Data Sheet - Visualise

Revealing the true picture of multi-vendor & multi-technology enterprise networks

The ever-increasing network complexity demands automation to maintain businesses productivity and competitiveness. However, adoption of network automation is limited by the 'fear of the unknown' stemming from possible instability caused by legacy, such as poor configurations and hidden or stranded services which often results in expensive and disruptive transformation projects. Zeetta solves this problem with minimum costs and disruption by following a systematic approach of network modernisation. It starts with the discovery and complete **Visualisation** of the true condition of your network. After that, the efficiency of the network is **Optimized** to achieve stability and high levels of performance. Finally, a resilient network is delivered through **Automation** of its operations to 'Unlock the Power of the Network'.

Zeetta Visualise is the first step in that journey. It automatically detects network devices and interconnecting links to build an accurate and true picture of the network across layers (PHY/L2/L3), domains (LAN/WLAN/Cellular) and vendors. It uses a unique, service-centric view of the network to identify how network changes, faults or outages impact connectivity. It also supports real-time host tracking and easy integration with third party NMS and alarm systems to deliver an effective and efficient management of the network.

Highlights

- Clear and concise view of the network in five different ways: Facility Plan, Google Map, Network Topology, Network Deviations, Traffic Dashboard
- Automatic discovery of network devices including automated host tracking based on user defined rules
- Real-time monitoring of the whole network provides accurate and up-to-date view of the devices and their configuration
- Monitor network connectivity across mixed LAN, WLAN and private LTE/5G networks
- Multi-vendor support through a variety of southbound drivers that breaks vendor lock in
- Visual representation of the mapping between network devices and the connectivity services
- Easy integration with third party NMS or alarm systems through REST APIs
- Single source of truth for connectivity across the entire network
- Included with Zeetta Optimise and Zeetta Automate.

Benefits

- Unlike conventional monitoring tools, Zeetta Visualise provides an easy and intuitive user interface to see a comprehensive view of the network topology which does not require expert knowledge
- Shows the current configuration of the network and alerts for any deviation from the expected configuration such as new devices entering the network or lost connectivity due to a faulty or misconfigured device
- Helps locate rogue and faulty devices, and acts quickly to automatically isolate them before they cause any problem
- Provides useful insights about the performance of the network via data collectors of useful metrics
- Offers the ability to see the end-to-end connectivity regardless of network technology or vendor
- Provides different views of the service-centric network so daily operations can be best supported
- Quickly locates and tracks devices and hosts as they move across the network and provides notifications for any changes (e.g. when disconnected)
- Removes dependency on vendor specific tools and certifications for day-to-day network operations.

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Many company networks are built following a basic design, but over time, more elements are added to meet business requirements. After a while, the network can grow to a point where it has lost order and organisation and most importantly, operating efficiency. When this happens, the network will be slow, prone to errors and will become difficult to modify or add new services.

Instead of 'rip and replace' Zeetta offers a systematic approach to network modernisation that begins with **Visualisation** of the true condition of your network, then **Optimisation** of its efficiency to achieve network stability and performance and finally **Automation** of its operations to reduce costs and improve business agility.

Visualise is the first step in the journey towards network modernisation It provides the real view of the network, show how it is currently configured and propose ways of how it can be reconfigured to achieve maximum efficiency

Powered by NetOS®, the latest software defined networking technology, **Visualise** is designed to simplify the deployment, management and optimisation of mixed LAN, WLAN and mobile LTE/5G networks.

Key features such as automated onboarding of network devices, full visibility of the whole network in five different ways, single pane of glass monitoring across multiple vendors and technologies -in real time- and integration with NMS and alarm systems, save time and resources. The IT team can spend more time on creating value for the business rather than managing the infrastructure.

Powered by NetOS®

Visualise is powered by Zeetta's own network virtualisation platform called NetOS® that abstracts the complexity of the underlying physical network and represent it internally as a graph map of nodes and links a.k.a. '*operational topology*'. This elegant, yet powerful, abstraction simplifies the monitoring and management of even the most complex networks because any network device regardless of its complexity can be represented as a node within the network topology.

