

UMass Lowell

Open Source

Special Topics Course: Internet of Things

Here's what I'm going to talk about

Talk by Matthew Miller
Slides by Guenevere Miller

- A brief history of open source
 - Who am I?
 - What happens in Fedora
 - Other open source projects
 - How does this help you?
 - Questions?
-

A Brief History

- The GNU Project
 - Free Software Foundation
 - Linux
 - The cathedral & the bazaar (ESR)
 - Mozilla
 - Red Hat
 - Git, Github, and the world
-

The GNU Project

Richard Stallman announced the GNU project in 1983.

His goal was to give freedom and control to computer users and programmers, by working collaboratively to develop and publish a software that grants everyone the right to run, copy, distribute, study, and modify the software, freely and without restrictions.



Free Software Foundation

The Free Software Foundation (FSF) is a non-profit organization, founded by Richard Stallman in 1985 with the goal of supporting the free software movement

On the front page of their website, FSF explains their goal:

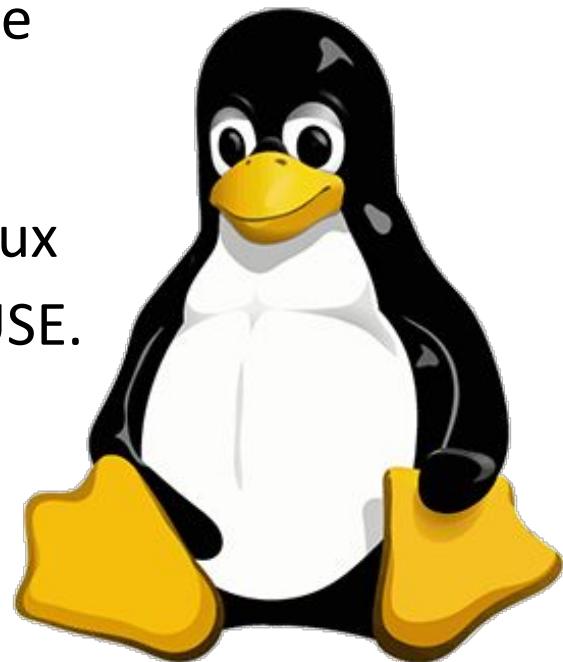


“Free software developers guarantee everyone equal rights to their programs; any user can study the source code, modify it, and share the program.”

Linux

Linux is a family of free, open-source softwares, released in 1991, and created by Linus Torvalds, many of which are provided by the GNU Project.

A fair number of companies are built around Linux distributions, notably Red Hat, Canonical and SUSE.



```
baserunning = (lineups[side][uo[side]].speed + 2 - lineup  
# stolen base?  
if oonbase[0] == 1 and int(oonbase[1][-1]) + 3 - catch[ot  
# runner might go  
if roll(20) < int(oonbase[1][-1]) + 3 - 4 + cat[oth  
    one[one] = 0  
    for z in range(9):  
        if lineups[side][z].name == oonbase[1][-2]:  
            runner = z  
            if z + 2 < int(oonbase[1][-1]) + 3 - 4 + catch  
                # stolen base  
                oonbase[2] = oonbase[1]  
                oonbase[1] = ""  
                oonbase[0] = 1  
                cs[side][runner] = cs[side][runner] + 1  
                print " .....stolen base....."  
                continue  
  
else:  
    # caught stealing  
    oonbase[0] = 0  
    outs = outs + 1  
    cs[side][runner] = cs[side][runner] + 1  
    print " .....caught stealing....."  
    continue
```

Eric S. Raymond

The Cathedral and the Bazaar

The Cathedral and the Bazaar: Musings on Linux and Open Source by an Accidental Revolutionary (CatB) is an essay (1997) and later a book (1999), written by Eric S. Raymond (ESR).

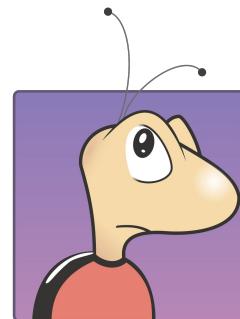
He contrasts two software development models, the *Cathedral*, and the *Bazaar*. The *Cathedral* is a model in which code is released only with software updates, and the *Bazaar*, with continuous releases of all versions of the code between official updates.

