Remote Central Management
White Paper

This White Paper Addresses:

- Introduction to Remote Central Management
- Application Scenarios
- Central Management Example

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1 Introduction of Remote Central Management

1.1 Overview

Remote Central Management (RCM) is a patented software product of Top Global, running on Linux system with mySQL database system.

Nowadays, most network devices provide user friendly interface to the network administrators for maintenance or management. For example, most devices provide a WEB based management interface, which allows the network administrators to manage this device easily with a HTTP browser. This method of one-to-one devices management becomes harder and harder once business and devices increases in a large scale. And it will turn to a nightmare for network administrator especially when you have to do concentrative management or monitoring in a certain district.

Top Global Remote Central Management offers the network administrators an easy way to manage Top Global 3G router products individually or in group, and also provides logging and reporting tools. User can use this software to view the status of connected/disconnected devices.

Install and setup once, you can manage all of your devices concentratively. And, if you deploy the RCM Server on the Internet, you can access it and manage the devices wherever you are and wherever they are.

Top Global RCM has a TRAP Receiver, who listens to the SNMP TRAP message from the devices. Thus you can view all of the log messages of the devices to monitor and diagnose all of the network devices.

You can also set several administrators in different security level in RCM system for your needed.

1.2 How RCM Works

Top Global RCM offers batch management on deployed Top Global 3G routers in the field. The network administrator can manage these devices remotely wherever he is. RCM is based on Client-Server model, using web browser, no extra client software installation is required.

Generally, the RCM server will be deployed on the Internet and it will have a public IP address or a domain name. The public IP address or the domain name of the RCM server will be configured into Top Global 3G routers.

When configured, the Top Global 3G routers will send its status info to the appointed RCM server and register its online status. And also, the RCM server would be able to poll and push messages with the deployed routers.
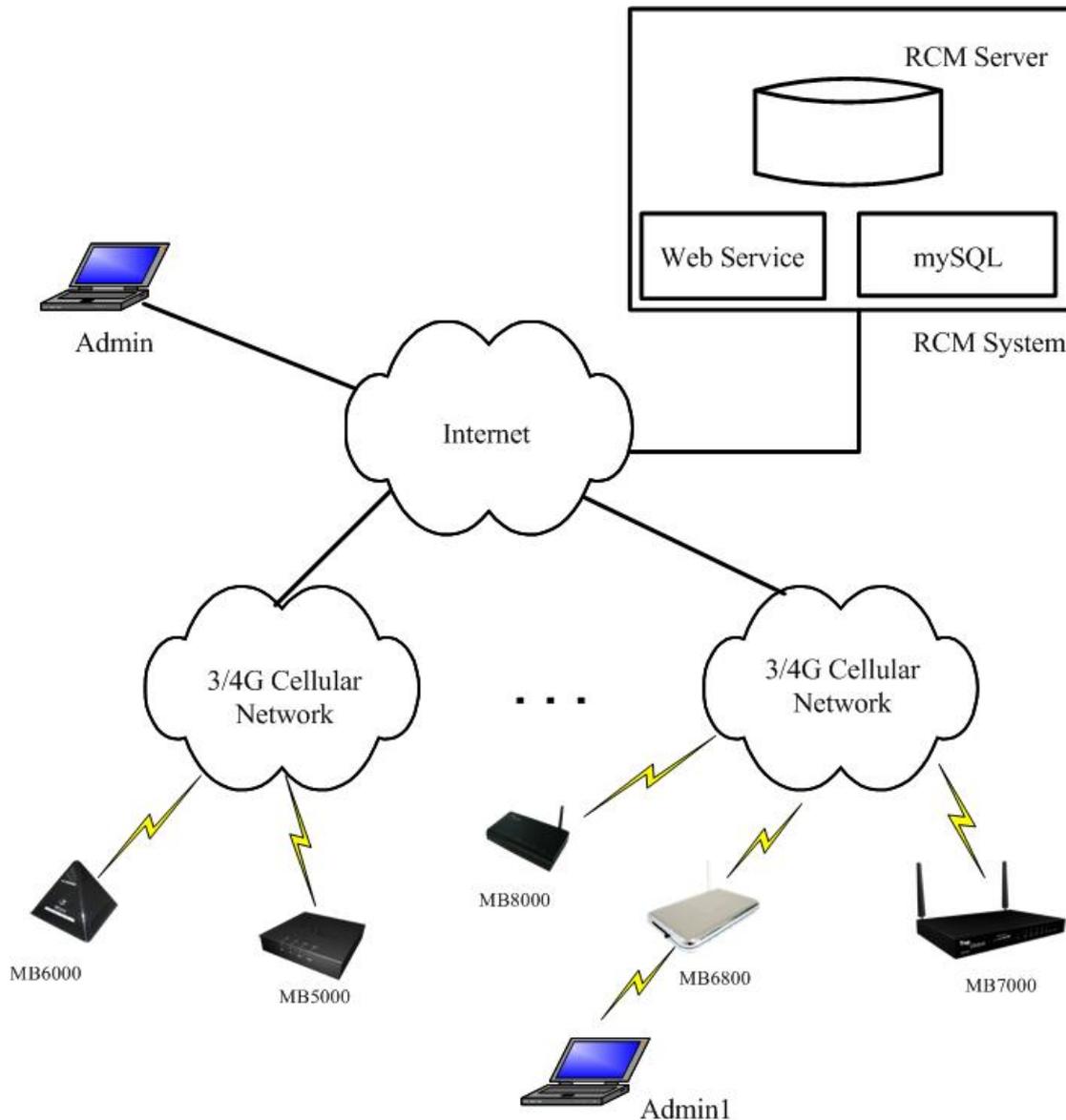
2 Application Scenarios

