

# SESSION 1 – INTRODUCTION TO SYSTEM ADMINISTRATION

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- In this session, students shall be introduced to the different roles and concepts of Systems Administration. Discussions shall be centred on the responsibilities of System and Network administrators as well as the roles of a Systems Admin. Students will also be exposed to the TCP/IP and its functions in data transmission from source to destination.

The key topics to be covered in the session are as follows:

- Introduction to Systems Administration roles.
- Responsibilities of System and Network administrators
- System initialization processes
- Remote systems login
- Selected System Administrative tools,
- Help commands

- Refer to the following reading material which is available on Sakai

## **RECOMMENDED TEXT**

- Unix and Linux Systems Administration Handbook 5<sup>th</sup> Edition [Pages 3-28]

At the end of the session, the student will be able to:

- Describe the roles and responsibilities of a Systems Administrator
- Explain the network client and its purpose
- Understand LINUX system initialization; and
- Demonstrate remote system administration and available tools.

# What Is a Sysadmin?

- In a “small company” the Sysadmin may be the entire information technology staff.
  - The Sysadmin may do everything from telephone, to fax, to computer management.
  - Sysadmin may have to order supplies, deal with users, develop software, repair hardware, and laugh at the CEO’s jokes!



# What Is a Sysadmin?

- In a large company the Sysadmin may be one member of a large group.
  - May be responsible for one aspect of the data center operation.
    - Programmers
    - Database Administrators
    - Network Administrators
    - Operators
  - May not even know what the CEO looks like.



# Common Sysadmin Traits

- A Sysadmin is a customer service agent!
- The Sysadmin must be able to communicate with technical and non-technical users.
- The Sysadmin should be patient, and have a sense of humor.
- The Sysadmin must be able to solve difficult technical problems.
- The Sysadmin must be able to work in a group setting.
- The Sysadmin must document activities in order to reproduce the results.





# What Does a Sysadmin Do?

- Plan and manage the machine room environment
  - design machine room; specify cooling, cabling, power connections, and environmental controls (fire alarm, security)
- Install and maintain operating system software, application software, and patches.
- Determine hardware and software pre-requisites, which patches to install, which services to provide, and which services to disable.



# What Does a Sysadmin Do?

- Schedule downtime to perform upgrades/patches, and test devices and schedule downtime to manage devices.
- Install and maintain user accounts; develop acceptable use policy and login-name policy; determine password change policies; install/configure/manage name services; and manage licenses.
- Determine disk quota, police/manage disk space, and monitor log files.



# What Does a Sysadmin Do?

- Train users on software and security.
- Ensure that users have access to documentation.
- Help users and provide help-desk support and problem tracking system to answer user questions.
- Configure network services:
  - printing, file sharing, name service.
  - determine file sharing needs and printing policies.
  - manage security for shared resources.



# What Does a Sysadmin Do?

- Install/maintain system devices, hardware/drivers; specify supported devices; determine spares practices.
- Install/configure/manage web servers, configure web access agents
- Configure and maintain business applications
  - web agents
  - e-mail
  - calendar software
  - order/problem tracking software



# What Does a Sysadmin Do?

- Install/configure/manage e-mail software
  - mail transfer agents.
  - mail readers.
- Configure and manage system security
  - security for business applications,
  - read security mailing lists and CERT notifications,
  - install/configure "firewall" software to limit intruder access,
  - collect evidence in case of successful intrusion and clean up after intrusion



# What Does a Sysadmin Do?

- Configure and maintain connectivity between hosts
  - monitor connectivity
  - troubleshoot connectivity problems
  - investigate complaints of poor response



# What Does a Sysadmin Do?

- Configure and maintain system backups,
  - determine backup strategy and policies, and
  - configure backup software
  - perform backups
  - monitor backup logs
  - check backup integrity
  - determine disaster survival plans
  - perform restores



# What Does a Sysadmin Do?

- Troubleshoot and repair system problems; and determine, locate, and repair/replace problem components
- Document the system, and develop and maintain documentation on local setup and local policies





# Skills Required

- Delegation and Time Management
- Ethics
- Ability to create/follow Policies and Procedures
- Desire to learn
- Customer Service Attitude
- Knowledge of technical aspects
  - Hardware
  - Software
  - Problem Solving



# Chapter Summary

- Sysadmins are often viewed as “a jack of all trades”
- Sysadmins are customer service oriented.
- Sysadmins need to be able to communicate clearly.
- Sysadmins need to be able to solve problems
- Sysadmins need to be analytical thinkers.



- Unix And Linux System Administration Handbook, 5th Edition By Evi Nemeth, Garth Snyder, Trent R. Hein, Ben Whaley, Dan Mackin. Released September 2017. Publisher(s): Addison-Wesley Professional. ISBN: 9780134278308
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- The Practice of System and Network Administration, Second Edition, By Strata R. Chalup, Christina J. Hogan and Thomas A. Limoncelli. NETWORK ADMINISTRATION. Addison-Wesley Professional July 2007
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- Automating Linux And Unix System Administration, Second Edition, By Nate Campi And Kirk Bauer. Released December 2008. Publisher(s): APress. ISBN: 9781430210597
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