

G-Cloud 15

Service Definition

**WiFi Site Surveys, WiFi Planning, Design, Fault Finding &
Optimisation**

Performance Networks Limited

Lot 3 Cloud Support

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1. Introduction

Company Overview

Performance Networks specialise in delivering wireless networking solutions for public sector organisations and businesses. We are dedicated WiFi specialists and consult, design and deliver business critical WiFi projects every day, in the UK and across the globe. We have over 25 years of experience completing projects for hundreds of unique organisations.

Our public sector experience includes Central and Local government, Education, Healthcare, Emergency services, Defence and Ministry of Justice.

We work across multiple sectors and have vast experience designing, deploying and improving WiFi networks in challenging RF environments.

Our engineers are all fully Ekahau qualified along with holding several vendor qualifications. As we are vendor agnostic we regularly work with all WiFi vendors and have dedicated vendor specialist engineers who have qualifications and experience working with each manufacturer.

Vendors include:

- Cisco
- Cisco Meraki
- HPE Aruba
- Extreme Networks
- Ruckus Networks
- Fortinet
- Mist
- Cambium
- Ubiquiti Networks
- Mikrotik
- Arista
- Omada

Value Proposition

We provide WiFi surveys and consultancy to aid organisations either design the right network from the outset ensuring it is fit for purpose and costs efficient, or improve existing WiFi networks performance. Our aim is to ensure by correct design the organisation gets best value from their chosen solution, whether that be a new installation or improving or repurposing existing infrastructure.

What the Service Provides

We offer WiFi surveys and consultancy, this could be to help you design a new WiFi network or upgrade, fault find or optimise an existing WiFi network.

Our engineers are fully Ekahau qualified and can perform both surveys and remedial works on all WiFi vendors.

Social Value

Performance Networks are committed to creating a positive impact on our people, community and the environment.

Kick Start Economic Growth

Performance Networks is playing a pivotal role in driving sustainable economic growth by making strategic investments in the future—actively recruiting and training apprentices to cultivate a highly skilled workforce, accelerating technological advancement through robust research and development initiatives, and extending its reach beyond domestic borders by exporting world-class consulting services to international markets.

Through these efforts, the company is not only fostering innovation and competitiveness within the region but also contributing to global progress, creating opportunities that strengthen local communities while positioning itself as a leader on the international stage.

Make Britain a clean energy superpower

Performance Networks is deeply committed to advancing the green economy by rigorously implementing its comprehensive Carbon Reduction Plan—a strategic roadmap that details measurable, science-based actions to significantly reduce emissions across all facets of its operations. This commitment includes championing energy-efficient technologies, optimizing digital infrastructure for sustainability, and embedding eco-conscious practices into every stage of service delivery.

Beyond internal transformation, Performance Networks actively collaborates with partners and clients to accelerate their own sustainability journeys, providing innovative solutions that align with global climate goals. By prioritizing environmental stewardship alongside technological progress, the company is not only reducing its carbon footprint but also shaping a future where digital growth and ecological responsibility go hand in hand—driving systemic change that benefits businesses, communities, and the planet.

Break down barriers to opportunity

Performance Networks is committed to breaking down barriers to opportunity by

fostering an inclusive and accessible workplace culture, creating meaningful career pathways through apprenticeships and training programmes, and actively supporting underrepresented groups in the tech sector. By investing in skills development, promoting diversity in recruitment, and partnering with educational institutions, we're helping to ensure that talent from all backgrounds has the chance to thrive, innovate, and contribute to the digital economy.

Build an NHS fit for the future

Performance Networks is proud to support Nottingham University Hospitals Charity as its Charity of the Year, a partnership that will directly contribute to the NHS by funding essential medical equipment, supporting frontline staff, and enhancing patient care across Nottinghamshire. Through fundraising efforts and awareness campaigns, this collaboration will help improve hospital facilities, accelerate research initiatives, and ensure that patients and their families receive the best possible support during challenging times. Together, we're making a meaningful difference in the lives of those who rely on our local NHS services every day.