Mozilla

 Mozilla was founded in 1998, as a free software community  Firefox (web browser), Thunderbird (e-mail client), Pocket (list of online articles and videos), and Bugzilla (bug tracking system), are some of many products to come from Mozilla.



moz://a



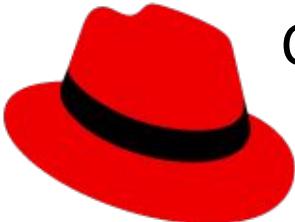
Red Hat

(a billion dollar company
selling free software)

Red Hat is a multinational software company, which provides open source software. It was founded in 1993, and was acquired by IBM for 34 billion dollars in July 2019. Red Hat is a main contributor to the Fedora Project, a free software product supported largely by the community. Many developments within the Fedora Project are included in Red Hat Enterprise Linux.



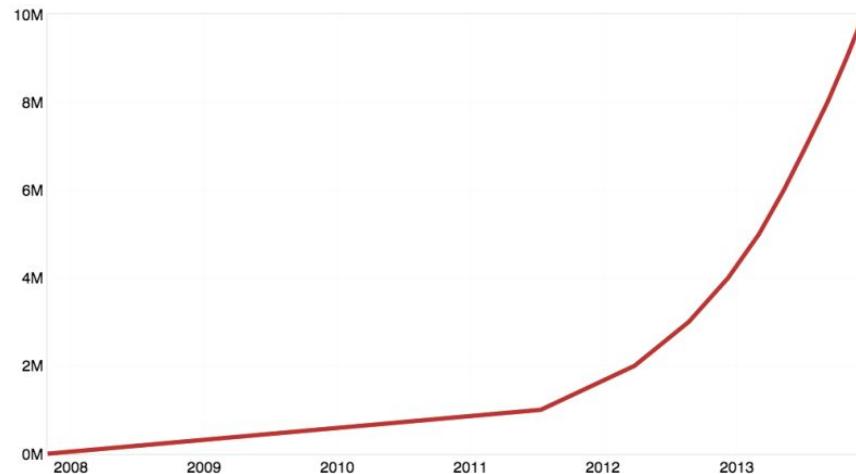
Red Hat has had many side projects, such as the One Laptop per Child initiative, whose aim is to provide open and accessible communication, knowledge, and learning.





Git, Github, and the world

Git is a system used to track changes in source code during software development. GitHub is a global company that hosts software development version control using Git.



Who am I?

- Apple][
 - Djgpp
 - thelocalnet & Linux
 - BU Linux
 - Fedora Project
 - Fedora Project Leader
-

Apple][

The Apple][is an 8-bit home computer and one of the world's first highly successful mass-produced microcomputer product, introduced in 1977 by Steve Jobs and Steve Wozniak in 1977 at the West Coast Computer Faire.



Fun fact

**APPLE][DID NOT HAVE
LOWERCASE LETTERS**

TRANQUILITY BASE -- BY BILL BUDGE

TRY TO LAND YOUR SHIP SAFELY AS MANY TIMES AS YOU CAN WITH THE GIVEN FUEL SUPPLY. USE PADDLE #0 TO FIRE THE RETRO-ROCKET AND THE "1" AND "2" KEYS TO CONTROL APPROACH ANGLE.

SCORING IS BASED ON THE NUMBER AND QUALITY OF SUCCESSFUL LANDINGS.

HIT A KEY TO PLAY.

SCORE THIS TIME:
FINAL SCORE:

ALT (M)	VERT (M/SEC)	HORIZ (M/SEC)	FUEL (LBS)
000	000	000	0000

Djgpp

DJGPP is a 32-bit C and C++ development system and compiler for DOS on Intel 80386 (and higher) PCs. The project began in 1989, founded by DJ Delorie, who called it **DJ's GNU Programming Platform**, or DJGPP.

 Quick Start

TLN Services

Net Directory

Net Search

 Free Software

Welcome to TLN

You've asked for it -- here it is! You can now look up your online time since your last billing date by clicking [here](#). Please note that this does not include any time for the current day.

YAHOO!

