

# LIS-3353

## History I

“In the beginning....”

# The “Ticker Tape” Theme



*Human communication?*  
**NO. DATA!**

# On Openness

More open *generally* wins in the long run.

Piracy?\* Meh.

*\*No but seriously don't do anything illegal, immoral, or violative of FSU rules*

# Innovation (the WIMP interface)



Apple?

IBM?

Microsoft?

# Innovation

(the WIMP interface)



“You’re ripping us off!” Steve Jobs shouted. “I trusted you, and now you’re stealing from us!” Gates just sat there coolly, looking Steve in the eye....

“Well, Steve, I think there’s more than one way of looking at it. I think it’s more like we both had this rich neighbor named Xerox and I broke into his house to steal the TV set and found out that you had already stolen it.”

# The First PCs (circa 1980)

Apple II, Commodore 64, Tandy, Amiga



# Pioneers of freedom?

1) Apple II series

2) IBM (COMPATIBLE) (v. Apple II)

3) MS Windows (v. OS/2)

# THE APPLE II SERIES

The Steve at Apple who mattered? :)



The best, most open  
“hobbyist environment” of the time

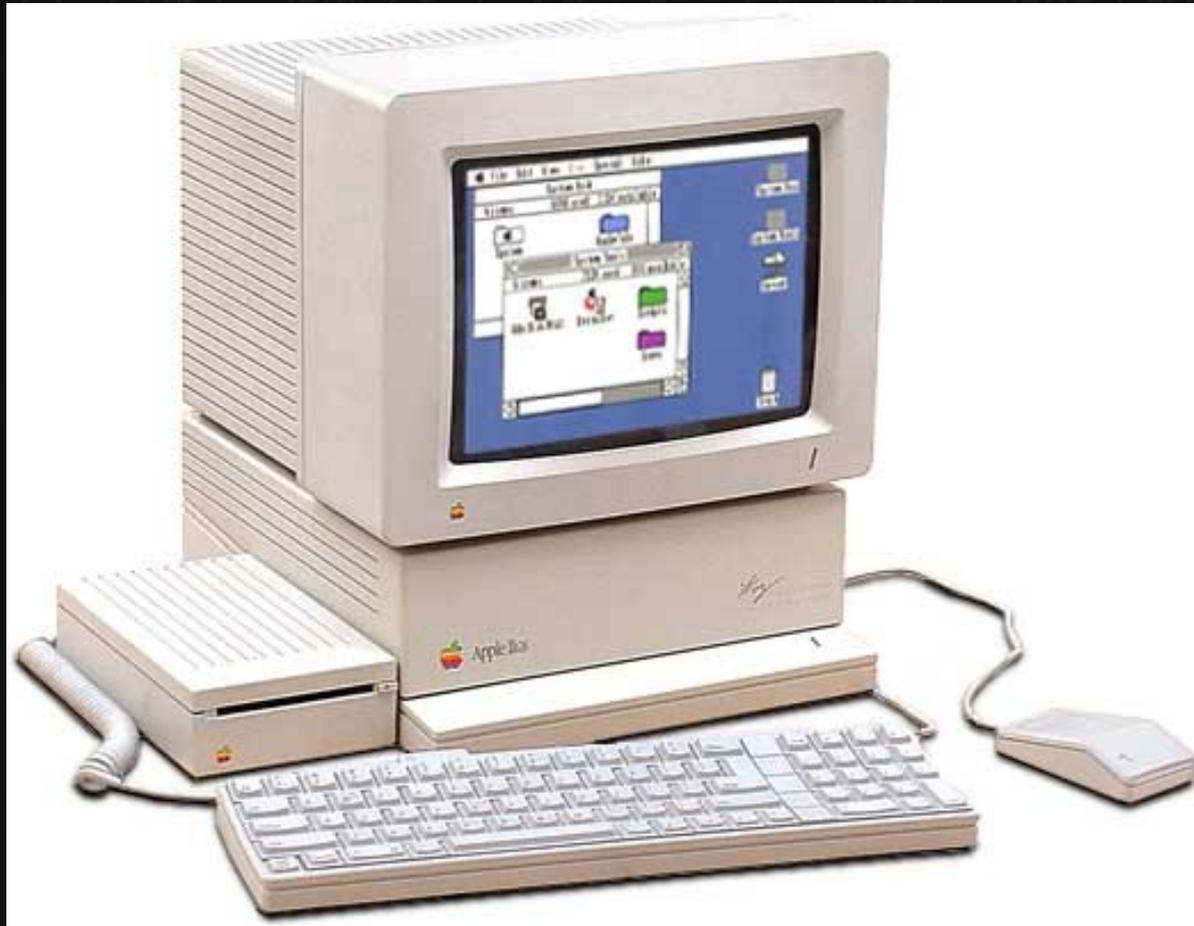


# Apple II

(and others, but mostly Apple IIs)