In addition to this year's efforts, last year Performance Networks proudly supported Forever Stars, a charity dedicated to helping families through the heartbreak of baby loss. Forever Stars works closely with the NHS to provide Serenity Suites for bereaved parents and improve care on early pregnancy wards, ensuring compassionate support and dignity during moments of profound loss. This partnership reflects our ongoing commitment to social responsibility and supporting causes that truly make a difference in our community.

Overview of the G-Cloud Service

Specific WiFi surveys

We offer three types of WiFi survey:

- Health check/fault finding WiFi survey
- Predictive model WiFi survey

- Onsite WiFi design survey

Each type of survey differs according to the site or your specific requirements.

Health check/fault-finding survey

The health check or fault-finding WiFi survey is conducted on sites where a wireless network has already been installed.

This survey type is usually used where a specific issue has already been identified, such as slow video calls or voice-over WiFi (VoWiFi), dead spots or throughput issues. Our engineers will visit your site to fault-find and check your wireless network is functioning as intended.

We recommend this survey type is carried out on a regular basis to prevent any long-term issue with your wireless signal or network.

Predictive model WiFi survey

The predictive model WiFi survey differs from the other types as it is essentially a virtual survey. It relies upon high quality building plans to enable us to properly assess the requirements.

Working with CAD drawings of the building plans, we'll use sophisticated software to build up a 3D model, setting the different floor and wall materials to provide an accurate virtual picture of your site.

The benefits of a predictive model WiFi survey are that it provides a quick, cost-effective and practical estimate of your site's requirements, which causes minimal disruption to your business activities. However, it can't account for onsite issues such as cabling paths, or local interference sources.

Onsite WiFi design survey

Though the predictive model WiFi survey can give a reliable estimate of your site's requirements, the WiFi design survey is based on-site in order to give a comprehensive understanding of your site's requirements.

One of our engineers will visit your site to conduct what's known as an AP (access point) on-a stick survey. Our engineer will bring a range of sophisticated equipment including an AP attached to a tripod, which is connected to a power source. This then allows the engineer to position the AP correctly before taking measurements to determine the wireless coverage area, signal strengths and anything else that may interfere with the WiFi signal.

Pre-survey analysis

Our first step is to understand your business and WiFi network's requirements.

At the start of the wireless survey it's important that we learn from you just how your WiFi network is being, or will be used. We'll need to know the following:

Type of devices – what devices are going to be used onsite? Will they be handheld barcode scanners, VoWiFi handsets, laptops or tablets?

Preferably we'll need to know the make and model of the devices that will use the wireless networks, to determine frequency ranges, and which standards (802.11a,b, g, n, ac, ax) are supported.

Redundancy or location services – for example RTLS (Real Time Location Systems) generally require three access points (APs) to be visible at less than -75dBm. Cisco VoIP requires two APs to be seen at specific dBm and SNR levels.

This can mean more APs are required. We also need to ascertain if the required APs are being "seen" during a survey.

Preferences on the manufacturer and models used – different manufacturers such as Cisco, Aruba and Ruckus have different access points which all have different characteristics. These include antenna patterns (depending on the gain), weight, mounting, and polarization.

Also, older models usually provide less throughput and interference mitigation. We will also need to know what switches and firewalls are in use.

Applications to be used – during the wireless site survey we'll need to know if the WiFi network is being used for video, VoWiFi, e-mail, web browsing, Cloud storage, or RTLS (Location Tracking). Certain traffic requires QoS (Quality of Service) to work well.

Number of devices of each type – the density of client devices will determine the WiFi design, so during the WiFi site survey we need to know how many devices could be present for any given area.

Capacity planning helps us determine the model of access points (APs) required. If the AP is at or near capacity, it's very likely users will encounter issues.

Issues experienced – for a fault-finding or post-deployment WiFi survey we'll need to know what symptoms or issues are being seen onsite.

Are there issues with VoIP, video or a certain application? Is it throughout the premises, or one area in particular? Or are issues seen at a certain time of day?