Search

AltAVISTA

Search

metacrawler

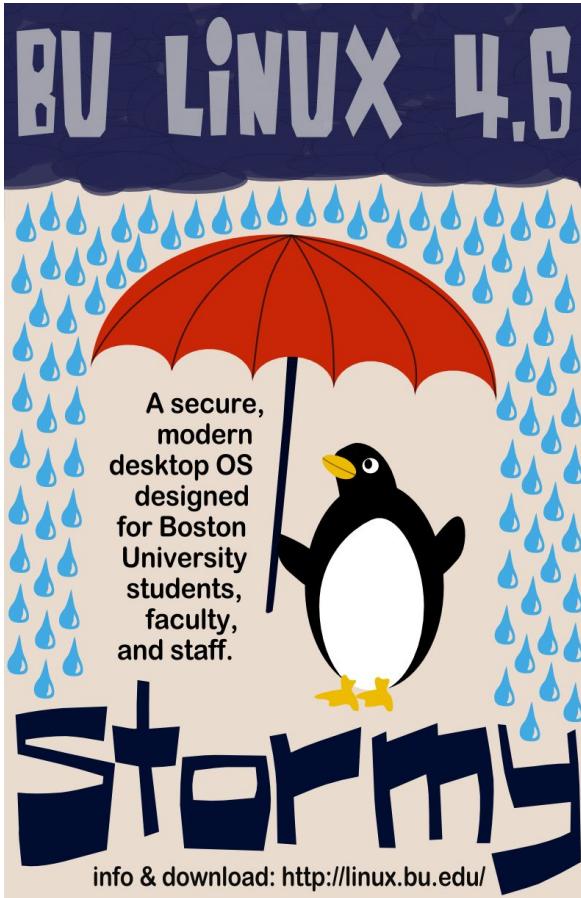
Search

Quicklinks: [CNN](#) | [NY Times](#) | [Goshen News](#) | [Goshen Weather](#)

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BU Linux

The BU Linux
distribution was
created for Boston
University in 1999

The Fedora Project

The Fedora Project was founded in 2003, after a merge between Red Hat Linux (RHL) and Fedora Linux projects.

Their purpose is to coordinate the development of Fedora Linux, with the goal to make open source and free culture more common.



The Fedora Project Leader

According to the Fedora Project's website:

“The Fedora Project Leader (or FPL) is ultimately accountable for everything that happens within Fedora and in particular is responsible for maintaining Red Hat’s relationship with Fedora and vice versa. He/She is Fedora’s President, CEO, Chair, Fearless Leader, whatever-you-want-to-call-it.”

What goes on in Fedora

- The distro
 - The community
 - All the stuff we need!
-

The distro

Mission:

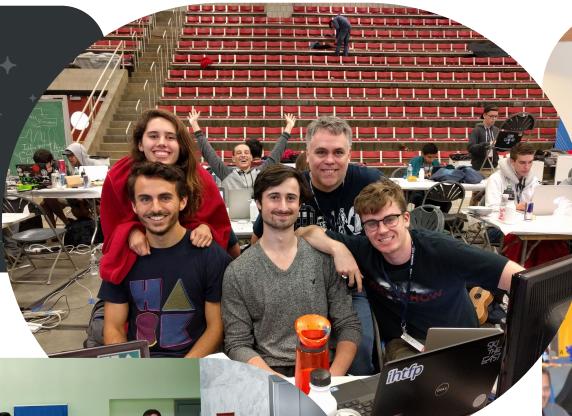
Fedora creates an innovative platform for hardware, clouds, and containers that enables software developers and community members to build tailored solutions for their users.

Some of these solutions:

- Fedora Workstation
- Fedora CoreOS
- Fedora IoT
- Fedora Python Classroom Lab
- Fedora Robotics Suite
- Fedora Security La



THE FEDORA PROJECT COMMUNITY



All the stuff we need!

Fedora isn't just about programming!

→ Design

Design team
Websites team

→ Coding

Python C++
Haskell Java
Java Ruby
Javascript

→ Translation

→ Instructions

→ Community OPS

→ Packaging

Package Maintainer

→ Modularity

→ The Server

Server SIG

→ Internationalization

→ The Cloud

Cloud SIG
RDO

→ Writing

Documentation
Blogging

→ Advocacy

Ambassador

→ Q&A and Testing

→ The Desktop

Desktop SIG LXDE SIG
Cinnamon SIG XFCE SIG
KDE SIG

Other open source projects

- Fun
- Infrastructure
- IceBreaker
- Products
- Applications

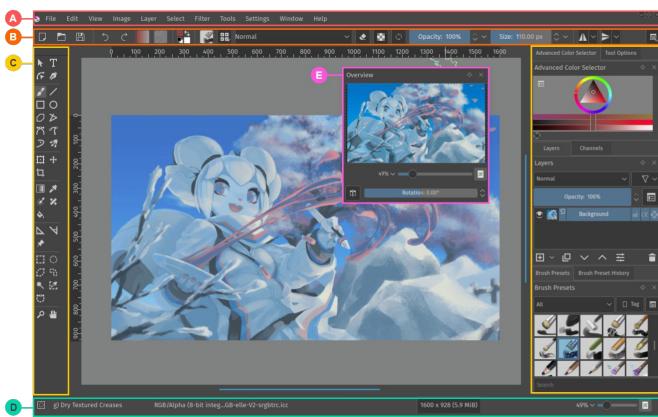


Fun



Not all open source projects are software; such as Krita, Darktable, and Scratch, all of which are hobby based programs.

