POSTAL AND TELECOMMUNICATIONS REGULATORY AUTHORITY OF ZIMBABWE (POTRAZ)

'creating a level playing field'

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Title: Regulatory Approaches for Cloud Computing in the NGN Era

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1. Introduction

Cloud Computing can be defined as the use of the internet to provide highly scalable, virtualized data centres where resources are shared by different users and billing is based on usage. By its nature, cloud computing involves the sharing of resources by different organisations. Such sharing is achieved through virtualized compartments as opposed to physically different hardware. This presents a number of security and privacy concerns and calls for the need for regulatory authorities to put in place regulations that will help allay some of the security and privacy fears and stimulate their countries to embrace cloud computing technology. This paper tries to look at the different approaches regulatory authorities can adopt to foster access to digital approaches though cloud services, especially as we migrate to IP-Based Next Generation Networks (NGN) offering converged data, voice and video services.

2. Regulating Data Security, Privacy and Sovereignty in Cloud Computing

One of the reasons why many countries have lagged behind in embracing cloud computing has been security and privacy concerns. There is a great deal of highly sensitive information on the cloud and much of it is vulnerable to unauthorized access. Failure to address these issues in a uniform and consistent manner will continue to discourage widespread uptake of cloud computing. Regulators need to come up with regulatory approaches that will prompt cloud service providers to step up their security and privacy initiatives. Fear of fines and even potential jail-time can force providers to pay increased attention to security and privacy issues thereby increasing confidence among all stakeholders and improving the uptake of cloud computing.

When it comes to data sovereignty in the cloud environment, a distinction should be made between prescriptive jurisdiction and enforcement jurisdiction. Prescriptive jurisdiction refers to a regulator's ability to put in place regulations governing certain cloud computing transactions. Enforcement jurisdiction refers to the regulator's ability to enforce compliance with the set regulations. The effectiveness of any regulation is measured by its enforcement jurisdiction and not its prescriptive jurisdiction. However, a nation can only exercise enforcement jurisdiction on persons or entities that are resident or have assets within its territorial jurisdiction. This is where cloud computing presents a major challenge. In a Cloud Computing environment, users are usually not aware of where their data is located. It could even be hosted in another country or continent. Most cloud computing content providers have no presence or assets in the territorial jurisdictions that wish to regulate their content. A cloud service provider in one country can broadcast content to consumers in several other countries, including countries where that content may be considered to have negative implications for data protection, data sovereignty, data privacy and child online protection.

Although regulators cannot stop the flow of internet packets across their borders they can still regulate the activities of foreign content providers by going after their local assets. Where the foreign content providers do not have local assets, regulators can put in place regulations that will discourage local service providers and consumers from moving and accessing the unwanted content. Such regulations may include punishing local consumers of the content, regulating the hardware and software used to effect these transactions, regulating activities of the local service providers and regulating the activities of credit card companies through which the activities are paid for.

3. Regulating IP-based Next Generation Networks (NGN)

As we move towards IP-based Next Generation Networks (NGN), we are of the view that regulators need to take particular attention to issues relating to market power, universal access to services and quality of service.

With regards to IP Interconnection, regulators should seek to ensure that all users derive maximum benefit in terms of choice, price and quality of service and; to minimise any distortion or restriction of competition; to avoid barriers to innovation and efficient investment in infrastructure. As such IP based services should be treated in the same way as traditional voice. What may be necessary is for regulators to review regulations with a view to purge old rules that have been rendered retrogressive by technological developments as well as cover any other negatives that come with technological evolution. A good example would be the increasing concern with regards to cyber security including national security issues.

Currently most call termination fees particularly in developing countries are not in any way related to costs and on the high side. The advent of NGNs has actually worsened the mismatch between cost incurred to provide termination services and the actual prices being charged. This is in view of the cost benefits that arise with the use of IP technology for carrying international traffic. This calls for regulators to come up with cost models for estimating costs of termination on NGN networks. This is critical in view of the fact that it is the service of the future.

Equally, IP interconnection should be treated in the same way as legacy interconnection with necessary adjustments to specifically cater for IP traffic. In essence, the International telecommunication Regulations (ITRs) should be crafted to cover more issues related to IP traffic settlements, cyber security and quality of service issues in cases where effective completion is non-existent.

On the issue of network neutrality, we are of the view that regulators should be able to dictate a minimum quality of service. Regulators should also put in place regulation to address intentional deviations from network neutrality by operators in an attempt to remove competition, create artificial scarcity, and oblige subscribers to buy their otherwise uncompetitive services.

4. Conclusion

The foregoing discussion clearly justifies the need for regulation of the cloud environment if uptake is to improve. Regulation in the NGN era is also necessary to ensure the deployment of services in areas where it would not make economic sense for private operators to do so. This includes access to emergency services, access by the disabled and for lawful interception services.