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Open Source Philosophy

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What is Open Source ?

- Open Source is **not** Free Software

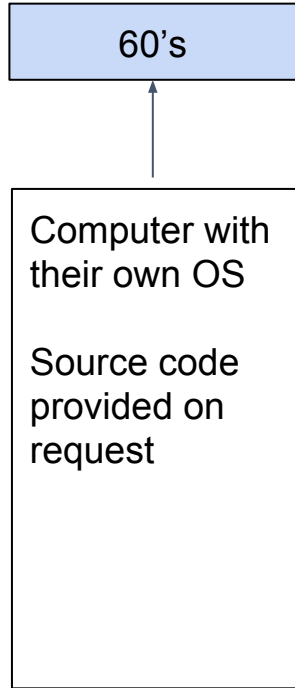
Richard Stallman : *“Open source is a development methodology; free software is a social movement.”* [1]

- Important to understand the difference, let's do some history

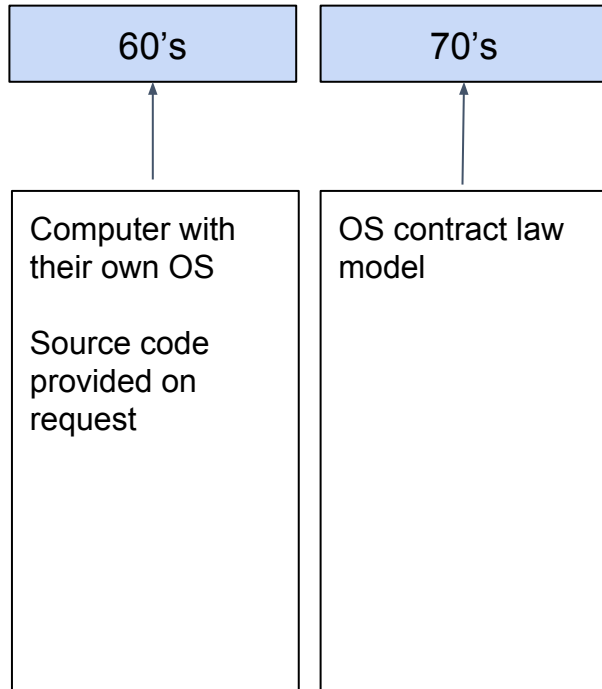
[1] <https://www.gnu.org/philosophy/open-source-misses-the-point.en.html>