Krita

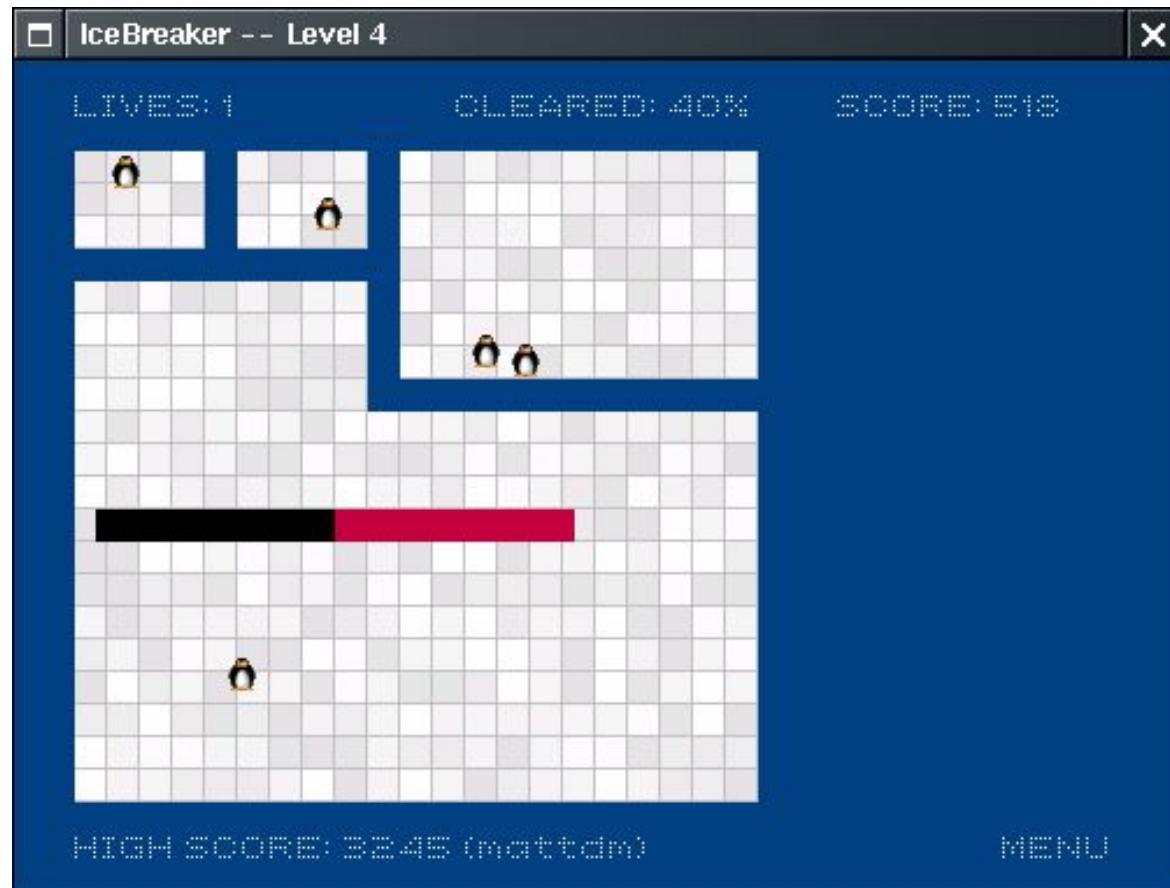


Scratch



Darktable

IceBreaker



(old school and new,
big and small)

Infrastructure

→ OpenSSH, systemd, Glibc

Connects to different systems / process manager / fundamental programming library

→ All your programming languages

Rust, Go, Python, Java, Javascript Ruby, C, C++

→ Libraries to do just about anything

Graphics, networking, AI, text processing, etc.

