Implementation of Rack Monitoring Tool To Periodically Monitor The Health of The Servers/Hosts

Kumar Naresh S N[1], Ms. Mamatha Balipa[2]
[1]Dept of MCA
[2]Associate Professor, Dept of MCA
[1, 2]NMAM Institute of Technology

Abstract- *In this paper we describe the implementation of a rack monitoring tool that would periodically monitor the health of the sever/hosts.*

Keywords- ssh, monitoring, internet protocol, server racks, Graphite, Grafana.

I. INTRODUCTION

As computer network and communication size is actively increasing, network has become vital to communication for people's day to day purposes. As popularity in network is increasing, several network monitoring tools are also developed hand in hand. Monitoring the connection and networking equipment is essential, but at the same time servers are also given proper importance, since it bears the load of the network. In this paper we implement a rack monitoring tool that would periodically monitor the health of the servers and hosts [1]. As we know server room monitoring is an integral part of any data centre management strategy. Real time monitoring of temperature, humidity, pressure and security allows ample warning time for server room managers regarding potential threats to up-time and availability. Apart from up-time security, however, server room monitoring systems results in deeper understanding on improving server room efficiency that facilitates the IT professionals progressively optimize the facilities to reduce the operating costs.

II. LITERATURE SURVEY

There are reasonable amount of research has been done in the field monitoring of different systems. Some of the research includes the following.

A. Design and Implementation of server monitoring system based on SNMP[1]:

Considering servers being the core position in network, this paper introduces how to monitor servers through simple network management protocol(SNMP). Here MIB resources are expanded by defining MIB objects to monitor the resources of server, and use multi-threading technology to collect data and process them, which can improve the collection efficiency.

B. Implementing Large-Scale Autonomic Server Monitoring using Process Query Systems [2]:

This paper presents a new server monitoring method based on a new and powerful approach to dynamic data analysis: Process Query Systems (PQS). PQS enables user space monitoring of servers and by using advanced behavioural models, makes accurate and fast decisions regarding server and service state.

C. Quality Performance Monitor: A Server Performance Visualization Tool [3]:

Thousands of companies have deployed servers and it is necessary to measure, analyse and evaluate the performance of the servers through performance test. Generally, we mainly analyse performance data by drawing different performance charts. First, performance test is time-consuming, including calculating and drawing chart. And it is difficult to combine new performance data with history performance data to draw chart analysis.

III. MY WORKS

A. Implementation of Functional Design

1) To periodically monitor the lists of hosts/servers and store them in time series database Graphite.
2) To implement a GUI to display the reading in charts and create alerts based on preconfigured thresholds.

For the GUI, any open source tool such as Grafana could be used.

- The monitoring script would be co-located with time series DB and web application.

- The monitoring script would periodically ssh into the list of ip addresses and fetch the following information,

a. CPU usage
b. Free memory/RAM.
c. Free disk space.
d. NIC Activity (Rx, Tx packets).

The end user is expected to provide the ip address, credentials of these hosts during the setup of the monitoring tool and assume they have common flavour/ distribution of linux installed.

- The information fetched by the monitoring tool must be stored in a time series DB.
- Grafana or similar open source tool must be used to fetch the values in the time series DB and display the graphs on a dashboard.
- Implement an email notification mechanism to alert the end user when the CPU and free RAM breaches the specified threshold.

These thresholds are configured/ provisioned by the end user before starting the monitoring of monitoring tool.

IV. CONCLUSIONS

Almost all data center has some method of monitoring temperature even if it is just a thermometer or a thermostat on a data center wall. But at present scenario it is not considered as a best practice. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommends measuring the cool air entering IT equipment near the bottom, in the middle and near the top of each IT rack. Today, many data center managers want to equip their racks with ways to detect water, smoke or when a cabinet door is opened. Some want to install cameras for security so they can spot changes or remotely view the physical environment [4].

At present day we can see the implementation of network monitoring tools and various papers are presented in this area. But we can rarely see the papers presented on rack monitoring tools. In this paper we try to implement the rack monitoring tool, since it is as important as network monitoring.

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