



Healthcare Solutions to Extend Patient Care

Remote Connectivity Options for COVID-19 Response Strategies

As COVID-19 cases increase around the world, healthcare professionals look for creative ways to care for patients and rapidly scale healthcare services. From deploying pop-up triage tents for testing; repurposing convention centers, hotels & university residences into healthcare facilities; and leveraging remote patient care to reduce in-person hospital visits; speed, flexibility and connectivity are essential.

Extreme offers a range of network solutions that can help. Regardless of size, environment and deployment scenario, Extreme's curated solutions can help healthcare providers adapt and scale to the unprecedented demands of COVID-19.

1. Enabling Telehealth Services and In-home Patient Monitoring

Healthcare organizations are working to reduce exposure from person-to-person contact and minimize overburdening hospitals. Increasingly doctors are opting for online 'check-up' calls, rather than in-person visits. Elective surgeries are being postponed and where possible, patients are being discharged and sent home, equipped with the appropriate medical devices needed for continuous monitoring.

At the same time, an ever-increasing number of medical professionals who exhibit even the mildest of symptoms are being told to stay home as a precautionary measure. With the healthcare system already overstretched, they need creative ways to remain working and assisting patients from the confines of their home.

For all these scenarios, a robust networking infrastructure is critical. It is essential doctors can connect with, monitor and assess patients remotely using a fault-tolerant connection. Enabling in-home patient monitoring, secure remote access for house-bound medical professionals and high-performance telehealth services are all imperative.

Extreme offers a range of remote access solutions to enable secure and seamless connectivity for healthcare providers, as outlined in the next table.

Extreme Network Solutions for Teleworking, Remote Patient Care, and Telehealth Services

Requirement	Extreme Solution	Benefits
Teleworking/ Remote Access (healthcare professionals)	Extreme Portable branch kit - Teleworkers Secure VPNs from a corporate AP that is deployed at the home back to a VPN Gateway or Extreme Networks Controller. Extreme's Portable Branch Kits provide curated packages for cloud managed remote access	<ul style="list-style-type: none"> • Secure, high performance connectivity that enables medical staff to remain productive when isolated. • Wide range of APs to support different teleworker requirements • Extends corporate defined policies to the home – strong authentication and segmentation. • Optional cloud-management to facilitate deployment, management and troubleshooting.
Remote Patient Care and Monitoring	Extreme Defender for IoT and ExtremeCloud Appliance Facilitate home-based patient care and remote monitoring by securing network connected medical devices.	<ul style="list-style-type: none"> • Secures patient healthcare devices: Delivers simple and secure medical device security for home-based care. • Highly scalable: Up to 10,000 managed APs/ adapters and 100,000 end systems (users and medical devices). • Helps hospitals maintain compliance as medical devices extend in to the home
Telehealth Services	ExtremeSwitching, ExtremeWireless, Extreme Fabric Connect Extreme's networking solutions ensures your healthcare infrastructure can scale to accommodate the rapidly growing Telehealth needs.	<ul style="list-style-type: none"> • Delivers high performance, secure networking solutions that allow hospitals to realize the full potential of their Telehealth services • Better video clarity, security and performance • Easier to deploy and scale video-based services

2. Connecting and Securing Triage Tents, Testing Sites, and Temporary Facilities

Healthcare organizations are being forced to implement immediate expansion of their care capacity and services outside of traditional hospital buildings. IT departments must deliver secure infrastructure solutions for testing and triage sites on hospital property and at temporary facilities while also remaining in compliance.

The network infrastructure requirements for temporary facilities can differ greatly. For example, a pop-up tent in a hospital parking lot used for COVID-19 testing has vastly different network requirements than a retrofitted convention center that needs to accommodate patients and mission-critical medical equipment.

Key factors to consider in choosing the appropriate network solution include:

- **Location:** Proximity of temporary facility to a hospital and/or an existing communications infrastructure
- Wi-Fi may be an option for extending connectivity to sites in close proximity of a hospital/business (for example a triage tent in a hospital parking lot)

- For sites that are not co-located, an SD-WAN solution or branch router must be deployed in addition to the wired/wireless infrastructure within the pop-up site.
- **New Build or Re-purposed:** New builds, such as pop-up triage tents, require a new wired/wireless network infrastructure. In contrast, repurposed sites, such as convention centers and hotels, should have an existing communications infrastructure. Consider its suitability for healthcare and whether it should be augmented to deliver the security, resiliency, compliance and performance needed for patient critical healthcare applications.
- **Speed of Deployment:** How quickly does the new site need to be up and running?

