Cal State Fullerton

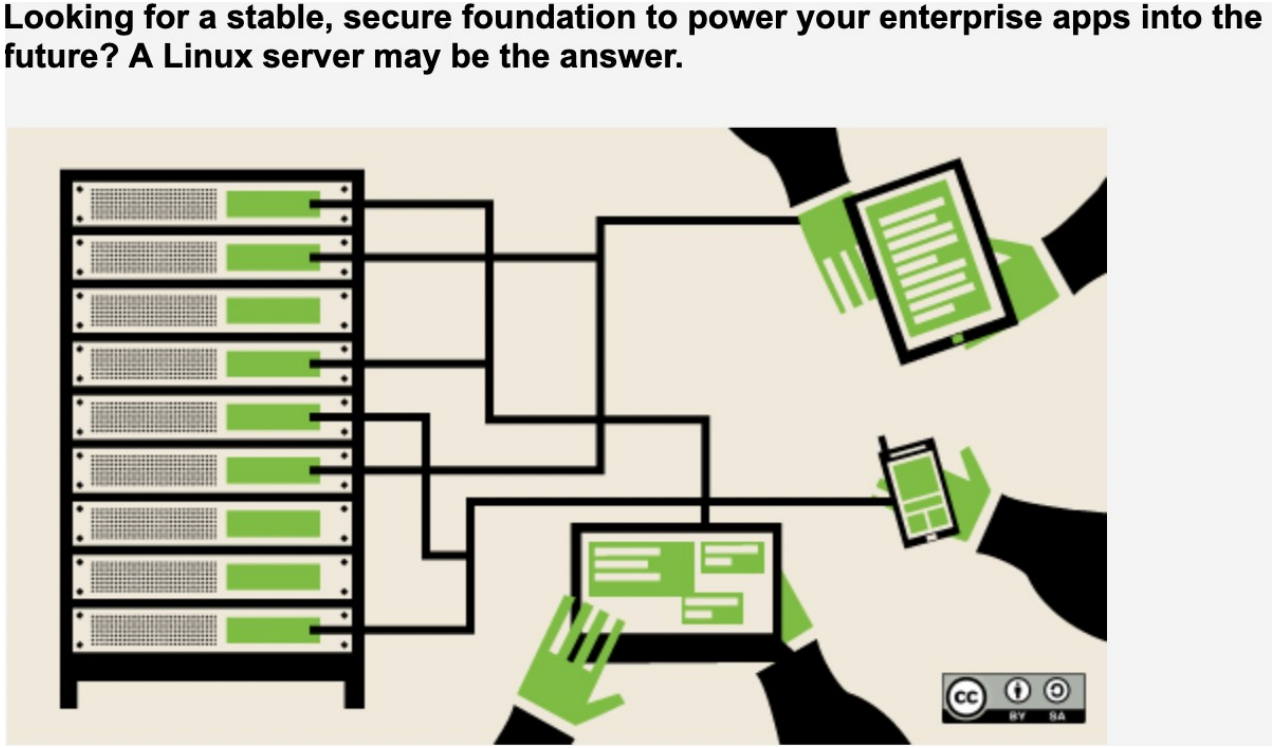
CPSC 254

Software Development With Open Source Systems - Linux Servers

Instructor: Tejaas Mukunda Reddy

What is linux server and why does your business need one?

- Looking for a stable, secure foundation to power your enterprise apps into the future? A Linux server may be the answer.



Prepared By: Tejaas Mukunda Reddy, Shivansh Vijay Nathan

Reference Prof. David Heckathorn

What is linux server and why does your business need one?

- IT organizations strive to deliver business value by increasing productivity and delivering services faster while remaining flexible enough to incorporate innovations like cloud, containers, and configuration automation. Modern workloads, whether they run on bare metal, virtual machines, containers, or private or public clouds, are expected to be portable and scalable. Supporting all this requires a modern, secure platform.

- The most direct route to innovation is not always a straight line. With the growing adoption of private and public clouds, multiple architectures, and virtualization, today's data center is like a globe, with varying infrastructure choices bringing it dimension and depth. And just as a pilot depends on air traffic controllers to provide continuous updates, your digital transformation journey should be guided by a trusted operating system like Linux to provide continuously updated technology and the most efficient and secure access to innovations like cloud, containers, and configuration automation.

- Linux is a family of free, open source software operating systems built around the Linux kernel. Originally developed for personal computers based on the Intel x86 architecture, Linux has since been ported to more platforms than any other operating system. Thanks to the dominance of the Linux kernel-based Android OS on smartphones, Linux has the largest installed base of all general-purpose operating systems. Linux is also the leading operating system on servers and "big iron" systems such as mainframe computers, and it is the only OS used on TOP500 supercomputers.

Prepared By: Tejaas Mukunda Reddy, Shivansh Vijay Nathan

Reference Prof. David Heckathorn

What is linux server and why does your business need one?