Site visit and physical survey

For health check and onsite designs surveys, we arrange for one of our qualified engineers to visit and carry out an in-depth analysis of your building

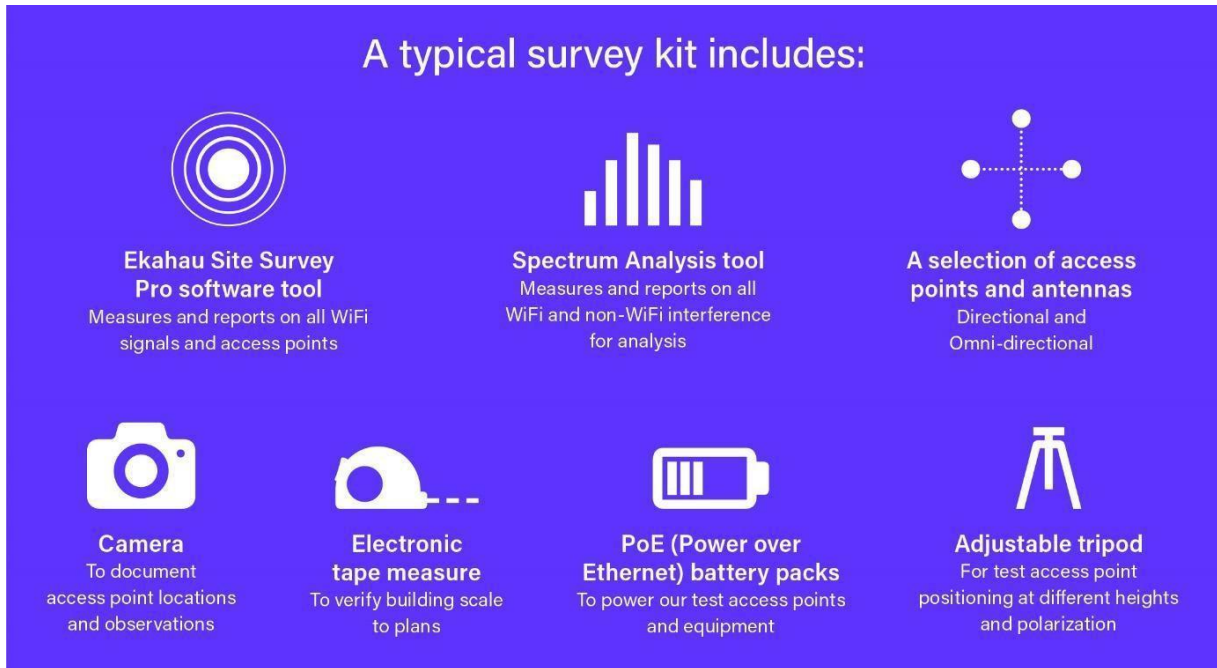
Once onsite, the engineer will setup the wireless survey equipment and software in accordance with the building type.

During a fault-finding WiFi survey, the engineer will again discuss any issues being experienced with the site contact. The engineer will then document the location of a comms cabinet and all relevant equipment for the report.

Our engineer will walk the building using the spectrum analysis tool, recording the data as they go. This stage should show any possible sources of interference from WiFi or non-WiFi devices.

The main WiFi site survey is then performed. The engineer will place the AP's in the correct locations using the tripod if applicable. Using the Ekahau software they will walk the area taking and recording relevant readings for the report.

A NIC (Network Interface Card) will be used to perform a passive wireless survey, where the software simply “listens” to the signals. Another NIC will perform an active WiFi survey, where data is sent to test connectivity (PING) and optionally throughput (using Iperf). Once complete, the engineer will then summarise the initial findings with the onsite contact.



Associated Services

We can also provide data cabling and installation services and ad hoc and ongoing support services.

2. Data Protection

Information Assurance

We are ISO27001 and Cyber Essentials accredited and treat information security with the utmost importance, all data is classified and controlled within our organisation.

Data Back-Up and Restoration

Performance Networks have set policies around data backup and retention along with a BCP (Business Continuity Plan) which is regularly tested in line with ISO27001.

All data is backed up at least once daily and data integrity and restoration is tested regularly.

Business continuity statement/plan

Performance Networks has a BCP (Business Continuity Plan) which is ISO27001 compliant.

- The BCP covers all essential and critical infrastructure elements, systems and networks, in accordance with key business activities.
- The BCP is periodically reviewed to ensure that it can be implemented in emergency situations and that the management and staff understand how it is to be executed.
- All staff are made aware of the BCP and their own respective roles.
- The BCP is to be kept up to date to take into account changing circumstances.

