University Wireless Standards for Institutional Networks

Context

The University Wireless Service have set minimum standards for network connectivity to wireless access points (APs) that are hosted on institutional networks. Adopting these standards will help facilitate high quality services and a greater degree of standardisation across the Collegiate University. Where institutions are unable to meet these standards, this will cause degraded performance of wireless equipment and, in the future, result in reduced support provision from the Wireless Service.

It is recognised that adopting these standards will need time to implement and as such we do not expect institutions to adopt these standards straightaway. However, when considering equipment replacement as part of a sensible product lifecycle or, say, building refurbishments, these standards should be implemented for full Wireless Service support.

These minimum standards have been reviewed by the Joint Network Management Committee.

Standards

Minimum Requirements

The following requirements are the minimum supported standards for University Wireless to operate on institutional networks that are not operated by Information Services.

Switch edge ports are 1Gb/s

Switch port connections to Wireless Service access points (APs) at the edge should have a minimum speed of 1 Gbps.

Support 802.3at / POE+ switch power

Switches should be able to provide minimum 802.3at / POE+ to APs to facilitate full functionality of the access point.

Support LLDP for enhanced power management

Link Layer Discovery Protocol should be enabled to facilitate APs to negotiate the correct power allocation from the switch.

Appropriately sized switch backhauls to the UDN connection.

Where the connection to the UDN is 10Gbps or greater, we recommend 10Gbps uplinks from edge switches to the network for greater wireless traffic throughput.

New cabling installations to support Access Points

Minimum Cat 6a cabling

Cat 6a should be the minimum used when installing new cabling. Additionally given most of any new cabling installation cost is the labour charge, it is recommended a 'more than is needed' approach is taken during installation in order to both facilitate future flexibility and later reduce unforeseen expenditure.

Two network points per AP

Two ethernet connections should be installed per AP location to support LACP for high-capacity AP throughput requirements and/or network redundancy. High-capacity APs should have two ethernet connections for higher power requirements[1], unless using Smart Rate or mGig connections.

Recommendations

Below are additional recommendations when hosting for Wireless Service APs. It should be noted at some point in the future these recommendations will also become the minimum requirements for University Wireless.

- Switch edge ports are 802.3bz compliant. For example, Aruba Smart Rate or Cisco mGig switch edge ports.
- Support 802.3bt / POE++ switch power for high-capacity APs.
- 10Gbps uplinks from edge switches
- 10Gbps connection to the UDN

[1] Higher capacity APs can exceed 1Gbps throughput. They also require 802.11at (POE+) power on two connections or 802.1bz (POE++) power on a single connection.