

Linux & Open Source Software

High Quality, Free Operating
System and Software

Bill Maginnis - Northwest IT Specialist
April 26, 2017

Linux & OSS

*Agenda

- Welcome
- Why Are We Here Today?
- What is Linux? Where is Linux? Who is Linux?
- What is Open Source
- Women in Technology
- Learning Opportunities at PCC & Beyond

Welcome!

- * Introductions
- * QRCode Link to Slidedeck
- * <https://github.com/beelymagee/Linux-OSS-prez>
- * Northwest IT Department –
* B building, B-210 (behind
Computer Commons)



Why Are We Here?

- * Discussion about Linux and what it can do for you – freedom, stability, security
- * Discussion about Open-Source Software (OSS) – freedom, options
- * Women in Technology – Tech Needs You!
- * Join the Ranks!
- * Classes at Pima and Elsewhere

Why Are We Here?

* If there's time...

- Discussion about Employment Opportunities & Job Market Future
- What Can You Do? Opportunities?
- Q&A

What is Linux?

Who has heard of Linux?

- * Free
- * Open-Source operating system
- * Windows replacement!

What is Linux?

IBM Commercials – Linux Kid

<https://youtu.be/x7ozaFbqg00>

<https://youtu.be/LcxMWDpRCmU>

What is Linux?

*Estimation that

- 85% of Internet web servers are powered by Linux
- 10% by BSDs
- maybe 5% with Microsoft IIS

Who Runs Linux?

* Google

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Who Runs Linux?

* Facebook

Who Runs Linux?

* Twitter

Who Runs Linux?

* Amazon

Who Runs Linux?

* Netflix

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Where is Linux?

Community submitted data of Linux systems/users world wide: 89.5M+ Linux users?

*Many digital systems run a form of Linux.

Where is Linux?

- * Android
 - Telephones
 - Tablets
 - Watches

Where is Linux?

- * Raspberry Pi hardware
 - costs around \$35
 - basic, function computer

Where is Linux?

Chrome OS
*(ChromeBook laptops)

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Where is Linux?

* Super Computers

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Where is Linux?

* Car stereos

Where is Linux?

- * Interactive media systems
 - Smart TV systems
 - TiVo
 - set-top boxes/DVR from Dish Network, Direct TV

Where is Linux?

*International Space Station

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Where is Linux?

* Antarctic research systems

Where is Linux?

*Wall Street financial brokerages

Where is Linux?

* Banking systems

Where is Linux?

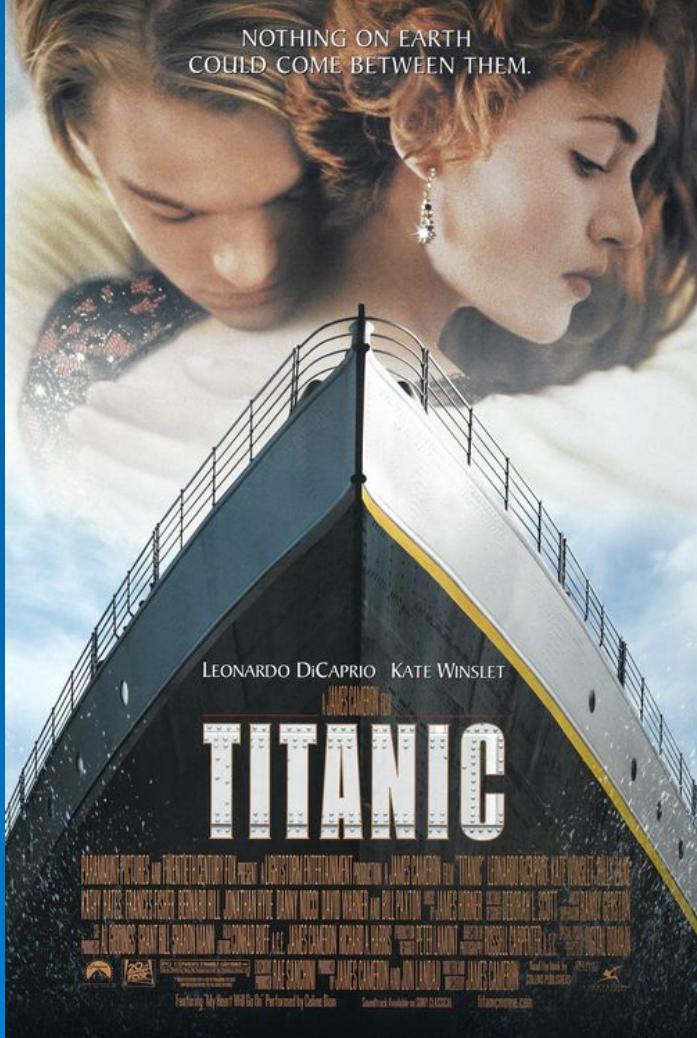
* Embedded systems run Linux:

- Cars
- Appliances
- Healthcare systems
- Control systems

Why Linux?

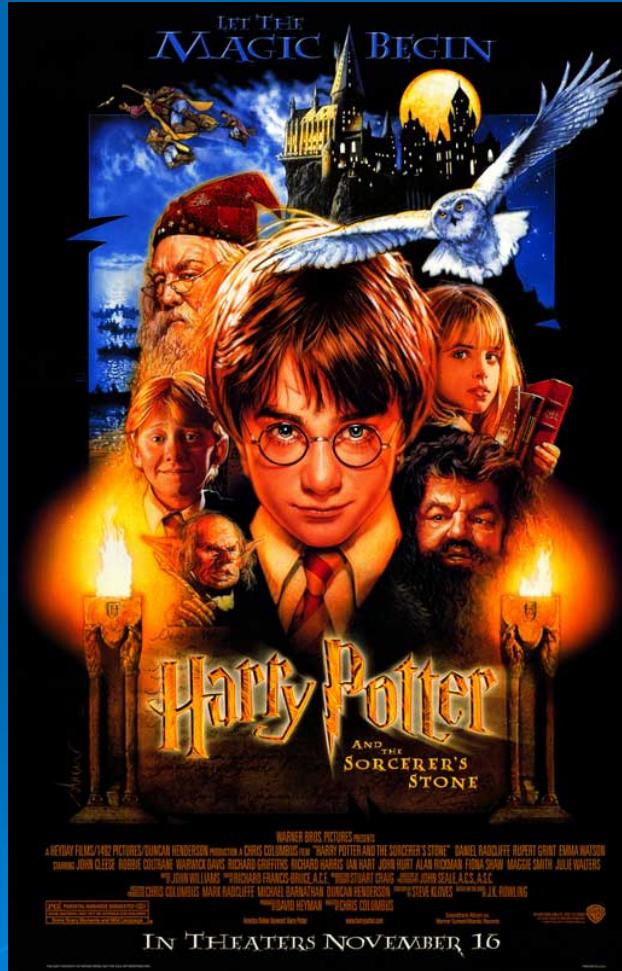
- * See a common thread in these systems?
- * Ideas?
 - Security
 - Stability – crashing is not an option for Mission Critical systems
 - Virtually no viruses or malware!