NetOS® is a software defined networking (SDN) orchestrator based on the industry standard OpenDaylight controller from the Linux Foundation®. The original open-source controller has been enriched with patent protected extensions to support monitoring, control and management of heterogeneous networks that contain LAN, WLAN and private mobile LTE/5G devices.

Simplify Network Operations

Visualise offers an informative and easy-to-use graphical user interface. Upon login, the user has five different ways to view the state of the network, onboard network devices and gain access to the necessary information to manage, analyse and maintain network resources from a single-panel-of-glass. This saves time and reduces the learning curve while improving the performance of the network.

In contrast to many conventional monitoring systems that rely on network agents or probes to passively monitor network traffic, **Visualise** uses its own dedicated device drivers (plug-ins) and standardised interfaces to communicate with devices in the network. This means that discovery and onboarding of new network devices can be done faster and easier without the need of installing special software agents in each device.

Multi-vendor support

A key benefit of network virtualisation is that IT managers can support many different vendors and technologies without acquiring a deep technical expertise in specific vendor and technology equipment.

Supported network devices

Visualise supports numerous access and transport technologies including Ethernet LAN, Wi-Fi, Optical, mmWave and even IoT and private cellular LTE/5G devices such as small cell. An updated list of all the supported Ethernet and wireless devices can be found in the specifications table at end of this document.

Network Discovery (Devices and Links)

Visualise interrogates the network via standard protocols to discover devices and their interconnecting links which are present in the network. This is done by combining configuration data collected directly from the devices with data obtained through low level discovery operations (e g LLDP or CDP calls).

Since the process uses standard communications protocols, it is agnostic to the underlying technology or vendor. The specifications table lists the protocols currently supported.

Visualise maintains an up to date view of the status of all the connected network devices, their configurations and the associations between them. This allows quickly discovery of network issues, which reduce overall network downtime, assist in root cause analysis of problems, discover under-utilised network resources and warn of deterioration in network performance.

Unified Network Management

Aggregate Topology

Visualise constructs a separate topology model for each sub network or administrative domain using data from several sources which are listed in the specifications table below.

Then, it combines the topologies from all domains to build a unified map that represents the operational state of the whole network. This '*aggregated topology*' is a unique and useful representation of the network because it enables a single-pane-of-glass visibility of all connected sub networks and supports end-to-end service provisioning independently from the underlying network infrastructure. It allows, for example, to present the user with the converged view of both Wi-Fi and LTE/5G devices in an enterprise private mobile network.

Topology Deviations

Visualise constantly compares the operational topology (i.e. the current network as discovered) with the 'expected state' of the network. The expected state is populated when **Visualise** discovers the network for the first time, and the user confirms that the discovered links and assets are as expected. When **Visualise** detects a change in the network with regard to devices or links between them, it reports the difference as a deviation. Deviations result in the generation of an alarm which can be notified to the user via **Visualise**'s dashboard or to an external alarm system (e.g. Prometheus) for further investigation.

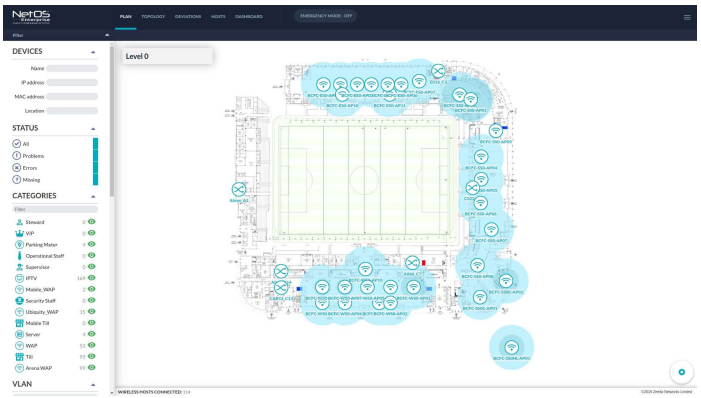
Topology Deviations allows the IT manager to be informed of changes in the expected operational state of the network in real time and identify easily **unexpected** (i.e. exist in the current topology but not in the expected state or **missing** (i.e. exist in the expected state but not in the current topology) devices or links.