All of our services are fully monitored and alerting set up, we have fully tested mirrored working and system back ups.

A more detailed copy of our BCP is available on request.

Privacy by Design

As a ISO27001 certified organisation, data security and privacy is at the forefront of everything we do, we are also registered with the ICO.

3. Using the service

Ordering and Invoicing

Performance Networks can be contacted by email at gcloud@performancenetworks.co.uk or by telephone on 0115 822 1212.

To scope your requirement we will require floor plans of the buildings you require surveying and a scope of your network requirements.

A call-off contract will then be required from you, we can assist with this if required. Once signed by both parties we will require a PO, once received we will pass your order to our provisioning team and assign a Wireless Engineer/s.

Availability of Trial Service

Sample survey reports which provide a real world examples of typical office, industrial and education environments output are available on request at no additional cost.

On-Boarding, Off-Boarding, Service Migration, Scope etc.

Once engaged our provisioning team will send you a site information questionnaire to ensure we have suitable contact and access details for the works required.

We will then arrange a mutually suitable date for the works to take place this is typically within 2-3 weeks of placing the order.

Once the work has been completed a full survey report will be provided with detail of any additional work which has been carried out, providing a full record of any changes allowing you to manage the network moving forwards.

Training

As this is a consultancy service, user training is not required.

Implementation Plan

An initial scoping meeting will be arranged (typically by Microsoft teams) to confirm the requirements and scope, discuss any site specific dependencies and agree timescales.

A wireless site survey is essential to the planning and design phase, prior to the installation of a wireless network in your premises or location.

We can provide both predictive and onsite AP on a stick surveys depending on building stage and client requirements.

Considerations for a new WiFi network design include:

- Building construction and layout
- User Density
- Application usage and any custom device types
- Network usage requirements
- Underlying network infrastructure
- External RF interference
- WiFi equipment vendor choice

A good WiFi design will ensure the correct quantities and type of access points are purchased for the building, usage requirements and density of users, it also means data cabling is run to the correct locations eradicating any post installation reworks, maximising return on investment and value for the organisation.

Service Management

Throughout the course of our engagement our project team will keep you updated of the progress of the works.

You will have a dedicated contact at all points of the project who you can raise any issues with.

Service Constraints

We will need access to the sites and areas that onsite surveys and scalable floor plans.

Should you wish us to make any configuration changes we will require secure access to your WiFi controller platform.

You will be assigned a project coordinator to manage your engagement with our team they

will be available in UK office hours 9am-5:30pm Monday to Friday, excluding Bank Holidays

Service Levels

As this is a consultancy based service there is no ongoing support option. A project coordinator will be assigned to manage the survey and a technical account manager will be available if required during the project.

Outage and Maintenance Management

As this is a consultancy based service there is no maintenance required or possibility for outage.

Financial Recompense Model for not Meeting Service Levels

As this is a consultancy based service there is no ongoing service or associated service levels.

4. Provision of the service

Customer Responsibilities

We will need access to the sites and areas that require onsite surveys and scalable floor plans.

Should you wish us to make any configuration changes we will require secure access to your WiFi controller platform.

Technical Requirements and Client-Side Requirements

In order to complete our works successfully we will require the following the customer:

- Provision of scalable floor plans and clearly marked areas that require design/survey
- Site access details
- Onsite contact who can escort engineers when onsite
- Any PPE/Site induction requirements
- Any requirement of site specific RAMS
- Details of any existing WiFi infrastructure, AP numbers, make, model and controller type
- Any preferred vendor, access point or controller type
- Details of equipment using the WiFi
- Details on any high bandwidth or latency sensitive applications like VoIP or Video
- User/device density

Outcomes/Deliverables

Our reports can include the following depending on survey type:

- Full heat maps with coverage visualisation

- Airtime Utilisation
- Capacity
- Channel Interference
- Data Rates
- Network Health
- Noise
- Packet Loss
- Round trip time
- Signal strength
- Signal to noise ratio
- Spectrum channel power
- Channel Utilisation
- Throughput
- Engineer report with observations and any further recommendations

After-sales Account Management

Once the survey report is completed you will receive a feedback questionnaire and your project coordinator will be your point of contact for any further queries.