- BASIC
- Freeware and Purchased Software
- Connect to TVs, frequently
- Saved to floppy disks (and sometimes CASSETTE TAPES)
- Some basic independent “Office” apps
- Very very open. Apple Clubs and such.

# Apple IIgs (1986)



(1977-1984ish)

Apple dominates.  
Keeps EXCLUSIVE right to make  
“Apple” Machines

Enter IBM...



Apple was winning, IBM was in confusion; it ended up that their Operating System would be licenced to OTHER MANUFACTURERS...



# Result? The IBM Compatible DOMINATES: IBM wins (along with everyone else)

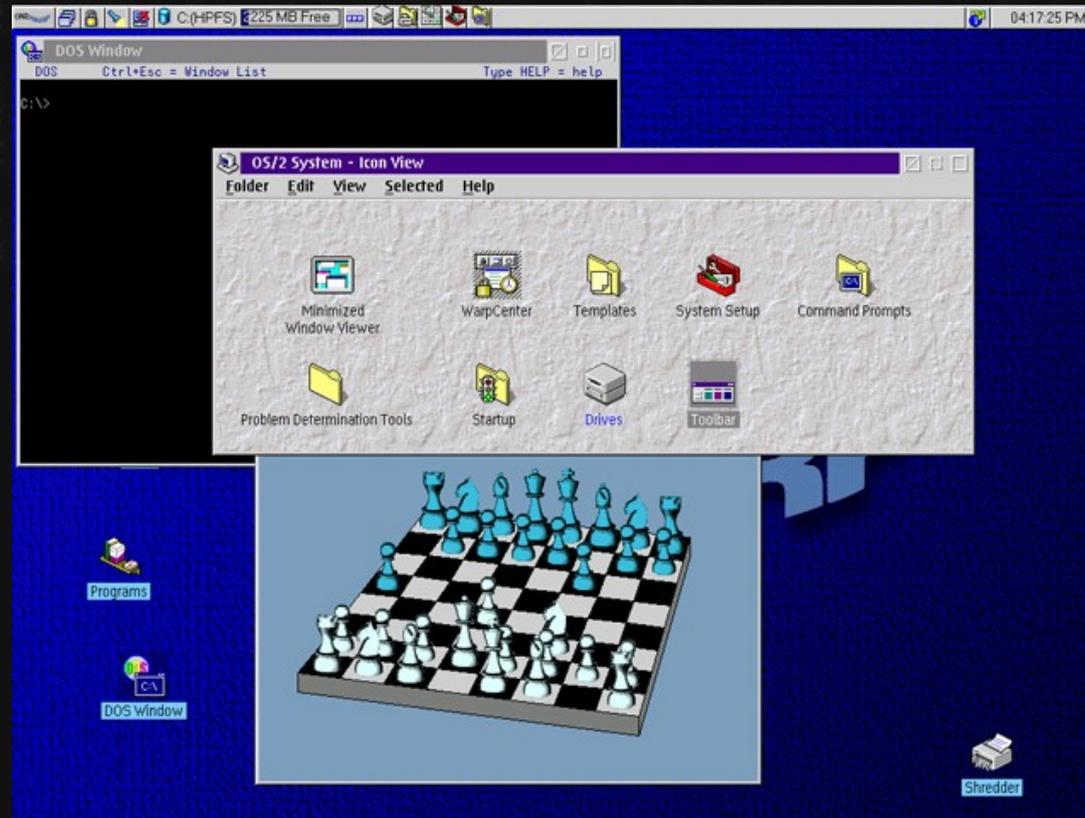


# Result? The IBM Compatible DOMINATES:

Also: Steve Jobs is FIRED from Apple by John Sculley (1985) :  
“Overpriced Mac is a toy, and dropping prices won't help”



# IBM dominates. Decides to make a new OS



Also, decides to completely ignore history...the new "OS/2" will be  
**IBM ONLY.**

# IBM dominates. Decides to make a new OS



(Also, makes the unfortunate mistake of keeping this guy around to write it, since his people wrote the old one. It was "MS-DOS" after all.)

