

A Cloud Monitoring Framework Perform in Web Services

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ABSTRACT

Cloud Monitoring framework basically offer a set of instance acquisition solutions, it's either an on-demand user commitment. This work, entitled as Cloud Monitoring using network framework aims at applying Cloud Computing towards Network Monitoring (NM). The NM uses Web Services (WS) and Service Oriented Computing (SOC) to implement 'Software as a Service (SaaS)' and 'Platform as a Service (PaaS)' thus making the entire network to run on a central node i.e. Cloud Monitoring App. It also gives a unified view of network monitoring servers. It provides directions on the applicability of Cloud Computing for NM with a case study and implementation results paving the way for the users of such applications. The application has a simple interface & easy to work on. The application promises the core industries in taking a new dimension and explore like never before.

Keywords: Cloud Computing, Network Monitoring and Management, Service Oriented Computing.

I. INTRODUCTION

Today, Cloud Computing is a buzz word in any industry. Cloud computing is computation, software, data access, and storage services that do not require end-user knowledge of the physical location and configuration of the system that delivers the services. It describes a new supplement, consumption, and delivery model for IT services based on Internet protocols, and it typically involves provisioning of dynamically scalable and often virtualized resources. Most cloud computing infrastructures consist of services delivered through common centers and built on servers. Clouds often appear as single points of access for consumer's computing needs. It is due to the power of the Cloud that are still not aware that if Network is put in effective use or not, like, memory usage & consumption of services by platform. Therefore I came up with a plan to device a simple java application that helps in fixing the above mentioned issues.

In a nutshell,

- ✓ This Work provides an insight into Cloud Monitoring directed towards Network Management using SOA & WS.
- ✓ It gives the network-admin, the complete information regarding various Platforms (PaaS) & Services (SaaS) deployed, Memory Usage Pattern, in a simple state-of-art Java Interface.
- ✓ It's developed to provide Monitoring & Research Support for Networks.
- ✓ The application has a simple interface, where a network-admin could easily Monitor & Analyze.

II. OBJECTIVE

This Work aims at deploying Cloud Computing Techniques towards Network Monitoring (NM) to implement 'Software as a Service (SaaS)' and 'Platform as a Service (PaaS)' using Web Services (WS) and Service Oriented Computing (SOC) in order to provide Unified view of network which is vital for the Analysis, Research & Monitoring of the

large Network Infrastructure through a simple state-of-art Java Interface.

Related formulation

The knowledgeable in using legacy monitoring application that need to be executed on a Platform and as a prototype, it is supported on backend monitoring applications. Hence every task needs to be constantly controlled & managed by skilled professionals as no exclusive console interface the network-admins really want is available.

The following complex issues were comprehended and reported down

- ✓ As its Distributed, no autonomous control exists.
- ✓ Increase in Cost of Implementing & Maintaining.
- ✓ Need of skilled administrators round the clock for every department in an organization.
- ✓ If implemented on Distributed Network, would require Network Administrator Authorization for Installation & Guidance.

III. METHODOLOGY

To Deploy an Application that implements 'Software as a Service (SaaS)' and 'Platform as a Service (PaaS)' using Web Services (WS) and Service Oriented Computing (SOC) required for the Monitoring of Network – Cloud Monitoring Framework App.

The proposed system promises to exhibit these features

- ✓ Capacity & Consumption
- ✓ Core Features & Processing
- ✓ Deployment & Installation
- ✓ Design

This section focused on architecture of the cloud monitoring system. The system components, their input and output, their operation, and the innovative aspects they introduce and its deliver are as follows.

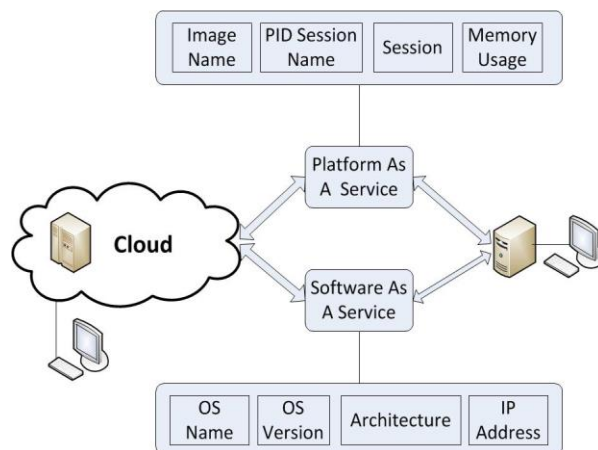


Figure 1. System Architecture of Cloud Monitoring Framework App.

