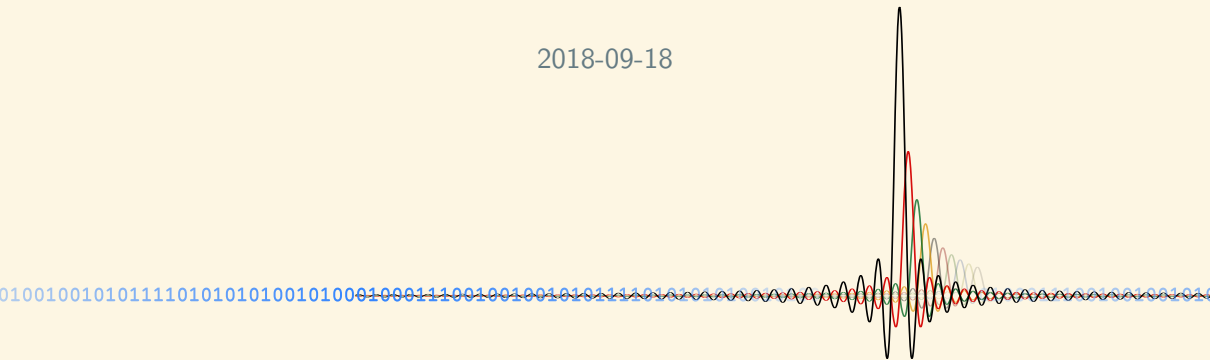


GNU Radio in 2019: Facts and Plans

An overview of where GNU Radio is going this fine year

Marcus Müller

2018-09-18



What'll happen in the next 40 minutes

Looking back at 5 years of 3.7

What has happened to 3.7?