Movies made with Linux & OSS



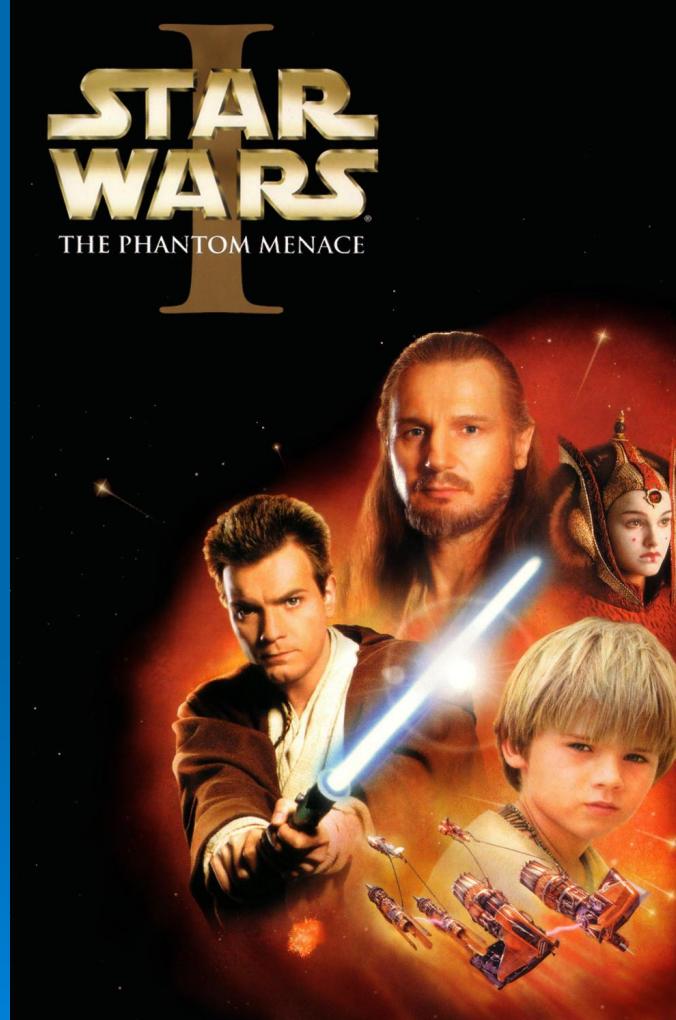
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Movies made with Linux & OSS



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Movies made with Linux & OSS



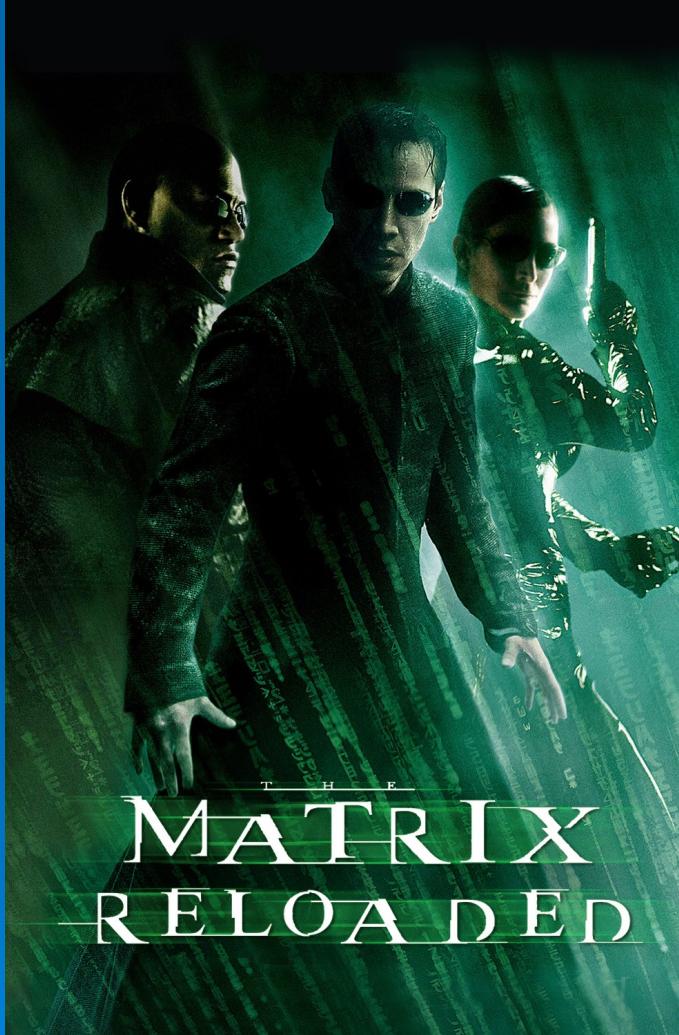
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Movies made with Linux & OSS



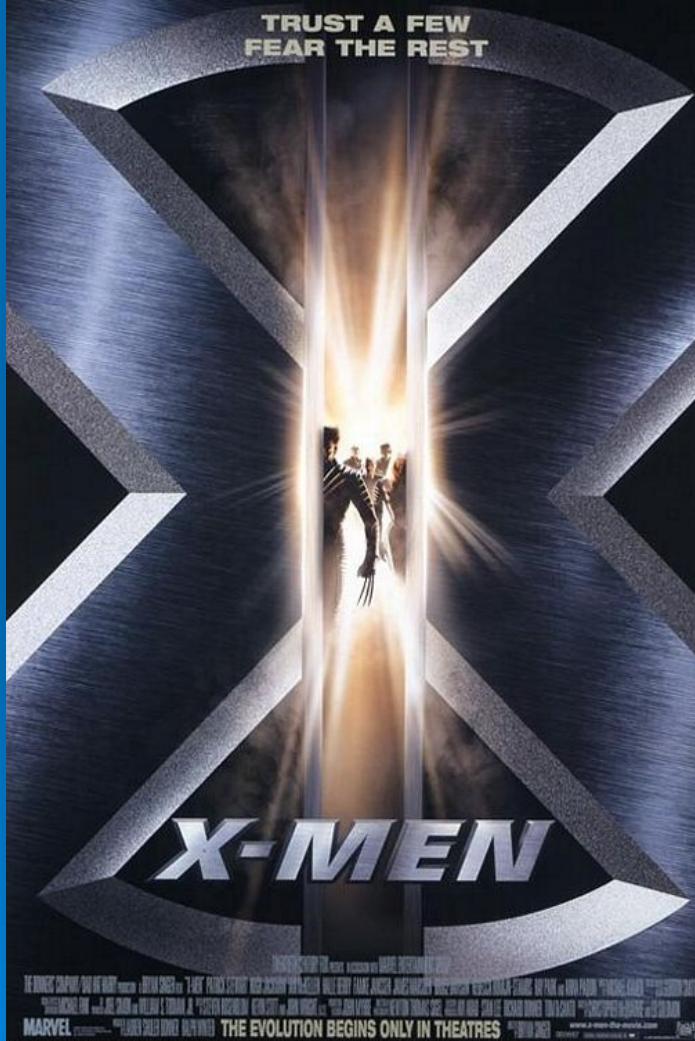
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Movies made with Linux & OSS



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Movies made with Linux & OSS



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Fine! So, What is Linux?

