

WP3 report and license in O²

Dario Berzano

CERN and INFN Torino

WP3 manages the software lifecycle of O²: now formally under PDP but it still receives active collaboration from all O² groups. What we manage at the moment:

- The build tool: [aliBuild](#)
- [Continuous Integration and Infrastructure](#) (~30 distinct tests running, see [dashboard](#))
- Daily/nightly builds, deployment on [CVMFS](#) and [RPMs](#)
- [ALICE Talk](#) (Discourse): alice-talk.web.cern.ch
- Coding conventions, documentation, O² CTests
- Ticketing system: [Jira](#) and its integrations
- [Configuration](#) and permissions of O² repositories on GitHub and CERN GitLab
- Operating system support policies

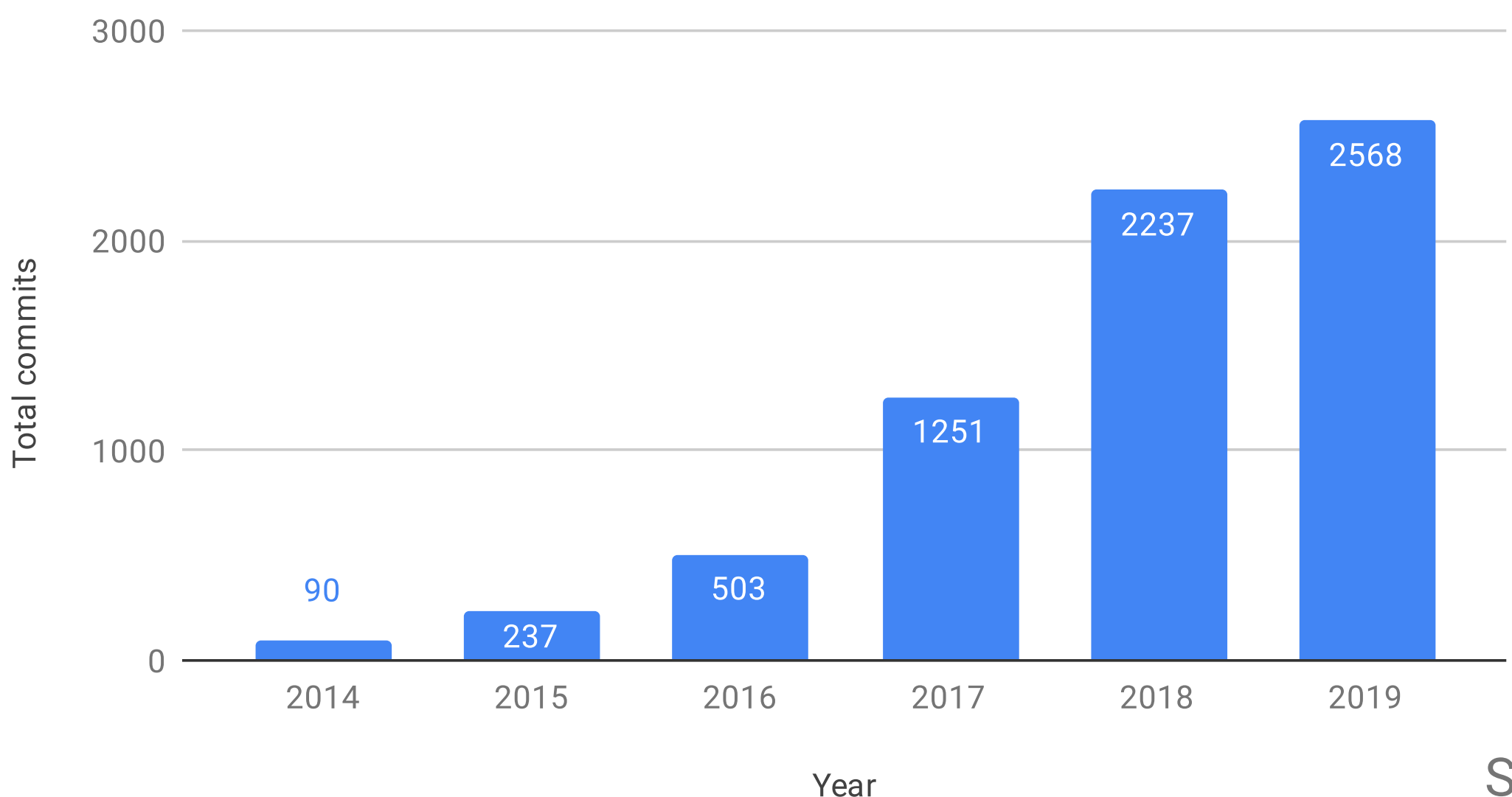
Weekly meetings

Every O² member is encouraged to participate. We do weekly meetings, this is the right place to point out what's important for you