Following are the distinguishable advantages

- ✓ It can computes centrally on a large scale spread across geographic locations.
- ✓ Less network monitoring and resource usage, thus reducing the implementation cost.
- ✓ It manages thousands of network devices and can be implemented over a large span of network.
- ✓ It's simpler to Deploy.
- ✓ It occupies less space & consumes less RAM's Memory.
- ✓ It has simple & subtle GUI.
- ✓ Provides further Support for Analysis & Research Purpose.

IV. TECHNICAL DEVELOPMENT

The Cloud Monitoring Architecture is modularized as per Software Development Life Cycle Policy, which consists of three modules built using Java Applets. The modules are designed to access process information & transmit through SOA and WS Compliant Standards. The portability/mobility is also a cause of concern; hence each module is executable as Standalone .jar file on any platform.

The modules implemented are as follows,

- Client/Terminal Interface
- Centralized N/W Monitoring Interface
- Agent Interface

• **Client/Terminal Interface**

This module shows the information of Platform & Services used based on SOA & WS, which is transmitted on Authentication using IP. Upon basic authentication using WS it employs SOA Compliant code to access kernel to get Process Info of Services & Platform on the system the app is deployed.

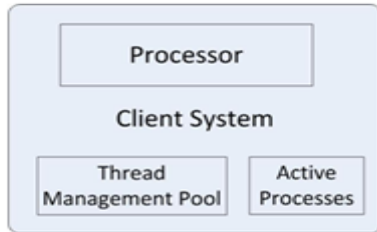


Figure 2. Interface terminal

• **Centralized N/W Monitoring Interface**

This monitors, manages & process the requests made. Here it gives a Unified View of Monitored Tasks from the Server which employs OLSRP to get details from client using SNMP.

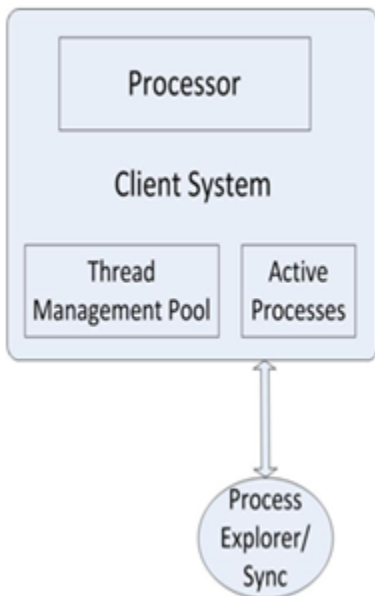


Figure 3. Monitoring Interface

• **Agent Interface**

This collects the info gathered by Server to facilitate & provide further Support by storing in a Database, which can be distributed or analyzed for Research purpose. This module need not be

invoked at compile time. It automatically generates a view of Monitoring Task and stores in a database on run time.

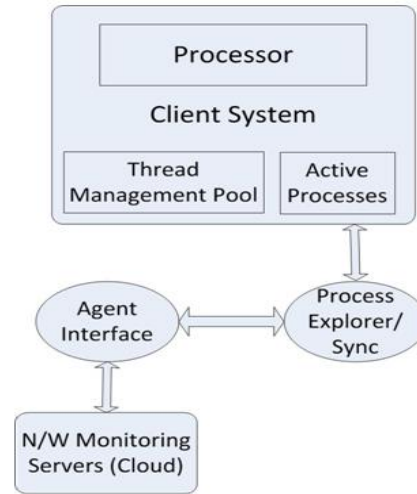


Figure 4. Agent Interface

A Cloud monitoring network terminal provides a number of webserivces in connection protocol and monitoring the information about timing of processes, or about whether processes will operate in sequence or in parallel. Its allowing a reader to determine what operations will be performed, in what order, and under what circumstances

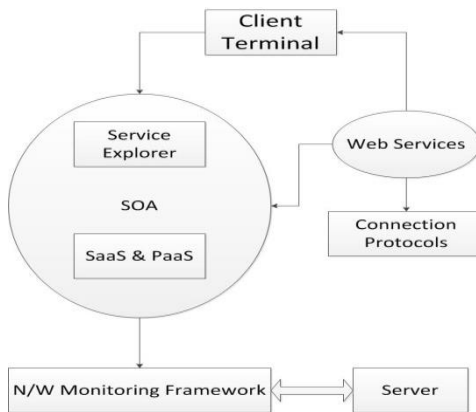


Figure 5. Web Service Interface

Database Access

The relational database provides persistent storage for application data. The database design is essentially backend storage & retrieval mechanism works with database connection to the frontend interface. Here I have used two databases to store information for specific and generalized views.