- * Linux is a completely free operating system
- * Install anywhere
- * Share with everyone
- * Always upgrade for free

Fine! So, What is Linux?

- * Huge pool of available software written by people all over the world
- * Free community support for questions about installing, troubleshooting, usage

Fine! So, What is Linux?

- * Linux has virtually no viruses, spyware so a computer running Linux system will be faster and more secure than the same system running any version of Windows.

Fine! So, What is Linux?

- * Pretty much anything you can on a Windows system or a Macintosh OS X system and so much more with stability, security, and speed!

Fine! So, What is Linux?

- * Linux, per se, is only the “kernel” of the OS and complete collection of programs.
- * The kernel controls the communications with hardware, manages program communications and processes.

Fine! So, What is Linux?

Collection of programs

+

Utilities

+

The Linux kernel

=

a complete operating system
known as a Linux Distribution or “distro”.

Who is Linux?



Linus Torvalds



* Linux was developed for
his Masters thesis

Who is Linux?



- * Linus Torvalds
- * Announced making Linux available for free to all.

Who is Linux?



Linus Torvalds



* Assisted by thousands
of programmers and
regular users from all
over the world.

Who is Linux?



Linus Torvalds
IBM Commercial

<https://youtu.be/fJA9eiUktcA>

Who is Linux?



- * Eric S. Raymond
- * developer of open-source software (FetchMail)
- * His views of software development, particularly pertaining to Linux, are described in his book, “The Cathedral and The Bazaar”

Window Managers?!?

Linux doesn't limit your desktop environment work-flow

* You can choose a desktop manager according to your needs:

- some are large & well-developed with many features, competing with Microsoft offerings
- others are simple, easy-to-use, don't require a large amount of system resources (RAM, processor) — great for older, less-powerful computers.

Linux Window Managers

* KDE

- Powerful, full-featured, many applications

* Gnome

- Almost as large in scope as KDE, full-featured, many applications.

Linux Window Managers

- * Unity (Ubuntu)
- * Mate
- * Cinnamon
- * Enlightenment
- * XFCE

Linux Window Managers

- * IceWM
- * BlackBox
- * FluxBox
- * i3
- * Many others...

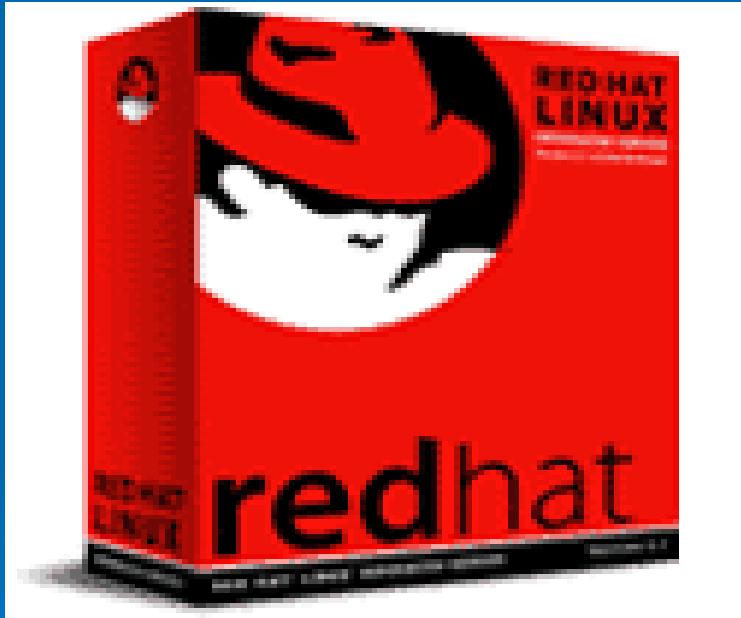
The Linux “Distributions”

*Ubuntu



- *Great general use (desktop, laptop, server)
- *Easy installation
- *Available as “free” system or corporate contract
- *Fantastic community support

The Linux “Distributions”



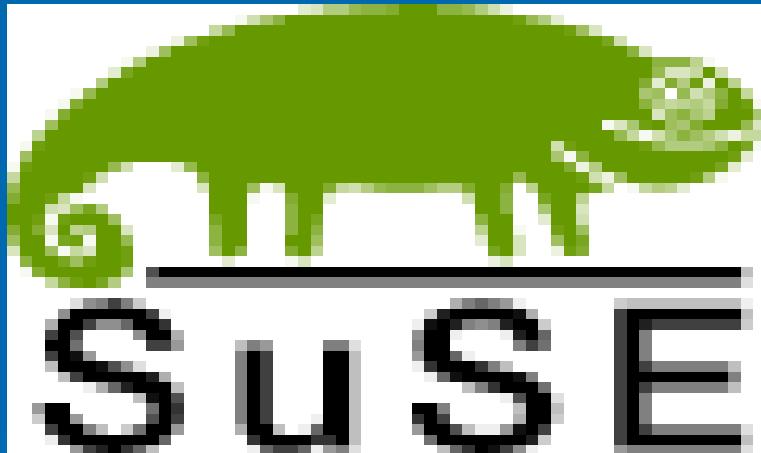
- * Red Hat Enterprise
- * Very popular, industry leader
- * Enterprise class
- * Paid contract for support
- * See CentOS, free RHE-compatible

The Linux “Distributions”



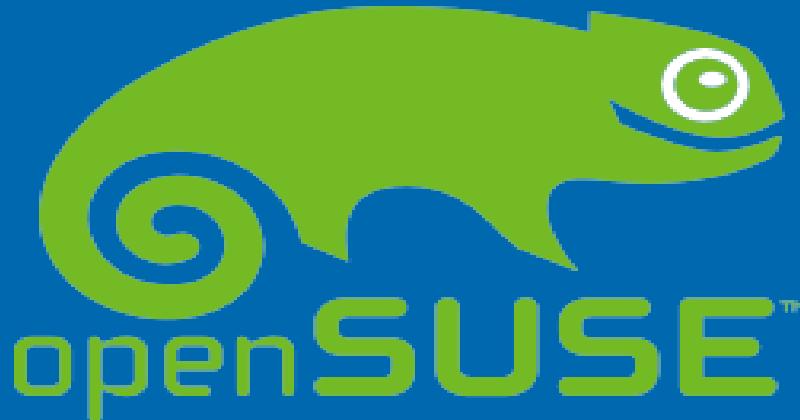
- * Fedora
- * Very popular & usable
- * Community version,
test-bed for RedHat
Enterprise Linux
- * Great for desktop &
laptop installs

