

# MANAGED LAN

## TECHNICAL SPECIFICATION

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## 1 Introduction

Managed LAN service is the core offering in Heathrow Commercial Telecoms' portfolio. It provides a secure, reliable, flexible and cost-effective data connectivity solution within Heathrow campus LAN.

Customers can connect end station equipment (PCs, printers, servers, workstations) directly to the LAN ethernet infrastructure while Heathrow seamlessly facilitates connectivity. The service delivers stable connectivity, with 24/7 proactive monitoring and support provided by Global technical teams.

## 2 Service Overview

Heathrow Managed LAN service provides an environment connecting together multiple sites and uses the industry standard technology to deliver secure scalable customer VPNs. The service is compliant with the ITIL service management framework and focuses on aligning the IT infrastructure and resources with the needs of Heathrow customers' business.

The service runs over Cisco 3-layer hierarchical network, based on the industry best practices in terms of separation and diversity, and providing the highest levels of resilience and availability. A modular network design means that supporting changing business requirements can be completed efficiently with the agreed SLAs. The use of layer 3 MPLS and layer 2 VPLS provides secure logical segregation of customers and fully supports the transport of voice, data and video. QoS is offered where necessary.

The Managed LAN service is compliant with the requirements of Payment Card Industry (PCI). More information on PCI compliance is available on [www.heathrow.com](http://www.heathrow.com)

## 3 Design principles

Heathrow made an investment in addressing the customers' key business requirements of resilience, capacity and scalability.

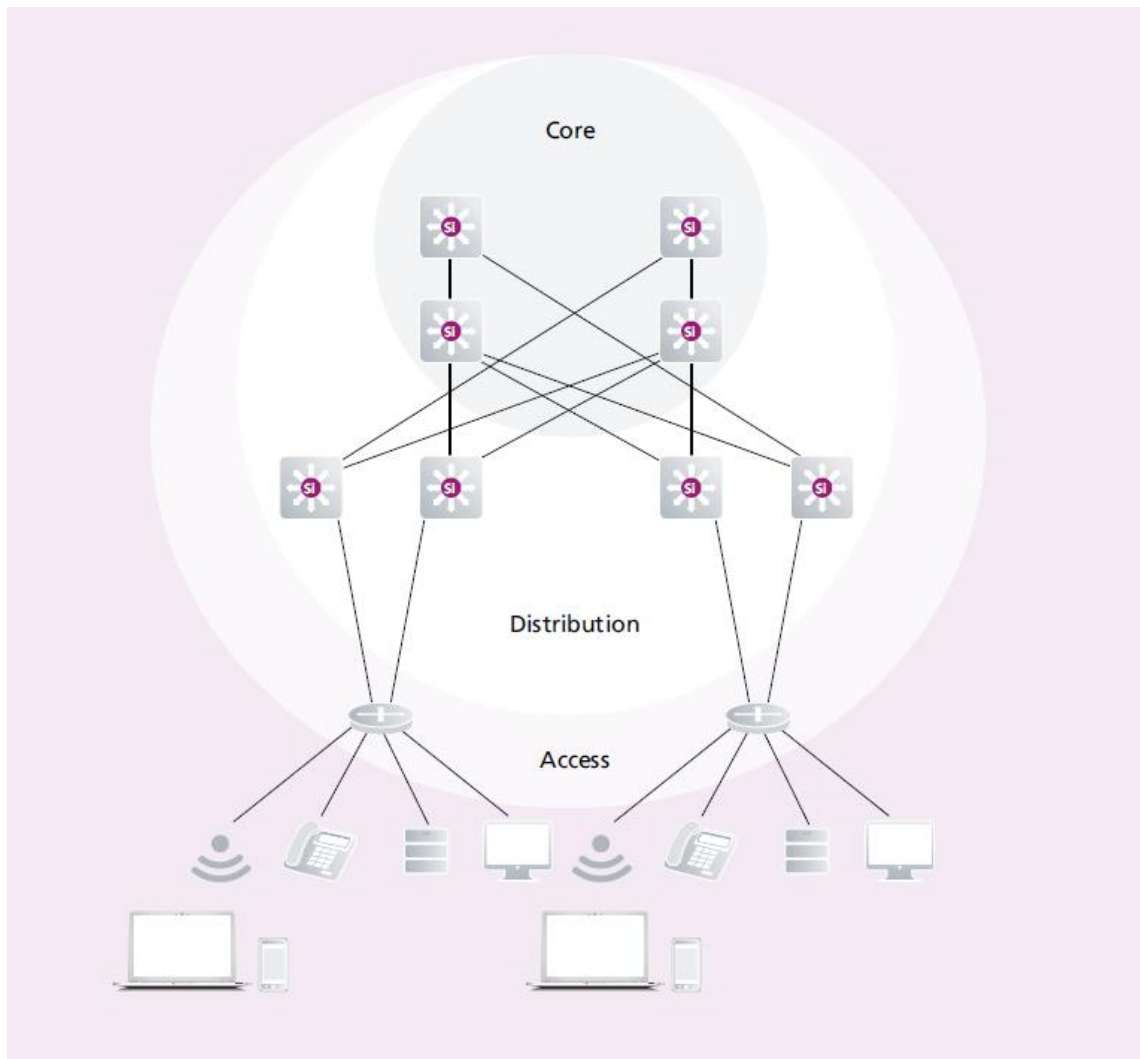
Resilience provisions ensure 99.9 uptime for all customers across Heathrow campus. Adopting and investing in the industry best practices for effective capacity management ensures optimal network performance at all times. Smart approach to the network design ensures scalability for the network to expand or contract in-line with the changing business requirements and to adapt to increasing data consumption.

