

The Network Resilience Platform

NetOps for *your* Network



Smart Out-of-Band and NetOps. Together.

Network Resilience: Keeping Your Business Running

When the network goes down, how do you recover quickly?

If your SD-WAN router fails, how do you get back up without a truck roll?

If a bad configuration is pushed, how do you remediate it?

When trouble strikes – whether it's a hurricane or a cyber-attack, a local power outage or a global pandemic – will your network be ready?

Aberdeen Research found that every hour of downtime costs a typical company \$260,000¹. Not to mention the frustration it causes your customers, and the number of angry calls and emails you get from the Operations team.

If you're worried about uptime, then improving Network Resilience should be top of your priority list. Redundant systems might be the answer in a data center, but for edge locations you need an alternative way to monitor and manage your network equipment, even when there's no one on site.



Network Resilience:

"The ability to provide and maintain an acceptable level of service in the face of faults and challenges to normal operation²."

In a recent study of 500 global IT leaders³, 43% were increasing network resilience with added automation, 42% were enhancing monitoring, while just 36% were focusing on network redundancy.

A secure, independent network management plane provides guaranteed remote access to your critical devices. And that's why Out-of-Band Management is the key to Network Resilience

References: 1. "Maintaining Virtual System Uptime in Today's Transforming IT Infrastructure," [Aberdeen Research](#), 2016. 2. JP Sterbenz et al "Resilience and survivability in communication networks", [ComNet Journal](#) 2010. 3. "Measuring The True Cost Of Network Outages" – an [independent study](#) commissioned by Opengear.

Out-of-Band Management: The Key to Network Resilience

A console server in every rack, physically connected to your critical devices, gives you presence at, and proximity to, your IT infrastructure, no matter where it is in the world. It creates a secure network, separate to the production network, allowing you to manage your devices remotely, without impacting normal operations.

Networking relies on three planes – the Control, Data, and Management planes. The introduction of SDN has driven the separation of Control and Data, but when the Management and Data planes are still combined, there are risks both to the security and the reliability of your network.

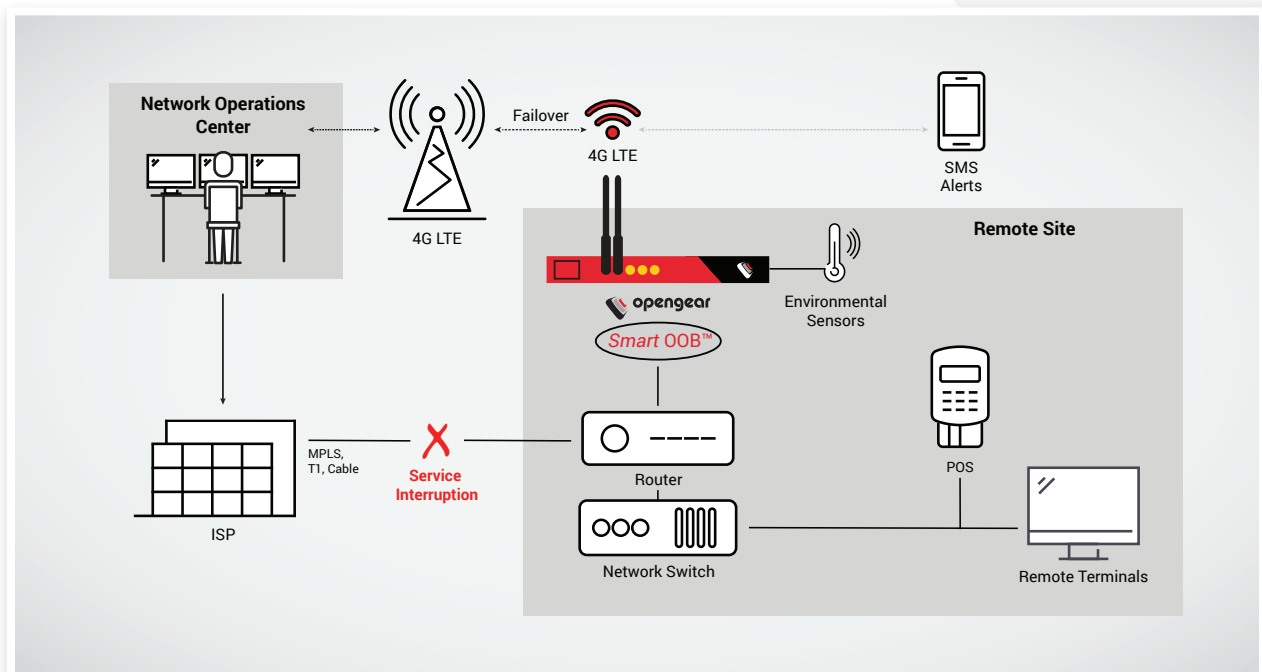
A general network failure, or data congestion (from a misconfiguration or a cyberattack) can make it impossible to access individual network devices through the data plane, to identify and remediate a networking problem. So, an independent access path to those devices, often via 4G-LTE cellular, provides a more reliable approach to managing the network infrastructure.