So they do both OS/2 and this other side project you may have heard of...

# Bill's (evil?) Genius "Letter To Hobbyists"

(1976, impact felt later)

-2-

February 3, 1976

## An Open Letter to Hobbyists

To me, the most critical thing in the hobby market right now is the lack of good software courses, books and software itself. Without good software and an owner who understands programming, a hobby computer is wasted. Will quality software be written for the hobby market?

Almost a year ago, Paul Allen and myself, expecting the hobby market to expand, hired Monte Davidoff and developed Altair BASIC. Though the initial work took only two months, the three of us have spent most of the last year documenting, improving and adding features to BASIC. Now we have 4K, 8K, EXTENDED, ROM and DISK BASIC. The value of the computer time we have used exceeds \$40,000.

The feedback we have gotten from the hundreds of people who say they are using BASIC has all been positive. Two surprising things are apparent, however. 1) Most of these "users" never bought BASIC (less than 10% of all Altair owners have bought BASIC), and 2) The amount of royalties we have received from sales to hobbyists makes the time spent of Altair BASIC worth less than \$2 an hour.

Why is this? As the majority of hobbyists must be aware, most of you steal your software. Hardware must be paid for, but software is something to share. Who cares if the people who worked on it get paid?

Is this fair? One thing you don't do by stealing software is get back at MITS for some problem you may have had. MITS doesn't make money selling software. The royalty paid to us, the manual, the tape and the overhead make it a break-even operation. One thing you do do is prevent good software from being written. Who can afford to do professional work for nothing? What hobbyist can put 3-man years into programming, finding all bugs, documenting his product and distribute for free? The fact is, no one besides us has invested a lot of money in hobby software. We have written 6800 BASIC, and are writing 8080 APL and 6800 APL, but there is very little incentive to make this software available to hobbyists. Most directly, the thing you do is theft.

What about the guys who re-sell Altair BASIC, aren't they making money on hobby software? Yes, but those who have been reported to us may lose in the end. They are the ones who give hobbyists a bad name, and should be kicked out of any club meeting they show up at.

I would appreciate letters from any one who wants to pay up, or has a suggestion or comment. Just write me at 1180 Alvarado SE, #114, Albuquerque, New Mexico, 87108. Nothing would please me more than being able to hire ten programmers and deluge the hobby market with good software.

*Bill Gates*  
Bill Gates  
General Partner, Micro-Soft

# Bill's (evil?) Genius “Letter To Hobbyists”

Convinces developers  
(and the world)

**“SOFTWARE IS A PRODUCT”**  
(please appreciate how weird this is)

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Is Math? Is Science?

# In other news...

- 1985 - Windows 1.0
- 1990 - Windows 3.0
- 1995 - (hey guess)
- 1984 - 1<sup>st</sup> Macintosh
- 1986 - Apple IIGs
- 1998 - iMac

# Microsoft Windows:

**Standalone\*** office appliances running  
proprietary software.

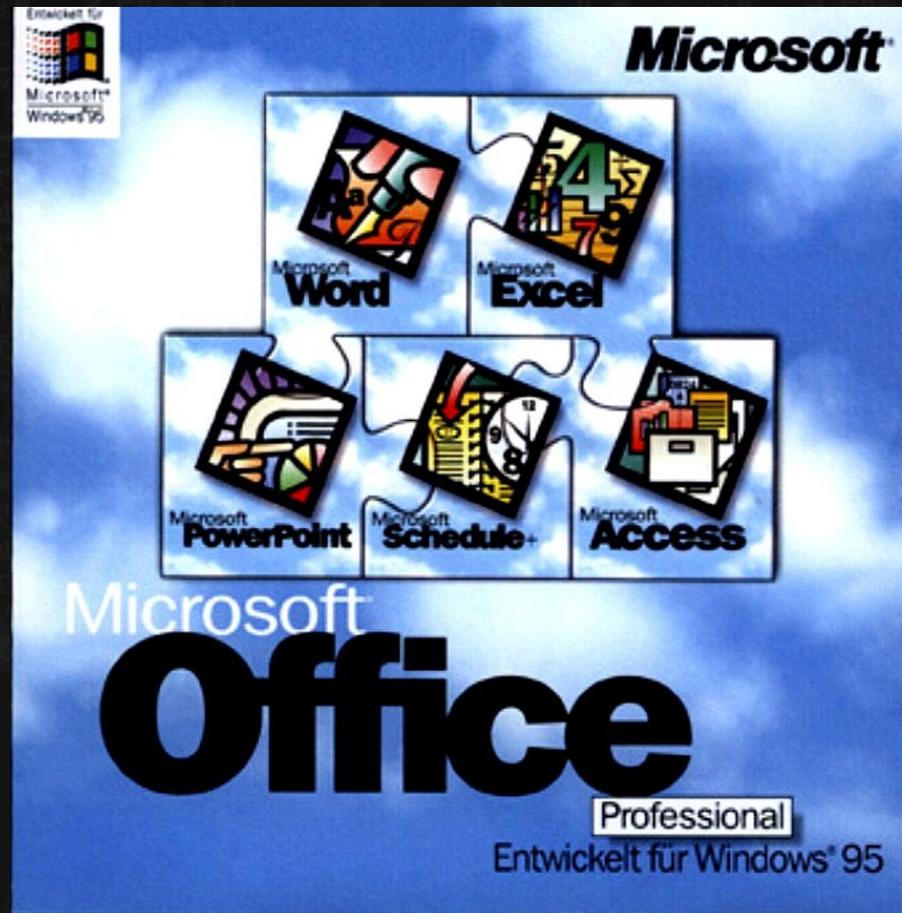
\*infrequently connected or networked.  
“Sneakernet!”