Host Discovery and Tracking

Visualise can quickly locate devices and hosts within the network's aggregate topology and get notifications of any changes that happen to them (e g they get disconnected). **Visualise** can apply tracking rules to ensure that wired and wireless hosts are separated and so that they are tracked in the correct part of the network topology. Hosts which are not currently in the network can be identified as soon as they are discovered.

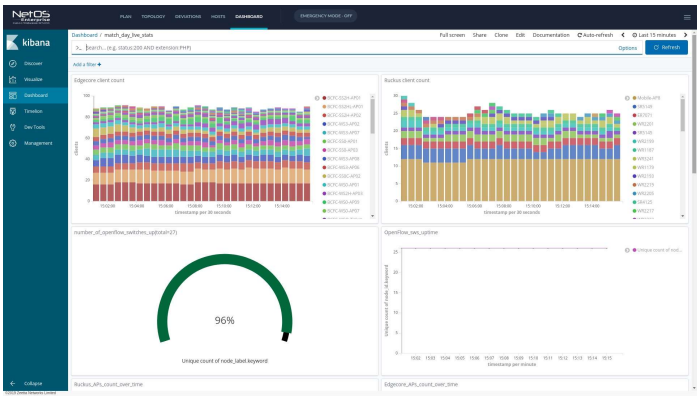
Facility Plan

A floorplan view of the network devices and services



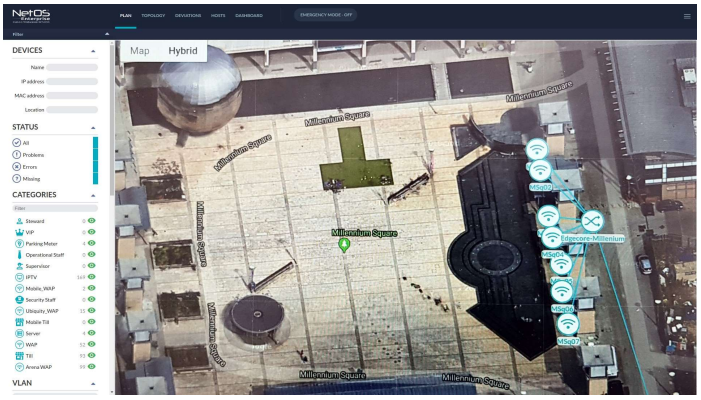
Dashboard

Customised view of network performance metrics



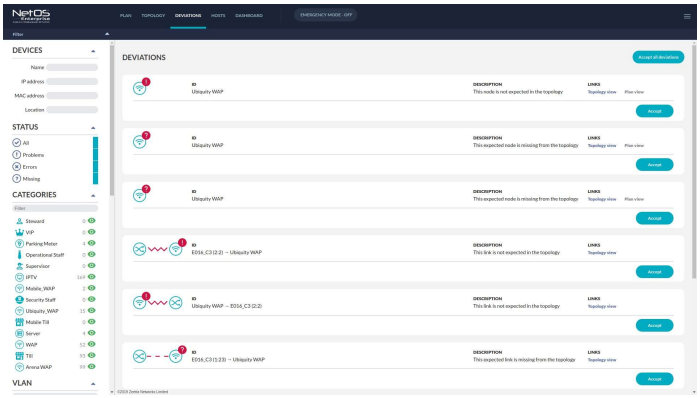
Google Maps

Geo-location view using Google Maps



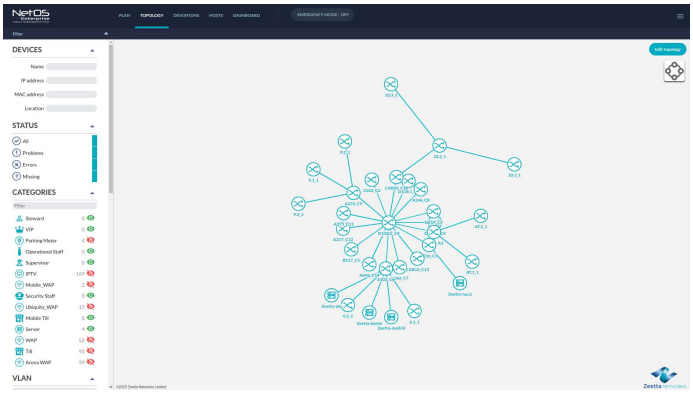
Deviations

An abstracted view of network changes and anomalies



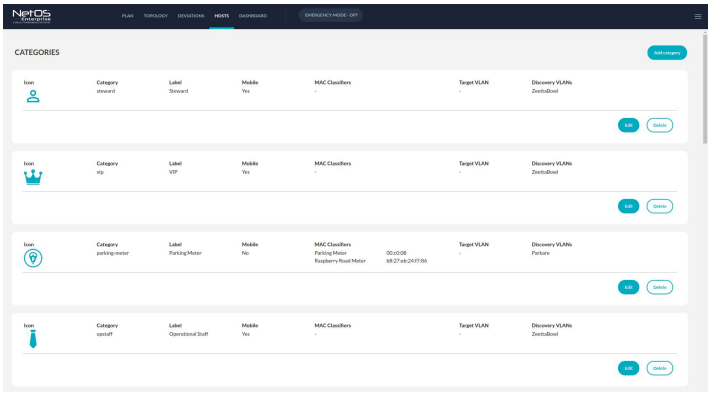
Network Topology

A network-centric view of devices' connectivity and network components



Categories

A service-centric abstracted view that allows a specific snapshot of a service, technology or user



Visualise 1.0 - Feature Specifications

Software Defined Networking	Powered by NetOS® SDN orchestration platform based on the OpenDaylight controller from the Linux Foundation®
Supported network technologies	Enterprise class Ethernet (802.3 family with VLAN tagging) Wireless LAN (802.11 family) FWA using mmWave LTE Evolved Packet Core (3GPP Release 15) 5G Packet Core (NSA, SA) (3GPP Release 16/17) *
Unified Network Management (Disparate topology models used to create aggregate topology)	• OVSDB (Layer 2 topology (Layer 2 bridges, VLANs hosts) • OpenFlow topology (OF switches and link info via LLDP) • Wireless topology (Wi-Fi/LTE/ 5G) • NETCONF topology • Layer 3 topologies

Device Monitoring

Device adoption	Manual and Assisted	
