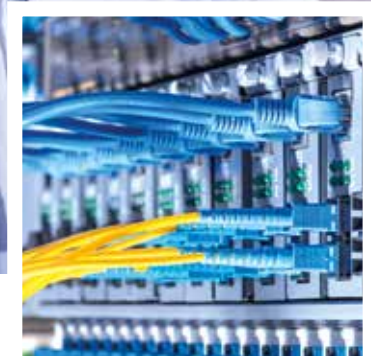


DZS Services

Managed Services: Network Analytics



DZS Services

For the successful and efficient management of a Network Operation Center (NOC), it is important to have a targeted strategy, process structure and suitable tools right from the start. With DZS Network Analytics Managed Services, network operators can increase the efficiency of operation and maintenance as well as the quality of network services.

With the proven DZS portfolio of Network Analytics Managed Services, the NOC can operate the telecommunications infrastructure with a high degree of automation. Move from reactive support to proactive control and operations through meaningful reporting. The added value of the DZS reporting portfolio is continuously enhanced by feedback from customers and partners by incorporating best practice experience and development progress into the continuous improvement process.



Challenges for Network Operators

Communication networks are the nerve cords of our civilization. The ever-increasing interconnectedness of all areas of life and in the industry tolerates no compromises in terms of availability, stability and reliability. Network analytics are therefore essential procedures and tools for better understanding the network behavior, to drive further automation and preventing disruptions in good time. For network operators, this means both the necessity and the opportunity to stay competitive and to deliver the expected business results.

The development of new technologies in telecommunications should actually achieve a simplification of network structures. In reality, however, we are more likely to see an increase in complexity. As new technology cycles become shorter and shorter, the number of network structures based on different generations of technology inevitably increases. For some legacy technologies, which will continue to stay on the networks for a longer period of time, network operators face a variety of challenges, such as the loss of specialized know-how through an aging workforce and the need to keep pace with further developments. The human resources available will also be at a much lower level than a few years ago. These framework conditions make the network analytics portfolio all the more attractive for network operators.



Requirements for a Network Operation Center (NOC)

Typical tasks of a Network Operation Center (NOC) are:

- Implementation of company guidelines in the context of network operation
- Harmonization of network planning principles for the entire operation or the engineering team
- Preventing the negative impact on network stability and performance caused by uncontrolled and undocumented changes in the network configuration
- Provide an audit trail for all changes to the network devices
- Ability to reset the network to a previous fully functional configuration phase



Managed Services: Network Analytics

- Quick and accurate overview of changes made to each device (what, when, by whom)
- Improve network stability and performance
- Ensure that the contractually agreed service is actually delivered to the end customer
- Early detection of potential problems
- Predicting traffic patterns and load scenarios
- Minimization of downtime risks
- Planning and implementation of predictive maintenance activities



Realization

Using big data principles coupled with deep knowledge of network technologies and understanding the challenges of service providers, DZS develops a portfolio of network analytics tools. These tools provide deep insights into network structures and help the service provider to monitor key network operations and proactively take corrective action.

The use of network analytics tools first requires a suitable infrastructure to collect, store and analyze the relevant data. First, of course, it is the network elements themselves that contain all the essential data. However, it is important to extract this data from the network elements and to feed it to further processing. Only then does the actual intelligence begin to transform the original data volume into relevant information and finally into concrete knowledge about what is happening in the network. From the knowledge gained, we develop concrete recommendations for action and service routines for optimized network operation.

- Dashboards and KPIs
- Ad-hoc or on-demand queries
- Scalable reports (period, scope, content)
- Representation of anomalies
- Predicting failures
- Predictive maintenance such as replacement of components or configuration changes



Features

- Automated reports in various network management areas that can be tailored to the needs of the operator with a scalable periodicity of hourly, daily or weekly reports.
- Individual reports focusing on specific network elements and at the component level (e.g. control cards, interface cards).
- Automation of operation, monitoring and error detection.

Portfolio of Reports and Guided Action

The recordable data can be of different nature or come from different sources. The DZS approach consists of a criteria model through own experiences and best practice examples with selected customers. This allows the targeted concentration on the essential aspects in broadband access networks and leads to a portfolio of standard tools. Depending on the situation, these tools can be further tailored to the respective operating model of the service provider.

