WWDC SERVER SOFTWARE INVENTORY MANAGEMENT AND AUTOMATION

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ABSTRACT

Many organizations maintain a large Data Centre for its business operation. In that different administration team works on large set of servers and performs several tasks on need basis. It's too complicate to handle this large number of server manually in terms of maintaining its configuration, scheduled operation, administrative tasks etc.

Here, we going to propose new automated technology for Server Software Configuration management. Then the entire server Configuration is maintained by this SSCMDB. Before that understand and perform the system administration task and also to identify repetitive task as well as automate them in some extent to be more efficient, and then avoid mistakes in that. Then go through the different module of host list [A Host List is a list of hosts to be used for matching to examine whether a certain host is included in the list or not] . So that we can save time and better utilization of resources by eliminating time consuming manual process. It also used to help the root cause analysis related issues like unplanned interruption it may leads to reduction quality. Most of the servers running on HPUX, LINUX and SOLARIS. It's executed using the tools Perl, Shell, CGI, Java Script and MySql.

Index Terms— *Configuration Management Database (CMDB), Configuration Items (CIs), Server Software Configuration Management Databases (SSCMDB), World Wide Data Centre(WWDC).*

1. INTRODUCTION

The Configuration Management Database (CMDB) allows you to map the entire business operation. This involves entering all physical and non-physical components of your IT operation into the CMDB as CIs and then creating relationships between each of the components. By keeping your Configuration Management up-to-date, you can easily see a complete map of your network from the perspective of a single component. This makes it easy to predict the failures components and to build disaster recovery plans. Then is also to help the root cause analysis related issues like unplanned interruption it may leads to reduction quality, server crash etc.,

For example, one of your application servers crashes or down. It's too tedious to handle manually. But it too easy to handle using SSCMDB. The SSCMDB checks immediately in CMDB to see what's hosted on that server. The SSCMDB get the list from CMDB and display what are the servers hosted on that particular application. Then easily we can identify which servers are all crashed or down by seeing their network status of the particular host or server.

One of the major challenge in maintaining the data centers is continuously tracking, auditing and discovering the relationship between the servers and finding out the impacted host / server available in clusters, blade chassis, OS, thousands of heterogeneous server etc., By using CMDB we can achieve these goal. On the other hand, a CMDB needs to keeps track of configuration Items and adapt the information to CMDB, which requires refresh the information frequently available in CMDB. However, a CMDB is not a monitoring tool .It is not intended to cover the real time resource status. The need of integrating information that facilitate to access the accurate in exact time A SSCMDB also maintain diagrammatic representations of entire CIs and their relationships. This allows for rapid identification and relationships between them.

In this paper, using server software configuration management (SSCMDB) we can monitor entire cluster, application, Blade, virtual servers etc., and also update up-to-date information periodically and perform the system administration task and also to identify repetitive task as well as automate them in some extent to be more efficient, and then avoid mistakes in that. Then go through the different module of host list .So that we can

save time and better utilization of resources by eliminating time consuming manual process. It also used to help the root cause analysis related issues like unplanned interruption it may leads to reduction quality.

2. RELATED WORKS

Many organization maintain their data centers by taking a manual approach to inventory and building out by a hardware and software inventory spreadsheet. The challenge is that the information is automatically stale, requires considerable human effort to maintain, and may miss the hidden server on the network.

On the other hand, to maintain the data centers we have to tracking, auditing and discovering the relationship between the servers and finding out the impacted host / server of several thousand heterogeneous servers and the operating systems continuously, middleware and software they host. By using CMDB we can achieve this goal. On the other hand, a CMDB needs to keeps track of configuration Items and adapt the information to CMDB, which requires refresh the information frequently available in CMDB. However, a CMDB is not a monitoring tool .It is not intended to cover the real time resource status [1].

Using ITIL-based CMDB as a repository to gather all things related to customers' perspectives and their expectations, staffs perspectives and also their activities in the organization is applicable. Moreover, CMDB can help to update and trace all changes and activities in the organization too [2].

A CMDB provides an organized view of data and a means of examining that data from any desired perspective. Within this context, components of an information system are referred to as Configuration Items (CI). A CI can be any conceivable IT component, including software, hardware, documentation, and personnel, as well as any combination of them [6].

