

# Intelligent “None” Network Management, Brilliant OAM Helper

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The in-depth development of social informatization facilitated by the booming growth of data communications service enables Ethernet switch the key device in broadband network to get outstanding achievements in both quantity and quality. Currently, it is now trying to become more high-speed and intelligent. At the same time, due to the unceasing extension of broadband network, the complicated network environment makes network management even more difficult. Network manageability not only depends on network management solution, but also closely connects with the manageability of each basic network element. By improving the manageability of the switch and making the network management-based switch to provide integrated and smart management mode, it on one hand simplifies network management procedure, releases the conflict between network scale and network manageability, on the other hand helps user effectively reduce the costs in deployment and maintenance.

ZTE always takes the leading place in improving intelligent network management of switch in the industry. In addition to provide traditional network management method for user, ZTE also creates

intelligent “none”

Network management for switch. By offering various network management tools like “none configuration” and “none interference”, it effectively helps users to decrease their OAM costs, improve OAM efficiency and make their network more valuable.

## “None Configuration”-Plug and Play, Reducing Labor Costs

It is important for user to deploy plug and play service, in-batch upgrade and automatic configuration dispatch. ZTE E series switch which is capable of accomplishing these jobs without human intervention effectively reduces engineer’s technical requirements and workload. Via none deployment service mechanism, the equipment can automatically find out if version and location should be upgraded after initiation. In this way, equipment component none-configuration access can be realized, and all these components fully support plug and play mechanism .

For none deployment service, the so-called none deployment server maintains version information and configuration information of all access equipments. The

equipment and none deployment server negotiate with each other via private protocol to discuss if the version and configuration should be upgraded, the location of new version and configuration, download policy, and restart policy after upgrade. Guided by the none deployment server, the equipment can automatically implement version upgrade and service configuration; in cluster management mode, when new equipment accesses the cluster and sets up management relationship with command switch, it can get configuration file automatically from FTP via the command switch. In the course of automatic configuration upgrade, new upgrade version file can be obtained from the command switch, and the automatic version upgrade can be done in the control of the command switch.

## “None Interference”-Collect Operating Information Automatically, Enhance Work Efficiency

User can set the alarm threshold and self-inspection frequency of equipment temperature, spare memory and CPU utilization on E series switch. So when network breaks down, the equipment can send warnings to alarm platform

automatically, then, maintenance staff will get the warning in time.

At the same time, ZTE E series switch can track user's operations automatically, and record the last 20 operating commands and the inspection results in non-volatile memory. In this way, it implements real-time monitoring to the scheduling of all key tasks.

ZTE E series switch is also capable of recording tasks that occupies CPU for a long time in non-volatile memory, so that maintenance staff can understand the use of CPU and make rational use of equipment resource.

### **“None Experience”-Provide Rich Fault Diagnosis Tool, So Novice Can Do Maintenance Easily**

Besides traditional inspection tools, ZTE E series switch also provide fault base and various diagnosis methods to help user to locate and isolate network fault: equipment single-port and dual-port ring inspection is provided to find out if there's ring existing between the port and its downlink network equipment. So that, network ring fault can be easily eliminated

**Via unique “Chip Heath Check” service, ZTE E series switch also can determine the existence of PHY (Physical Layer Chip) fault by carrying out loop-back test on the working status of PHY. In this way, equipment failures can be removed.**

### **“None Test”-Test Reported Network Utilization Automatically**

ZTE E series switch realizes network performance test according to the industry-leading IEEE802.1ag and Y.1731 standard. It provides user with positive way to test network service quality, sets specific indicators of service quality, and makes comparison and verification. In doing so, operators can find bottlenecks in the network, and optimize network configuration to improve network performance. The network performance test contains end-to-end network bidirectional latency and one-way latency, packet loss rate and jitter. By multiple tests, operator can get accurate performance data via statistical method. Finally, the test report can be sent to network management center by network management interface.

### **“None Operation”-One-Key-Based Equipment History Information Collection**

Maintenance staff has to collect fault location and equipment history operation information in the course of equipment breakdown, initiation test and daily regular test. In the past, these jobs all should be done manually, so due to dispersive sites, engineer has to face heavy workload and endless requirements for specific information of the equipment. The one-key-based collection known for its clear purpose and high efficiency in information collection decreases both workload and requirements for engineer. By using functional key, configuration information,

equipment operating information and the last words of the system can be collected and saved in fixed file format in flash memory. The maintenance staff is able to either copy these files on site, or get them from network management system from the network management center.

### **“None Command”- Mode Switchover Key Shows Equipment Operating Status**

By using the mode switchover key on the front panel of the equipment, ZTE E series switch not only can show the port initiation/link status, duplex/speed situation, fan and temperature warning through the port status indicator, but also can directly display more operating status to user via port indicator on the extension panel. As a result, the maintenance staff can get related equipment operating information (e.g. CPU or memory utilization) without logging in the equipment. This method featuring direct and accurate service enables the maintenance staff to carry out operation without logging in the equipment. It greatly reduces the people's workload.

The intelligent network management service of ZTE E series switch takes full consideration of the collection of the information in equipment initiation, maintenance and history record. It maximally reduces maintenance staff's workload and simplifies its daily job. In this way, the maintenance staff can easily realize intelligent “None” network management in switch.