Satellite data connectivity solutions for UK healthcare

Elevating National Health Service workloads with reliable, more secure, better connected satellite internet and private network connectivity.

AWS in healthcare

The Amazon Web Services (AWS) healthcare mission is to facilitate the access and delivery of person-centred care to improve outcomes and lower costs by accelerating the digitisation and utilisation of healthcare data. Our aim is to help the National Health Service (NHS) and its partners develop cloud strategies to achieve more with less, modernise technology, and digitally transform back-office and clinical services.

Why resilient connectivity is critical for the NHS

Modern healthcare depends on digital connectivity. From AI-powered diagnostic offerings to real-time patient monitoring systems, the digital transformation of the NHS has improved care delivery while creating critical dependencies. When networks fail, the impact extends far beyond IT inconvenience, it interrupts business, leading to negative consequences.. With over 1.7 million NHS staff relying on digital systems daily and patients increasingly receiving care through connected devices and telemedicine services, robust backup connectivity is part of the essential infrastructure supporting patient safety and care delivery. Network outages can have life-threatening consequences and significant operational impacts:

Patient safety risks

- Loss of real-time patient monitoring
- Disrupted emergency response coordination
- Inaccessible electronic health records
- Failed telemedicine consultations

Operational costs

- Cancelled appointments and procedures
- Manual paper-based processes
- Staff overtime and resource strain
- Delayed discharge and bed blocking

Recovery challenges

- Average of 4- to 12-hour restoration times
- Data integrity verification problems
- System synchronisation issues
- Staff retraining on backup procedures
- Patient data reconstruction

How Amazon LEO will work

The Amazon LEO satellite network will have 3,236 satellites in low Earth orbit (LEO) constantly moving overhead. When one satellite goes out of range, another will seamlessly take over, safeguarding the hospital's connection to critical AWS healthcare services.

Understanding LEO technology

Imagine trying to talk to a friend across a field: With traditional internet, the message travels through underground cables, like whispering through a long tunnel. Sometimes these tunnels get blocked or broken.

Satellite internet is like having a friend in a tall tower who can see everyone in the field. Someone shouts up to them, and the friend in the tower shouts down to someone else on the other side. It's much faster and more reliable.

Traditional satellites are like friends standing on a mountain far away, where it takes ages for voices to reach them and come back. (That's latency.)

LEO satellites are like friends on a nearby hilltop. They're much closer, so they can hear the call and respond quickly. Amazon LEO will have thousands of these friends positioned around the world.

LEO satellites operate between 160–2,000 kilometres above Earth. They're significantly closer than traditional geostationary satellites, which are 35,786 km high. The proximity of the LEO satellites to the Earth improves connectivity by delivering internet speeds comparable to fibre broadband with reduced latency.

Benefits of Amazon LEO connectivity to the NHS

More secure connection path

Traffic flows from the hospital network through the NHS firewall to a UK-based Amazon LEO service using an encrypted LEO satellite link, which runs directly to AWS using a dedicated private connection. It doesn't touch the wider internet.

Performance optimisation

A 30–50 millisecond latency connects real-time applications such as remote surgery assistance, instant medical imaging access, and seamless video consultations with specialists.

NHS security standards

Integration maintains existing NHS security policies while adding satellite redundancy. Patient data remains within UK jurisdiction and meets NHS security requirements.