Oh yeah also applications

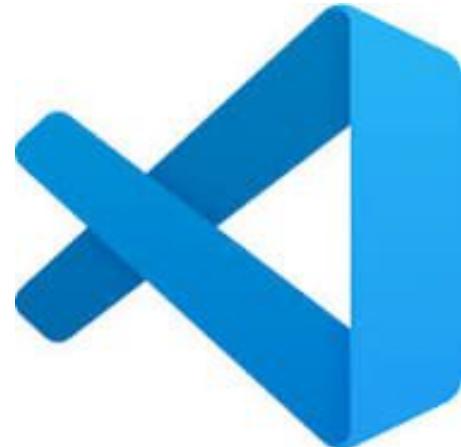
LibreOffice



GNUCash



vSCode



Products

- RHE 
- OpenShift 
- MySQL 
- WordPress 

- Chef 
- Puppet 
- Ansible 
- Elastic 
- Vagrant 

How does this help you?

- Projects
 - Patches
 - Community & connections
 - Skills
-

Projects

You can do cool projects that are fun for you that show off your talents and allow you to collaborate with others.

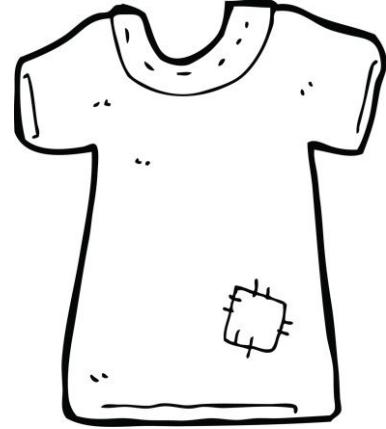


Open source enables projects that wouldn't be possible otherwise, such as some video games. One person can make a set of sounds, but can't code a video game, and so by marking their work open source, they can see it used someone else's programming, completing projects that otherwise wouldn't be viable.

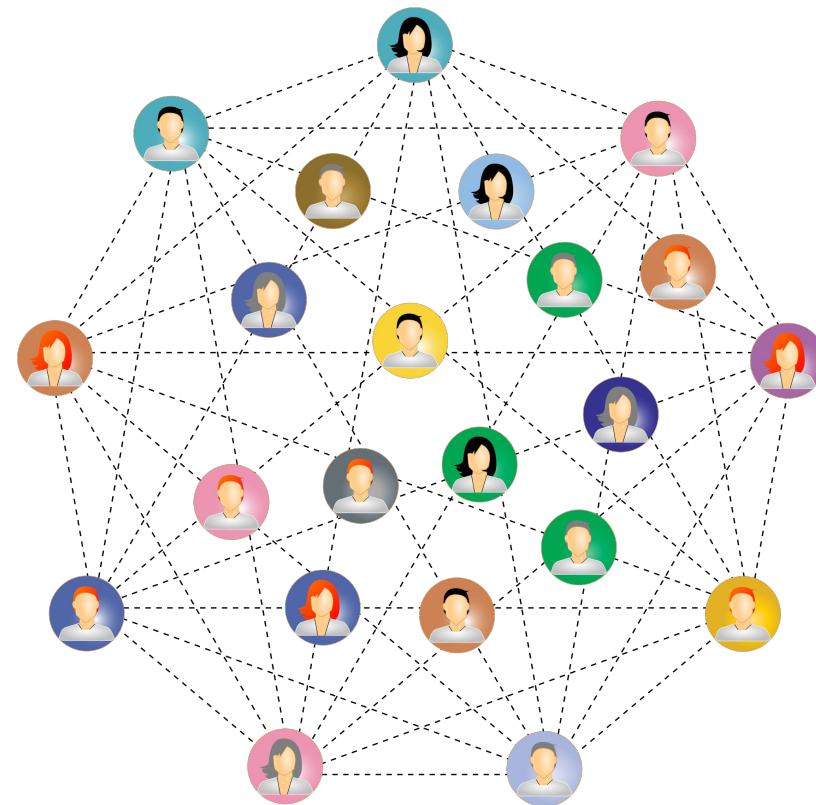


Patches

With open source, you can help others fix problems or bugs in their programs, and it goes the other way; you might have a bug you have no idea how to fix, but that someone else has dealt with before. Then you see how they did it, and now know for the future, and can then pass on this knowledge.



Community & Connections



The open source community is a close knit one, and anyone is bound to forge connections. Something that might take you an hour to figure out could be cut to a few minutes by reaching out to someone who knows the topic better. Besides the technical advantages, you can also form relationships with people who have similar interests.



Skills

Working on open source projects will help you build skills quicker than otherwise. You can watch people with experience work for free, and most people are more than willing to help out with tips and tricks that you likely wouldn't learn through a more traditional class or formal course.

Additionally, rather than choosing one subject and only learning about that; being part of a large community lets you pick up pieces of other topics; expanding your overall knowledge



Questions?