

The INFN scientific computing infrastructure: present status and future evolution

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The INFN scientific computing infrastructure is composed of more than 30 sites, ranging from CNAF (Tier-1 for LHC and main data center for nearly 30 other experiments) and 9 LHC Tier-2s to ~20 smaller sites, including LHC Tier-3s and not-LHC experiment farms.

A comprehensive review of the installed resources, together with plans for the near future, has been collected during the second half of 2017, and provides a general view of the infrastructure, its costs and its potential for expansions; it also shows the general trends in software and hardware solutions utilized in a complex reality as INFN.

As of the end of 2017, the total installed CPU power exceeded 800 kHS06 (~80,000 cores) while the total storage net capacity over 57 PB on disk and 97 PB on tape: the vast majority of resources (95% of cores and 95% of disk) are concentrated in the 16 largest centers.

Future evolutions are explored and are towards the consolidation into big centers; this has required a rethinking of the access policies and protocols in order to enable diverse scientific communities, beyond LHC, to fruitfully exploit the INFN resources. On top of that, such an infrastructure will be used beyond INFN experiments, and will be part of the Italian infrastructure, comprising other research institutes, universities and HPC centers.

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