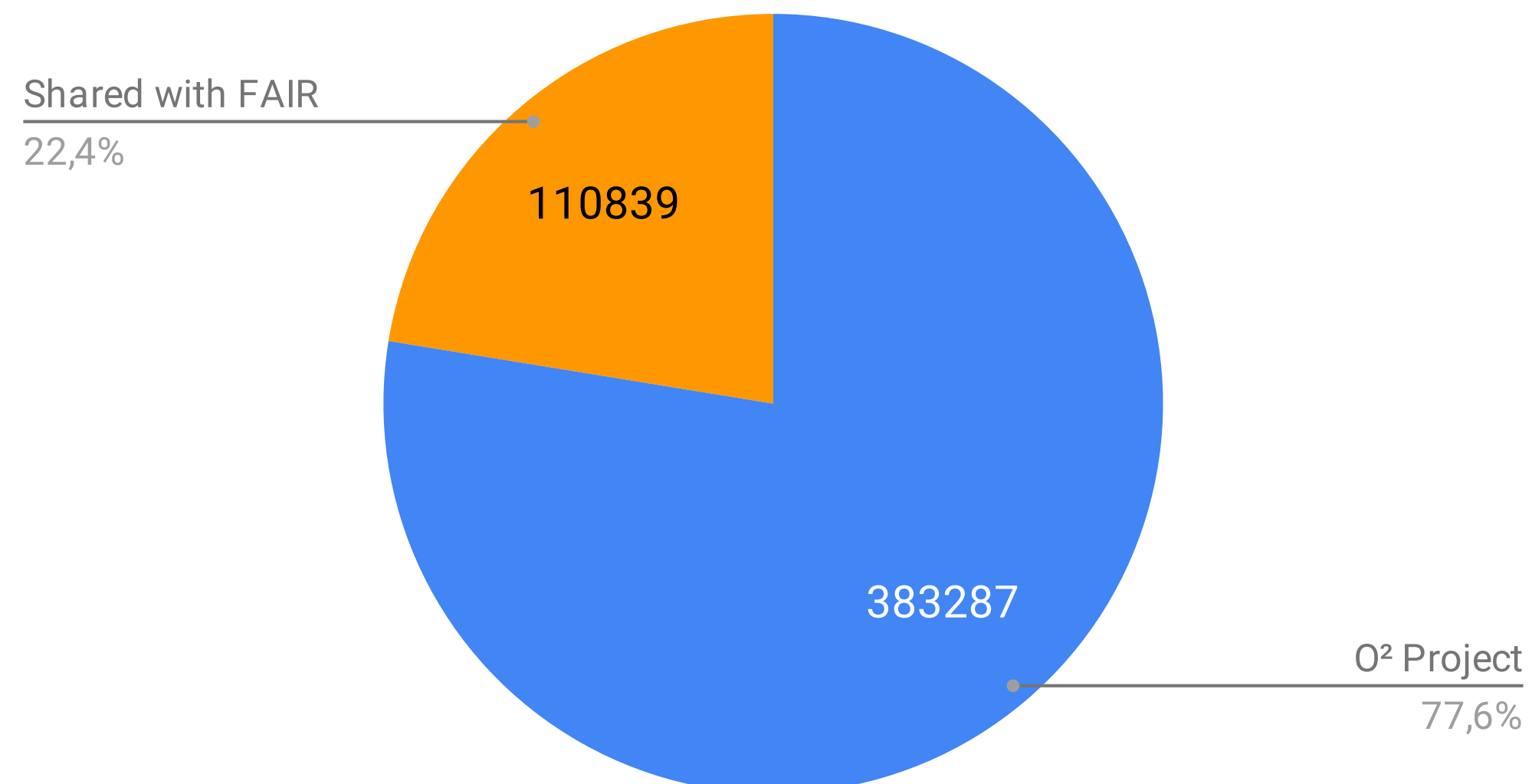
- Every Thursday at 11am (unless there is an overlap with something else)
- All meetings (see [Indico](#)) have Computing Board-style minutes
- We ask participants to fill them before the meeting
- Announcements are made on alice-o2-wp3@cern.ch (self-subscription [here](#))

