

# Distributions and the Free “Cloud”

Stefano Zacchiroli

Debian Developer  
IRILL Research Fellow  
OSI Board Member

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# Control

Lester picked up a screwdriver. “You see this? It’s a tool. You can pick it up and you can unscrew stuff or screw stuff in. You can use the handle for a hammer. You can use the blade to open paint cans. You can throw it away, loan it out, or paint it purple and frame it.”

He thumped the printer. “This [Disney in a Box] thing is a tool, too, but it’s not your tool. *It belongs to someone else* — Disney. It isn’t interested in listening to you or obeying you. It doesn’t want to give you more control over your life.” [...]

*“If you don’t control your life, you’re miserable. Think of the people who don’t get to run their own lives: prisoners, reform-school kids, mental patients. There’s something inherently awful about living like that. *Autonomy makes us happy.*”*

— Cory Doctorow, *Makers* (2009)



[https://en.wikipedia.org/wiki/File:Makers\\_\(Cory\\_Doctorow\\_novel\).jpg](https://en.wikipedia.org/wiki/File:Makers_(Cory_Doctorow_novel).jpg)

# (my own) Computing, in the 90s

- **hardware**: desktops, some local servers; later: laptop
- **producing content**
  - ▶ office suite / desktop publishing
  - ▶ federated communication
    - \* asynchronous (e.g., email, newsgroups)
    - \* synchronous (e.g., IRC)
  - ▶ software development
- **consuming content**
  - ▶ gaming
  - ▶ web browsing



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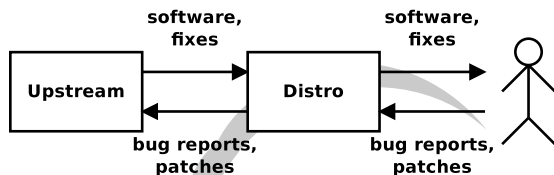
**road to software freedom** was long, but clear: (re)implement proprietary sw, follow RFCs to interoperate, deploy

*foo* is cool, let's install it!

- 1 download `foo-1.0.tar.gz`
  - ▶ checksum mismatch, missing public key, etc.
- 2 `./configure`
  - ▶ error: missing bar, baz, ...
- 3 `foreach (bar, baz, ...)` go to 1  
until (recursive) success
- 4 `make`
  - ▶ error: symbol not found
- 5 `make install`
  - ▶ error: `cp: cannot create regular file /some/weird/path`

## Free Software, à point: distributions

Distributions act as **intermediaries** between upstream software authors and final users. Distributions are meant to ease software **life cycle management** for Free Software users.



- package management
- trusted software vendor
- software integration
- initial installation
- software packaging
- upstream release tracking
- bug triage and forwarding
- porting

# Distro ecology

- distros contribute to the **sustainability** of Free Software battles
  - ▶ integration work done once
  - ▶ heavy-lifting for developers
  - ▶ software deduplication
- distros **democratize access** to Free Software
  - ▶ without distros, only sysadm and developers would be easily liberated



<https://www.flickr.com/photos/darkwood67/3434356123>



Fast forward to the present...



# Total world domination is near

- “open source” is everywhere in the industry
- web server market share: 67.5% (\*nix)  $\supseteq$  56.3% (GNU/Linux)  $\supseteq$  30.7% (Debian), 55.6% (Debian+Ubuntu) — W3Techs, Aug 2014
- web browser market share of FOSS browsers: 58% — StatCounter, Jul 2014
- Google's Android seizes *smartphone* market — WSJ, Aug 2013
- AOSP hits 20% of the smartphone market — ABIresearch, Aug 2014
- in education:  
*about 2.5 million [RaspberryPi] boards have been sold* — Feb 2014
- desktops — Ubuntu (most popular GNU/Linux desktop): 20 million users in 2011 (estimate), recurrent large scale migrations to both Debian/Ubuntu, Debian on the ISS, ...
- privacy: Tails, Tor

Free Software and distros are finally becoming trendy!

# Control as a benchmark

OK, we made good progress.  
Or did we?

Several issues with status quo:

- most popular platforms are **not 100% Free Software**
- more and more **proprietary JavaScript**
- hardware turning evil + lack of **Free hardware** designs
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- ...
-  the “cloud”<sup>1</sup>

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<sup>1</sup>I'll use more precise terminology in a bit

# Computing, today (for most people)

- **hardware**: desktops, laptop, phone, tablets, “clouds”
- **producing content**
  - ▶ office suite → Google Docs
  - ▶ email → GMail
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- **consuming content**
  - ▶ gaming → browser-/mobile-games, Steam
  - ▶ web browsing, social networks → walled gardens



computing is moving away from users, control is lost

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# What about distros?

