Support for experiments at INFN-T1
The Italian WLCG T1

- The Italian WLCG Tier-1 is located in **Bologna (Emilia Romagna)**
  - managed by [INFN-CNAF](https://www.cnaf.infn.it/)
- ~2,000 computing nodes (physical and virtual machines)
  - ~60,000 core managed by a batch system
- ~70 PB of disk
- ~130 PB of tape for long-term storage
- supports 60+ scientific communities
  - not only LHC and not only from the Physics field
Not only WLCG

Other supported scientific communities

- High-Energy Physics: 8
- Astroparticle Physics: 18
- Gravitational Waves: 2
- Nuclear Physics: 15
- Dark Matter: 6
- others: 10
Local users per experiment
Since June 2017
Local registrations per month
Since June 2017
User Support (first level)

- Farming
- Cloud
- Infrastructure
- Storage
- Network
- AAI
- Security
The User Support unit

- Mission: solve most of the basic problems, and to write documentation to improve the usage of solutions and standard tools the Centre provides. Among them:
  - HTCondor, is the batch system for HTC, and SLURM for HPC
  - gfal2-util, is the tool for data transfer/management via Grid
  - oidc-agent, is the CLI tool to manage JWT tokens
  - singularity/apptainer, is the container solution

- Supporting the use of specific software:
  - personalised support on certain, specific, use cases. E.g.: user scripts, environment, etc...
  - different scientific communities need different software

- Composition: 6 people coming from different scientific fields
Support activities

• **On-boarding** of new **scientific communities** (projects, experiments, others)
• User **registration** procedure (recognition, authorisation, account creation)
• **Documentation** for users:
  • INFN-T1 **user guide** [https://l.infn.it/t1guide](https://l.infn.it/t1guide)
  • Automatically updated **useful pages** [https://www.cnaf.infn.it/~usersupport/](https://www.cnaf.infn.it/~usersupport/)
• **Communication**:
  • Direct user communication (personal emails, chat)
  • Announces (mailing list, gocdb)
  • Periodic presentations (comitato di gestione (*CdG*), special events)
  • Dedicated meetings with experiments’ people (on-boarding, special requests)
The INFN Tier-1 User Guide
https://l.infn.it/t1guide
Handy links to useful pages 1/2

• Automatically updated useful pages every night

• To advertise specific information about the services available to the communities in a form that is easy to access and use:
  - https://www.cnaf.infn.it/~usersupport/

Welcome to the user support page of CNAF
The features of the storage areas are available at:
- StoRM storage areas
- StoRM webDAV storage areas
- StoRM webDAV storage areas with JWT authentication
- XrootD storage areas

LCG environments list
- LCG envs from CVMFS

Storage Areas per service and experiment

LCG envs via CVMFS
Handy links to useful pages 2/2

**LCG Environments navigator**

In the table below you find the updated list of LCG environments available through CVMFS. Pick one of your choice from the list below, depending on the compiler, root version etc. and then run the following command on a unix interface:

```
source /cvmfs/sft.cern.ch/lcg/views/lCG enviromenvs/setup.sh
```

<table>
<thead>
<tr>
<th>env</th>
<th>env_version</th>
<th>compiler</th>
<th>root_version</th>
<th>python_version</th>
<th>python2_version</th>
<th>python3_version</th>
<th>cpp_version</th>
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<tbody>
<tr>
<td>LCG_99</td>
<td>x86_64-centos7-gcc9-opt</td>
<td>g++</td>
<td>6.22.04</td>
<td>2.7.16</td>
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<td>g++</td>
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**StoRM WebDAV storage areas with JWT authentication**

**aa.wp6**

<table>
<thead>
<tr>
<th>StoRM WebDAV endpoint</th>
<th>Access point</th>
<th>Root path</th>
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<tbody>
<tr>
<td>xfer.cr.cnaf.infn.it</td>
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**belle**

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**cta-lst**

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<td>/cta-lst</td>
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</tbody>
</table>
Communication channels

- Mailing lists to reach the users regarding the datacentre status
- Ticketing systems:
  - GGUS, mainly for WLCG VOs
  - Ticketing system for internals
  - Ticketing system for users (in development)
Typical issues

• **First level** support
  - disk quota exceeded
  - issues with batch jobs (not running, getting killed, etc…)
  - explanations/documentation requests

• **Second level** support (usually escalated to other CNAF teams)
  - installation of software
  - filesystem access management (SA configuration, POSIX permissions)
  - network problems

• Due to the overlap with other units, part of the second level support is also carried out in cooperation with the User Support team
Conclusions and perspectives

• Challenges for the User Support:
  - **keep its central role** between scientific communities and the INFN computing ones
  - support over multiple infrastructures => increase in workload driven by the DataCloud project (see poster 27 on Thursday)
    ▶ an increasing adoption of automation techniques
    ▶ getting more people involved to keep a sustainable personal effort

• Future plans:
  - **Harmonisation** of the INFN-Cloud and T1 **documentations**
  - Gain good visibility of on both **cloud** and **T1** usage.

• Fostering the creation of a **community of users** who provide **mutual support** on common computing topics
Thank you for your attention