



Introduction to Linux

Linux User Group at UTA

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Goals of Linux User Group

- promote the use of the Linux operating system and other open source software.
- provide a venue for students to gain experience giving technical presentations.
- provide a forum for students to learn about new aspects of Linux and open source software.
- promote fellowship among students who participate in the group.



What is Linux

- Linux is an Operating System (OS) – the software that manages its processor, memory and devices and lets you run different programs on it.
- It is free and open source.
- It has been developed collaboratively by many developers across the globe making it extremely robust and transparent.
- It is the number one OS running on the Internet^[1]
 - Google and Facebook's sites run on Linux OS.



Why *you* might need Linux

- Software Engineers & System Administrators
 - Large websites like Google/Facebook run on Linux^[3]
 - Prevalent programming environment
- Electrical Engineers
 - Most hardware (phones, R-Pi, TVs..) runs Linux
- Robotics and Control Engineers
 - ROS based on Linux
- Mechanical/Aerospace/Physics Engineers
 - Run simulations on high performance clusters which run on Linux



Free Open Source

“Free as in freedom”

Software with source code available that you are free to study, change and distribute for any purpose. Examples GPL, BSD licenses.

“Standing on the shoulders of giants”

Imagine:

- Having to pay ridiculous amounts of money to start working on a new idea
- Not being unable to customize software to your needs
= stifled innovation!



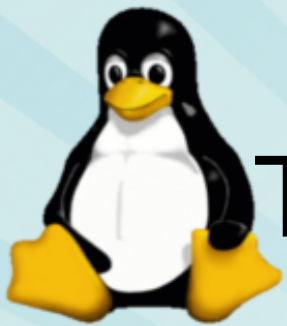
Open Source in Your Life^[1,4]

- Major websites:
 - Google, Facebook, Amazon, Twitter, Dropbox
- Software you use:
 - Mozilla Firefox, Oracle Java, VLC, LibreOffice
- Android smartphones
- Embedded Linux devices:
 - Smart TVs & DVRs, ATM machines, Wireless routers



Linux Awareness

- Why haven't I heard of Linux before? Why did my laptop ship with Windows or MacOS?
 - <https://www.youtube.com/watch?v=5Qj8p-PEwbl>
 - Back in the day, it was actually difficult get some things running on Linux. You needed some expert help.
 - There isn't much awareness about Linux outside the IT community
 - Some hardware and software manufacturers provide software and support only for Windows



The world of Operating Systems

- In early days, computers were large multi-user mainframes running some flavor of the **Unix** operating system. (1969-current)
- Personal Computers (PC) started using **MSDOS** (1981-2000), transitioning to **Windows** later (1990-current).
- **Mac-OS** competed with Windows on Mac-PCs but Microsoft always dominated.^[2] (1984-current)
- **Linux** rose as a free Unix-"like" operating system now completely dominating the server market and becoming a popular PC OS.^[1] (1991-current)