2.1 Configure an individual Top Global 3G routers

You can manage any of the registered devices when it is powered up and connected to the RCM Server. This kind of management includes basic configuration and advance configuration. The basic configuration includes Wireless WAN configuration, Local IP configuration and WLAN configuration while the advance configuration includes WLAN encryption settings and link integrity configuration.

2.2 Manage the devices in group

A most important feature of the RCM system is to manage the Top Global 3G routers in group.

You can set the routers into group by the area they are deployed or the purpose they are deployed. And then you can configure the routers in a same group to the same configurations or perform the same action on all of the routers in a group, while you are not required to do that one by one on the routers.

2.3 Monitor and view the online Top Global 3G routers

RCM System provides an integrated, concentrative monitoring method as well as the configuration. As the description before, you can find the device that you want to monitor and view its status, e.g. the log messages. You can see the status update when a router goes offline, so that you might take some actions to repair or diagnostic.

2.4 Upgrade Top Global 3G routers' firmware remotely

You can upgrade the device's firmware by RCM system. You can see the firmware version in the *device management* page. Setting the parameters of FTP server correctly and select a firmware you hope to upgrade, you can upgrade firmware through FTP server. Make sure the firmware you selected had been saved in the root directory of FTP server.

2.5 View GPS location with Google Earth

With GPS mouse installed on MB8000 or with the 3G cards which has GPS built in inserted into MB6000/MB6800/MB5000, you can see the GPS location on the RCM server. RCM will work with Google Earth to display the location.

Note: MB8000, MB6000/MB6800/MB5000 are products of Top Global Top Global 3G router series.

3 Central Management Example

3.1 To upgrade Top Global 3G router remotely with RCM

Top Global will maintain the Top Global 3G router products to provide new features or improve the performance or fix some problems. So the administrator might want to upgrade the routers with the new firmware. With RCM, the administrator in the office will be able to remotely upgrade the routers in the field. Thus he will not be obliged to go to the field to upgrade the routers with the new firmware, to save time and traveling or labor expenses.

3.2 To configure Top Global 3G routers by group

For some purpose, the administrator might want to sort the deployed Top Global 3G routers into groups. The different groups might have different configuration settings while the routers in a same group will have exactly the same one.

It will be a heavy work load to configure the routers one by one, especially when the routers

have been deployed in the field. The administrator might need to spend lot of time and traveling expenses to go to the field to configure the routers. But with RCM service, he will be able to sit in the office and sort the routers into groups and then configure the routers in the group in real time. No need to configure one by one and zero traveling expenses.

3.3 Using RCM to manage the Top Global 3G deployed on vehicles

For a transport company, he may deploy Top Global 3G on the buses or vehicles. The Top Global 3G routers will provide the advantage of Internet accessing for the passengers. And also, with RCM, the administrator can monitor all of the status of the routers running on the buses or vehicles in his office remotely.

If the routers have GPS enabled, the administrator will be able to keep track of all of the buses and vehicles by watching their GPS location on the Google Earth map. He will be able to switch one router to another by just clicking on the SN (serial number) of the routers to see each routers GPS location and the trail. The Google Earth's map will be presented on the web browser. Thus the transport company will be able to provide the real time location of the buses or vehicles to their customers.

3.4 Status monitoring remotely

The network administrators may want to watch the status of the routers in operating, for example, the cellular network's signal strength, the IP address that the router obtains from the cellular network, or the total data traffic usage between the router and the cellular network. With this information, the network administrator would be able to make decision or to check the health status of a router.

To gather this information, the administrator might need to go to the field by himself and spend lot of time to get enough data. But it will be a heavy load if there are many routers deployed. With RCM service, he will not need to go to the field. The administrator can sit in his office or home, and then access to the RCM service, and he will be able to see all of these data in the browser, the strength, the traffic usage and the IP address, of all of the routers that he has deployed. This makes the management work easy.