Distros are **winning**:

- market share
- infrastructure

But distros are also **losing**:

- empowering/liberating users



[https://en.wikipedia.org/wiki/File:Petrarch\\_by\\_Bargilla.jpg](https://en.wikipedia.org/wiki/File:Petrarch_by_Bargilla.jpg)

## The “dark ages” of Free Software (?)

Users have 100% Free Software **thin clients** at their fingertips. But all their **relevant computations** happen elsewhere, on remote systems they do **not control**.

Distros are winning a war that is becoming increasingly pointless for software freedom.

# Cultural problems (#1)

Hackers/developers seem to be more **tolerant to the lack of control** than in the past.

- widespread use of **non-free tools/infra** to develop Free Software
  - 📄 **Benjamin Mako Hill**  
Free Software Needs Free Tools  
[http://mako.cc/writing/hill-free\\_tools.html](http://mako.cc/writing/hill-free_tools.html)
- technically: back to the **cage problem** being locked inside undebuggable layers of the software stack



## Cultural problems (#2)

Our trust in, and understanding of, **legal devices** seem to be diminishing.



E.g.:

<https://commons.wikimedia.org/wiki/File:Copyleft.svg>

- **POSS** (Post-Open Source Software) debate

*“younger devs today are about POSS - Post open source software. f\*ck the license and governance, just commit to github”*  
— James Governor

<https://twitter.com/monkchips/status/247584170967175169>

- the (alleged) decline of **GPL popularity**
- *“AGPL is non-free”*
- ...

This situation is not gonna fix itself. But, distros can help.



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# Embracing and extending the “cloud”

There is NO CLOUD, just



other people's computers



*Cloud computing is a model for network access to computing resources that can be rapidly provisioned and released. This cloud model is composed of [...] three service models.*

*— The NIST Definition of Cloud Computing (abridged)*

- Common “cloud” threat to user freedoms: **increase user ↔ computing distance**
- How about **opportunities**?

# Embracing and extending... IaaS

## Infrastructure as a Service (IaaS)

i.e., virtual machine renting

- 2 angles: **user, provider** (potentially to self)
  - ▶ we're doing well for providers
- *potentially* good for users as well
  - ▶ lowers **self-hosting barrier**
  - ▶ easier to **support** than real hardware
  - ▶ trendy, large public
  - ▶ if you're gonna rent a VM anyhow, run a Free OS!
- but we need to push for **private/shared deployments**
- what's the **best deploy experience** distros can offer?
  - ▶ for users
  - ▶ *and* small/local providers

# Embracing and extending... PaaS

## Platform as a Service (PaaS)

i.e., good ol' hosting / application servers

- largely orthogonal to distros
- for providers: same **large public** opportunity than IaaS
  - ▶ but we are not doing equally well
  - ▶ succeeding here is crucial to counter **PaaS vendor lock-in**
- also a symptom of the dependency-hell problem
- better **synergies distro** ↔ **containers** to be found

# Embracing and extending... SaaS

Software as a Service (SaaS)  
or Service as a Software Substitute (SaaS)  
i.e., remote software applications

- the worst software freedom offender
- we need better **Free Software-based, federated services**
- what can distros do about this?

# 1-Click deployment of Free, federated services

We have:



...

We lack:

**click-button installation** of **Free Software-based, federated services** that people need to interact with their peers without the mediation of centralized, proprietary software-based services

Out of the box:

- anonymous browsing
- mail handling
- web hosting
- storage, calendar, etc.
- encrypted P2P backup
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Projects like:



**FreedomBox**

<http://www.freedomboxfoundation.org/>

should be **distros defaults**, not niche sub-projects.

# Reboot the “free service” debate

That **users are losing control** is uncontroversial, but the meaning of **being Free in the “cloud”** is unclear yet.

 Franklin St. Statement (2008)

*“we have not yet formally defined what might constitute a Free Service”*

 Who does that server really serve? (RMS, 2010)

*“Don’t use SaaS! Don’t use someone else’s server to do your own computing”*

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*“Non-SaaS services can mistreat their users in other ways [...] we don’t have a firm position on them as yet”*

- this stuff is really hard
- but the time is ripe for more intellectual guidance
- what’s Free distros’ take on this?



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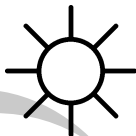
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- to stay true to their mission of democratizing Free Software, distributions need to evolve: they should make participation into federated, Free Software-based services trivial
- the state of the “Free service” intellectual debate is not up to par with the needs of the Free world, we need to reboot it



Thanks!

Stefano Zacchiroli <[zack@upsilon.cc](mailto:zack@upsilon.cc)>

<http://upsilon.cc/zack>

about the slides:

pdf <http://upsilon.cc/~zack/talks/2015/20150322-libreplanet-cloud.pdf>

sources <http://git.upsilon.cc/?p=talks.git;a=tree;f=2015/20150322-libreplanet-cloud>

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