DASWizard

DAS sounds good

DAS Monitoring System

Background

Delivering a high availability wireless service inside buildings is a critical KPI for all service providers. Like any network component, DAS networks should be monitored in real-time to assess any performance issues. Additionally, monitoring passive DAS components such as coaxial cable and antennas is problematic because these components do not have an inherent monitoring capability. Thus, the operator will "discover" a problem only via field testing or worse, from an upset landlord or subscriber.

Requirements

- Service availability monitoring
- Locating faults (Used to take 3-7 days)
- Probing branch degradation
- Alert before users claim
- Generic sensors
- Cost-efficiency
- Ease of installation

Key Features

- Generic non-intrusive elements
- No band limitations
- Alarming layer is independent from the monitored DAS
- Easy to be installed either over new or existing sites
- Centralized server with web-based UI for system operation, configuration, data review & insights.

Applications

- Real-time cellular service availability monitoring and reporting
- Mission critical and public safety services monitoring and reporting.
- On-demand effortless DAS continuity test
- Validating compliance with Service Level Agreements

Product Overview

Consultix DASwizard is a DAS monitoring system engineered to limit downtime, speed-up field repairs and ultimately increase revenues of DAS sites regardless owned by operators, building owners or neutral hosts. Such system will quickly pay for itself in compromising walk tests and simplifying analysis to determine DAS issues before significantly losing revenues.

The system comprises 3 main elements; distributed probes, gateways and the server.

- Every probe is easily mounted in a close proximity to each DAS antenna and continuously measures its RF transmission levels
- Then comes the **gateway** to collect alarms from each group of probes then relays to the Server
- And at last, the **server** for operation, monitoring configuration and data insights.

DASWIZARD
DAS Monitoring System
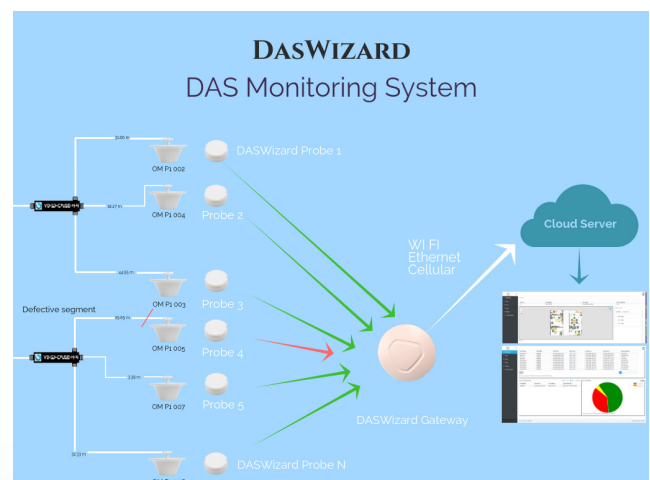
The probe is a non-intrusive element that has its built-in test antenna so you can easily mount in a close proximity to any DAS antenna then it periodically measures its transmitted RF levels. Thanks to the generic concept of this element which allows monitoring any type of DAS antenna whatever the vendor is and regardless active or passive system.

The probes utilize IOT core where every group of probes employs cutting-edge BLE mesh topology that carries alarms reliably to the gateway. Through this mesh formation, any alarm has different alternative paths to reach the gateway. And this topology provides an independent alarming layer that doesn't rely on the monitored infrastructure to deliver alarms, besides, it simplifies installing the monitoring system in existing sites to a great extent.

Since each probe has a unique ID, the central server recognizes and locates the exact faulty DAS segment/antenna via its assigned probe.

The non-intrusive technique allows installing probes without altering or interrupting the existing infrastructure. Simply you just mount this battery-operated probe close to each DAS antenna. And then it sends periodic updates about its RF transmission activities for years before you need to replace its battery.

Different rates of alarming intervals are available from 1 minute up to 24 hours. The battery level of each probe is also reported periodically so that the system operator can monitor the battery status remotely to figure out when replacement is needed.