O² codebase growth

AliceO2: number of commits per year

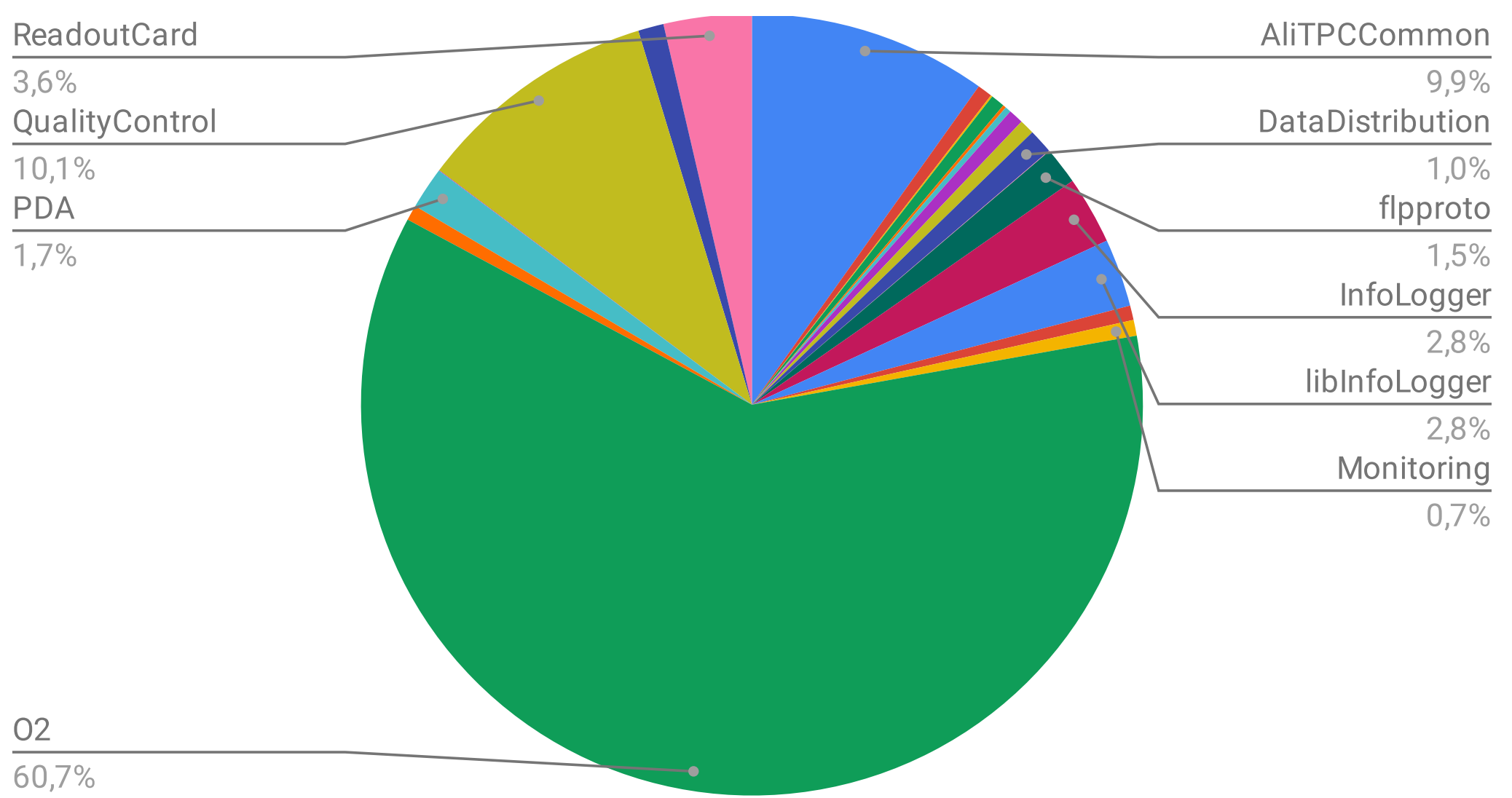


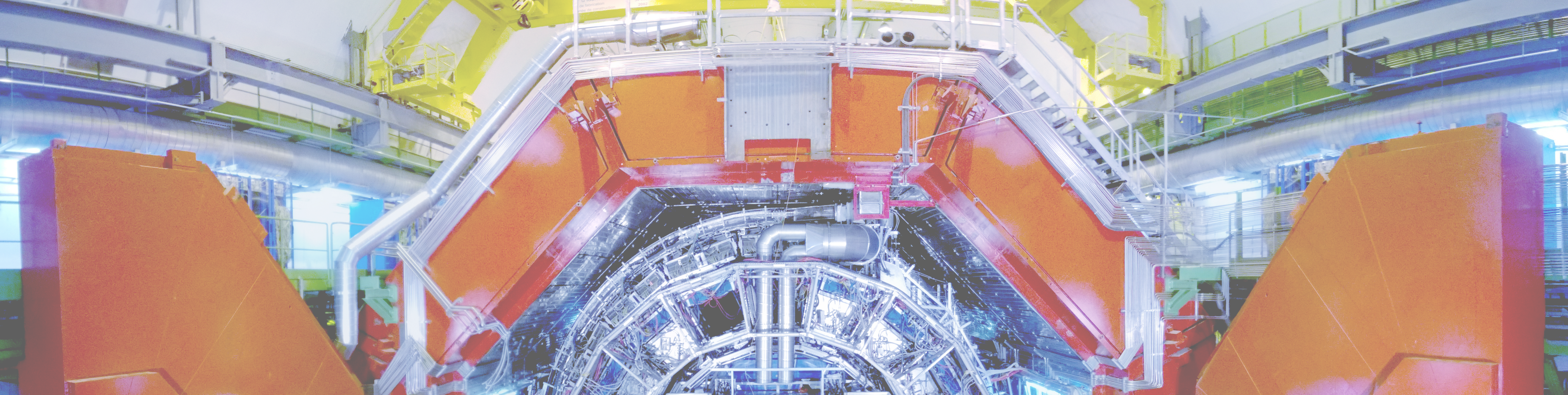
Codebase size: ALICE O2 and ALFA (SLOCs)



- Contributions to AliceO2 are constantly increasing (big jump between 2017 and 2018)
- AliceO2 is larger than all the other O² repositories combined
- We share a relevant amount of codebase with FAIR

