Surviving in the Open Source Jungle

Richard Weinberger - sigma star gmbh
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sigma star

Hello

Richard Weinberger
- › Co-founder of sigma star gmbh
- › Linux kernel developer and maintainer
- › Strong focus on Linux kernel, lowlevel components, virtualization, security, code audits
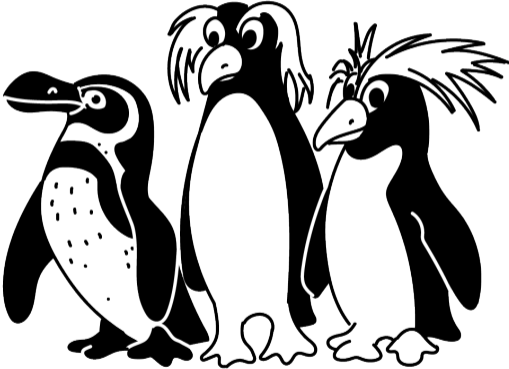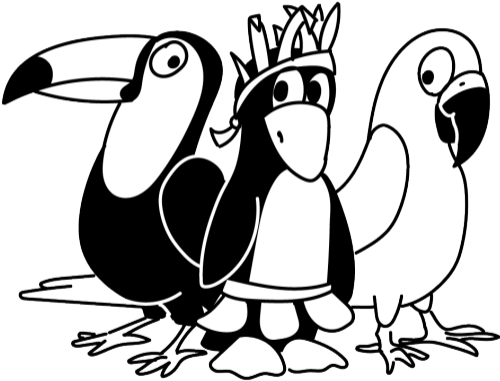
sigma star gmbh
- › Software Development & Security Consulting
- › Main areas: Embedded Systems, Linux Kernel & Security
- › Contributions to Linux Kernel and other OSS projects

Hello (cont'd): My OSS Roles

> › User
> › Individual contributor
> › Maintainer/Owner
> › By proxy
>> › User
>> › Contributor

Welcome to the Jungle!

Introduction

› What is Open Source Software?

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› **ChatGPT:**
› *Open source software is software whose source code is made freely available to the public, allowing anyone to view, modify, and distribute it, often fostering collaborative development and innovation within a community of volunteers and contributors.*

Introduction (cont'd)

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› Even Microsoft jumped on that train

› Chances are high that you have used OSS today

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› Chances are high that you have used OSS today
› … or right now while staring at your smartphones

Why Open Source Software?

› You get:
  › Something you can build on or even use as-is
  › The source code
  › The right do modify it
  › The right to sell it
  › Support by the community
› All great, right?

As Company

› Something you can build on
› No need to write an OS, a compiler or whatever framework
    › ... if one exists that meets your needs
› You can *change* it to meet your needs
› Most prominent example: Linux

Pitfall: Moving Target

› Let's assume:
  › You take some OSS
  › Adopt it to your changes
  › Fix bugs, locally
› Upgrade after a few years
  › None of your changes apply anymore
  › You start again from scratch

Pitfall: Moving Target (cont'd)

› Solution: Work with upstream!
  › Be there
  › Be useful
  › Upstream you changes, if possible
  › Tell about your use-cases
› Keep local changes as few as possible

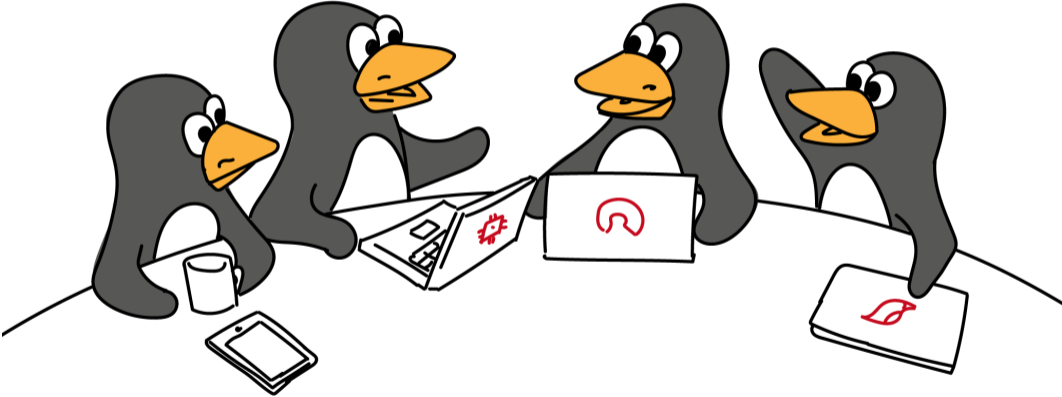# Hold On! Why should I give away my company secrets for free?!