- To tap this functionality, many enterprise companies have adopted servers with a high-powered variant of the Linux open source operating system. These are designed to handle the most demanding business application requirements, such as network and system administration, database management, and web services. Linux servers are often chosen over other server operating systems for their stability, security, and flexibility. Leading Linux server operating systems include CentOS, Debian, Ubuntu Server, Slackware, and Gentoo.

- What features and benefits on an enterprise-grade Linux server should you consider for an enterprise workload? First, built-in security controls and scale-out manageability through interfaces that are familiar to both Linux and Windows administrators will enable you to focus on business growth instead of reacting to security vulnerabilities and costly management configuration mistakes. The Linux server you choose should provide security technologies and certifications and maintain enhancements to combat intrusions, protect your data, and meet regulatory compliance for an open source project or a specific OS vendor. It should:

Prepared By: Tejaas Mukunda Reddy, Shivansh Vijay Nathan

Reference Prof. David Heckathorn

What is linux server and why does your business need one?

- Deliver resources with security using integrated control features such as centralized identity management and Security-Enhanced Linux (SELinux), mandatory access controls (MAC) on a foundation that is Common Criteria- and FIPS 140-2-certified, as well as the first Linux container framework support to be Common Criteria-certified.

- Automate regulatory compliance and security configuration remediation across your system and within containers with image scanning like OpenSCAP that checks, remediates against vulnerabilities and configuration security baselines, including against National Checklist Program content for PCI-DSS, DISA STIG, and more. Additionally, it should centralize and scale out configuration remediation across your entire hybrid environment.

- Receive continuous vulnerability security updates from the upstream community itself or a specific OS vendor, which remedies and delivers all critical issues by next business day, if possible, to minimize business impact.

- As the foundation of your hybrid data center, the Linux server should provide platform manageability and flexible integration with legacy management and automation infrastructure. This will save IT staff time and reduce unplanned downtime compared to a non-paid Linux infrastructure. It should:

- Speed image building, deployment, and patch management across the data center with built-in capabilities and enrich system life-cycle management, provisioning, and enhanced patching, and more.

Prepared By: Tejaas Mukunda Reddy, Shivansh Vijay Nathan

Reference Prof. David Heckathorn

What is linux server and why does your business need one?

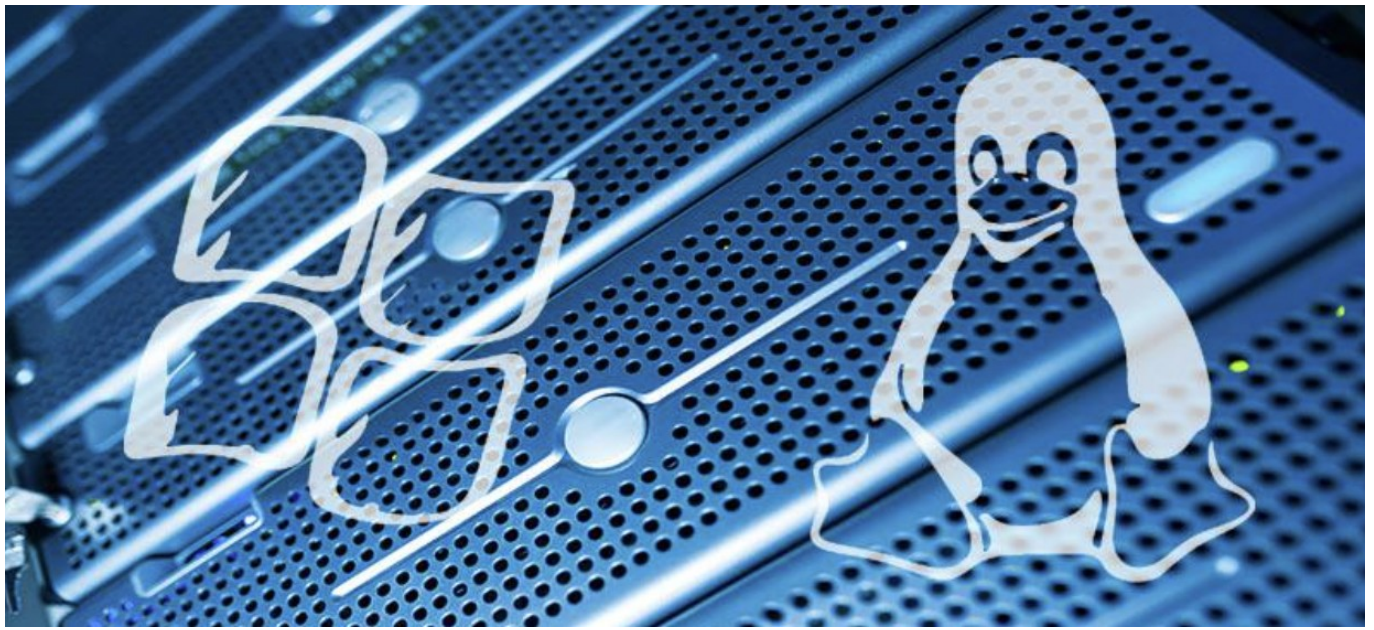
- Manage individual systems from an easy-to-use web interface that includes storage, networking, containers, services, and more.
- Automate consistency and compliance across heterogeneous multiple environments and reduce scripting rework with system roles using native configuration management tools like Ansible, Chef, Salt, Puppet, and more.
- Simplify platform updates with in-place upgrades that eliminate the hassle of machine migrations and application rebuilds.
- Resolve technical issues before they impact business operations by using predictive analytics tools to automate identification and remediation of anomalies and their root causes.
- Linux servers are powering innovation around the globe. As the platform for enterprise workloads, a Linux server should provide a stable, secure, and performance-driven foundation for the applications that run the business of today and tomorrow.
- OpenSource.com https://opensource.com/article/18/5/what-linux-server 28 May 2018 Daniel Oh (Red Hat, Correspondent) Feed

