

UbuntuNet CONNECT 2018

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AARCLight - New opportunities for South Atlantic R&E Network collaboration between Africa, Brazil, and the US

Higher Education and Research science is being conducted in an era of information abundance. Sharing educational resources (e.g. Libraries, Curriculum, Online courses) and science resources, such as data, instrumentation, technology, and best practices, across national borders, can promote expanded global education goals and scientific inquiry and has the potential to advance discovery. Providing robust diverse Research and Education Networks (RENs) linking the U.S., Brazil (S. America) and the nations of Africa researcher and education communities is an increasingly strategic priority. Africa has developed research and education communities with unique biological, environmental, geological, anthropological, and cultural resources. Research challenges in atmospheric and geosciences, materials sciences, tropical diseases, biology, astronomy, and other disciplines will benefit by enhancing the technological and social connections between the research and education communities of these three continents via a S. Atlantic route to complement the existing North Atlantic routes via Europe.

This paper will discuss the new availability of submarine cable spectrum for RENs via SACS between Luanda, Angola and Fortaleza, Brazil and MONET between Fortaleza and Florida in the U.S. for use by research and education communities. It creates an unprecedented opportunity for the stakeholders in the U.S., Africa, and Brazil to coordinate planning efforts to strategically make use of the offered spectrum towards serving the broadest communities of interest in research and education. The network will be a foundational layer for the employment of new network and cybersecurity technologies (e.g. Science DMZ, SDN, SDX, etc.).

The paper seeks to leverage a discussion of opportunities for new R&E Exchange point at Luanda, Angola to promote discussion and identify synergies with UbuntuNet members. Florida International University and AmLight consortium partners are planning, designing, and defining a strategy for high capacity connectivity research and education network connectivity between the US and Southwest Africa, called Americas Africa Research and eduCation Lightpaths (AARCLight). Furthermore, the other “end” of the SACS cable is being connected to an Open Fortaleza R&E Exchange point in Brazil. The new academic exchange point, South Atlantic Crossroads (SAX) is managed by Rede Nacional de Ensino e Pesquisa (RNP), where AmLight connects and continues on the MONET spectrum to Boca Raton and Miami Florida. Having the transport service opened in Fortaleza will allow RENs from South America to collaborate with partners in Africa with significantly less delay, (at least 150ms lower) than using the current paths available. High resolution video and big data applications will benefit from the establishment of the SAX international exchange point in Fortaleza. An opportunity for using a spectrum to reach continental US, African R&E researchers could collaborate with partners in the Brazil and U.S., also with reduced delay, at least 100ms lower, compared to the current paths available.

Summary

Sub-Theme

SMART Governance: Services and tools

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