Releasing GNU Radio 3.8

3.8.0.0+ and beyond

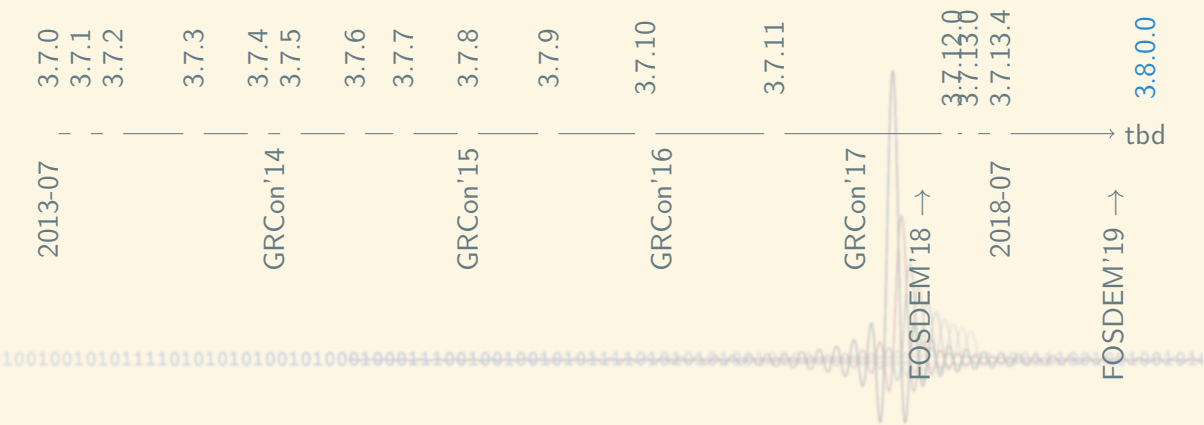
Conclusion



State of GNU Radio 2019

GNU Radio 3.7 released June 2013

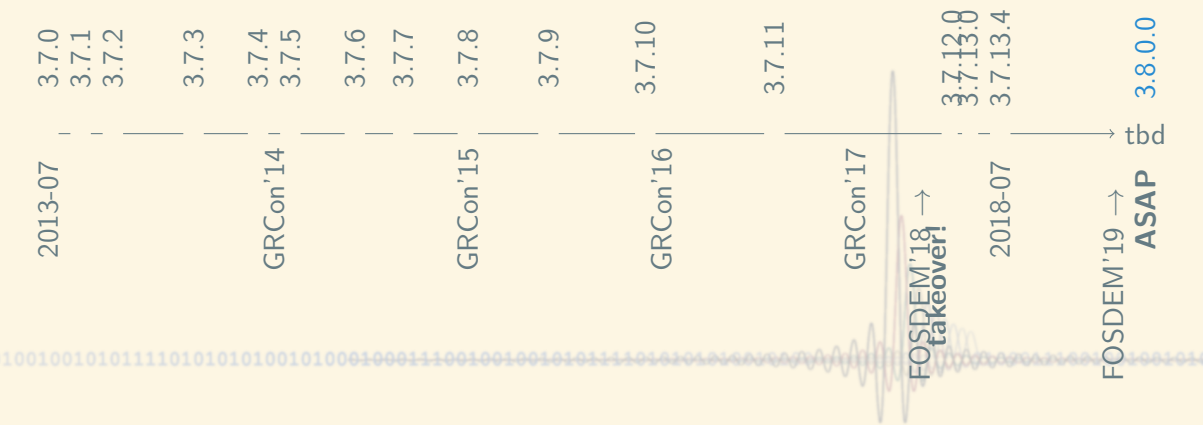
next branch forked off at that point



State of GNU Radio 2019

GNU Radio 3.7 released June 2013

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What will happen to the 3.7 series?

Stability & Maintenance

3.7 has been around for 5 years, with long stagnant periods

Lot of undocumented behaviour becoming implicit API

3.8 simply is *different* (in good ways)

- ▶ long-term commitment to support 3.7 on longer-term platforms (Debian stable, RHEL/CentOS, Ubuntu 16.04LTS)

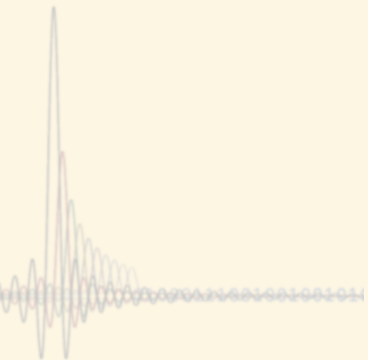
But:

- ▶ No C++11, Python3, ... for 3.7.x.x: You probably won't want to compile GNU Radio 3.7.13.4 on your bleeding edge Linux distro in a couple of years

What's to come in GNU Radio 3.8?

Innovation and Future-Proofing

- ▶ Dependency cleanup: No choice, lots of benefits
 - ▶ ● Qt4 → Qt5
 - ▶ ● Cheetah/XML → YAML
 - ▶ ● log4cpp → own logging system
- ▶ Language progression
 - ▶ ● Py2 → Py2.7 OR Py3
 - ▶ ● C++98 → C++11
- ▶ Removed components
- ▶ New functionality
 - ▶ Better `gr_modtool` (shoutout to Swapnil!)
 - ▶ C++ code generation (shoutout to Håkon)
 - ▶ Overall cooler GRC



Releasing 3.8

When will we release 3.8?

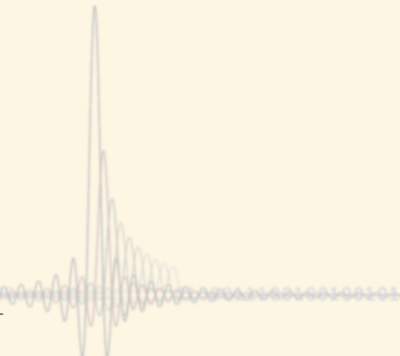
When it's ready.

I promise it no to be a minute later, but also not a (very expensive) hour early.
We're currently in a feature freeze to really focus on releasing 3.8.

Blockers:

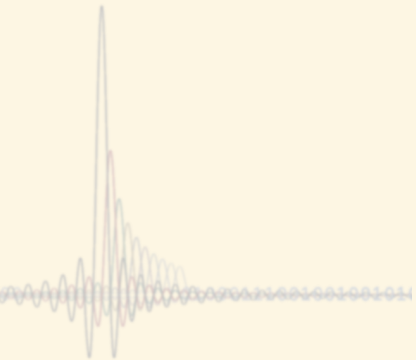
- ▶ ● Modern CMake
- ▶ ● new OOT template (depends on modern CMake)
- ▶ ● logging system
- ▶ ● open bugs
- ▶ ● at least rudimentary documentation

→ <https://github.com/gnuradio/gnuradio/projects/1>



3.8 Release Procedure

1. Get the blockers sorted out
2. Tag RC1
3. Create Binary packages, spread
4. Fix blocking bugs that come up
5. Automated whole-tree code formatting
6. Release RC2, update binary packages
7. Give it 10 workdays to find remaining breakage
8. **Tag, sign, and release 3.8.0.0**
9. *Party.*



