

自由软件、开源软件

陈凯杰

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Part I

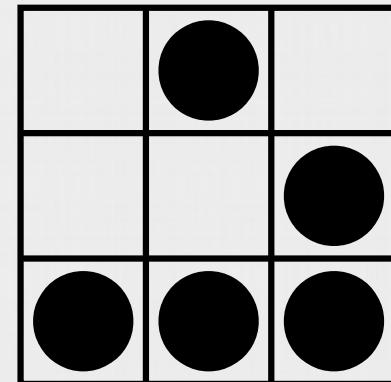
自由软件的发源

起初，这个世界上没有闭源软件

- 软件随着硬件销售
- 并附带源码
- 崇尚学术交流

黑客文化

- Hack (用巧妙的方法解决问题)
- MIT AI Lab
- ARPAnet
- DEC PDP-10
- ITS (CTSS 的反义词)
- Lisp



黑客文化危机

- 1983 年 PDP-10 的后续项目被取消
- 选择：
 - 1.移植 ITS
 - 2.转投其它文化



个人计算机



- Apple II
- IBM PC + MSDOS
- 价格相对低廉
- 硬件规格低
 - 单用户、单任务
 - 无内存保护
 - 没有网络
- 简陋的 BASIC 语言
- 软件不自由

UNIX

- 在工业界与学术界被广泛应用
- 诞生于 1969 年
- AT&T Bell Lab
- 最初作者：
 - Ken Thompson (站)
 - Dennis Ritchie (坐)



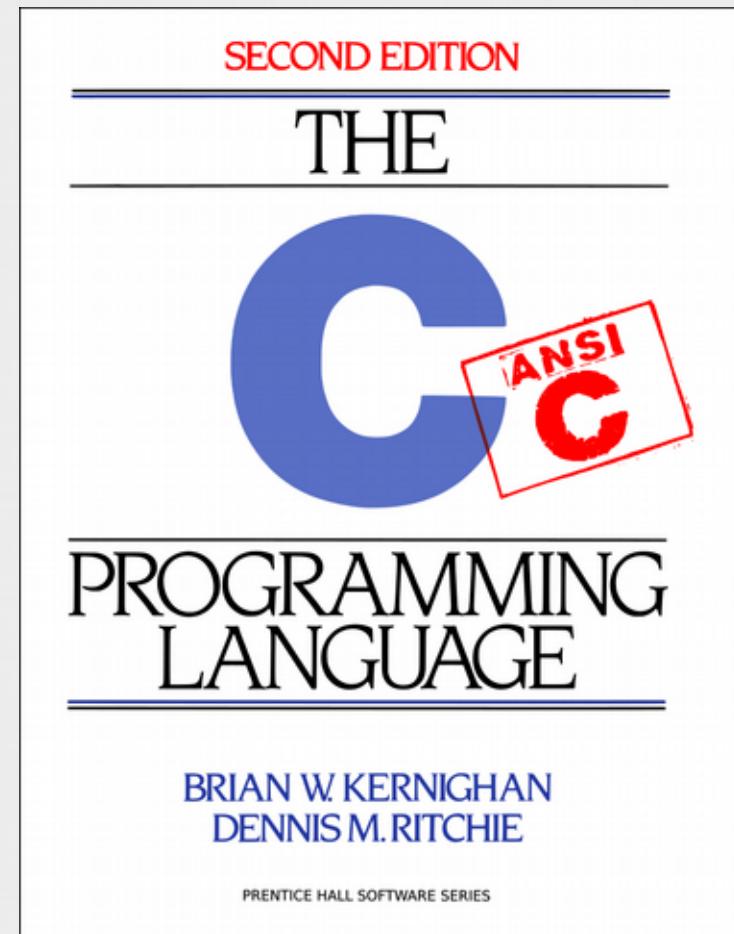
1. KISS 原则

- CTSS 兼容分时系统
- MULTICS (多用户、多任务、多层次)
 - 设计复杂
 - 开发缓慢
- UNIX
 - 继承思想
 - 总结错误，简单小巧

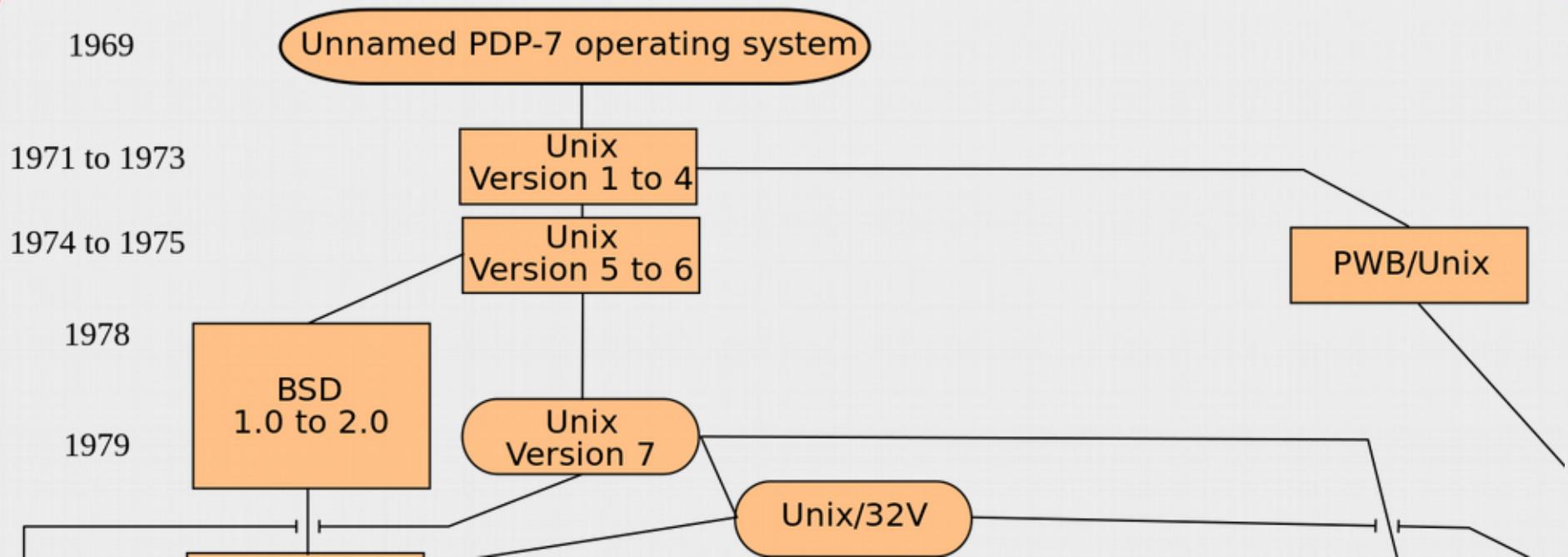


2. 可移植性

- Ken Thompson
- 汇编语言（内核）
- B 语言（应用）
- Dennis Ritchie
- C 语言
 - K.I.S.S.

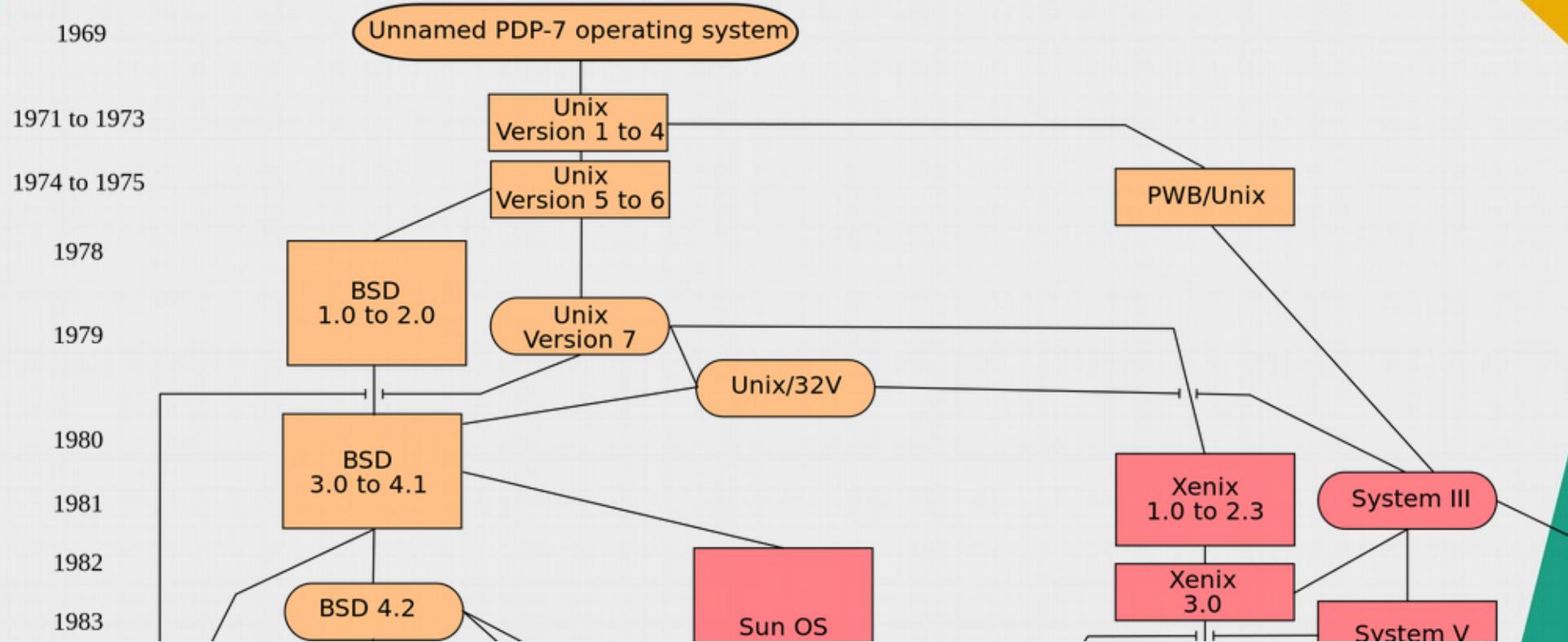


3. 学术交流



- 低价 / 免费授权源码给学术机构 (改进 / 衍生)
- BSD (Berkeley Software Distribution)
 - TCP/IP Berkeley Sockets