Supported platforms	Edgecore AS4610 Edgecore EWS4502 & ECW7220 L Cisco Catalyst (IOS-XE) Meraki MR42 Ruckus SZ100, vSZ, ZF T300 Ruckus T310c, T710, T710s, M510, R720	Aruba Edge switches Aruba core switches Aruba Wi-Fi Juniper EX Extreme X440, X460G2 & X670G2 NEC PF5459
Supported protocols (Southbound interfaces)	OpenFlow (v1.0, v1.3, v1.4)	Device and Link
	Yang/NETCONF (model v1.1 or later)	Device and Link
	SNMP (v2c, v3)	Device specific
	RESTCONF (IETF RFC 8040)	Device specific
	RESTful APIs over HTTP(S), JSON or XML encoded	Device specific
	CLI (device specific)	Device specific
	SSH/LLDP (IEEE 802.1AB)	Link
Alarm System	Prometheus 2.19.2 (via REST APIs)	

Network Visualisation

Device & Host Information Panel	NodeID , Vendor, Location, IP Address, MAC Address, Status, Service List, VLAN/SSID/PLMN List
Filters	Name, IP Address, MAC Address, Location, Status, Services, Categories, VLANs
Heat maps	Density of hosts
Dashboard	Grafana 7.0.5/Elastic Kibana7.8.0

Minimum Server Requirements

Processor	Four core i7 CPU e.g. Intel® Core™ i7-6770HQ.
Memory	Minimum 32GB RAM* (* This requirement is a function of the number of hosts in a network)
Disk Space	Minimum 1TB drive in a Redundant Array of Independent Disks (RAID) 1 ** ** Disk space is a function of how often log files are rotated and of the logging configuration

About Zeetta Networks

We offer high quality software tools that enable Enterprises and Managed Service Providers to monitor, control and operate their networks in a simple, flexible, customised and cost-effective way so they can optimise the utilization of their network infrastructure and deliver a better experience to their customers without escalating CAPEX and OPEX.

Our software transforms their traditionally static network into a programmable platform that allows better monitoring of devices, users and applications across the network, automates network processes and provides advanced security and cost savings, whilst enabling development of new revenue generating applications.

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