The Linux “Distributions”



- * SuSE Enterprise
 - * Popular business distro
 - * Enterprise class
 - * Used on many POS systems
 - * Paid contract for support

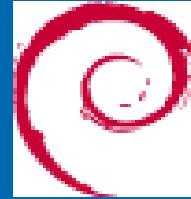
The Linux “Distributions”



* OpenSuSE

- Popular community distro
- Great for desktops, laptops, and servers
- Stable, focus on security, usability

The Linux “Distributions”

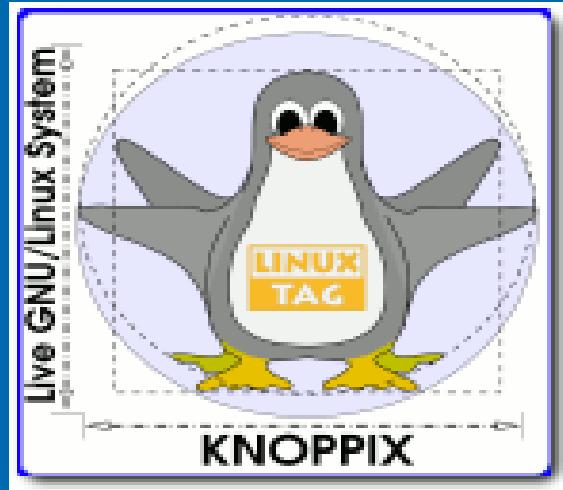


debian

* Debian

- * Foundation of many other distros (Ubuntu, Mint, etc)
- * Great for desktops and servers
- * Well-supported by user community
- * Great wealth of open-source software

Linux “Distributions”



- * “Live” CDs Knoppix
- * Powerful Linux installation runs from CD/DVD
- * Based on Debian GNU/Linux
- * Great for troubleshooting Windows problems!



Linux Recap

- * Free to acquire, free to use, free to share
- * Stable, secure, powerful
- * Runs everywhere!
- * Great for students to prepare for jobs especially in tech industry, scientific research, the arts.

Open-Source Software (OSS)

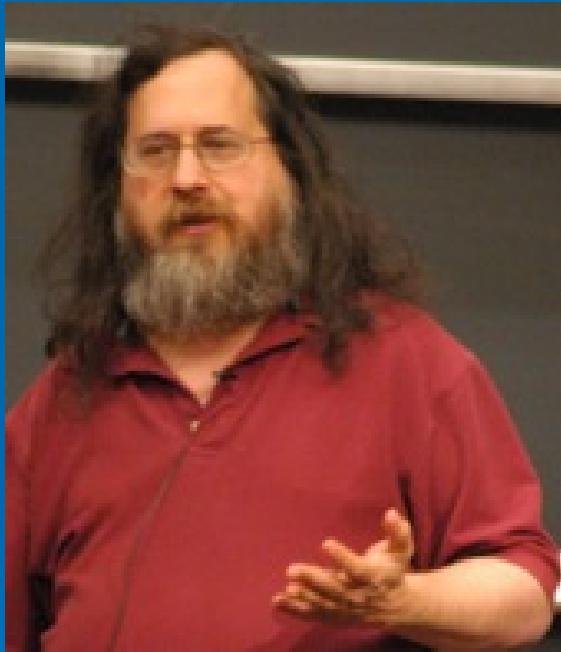
*Free Software Foundation (FSF.org)

*Besides working on software development, the FSF

- Protects
- Preserves
- Promotes
- free software.



Who is FSF.org?



- * Richard M. Stallman
- * RMS, as he is known on Internet, launched the GNU Project in September 1983

Who is FSF.org?



- * Richard M. Stallman
- * Developed GNU Compiler Collection (GCC)
- * GNU Debugger
- * Emacs editing system.

Who is FSF.org?



*Richard M. Stall-man
*Founded FSF in 1985

Open-Source Software (OSS)

Free software means:

- * software that respects users' freedom and community

Open-Source Software (OSS)

Free software means:

- * have the freedom to run, copy, distribute, study, change and improve the software

Open-Source Software (OSS)

Free software means:

- * a matter of liberty, not price -
you should think of free as in
"free speech", not as in "free beer"

Open-Source Software (OSS)

Free Software Foundation (FSF)

A program is free software if the program's users have the four essential freedoms:

Open-Source Software (OSS)

Four essential freedoms:

- Freedom 0 - The freedom to run the program as you wish, for any purpose.

Open-Source Software (OSS)

Four essential freedoms:

- Freedom 1 - The freedom to study how the program works, and change it so it does your computing as you wish. Access to the source code is a precondition for this.

Open-Source Software (OSS)

Four essential freedoms:

- Freedom 2 - The freedom to redistribute copies so you can help your neighbor.

Open-Source Software (OSS)

Four essential freedoms:

- Freedom 3 - The freedom to distribute copies of your modified versions to others

Open-Source Software (OSS)

Four essential freedoms:

- A program is free software if it gives users adequately all of these freedoms. Otherwise, it is non-free.

Open-Source Software (OSS)

Programming Tools

*(taught at PCC)

HTML (), Python (), Java ()

*Ruby/Ruby on Rails, Go (from Google)

*Perl, PHP, R

Open-Source Software (OSS)

*Programming Tools

- Eclipse and NetBeans programming Interactive Development Environment (IDE)
- Emacs and VIM (*) - powerful, extremely popular text editors (* - covered in the Linux classes)
- Git, Subversion - version control systems

Open-Source Software (OSS)

*Database systems

- MySQL (Oracle Corporation)
- PostgreSQL
- MongoDB
- NoSQL derivatives
- PCC teaches Microsoft SQL

Open-Source Software (OSS)

- * Big Data/Enterprise services
 - Docker and Kubernetes Software As A Service (Microservices) containerization management
 - Ansible, Chef, Puppet - software configuration management
 - Hadoop big data management
 - CloudStack, OpenStack, ownCloud - cloud computing services

Open-Source Software (OSS)

* Networking Tools

- Nagios network and services monitoring software
- SSH - Secure Shell - tool that provides secure connections to remote computers (* - covered in the Linux classes)
- Nmap network mapper, investigation tool
- (* - covered in the Linux classes)
- Wireshark - foremost network protocol analyzer ()