Prepared By: Tejaas Mukunda Reddy, Shivansh Vijay Nathan

Reference Prof. David Heckathorn

Why Use Linux servers?

- Performance: Linux servers offer the performance you need your infrastructure to deliver.
- Security: Linux servers offer enhanced permissions that can be optimized for security.
- Stability: Linux servers are built on open-source technology that supports snapshot capabilities.
- Scalable: Linux works with cloud technologies to help you scale your business more easily.



Prepared By: Tejaas Mukunda Reddy, Shivansh Vijay Nathan

Reference Prof. David Heckathorn

Linux VS Windows servers

- Linux and Microsoft Windows are the two main web-hosting services on the market. Linux is an open-source software server, which makes it cheaper and easier to use than a Windows server. Windows is a Microsoft product designed to make Microsoft a profit. For many companies, the profit is worth the price. A Windows server generally offers more range and more support than Linux servers.
- Linux is generally the choice for start-up companies while Microsoft is typically the choice of large existing companies. Companies in the middle between start-up and big companies should look to using a VPS (Virtual Private Server). Both Linux and Windows offer VPS hosting servers. A VPS runs its own duplicate of an operating system, which makes it easier for the customer to install any software that runs on the corresponding server.
- **Advantages of a Linux server or a Windows server**
- Linux open-source servers are easier to use. Some of the key benefits of a Linux server are:
- Cost savings. Open-source systems such as Linux are available to the public, which means the web hosting company only needs to pay for the technical support to install and maintain it. The technical support costs are normally spread among all the web-hosting clients, so the cost that is passed onto the client company is relatively small. With Windows, typically the company using the Windows servers either pays for the operating system or pays a periodic software license.
- Access to open-source applications. As with most technology, though, applications work better with similarly designed applications. This means a company using a Linux server should be able to seamlessly use open-source software. Using a Linux server with Windows applications is possible, but an extra layer of work to interface between the open-source technology and Windows for-profit technology will be required.
- More reliable. Linux and open-source software generally use fewer resources, making the system the more efficient.
- Easier to modify. Linux servers and software can be modified on the fly. Modifications to Windows products generally require waiting for a new version of the server to be released.

Prepared By: Tejaas Mukunda Reddy, Shivansh Vijay Nathan

Reference Prof. David Heckathorn

Benefits of Windows servers over Linux servers

- Windows servers are more robust systems. They differ from Linux servers in the following ways:
- Better support. While Windows servers and Windows applications come with a cost, they also both usually come with paid support. With open-source software, the business client and the web-hosting company usually have to pay technical experts who understand open-source software. The other alternative is to rely on community support, which can be timely. Often, too, community members can't answer your particular questions.
- Better integration with Microsoft products. Windows applications are designed to integrate with Windows servers, which makes Windows servers more valuable than Linux – if the business client likes its Windows Software. For large companies that need to run Microsoft SQL and Microsoft Access, two popular databases, a Windows server may be the only option. Microsoft Access is typically used for desktop environments, while Microsoft SQL is normally used in a cluster hosting environment.
- More complete. Windows servers and software generally have more features, more bells and whistles, than open-source software does.
- Remote desktop access. Linux servers are command-line based. Windows servers come with a Remote Desktop, which is an easier way to manage a server because it comes with a graphical user interface.
- Scripting frameworks. These frameworks, such as ASP and ASP.Net, are easier to install and manage and have better support than Linux scripting frameworks. ASP is the predecessor to ASP.NET. Scripts and web pages developed using one of these two Microsoft frameworks will normally only work on a Windows server.

Prepared By: Tejaas Mukunda Reddy, Shivansh Vijay Nathan

Reference Prof. David Heckathorn