



CONNECT INTERVIEW:

AUGUSTO BURGUEÑO ARJONA

Augusto BURGUEÑO ARJONA is Head of the eInfrastructure and Science Cloud Unit at the Directorate C – Digital Excellence and Science Infrastructure, part of the European Commission Directorate General for Communication Networks, Content and Technology.

After completing a PhD in Computer Science, Augusto joined the EC in 1998 and progressed through management roles in IT and finance units supporting the implementation of the EU's research programmes. In 2014, he moved to his current post, which he describes as his first operational unit, where he sees things from the outside, from the view of the grant beneficiaries. GÉANT spoke with Augusto to learn more about the EDI, EOSC, and the GÉANT community's role in the changing environment of research.

How has the environment changed during Horizon 2020, and how is this reflected in the objectives of your Unit?

Taking stock of the last five years, we can see that we have had to adapt to changes, mostly technological, to ensure we continue to serve researchers in the best way possible. For example, the arrival of cloud technologies has had a huge impact on the way we fund e-infrastructure projects within Horizon 2020. Before this, funding streams were defined by technology area, including: networking, distributing computing,

data, and high performance computing. Projects reflected this approach, for example GÉANT, EGI, EUDAT, OpenAIRE, and PRACE, and, as a result, communities of beneficiaries emerged around those projects. With recent technology change, vertical integration is the predominant way forward, technologies cannot be separated and communities cannot work in isolation.

As this technological shift called for greater integration, engineers adapted to those changes to continue supporting their users. Overlap in the scope of different initiatives was inevitable and different organisations ended up working on the same things. We had to rethink

the way funding worked to avoid creating artificial borders.

To eliminate the overlap, we started to progressively change the funding architecture, moving away from independent projects focused on independent technologies, and bringing all the actors and expertise under one initiative. This transition was done in an all-inclusive fashion – nobody should be left outside.

This is where the European Open Science Cloud (EOSC) started, with integration and consolidation of e-infrastructure projects.

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Where are we now?

In the early stages of bringing together different communities, there were inevitably some inefficiencies. However, all the participants have now made excellent progress, and I’m proud to say we are very close to launching the first version of the EOSC portal, which will benefit many researchers, before the end of 2018. The EOSC-hub project, in which GÉANT plays a role, has been key to implementing the EOSC initiative, and by 2020 we will be in a very solid position to demonstrate how wide availability of scientific data and data analysis services for European researchers can be ensured through a pan-European access infrastructure.

One of GÉANT’s biggest strengths is its community – the relationship between the GÉANT project, Association and the NRENs, and the clear vision that the NRENs and GÉANT have developed together. This is a fantastic asset, however, it sometimes can present an issue where the GÉANT community is encouraged to engage in an initiative, and some members of the community do not see a direct advantage of doing so. When we look at the implementation of EOSC projects, GÉANT plays a role in trust and identity and access services, and there is potential for further engagement in areas such as procurement. But this is not enough. The GÉANT community needs to reposition itself to strongly support the EOSC vision.

For example, there are a number of above-the-net services (tools and services on top of network connectivity) from NRENs that we also see are services provided by other beneficiaries involved in the EOSC. If we want to avoid duplication and fully leverage NRENs’ expertise, it is important to take a strategic approach to integrate the above-the-net services in the EOSC vision. That does not mean that we would neglect our support we provide to networking services, or the networking structure. On the contrary, we want to reinforce this support as it is integral to the strategic vision – without the GÉANT

network there is no EOSC. But we need to tap into the potential of the community to fully support EOSC.

It is worth remembering that the EOSC initiative reflects the way researchers are doing research. EOSC has emerged from the needs of researchers, it has not been imposed. My responsibility is to ensure funds are managed in the optimal way, and are distributed to best support researchers.

We are engaging all communities in a common approach to defining what EOSC is, and how it supports future research. Indeed, the communities have written the proposal – through the EOSC-hub project – that is constructing the path to how the communities work together.

How will DI4R help?

The DI4R conference is a very welcome initiative that came from the community, to bring together and build bridges amongst all the different H2020 project participants. We have seen clear progress through DI4R – in its first edition we saw individual representations of former partnerships, in the second it was a far more integrated approach showing how partners all work together. This year should be a continuation – the NRENs that go to the conference will see how all the players are collaborating.