All factors require careful consideration when expanding healthcare services and deploying pop-up tents/temporary facilities. While speed is of the essence, upfront planning can mitigate future issues, resulting in a superior communications network infrastructure for the care and wellbeing of patients and staff.

Extreme Networks Site Expansion Solutions

As highlighted in the tables below, Extreme offers a range of pre-validated, curated packages enabling fast, secure, and compliant deployment and connectivity of remote sites.

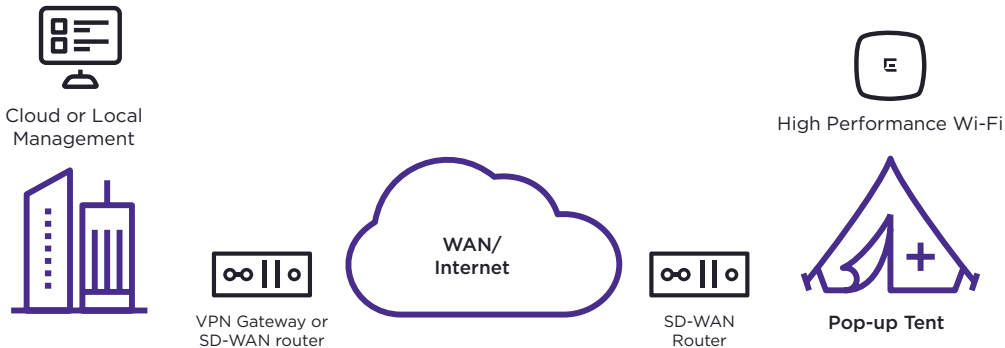
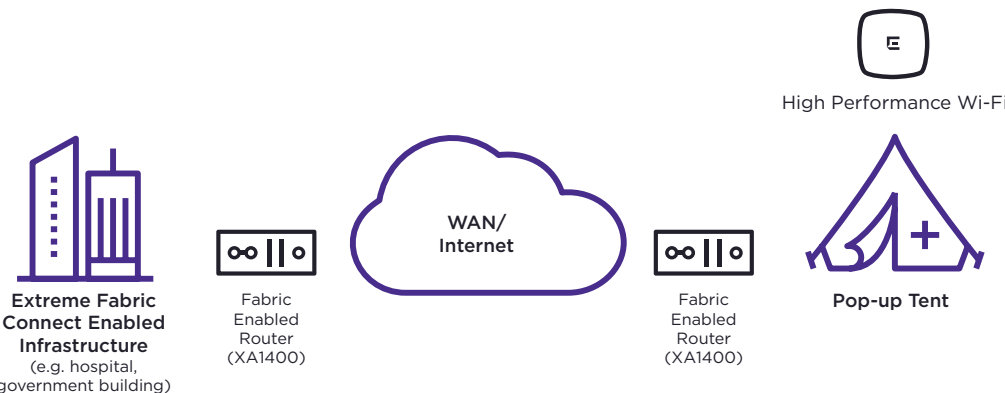
Extreme Network Solutions for New Builds

Close Proximity (e.g. pop-up tents)

Requirement	Extreme Solution	Benefits
Temporary site near hospital	<p>Rapid Outdoor Connectivity Kit</p> <p>The Rapid Outdoor Connectivity Kit helps hospitals and other organizations extend secure wireless connectivity to sites (<150 ft). The solution leverages powerful, wireless mesh technology to provide a secure, encrypted extension of the organization's or hospital's existing communications infrastructure; supporting even the most pressing clinical environments.</p>	<ul style="list-style-type: none"> • Rapid deployment: Pre-validated, curated packages; deploy without delay and without relying on external providers. • Speed and performance: Superior performance ensures uninterrupted access to clinical services, medical device connectivity and Electronic Health Records. • Facilitates Compliance: Helps hospitals and other organizations maintain HIPAA and PCI DSS compliance. • Optional cloud-based management: To simplify deployment and management; features such adaptive RF management and AI/ML driven analytics dramatically simplify ongoing operations. • Connects to existing Extreme or third-party networks that are deployed within the hospital.
	<p>The diagram illustrates the network architecture for a temporary site near a hospital. On the left, a building icon represents the 'Temporary site near hospital'. It is connected to a 'Cloud or Local Management' icon. A dashed line labeled 'Backhaul Link 2.4 or 5 GHz' connects the temporary site to a 'Pop-up Tent' icon. The 'Pop-up Tent' is connected to a 'PoE Switch' and 'High Performance Wi-Fi' icon.</p>	