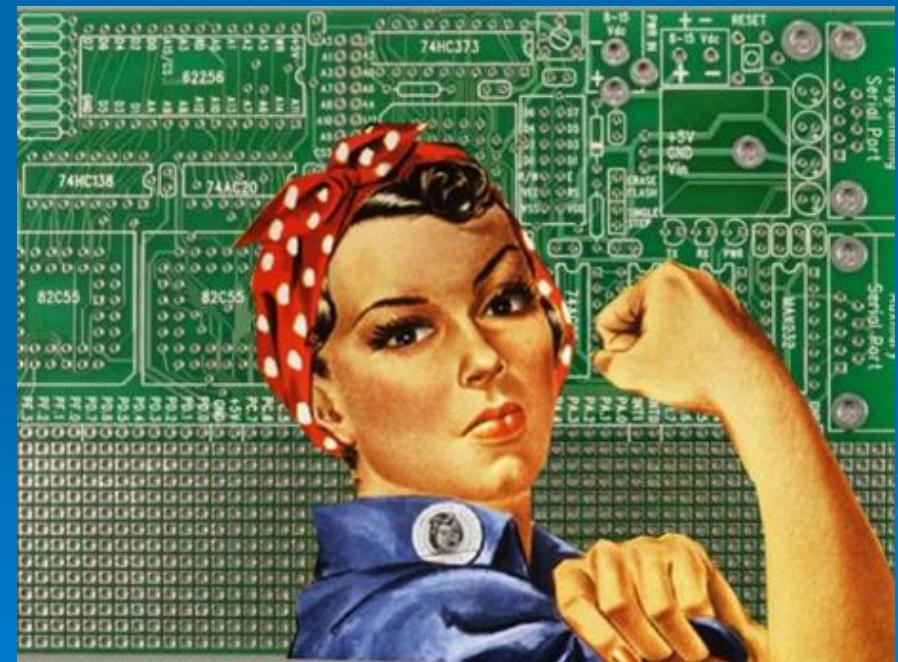
Open-Source Software (OSS)

* Web Server/Services

- Apache HTTP Server (* - covered in the Linux classes)
- Nginx web server

Women in Technology

- * How do we encourage more women to be involved, look at careers in technology?



Women in Technology

How do we encourage more women to be involved,
look at careers in technology?

* You might want to rethink this approach,
Microsoft!

* <https://www.youtube.com/watch?v=yjabGqZu6U>

* Here's a woman's response:

* <http://tinyurl.com/mrsk98t>

Women in Technology

Women Techmakers Tucson HackaThon at
UofA - October 22 - 23, 2016

*<http://codefortucson.org/womentechmakers/>

*<https://www.facebook.com/events/330212824030822/>

Women in Technology

How do we encourage more women to be involved,
look at careers in technology?



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Women in Technology

* Geek Girl Camp

<http://geekgirlcamp.com/about-geek-girl>

*

* Google – Future Coders

* <http://tinyurl.com/khb8bjp>

*

Women in Technology

Internet Society - "Shine The Light" project
<http://tinyurl.com/jxe4grv>

*

*National Center for Women in Technology

<https://www.ncwit.org/>

*

Women in Technology

Women in Technology worth following:
Christine Corbett Moran

<https://twitter.com/corbett>

*<http://tinyurl.com/mgajh74>



Women in Technology

Women in Technology worth following:
Christine Corbett Moran

- * Circle of 6 app (Corbett as CTO)
- * <https://www.circleof6app.com/>

- * Successful Women in Tech
- * <http://www.makers.com/blog/successful-women-tech>



Women in Technology

So many opportunities (no particular order)!

*Management

*Development/Design/Architecting

*DevOps

*Networking

Women in Technology Recap

- End to rape culture, harassment culture
- Raise young boys to be more gender accepting, gender neutral in respect to women & careers
- Equal pay
- Equal rights
- Equality in promotions and recognition
- No retribution or discrimination for people taking family leave time after childbirth.

Education & Learning Options

Pima Community College offerings provide a good introduction/get your foot wet!

- * Computer Information Science (CIS)
- *Intro to Computers
- *Programming (Java, C++, .Net, Python)

Education & Learning Options

Computer Information Science (CIS)

- *Linux (Intro, Advanced, Security)
- *Networking (Intro, Cisco, Wireshark)
- *Web Design (HTML, CSS, XML)
- *Enterprise (Virtual Machine)

Education & Learning Options

Computer Information Science (CIS)

- *Database (Microsoft SQL)

- *Game Design

Computer Software Applications (CSA)

- * Learn Microsoft Office applications

Education & Learning Options

Lots of learning resources on Web:

Free options:

*EdX

*<https://courses.edx.org>

*Mozilla Foundation

*<https://developer.mozilla.org/en-US/docs/Learn>

*CodeAcademy

*<http://www.codecademy.com>

Education & Learning Options

Low Cost:

*Udemy

*<http://Udemy.com>

*StackSkills

*<https://stackskills.com/>

*Eduonix

*<https://www.eduonix.com>

*SoloLearn

*<https://www.sololearn.com/>

Education & Learning Options

Small sampling of subscription-based learning:

*Udacity

*<https://www.udacity.com>

*Coursera

*<https://www.coursera.org/>

*Linux Academy

*<http://linuxacademy.com>

What Can You Do?

- * Learn to use Linux via PCC courses and via web sites.
- * Help open-source projects
 - Documentation
 - art work
 - forums support

Wrapping Up!

Link to Slidedeck of
Presentation

<https://github.com/beelymagee/Linux-OSS-prez>

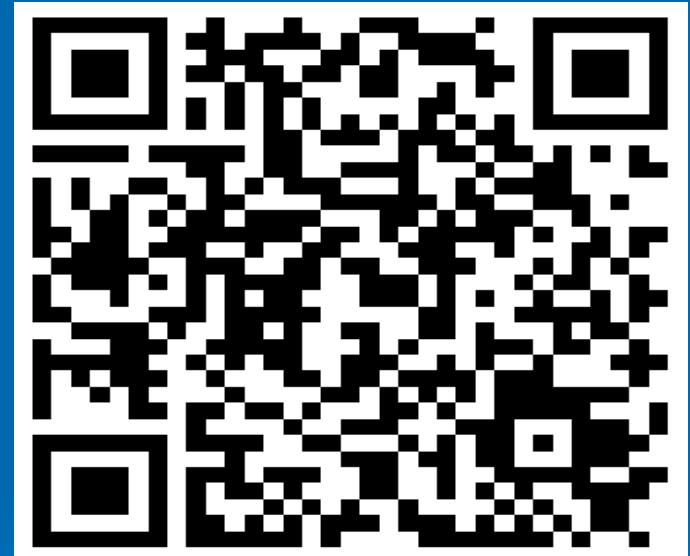


Wrapping Up!