好景不长



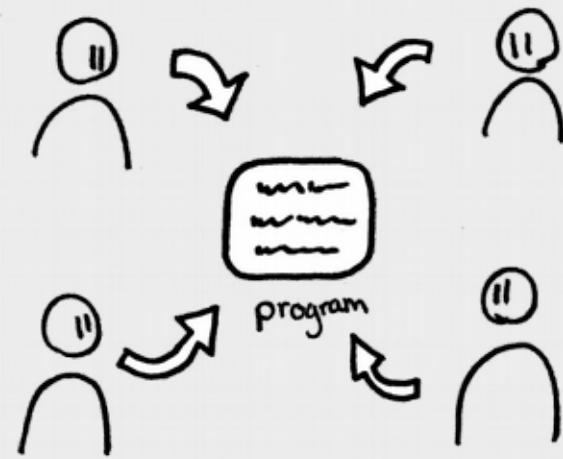
AT&T 意识到了商业价值，收回源码授权，并起诉 BSD
UNIX 也不自由

Part II, Section I

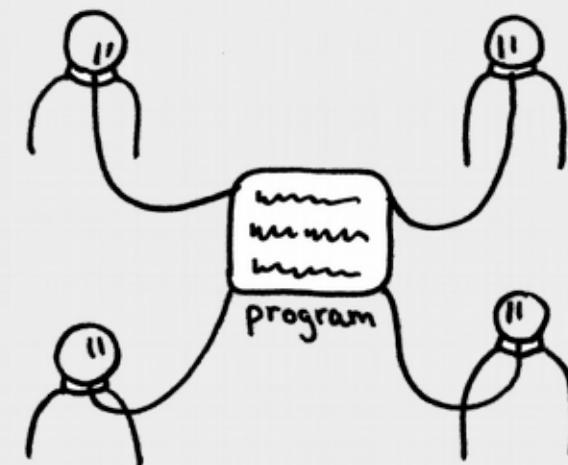
什么是软件自由？

控制程序 / 被程序控制

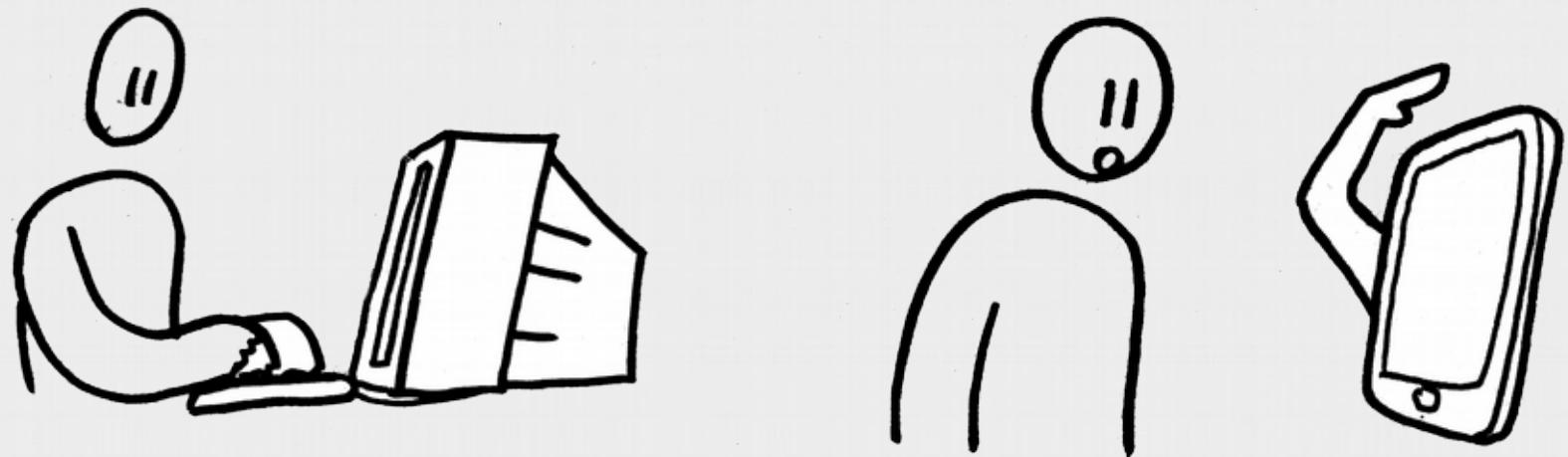
Users control the program



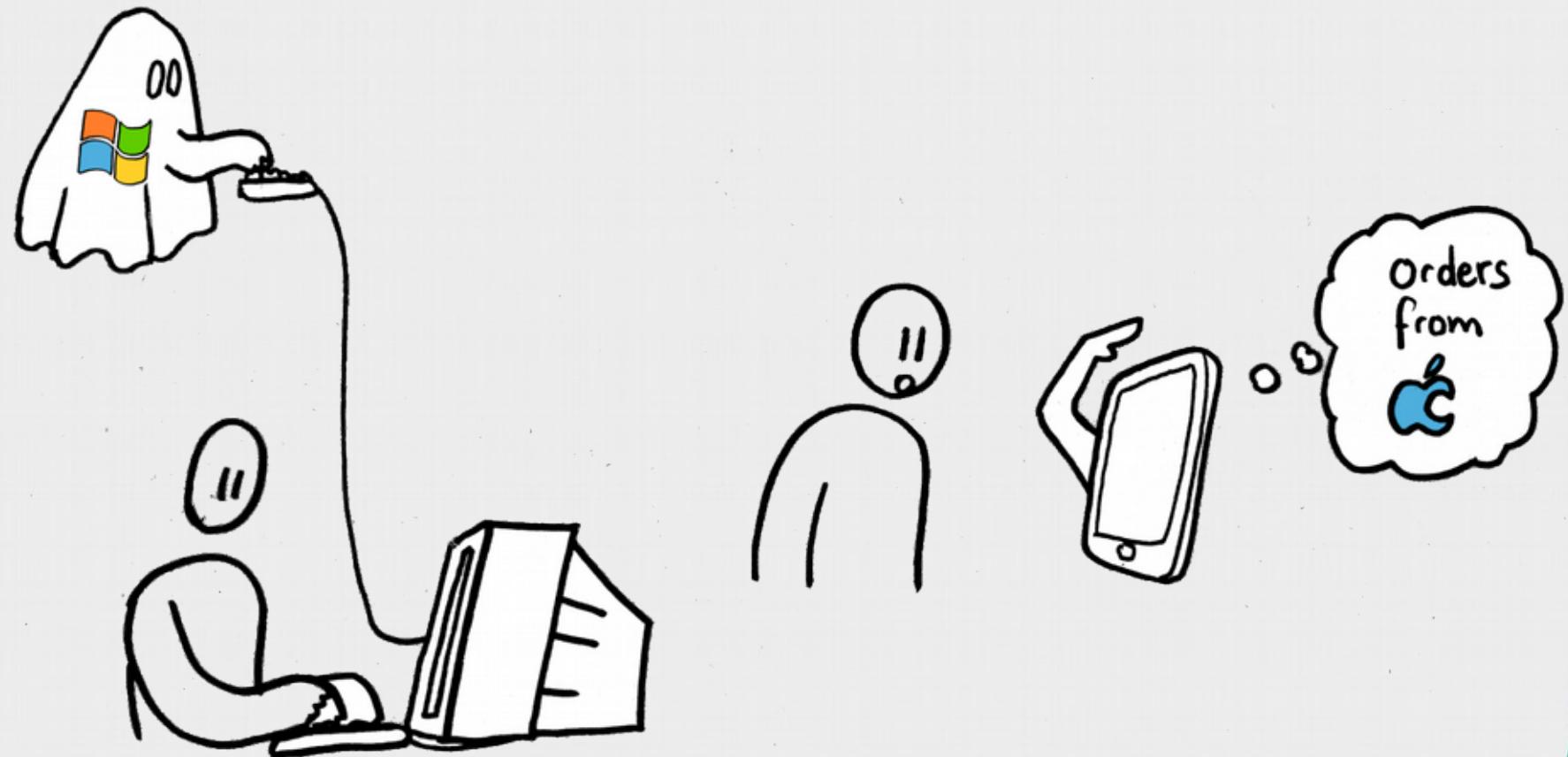
The program controls the users



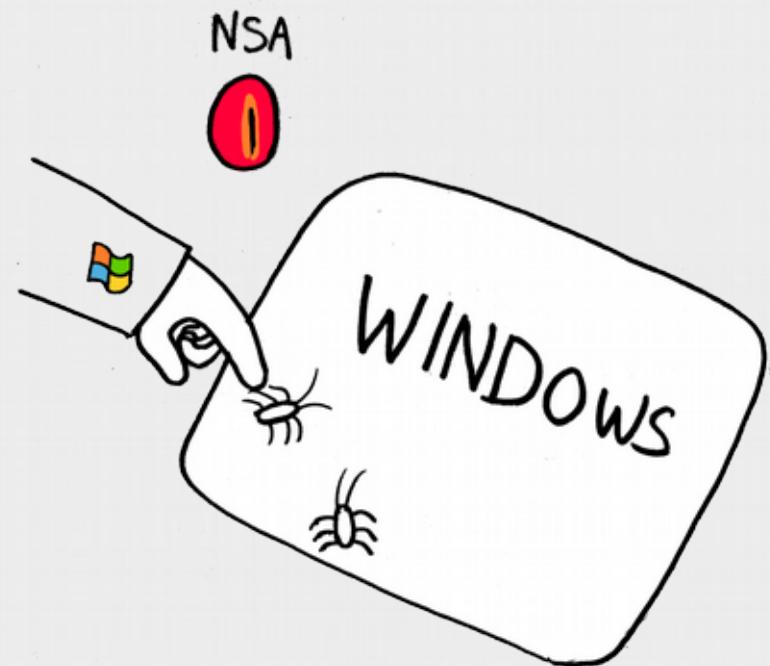
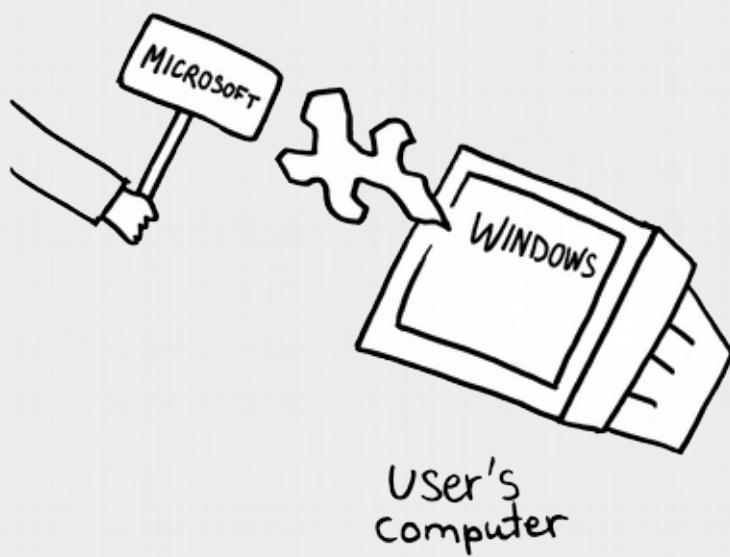
你真的控制了你的计算机？



还是被別人控制？

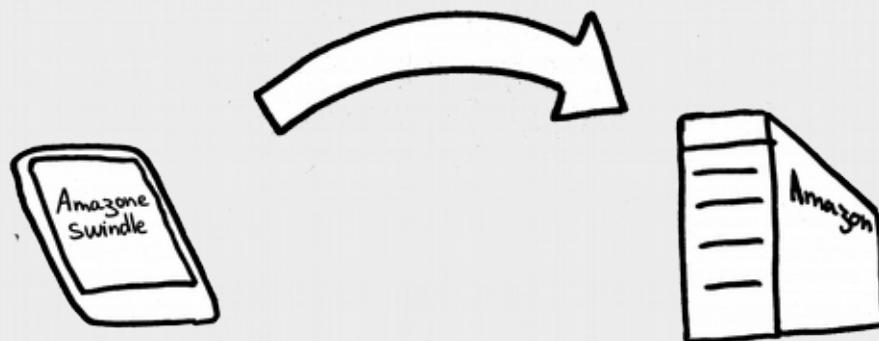


案例 : Microsoft Windows

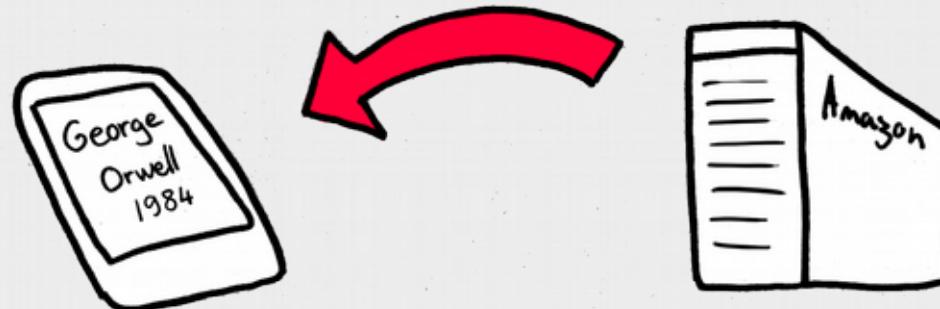


案例：Amazon Kindle

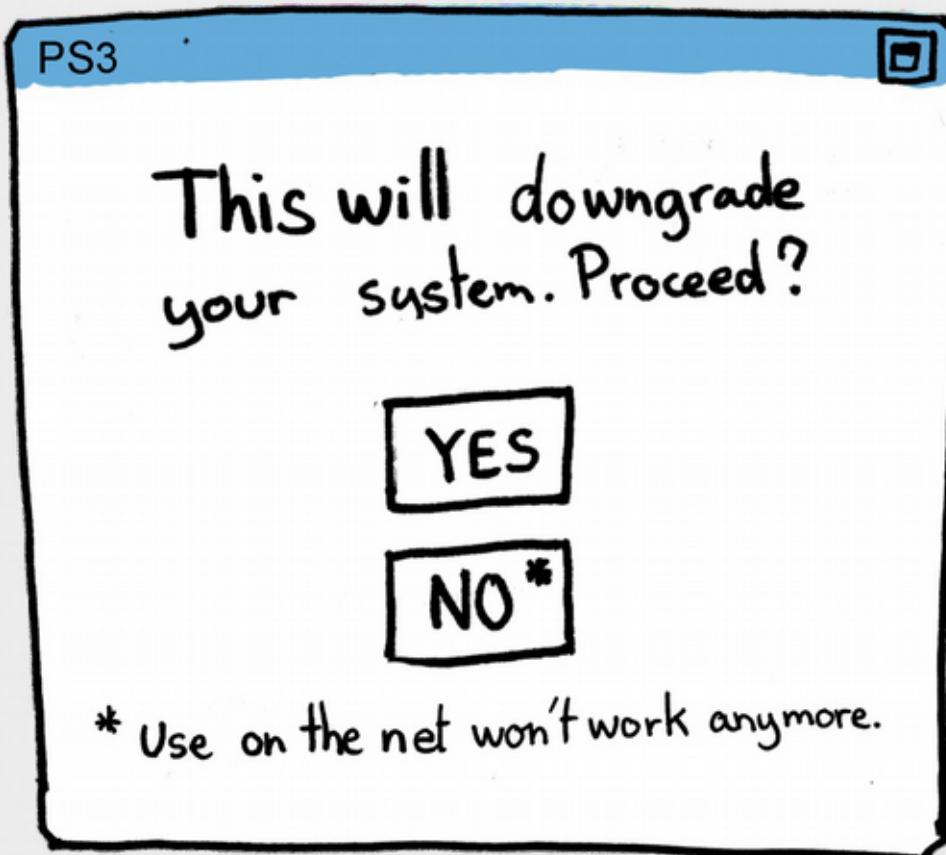
« He's reading page 5 »



