Data Mining
Customer Configurations

Abstract
Hewlett Packard Enterprise's flagship management software, OneView, allows customers to utilize and customize a plethora of options for hardware and software configurations. With such a variety of options available to customers, and large amount of configurations possible, some features are bound to be more popular with the customer base. However, due to the large amount of data from customers' configurations, it was difficult for HPE to analyze this information in an efficient and meaningful manner. Hewlett Packard Enterprises needs the information in an understandable form, as well as having fast turn around times.

The project involved finding methods of storing the massive amounts of data in a location where it could be secure, readily available, and has a method to allow researchers to analyze the data proficiently. The methods of retrieving data must be able to group only relevant information, and still scale with such a large amount of data, using only open source tools.

Architecture

- Existing Features
- Preferences and Needs
- Usage Analyzation
- Enhance Software
- Tool Utilization

Impact

Our project's impact provides HPE with a method of understanding customer configuration patterns and use cases. It also gives specification statistics to help develop troubleshooting for current configurations, and to enhance OneView towards their customers wants and needs. This project revealed that more research has little cost, large benefits, and is effective at giving indications toward customer satisfaction.

With this project, customers will now be included in the development process of OneView, allowing the software to be even more tailored to the customers' needs and wants. These user requirements can now be voiced in a more technical manner, allowing their input to be portrayed correctly through their actions.

Results

The code provides an efficient way of pulling meaningful data from the database. This information is pulled via JavaScript and then made into Histograms to present the information in an easy to read format. The project also allows the reports to incorporate both future and previous software versions.

Database
- Open Source Software CouchDB
- Allows information to be pulled via JavaScript and Python

Scalability
- Turn around times of less than .5 seconds on just a fraction of data
- Code designed to pull any amount of data

Report Generation
- Easily Extendable as code is written as simple as possible
- Forwards and Backwards Compatible
- Allows for statistics to be pulled not only from past versions of software, but also future versions as well
- Allows Troubleshooting and Testing
- Allows easy troubleshooting as customer configurations can now be compared easily, as well as see how many customers are having problems

Lets Customers be Involved
- Customers can now be involved in the software development process

Summary

For the duration of the project, we worked with a team from Hewlett Packard Enterprises to evaluate Open Source software that would enable them to analyze customer utilization of OneView. Through our project, the conclusion was reached that further research is plausible and cost-effective.

Problems encountered included steep learning curves, lack of functionality of open source software, and open source logistical issues. We solved steep learning curves by finding outside sources for further study, lack of functionality by combining open source software and utilizing Hewlett Packard Enterprises' skilled employees and finally, logistical problems were solved by utilizing a functional local environment for each researcher, allowing them to utilize open source tools that worked for them.

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