Seamless failover

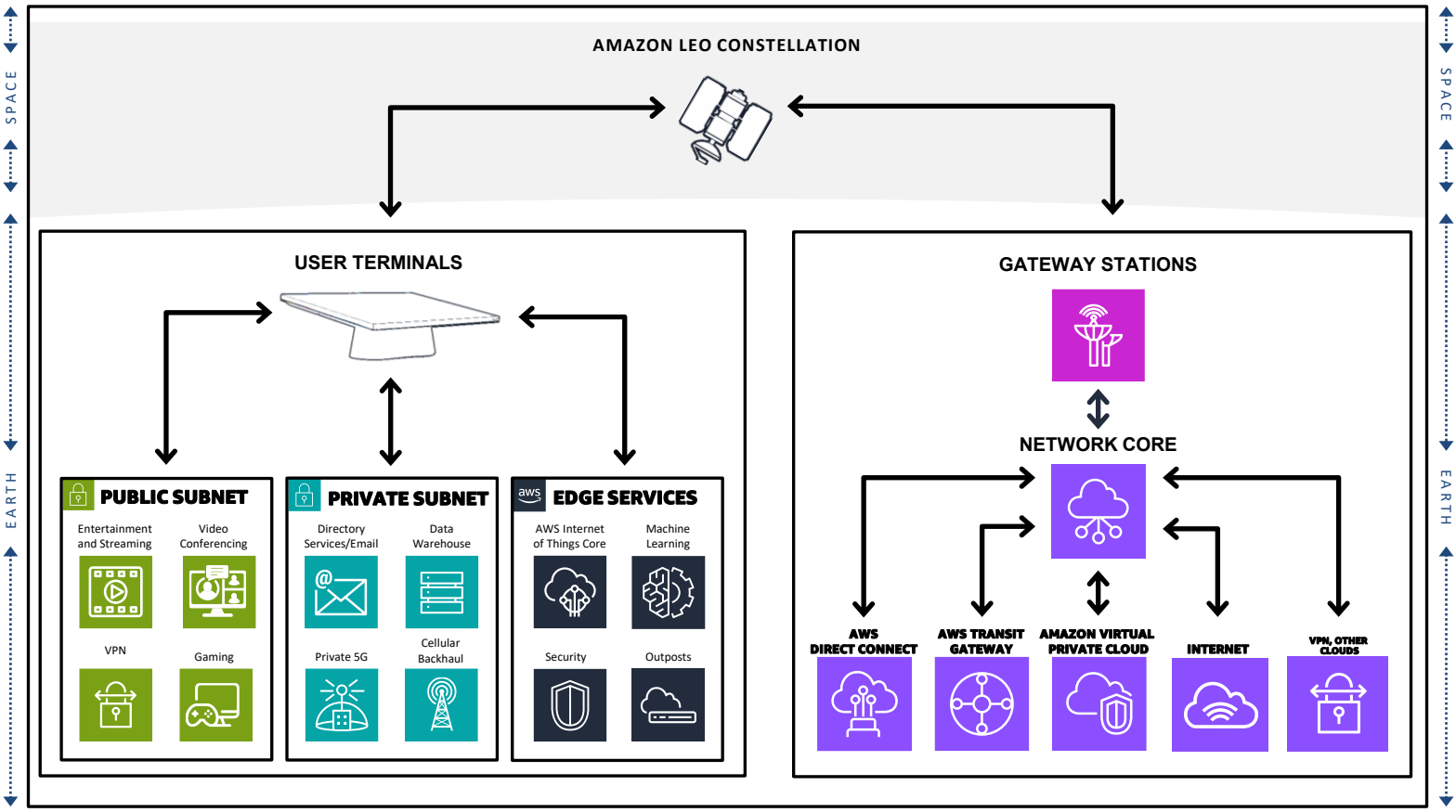
Automatic switching between primary terrestrial connections and Amazon LEO satellite backup for continuous access to critical AWS healthcare services during outages. (This depends on existing organisation network hardware.)

Integration options

Integrating Amazon LEO with existing NHS infrastructure will be seamless and more secure. The architecture diagram demonstrates how hospitals can maintain their current network security policies while adding satellite redundancy. The existing NHS firewall, routing, and security protocols remain unchanged. Amazon LEO will become an additional connection path that activates automatically during primary network failures.

The key advantage is direct AWS integration: Rather than connecting to the wider internet, Amazon LEO will provide a private pathway directly to AWS UK Regions using dedicated AWS Direct Connect links. This means the patient data won't traverse public networks, maintaining NHS security standards while providing access to cloud healthcare services such as AWS HealthLake, medical imaging analytics, and AI-powered diagnostic offerings.

Implementation needs minimal changes to existing infrastructure, such as adding the Amazon LEO terminal and configuring automatic failover routing policies.



Resilient connectivity backup

Support uninterrupted healthcare services with automatic failover when primary connections fail. Critical for hospitals, emergency services, and patient monitoring systems.

Mobile connectivity solutions

Mobile health units, ambulances, and community outreach programmes equipped with reliable high-speed connectivity anywhere in the UK.

New and temporary location connectivity

Rapidly deploy connectivity for temporary hospitals, vaccination centers, disaster response units, and new NHS facilities before permanent infrastructure is available.

Amazon LEO differentiators

Amazon LEO will offer high performance and more secure global connectivity businesses can depend on.

High performance

Amazon LEO will deliver high-performance connectivity to users with downlink speeds of up to 1 Gbps.

- **High-speed, low-latency connectivity**
- **Advanced user terminals**
- **Enterprise services**

More secure by design

The Amazon LEO network will be designed for security. Traffic will be encrypted from the user terminal to the edge of the network.