Automatic policy rule extraction for configuration management is used to identify automatically repeating structures of composite configurations. Thus, it creates suggested policy rules based on the de-facto configuration it the system allowing manual enhancement of the final policy rule. We introduce a novel distance measure between CIs, and suggest an efficient computation method by reducing the computation of edit-distance between to trees to a minimum-cost flow problem.[4]Proposing new automation technology for Configuration Management Databases(CMDB). Trying to reduce the maximum manual work and root cause analysis issue, then Integrated with business change process, Collecting Server related information for inventory management, Go through the different module of host list. Maintaining the database for unreleased servers, Obsolete Server etc.,. So that we can used for reservation and Backup. Presentation collected data in website using PERL/CGI/PHP. Atlast finally plot the statistical Information of the server in the related site.

3. SSCMDB ARCHITECTURE

In the architecture and work flow diagram, we can see the work flow and and inventory database on CMDB. The servers information are pulled all relate information and stored in CMDB repository. By using scripting we can auto configure the information standard.

Then it should updated periodically again by using scripting and also collect information related to clusters, blade chassis network switch. Then all related information collect from the admin server(For ex. Eux092) .

Then move it to the scheduler it schedules the process periodically sends all relevant information to the repository. We can't auto configure all the information. We have manual entry as well. Before representing data we need othe databse entry as well so we have to connect other database to our repository. Then finally all the information presented in Host list web page. From here we can see the all the information with less time consuming.
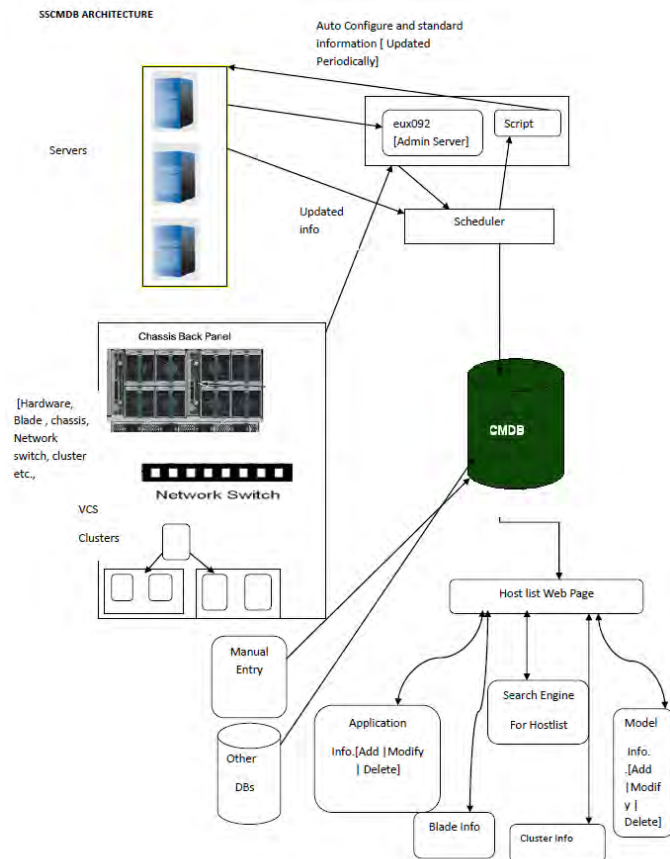
Fig 3. Illustrates the architecture and work flow for the inventory management.

4. FUNCTIONAL COMPONENTES

4.1. Auto configuration to a database

Creating the centralized database for CMDB (Configuration Management Database). Then collect the information related to Blade Server, Cluster Server, Chassis Information, SOX Server, CPU core Information, Partition type, Part Details, VM server (LDOM, HPVM, ESX.,). Then feed this information to CMDB. Then Auto configure all the data by using shell scripting, it reduces considerable human effort, time

4.2. Scheduling

After collecting the information then we have to schedule it. For example we take Blade Enclosure information, each enclosure has 16 slots for HP and 14 slots for IBM. Each blade server occupied slot according to their model (Ex., ia64 HP Server BL460c takes one slot, ia64 HP Server BL860c takes two slot , ia64 HP Server BL870c takes Four slot, HP BL890 -8 slot. Then schedule what are all impacted host inside each server. Then for clusters listing the cluster list (Active, Reserved, Free).

On the other hand, to find which server impacted on which each slot takes more time by using SSCMDB inventory Management we find too easily.