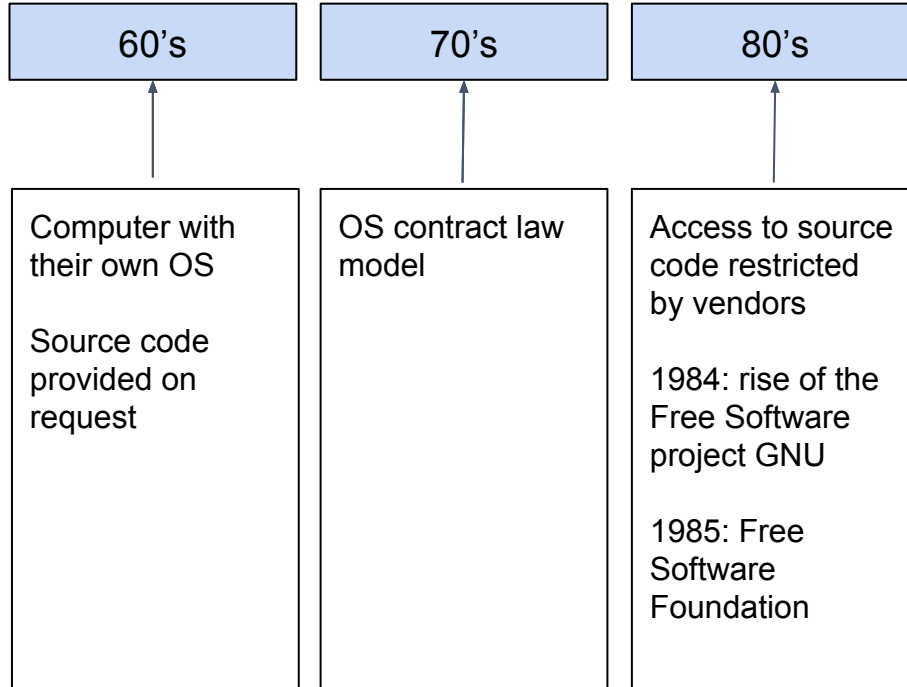
Open Source Origin



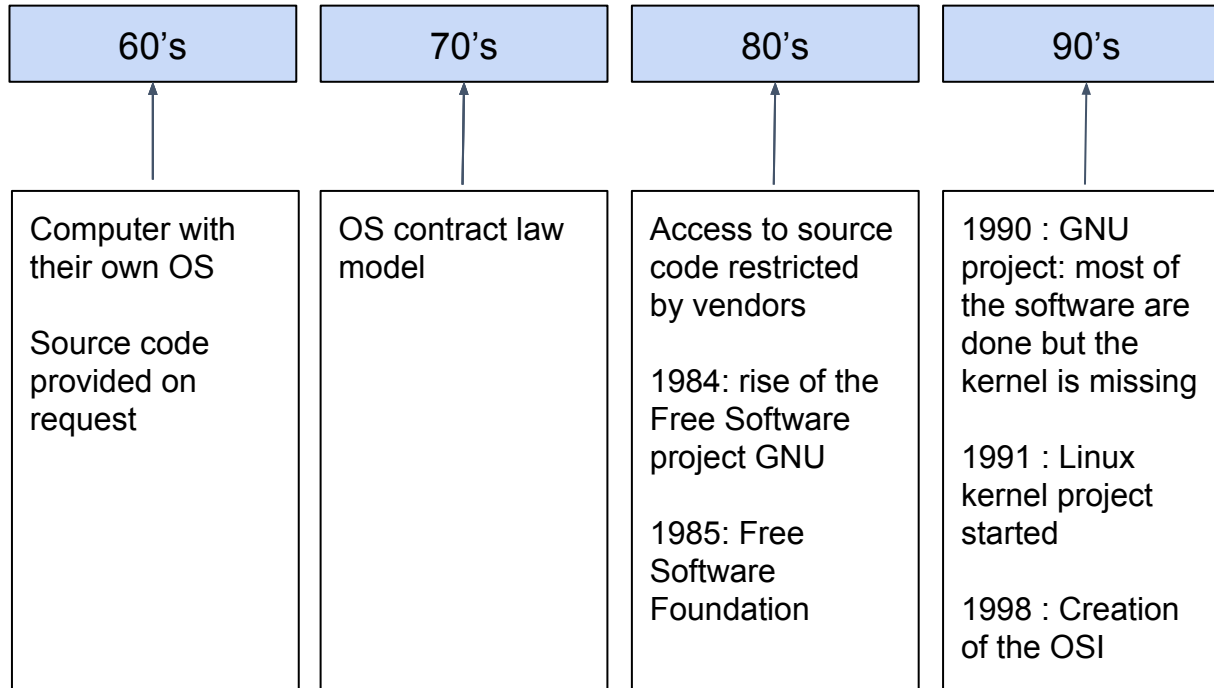
Open Source Origin



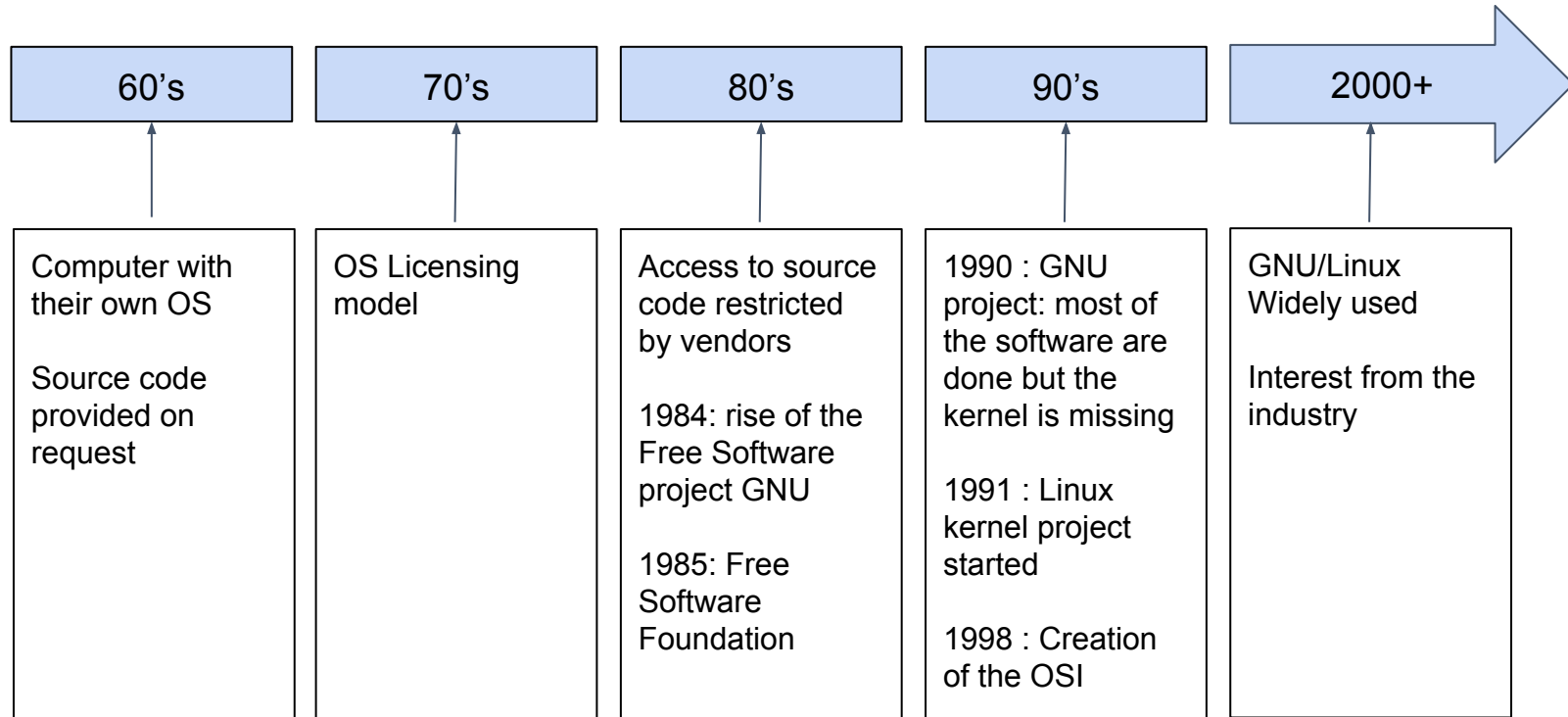
Open Source Origin



Open Source Origin



Open Source Origin





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Open Source origin

- GNU/Linux widely used nowadays ^[1]

	Market share
Desktop / laptop	2.18 %
Mobile + table	63.31 %
Server	36.72 %
Mainframe	28 %
Super computer	99.79 %
Embedded	29.44 %

^[1] https://en.wikipedia.org/wiki/Usage_share_of_operating_systems



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Open Source origin

- Free Software philosophy opposed to industry goals
- In 1998, creation of the OSI
- OSI : Open Source initiative
 - <https://opensource.org>



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Open Source Initiative

- Promotes Open Source in the industry
- Oriented to business cases
- Unification of the licenses based on Debian Free Software Guidelines
- OSI label for software when it fulfills 10 OSS criterias
- Open Source licences are approved by OSI





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Open Source Initiative

- OSI criterias^[1]
 1. Free Redistribution
 2. Source Code
 3. Derived Works
 4. Integrity of The Author's Source Code
 5. No Discrimination Against Persons or Groups
 6. No Discrimination Against Fields of Endeavor
 7. Distribution of License
 8. License Must Not Be Specific to a Product
 9. License Must Not Restrict Other Software
 10. License Must Be Technology-Neutral

[1] <https://opensource.org/osd-annotated>





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OSI and FSF

- OSI and FSF share a common culture
 - Open software and hacking
- Goals and philosophy differ
 - FSF : 'free' in every sense of the term
 - OSI: give the opportunity to industry to understand Open Source
- OSI helps to introduce Free Software for industry
 - evangelizes open-source principles





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Licenses

- Open Source projects have a license to share the code
 - GPL and LGPL
- GPL : GNU General Public License
 - If a software uses GPL code, it turns into a GPL licensed software
 - Protects the end-user letting him to access the source code
- LGPL : GNU Lesser General Public License
 - The same as GPL except for the headers.
 - Allows to use libraries, eg. libc
- Up to lawyers to explain what are these licenses in details