- **Encrypted data**
- **Private connection**
- **User virtual networks**

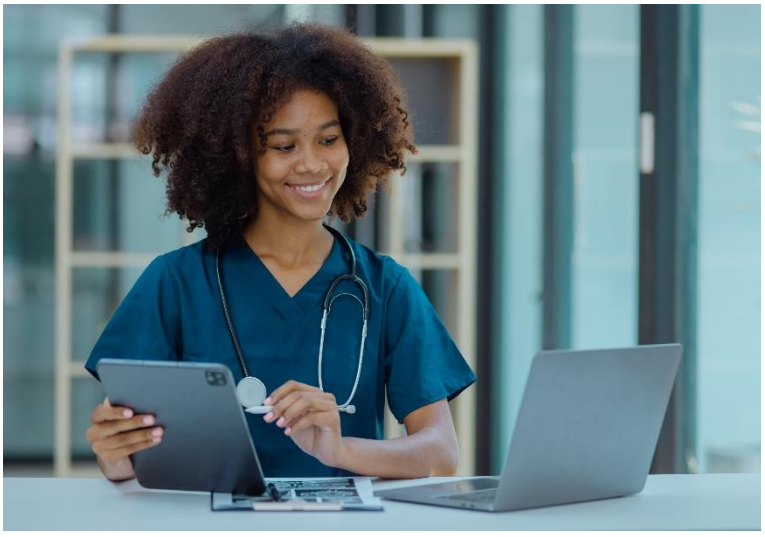
Enterprise-ready

Amazon LEO will deliver enterprise-grade networking services with offerings and user support inspired by a trusted cloud environment.

- **Rapid deployment**
- **User support**
- **Management offerings**

AWS NHS Data Egress Waiver

When it comes to budgeting for technology, it can be difficult to accurately forecast the costs associated with sending data. With the NHS Data Egress Waiver (DEW) program, organisations can adopt or maintain AWS cloud workloads without the burden of network egress charge forecasting. AWS makes it straightforward to use the technology without worrying about unexpected expenditures.



AWS offers the data egress discount to a wide range of NHS organisations. AWS users might be eligible for a waiver of their egress charges under this program if they fall into any of these categories:

- **NHS trust**
- **Integrated care system (ICS)**
- **Arm's length body (ALB)**

If users operate AWS cloud services in their NHS organisation AWS account, AWS can provide them with a discount on the charges when they send data from AWS to the internet, over the Health and Social Care Network (HSCN), or using the Scottish Health Protection Network (SHPN). This can help users save time when planning their budgets and can provide a savings of up to 15 percent of the total of what they spend on AWS services each month.

Connectivity options

Every NHS facility has unique connectivity requirements based on patient volume, service complexity, and geographical challenges. The three service tiers of AWS are designed around healthcare use cases, from rural GP surgeries requiring basic telemedicine support to major trauma centres managing real-time surgical procedures and high-resolution medical imaging.

Each plan includes healthcare-specific optimisations: prioritised bandwidth for critical patient monitoring systems, dedicated support channels familiar with NHS operational requirements, and seamless integration with the existing digital infrastructure of NHS organisations. Plans maintain the same enterprise-grade security standards with end-to-end encryption and UK data sovereignty compliance.

Compact

100 Mbps

Standard terminal
(28 cm x 28 cm)

- Half-duplex connectivity
- Perfect for GP surgeries
- Basic telemedicine support
- Electronic health records
- Email and messaging

Ideal for small clinics, GP practices

Professional

400 Mbps

Pro terminal
(28 cm x 28 cm)

- Half-duplex connectivity
- HD video consultations
- Medical imaging transfer
- Mobile health units
- Emergency response

Ideal for hospitals, mobile units

Enterprise

1,000 Mbps

Enterprise terminal
(76 cm x 51 cm)

- Full-duplex connectivity
- 4K medical imaging
- Real-time surgery support
- Data centre backup
- Multisite connectivity

Ideal for major hospitals, specialist centres

Amazon LEO will help businesses drive new growth and innovation while reducing costs through **more secure, flexible, high-speed, low-latency satellite connectivity.**

Get started

Contact your AWS account team to learn more about how AWS can:

- Support you on your cloud journey
- Understand your technical landscape
- Build your cloud business case
- Identify the best procurement route for your NHS trust
- Identify quick wins and initial migration opportunities

AWS resources

- Guidance for NHS trusts adopting AWS cloud services
- AWS networking
- AWS for health
- AWS Partner Network

Get in touch

Email: aws-uk-healthcare@amazon.com