These principles amongst many others are implemented in the standardised and repeatable network building blocks and over time remain a key reference source for those developing and maintaining the network, ensuring an on-going integrity of Heathrow campus LAN.

## 4 Resilience

Physical: The core and distribution switches are duplicated at different locations. The core and distribution switches have two power supplies and diverse power feeds from different supply stations and energy providers. The fibre optic connectivity that connects the switches has fully diverse route, never shares a cable or uses the same pit and duct system. The same diversity applies to connectivity from the distribution to access layer.

Logical: Each access switch is resiliently connected back to the distribution layer using diverse fibres to a different distribution switch



## 5 Capacity

Multiple services that run over Heathrow LAN range from voice and video to bag messaging. The network has the capacity to support all the services with multiple 10Gbps links between core and distribution switches.

The network has QoS policies in place which give higher priority to specifically voice (for IPT) and video (for CCTV). Once utilisation exceeds defined early warning indicators then each separate system will be prioritised by a class of service (CoS).

## 6 Scalability

Heathrow LAN is built of the standardised repeatable network design blocks. The network can be expanded or contracted in line with the business requirements, reducing downtime and providing operational cost-efficiency.

## 7 Network Management

Heathrow LAN is supported 24/7 by global teams of certified NOC engineers, with “the best of breed” proactive network monitoring tools and service management systems.

**EMC Smarts** provides real time information about the status of the network to the engineering teams. The system automatically raises incident tickets in the service management system if the pre-set thresholds have been breached.

**eHealth** system provides the capability to identify network performance trends and implement necessary configuration improvement.

**Infoblox** tool is used for change management such as backup, configuration and regression of network policies.

## 8 Security

Heathrow network service is aligned with the principles of the ISO 27001.

For encryption and authentication of the private customer networks, the Internet Protocol Security (IPSec) is used.

All access ports have bridge protocol data unit (BPDU) guard enabled which prevents rogue switches from connecting to the secure network, protecting the data centre core.

Virtual routers are configured on Palo Alto firewalls. The inter-VPN traffic is governed by the firewall rules set specifically for each Virtual Router.

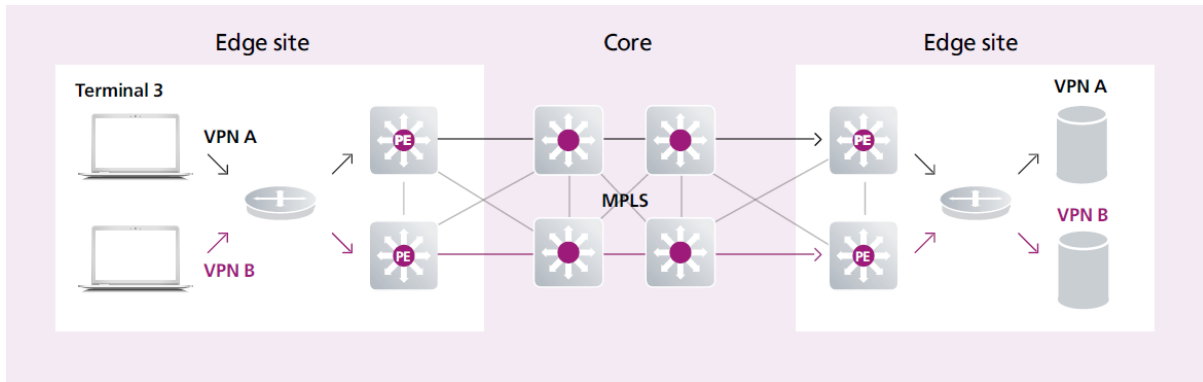
High performance Palo Alto Firewalls are used to secure access to the Managed LAN providing Cyber security services such as URL/WEB based Filtering, Threat protection and DOS (denial of service) protection.