3.5 Asset management with RCM

For the company that deployed the routers in the field, it is an important management to make records and manage them. For example, to take records on which routers have been deployed in which hotspots/places and manage the changes.

With RCM service, this work will become easy to go. On RCM, you can group the routers that have been deployed in a same area (no matter geographically or logically), then you will be able to see each of their detail information, the model name, the SN, the current firmware installed, the cellular data card's model and ESN, etc.

	SN	Model	Firmware	Uptime	Last Wan IP	RSSI	Status	Card Model	ESN
☐	MA17SG130▦	MB5000K	v1.1.28pre73	2008/06/05 09:47:26	70.6.108.166	▦	Connected	Sierra Wireless AC595 Modem	603A7▦
☐	MA17SG200▦	MB5000K	v1.1.28pre73	2008/08/09 17:36:54	70.6.233.100	▦	Connected	Sierra Wireless AC595 Modem	603A1▦
☐	MA17SG200▦	MB5000K	v1.1.28pre72	2008/08/07 16:48:45	70.6.78.86	▦	Connected	Sierra Wireless AC595 Modem	
☐	MA17SG200▦	MB5000K	v1.1.28pre73	2008/06/10 14:44:15	99.204.12.225	▦	Connected	Sierra Wireless AC595 Modem	603A5▦
☐	MA17SG200▦	MB5000K	v1.1.28pre73		70.1.171.36		Disconnected	Sierra Wireless AC595 Modem	603A7▦
☐	MA17SG200▦	MB5000K	v1.1.28pre72		68.26.201.238		Disconnected	Sierra Wireless AC595 Modem	
☐	MA17SG270▦	MB6000-Standard	v1.1.27-2	2008/08/13 21:38:40	72.58.178.48	▦	Connected	Sierra Wireless AC595 Modem	
☐	MA17SG270▦	MB6000-Standard	v1.1.27-2		70.6.236.204		Disconnected	Sierra Wireless AC595 Modem	
☐	MA17SG270▦	MB5000K	v1.1.28pre72		75.220.123.112		Disconnected	Sierra Wireless AC595 Modem	
☐	MA17SG270▦	MB5000K	v1.1.28pre72	2008/08/12 09:37:00	70.6.174.75	▦	Connected	MERLIN S720	5B638▦
☐	MA17SG270▦	MB5000K	v1.1.28pre73		120.6.200.99		Disconnected	null	
☐	MA17SG270▦	MB6000-Standard	v1.1.27-2	2008/08/13 11:50:03	72.62.35.214	▦	Connected	Sierra Wireless AC595 Modem	
☐	MA17SG270▦	MB6000-Standard	v1.1.27-2	2008/08/13 12:33:27	70.6.58.17	▦	Connected	Sierra Wireless AC595 Modem	
☐	MA17SG270▦	MB5000K	v1.1.28pre72	2008/07/02 02:28:16	75.212.25.213	▦	Connected	Sierra Wireless AC595 Modem	
☐	MA17SG270▦	MB6000-Standard	v1.1.27-2		70.0.27.213		Disconnected	Sierra Wireless AC595 Modem	
☐	MA17SG270▦	MB5000K	v1.1.28pre73	2008/06/19 08:14:10	68.26.32.249	▦	Connected	Sierra Wireless AC595 Modem	604A6▦
☐	MA17SG270▦	MB5000K	v1.1.28pre72	2008/08/13 09:35:46	72.61.113.86	▦	Connected	Sierra Wireless AirCard 580	
☐	MA17SG270▦	MB6000-Standard	v1.1.27-2		70.0.175.200		Disconnected	Sierra Wireless AC595 Modem	
☐	MA17SG270▦	MB5000K	v1.1.28pre72		68.27.103.118		Disconnected	Sierra Wireless AirCard 580	
☐	MA17SG270▦	MB6000-Standard	v1.1.27-2	2008/08/13 23:07:07	70.0.92.9	▦	Connected	Sierra Wireless AC595 Modem	

Note: In the figure, you will see the routers' model and their SN, firmware version, uptime, the data cards' model and ESN number, the IP address that they obtain from the cellular network, the status, etc. The RSSI indicates the signal strength that each of them received from the cellular network.

3.6 Automatic Report/Alarm

The management works on Top Global 3G routers will become very easy and joyful with the report/alarm service that the RCM provides. When a router is down, the report/alarm service will be able to send an email to a specific email address, to report the event. Thus the administrator will be able to receive the event in real-time, without needing to poll time to time.

Another important usage of the report/alarm service is to monitor the traffic data usage in real-time. You can specify a value in RCM for a specific router or the routers in a group, when the added up data usage of the router is approaching to the specific maximum value in a month, the RCM service will send a report/alarm to the email.