# The Dominance of MS

Probably not “Windows...”

# The Dominance of MS

Probably not Windows...



# Previously, on “History...”

Microsoft DOMINATES the OS space, probably through the unified Office framework and relative openness (at the time)

So..how do you kill a giant?

# How (not) to kill a giant

## Direct Competition

- (they just buy you out, or EEE)

## Government Intervention?

It worked for AT&T and it might work again – but not for MS...

# “Competition”

## The original “Surface” (2003-2007)



PHOTO: DAVID PAUL MORRIS/GETTY IMAGES

# The Microsoft Tablet (2002)



# Embrace, Extend, Extinguish

- (I didn't make this up, they used it INTERNALLY)

Either BUY OUT your competition, or E,E,E.

(e.g.) .Net ActiveX, DirectX vs. OpenGL

Attempted with odt.

This prevents you from having to competitively innovate.  
(and is kind of understandable.)

# Embrace, Extend, Extinguish

“ "One thing we have got to change in our strategy—allowing Office documents to be rendered very well by other peoples browsers is one of the most destructive things we could do to the company. We have to stop putting any effort into this and make sure that Office documents very well depends on PROPRIETARY IE capabilities. Anything else is suicide for our platform. This is a case where Office has to avoid doing something to destory [sic] Windows.”

- Bill Gates, memo to Office working group, 1998

Hehe how do we even have that?

Because of discovery, and the other thing that didn't work at the time...

# Not even the (U.S.) gov't.

*United States v. Microsoft, 253 F.3d 34 (2001)*



Europe did, but without much consequence...

# Not even the (U.S.) gov't.

*United States v. Microsoft, 253 F.3d 34 (2001)*

The argument:

Monopoly Leveraging – not that MS had an impermissible monopoly, but that it would use that monopoly to take over the internet, with that AMAZING browser....

Internet Explorer.

(ps, EU courts Europe basically won this same case, the crazy result being that when you installed Windows, over there you could pick a browser.

(instead of using IE to install Firefox like we did here)

# Wow, so how do you kill a giant? (slowly)

- Nicer GUIs on “Non-computer” devices
  - (thank you Moore's Law)

AND

- The Internet

# Wow, so how do you kill a giant? (slowly)

- “Non-computer” devices
  - (thank you Moore's Law)
- The Internet

BOTH POWERED BY:

**Free** (and not-so-free-but-free-ish)  
**Software**

# Unix



# Unix

- Multi-User from the beginning
- “Buying” software? What?
- The Unix Way
  - Write programs that do 1 thing well
  - Write programs to work together
  - Write programs to handle text, the universal interface

# An almost random bit on recursion (why the goofy names in \*nix)

- In computers, it's actually okay to define something with itself.

PSUEDOCODE!