The probe is designed in a camouflaged shape that is very adequate to be installed inside buildings without affecting the interior view.
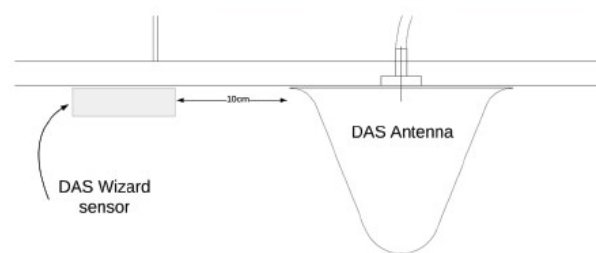
Mounting

Probe Features

- Non-intrusive sensing mechanism
- Infrastructure independent
- Per antenna monitoring
- Years of autonomous battery operation
- Easy mounting
- No band limitations
- RF level measurement/threshold
- Independent communication layer (Mesh IOT architecture)

The Gateway is the central hub for each group of probes and it carries out the role of relaying alarms to the remote server. Besides, the gateway has a very vital function to store probe alarms in case the connection to the server is interrupted then it resends again to make sure no single fault goes unnoticed.

The gateway internal IOT module works as a part of the probe mesh network, so that the gateway can be flexibly installed at adequate location where internet connection is available to communicate with the server. And this can be through commonly available connections such as Ethernet, WIFI or via the cellular network.

Same as probes, gateways are non-intrusive elements and hence don't impose any limitations on the type of monitored DAS.

The standard gateway supports up to 32 probes (best optimization for probes battery)

Gateway features

- External element that doesn't require DAS alteration nor interruption
- Infrastructure independent
- Store & forward mechanism
- Ethernet, WIFI or Cellular link options
- Frequency band independent
- Supports up to 32 probes/gateway
- No limitations on the number of gateways per site
- Tiny size and elegant shape
- SSL secure communication with server

SpectraQual Server
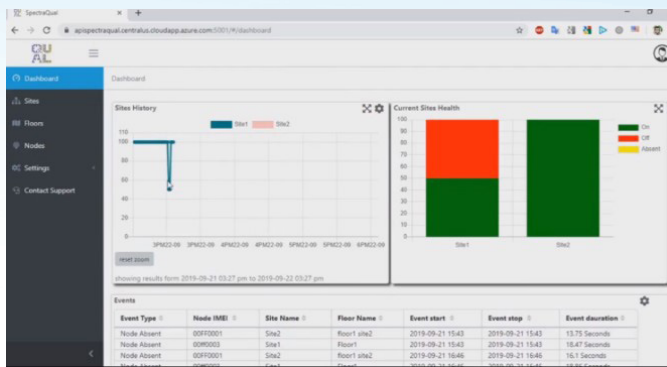
All probes reports are eventually collected at the central server for site status-awareness, fault notifications and data analysis.

The server comes in different forms either on-premises instance or as a cloud subscription. And available is integration with existing OSS and O&M systems.

To save CAPEX, user can start with a limited version of the server if the number of probes is below 1000, then later upgrade is possible to the mega version for unlimited number of probes.

The system user interface is intuitive and the dashboard is designed to allow users to easily recognize actionable notifications or to dig into data analysis and statistics for further information.

Fault Location

During the setup stage, every probe is assigned a unique ID then it is mapped to its location in site floors.

The system operator is able to identify faulty locations through tabular format which represents all information about each probe then through viewing the site floor maps to visually locate the issue.

Since antenna radiation level is measured, this allows operator to recognize any warning trend in any DAS segment and then takes any required preventive maintenance.

Current Sites Health

showing results for the last 1 days and 0 hours

Sites Availability

On : 91.38%
Off : 8.62%

showing results for the last 2 days and 23 hours
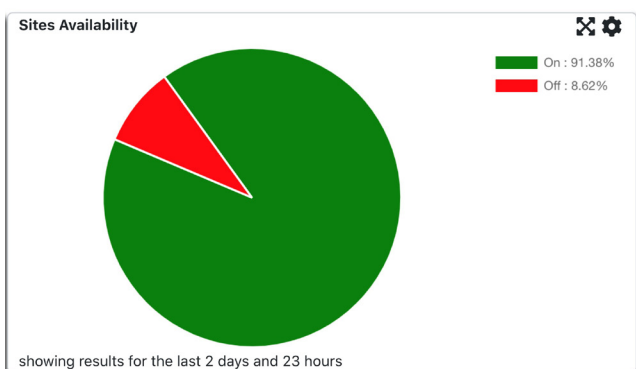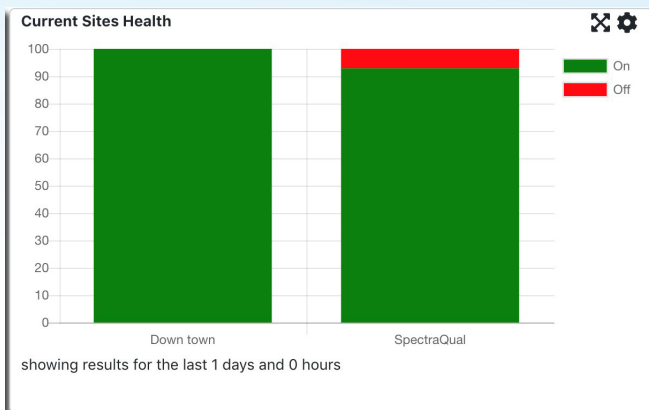
Widgets & Notifications

The standard dashboard provides a panoramic view about the status of all sites. Collected information is represented in different formats to allow users to trace anomalies, recognize patterns or track faults in their preferable way.

