The Design of the Statistic Data Collection System

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Central Server

Windows client

Windows client

Windows client

Mysql

4

1. Abstract

Central Server is the machine that main script need to be executed in. It may be any of windows, linux, mac server (I used mac as the central server). Windows client are the machines that need to be monitored. We will monitor the system level statistics like memory usage, CPU usage, total uptime and windows security event logs. Next chapter is the detail.

2. Components and data flows

To achieve the monitor goals, I used the python language script to realize the system. Look at the diagram at front. When we execute the main script in the central server, it will send some scripts to the windows client (Step 1) and then the scripts in the client will be executed to collect the statistic data (Step 2). After that, the client script will send the data to server (Step 3). When the server receives the statistic data, it stores it into the database which in my case is mysql database (Step 4). To make the design easy and clear, all the steps are synchronized which means that data will flow from upstream to downstream.

In the central server we use SSH protocol to communicate with the remote machines. The statistic data is encrypted by key before it will be sent to server. After the server receives the data, it will be decoded by the same key to retrieve the real data.

3. Python packages we needed

1) I used paramiko for ssh communication

2) I used pycrypto for encryption purposes

3) I used PyPiWin32 to communicate with windows SDK to retrieve the security log data.

4) I used psutil to collect the memory and cpu usage data

5) I used the python standard email and smtp lib to send email

6) I used mysql-connector-python to connect the mysql database to store the data.

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