SLOC share in AliceO2Group





What is keeping us busy

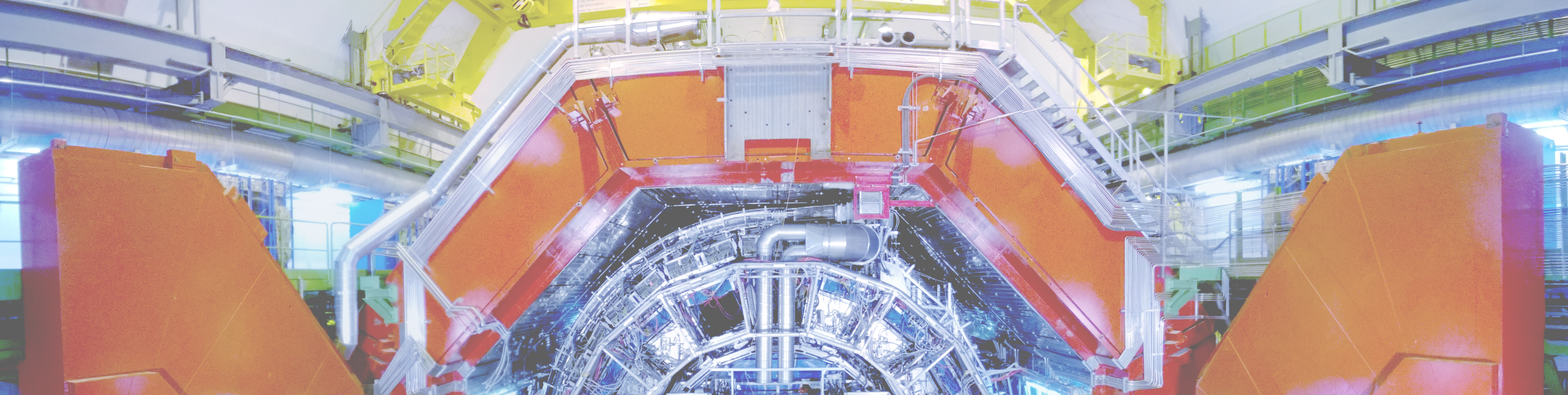


Documentation: infrastructure and tutorials

- Infrastructure documentation: we are working on making the infrastructure management more sustainable by documenting it ([O2-530](#))
- O² documentation on Doxygen: improve the way Doxygen pages are generated ([O2-525](#)), thanks to [Ivana Hrivnacova](#)
- Getting started with Doxygen for new O² projects: documentation and templates ([O2-532](#), [O2-533](#)), thanks to [Adam Wegrzynek](#)
- O² tutorial: it is being completely revamped to make it easier for new members to participate ([O2-532](#)), thanks to [Barthélémy von Haller](#) and [Adam Wegrzynek](#)

Tests on GPUs and performance tests (reco + sim)

- We already have some GPU-specific code in O², available for NVIDIA GPUs (CUDA) and AMD (ROCm)
- We are at the moment capable of testing Pull Requests against GPU-specific code (both build and compile), thanks to [Matteo Concas](#)
- The aim is to have specific parameters (vertexer performance, etc.) monitored on a reference host periodically, and see how the performance improves over time
- Same requirement for simulation: have a reference implementation and plot performance over time. This is the first step towards a real [Release Validation for O²](#)
- We are going to reuse the [tests dashboard](#) and collect specific data as we go: easier to add new sensors, plots, and push data with Grafana
- Reference db is hosted/backed up on CERN Database On Demand (IT-managed service)



Copyright and licensing



Licensing and copyright issues/1

- Lots of work has been done to find an appropriate licensing model and copyright holders for the ALICE O² project
- Work was formerly done by CWG2 and then moved to WP3. Every source file in the AliceO2 repository must have the following notice on top:

```
Copyright CERN and copyright holders of ALICE O2. This software is
distributed under the terms of the GNU General Public License v3 (GPL
Version 3), copied verbatim in the file "COPYING".
```

```
See http://alice-o2.web.cern.ch/license for full licensing information.
```

```
In applying this license CERN does not waive the privileges and immunities
granted to it by virtue of its status as an Intergovernmental Organization
or submit itself to any jurisdiction.
```

Licensing and copyright issues/2

- All code in AliceO2 repository (the main O² repository in terms of lines of code) is licensed under the GNU General Public License v3
- It's an open source license forcing whoever uses code from AliceO2 to relicense it under the same terms
- Some private repositories part of O² (such as the firmware ones) do not allow for such a license and need to have a more restrictive one
- When opening a Pull Request to the AliceO2 repository, the code Authors and their home institutes agree to relinquish the Copyright to “CERN and copyright holders of ALICE O²”, of which the Collaboration maintains an exhaustive list
- This policy was adopted as counseled by the CERN Legal Service

Licensing and copyright issues/3

- After the O² split and after attempting to include some formerly external code into AliceO2, some doubts emerged about:
 - The opportunity of using GPLv3
 - Relinquishing the Copyright to “CERN and copyright holders of O²”
- Under a GPLv3 license, the copyright holder is the entity allowed to take legal actions (sue, for instance) in case of an alleged intellectual property violation
- CERN has a dedicated Legal Service that takes care of disputes on intellectual property: it's easier to be protected against IP violations if CERN (not the single authors or institutes) legally protect AliceO2 code
- Due to the diverse nature of O² participation, copyright is *also* held by the O² participating institutes. This allows for a *second* copyright notice, with the explicit mention of a certain institute, to be appended (it's the case for most contributions from GSI, for instance)

Licensing and copyright issues/4

- WP3 has the power to enforce a certain license/copyright notice to be present in the code, but it does not have the power to make the license/copyright policy
- Sometimes we need to integrate some code with a different copyright (e.g. a specific O² participating institute) into AliceO2
- Having the authorization of copyright transfer and relicensing from the original copyright holder may effectively block our development for weeks
- License/copyright policies have been discussed and approved by the O² steering board, but in the light of the O² reorganization we need a clear statement from the institutes on this point, in order not to have the development blocked in critical times
- WP3 still thinks that the copyright notice is fine as it is now, as it protects all parties and even prevents single entities from retiring the current code from the AliceO2 repositories