Supporting research with grid computing and more

iSGTW interviews Jorge Gomes, member of the European Grid Infrastructure (EGI) executive board, ahead of next month's EGI Conference in Lisbon, Portugal. He explains why it is vital to support research with grid computing, as well as with a range of related IT services. “In order for researchers to be able to collaborate and share data with one another efficiently, the underlying IT infrastructures need to be in place,” says Gomes. “With the amount of data produced by research collaborations growing rapidly, this support is of paramount importance.”

Jorge Gomes is the principal investigator of the computing group at the Portuguese Laboratory of Instrumentation and Experimental Particles Physics (LIP) in Lisbon and a member of the European Grid Infrastructure (EGI) executive

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board. As the technical coordinator of the Portuguese national grid infrastructure (INCD), he is also responsible for Portugal's contribution to the Worldwide LHC Computing Grid (WLCG).

iSGTW *speaks to Gomes about the importance of supporting researchers through a variety of IT infrastructures ahead of the EGI Conference in Lisbon from 18 to 22 May 2015.*

What's the main focus of your work at LIP?

I've been doing research in the field of grid computing since 2001. LIP participates in both the ATLAS and CMS experiments on the Large Hadron Collider (LHC) at CERN, which is why we've been

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working on research and development projects for the grid computing infrastructure that supports these experiments.

Here in Portugal, we now have a national 'road map' for research infrastructures, which includes IT infrastructures. Our work in the context of the Portuguese national grid infrastructure now involves supporting a wide range of research communities, not just high-energy physics. Today, we support research in fields such as astrophysics, life sciences, chemistry, civil engineering, and environmental modeling, among others. For us, it's very important to support as wide a range of communities as possible.

So, when you talk about supporting researchers by providing 'IT infrastructures', it's about much more than grid computing, right?

Yes, today we're engaged in cloud computing, high-performance computing, and a wide range of data-related services. This larger portfolio of services has evolved to match the needs of the Portuguese research community.

Why is it important to provide IT infrastructures to support research?

Research is no longer done by isolated individuals; instead, it is increasingly common for it to be carried out by large collaborations, often on an international or even an intercontinental basis. So, in order for researchers to be able to collaborate

and share data with one another efficiently, the underlying IT infrastructures need to be in place. With the amount of data produced by research collaborations growing rapidly, this support is of paramount importance.

Here in Portugal, we have a lot of communities that don't yet have access to these services, but they really do need them. Researchers don't want to have to set up their own IT infrastructures, they want to concentrate on doing research in their own specialist field. This is why it's important for IT specialists to provide them with these underlying services.

Also, particularly in relatively small countries like Portugal, it's important that resources scattered across universities and other research institutions can be integrated, in order to extract the maximum possible value.

When it comes to encouraging researchers to make use of the IT infrastructures you provide, what are the main challenges you face?

Trust, in particular, is a very important aspect. For researchers to build scientific software on top of IT infrastructures, they need to have confidence that the infrastructures will still be there several years down the line. This is also connected to challenges like 'vendor lock in' and standards in relation to cloud computing infrastructure. We need to have common solutions so that if a particular IT

infrastructure provider - either public or private - fails, users can move to other available resources.

Another challenge is related to the structure of some research communities. The large, complex experimental apparatuses involved in high-energy physics means that these research communities are very structured and there is often a high degree of collaboration between research groups. In other domains however, where it is common to have much smaller research groups, this is often not the case, which means it can be much more difficult to develop standard IT solutions and to achieve agreement on a framework for sharing IT resources.

Why do you believe it is important to provide grid computing infrastructure at a European scale, through EGI, rather than just at a national scale?

More and more research groups are working internationally, so it's no longer enough to provide IT infrastructures at a national level. That's why we also collaborate with our colleagues in Spain to provide IberGrid.

EGI is of great strategic importance to research in Europe. We're now exploring a range of exciting opportunities through the European Strategy Forum on Research Infrastructures (ESFRI) to support large flagship European research projects.

The theme for the upcoming EGI conference is 'engaging the research community

towards an open science commons'. What's the role of EGI in helping to establish this commons?

In Europe we still have a fragmented ecosystem of services provided by many entities with interoperability issues. A better level of integration and sharing is needed to take advantage of the growing amounts of scientific data available. EGI proposes an integrated vision that encompasses data, instruments, ICT services, and knowledge to reduce the barriers to scientific collaboration and result sharing.

EGI is in a strategic position to integrate services at the European level and to enable access to open data, thus promoting knowledge sharing. By gathering key players, next month's conference will be an excellent opportunity to further develop this vision.

Finally, what are you most looking forward to about the conference?

The conference is a great opportunity for users, developers, and resource providers to meet and exchange experiences and ideas at all levels. It's also an excellent opportunity for researchers to discuss their requirements and to shape the development of future IT infrastructures. I look forward to seeing a diverse range of people at the event!

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