10/100/1000 Ethernet WAN/LAN ports 3 x 10/100/1000 Ethernet LAN ports
Speed	LTE Cat. 4 / downlink 150 Mbps	LTE Cat. 4 / downlink 150 Mbps	LTE Cat. 4 / downlink 150 Mbps	LTE Cat. 4 / downlink 150 Mbps	LTE Cat. 6 / downlink 300 Mbps
Antennas	2 x detachable 3G/4G antennas	2 x detachable 3G/4G antennas	2 x detachable 3G/4G antennas 1 x detachable Wi-Fi antenna	4 x detachable 3G/4G antennas (H/W: D1) 2 x detachable 3G/4G antennas (H/W: A1)	2 x detachable 3G/4G antennas 2 x detachable Wi-Fi antennas
VPN Features	OpenVPN	L2TP/PPTP/ IPSEC/GRE VPN	L2TP/OpenVPN/ PPTP/IPSEC/GRE VPN	L2TP/OpenVPN/ PPTP/IPSEC/GRE VPN	L2TP/OpenVPN/ PPTP/IPSEC/GRE VPN
TR069 Remote Management	Yes	Yes	Yes	Yes	Yes

* Available upon project request

To register your interest on D-ECS, visit **eu.dlink.com/d-ecs**

D-Link®