Define function="EscapeFromRoom"{

- 1) If there's a door in arms-reach, exit – you're done, else
  - 2) If you can, take one step forward and EscapeFromRoom, else
  - 3) Rotate to the left until there's not a wall in front of you and EscapeFromRoom
- }

(this will get you out of any “regular” empty room)

# GNU (Gnu's Not Unix)

Richard Stallman, 1983ish

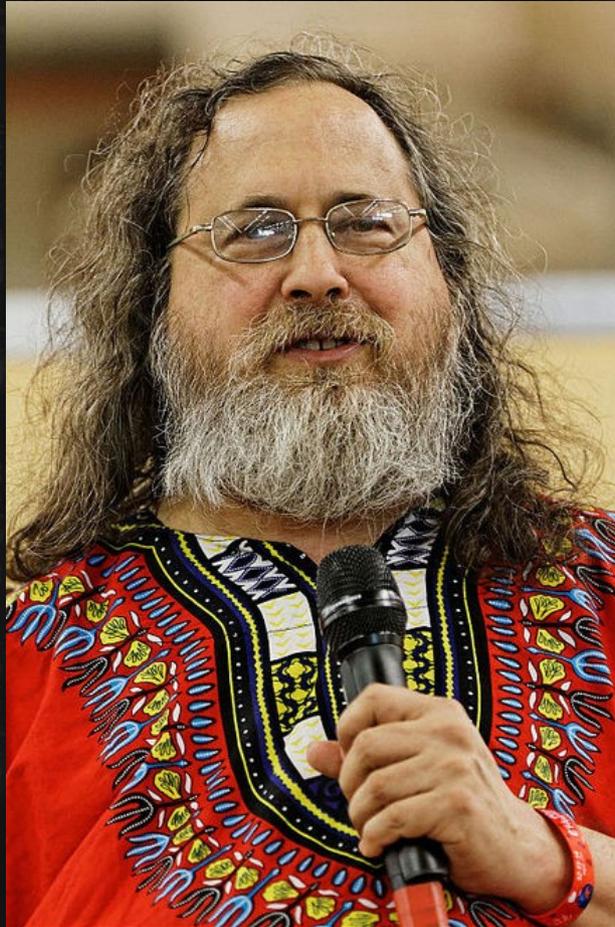
“complete Unix-compatible software system”

The GNU Manifesto → Golden Rule → GPL

But..no kernel...

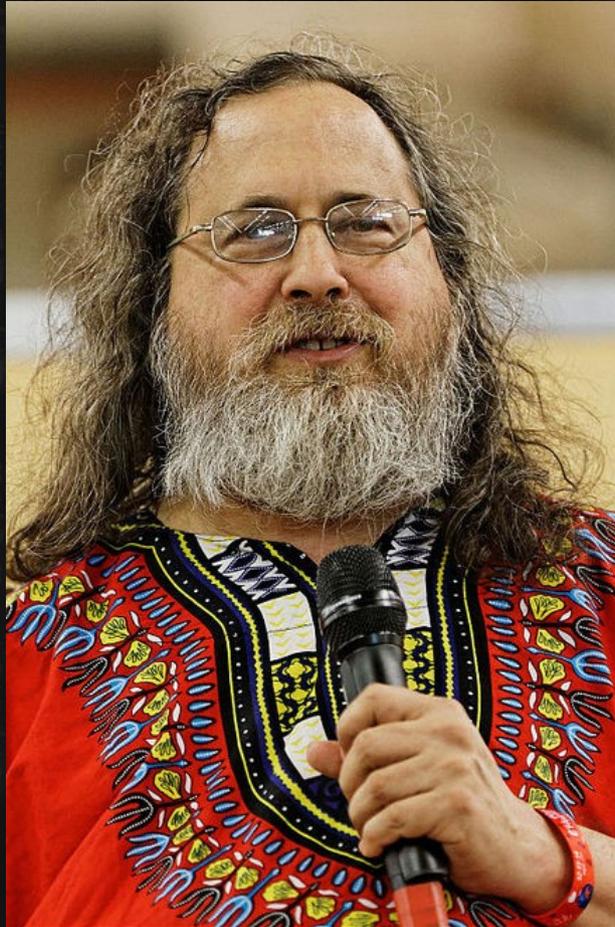
# Richard Stallman:

Weird, picky guy who says crazy things  
about technology



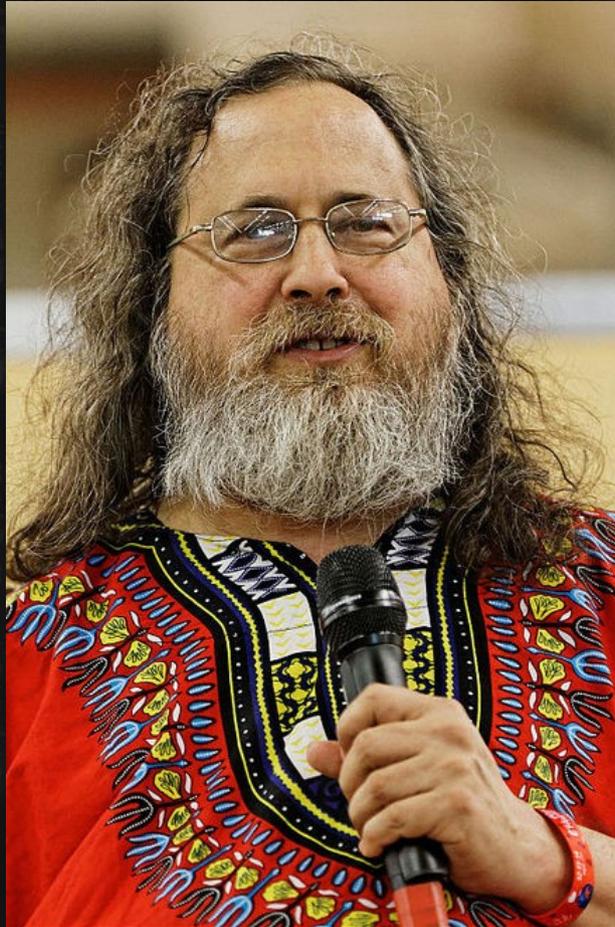
# Richard Stallman:

Weird, picky guy who says crazy things  
about technology



THAT ALWAYS END UP BEING TRUE IN THE LONG RUN  
(more on this later....)

Richard Stallman:  
Also said much worse things and  
got fired from a bunch of places



I had to add this literally this morning. These slides may  
not age well...

# Richard Stallman:

Weird, picky guy who says crazy things,  
e.g

DON'T call it Linux. Call it GNU/Linux!!!

and

They're going to go into your home  
and burn your books!!

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(both of these things are correct, more  
later)

# Linux (Linux Is Not Unix)

From: torvalds@klaava.Helsinki.FI (Linus Benedict Torvalds)  
Newsgroups: comp.os.minix  
Subject: What would you like to see most in minix?  
Summary: small poll for my new operating system  
Message-ID: <1991Aug25.205708.9541@klaava.Helsinki.FI>  
Date: 25 Aug 91 20:57:08 GMT  
Organization: University of Helsinki

Hello everybody out there using minix -

I'm doing a (free) operating system (just a hobby, won't be big and professional like gnu) for 386(486) AT clones. This has been brewing since april, and is starting to get ready. I'd like any feedback on things people like/dislike in minix, as my OS resembles it somewhat (same physical layout of the file-system (due to practical reasons) among other things).

I've currently ported bash(1.08) and gcc(1.40), and things seem to work. This implies that I'll get something practical within a few months, and I'd like to know what features most people would want. Any suggestions are welcome, but I won't promise I'll implement them :-)

Linus (torvalds@kruuna.helsinki.fi)

PS. Yes - it's free of any minix code, and it has a multi-threaded fs. It is NOT protable (uses 386 task switching etc), and it probably never will support anything other than AT-harddisks, as that's all I have :-).



# Should we be calling it **GNU/Linux**?

“Sadly, a kernel by itself gets you nowhere”  
- Linus Torvalds

GNU shells, compilers, userspace system tools,  
libraries. are added.

Also, most importantly:  
GNU GPL is adopted for Linux

This slide is technically incorrect  
(but good enough for now)

### Free Software / FOSS / FLOSS

Here's some code, do what you want, but please  
share back what you do.

### Open Source

Here's some code, do literally whatever you  
want.

# Unix Descendants

(aka, why am I talking about all this?)

- Linux (“real” Linux or GNU/Linux e.g. Ubuntu, Mint, etc.)
- Just the Linux Kernel  
Android
- BSD (very similar, different License)
- Mac Os X, all other Apple operating systems
- Backend of most websites and servers, including FSUs  
or, more simply...

**Unix Descendants**  
(aka, why am I talking about all this?)

**LITERALLY EVERYTHING  
THAT ISN'T WINDOWS**

# Unix Descendants

(aka, why am I talking about all this?)

Speaking of file management...a REALLY good question is:

Why do LOTS of devices these days ship  
WITHOUT easy access to a **file manager**  
– if they have one at all?

...book burning