Termination Process

As this a consultancy service, once the survey projects are completed this will complete that specific call off, any ongoing services will terminate in line with the frameworks terms of 30 days.

5. Our experience

Case Study

THE CLIENT: ALEXANDRA PALACE

Alexandra Palace is an iconic Grade II listed entertainment and sports venue in London that is renowned for hosting world-class events and first-class hospitality.

Intended as 'The People's Palace' and widely known as Ally Pally, it has been known as the UK's hub of recreation, education, and entertainment since it was built in 1873 and hosts approximately three million people each year.

Ally Pally is renowned for driving innovation, putting on the most spectacular entertainments, offering the widest variety of public programmes, and providing leisure and well-being activities to communities on its doorstep and beyond.

Set in 196 acres of parkland, Alexandra Palace's facilities include nine multi-purpose function rooms, including the Great Hall and West Hall which can accommodate up to 5,000 and 2,500 guests respectively, and an international-sized ice rink.

ISSUES/THE CHALLENGE

With a WiFi system that had been in place since the 2012 Olympic Games, Alexandra Palace required a technical infrastructure upgrade.

Another significant issue was posed by the fact it is a Grade II listed building. The listed and varied nature of the venue meant the design was crucial – particularly for areas such as the halls, theatre, and ice rink which are not only large, dense, spaces with high ceilings, but also do not allow mounting of hardware.

That aside, like many event venues, it experienced issues when it comes to connectivity and striving to provide a reliable internet connection for visitors. Common problems with WiFi at event venues include drop-outs and speed issues across WiFi networks and with a variety of devices.

Performance Networks was chosen to complete the project due to its proven expertise in the sector, which includes providing a new WiFi solution for the Manchester Central complex in 2018.

SURVEY RESULTS

Performance Networks used Ekahau Site survey/Spectrum Analysis & Wireshark captures to determine what was happening at the venue.

WHAT DID THIS SHOW?

- Signal strength was good in areas, in fact, it was too strong, which was causing interference
- Heavy WiFi interference was recorded. The 2.4GHz band was very congested as usual, but so was the 5GHz band due to sub-optimal configuration
- Sub-optimal placement and mounting of Access Points. They were also using the wrong type of antennas. This meant the
- Access Points weren't always covering the areas they were meant to and contributing to excessive Co-Channel interference. This was shown using coverage maps per AP
- Roaming issues – clients “hanging on” & not roaming to the correct AP
- Low data rates and old standards being supported
- Too many clients using the 2.4GHz range
- The Main Hall could not support the number of people and devices that were required for their large conference/events

THE SOLUTION

During the initial consulting phase with Nick Johnson, IT Manager at Alexandra Palace, Performance Networks agreed on a creative solution that utilised bespoke brackets and different antenna patterns on existing rigging, enabling the building to host thousands of guests across its multiple facilities at any given time.

Performance Networks designed and installed a custom-fit Commscope/Ruckus solution which provides guaranteed coverage and performance for the building's management team, as well as visibility across the whole venue from one central location, covering inside and outside its facilities. Nick Johnson IT Manager at Alexandra Palace commented:

"Performance Networks' knowledge and expertise on WiFi solutions were invaluable to us during this huge and complex upscale project, and we are delighted with the work they have completed over the last few months." "We're really pleased to have completed this project, which is quite an undertaking and brings the technical infrastructure of our 19th century Palace very much up to speed with modern-day requirements."

Will Evans, Director at Performance Networks commented:

"The solution gives the venue a single unified platform for management and visibility of WiFi and wired networks, which was a key goal for their team and especially important in such a large and complex building.

We've provided a system that's meticulously designed to cover the width and depth of the venue, providing a WiFi network built around capacity that is fit for purpose across all areas – no matter what or even how many events it is hosting at any one time.

Ally Pally is a venue that hosts thousands of visitors in a dense space and its WiFi wasn't in a position to cope with that before. In the future, once the pandemic restrictions allow, the venue will once again be attracting guests in large numbers and they'll do so with a slicker and more secure online connection."

Clients



Contact Details

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