Web Links, Training Materials,
Learning Resources

Presentation Resources

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B building, B-210 (behind
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Linux & Open Source Software

**High Quality, Free Operating
System and Software**

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April 26, 2017

Linux & OSS

*Agenda

- Welcome
- Why Are We Here Today?
- What is Linux? Where is Linux? Who is Linux?
- What is Open Source
- Women in Technology
- Learning Opportunities at PCC & Beyond

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Welcome!

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Why Are We Here?

- * Discussion about Linux and what it can do for you – freedom, stability, security
- * Discussion about Open-Source Software (OSS) – freedom, options
- * Women in Technology – Tech Needs You!
- * Join the Ranks!
- * Classes at Pima and Elsewhere

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Why Are We Here?

* If there's time...

- Discussion about Employment Opportunities & Job Market Future
- What Can You Do? Opportunities?
- Q&A

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Can I see a show of hands of who has heard of Linux?

The 4 videos are 3mins 2secs

All the hosted servers (85%-89%) that you access for hosted web sites run Linux and various web server programs – discussed later.

All those searches you perform, Google Docs, YouTube videos, Blogger web sites, etc all run on Linux-based servers.

Who Runs Linux?

* Facebook

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Who Runs Linux?

* Twitter

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Amazon shopping services, Amazon Web Services (the Cloud services for many web sites to host their content) all run on Linux servers.

All those streaming movies – servers running Linux!

A funded web service provides some automated tools to have users to voluntarily provide pertinent data about the Linux-based systems they operate.

Where is Linux?

* Android

- Telephones
- Tablets
- Watches

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Can I see a show of hands: Who has heard of Raspberry Pi? OK, keep your hands up if you currently HAVE a Raspberry Pi.

Raspberry Pi is a very small form PC that typically has a slot for a solid state memory card, wired network connection, HDMI output, multiple USB ports. Users usually also purchase an external power adapter, and a small case to hold the PC. A desirable option is to have a powered USB hub to provide external power to USB devices.

Where is Linux?

Chrome OS *(ChromeBook laptops)

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Almost all of the super computers used for massive research and data analysis projects run Linux.

Where is Linux?

* Car stereos

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Where is Linux?

* Interactive media systems

- Smart TV systems
- TiVo
- set-top boxes/DVR from Dish Network, Direct TV

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The International Space Station converted their primary systems over to Linux a few years back – would you want a Windows crash and reboot to interrupt systems' functioning?

Where is Linux?

*Antarctic research systems

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Where is Linux?

*Wall Street financial brokerages

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Where is Linux?

* Banking systems

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You're seeing digital interfaces for refrigerators that track food stores, reminders to re-order groceries, etc.

Healthcare systems would be remote telemetry and control systems for monitoring patients.

Control systems are usually found in water, power, heating and cooling systems – more and more are running Linux. More “smart homes” are developed with Linux.

Why Linux?

* See a common thread in these systems?

* Ideas?

- Security
- Stability – crashing is not an option for Mission Critical systems
- Virtually no viruses or malware!

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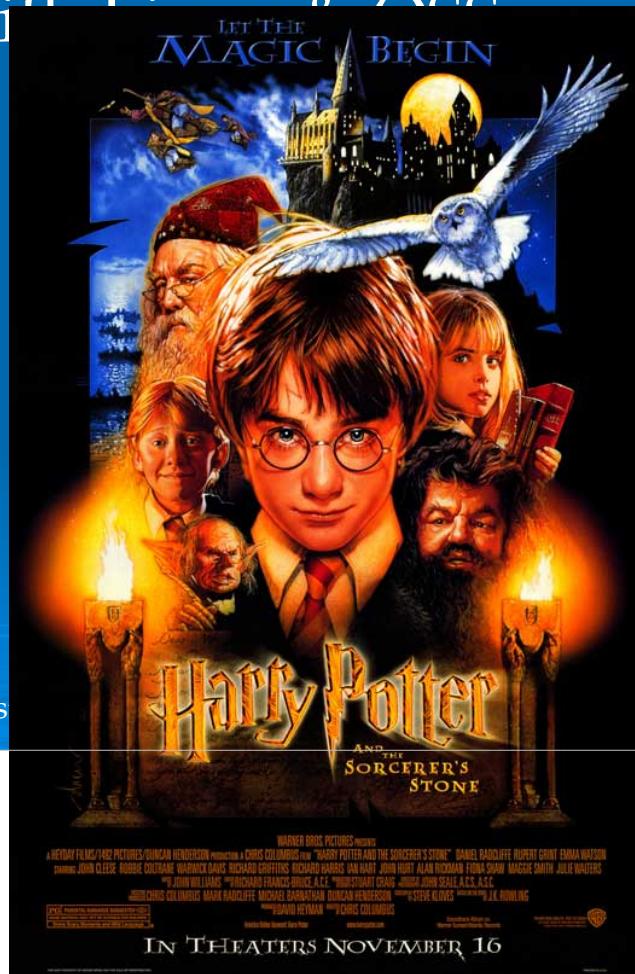
Years ago, Hollywood was digitally converting animated stills into movie frames, a process known as rendering, using much older software and hardware. The rendering process took way too long, increasing costs of production. Movie makers and studios got together and decided to start using stock PCs running Linux, redesigning the animation rendering software.

Linux support for high-end graphics processing with NVIDIA graphics cards was developed which increased the rendering time to a fraction that it previously took. Combining multiple computers into what is known as a “cluster” provided the processing power of dozens, then hundreds of PCs to do more digitization faster and cheaper.

Titanic was one of the first films to use Linux for production.

Movies made with the help of OCC

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Movies made



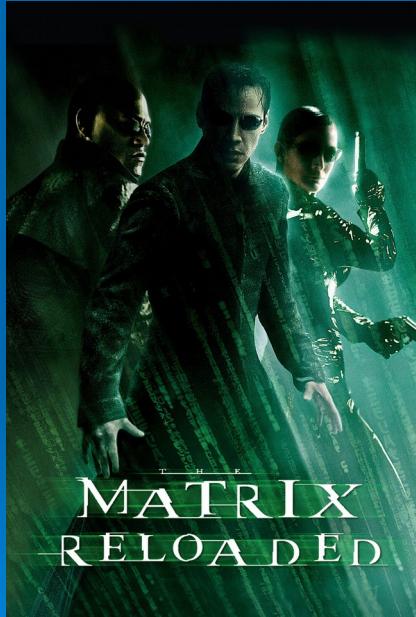
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Movies made w



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Movies made with Linux & OSS



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Movies mad



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Think of the operating system Kernel as the traffic cop directing everything to do with running a modern computer – dealing with data in memory, fetching and writing data to disk, displaying data on the screen through the video processing system and video card, sending sound out the audio system, controlling keyboard and mouse.

Programs like web browsers, office suite, media players.

