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MoRENet as a Platform for Intra-country Collaboration in Research and Education: Evidence Based on Analyses of Usage Patterns and Network Data Flows

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MoRENet (Mozambique Research and Education Network) has been defined as a technological platform to support the collaboration between national research and education actors within the country, and between these and their peers in Africa and other parts of the world. Focused on this aim and on the government's policy of facilitating the mobility of researchers, lecturers, and students, the Government of Mozambique, has been promoting and supporting the establishment of MoRENet, a network that interconnects today more than 91 research and education institutions distributed by all the provinces of Mozambique. This number includes all tertiary education institutions, research institutions and a small number of technic professional educations. This number covers institutions in areas like agriculture, education, health, energy, tourism, food processing and food sciences, architecture and engineering, social sciences and humanities opening a wide spectrum for intra and interdisciplinary research and education collaboration initiatives.

This paper will explore the measurement and analyses of usage patterns and network data flows to investigate the usage of MoRENet as a platform to promote and support the collaboration between actors of the scientific and academic community within Mozambique as well as between them and their peers in Africa and other parts of the world. It will also provide evidence, based on the analyses of MoRENet data traffic, protocols, topology and architecture as well as the on the applications and services accessed by users, the potential role of MoRENet's policies, strategies, architecture, and controls in promoting or hindering the growth of the network.

The Government of Mozambique MoRENet's investment was instrumental in the growth of the network capacity in its national and international links as well as in its storage capacity in both NOCs (Network Operations Centers) enabling significant capacity to host research and education related applications and content. MoRENet has grown from 1 STM-1 international link to 12 STM-1s, from 50 Mbps national backbone links to 500 Mbps, and from 20 Mbps access links to 100 Mbps in less than four years. This paper will explore, through specific measurements tools, techniques, and parameters, the utility of MoRENet's data communications, storage and processing capacities as incentives for national research and education institutions to localize their content in MoRENet's infrastructure as well as for other content providers to elect MoRENet as a partner for peering agreements.

As part of this work and through appropriate tools and techniques, the MoRENet technical team will measure and analyze, with the purpose of generation policy recommendations, about the usage of applications, their localization and the possible peering agreements. Based on the results of the assessment of usage patterns of MoRENet, including the analyses of access to applications and services determinant for the performance of the network, both at international and national backbone links, the MoRENet technical team will propose measures for improving the management and performance of the network as well as for easing the identification and establishment of links between institutions, between researchers, and between students of different institutions within Mozambique with the aim of building communities.

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