I would like to see a clear consensus in the way forward, with commitment from all communities and understanding that the funding will continue, but that some communities may need to alter direction and focus in order to continue serving their own communities.

With global research collaboration set to increase in the future, how will the role of European research change in this context, and will this influence the requirements of Europe’s e-infrastructures?

Our approach is relatively stable in areas such as networking. We have always been internationally focused, so when there are opportunities to exploit extra funding we are willing to contribute and share expertise in mobilising our beneficiaries to engage in international research collaborations. This is the case of the BELLA project, for example, which enables the construction of a direct link between the EU and South America.

In terms of e-infrastructures, our international strategy is centred around the Research Data Alliance (RDA), and we would like to make sure that solutions that are built in Europe to address research collaboration can be implemented worldwide. Our challenges

now include how to improve the technological and organisational aspects related to where data is sitting and where it is being used.

Horizon 2020 allows international partners to engage with European projects, and to utilise what is made available for the projects. If the number of projects increases, we will of course allow these partners to continue to take part, and RDA will also make interoperability possible across the globe.

So far the focus of the European Commission has been supporting research e-infrastructures, however recent developments and policy announcements by Commissioners have shown that there is a strong push to internationalise the education aspect across Europe. How do you see the involvement of your unit with this aspect of e-infrastructure strategy?

In the same way that distinctions were made between technologies and communities developed around those, historically, the Commission has also considered research and education communities as distinct groups. While the current allocation of responsibilities within the European Commission means that infrastructure to support primary and secondary education is currently out of our scope, these two areas should not be viewed as separate.

Instead, we should aim to demonstrate how the work we do encourages alignment of research and education. A good example is the European Student Card initiative that will enable every student to easily and safely identify and register themselves electronically at higher education institutions within the EU – and which is compatible with eduGAIN standards. This can show that borders between research and education only exist because of funding streams, not because that is how they are seen by our users.

The next Framework Programme from 2021 retains the distinction between research and education, so

“Without the GÉANT network there is no EOSC”



unless there is progress with clear examples this split may continue.

We see a similar issue with infrastructures for innovation, to apply outcomes to industrial use. We see that some research infrastructures cannot be used for industrial innovation. In practical terms, we need to see how to combine the two areas. These distinctions can be addressed by all of us.

How do you see the relationship between EDI and EOSC? Are the two initiatives set to interact more closely in the future?

A researcher may have a data source in one location, the software will exist somewhere else, and the computing power will be somewhere else again. We are looking for a situation where the software can catch this data, analyse it through the supercomputing facilities and deliver results – and for this all to be available and configurable by the researcher from a single location.

The European Data Infrastructure (EDI) is focused on high performance computing and GÉANT is about to play a vital role in this, connecting physical supercomputing centres to create a distributed facility of supercomputers. The supercomputing centres have a range of services, developed by on-site software engineers and available online.

The EOSC aims to enable remote access to existing facilities through a

Picture
Europe's researchers will benefit greatly from the EOSC and EDI initiatives

single marketplace. As EDI progresses and more services are available online, so the EOSC marketplace will expand to include those services.

Therefore, researchers will be able to go to the EOSC marketplace, compose their service requirements – including those from the EDI – and achieve their results remotely. There is clear integration in the sense that EDI acts as the distributed facility that will provide services, through the EOSC marketplace.

What would be the ideal way for GÉANT and the NRENs to contribute to the goal of European Research being the most advanced in the world?

We want to make services available to researchers through EOSC and GÉANT, and the NRENs have a big role to play in both EOSC and EDI initiatives. There are also other dimensions that are not so infrastructure-orientated, for example, bridging the gap between research and innovation. To achieve this, a greater proportion of research results must lead to actual societal benefit, such as growing the economy, improving health, and so on, and for that there must be closer links to industry. NRENs could develop stronger links with industry to increase knowledge transfer or facilitate implementation. We again see here

“GÉANT will play a vital role in the European Data Infrastructure (EDI)”

the occasional challenges in a pan-European approach when there is not consensus about how industry or even other public entities can use the GÉANT infrastructure.

And how do you see GÉANT and the NRENs contributing over the next 5 years?

Both EDI and EOSC initiatives have likely timeframes of around five years. It will take this time for EDI to interconnect the supercomputers, and for EOSC to consolidate the services.

GÉANT could also contribute in the areas where it has strong experience – such as pan-European governance structure. GÉANT has lessons to share with other communities on how to combine national and European funding for common purposes.