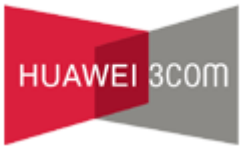

BIMS - Branch Intelligent Management System

Traditional network management software manage the devices in network through SNMP or Telnet protocol that requires IP address of the managed device is allocated by administrator in advance before the network management software can manage the network device properly. In the case that devices adopt dynamically allocated IP addresses or are located behind the NAT gateway, traditional software are beyond their management capability. Moreover, in real work network environments, lots of edge devices usually have similar configurations; manual network management would be massive, repetitive and tedious.

To resolve the above problems, Branch Intelligent Management System (BIMS) solution is introduced to perform centralized monitoring and management on the devices that are dynamically addressed with DHCP or located across the NAT boundary. Addressing the distinct need of managing numerous widely distributed network edge devices, BIMS considerably improves the management efficiency and reduce operating costs for organizations.

Solution Overview

The BIMS solution is composed of 2 parts: branch devices and network management system (NMS). Branch devices include AR router series, SecPath10/100 series security gateway and other third-party devices that implement BIMS interface; While NMS is implemented by BIMS module of Quidview.

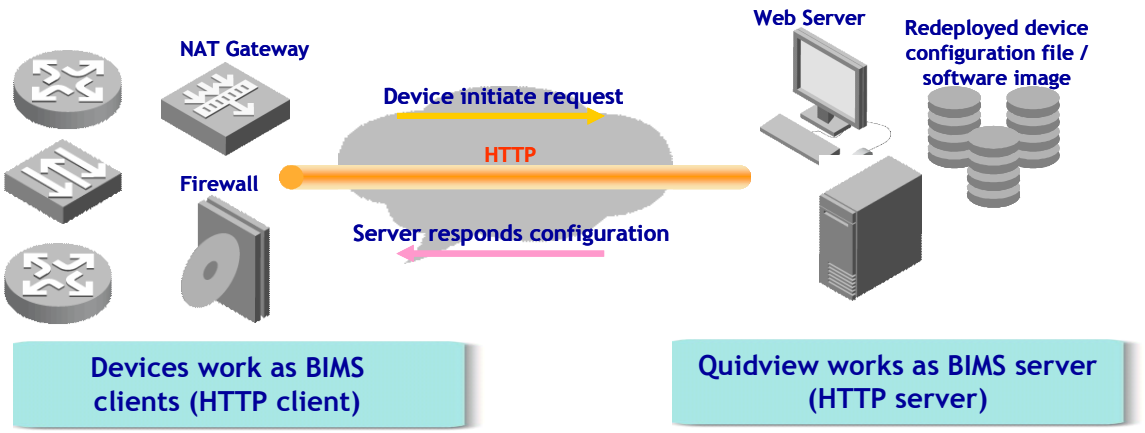

Figure 1 Branch Intelligent Management System (BIMS) Design Architecture

Being different from traditional NMS, BIMS implements an innovated passive model to manage the devices that NMS acts as a server the device is a client. The device contacts the NMS periodically on its own initiative so that the device is managed. Both sides communicate via BIMS interface protocol carried on HTTP.

When the device visits the NMC automatically, it reports the current running state information. According to the settings of the administrator and the current state of the device, the NMC can intelligently judge whether the device needs upgrade, and can monitor and record the upgrade process of the device.

BIMS is an end-to-end solution, and is practicable only if the managed terminal supports BIMS interfaces. The intermediate devices can be supplied by any manufacturer.

Functions and features

- **Ease the remote management for network devices across the NAT boundaries**

The proactive devices and intelligent BIMS servers in BIMS let the connection be originated by device and make it easy for devices to penetrate the NAT easily even in case of multiple levels of NAT.

- **Simplify the management of devices that are addressed dynamically**

BIMS identifies the device by the unique device ID instead of device IP address. Therefore, no mater the devices have either public or private network IP addresses, even the IP address is frequently changing, the BIMS server can identify them all accurately.

- **Upgrade device configurations in batches**

The BIMS automates batch update or upgrade on configuration files and operating system software image for network devices; this is especially convenient when numerous similarly configured devices need update their configuration. BIMS

automates the may time-consuming steps required to upgrade while reduce the error-prone complexities of the upgrade process.

- **Holistic monitor the edge device**

The BIMS network management center provides network administrators with robust device monitoring approaches, including:

✧ Monitor the running status of the device

✧ Monitor and audit the configuration change of the device

✧ Monitor the process of device upgrade

- **Fast Locate faults and recover services**

The BIMS facilitates the network administrators to locate faults and recover services:

✧ Back up the configuration files of the device, and provide comparison function of the configuration files

✧ Record the upgrade history of the devices

✧ Record the detailed record of interaction between the devices and BIMS server

- **Flexible security mechanism**

Users can select the data encryption mechanism according to their network security requirement, pre-shared key or industrial-standard SSL mode provided by BIMS guarantee the secure communication.

- **High performance with low cost**

Load balancing capability in BIMS server balance the system load between multiple server running instances. Meanwhile, the server demands just an ordinary PC with relatively higher performance, which significantly reduces the cost for the user.

- **Simple and easy-to-use**

BIMS provides friendly and easy-to-use GUIs vividly at the network management side, thus simplifying the maintenance operation of the administrator.

