

## **MERU WIRELESS NETWORK DESIGN SERVICE**

## INTRODUCTION.

It is worth investing a little in the design phase to ensure that the Meru network infrastructure technical design meets or exceeds the specification in terms of coverage, connectivity, performance and reliability, and that the network implementation occurs on time and on budget.

The Siracom design service provides a modular approach. It ensures the requirement is documented, the underlying infrastructure is suitable, appropriate equipment is specified, the installation is safe, the system integrates with the infrastructure and meets the specification, and that the system meets or exceeds the specification.

### 1. DOCUMENT THE REQUIREMENT

The network must meet the requirements of the organization that commissions it, however that organization may not have the expertise to specify technically what it requires, in a practical manner. Siracom helps produce a specification document that identifies the commissioning organisation's requirements and provides a quantitative delivery specification. The specification is likely to include:

- Areas to be covered by wi-fi
- Minimum connection speed achievable in a given area
- Applications to be delivered and service level to be achieved
- Expected user densities in named locations
- User devices to be supported
- Security policy to be met.
- Resilience expectations.

### 2. DESKTOP DESIGN

Meru EZRF coverage planner is used to simulate the physical properties of the areas to be covered by Wi-Fi and produce an RF design. The RF design enables system designs and quotations to be produced. We take a scale plan of the building, add walls and other features, specify the RF characteristics of the walls, then use an iterative process of positioning and simulation to arrive at access point locations which meet the specification. These designs are estimations, are more accurate with accurate input, and in many circumstances are adequate for final design.

### 3. SITE SURVEY

Once the outline specifications and associated quotations have been accepted a site survey is performed to:

- verify and refine the design
- assess the RF ambience
- ensure that the network infrastructure is in place to support the wireless design
- choose suitable access point locations

- identify any health and safety risks associated with the installation.

To perform these tasks Siracom engineers visit site equipped with a Meru controller and the specified access points, EZRF coverage planner and live survey wireless card, an RF spectrum analyser, a digital camera.

#### 4. SECURITY PROFILE AND CONFIGURATION DESIGN

Before installation a configuration is designed and documented which meets the connectivity and security requirements that have been specified.

This will include

- Basic settings (IP addresses etc)
- VLAN design
- Security profiles and settings
- 3<sup>rd</sup> party system integration (Radius, Active Directory, NAC, Guest Management)

## DESKTOP DESIGN SERVICE

### 1. INPUT

Customer supplied site plan. To scale. Marked up for:

- Wall types.
- Other features to be included
- Locations where more than 30 users will simultaneously use the system with details of density requirements
- Locations where a dedicated access point is required for performance reasons
- Locations where coverage is required
- Locations where coverage is not required

A description of connectivity requirements

- Support for 2.4GHz and or 5GHz devices
- Expected total number of devices
- Expected device concentrations

A description of resilience requirements and usage expectations should be provided, including details of application to be supported and response times. E.g

- No resilience against controller or AP failure required
- VoIP – Max 2 Phones per access point
- Login – 10MB profile to 30 laptops in less than 2 minutes
- Video – simultaneous unicast to 30 devices at 720p

### 2. DELIVERABLES

A document will be provided which includes the Input Specification and heatmaps giving access point locations and estimated coverage in 2.4 and 5GHz frequency bands.

If requested an equipment list and quotation will be provided.

## **SITE SURVEY SERVICE.**

### **1. INPUT**

The site survey takes the desktop design service report as its key input.

We also ask that the customer identifies aesthetic considerations and any potential RF interferers such as alarm systems, microwave ovens, security cameras.

### **2. DELIVERABLES**

#### **Interference survey**

A spectrum analyser is used throughout the buildings to identify classify and quantify potential interferers.

A report is produced which describes interferers detected in 2.4GHz and 5GHz spectrums. It describes both Wi-Fi and non Wi-Fi interferers.

Recommendations are made regarding optimal channel configuration.

#### **Access Point Quantity and Location Survey**

The EZRF coverage planner tool and live survey card are used in conjunction with Meru wireless controllers and access points to create and measure the access point design suggested by the heatmaps.

We verify that the coverage proposed meets the specification and revise as required.

Exact AP locations are specified by location, description and digital photograph or wall sticker. We take into consideration the RF design, back haul cabling, and aesthetic specification.

Our engineers highlight any health and safety issues that in their opinion should be addressed by the access point installers.

A report is produced containing final heat maps the access point location specification and the health and safety advice.

## INFRASTRUCTURE SURVEY

### 1. INPUT

The infrastructure survey takes the proposed access point locations as input.

A network topology diagram is required showing Ethernet switches and patching

### 2. DELIVERABLES

- Access Point Back Haul

Our engineers will carry out a visual inspection and if required use TDR equipment to test cables. We will identify a non blocking network path back to the controller / network and highlight bottlenecks or gaps in connectivity..

- Access Point Power

Our engineers will assess POE provision and make recommendations as necessary

- Controller

Our engineers will identify rack space and power supply for the controllers. They will identify suitable network connection.

This does not include layer 3 design.