Table 1. Sysinfo.mdf

sysip	sysos	sysver	sysarchit
192.168.0.27	Windows XP	5.1	x86
127.0.0.1	Windows XP	5.1	x86
41.116.0.26	Windows 7	6.1	x86

Table 2. Cloudmonitor.mdf

sysip	sysos	sysver	sysarchit	monitoring task	sttask
192.168.0.27	Windows XP	5.1	x86	javaw.exe 1308 23,084K	21-3-2011 7:40
127.0.0.1	Windows XP	5.1	x86	mspaint 127 12,560K	27-3-2011 6:12
41.116.0.26	Windows 7	6.1	x86	regedit.exe 1890 1,348K	30-3-2011 9:10

V. RESULTS

Cloud Monitoring framework document that gives information about a cloud monitoring framework computing using network related in web service often put together by a group of people working together. In my scenario, it's the results generation, the assessment made upon it.



Figure 6. Client.jar Authentication Process



Figure 7. Client jar Displaying Platform & Services Info

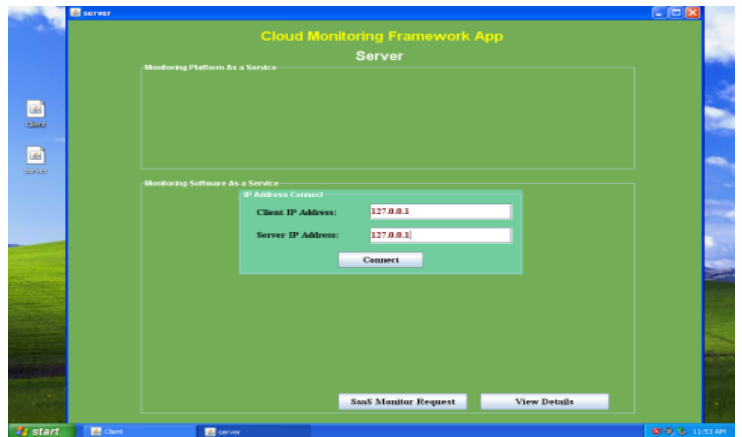


Figure 8. Server.jar Authentication Process while receiving data from client

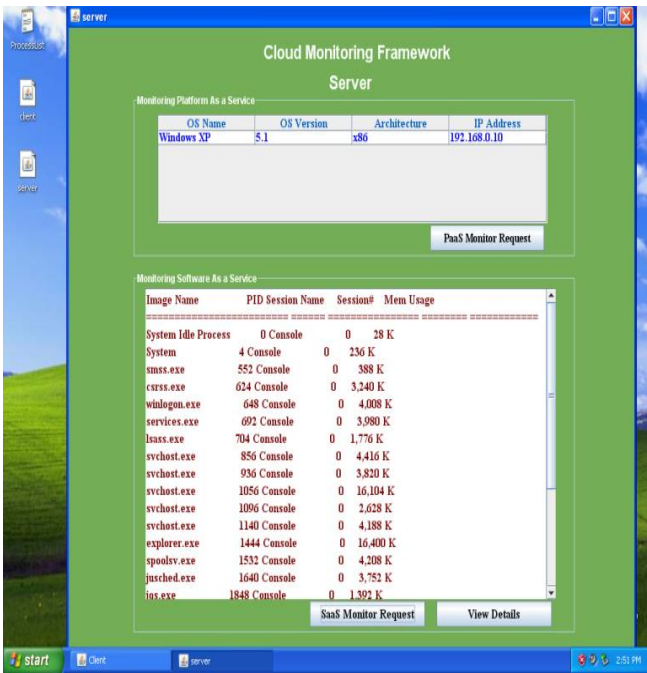


Figure 9. Server.jar Monitoring Details from Client



Figure 10. Agent Interface Listing the Unified View of the Entire Network

VI. CONCLUSION

There is an old adage saying, "Necessity, is the Mother of Invention".

Therefore as promised, I focused on the design, development and implementation of a prototype cloud monitoring framework using SOA & WS methods. In cloud - computing framework, I have

provided Software as a Service ('SaaS') and Platform as a Service ('PaaS'), thus having developed a fully functional backend network monitoring desktop application through the design of simple user friendly Tool in a state - of - art java interface.

The scope of the application is as mentioned below

- ✓ Cloud Computing plays a vital role & is the recent trend of many Organizations; it is where this simple application comes in handy for Monitoring Of Services & Platform as required by Network Administrators.
- ✓ This project will be helpful for Analysis of Networks and can be used in various Organizations.
- ✓ It can also be used in Net Cafes, Educational Institutions, IT Firms, etc.

The further developments that can be imparted upon in it are

- ✓ Making it a standalone application (i.e. creating a .jar file) which makes it easier to deploy without the need of configuring JDK every time.
- ✓ Improving the visuals by introducing Advanced GUI with Touch Based Support.
- ✓ Adding Report Generation Support from Database.

VII. REFERENCES

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