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Summary

- Open code exists since the earliest moments of computer programming: programmers wrote the code for their own use and often shared it with other programmers trying to solve the same problems
- Licensing business model and Close Source lead to a Free Software emerging movement in 1984 and the creation of the Free Software Foundation in 1985
- The Open Source Initiative created in 1998 to evangelize Open Source in the industry



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Open Source and Free Software

- Open Source and Free Software co-exist together
- Open Source is a development process but strongly influenced by the Free Software spirit
- Working in Open Source implies to understand the development process and to have the right mindset

The development process





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The cathedral and the bazaar

- A description of two open source development processes:
 - The cathedral model: source code is available with each software release
 - The bazaar model: in which the code is developed over the Internet in view of the public
 - Gives 19 “lessons” for good Open Source practices
 - https://en.wikipedia.org/wiki/The_Cathedral_and_the_Bazaar
 - <http://www.catb.org/esr/writings/cathedral-bazaar/>





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The cathedral

- In the past, computers were very expensive and the network reserved for a very few
- A group of persons works on a project, privately
- A new release is delivered with the source code
- Hard to participate to the project
- No view on the current work





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The bazaar

- Nowadays a large public have access to computers and to internet
- The source code is widely available, the changes are visible and the development is based on the review process
- Linus's law ^[1]: "given enough eyeballs, all bugs are shallow"

[1] https://en.wikipedia.org/wiki/Linus%27s_Law





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The fork

- When an Open Source project is cloned and diverges from the original project: it is a **fork**
- A community may be frustrated by a project:
 - Lack of communication or collaboration
 - Project is not very responsive or taking a direction that the bulk of the community does not like
- A community wants to have more control on the project
 - Skip the review process and commit what they want
- Forking can be bad if it is done for wrong reasons because it can scatter the resources





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The community

- A group of persons working together on an Open Source project: **the community**
- A community is composed from:
 - Education (students, scientists, teachers)
 - Hobbyist
 - Workers (from companies or freelance)
- The community takes predominance over individuals
 - Consensus
- The **collaboration** is the cornerstone of the Open Source





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The collaboration

- The collaboration relies on tools
- Development:
 - Distributed version control system: git
 - Compilation tools : gcc, make
 - Debugging: gdb
 - Etc ...
- Communication:
 - Emails and mailing lists
 - Instant messaging: IRC
 - Text sharing: pastebin
 - bugzilla



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The contribution

- Any kind of help beneficial for the Open Source project is called a **contribution**
- A contribution increases the merit inside community
- The Open Source is **karma** based
- The more a contributor provides pertinent contributions, the more he has voice inside the community



The right mindset



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Don't be scared

- Follow the presentations Upstreaming 101 and 201
 - All the needed information and the pointers
- Take some time to train yourself and follow the advices given in the presentations above
- Understand the different actors of the Open Source project
- Be prepared, then send your first patch





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Don't be offended

- Comments are always a good thing, that means the change raised some interest
- Comments can be tough: stay factual, stick on technical aspect and give numbers to support your position
- Comments can spot an issue or a misdesign you missed
- The perennity of the Open Source is the priority, you may be asked to redesign everything





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Don't be demanding

- Comments can take some time: be patient
- There is no schedule / no deadline
- The community may be busy
- There is no obligation to merge the change





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Don't be selfish

- The changes must be designed as part of the community, not as an individual
- Changes for the purpose of one group of persons or a company have 100% chance to fail to be merged
- Working in the Open Source, is working as part of a community





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Comments

- The consensus is the key to merge a change
 - No consensus = No merge
- Always take into account the comments in order to reach the consensus





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Collaborate !

- Collaborate in order to be part of the community
- Begin with simple things
 - Review code
 - Fix compilation warnings/error (often)
 - Help to test the proposed changes (functional and benchmark)
 - Answer questions being asked on the mailing list
- Do more complex things
 - Dead listing and spot potential issues
 - Propose ideas to improve the proposed changes





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Next presentations

- Upstreaming 101 : Linux kernel development process, DCO, writing a patch
- Upstreaming 201 : Send the changes for upstreaming, the review process, the comments

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Conclusion

- Open Source is a development process
- Open Source projects are supported by a community
- A community mindset can be aligned to the Free Software philosophy
- The collaboration is the path, the consensus is the key



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Special thanks to
Jon “Maddog” Hall





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Thank You

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SFO17 keynotes and videos on: connect.linaro.org

