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Improving Virtual Machine Implementation to Simplify Learning by using vCloud Director

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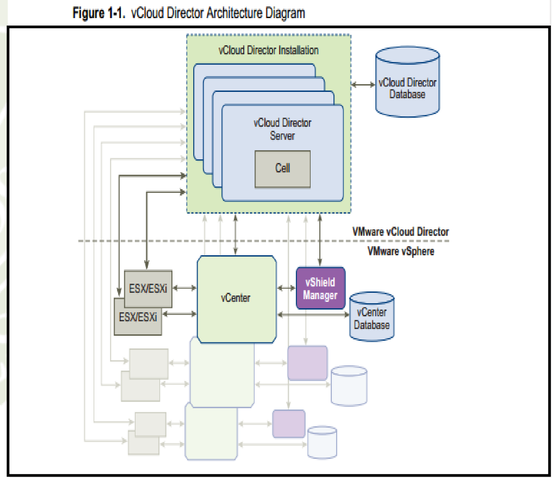
Introduction

VMware vCloud Director, which is part of vCloud Suite, is a powerful learning tool that allows educators to design lab environments that are not constrained to student workstations. Students can focus more time on completing their labs than worry about setting up a temporary lab environment. These lab environments can be accessed from many devices at any time as they can run in your datacenter or in the cloud.



VMware's basic offerings in the virtualization environment provide the basic features that would be expected of a lab environment (Kyle Cronin, Wayne Pauli & Michael Ham, 2013). This software is developed above VMware's vSphere as shown in the architecture diagram. This infrastructure provides an easy and simple way for the end users to use the interface.

Problem and Motivation

For a long time, students and educators have being using the concept of VMware workstation in their lab environments. Workstation requires students to download and install software, which resulted in work delays (especially, for online students). The main objective of this research is to show how the use of VMware vCloud Director makes it easier for students to concentrate on learning by eliminating the need of installing virtual machine (VM) technology on the students own computer system.

VMware vCloud director is more flexible. A survey is conducted on professors to prove this point. The time taken to set up is less compared while using vmware workstation. At present students need to download a plugin and can login easily to work on vApps. The another advantage professors found is that, if a student has an issue they can see the screen that the student is seeing.

Results

Using Franklin-hosted vCloud Director, students can do their assignments without downloading and installing a large amount of software, unlike the current approach. In 2012, a small demo/pilot environment was configured at Franklin University to provide labs at a distance using vCloud Director. This pilot was successful which led to creation of a formal environment for a Network Security course in early 2013.

At present there are currently three courses at Franklin University using the vCloud Director Tool, COMP 204, Principles of Computer Networks, ISEC 325, Network Security and INFA 415, Information Analytics Architecture. Further new applications are planned to continue to improve student learning in courses.

References

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Advantages:

- Increases business agility by allowing users to self-deploy services.
- Maintains security and control over multiple environments with user controls and VMware vShield.
- Is cost effective.
- Provides the ability to power up and down the vApp and also vApp sharing.
- Provides snapshot support

Conclusion

A survey of professors using VMware vCloud Director showed that it was more flexible and successful than the downloadable version. For instance, it helped their students gain real world knowledge, but added in user since the information can be accessed from anywhere they have Internet capability.

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