« delete 1984 now »



案例：PlayStation 3

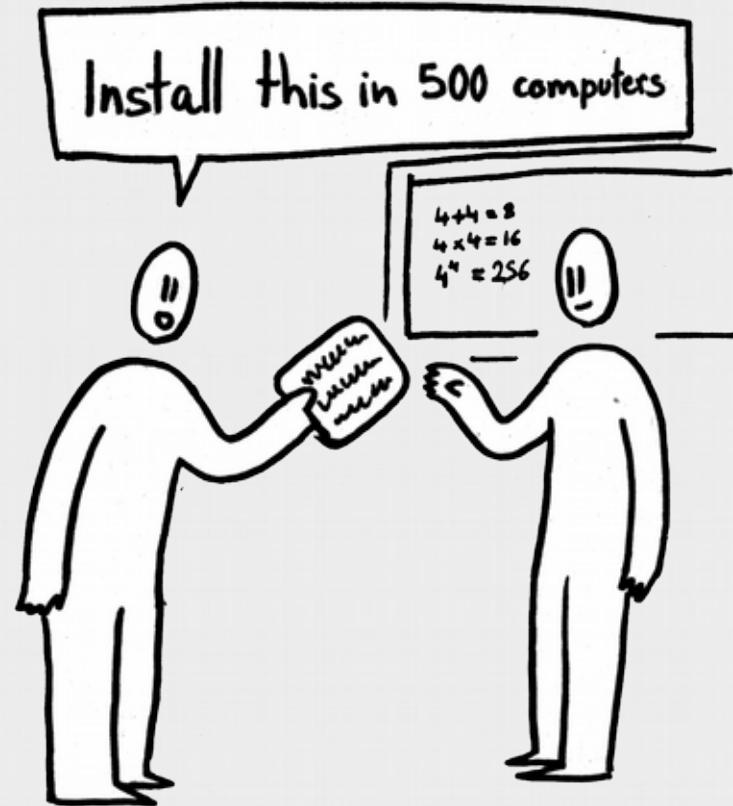


Part II, Section II

什么是自由软件？

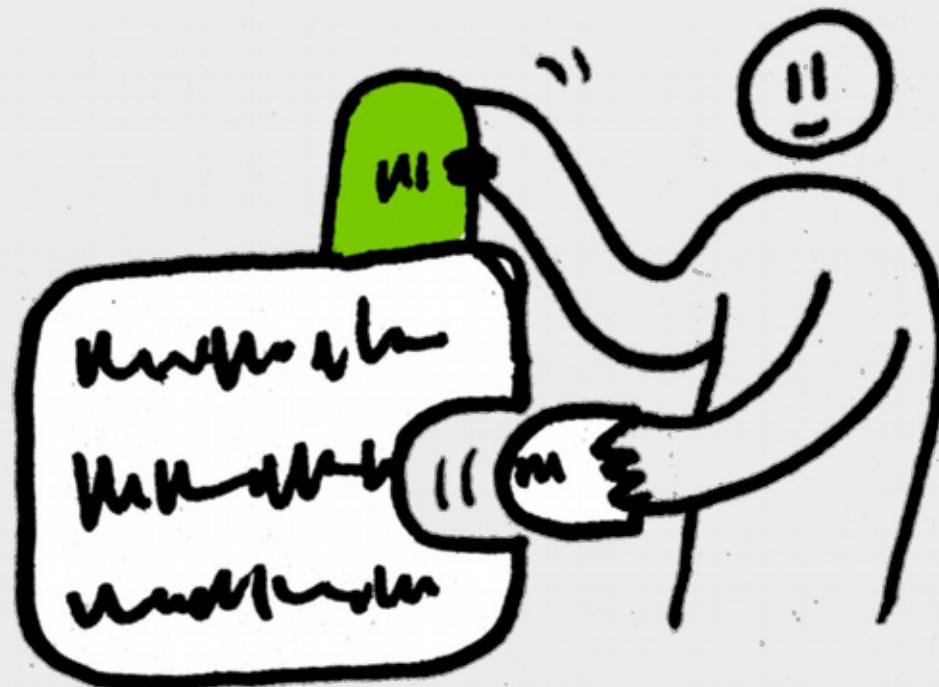
自由 0: 自由运行

Freedom 0
Run it



自由 1: 自由学习和修改

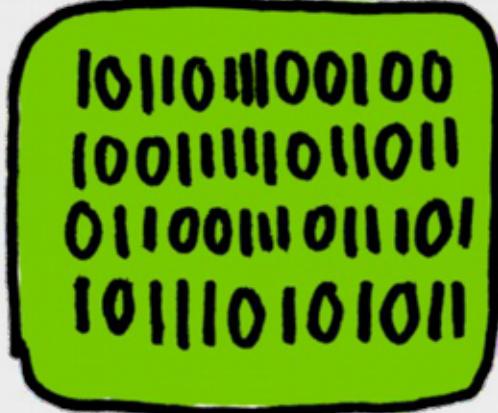
Freedom 1 – change it



学习修改的前提：开放源代码

```
main ()  
{  
printf ("Hello,  
world! \n");  
}
```

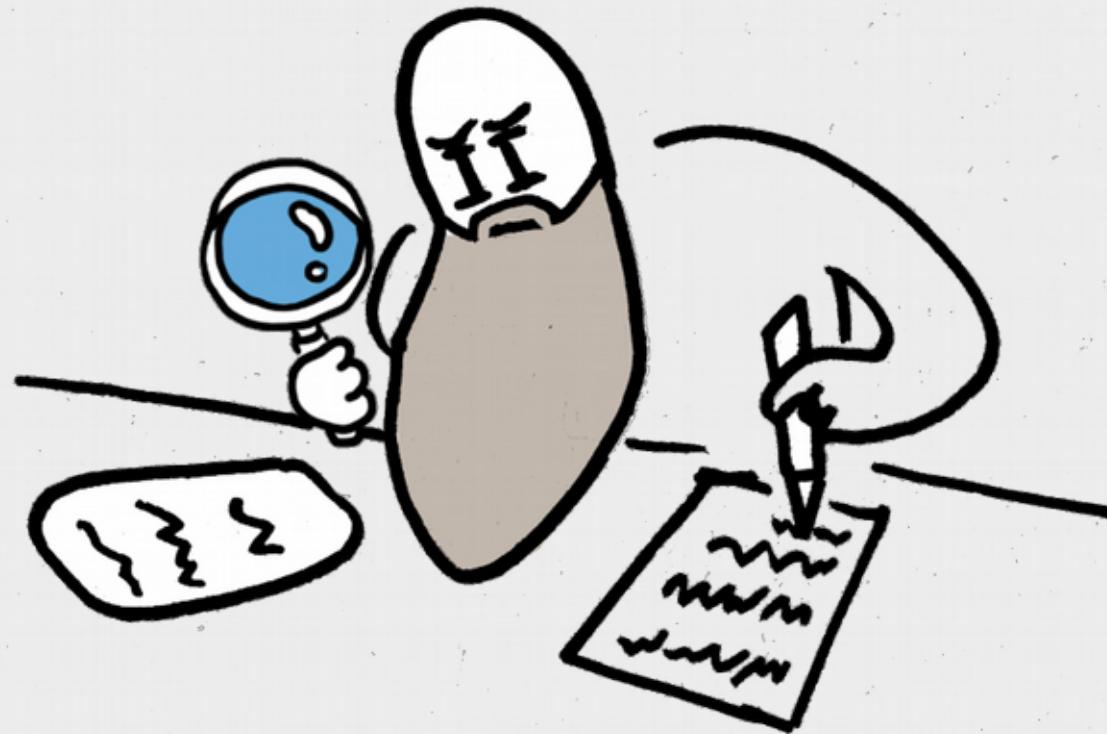
Source



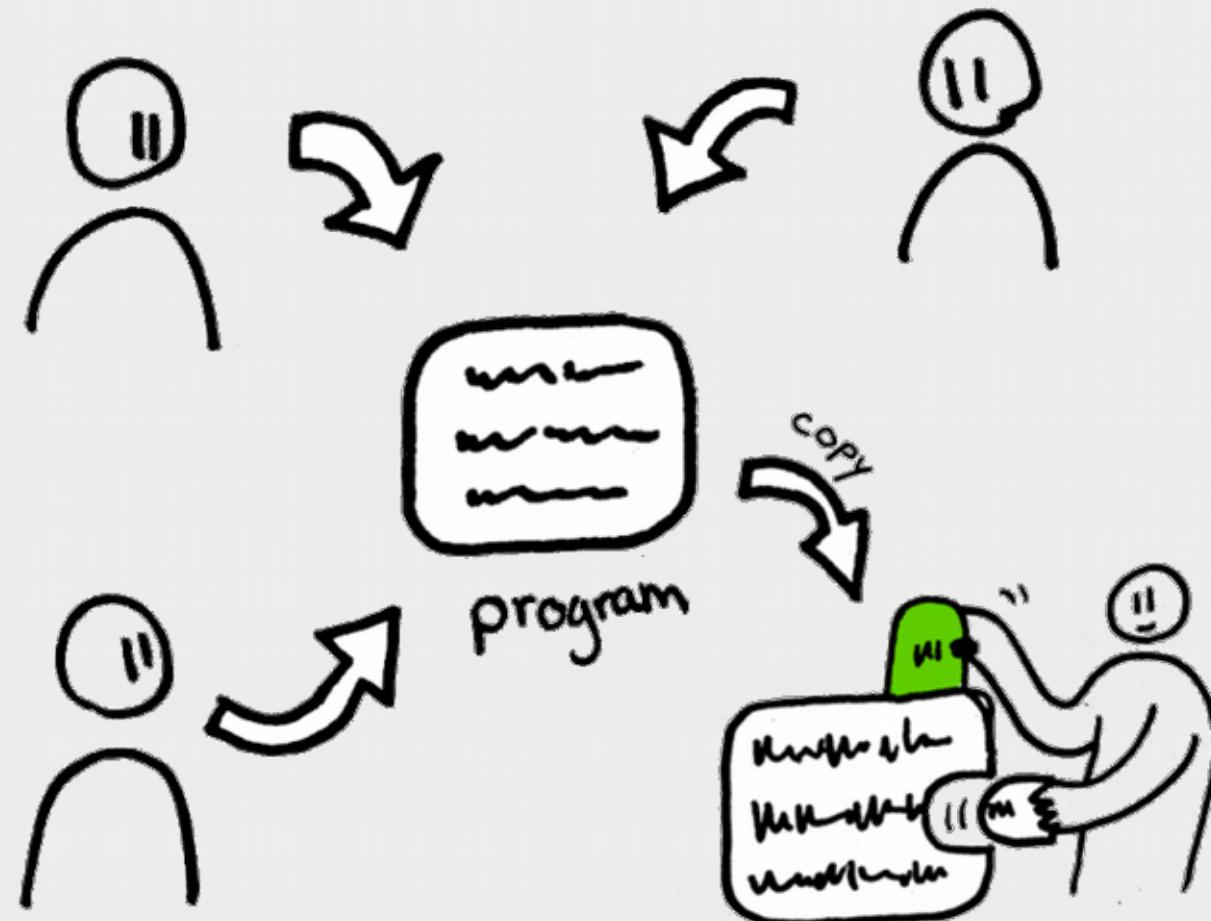
```
101101100100  
1001111011011  
0110011011101  
101110101011
```

