



# CERN Computer Centre expands

A significant expansion of the CERN Computer Centre was inaugurated last week. The project, for which construction work began in April 2011, has seen the addition of a new computer room housing 90 new racks of servers, enabling critical systems to be decoupled from those deemed non-critical.

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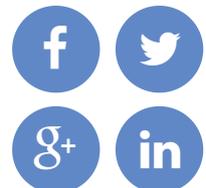


*The CERN Computer Centre is home to the WLCG.  
Image courtesy CERN.*

week at [CERN](#), near Geneva, Switzerland, an event was held to inaugurate 'the CERN Computer Centre Consolidation'. The consolidation has entailed the creation of a new room, which will play host to

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critical IT systems at the organization, including email, financial, and HR systems, thus allowing them to be decoupled from non-critical ones.

Decoupling critical systems in this manner enables them to be kept running should a major incident occur.

Construction of the consolidation project started back in April 2011 and work is scheduled to reach full completion this July. However, the new IT room, which hosts 90 racks of servers, has been operational since the start of this year. The racks are water cooled from an independent cooling system, with passive heat exchangers in the rear doors, which have a low risk of failure. This cooling approach was chosen because of the power savings it offers, as well as being relatively inexpensive compared to many other cooling methods. Such passive systems also avoid issues relating to fan failures. The average power capacity of each rack is 5 kilowatts, meaning that the new room has a total power capacity of 450 kilowatts. "The consolidation has allowed us to restore important redundancy, secure the critical systems and has also allowed us to increase the overall computing power capacity of the IT Centre from 2.9 to 3.5 megawatts and," says Frédéric Hemmer, head of [the CERN IT department](#).

Last month, [European Grid Infrastructure \(EGI\)](#) published a [new report into the sustainability plans for heavy-user-community \(HUC\) activities](#). One such HUC, is the high-energy physics community, in which CERN plays a leading role.

The report discusses sustainability of the WLCG, which is funded through memoranda of

CERN

Computer Centre

computing

Data Centre

IT

racks

WLCG

understanding (MOUs) signed by [the funding agencies which provide resources](#). These MOUs renew automatically and are expected to run for the lifetime of [the Large Hadron Collider \(LHC\)](#).

Discover more about sustainability for the WLCG in [the full report](#), where you can also find out about sustainability plans for other HUCs, including Earth sciences, life sciences, and astronomy and astrophysics.

Having an independent cooling system makes the new IT room ideally suited for the housing of critical systems. The power supply for the whole [CERN Computing Centre](#) has also been extended with the creation of new electrical rooms containing uninterruptable power supply (UPS) systems, together with 500 batteries. Should the main power supply fail, these batteries, combined with others located in other on-site UPS rooms, can provide operators with 10 minutes' worth of additional power in order to shut down servers. This time could prove extremely useful when it comes to avoiding data failure or corruption for major services, such as the [Worldwide LHC Computing Grid \(WLCG\)](#), for which the CERN Computing Centre is the Tier-0 site. Critical systems are provided with yet further backup from the site diesel generators.

During construction of the extension, concerns relating to the stability of the underlying slab and its ability to support the load of the new rooms, which also house heavy copper cables, led to a redesign of the pre-support structure of the

electrical rooms and a faulty coil led to a fire in the UPS system last year. Despite these setbacks, the consolidation is set to be fully completed on time and on budget. Hemmer says: "This is a major step forward in ensuring the continuity of CERN critical computing systems and is one element of the business continuity plan of the IT department".

- *Andrew Purcell*

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