Configuration of devices should only be accessible by a small group of Network Admins, to minimize errors and protect from potential hackers. Use of an independent, dedicated management plane allows for these configuration tasks to be locked out from the Production network to limit the security risk.

Out-of-Band Management is no longer just for emergency access. It should be the everyday management plane for Network Engineers.

Out-of-Band Management:

“An alternate and dedicated connection to the system separate from the actual network that the system runs on...allows an administrator to ensure the establishment of trust boundaries since there would only be a single entry point for the management interface⁴.”



The Network Resilience Platform

The Evolution of *Smart* Out-of-Band Management

Opengear's *Smart* Out-of-Band solutions are trusted by 75% of the Fortune 100 companies, offering innovation in embedded cellular access and intelligent management, and a belief in the value of an open architecture and the Linux system.

The Network Resilience Platform brings together the most advanced *Smart* OOB™ Console Servers and the new NetOps-enabled Out-of-Band appliances, under the supervision of Lighthouse centralized management software.

Benefits of *Smart* Out-of-Band:

- **Failover to Cellular™.** Stronger business continuity, with enough bandwidth to run your critical data and processes through the console server, while you identify and remediate any network event
- **Certified, Embedded 4G-LTE Modems.** Cellular modules are an integral part of the unit, removing the uncertainty of stand-alone modems and dongles. The console servers are certified by all major cellular carriers, as a complete unit
- **Smart Alerts.** Receive automated updates via SMS or email, providing instant notification of a network issue
- **Environmental Sensors.** Stay ahead of potential issues with visibility into temperature, humidity, vibration and door openings
- **Automated Port Discovery and VLAN support.** [OM Series] Simplify deployments by identifying the attached devices automatically; plus, the NetOps console servers also support VLAN



The Foundation of A Resilient Network:

Lighthouse Management Software for a clear view across the network

Smart OOB Console Servers for standard deployments at the data center and at the edge

NetOps Console Servers for locations requiring advanced networking routines and automation

Smart OOB Console Servers

The Market Leader in Cellular Out-of-Band

IM7200 Infrastructure Manager

In data centers and large IT deployments, the Infrastructure Manager allows network operations staff to securely access critical network devices from the control room or Network Operations Center (NOC).

The IM units have 8-48 software-selectable serial console ports, dual GbE connections with built-in Fiber SFP, 16GB internal storage, and available 4G-LTE cellular embedded module. 24 port Gigabit switch and 24 USB console port models are also available.



ACM7000 Resilience Gateway

For smaller IT deployments like retail stores, branch offices and satellite locations, the Resilience Gateway provides secure alternate access to your critical devices via an embedded, global 4G-LTE cellular modem. Failover to Cellular™ ensures business continuity while issues are being resolved

Connect devices directly to this small form-factor console server via 8 serial and 4 USB ports. A 4 port GbE switch option is available, and every unit includes 4GB internal memory.

Some units are available with analog modems, and can be ordered without cellular modules



CM7100 Console Server

A standard console server for data centers and large compute locations, the CM7100 offers 16-96 serial console ports with simple straight-through cabling to Cisco®-style serial consoles.

Each unit has dual GbE ethernet connections, and interfaces with the Lighthouse management software platform. Cellular access is not available on the CM7100 unit. For high-density applications such as hyperscale locations, the CM7196 model offers 96 console ports in a 1U configuration.

The NetOps Console Server

NetOps and Out-of-Band. Together

A *Smart* Out-of-Band management network already provides presence and proximity to your critical devices, and so is well-placed to bring NetOps automation to your network. The ability to run standard NetOps tools, such as Docker and Python, on a console server provides a new way to automate your operations at centralized and remote locations.

The NetOps Console Servers

The first in the industry: Network Management appliances that combine the capabilities of a *Smart* OOB™ Console Server with the flexibility of NetOps Automation.