Executable

逆向工程：费时费力



自由 0, 1 : 个体的自由

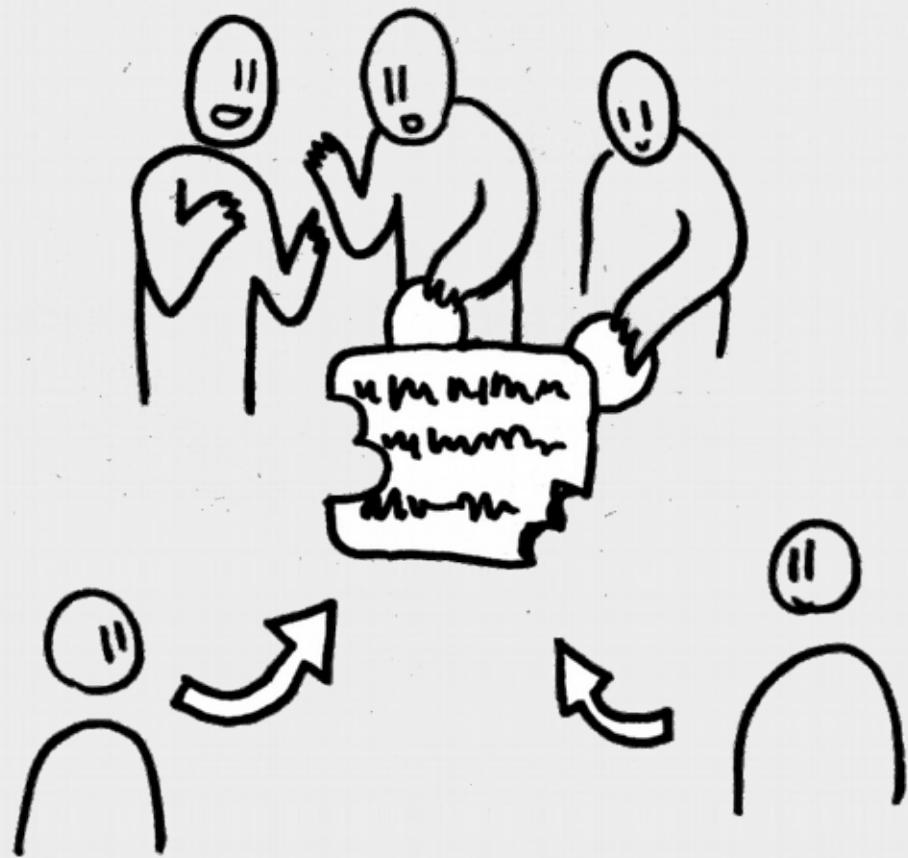


不懂编程？

Not a programmer ?



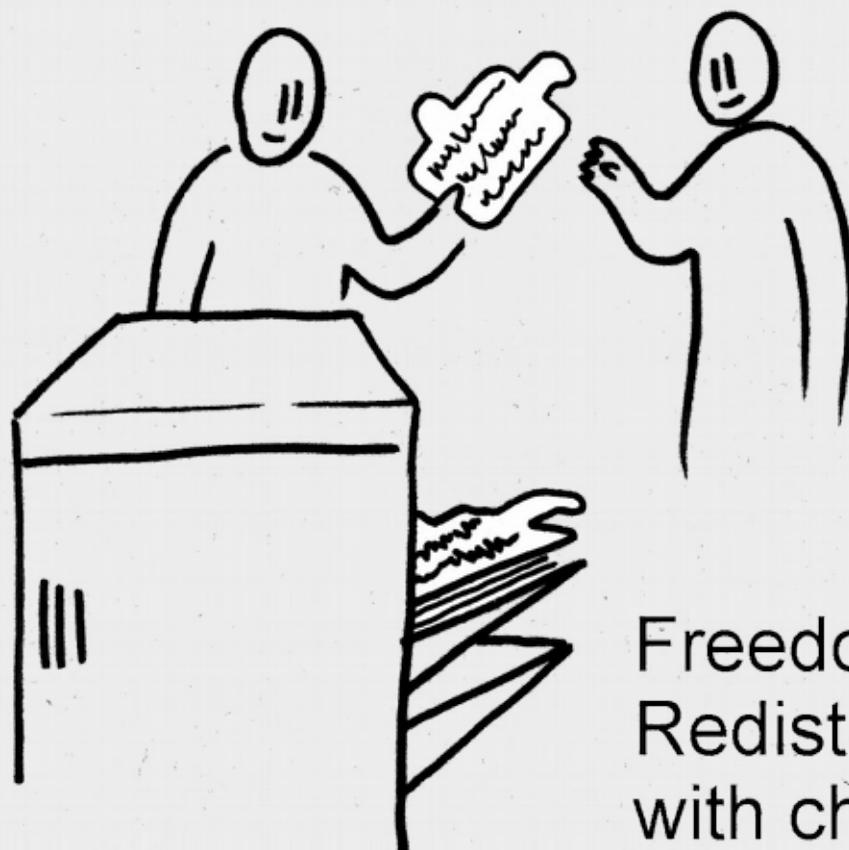
自由 2, 3: 群体的自由



自由 2：自由分发



自由 3: 自由分发修改后的版本



Freedom 3
Redistribute
with changes

Part III

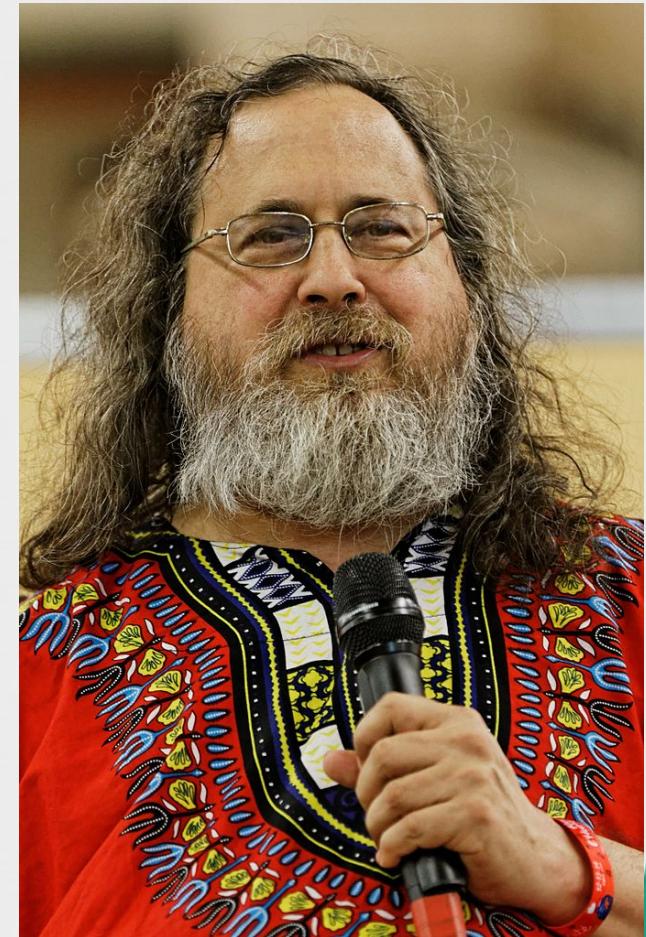
自由软件的历史

另一条路：自由软件运动

- 1983年9月
- 建立一个自由的操作系统
- Richard Matthew Stallman

代表作：

- GCC
- GDB
- Emacs



GNU 计划

自由的类 UNIX 操作系统

GNU is Not Unix

旁注：递归缩写

PNG is Not GIF

WINE Is Not an Emulator

Bing Is Not Google

Tsinghua University TUNA Association



GNU 的发展

- 1984 开始开发 Emacs
 - 1985 GNU 宣言
 - 1989 GNU 的其他部份：
编辑器、编译器、shell 等
都已经完成
- GPL v1 发布
独缺操作系统内核



```
#!/bin/bash
```

General Public License

- Copyleft (Copyright 的反义词)
- 任何以 GPL 发布的代码，
其衍生作品也必须采用 GPL ，
以保证自由软件永远的自由。



GNU Hurd



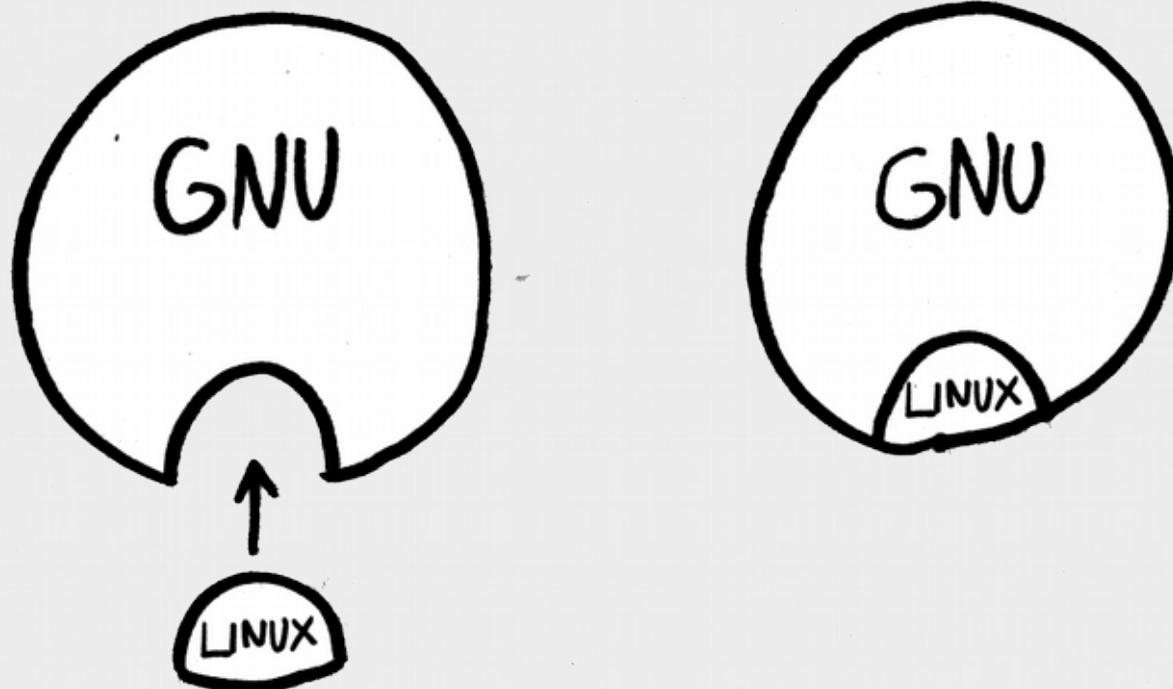
- GNU 的内核
- 1990 年开始开发
- ...

Linux 诞生

- 1985 Intel 80386
- 1987 Minix
- 1991 Linux
 - GPLv2
- Linus Torvalds
 - 代表作：
 - Linux
 - Git



GNU/Linux



comp.os.minix

Hello everybody out there using minix-
I'm doing a (free) operation system
(just a hobby, won't be big and
professional like gnu) for 386(486) AT
clones.