The system comes with a variety of standard data representation formats such as tabular info, bar charts, pie charts and time graph, besides, the system operator is able to add any other user-defined widgets.

User can configure the system to send notifications through SMS or emails once a certain defined trigger takes place.

System Security

SSL is employed between the gateways and server to avoid sniffing or fraud actions. Additionally, SSL and authentication token are employed between the server and the operator's browser.

The server provides different access levels to confine different categories of actions/ controls according to the personnel authorities.

Users

Create

Roles

Search

1 - 3 of 3   10 ▾

User Id ⇕	User Name ▲	User Email ⇕	User Status ⇕	User Role ⇕
2	admin	admin@spectraqual.com	enabled	admin
4	Moderator1	Test@moderator.com	disabled	moderator
3	Operator	Mohamed.adel@consult...	disabled	Viewer

Dashboard
Sites
Floors
Nodes
Settings
Profile Settings
Operators
Users
Contact Support

System Specifications

Parameter/Feature	Value
Probe	
Frequency bands	700, 800, 900, 1500, 1800, 1900, 2100, 2300 or 2600 MHz (Custom bands available)
Measurements	RF ON/OFF, RF level and battery status
Sensing method	Non-intrusive external RF sensing (No DAS interruption nor modification)
Sensing distance	Up to 10 cm (depending on DAS antenna EIRP)
Supported infrastructure	Active/Passive DAS, SISO/MIMO antennas
Probe settings	Probe ID, RF alarm threshold, site & floor location
Connection to gateway	BLE Mesh layer (Independent from DAS infrastructure)
Max. distance node-to-node	Up to 80 m (depending on LOS conditions)
Reporting Interval	1 minute to 24 hours (standard 15 minutes)
Power supply	Built-in non-rechargeable battery (replaceable)
Battery life time	>2 years (@ 15-minute interval)*
Current consumption	155 µA (@ 15-minute interval)
Mounting method	Adhesive (Optional screw mounting)
Operating Temperature	-10 to 50 °C (14 to 122 °F)
Operating humidity	Up to 95%
Material	ABS Plastic. White color (custom color available)
Dimensions	Diameter 100mm (3.9" in) . Height 30mm (1.2" in)
Weight	100 gm (3.53 oz)
Gateway	
Capacity	32 probes / gateway
Connectivity to probes	BLE mesh
Connectivity to server	Ethernet (Optional WIFI and Cellular)
Back-up mechanism	Store & forward
Security method	SSL
Server	
User access	Web-based
Setup	On-Premises or Cloud
Security	SSL to gateway, token for user authentication and access levels
Widgets	Standard and user-defined
Data Representation	Tabular, time graph, bar chart, pie chart and maps
Capacity	As per ordering information below
Notifications	Dashboard, visual floor map, e-mail and SMS
OS	Windows Server
Database	MySQL
Integration with existing OSS	Custom option

* Up to 4 years (depending on report interval)

Ordering Information

Item Description	Model Number
DASWizard RF probe; built-in battery, integrated antenna and BLE Mesh	DASWizard-xx
DASWizard Gateway; including AC/DC adapter. Ethernet Interface.	DASWizard GW
DASWizard Gateway connectivity option; WIFI	DASWizard GW-WL
DASWizard Gateway connectivity option; Cellular	DASWizard GW-CL
SpectraQual server (on-premises): SW license supporting up to 1000 probes	SpectraQual
SpectraQual server (on-premises): SW license supporting unlimited probe number	SpectraQual-Mega
SpectraQual server (Cloud): SW instance supporting up to 1000 probes	SpectraQual-C
SpectraQual server (Cloud): SW instance supporting unlimited probe number	SpectraQual-Mega/C
DASwizard RF Probe for DAS continuity check, built-in battery & P2P alarm	DASWizard-Neuron*
Neuron Gateway; alarm receiver with standard uplink to server, incl. AC/DC adapter	DASWizard-NGW*

*Available Q1 2020

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