## 9 MPLS Virtual Private Network

Layer 3 MPLS VPN or Layer 2 VPLS VPN is configured for each customer over the Heathrow’s MPLS backbone, benefiting from the private network functionality

VPN deployed in terminals which are part of the same Virtual routing table (VRF) allows secure communications. The service is presented to the customer as ethernet ports at the access layer.

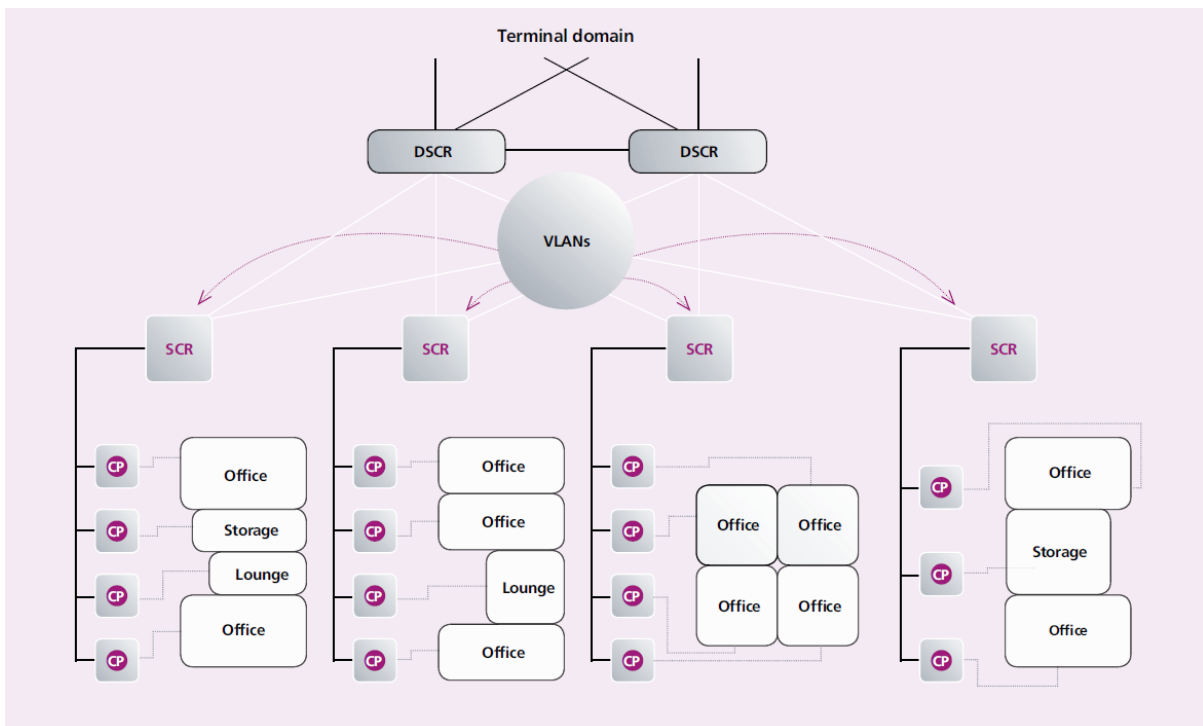
VPN also offers an egress point to a WAN circuit for external connectivity out of Heathrow Campus to the customer’s HQ or DC for corporate services.



## 10 Virtual local area network

The network on layer 2 is partitioned into VLANs to create multiple distinct broadcast domains, which are mutually isolated so that data can travel within a secure channel.

Each customer is assigned with its own dedicated virtual network, the traffic is isolated from other customers' traffic, while sharing and running on the common infrastructure with the other virtual networks.



- DSCR (distribution communications room), main communications rooms, two in T2A and T2B for example. These house domain level network devices, routers and switches. Physical resilience is provided utilising two geographically separated DSCR rooms for each IP domain.

- SCR (secondary communications rooms), multiple communications rooms located more frequently across Terminal 2. House access layer switching, have 10U lockable compartments and are located to provide optimal coverage for the Cat6 structured cabling layout.
- CP (consolidation point), located every 52m across the terminal, to provide flexibility of Common Infrastructure. CPs can serve one or more demises, and each CP has up to 12 data ports. Additional CPs can be installed if necessary.

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