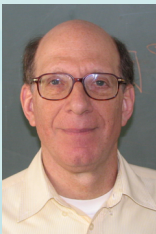
Stallman



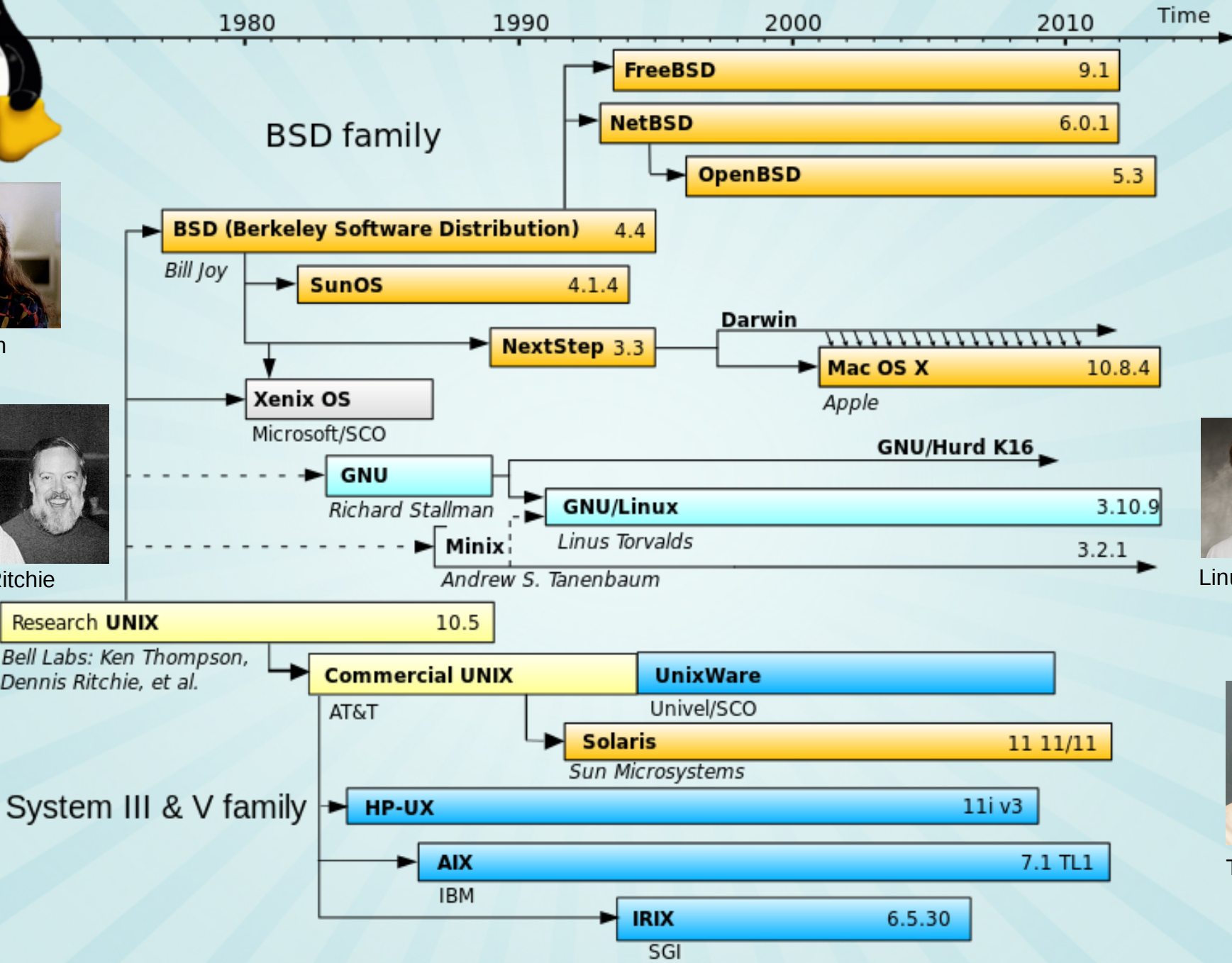
Ken & Ritchie



Linus Torvalds



Tanenbaum





LUG-UTA Goals this Semester

- Introduce you to the Linux shell and desktop
- Guide you to setting up a web server
- Set up your programming environment in Linux
- Show off exciting applications of Linux like Raspberry-Pi and Robot Operating System
- Plus, we will have many presentation on advanced topics like Latex authoring, version control, Linux security, networking and many new topics



Getting started with Linux

- Install Linux on a virtual machine (VM)
- Read some good Linux tutorials on the web
- Watch some Linux introductory videos on the Internet
- Try your new skills on your Linux VM
- Attend LUG meetings



Installation on a Virtual Machine

- Download and install Oracle VirtualBox
 - [Windows users download link](#)
 - [Mac OSX users download link](#)(from: <https://www.virtualbox.org/wiki/Downloads>)
- Download the ISO image of a Linux distribution (Ubuntu Linux is recommended)
 - Ubuntu 32-bit download link:
<http://releases.ubuntu.com/15.04/ubuntu-15.04-desktop-i386.iso>
 - Ubuntu 64-bit (you must enable hardware VTX support)
<http://releases.ubuntu.com/15.04/ubuntu-15.04-desktop-amd64.iso>



Installation

- Refer to this video for help in the install:
<https://youtu.be/BSPVWOrMc3M>
- (this was played in the session)
- To enable hardware acceleration options if they are not enabled on your laptop:
<https://youtu.be/kC0BtOKTMHE>
- You may need to turn up the volume to hear the narration.



Try It At Home

- Watch these introductory videos on YouTube:
 - Take the Ubuntu Unity online tour!
<http://tour.ubuntu.com/en/>
 - A dummies introduction to Ubuntu:
<https://www.youtube.com/watch?v=Do5npazUXpM>
 - An introduction to command line:
<https://www.youtube.com/watch?v=IVquJh3DXUA>



Contact Info

- Website: www.luguta.org
- Join us on MavOrgs:
<https://mavorgs.collegiatelink.net/organization/luguta>
- Join our ListServ (see web page)
- Email: luguta.org@gmail.com
 - Rohit Rawat
 - Jobin Thomas
 - Tracie Perez
 - Robert Hamilton



Next meeting

- Topic: Shell Commands and SSH
- Tuesday, October 6, 5:15pm
- NH-100



References

- [1] http://en.wikipedia.org/wiki/Linux_adoption
- [2] http://en.wikipedia.org/wiki/Microsoft_Windows
- [3] http://en.wikipedia.org/wiki/Google_platform
- [4] <http://en.wikipedia.org/wiki/Linux>