来自互联网的贡献者

The screenshot shows the GitHub repository page for `torvalds / linux`. The repository is described as the "Linux kernel source tree". Key statistics displayed include 705,960 commits, 1 branch, 526 releases, and contributions from many users. A recent commit by `torvalds` was merged 11 hours ago. The page includes standard GitHub navigation links like "Code", "Pull requests", "Projects", and "Insights".

torvalds / linux

Watch 5,827 Star 49,649 Fork 18,557

Code Pull requests 169 Projects 0 Insights

Linux kernel source tree

705,960 commits 1 branch 526 releases contributors GPL-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download

torvalds Merge tag 'trace-v4.14-rc1' of git://git.kernel.org/pub/scm/linux/ker... ... Latest commit c52f56a 11 hours ago

Screenshot from 2017-09-21 12:05:54

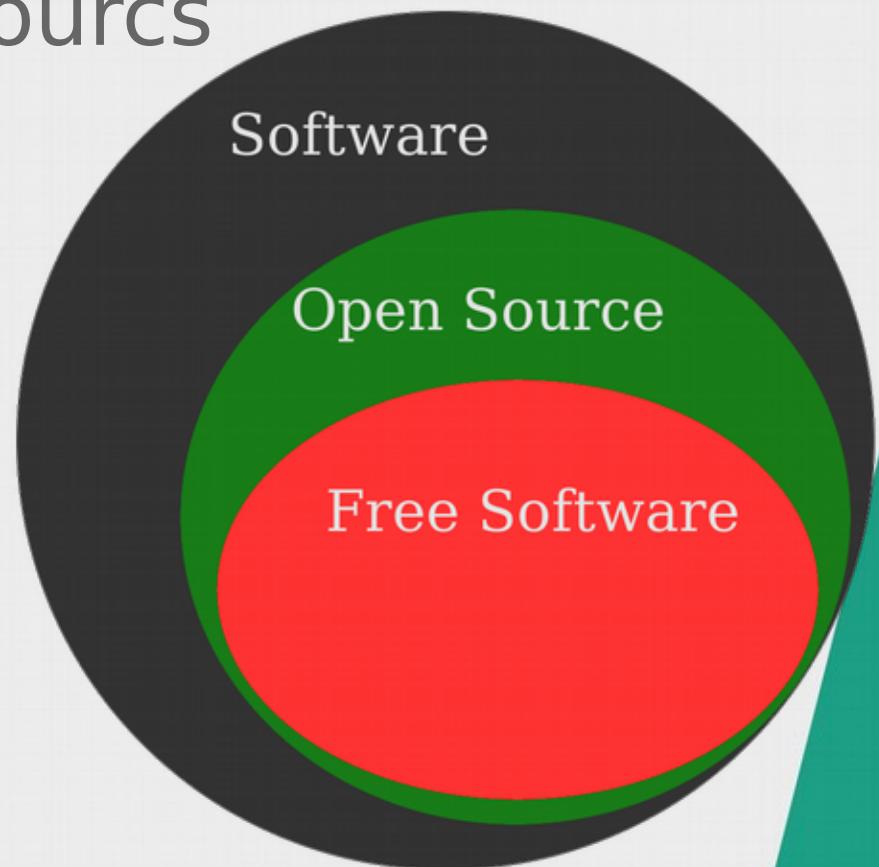
开源

- Free Software 这个词不利于商业宣传
- 「更多眼睛的关注下，BUG 更难藏身。」



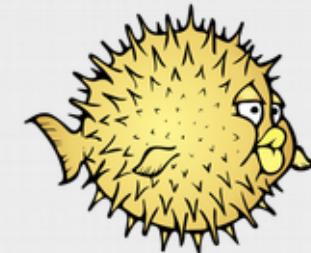
自由软件和开源软件

- 「开放源码是一种开发软件的方法论；自由软件则是社会运动。」
- FOSS (Free & Open Sources Software)



BSD

- 要靠自我奋斗，也要考慮到历史的行程
- 1993
- BSD License
- Apple macOS / iOS Darwin 内核
- Sony PlayStation 4 操作系统
- pfSense, FreeNAS

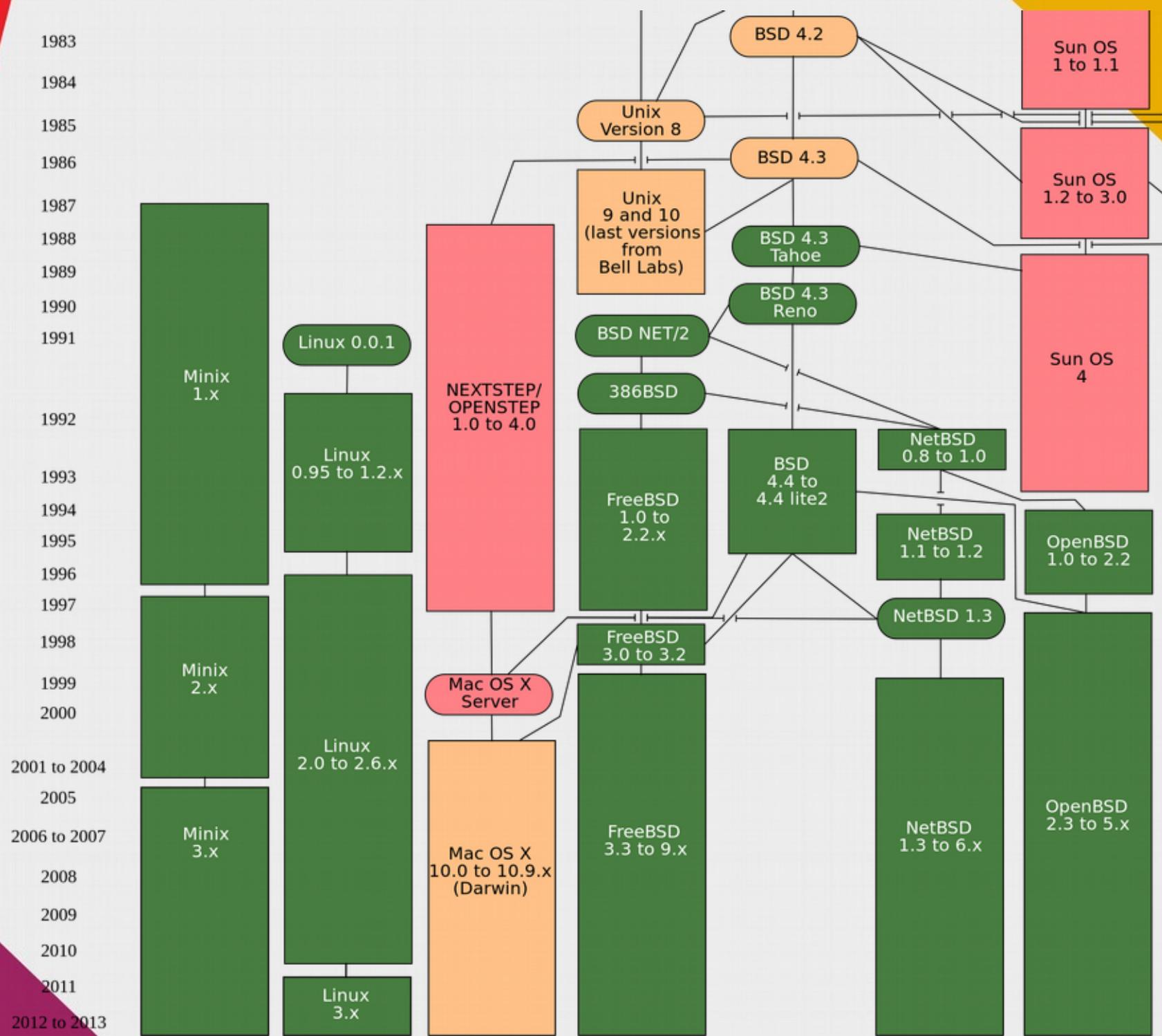


OpenBSD



FreeBSD®



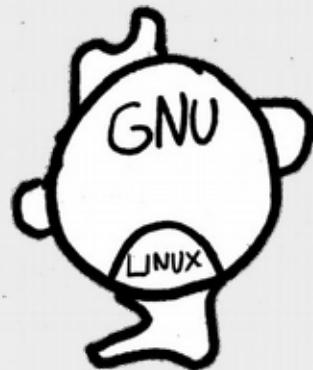


Part IV

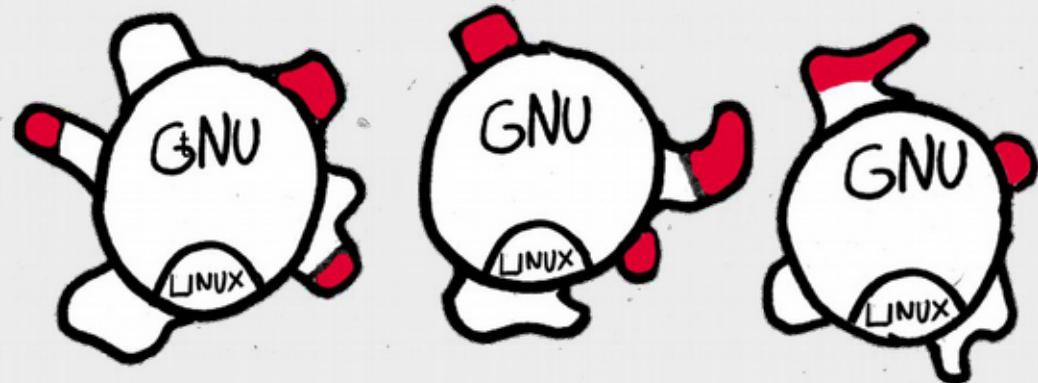
GNU/Linux 发行版

GNU/Linux 发行版

100 % free



Mostly free



= non free programs

Debian

- 通用操作系统
- 重视自由 (main contrib non-free)
- 稳定 (stable testing unstable)
- 最大的社区
- 最多软件包
- 西电开源社区服务器使用的操作系统