Kicking off 3.9 development

Whole-tree code formatting officially terminates feature freeze

Use 3.8 as stepping stone towards a more modern future
... without breaking everything at once

3.9 **will not** take another 5 years to be released ¹

¹paramount to everyone's sanity

Where we'll take GNU Radio

Be more inclusive

- ▶ GNU Radio should come with batteries included
- ▶ Selling point is the ecosystem, so let's notice when that breaks
→ upstream central infrastructure



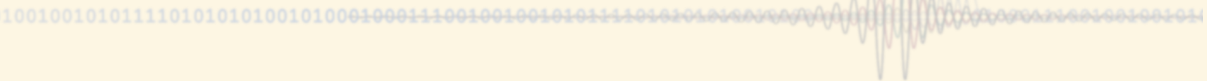
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- ▶ Remove old architectural burdens, replace with modern alternatives



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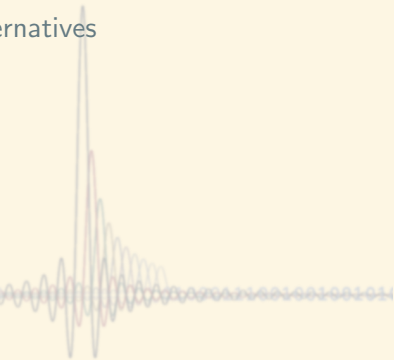
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Be easier to use

- ▶ Regular builds of binary packages for major distros
 - ▶ My dream: a package feed “zoo” for OOTs
- ▶ Better docs (shoutout to Marc Lichtman)

Be better

- ▶ Make Scheduler exchangeable
- ▶ Remove shared state between blocks, use RPC
- ▶ Actually write a new scheduler



Ha! What of that will happen in 2019?

For 3.9, we'll

▶ **Upstream:**

- ▶ `gr-soapy` will become part of GNU Radio → we'll “natively” support your favourite SDR
- ▶ `gr-iio` will support ADI, esp. on SoCs
- ▶ Networking



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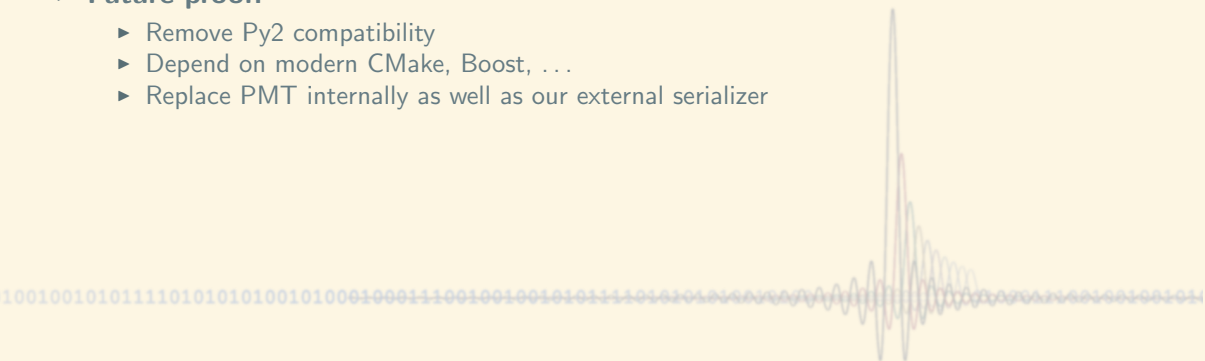
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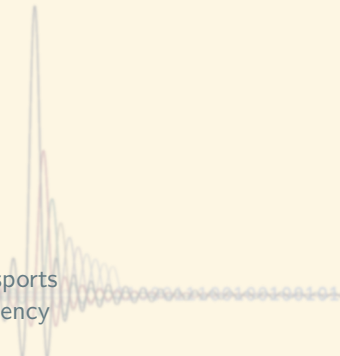
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▶ **Simplify:**

- ▶ Have nightly release binaries
- ▶ Include distribution package infrastructure for OOTs

▶ **Better ourselves:**

- ▶ Have reliable RPC based on PMT successor + transparent transports
- ▶ Finally remove VOLK from the main tree and treat it as dependency



Questions?