4.3. Change Report

We can add, modify and delete information manually by using SSCMDB instead of change in CMDB. While Changing in CMDB cause some other issue and also it may leads to leakage in security.

Upon using Server Software inventory management it's too easy to maintain the information. While changing the report it won't cause problem to report. He can see the report on side by side itself.

4.4. Representation of data / Statistical Report

The Fig 4.1 shows the statistical report for growth of server for past three months. It shows ups and downs of the server with respect to the online Agreement(OLA). The OLA are categorized by Live Production Server as Live, Live-Reporting is same as Live Production Server but working as reporting instance. Then Quality Assurance[QA] Platform for Application . Normally replica of Live Instance. Test Platform for Application for Live. Application Development Server [Dev]. Proof of Concept Sever to validate an architecture [POC]. Administration Server. Used by System/Windows team for administrative service to environment [admin]. Then finally Spare and Phase Out server. The spare server may be unused,free or under preparation server, Whereas Phased Out is an obsolete it can't be used for future purpose.

The Fig 4.2 shows the statistical report for cluster for last 1 year and also it shows whether it lies on SAF host or GPX.
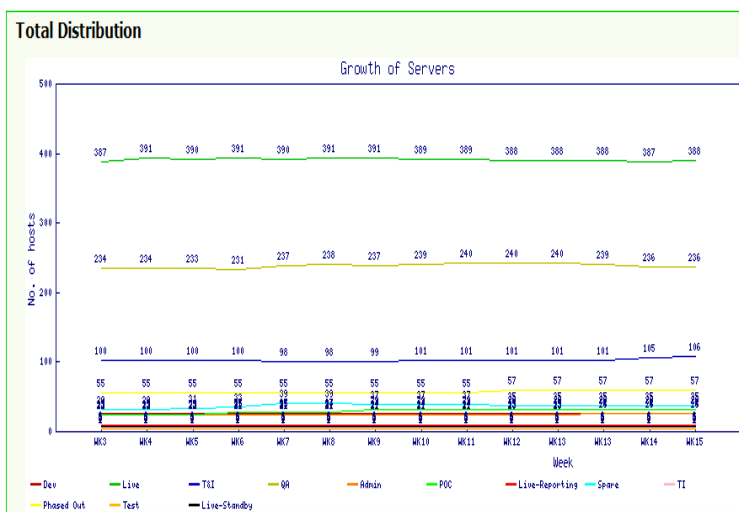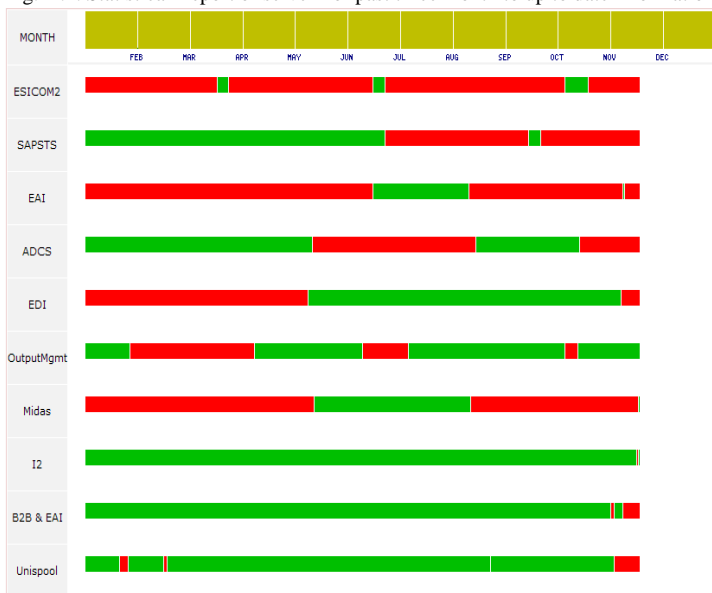

Fig. 4.1. Statistical Report of server For past three month to up to date information

5. Conclusion

In this paper, using the help of WWDC server configuration inventory management we can automate the server inventory to reduce the human considerable amount of efforts and time. Because many organization get serious about inventory management or asset management in response to expensive audit.

This makes the process faster and easier. Then we can also stop sacrificing too much amount in IT budgeting for software. In future work we can move live CMDB to data warehouse, so that running system hand over to the customer and then improve the consistency in transaction.

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