Engineering Linux

Engineering Brown Bag
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Engineering Linux Overview

- Why is there Engineering Linux?
- What is Engineering Linux?
- Goals of Engineering Linux
- Why use Engineering Linux?
- Who uses Engineering Linux?
Why is there Engineering Linux?

• It took a very long time to accomplish requests.
• Each individual group had their own authentication system. Adding users was complex and time consuming.
• Software installation became a time consuming and more complicated task because every system was different.
• Training for IT support staff was difficult because of the many different groups and their different environments.
• Software patching, updates, and a security baseline difficult to maintain.
What is Engineering Linux

Engineering Linux is not an operating system, it is an environment.

- **OS:** Community open source Red Hat based Linux (Scientific Linux)
- **Authentication:** Campus Active Directory
- **Software:** Installed packages and shared software modules
- **Automated Deployment** via network boot
- **Centralized Configuration management**
Who uses Engineering Linux?

• Deployed to 1,138 machines

• **Professor Sinhas and his Labs**: [http://www.sinhalab.net/](http://www.sinhalab.net/)
  – Engineering Linux helped Professor Sinhas and his group build robust machines and simplify their storage strategy
  – Having the same OS platform for workstations as well as the computational cluster reduces development time

• **Professor Roth and Cogcomp group**: [http://cogcomp.cs.illinois.edu/](http://cogcomp.cs.illinois.edu/)

• **Averback group in MRL**: running their own environment that was handed down from grad student to grad student, and they constantly had authentication issues and software issues. They switched to Engineering Linux and they were able to focus on doing research instead of running their systems.
Who uses Engineering Linux?
(Continued)

• **VLSI:**
  – 5 groups trying to collaborate, all with different configurations and a complex infrastructure environment that was difficult and complex to maintain and update, that only one person knew how to do. When that administrator left the University, the systems were migrated to Engineering Linux. All of the groups now collaborate using a single identical environment across the systems, and there are several people in Engineering IT who can maintain the systems.

• **EWS Labs (Engineering Work Station)**
  – Hundreds of computers all running a shared environment.
  – Department Labs running more customized class environments
The Goals of Engineering Linux

• We manage the system so you can do your job.
• Make your data accessible across all systems.
• Consistent software environment across all your systems.
• Fast system recovery.
• Faster resolution of requests by providing one stable Linux platform.
Why use Engineering Linux

• Simplified user management, log on with your netid.
• Access to pre-made software modules, and automated software installation.
• Automatic security patching.
• A team within Engineering IT tasked with planning on how to keep the Linux platform relevant to your needs and integrating new technologies.
  – Focusing and improving how Linux works for YOU.
How Engineering Linux makes access easy

• One username and password: Your netid
• My-Dot Portal provides faculty and other designated individuals with the ability to add and remove users from their groups
• SSH and Fastx can be used to access systems remotely
Demonstration

- Portal Groups: [https://my.engr.Illinois.edu/groups](https://my.engr.Illinois.edu/groups)
- FastX connectivity
- Software Modules
How Engineering Linux makes software easy

- Module system makes software globally and quickly available.
- Managed software policies allow consistent updates to groups of machines.
- Package management makes popular software simpler to deploy.
How Engineering Linux makes security easy

Without up to date security patches, automated systems or people can access your system, take or destroy your data, or begin using your resources for their purposes.

Therefore Engineering Linux has the following security features:

• Automatic security patching
  – Happens in the background, no action from the user needed

• Security software that stops brute forcing passwords
  – Makes it much harder for automated systems to get in, or force find your password

• Non-required services turned off
  – Reduces the attack surface of your systems
The Future of Engineering Linux

- Make it flexible:
  - Components more modular, ability to upgrade easier.
- Distribution Agnostic:
  - Plan to provide both redhat and debian distros.
- Multiple Levels of Support:
  - From Basic installation and updates to Fully managed.
For More information and how to contact us

• Email us at: engrit-help@Illinois.edu
• More information about Software modules: https://it.engineering.illinois.edu/user-guides/software/linux-software-modules
• More Information about Engineering Linux Overall: https://it.engineering.illinois.edu/user-guides/what-engineering-linux
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**Overview: Engineering IT & Campus**

**Research IT Support Contracts and You!**

**Using Skype for Business**

**Purchasing: Hardware and Software**

**Using Outlook to Manage Email and Calendaring**

**File Service: Options, Backups and Best Practices**

**IT Security: Protecting Your Systems on Campus**

**Introduction to Cluster Computing**

**Wireless Networking Clinic**

**Research Group Access Control: Using the Portal Groups Tool**

**Engineering Managed Linux Environment**

**No Brown Bag**

**Data Center Shared Services**

*will be in Deere Pavilion, MEL*
Questions?