Utilities that report what the status of the system is, creating PDF files, managing connection to a network, adjusting volume on the sound card, etc.

Package all of those pieces with a nice interface with a start menu, a system tray, themes and desktop background images and you have a Distribution or distro for short.

Linus was 21 years old when he completed his Linux Masters thesis project at University of Helsinki, Finland

Linus released the Linux system/kernel in 1991 and version 1 was released in 1994.

Who is Linux?



Linus Torvalds

Assisted by thousands
of programmers and
regular users from all
over the world.

Who is Linux?



Linus Torvalds
M Commercial

<https://youtu.be/fJA9eiUktcA>

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Eric S. Raymond is another important figure in open-source and Linux. He developed a program that gathers email from an Internet provider and then acts as a server to distribute the mail to individual users: An important program called FetchMail.

The link to The Cathedral and The Bazaar book is in the online resource list available at the end of the presentation.

You are familiar with a Window Manager in Windows with the Windows Explorer service that manages a start menu, icons, desktop theme, System Tray for info about the network, sound, date & time. Mac OSX has had the Finder for a number of years provide the same functionality.

Linux has many different Window Managers – the more developed Managers provide lots of eye-candy and are great for users brand new to Linux.

Linux Window Managers

* KDE

- Powerful, full-featured, many applications

* Gnome

- Almost as large in scope as KDE, full-featured, many applications.

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I like XFCE quite a bit – it's somewhat minimal but still very functional. It doesn't take up much memory and is great for older systems.

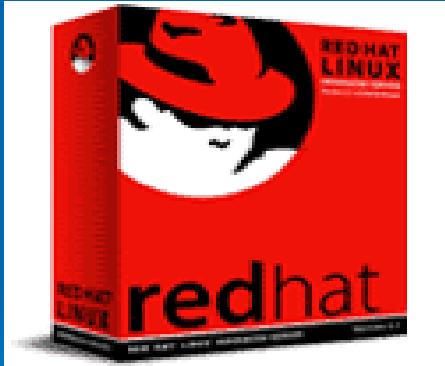
Linux Window Managers

- *IceWM
- *BlackBox
- *FluxBox
- *i3
- *Many others...

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Ubuntu is a very popular Linux distro that provides fantastic hardware recognition – finds all the components and configures them for use. Very user friendly but powerful. Ubuntu is highly recommended for new Linux users.

The Linux “Distributions”



- * Red Hat Enterprise
- * Very popular, industry leader
- * Enterprise class
- * Paid contract for support
- * See CentOS, free RHE-compatible

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The Linux “Distributions”



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Enterprise Linux

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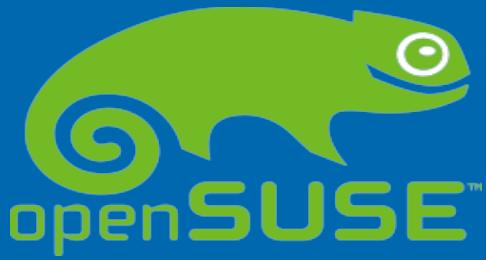
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* Debian



debian

* Foundation of many other distros (Ubuntu, Mint, etc)

* Great for desktops and servers

* Well-supported by user community

* Great wealth of open-source software

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You run Knoppix by downloading a copy of Knoppix, burn to a CD or DVD or thumbdrive, boot your PC to start from the Cd/DVD/thumbdrive. Knoppix lets you run Linux completely from the CD without touching your hard drive and your existing operating system. Almost all of the Linux systems mentioned provide their software in this Live CD mode to try out the Linux distribution before you install it.

I think it's very important for students interested in careers in technology to learn about and become familiar with running Linux. We've seen in this presentation that Linux is everywhere and that is only going to grow.

Lots of great job opportunities, very strong demand for individuals with demonstrable Linux skills, incredible growth in jobs in all industries. Users with knowledge and background in Linux are in high demand

Linux certifications: Linux+, LPI Essentials, LPI-1, LPI-2, Red Hat Certified Administrator (RHCA), Red Hat Certified Engineer (RHCE), among others.

Really fun, talented, committed individuals in Linux and open-source communities - always ready to share their knowledge and help newcomers.

Use only tutorials and some of the web-based education sites, that we'll talk about later in the presentation, to learn how to run Linux either in a cloud-based environment, on your personal machines either in a virtual machine, installed directly on your computer, or running on a Raspberry Pi device. Running natively is usually the best so you become better acquainted with Linux.

Linux and open-source software level the playing field for everyone, especially people struggling to have technology as part of their lives due to cost of Microsoft operating systems, software.

Can I see a show of hands: Who has heard of the open-source concept?

I've contributed money to the Free Software Foundation and believe in their goals of making software available for free.

Plus, they have this cool, but slightly creepy mascot, the Gnu.

The GNU project promotes software utilities that work on Unix and Linux systems.

The GNU compiler collection allows a programmer to take the source code for the program he/she is developing, pass it through a program called the compiler with the end result being a program to run.

Programs often have bugs or errors that produce incorrect results, so Stallman wrote the GNU Debugger to help track down/trace the errors in code.

The Emacs editing system is a fantastic product and is well respected and revered in tech communities.

Who is FSF.org?

Richard M. Stall-man
Founded FSF in 1985



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Users' freedom means to use open-source software in a manner you choose appropriate. Your community might mean your family, friends, school or business.

Open-Source Software (OSS)

Free software means:

- * have the freedom to run, copy, distribute, study, change and improve the software

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Free speech is just that: Freedom to speak my mind – we are all free to do that.

Free beer is given to me for free, possibly with strings attached.

Open-Source Software (OSS) Free Software Foundation (FSF)

A program is free software if the
program's users have the four
essential freedoms:

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Open-Source Software (OSS)

Four essential freedoms:

- Freedom 0 - The freedom to run the program as you wish, for any purpose.

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Open-Source Software (OSS)

Four essential freedoms:

- Freedom 1 - The freedom to study how the program works, and change it so it does your computing as you wish. Access to the source code is a precondition for this.

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Open-Source Software (OSS)

Four essential freedoms:

- Freedom 2 - The freedom to redistribute copies so you can help your neighbor.

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Open-Source Software (OSS)

Four essential freedoms:

- Freedom 3 - The freedom to distribute copies of your modified versions to others

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Open Source Software (OSS) is provided with a license that gives the end user the right to use it freely for private or commercial use.

You also have the right to inspect and even modify the underlying source code.

Open Source Software (OSS) license

You can give away or sell the original version you received or the version with your modification, may then be required to pass on the modified source code so that others can benefit from the changes you have made.

Note that the parentheses denote courses taught at Pima.

An IDE is a program that lets a programmer bring all the files that make up the project together in one convenient group. IDEs also offer tools like auto-complete of code options.

