Boosting Open Internet Access through Carrier-Neutral Internet Exchange Point (IXP) (Pakistan)

Good practice: Enhancing connectivity and local content with carrier-neutral IXP

Relevant DFI commitment(s): Refrain from undermining the technical infrastructure essential to the general availability and integrity of the Internet.
Type of the initiative: Project
Stakeholder Group: Academia
Launch/adoption: 2018 - Now

Goals

The project aimed to establish a carrier-neutral, software-defined Internet Exchange Point (IXP) in Pakistan to enhance the country's internet infrastructure. Key objectives included:

- **Deployment of a Software-Defined IXP**: Leveraging Software-Defined Networking (SDN) technologies to enable advanced applications such as application-specific peering, traffic redirection through middleboxes, and inbound traffic engineering.
- **Capacity Building**: Implementing training programs to develop human resources skilled in managing IXPs and utilizing SDN controllers, thereby ensuring sustainable operation and management of the IXP.

Description

Implemented by the Lahore University of Management Sciences (LUMS) with support from the APNIC Foundation, the project focused on deploying a Software-Defined IXP in Pakistan. This initiative utilized recent advancements in SDN to introduce novel applications that enhance network performance and flexibility. The Pakistan Internet Exchange (PKIX) served as a testbed for deployment, testing, and evaluation. In addition to the technical deployment, the project conducted training programs aimed at building local expertise in IXP management and SDN technologies. This dual approach of technological implementation and capacity building was designed to ensure the IXP's long-term sustainability and effectiveness.

The establishment of a carrier-neutral, software-defined IXP in Pakistan offers several benefits that align with the principles of an open internet:

- **Enhanced Connectivity**: By enabling direct interconnection between Internet Service Providers (ISPs) and Content Delivery Networks (CDNs), the IXP reduces reliance on international transit routes, leading to improved local internet performance and lower latency.
- **Cost Savings**: Local traffic exchange through the IXP decreases international bandwidth costs for ISPs, potentially resulting in more affordable internet services for end-users.
- **Promotion of Local Content**: The IXP encourages the hosting and development of local content by providing a platform for efficient local traffic exchange, fostering a more vibrant and diverse internet ecosystem within the country.
- **Capacity Building**: The training programs associated with the project equip local professionals with the skills necessary to manage and operate IXPs, contributing to the development of a knowledgeable workforce dedicated to maintaining and advancing the open internet.

Overall, this project strengthens Pakistan's internet infrastructure, promotes efficient data exchange, and supports the global vision of an open, accessible, and resilient internet.