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Implementation of Active Directory for efficient management of networks

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Abstract

Microsoft developed a hierarchical structure to provide a service related to storing information about objects through a comprehensive listing of objects on the network. Network administrators will create and manage users and objects within a given network or network with the specific region which in turn demands to organize the network in a proper way. As a network grows, it is required to organize a large number of users into logical groups and subgroups, while providing access control at each level, which demands use of Active Directory. Microsoft developed a hierarchical structure to provide a service related to storing information about objects through comprehensive listing of objects on the network.

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Keywords: Active directory; User credentials; Windows server; Internet based server.

1. Introduction

Network administrators will create and manage users and objects within a given network or network with the specific region which in turn demands to organize the network in a proper way. As a network grows, it is required to organize a large number of users into logical groups and subgroups, while providing access control at each level, which demands the use of Active Directory.

Active Directory (AD) is a Microsoft technology used to manage computers and other devices on a network, a primary feature of Windows Server, an operating system that runs both local and Internet-based servers.

Objectives:

- Understand the process of creating accounts for group domains and local accounts with individual users and their profiles.
- Assign and authorize user credentials for each user in different domains.

- To cater to network management challenges and to make students industry ready for placements/internships in Microsoft. School of Electronics & Communication KLE Technological University, introduced ADDS as a program elective in the curriculum.

2. Methodology

Based on the hierarchical structure of Active directory provided by Microsoft, this course is introduced with 3 credit program elective course in the school of Electronics & Communication for the students of 7th semester, to attain the following course objectives:

- Describe the logical & physical structure of active directory services.
- Manage accounts for a user by assigning appropriate roles and configuration in Active Directory services.
- Demonstrate the use of backup and restore features in Active Directory Domain Services
- Describe and configure server roles with Active Directory Services in Windows Server 2008.

Focused on topics like Introduction to Microsoft Active Directory, Domains, and Forests, The Physical Structure of Active Directory, Network Ports used by Domains and Forests, Installation of R2 server, Domain Services & Backup/Restore.

Based on this, we planned to assign the task of creating different domains with multiple numbers of users and different objects in a network lab. So here we are considering our department network lab as a specific region for our network. Within this network students should perform the assigned task and verify the graphical user interface for the different users with their own user credentials. By this activity students got an idea of how the users can create under particular domain in a given network. And not only creating 'n' number of users will be significant but also we need to assign user credentials to each one of the users. Along with that students have to authorize the user at his/her login at every instant of new login. Once the network grows obviously it increases the complexity, at this stage students are able to analyze the difference between different domains and centralized storage of data with proper management of available resource files.

CIE & Project based evaluation: Assessment was the combination of continuous internal evaluation (CIE) and course projects done by the students.

3. Results and discussion

- Student's appreciated the process of creation of different network domains in a given specific area or network zone, by creating their own user active directory and creating multiple users in that directory.
- While using active directory everything was with permission from the domain controller. It means that the network administrator has already told the domain controller what permission to assign to each user. By this Students experienced the role of the network administrator.
- This course helped students to get placed in networking core companies like Microsoft, Juniper, and Akamai.

4. Conclusions

Improvement in the ESA (End Semester Assessment) results of the students under the S (Outstanding), A and B grades were observed. Performance improved with respect to overall results in ESA. Improved networking analysis skills of the students were observed.

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