Introduction to Operating System Administration
Tasks of the Sysadmin

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Subtect Topics

1. **Operating System Administration Introduction**
2. Operating System installation
3. User management
4. Application management
5. System monitoring
6. Filesystem Maintenance
7. Local services
8. Network services
9. Security and Protection
10. Virtualization

Outline

Outline

Goals

- Understand what a Sysadmin is
  - Tasks
  - Responsibilities
  - Necessary knowledge
- Understand and honor the Sysadmin ethical code

Outline

Exercise

Sysadmin tasks

- **Individually**
    - List the sysadmin tasks
        - Which of those activities are you able to perform?
- **In group**
    - Gather the task list
        - Sort them by importance

Solution

- Check system's security
- Perform regular backups
- Solve incoming issues
- Assist end-users in their daily work
    - Related to their systems
- Keep local documentation
- Install and manage software
- Manage users
- Add/update hardware
- Monitor the system and ensure it works properly

Outline

Novice Sysadmin

- Knowledge and abilities
  - Good communication skills
    - Able to verbally/writing expose simple procedures
  - Familiarity with the operating system and their commands at user level
    - File editing, directory browsing, redirection operators
    - Able to follow guidelines easily
- Adequate responsibilities
  - Regular common tasks under technical supervision
  - Direct end-user assistance
    - Issue gathering
    - Classification and redirection to the relevant Sysadmin

Junior Sysadmin

- Knowledge and abilities
    - Able to teach end-users application usage and UNIX/Windows/. . . low level commands
    - High understanding of most commands in UNIX/Windows/. . .
    - Knowledge about operating system theory
        - Task scheduling, filesystem, file protections, . . .
- Responsibilities
    - Administer an small installation
    - Be part of a bigger installation, under supervision

Senior Sysadmin – Knowledge and abilities

- Plan the needs of the installation, buy, and install new resources
- Ease of use of most operating system commands and options
    - Server configuration
    - Operating System Installation and configuration
- System Security knowledge
    - Security tools, proactive systems, . . .
- Advanced knowledge about operating system internals
    - Paging, swap, inter process communication, devices
- Familiarity in networking concepts
    - Routers, proxies, firewalls, network services

Sysadmin senior – Responsibilities

- Average installations management
- Partial responsibility of bigger installations
- Part of future planning of the installation
- Responsible of other administrators (juniors and novices)

Outline

1. Introduction

2. Sysadmin tasks

3. Sysadmin Ability levels

4. Administrator's ethical code

5. Personal work

Exercise

> ### In group

- Has the Sysadmin the right to read e-mails from other users?
- And to monitor which web pages they visit?

Exercise

In group

- Has the Sysadmin the right to read e-mails from other users?
- And to monitor which web pages they visit?

Example

An employee is fired from a company because he/she spent too much time sending personal e-mails to his/her friends irrelevant to the company.

- Which is the role of the Sysadmin in this situation?

Administrator ethical code

Solution

- The Administrator ethical code forbids to access the information contained in the users e-mails
  He/she is not allowed to monitor by his/her own, it must be "company policy" and the users must be informed that their data might be monitored

- Has provided the information as requested by any of his employers

- If employee contrats say that the Intellectual Property generated in the complany belongs to the complay. Then the company can legally act agains an employee using company resources for personal benefit

Administrator ethical code

- Seriousness
    - Keep separated personal and professional aspects
- Personal integrity
    - Honesty, able to be aware of his/her own limitations and errors
- Privacy
    - Keep the confidenciality of other's data
    - Access privileged information only when it is absolute necessary

Administrator ethical code

- Education, laws and usage policies
    - Be up-to-date in terms concerning ethical norms used in this/her work, share the knowledge with others
        - Penal Laws, LOPD, LSSI
- Communication
    - Inform the users about important data
- Ethical responsibility
    - Profficiency, coherency, integrity and honesty

LOPD (Data protection and Organic law)

- Determines the treabment of data files (databases)
  - Name/surname, ID, direction, bank accounts, credit card numers, . . .
- The company must inform about the existency of files to the Data Protection Agency
- The company must adopt determined security measures depending on the privacy of the data file
- The company must write a document clearly stating the taken security measures
- Teh employees contracts must be coherent with the law in terms of the kept private information

You must keep up-to-date!!

More Laws

- LSSICE – Ley de Servicios de la Sociedad de la Información y de Comercio Electrónico (LSSI)
    - It regulates the web pages (and other electonic media) with economical purposes
    - Direct such as sells, . . . , or indirects such as advertisement, . . .
    - Communicate to the public registries about the domain name used
    - Clearly state the price of the offered goods
    - Forbidden to deliver electronic communications without previous consent (Spam)
    - . . .
- LISI – Ley para el Impulso de la Sociedad de la Información

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Personal work

- UNIX knowledge at user level
    - `ls`, `cd`, `mkdir`, `rmdir`, `cp`, `mv`, `rm`, `cat`, `more`
    - Shell, redirection operators ($<, >, >$ &), and pipes (|)
    - `apropos`, `man`
    - `grep`, `find`
    - `vi`
- Hard disk preparation and partitioning
    - `fdisk`, `mke2fs`, `mkswap`, `mount`