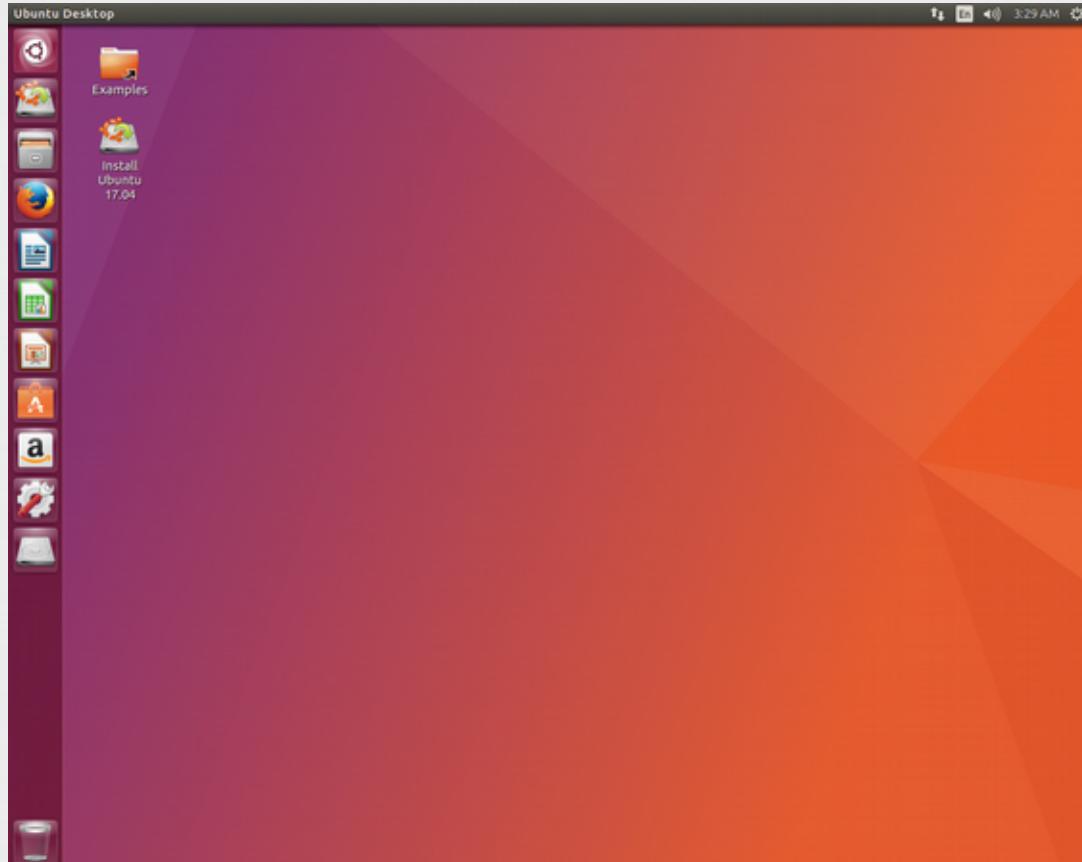


debian

Ubuntu

- 基于 Debian
- 用户友好
- 界面美观
- 最大占有率
- 许多流行框架的
官方平台

ubuntu 



deepin

- 基于 Debian
- 为国内用户定制
- 甚至预装了
 - QQ
 - 搜狗输入法
 - 网易云音乐
- 用户友好
- 界面美观



CentOS

- RHEL 的社区版本
- 面向服务器
- 重视开源
- 西电睿思用的操作系统



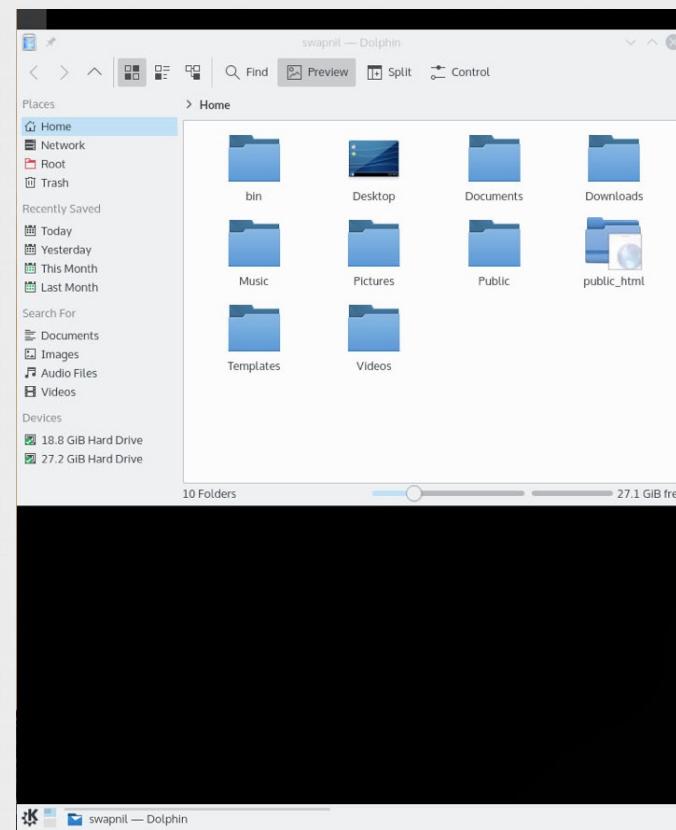
Fedora

- Red Hat 的试验田
- 面向桌面
- 重视开源
- 技术新
- 可能不够成熟



openSUSE

- 面向桌面
- 用户友好
- 美观
- YaST 很好用
- 请 river 介绍吧



Archlinux

- 用户定制
- 轻量简单
- 滚动更新
- 不重视自由
- 我正在用的（逃



Gentoo

- 完全定制
- 从源码编译
- 多种架构
- “元发行版”



数以百计的发行版

2017-09-18	DistroWatch Weekly, Issue 730
 DistroWatch Weekly	<p>This week in DistroWatch Weekly:</p> <ul style="list-style-type: none"> • Review: Mageia 6 • News: Manjaro coming pre-installed on laptops, KDE's Plasma on Purism's phone, HAMMER2 coming to DragonFly BSD's installer • Questions and answers: Benefits and drawbacks of using completely free operating systems • Released last week: CentOS 7-1708, Parrot Security OS 3.8, Univention Corporate Server 4.2-2 • Torrent corner: ArchLabs, ASTRUMI, CentOS, Manjaro, NuTyX, Parrot Security, Q4OS, SmartOS, Univention • Upcoming releases: Fedora 27 beta • Opinion poll: Graphical control panel vs text files • New additions: Star • Reader comments <p>Read more in this week's issue of DistroWatch Weekly....</p>
2017-09-17	Distribution Release: ArchLabs 2017.09
 ArchLabs  Rate this project	<p>ArchLabs is an Arch-based Linux distribution featuring the Openbox window manager. The project's latest snapshot, ArchLabs 2017.09, introduces several new changes, including a welcome script which runs when the user first logs in: "Minimo has undergone some fine tuning, mainly with the addition of a brilliant Hello/Welcome script written by Nate. Known as AL-Hello, this script will aid in (for those of you who are in a hurry, or just can't be bothered installing one by one) the addition of extra software that we don't include out of the box. You can install up to 60 different apps and utilities, including image and video apps, web browsers, editors office apps and many more. As well as installing apps with the new AL-Hello script you can choose your default panel, be it Tint2 or Polybar. Install NVIDIA or Bumblebee drivers as well. Super easy." A detailed list of changes, along with screen shots showing off new features, can be found in the project's release announcement. Download (MD5): archlabs-minimo-2017.09.iso (912MB, pklist). Also available from OSDisc.</p>
2017-09-17	Development Release: FreeBSD 10.4-RC1
 FreeBSD  Rate this project	<p>Marius Strobl has announced the availability of the first release candidate for FreeBSD 10.4, an upcoming new stable release in the project's legacy 10.x branch: "The first RC build of the 10.4-RELEASE release cycle is now available. Noteworthy changes since 10.4-BETA4: an upstream fix for zlib compression has been merged, the bug had caused the embedded Tomcat web server of UniFi Controllers to send out incorrectly compressed responses; the Linux stats type is now aware of ZFS; abug in bsdinstall(8) causing ifconfig_<INTERFACE> lines to be added to /etcifcfr.conf for unsuccessful DHCP attempts has been addressed; the usermod command of the pw(8) utility now correctly handles empty secondary group lists and its useradd command will no longer add entries with invalid user names, e. g. ones containing spaces; the zfs(8) error message displayed when rejecting a checksum selection now no longer suggests unsupported hash algorithms itself." See the full release announcement for further information. Here are the download links for the amd64 and i386 architectures: FreeBSD-10.4-RC1-amd64-dvd1.iso (2,901MB, SHA512), FreeBSD-10.4-RC1-i386-dvd1.iso (2,683MB, SHA512).</p>

页面点击次数排名		
资料范围:		
Last 6 months 确定		
名次	发行	HPD*
1	Mint	2667▼
2	Debian	1966▼
3	Manjaro	1791▼
4	Ubuntu	1416▲
5	Antergos	1298▲
6	openSUSE	1010▼
7	Fedora	970-
8	deepin	892▼
9	Solus	876▲
10	Zorin	826▼
11	elementary	783-
12	TrueOS	722▲
13	CentOS	673-
14	Arch	635-
15	PCLinuxOS	604▼
16	ReactOS	555-
17	Lite	532▼
18	Kali	519▲
19	Mageia	452-
20	KDE neon	438-
21	Lubuntu	413-
22	antiX	399-
23	MX Linux	389-
24	FreeBSD	366▲
25	LXLE	366▼
26	Puppy	365-
27	Ubuntu MATE	358-
28	Tails	334-
29	Peppermint	331-
30	Devuan	324▲
31	Parrot	314-
32	Android-x86	306-
33	Slackware	303-
34	Ubuntu Budgie	303▼
35	SoarkvLinux	297-

distrowatch.com

Part V

为什么用自由软件？

为什么用 GNU/Linux

- 安全、隐私
- 高质量、稳定可靠
- 自由、可定制、避免重复发明轮子
- 开源、可学习
- 免费、省资源
- 新技术涌现的平台

: () { : | :&} ; :

We tell people we use Linux because it's secure. Or because it's free, because it's customizable, because it's free (the other meaning), because it has excellent community support...

But all of that is just marketing bullshit. We tell that to non-Linuxers because they wouldn't understand the real reason. And when we say those false reasons enough, we might even start to believe them ourselves.

But deep underneath, the real reason remains.

We use Linux because it's fun.

It's fun to tinker with your system. It's fun to change all the settings, break the system, then have to go to recovery mode to repair it. It's fun to have over a hundred distros to choose from. It's fun to use the command line.

Let me say that again. It's fun to use the command line.

No wonder non-Linuxers wouldn't understand.

The point with Linux fans is we use Linux for its own sake. Sure, we like to get work done.

Sure, we like to be secure from viruses. Sure, we like to save money.

But those are only the side effects. What we really like is playing with the system, poking around, and discovering fascinating facts about the software that lies underneath it.

第一次学习编程



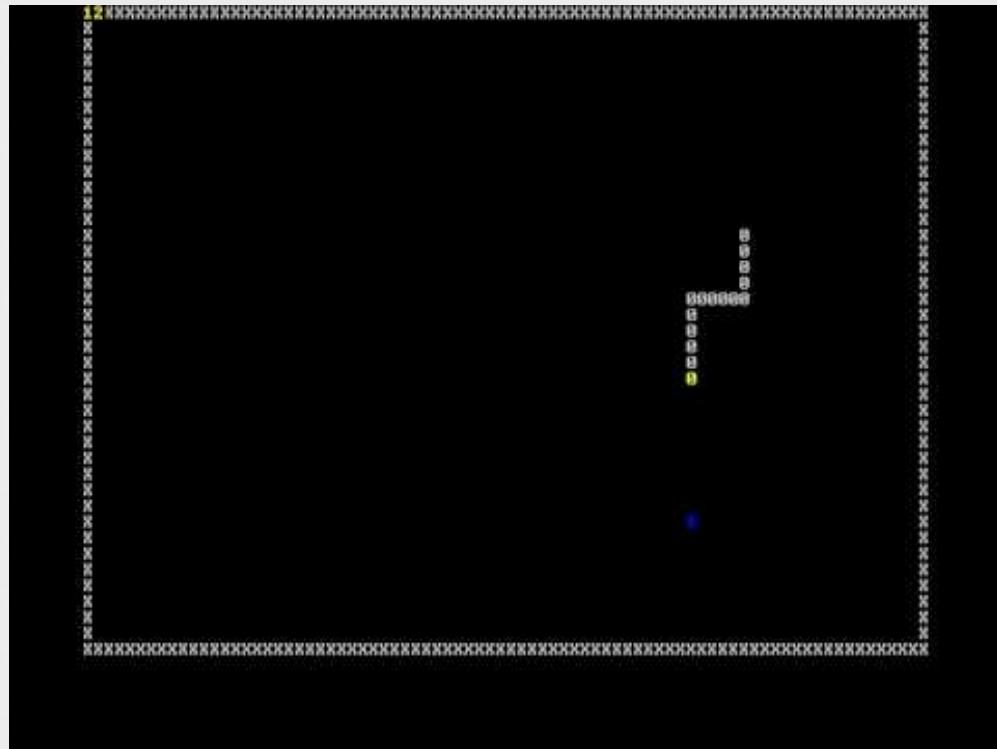
The screenshot shows the Free Pascal IDE interface. The menu bar includes File, Edit, Search, Run, Compile, and Debug. A status bar at the bottom right displays the word "pausa". The code editor contains the following Pascal program:

```
program pausar;
uses crt;

begin
  clrscr;
  writeln('Los colores primarios son');
  delay(1000);
  writeln('1- Azul');
  delay(1000);
  writeln('2- Amarillo');
  delay(1000);
  writeln('3- Rojo');
  readkey;
end.
```