Extreme Network Solutions for New Builds

Remote Sites

Requirement	Extreme Solution	Benefits
Temporary site remote from hospital/main building	<p>Extreme Portable Branch Kit</p> <p>Extreme Portable Branch Kits extend connectivity to remote locations. Ideal for locations such as fairgrounds with limited/no networking infrastructure</p> <p>Different packages catering to different sizes/requirements Learn more</p>	<ul style="list-style-type: none"> • Curated solutions for rapid deployment: Delivers essential networking capabilities to connect, secure, and manage remote network sites. • Flexible WAN Connectivity: Ability to connect remote sites with whatever WAN connectivity is readily available (Broadband, LTE, Private WAN). • Intelligent Traffic Management Features: Prioritize traffic from groups of users and/or prioritize healthcare applications over single/multiple WAN connections. • Centralized Cloud-Based Orchestration and Management: To simplify deployment and make it easier to configure, manage and troubleshoot many dispersed locations centrally through a single pane of glass. • Integrated Security Features: L2-7 firewall on the router and AP with advanced Wi-Fi security features such as WPA3, Private Pre-Shared Keys and more.
	 <p>The diagram illustrates the Extreme Portable Branch Kit solution. It shows a 'Cloud or Local Management' icon connected to a 'VPN Gateway or SD-WAN router' icon. This router connects to a 'WAN/Internet' cloud. The cloud then connects to an 'SD-WAN Router' icon, which in turn connects to a 'Pop-up Tent' icon. Above the tent is a 'High Performance Wi-Fi' icon.</p>	
Temporary Site remote from hospital/main building	<p>Extreme Fabric Access Platform 1400 Series</p> <p>Existing Extreme Fabric Connect customers have the option to extend their Fabric network using the XA 1400 series with Fabric Connect VPN.</p>	<ul style="list-style-type: none"> • Powerful WAN access platform that seamlessly and securely extends Fabric Connect services and secure segments to remote locations. • Complements a healthcare providers or government agency's existing Fabric deployment, providing a highly agile network infrastructure where virtual networks can be added or extended to remote locations. • Simplified management with the ability to manage all the distributed locations as part of a single unified fabric.
	 <p>The diagram illustrates the Extreme Fabric Access Platform 1400 Series solution. It shows 'Extreme Fabric Connect Enabled Infrastructure (e.g. hospital, government building)' connected to a 'Fabric Enabled Router (XA1400)' icon. This router connects to a 'WAN/Internet' cloud. The cloud then connects to another 'Fabric Enabled Router (XA1400)' icon, which in turn connects to a 'Pop-up Tent' icon. Above the tent is a 'High Performance Wi-Fi' icon.</p>	

Extreme Network Solutions for Retrofitted Sites

Repurposed Sites

Requirement	Extreme Solution	Benefits
Retrofitted/ Repurposed Sites (e.g. Convention centers, hotels, university residences that are being transformed into care facilities with hospital beds, ICUs, etc.)	Extreme Defender Enhance Security of the existing communications infrastructure with Extreme Defender for IoT. Secure and protect mission critical healthcare devices such as infusion pumps, patient telemetry systems, etc. Learn more	<ul style="list-style-type: none"> • Secures your critical Healthcare devices: Applies and enforces device profiles, controls IoT device network access. Isolates IoT devices into secure zones. • Works over any network infrastructure: Defender for IoT has secure adapters that are placed between the medical device and the network and is able to provide comprehensive security for critical devices regardless of the capabilities of the underlying network. • Simple User Interface: Enable non-technical staff to securely on-board, monitor, track and move healthcare devices without burdening already taxed networking and IT teams.

Security Considerations

While the top priority is scaling healthcare services to address the pandemic, cybersecurity cannot be forgotten. Health organizations involved in the response to COVID-19 face an "elevated level of risk" of cyber security incidents. Indeed, as more housebound healthcare professionals connect with their workplaces through VPNs, cybercriminals are capitalizing on the opportunity by exploiting critical vulnerabilities. Ransomware attacks are expected to rise as healthcare staff get too busy to remain vigilant and IT, tasked with rapidly rolling out new temporary locations, is expected to be too stretched to keep up with patches and security updates.

All Extreme Network solutions are designed with security in mind. Our multi-layered security approach, that includes policy, segmentation/ isolation, analytics, and compliance are critical in hardening the network infrastructure. It is very reason why many healthcare providers choose Extreme for their networking infrastructure. To learn more, review our comprehensive [network security offerings](#).

Conclusion

As healthcare needs continue to evolve to address the COVID-19 pandemic, the underlying network infrastructure has become never more important. Healthcare providers require agile, flexible and secure solutions to support their mission critical requirements.

Regardless of size, environment and deployment scenario, Extreme Networks can help. The pre-packaged solutions have been specifically designed to address the demands of COVID-19 – ease of use, rapid deployment, security and high performance. [Reach out to an Extreme healthcare specialist to learn more.](#)



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