- Bitrate information at physical node or port level
- Packet loss information
- Latency information
- Understanding of the expected normal behavior of network elements consisting of hardware and Software
- Definition of a standard baseline for the measurement of deviations
- Capturing historical trends and predictions of the future network behavior
- Derivation of influences of the human factor and assistance to more efficient processes or targeted education and training

DZS provides a set of flexible and customized dashboards and reports for guided actions that can be used by the operator in various areas of network management. The following examples are intended to give an overview of possible reports.



Planning

Affected service/module	Network Element
Report name	NE Port Occupation Report
Periodicity	Monthly
Description and benefits	<ul style="list-style-type: none">■ Reports the number of used ports (all types – voice, data, broadband) and free ports for each shelf of the network■ Operator can compare the active ports in the NEs with the active customers in their database

Fault & Configuration

Affected service/module	Multicast
Report name	IGMP Monitor report
Periodicity	Hourly
Description and benefits	<ul style="list-style-type: none">■ Identifies network elements / components that do not receive the expected quantity of IGMP general query packets■ Operator gets direct recommendation to initiate corrective measures

Quality & Statistics

Affected service/module	Network Element
Report name	Network Quality Report by Geographic Area
Periodicity	Weekly
Description and benefits	<ul style="list-style-type: none">■ Reports the ports with signal degradation per geographic area■ Operator can check the ports with bad performance and take actions to fix them

Information

Affected service/module	Network Element
Report name	Critical Alarms Report
Periodicity	Daily
Description and benefits	<ul style="list-style-type: none">■ Reports NEs with activated critical alarms in the network■ Operator can be automatically informed about the number of critical alarms in the network and take actions to clear them

Fraud Risks

Affected service/module	xDSL
Report name	High Traffic Ports List
Periodicity	Daily
Description and benefits	<ul style="list-style-type: none">■ Reports xDSL ports with the usage percentage higher than 70% for a list of NEs■ High usage could indicate that the subscriber is reselling the service

Implementation

Commercial

In accordance to customer specific needs there are scope of service, terms and conditions defined within a specific Service Level Agreement for Network Analytic Managed Services.

Technical

The tools of DZS are installed in customer networks. To ensure highest transparency and security, the DZS tools are certified by an independent company. The output of reports is provided by e-mail and/or cloud-based web service.



Benefits

- Simplified operation and maintenance of medium and large networks
- Better plannability of network expansion
- Efficient use of network capacity
- Optimized network performance and network security
- Clear statements about network status and stringent control of network modifications
- Constant overview and control over network configuration information
- Time savings in regular operation and avoidance of misconfiguration of the network elements
- Predictive error prevention or quick fix before a negative customer impact arises
- Reduce downtime by quickly identifying error situations and implementing immediate countermeasures
- Software versions and hardware components are always up to date
- Stringent processes for maintenance, repair, enhancements and upgrades
- Minimization of configuration errors in the change management process
- Ensure that changes made to a device or system do not adversely affect other devices or systems
- Certainty that changes to a device or system will not affect other devices or systems
- Undo configuration changes if the system upgrade or replacement is unsatisfactory
- Archiving of all network configuration changes including roll back routines
- Active application of predictive maintenance

Proof

- Customer reference letters on request
- Demonstration session on the variety of reports and how to use them on DZS lab systems and on customer networks

DZS (DASAN Zhone Solutions)

DASAN Zhone Solutions, Inc. (NASDAQ: DZSI) is a global provider of ultra-broadband network access solutions and communications platforms deployed by advanced Tier 1, 2 and 3 service providers and enterprise customers. Our solutions are deployed by over 900 customers in more than 80 countries worldwide.

Our ultra-broadband solutions are focused on creating significant value for our customers by delivering innovative solutions that empower global communication advancement by shaping the internet connection experience. Every connection matters, and the first connection to the internet and cloud services applications matters the most.

Our principal focus is centered around enabling our customers to connect everything and everyone to the internet-cloud economy via ultra-broadband connectivity solutions.

The company provides a wide array of reliable, cost-effective networking technologies, including: broadband access, mobile backhaul, Ethernet switching with Software Defined Networking (SDN) capabilities, new enterprise solutions based on Passive Optical LAN (POL), and new generation of SDN/ Network Function Virtualization (NFV) solutions for unified wired and wireless networks.





DZS Americas
Global Headquarters
Plano, TX, USA
info@dzsi.com
www.dzsi.com

DZS Asia
Regional Headquarters
Seongnam-si, Gyeonggi-do, South Korea
info@dzsi.com
www.dzsi.com

DZS EMEA
Regional Headquarters
Hanover, Germany
info.emea@dzsi.com
www.dzsi.com