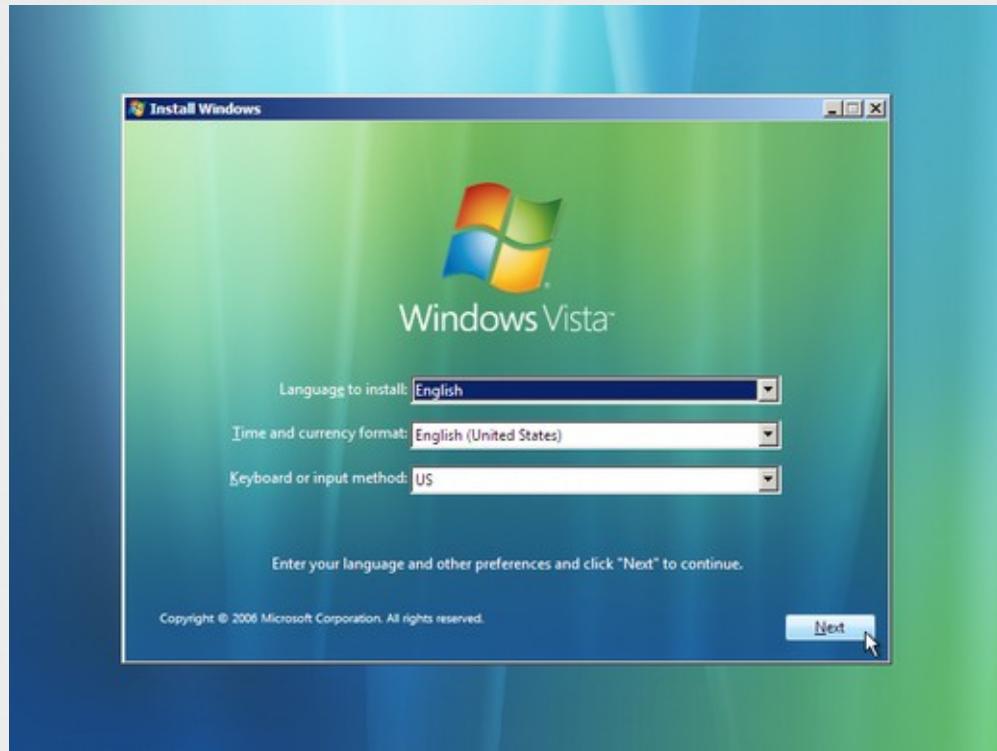
- 有趣指数：★★★★★
- 害怕指数：☆

第一次写游戏



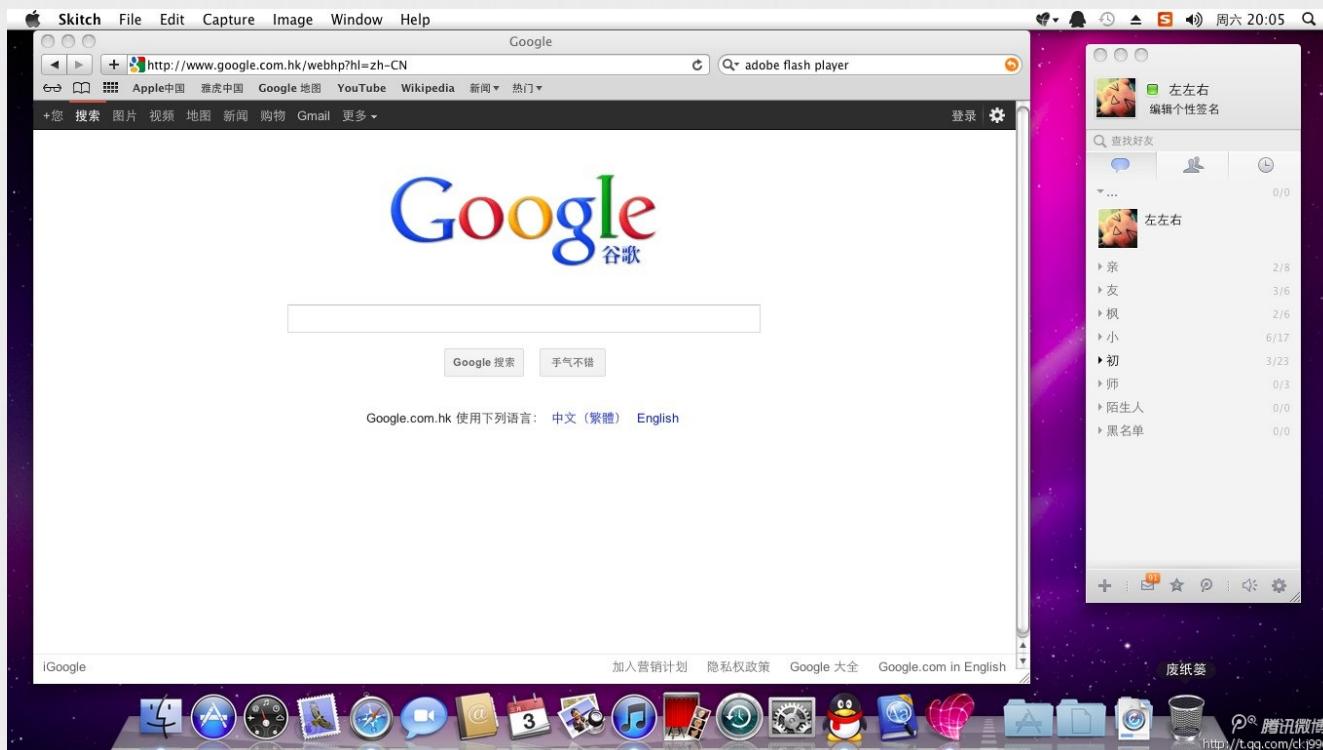
- 有趣指数：★★★★★
- 害怕指数：☆

第一次装操作系统



- 有趣指数：★★★★★
- 害怕指数：★★★

第一次折腾 Hackingtosh



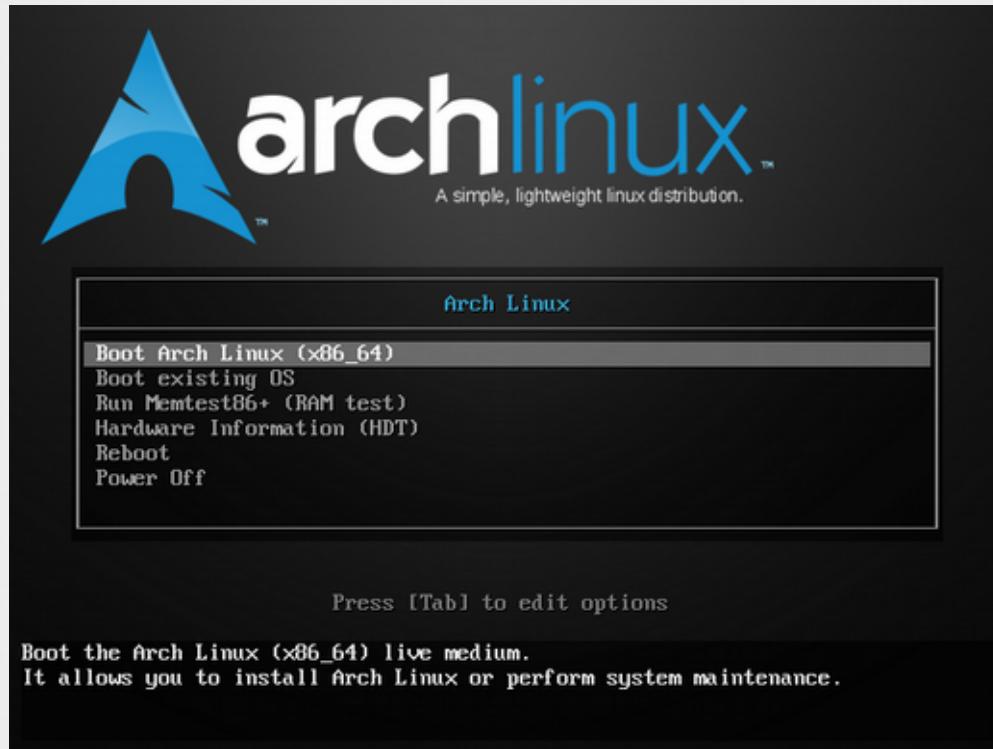
- 有趣指数 : ★★★★★
- 害怕指数 : ☆

第一次装 Ubuntu



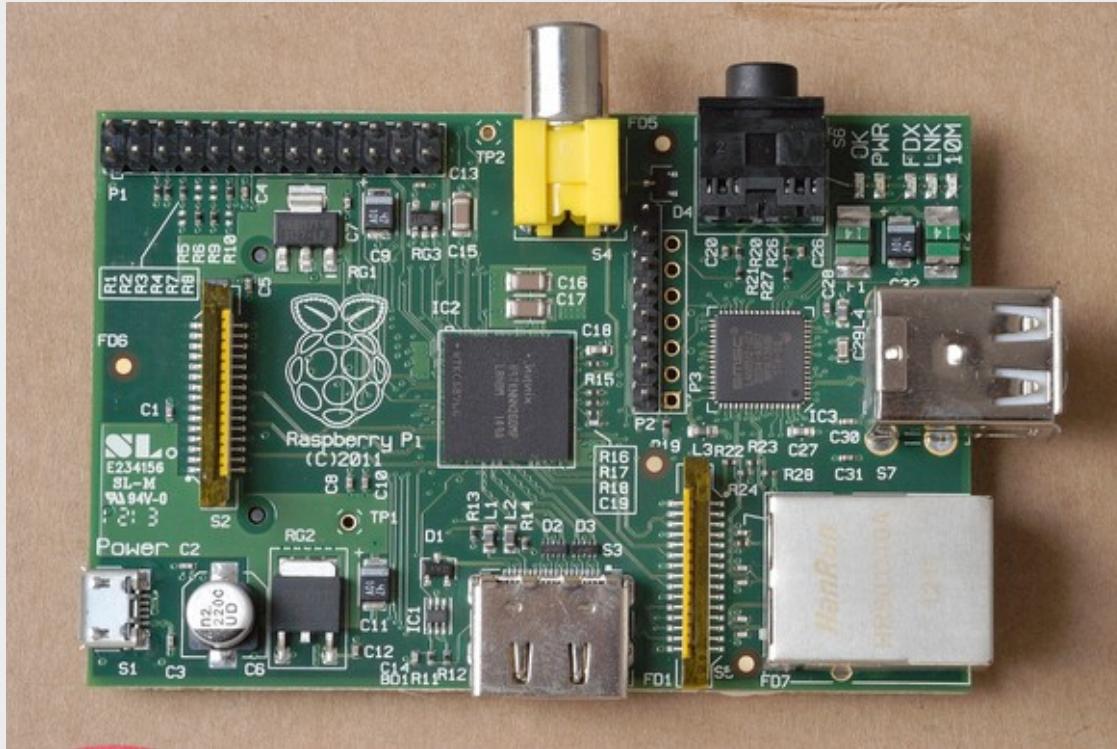
- 有趣指数：★★★★★
- 害怕指数：☆

第一次装 Archlinux



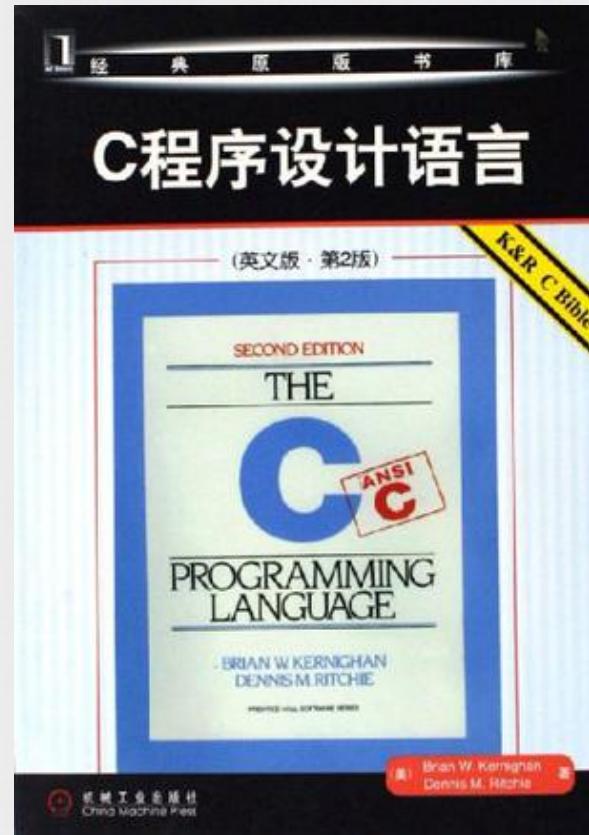
- 有趣指数：★★★★★
- 害怕指数：☆

第一次玩树莓派



- 有趣指数：★★★★★
- 害怕指数：★★★

第一次学 C



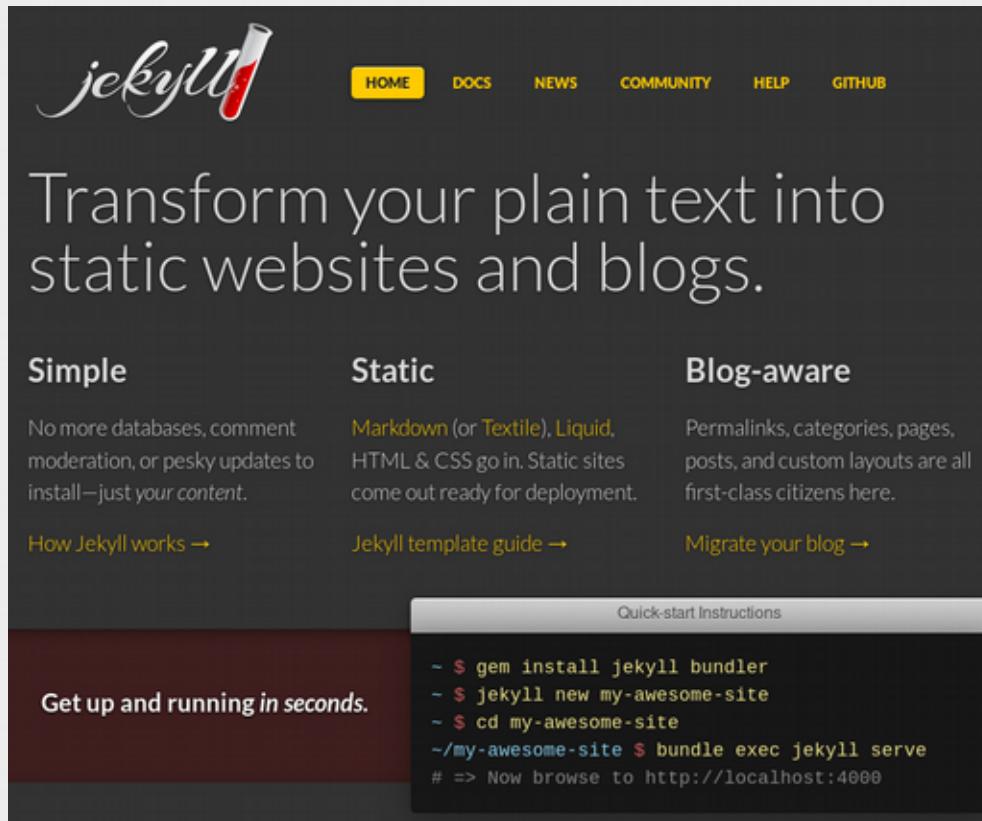
- 有趣指数：★★★★★
- 害怕指数：☆

第一次加入西电开源社区



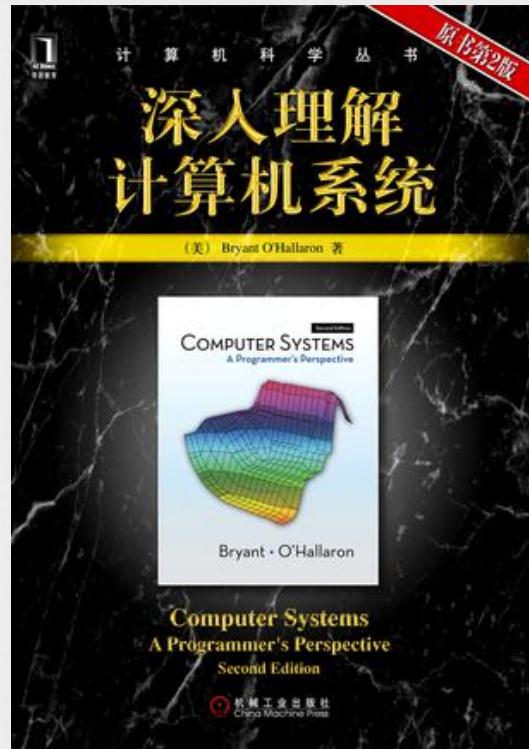
- 有趣指数 : ★★★★★
- 害怕指数 : ★★★

第一次搭一个博客



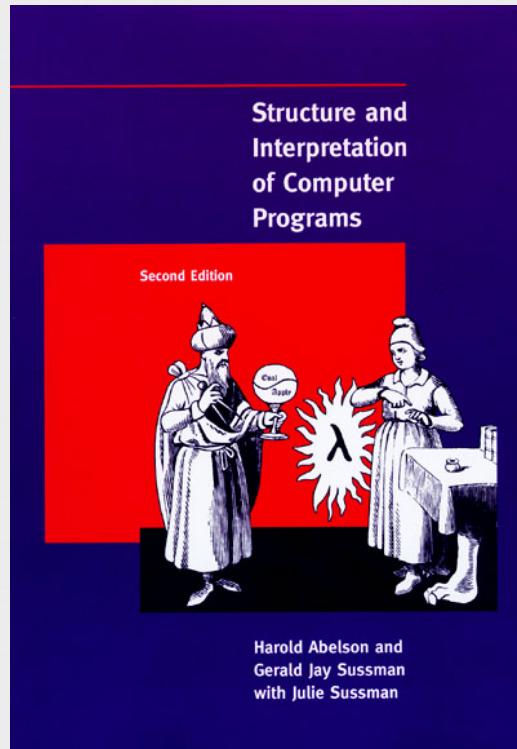
- 有趣指数：★★★★★
- 害怕指数：☆

第一次做各种 Lab



- 有趣指数：★★★★★
- 害怕指数：☆

第一次接触函数式编程

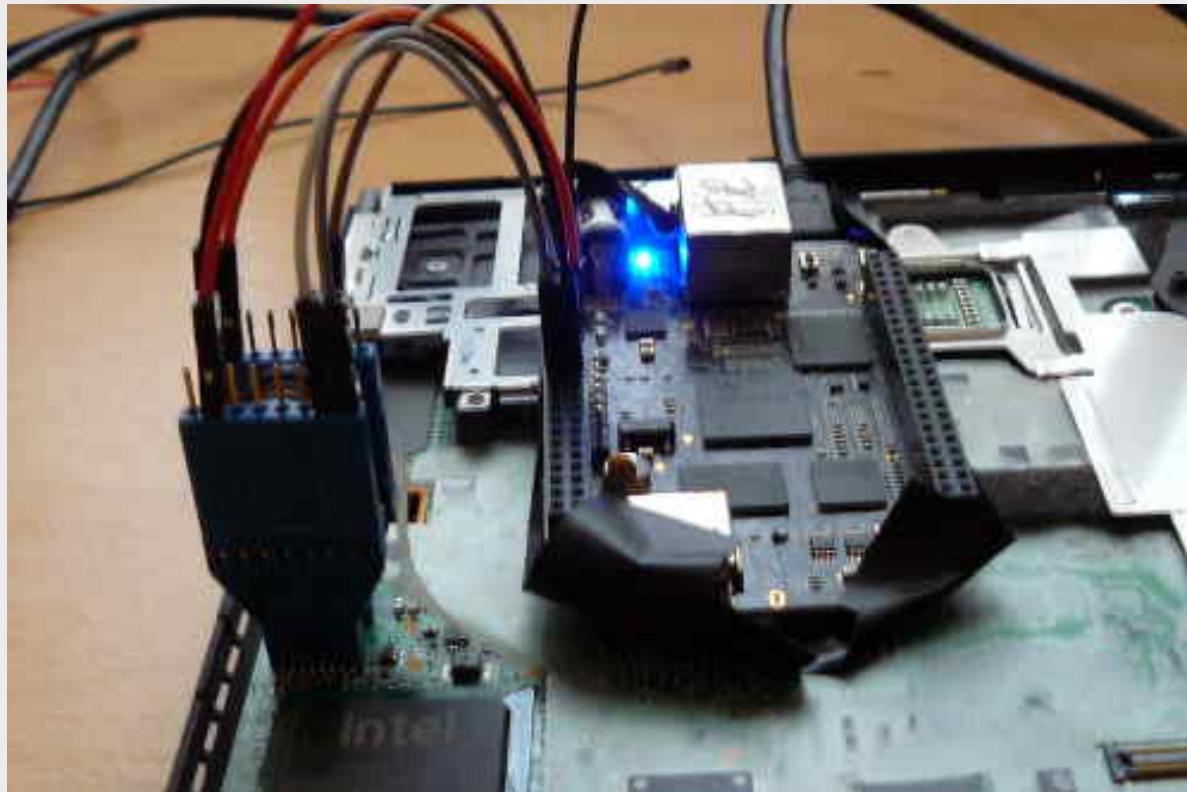


- 有趣指数：★★★★★
- 害怕指数：☆

第一次刷 LEDE

- 有趣指数：★★★★★
 - 害怕指数：★★★

第一次刷 Libreboot



- 有趣指数：★★★★★
- 害怕指数：★★★

第一次向 Debian 提交 Patch