› OSS is usually platform code
  › OS stuff
  › Helper libraries
  › Common Frameworks
› Does your business model rely on the secrecy of a device driver or a web framework?
  › If so, my sincere condolences

Pitfall: Upstreaming Changes

› Your changes are not awaited
› You need to argue why they are worth it
› Yes, also bug fixes
› Nobody likes drive-by patches
› Nobody cares about your timeline

A Short Story on Upstreaming: The boss phoned me

Pitfall: Community Support

› Assuming you face an issue

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› Assuming you face an issue
› *Hey guys, one of my customers sees strange crashes in our product which uses your library. The error message indicates a memory leak. Do you have an idea? Btw: I'm using the release from five years ago plus some in-house patches, in case this matters.*

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› *Hey guys, I'm getting bug reports that relate to your library. To me it looks like a memory leak, on our side we're using an older version but I was able to reproduce with the latest and unmodifed release. Below you can find a test case which shows the issue.*

Interacting with the Community

› The community owes you nothing
› Community support usually means somebody helps you in their spare time
› Find the right place to talk to them
  › Mailing lists
  › IRC, Slack
  › Conferences
› Be useful: tit for tat

A Short Story on Talking to the Community: The Compiler Bug
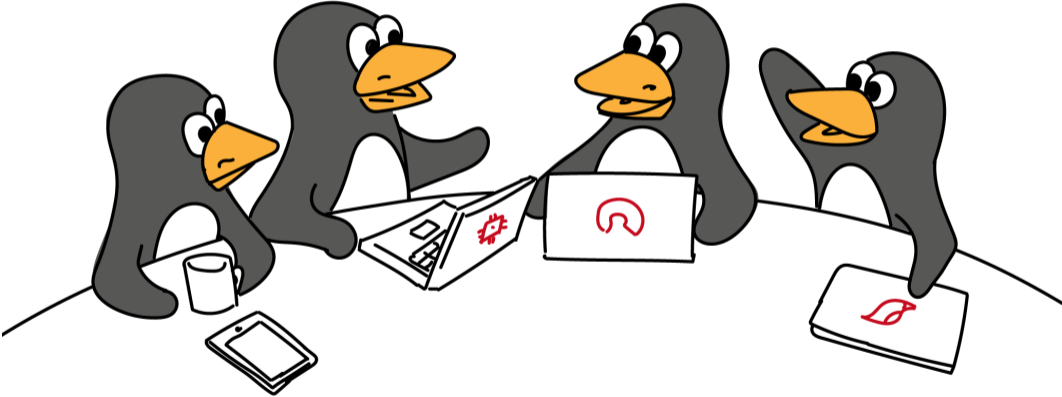
Pitfall: Licenses

› OSS does not mean you can do whatever you want
› Some are more permissive than others
› e.g. BSD vs. GPL vs. AGPL
› You cannot combine all of them!
› Some projects use an incompatible license on purpose!
› Patents and export regulations are *not* covered
› Some projects are toxic

OSS for an Individual

- › You'll learn a lot
  - › Technical
  - › ... and social
- › Free reputation
- › How do you call someone with two commits in the Linux kernel? ...hired!

A Typical Evolution

1. "Ha, that's broken, what a lame project, I could to that on a weekend"
2. You actually sit down and try to fix the bug, of course it's not that easy
3. You submit the bugfix, maintainer tells you it fixes only your use-case but breaks others
4. Finaly your fix is upstream but after a month there is another regression, maintainer asks you to have a look
5. After many years and tons of fixes you end up being the maintainer
6. Now you're the only person that really knows how things work and the corner cases

A few Words on Bean Counting

```
diff --git a/fs/nfsd/vfs.c b/fs/nfsd/vfs.c
index 4c3a0d84043c..780856561bbb 100644
--- a/fs/nfsd/vfs.c
+++ b/fs/nfsd/vfs.c
@@ -223,7 +223,7 @@ int nfsd_mountpoint(struct dentry *dentry,
                  struct svc_export *exp)
              return 1;
      if (nfsd4_is_junction(dentry))
              return 1;
-     if (d_mountpoint(dentry))
+     if (d_managed(dentry))
              /*
               * Might only be a mountpoint in a different namespace,
               * but we need to check.
```

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- › OSS can help you a lot, as individual and company
- › There are pitfalls
- › Nobody forces you to use OSS
- › Interacting with the community can be hard
- › Work with the community, not against it
- › Maintainers are also just humans
- › Some humans are pinheads

FIN

Thank you!

Questions, Comments?

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