

Navigating the Future: Modernising Network Infrastructure at The Port of London Authority for the Next Generation



The Port of London Authority is the collective network of terminals and facilities along the river Thames in London, England. It has a rich history dating back to the Roman period and has played a crucial role in the economic development of London and the UK.

The Port of London Authority has been a valued customer of HPE Aruba Networking platinum partner, Switchshop for over a decade. After successful project implementation back in 2019 to upgrade their ageing network infrastructure which included modernisation across their wired and wireless network and included a refresh of their legacy storage solution.

As part of their commitment to ensuring sustainable business, together we created a clear brief with a focus on sustainability, aiming to minimise the environmental impact of port operations, and invest in cleaner modern technologies to accelerate network performance and reduce emissions.

Partnership matters

Paul Willmott & Craig Stowers IT Infrastructure & Operational Team Port of London Authority, came to us with the need for a comprehensive network modernisation/replacement to address operational challenges and propel itself into a new era of efficiency, technological advancement and to have a fresh start with ease of use and security embedded from the start “We have over a 10-year relationship with Michael Curry and the extended Switchshop team, we trust their specialised expertise and in-depth knowledge in networking, security, and IT infrastructure to transform our network to support our continued growth. The Port of London Authority are custodians of the Tidal Thames that today comprises over 70 independently owned terminals and port facilities, directly employing over 30,000 people, the modernised network needed to support our area of operations which stretch for 95 miles, with no interruption of service to our customers and operations and be able to meet the needs of National Infrastructure Security regulations. We choose to work with Switchshop, as we had a shared vision for innovation, and their commitment to upholding the social, cultural and sustainable values of The Port of London Authority and our stakeholders was key to transformation”.

Critical networks for the next generation

The Port of London Authority (PLA) operates more than 20 remote sites equipped with Radar, CCTV, VHF radio and other informational systems. These systems are

critical for tracking vessels entering and exiting London's ports. To ensure seamless operation and safety for their stakeholders, the equipment requires a fast, low-latency, redundant, and reliable connection to PLA's data centres. Traditional broadband or 4G/5G connections with VPN were insufficient for this purpose. They needed a modern, reliable and high-performance solution.

To address part of these needs, PLA had already made significant investments in new point-to-point microwave links between its sites, creating a network with multiple redundant paths to the data centres at key locations.

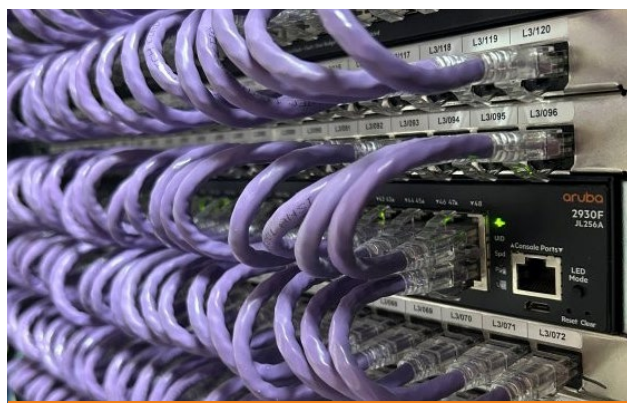
The next challenge was identifying a technology that could run over this network, providing layer 2 connectivity from each remote site to its respective router in the data centre while ensuring optimal data routing without path elimination, such as that caused by spanning tree protocols.

PLA had invested time and effort into various technologies, none of which delivered the outcome that they had desired. This is where EVPN-VXLAN emerged as the ideal solution.

Enter Switchshop, HPE Aruba Networking and Hewlett-Packard Enterprise (HPE)

As an award-winning UK reseller, Switchshop are experts in modernising networks and IT infrastructure across public sector, higher education, healthcare and enterprise organisations. Their consultative, technically led approach is backed by partnerships with HPE Aruba Networking to deliver the best-in-class network technology to underpin the modernisation of the wired, wireless, core and edge network.

As a Platinum partner of HPE Aruba Networking, Switchshop could offer The Port of London Authority access to market-leading network fabric technology at the best available price. The Switchshop engineers worked side by side with them on the a PoC followed by design, pre-staging, configuration and network operations.



The delivery of advanced fabric solutions

- **Build on investment:** By building on Aruba technologies already in place, and expanding as required, Switchshop were able to leverage existing investments in both hardware, software and skillsets held by the team.
- **Solution by Design:** Switchshop worked closely with the PLA to design, test and importantly prove the desired outcome before they committed any major resources. In doing this, the PLA could ensure they were going to get value for money from day one, and that the solution would meet their needs.
- **Outcome:** By utilising an underlying routing protocol, in this case OSPF, the solution meets the project's redundant multipath requirements. The overlaying EVPN-VXLAN technology creates a network fabric that extends layer 2 connectivity across an existing layer 3 network, ensuring devices at remote sites maintain a direct layer 2 connection to each other and the routers.
- **Management:** By design the solution to use Aruba Fabric Composer (AFC), PLA can deploy and extend the fabric with just a few clicks – providing simple, visual and clear management of their fabric solution.

A sea of change

Built on cloud-native principles, the Port of London Authority have embarked on an extensive IT modernisation roll-out gives their IT teams the flexibility to deploy a single switch operating system from edge to core, encompassing both traditional and fabric technologies. This included automation, high availability, and secure segmentation to support intuitive management tools, distributed analytics, as well as enterprise-grade security.

The network modernisation deployment continues to support one of the Port's key pillars of their new strategy of ship and port technology on managing increased data traffic and unified integration of the network. There have been significant technical advancements on the new maritime control hub, ready to adjust as new technology is deployed. The application of emerging data capability is shaping plans for the management of hydrographic data and its interface into Vessel Traffic Services systems in port control, as part of preparations for autonomous vessel navigation.

The Port of London Authority also needs 24/7 network availability, even during software upgrades. By unifying the management of all network infrastructure into a single control panel, the HPE Aruba Networking technology reduced network complexity, and simplified troubleshooting, and response times. Upgrading/Replacing the existing legacy network with HPE Aruba Networking

advanced switching technologies, as well as servers and storage with HPE, the Port of London Authority has significantly reduced IT overhead and energy consumption.

When it comes to sustainability, the Port of London Authority has committed to Net Zero emissions by 2030 and is committed to leading the way in sustainability and improving environmental performance. Their vision is to build an inclusive, sustainable, and resilient Port for staff, customers and community, and to bring about environmental benefits on a global scale.

The Ports' digital transformation and focus on sustainability extends to the network infrastructure transformation and its impact on the shipping traffic. By setting the gold standard as a "Port of the Future", the Port of London Authority is now at the forefront of technology, sustainability and advancing to achieve their ship and port tech targets.

The next voyage

The Port of London Authority now has an IT and OT network infrastructure powered by HPE Aruba Networking, that's in a league of its own. Adaptive, high speed, secure and resilient, the modernised network gives PLA the flexibility to move more functions from on-premises to the cloud, scale, and flex to facilitate expansion and deliver insights in a visual way that facilitates instant action. Backed by industry-leading services from Switchshop, Port of London Authority has the network foundation they wanted to deliver next-generation services and experiences to their staff, customers and worldwide community.



"The Port of London Authority requirement was bespoke and required a creative, flexible solution. Whilst often deployed in Data Centres and traditional campuses, Aruba's Fabric technology provided the perfect approach to deliver on Port of London Authority's unique requirements. Using our decades of experience our team was able to quickly identify a solution to meet their needs then carefully design, test and deliver in a short space of time."

Michael Curry, Director, Switchshop