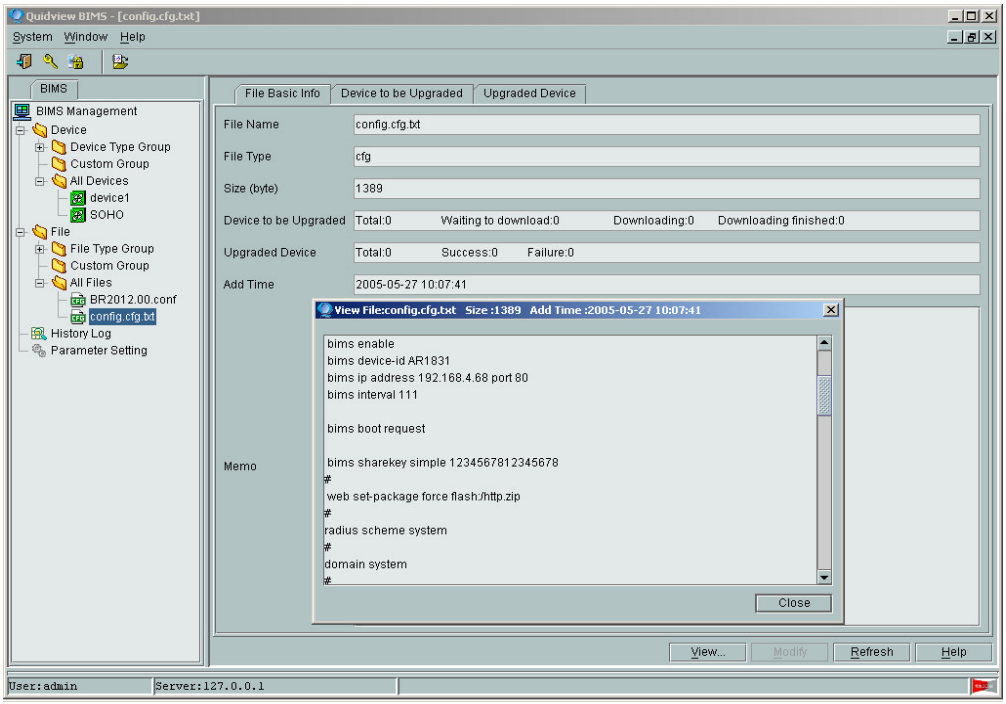

Figure 2 BIMS Graphical User Interface

Product specifications

Manageable device

Table 1 Devices that can be managed by BIMS

Type	Device list
Quidway AR router series	AR46 router series, AR28 router series, AR18 router series
Quidway series security gateway	Secpach10 and Secpach100 series security gateway
SOHO product series	Full-series products

Hardware platform

Table 2 BIMS operating platform

Attribute	Description
Multiple hardware platforms are supported	Including multiple computers and SUN workstations of mainstream types
Multiple operating systems are supported	Including Windows XP/2000/NT, SUN Solaris

Typical networking applications

- **Managing network devices in branches from the enterprise headquarters**

Usually, the enterprise headquarters could hardly achieve the management on the local branch private network because the devices are located across NAT or

addressed dynamically. Managing, maintaining, monitoring for these scalable branch networks become insufficient, meanwhile additional NMS investment and network staff are demanded by every branch. BIMS successfully addresses the above issues by consolidating BIMS server in the headquarters and the devices in all branches into a concise and efficient management solution.

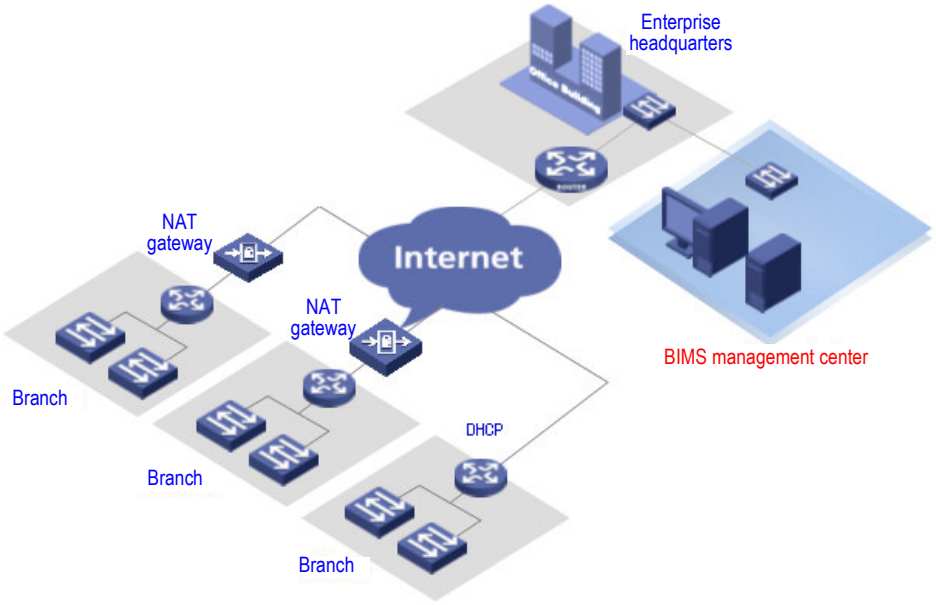

Figure 3 Networking Illustration of BIMS Application

- **Manage access devices in large quantity**

The access point devices are always geographically dispersed, for example, SOHO devices at users home. On-site manual configure, upgrade and maintain these devices in large quantity is labor-intensive and slow, and leads to higher operating expense. Meeting the above challenges, BIMS includes the distributed devices into one unified system to monitor the running state of the device, maintain the equipment in real time, and configure and upgrade the devices in batches at NMS side, eliminate IT staff travelling between different user device sites.