Git, developed by Linus Torvalds, is a very popular utility that helps individuals and teams publish their code for others to access. Git is designed for collaboration. There are links to Git in the resource page shown at the end of the presentation.

Open-Source Software (OSS)

* Database systems

- MySQL (Oracle Corporation)
- PostgreSQL
- MongoDB
- NoSQL derivatives
- PCC teaches Microsoft SQL

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Kubernetes (released by Google) and Docker are services that help to define and manage applications that are published and be used in large-scale environments like Amazon Web Services.

OwnCloud is very similar to DropBox but is installed on your own server, so it is private to you and whoever else you share access.

Nagios is a great tool to monitor resources on a network: is this printer down? is the gateway to the Internet down? Is this server down?

SSH provides a secure, encrypted connection from one point A to point B so you can interact with the remote system on the command line as if you were right there.

The Nmap tool lets you see what systems are currently on a network, see what services are running, what network connections are available. Great to investigate and help protect your network.

Wireshark allows you to see exactly what data is flowing across your wired network to help with troubleshooting problems and configuration errors.

Remember that Linux runs about 85-89% of Internet web server machines? The majority of those machines run the Apache web server. A newer product, Nginx, is making a strong showing and is giving Apache a run for its top spot.

How do we, as a society, change the way we introduce young girls to technology and keep them excited about the infinite possibilities available to them?

We know that women in technology are just as well-trained, have as much experience, and are as equally competent as their male counterparts, yet the number of women who get involved or stay in tech continues to drop off.

It is well known why this often happens: a male-dominated culture of harassment, rape, theft of intellectual properties, being ignored for promotion and misogynistic hiring practices.

Linux & Open-Source have a large share of women involved, but still lots of room for growth!

There are ways around this and ways to improve this!

Microsoft had a great video of young women describing what they wanted to do, what they wanted to accomplish and then they were shot down with statistics about women “failing” in STEM education.

The young women respond.

A blogger describes, in a very powerful, moving way, why Microsoft’s approach of blaming women doesn’t accurately describe why women drop out of STEM fields .

So, How can we encourage our young women to do what they WANT to do without fear, without harassment? What can we do to support them?

The Women*Techmakers HackaThon is a multi-day gathering of mentors and women interested in technology to learn how and to build software tools.

Makes you wonder, how often does this women get asked, “Hey, like is that your boyfriend’s computer or what?” and she had to resort to having a sticker made!

Here are some great options for young women to work with mentors and each other to get more involved with tech.

Women in Technology

Internet Society - "Shine The Light" project

<http://tinyurl.com/jxe4grv>



*National Center for Women in Technology

*<https://www.ncwit.org/>



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I saw this inspiring speaker at a Linux conference in Pasadena this past March and that's why I included her here.

Dr. Christine Corbett Moran was the keynote speaker on the concept of open-source being applied to other areas of society: open health systems, open political data, open education, and many others.

Check out her Twitter account and the link to a great article describing her in Wired magazine UK edition: she's an astrophysicist, currently works at the Jet Propulsion Laboratory in Pasadena, recently returned from working in Antarctica where she helped to put up a new radio telescope system.

Besides graduating at MIT, Dr. Corbett Moran developed an anti-rape, anti-harassment app called Circle of 6. She later became the Chief Technology Officer (CTO) of the company.

She also helped develop the highly encrypted chat/SMS mobile app and service, Signal.

Not bad credentials for just turning 30! Quite the role model for young women!

So what can women do in Technology? Why, anything of course! If a man can do it, a women can just as easily do it!

The Linux and open-source communities provide many opportunities to take part, make a contribution, learn new skills and put them to use - not all just programming or highly technical. Opportunities for artists, graphic designers, technical writing, supporting users, etc. - all great to help build resumes.

We know the sexual harassment has to stop - some progress is being made (O'Reilly, Alles). Men need to step up and take part in putting a halt to the culture of rape and harassment.

I believe that if we change how we raise young boys to be more gender accepting, almost gender neutral in respect to who can accomplish anything that will help level the playing field.

Women: we need you as managers, bosses, team leaders, engineers, scientist, data wranglers, inventors, writing fantastic code, achieving amazing systems, building powerful networks.

Education & Learning Options

Pima Community College offerings provide a good introduction/get your foot wet!

- * Computer Information Science (CIS)
- *Intro to Computers
- *Programming (Java, C++, .Net, Python)

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The Linux classes provide a firm foundation in using, operating, configuring Linux: the CIS-225 Intro, CIS-226 Advanced Linux topics, CIS-235 Linux Security.

The Networking classes also provide a firm grasp in concepts and practices. The Cisco courses (4) really help to prepare individuals to pass certification.

Wireshark is an in-depth course into troubleshooting networks and data flowing through networks.

Web Design provides instruction on creating basic, static web content. Not much is presented on developing database-driven web sites.

The Introduction to Virtual Machines provides a good practical overview of using VMWare tools and services.

Education & Learning Options

Computer Information Science (CIS)

- *Database (Microsoft SQL)

- *Game Design

Computer Software Applications (CSA)

- * Learn Microsoft Office applications

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EdX is a consortium of MIT, Harvard, the Linux Foundation, and others that provides courses in Linux Essentials, Python programming, Big Data, sociology, history. Many for free or pay for a certificate of completion.

Mozilla Foundation, the group that produces the Firefox web browser, also offers many free courses related to web development.

CodeAcademy is another free resource to learn many different programming languages.

The services shown here all charge a very small, nominal fee (\$10-\$15) for courses based on screencasts, with interactive labs, discussion forums, feedback from course instructors. Great for furthering knowledge and experience with Linux, web design, programming, etc.

SoloLearn provides an app for each course offered so user interaction can be done on a mobile device or on the web In a browser.

These providers offer micro-courses that last for a month or two, feed into the next concept, the end result being you have a fairly in-depth background and experience with the subject area. Most users are comfortable and capable enough to take a position in the field of study.

The costs range from \$25-\$49 a month.

What Can You Do?

- * Learn to use Linux via PCC courses and via web sites.
- * Help open-source projects
 - Documentation
 - art work
 - forums support

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Wrapping Up!

Link to Slidedeck of
Presentation

<https://github.com/beelymagee/Linux-OSS-prez>



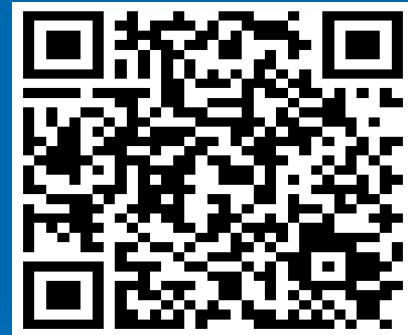
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Wrapping Up!

Web Links, Training Materials,
Learning Resources

Presentation Resources

*Northwest IT Department –
B building, B-210 (behind
Computer Commons)



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