With an x86 CPU, the OM appliances support standard Docker containers and a Python runtime environment. A secure boot process is made possible with the embedded TPM2.0 module, enabling secure deployments to distributed locations. And in addition to the standard *Smart* OOB features, OM appliances include automated port discovery and VLAN support. All of this managed through Lighthouse Enterprise software.



OM2200 Operations Manager

The OM2200 NetOps Console Server is configured for data centers and high-density locations. As part of OpenGear's Network Resilience Platform, it provides a separate, secure management plane that supports advanced automation applications.

Configurations are available with 16, 32 and 48 console ports, and an optional global LTE-A Pro cellular module. The units feature 8 USB 2.0 ports for device console management and 2 USB 3.0 Host Ports for storage; and 64GB internal flash memory to keep configuration and software files on site, where they are needed.

The “Mars Lander” Solution

When you deploy to a new location, you are often sending equipment to a “hostile” environment – untrusted, unmanned and with no connectivity. Not so different from landing on Mars. Send a secure NetOps Console Server to that location, with a secure boot process, to manage your Day-one deployment. When the appliance “lands” at the remote site, it calls home over a secure LTE connection for remote configuration, pulling in up-to-date software and image files.

OM1200 Operations Manager

The compact OM1200 appliance is designed specifically for secure edge deployments, used in combination with Lighthouse management software. It provides Presence & Proximity at every location, while supporting emerging requirements in Network Management and Automation.

The OM1200 series offers 4-8 Serial and 4-8 Ethernet ports and cellular access with a Global LTE-A Pro module. Features include a 16GB internal flash memory, plus 2 USB 2.0 ports for device console management and 2 USB 3.0 Host Ports for storage.

Lighthouse Management Software

A Clear View Across Your Network

Lighthouse software manages all of your network devices via localized console servers. As an API-driven platform with an html5 interface, it provides secure access to remote networks regardless of how they are connected or how a user interacts with the system. In combination with NetOps Console Servers, Lighthouse can push and manage Docker containers in each remote location to provide additional functionality and automation.

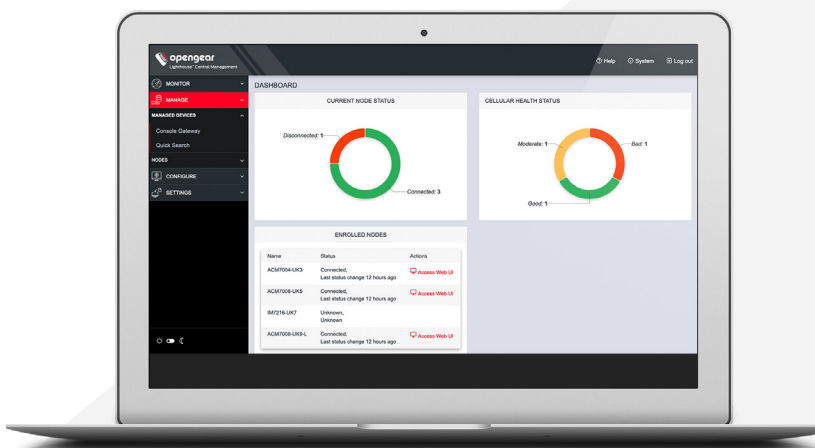
When deployed across a distributed enterprise of data centers and edge locations, Lighthouse is the control center of a comprehensive network resilience solution, independent of the production network

Lighthouse at the Center of Your Resilience Platform

- **Security:** Integrated authentication via AAA protocols ((TACACS, Radius, LDAP); and the ability to closely control permissions for every operation, from logging in to logging events.
- **Automation:** Run NetOps routines on your Opendgear appliances by deploying Docker containers using Lighthouse; and access the local Python runtime environment to automate routines.
- **Scalability:** As a subscription service, it's easy to add additional nodes. And Lighthouse can be hosted on the hypervisor of your choice either locally or on Azure or AWS.
- **Broad Access:** Lighthouse adds Remote IP access to Out-of-Band, supporting connectivity to a range of IoT and edge devices.

Enterprise Edition:

- **High Availability:** For widely distributed networks, Lighthouse Enterprise can run multiple instances across sites to balance connectivity load and ensure redundancy when an issue occurs at one or more locations
- **Secure Provisioning:** Without a network engineer on site, and with no existing LAN or WAN, use NetOps tools to automate the configuration and provisioning of a unit once it arrives at site.
- **Third Party Integrations:** Tie a Lighthouse event (such as a connected node failing over to cellular) to one of 2000+ integrations via Zapier.



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