Debian Bug report logs - #864403 **fix two errors in debian-refcard zh_CN**

Package: [debian-refcard](#); Maintainer for [debian-refcard](#) is [Debian Documentation Project <debian-doc@lists.debian.org>](#); Source for [debian-refcard](#) is [src:refcard \(PTS, buildd, popcon\)](#).

Reported by: [Kaijie Chen <ckj996@gmail.com>](mailto:Kaijie.Chen<ckj996@gmail.com>)

Date: Thu, 8 Jun 2017 06:15:02 UTC

Severity: normal

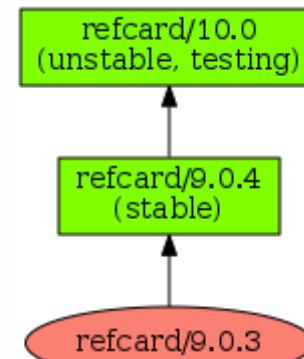
Tags: patch

Found in version refcard/9.0.3

Fixed in version refcard/9.0.4

Done: Holger Wansing <holgerw@debian.org>

Bug is archived. No further changes may be made.



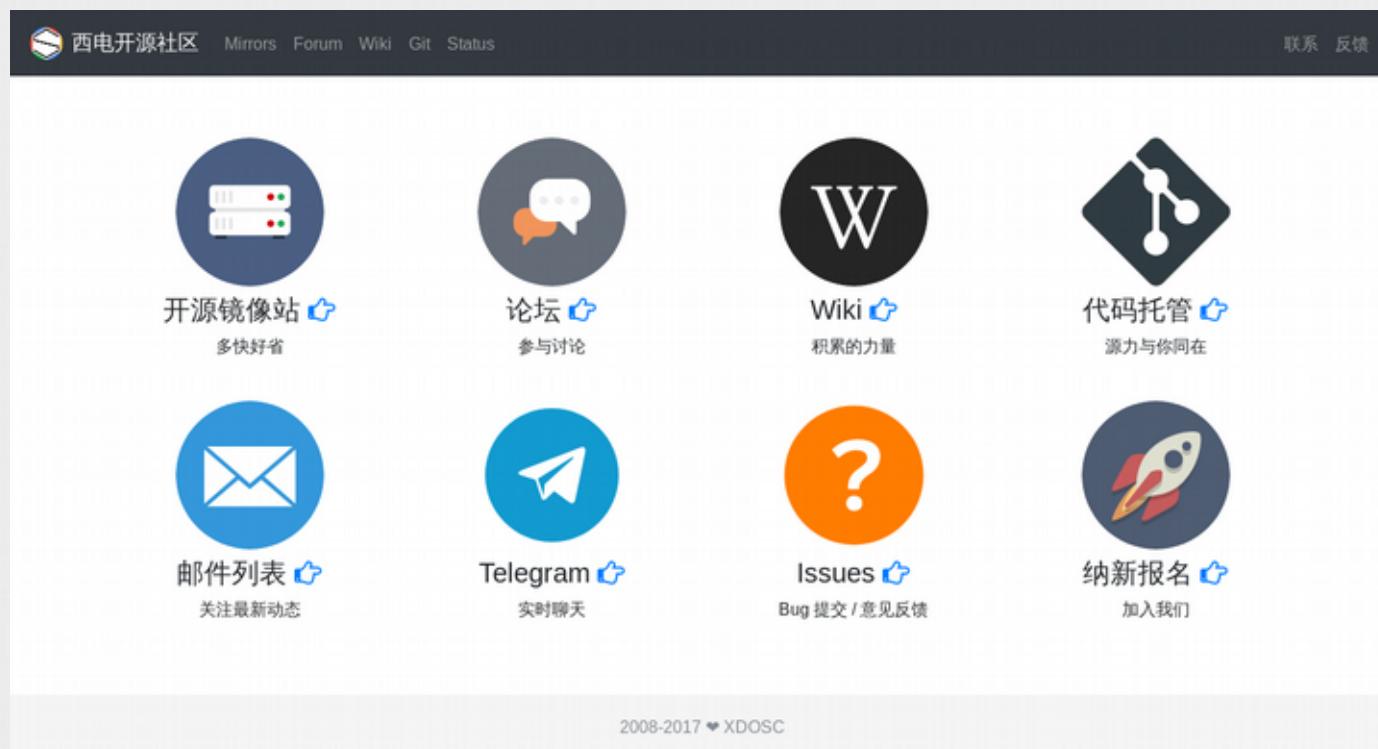
- 有趣指数：★★★★★
- 害怕指数：☆

第一次在社区服务器搭建服务



- 有趣指数：★★★★★
- 害怕指数：☆

第一次写一个能看的网页



- 有趣指数：★★★★★
- 害怕指数：☆

Just for fun.

Happy Hacking!

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学生组成，

(补充一句话，赢 Firefox 小狐狸公仔)

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