Strengthening efficient Internet traffic management through a subregional Internet Exchange Point (IXP) in Pacific Island Countries

3-9 December 2019, Suva, Fiji

Concept Note

1. Overview

The establishment of IXPs can have positive impacts on affordability, latency and traffic capacity. Yet, in the Pacific, few countries have established IXPs. Papua New Guinea recently established an IXP in 2017 with assistance from Internet Society, APNIC and other partners which at the time was estimated to result in a 10% decrease of prices of Internet services.[1] Fiji also established a national IXP in 2017 and reported that latency between local operators has improved significantly from 60ms to 2ms after its deployment.[2] The majority of other Pacific island countries do not have IXPs. Out of 12 Pacific island countries with data available on broadband affordability in 2017 (monthly expenditure on broadband service as a % of GNI/capita), only three are considered affordable (New Zealand, Australia and Nauru) for mobile-broadband services, while only two (Australia and New Zealand) are considered affordable for fixed-broadband services.

Taking these into consideration, Vanuatu requested the support of ESCAP and other international organizations on exploring the feasibility of establishing a regional IXP in the Pacific during a Pacific AP-IS sub-regional meeting[3] in November 2018. In response, through the Asia-Pacific Information Superhighway (AP-IS) initiative Pillar 2 'Internet Traffic & Network Management', ESCAP and the Internet Society (ISOC), in collaboration with the Asia-Pacific Network Information Centre (APNIC), the University of the South Pacific (USP) as Chair of the Pacific CROP ICT Taskforce, and the Pacific Islands Telecommunications Association (PITA) initiated a feasibility study on the possible deployment of a regional IXP in the Pacific. Following the completion of the feasibility study, a workshop for government officials is proposed to raise awareness of the benefits and build capacity in its proposed implementation.

2. Objective

To assess the feasibility of a regional IXP deployment for efficient and effective Internet traffic management in Pacific Island Countries.

3. Implementing and Collaborating Entities

The subregional workshop is led by ESCAP's Information and Communications Technology and Disaster Risk Reduction Division with support from ESCAP Subregional Office for the Pacific, in collaboration with Internet Society and the Asia-Pacific Network Information Centre, the University of the South Pacific (USP) as Chair of the Pacific CROP ICT Taskforce,

[1] https://news.pngfacts.com/2017/01/connection-to-ixp-facility-to-see-fall.html
[2] https://www.pacnog.org/pacnog22/presentations/Fiji-IX-update.pdf
[3] https://www.unescap.org/events/subregional-workshop-implementation-asia-pacific-information-superhighway-achieving

and the Pacific Islands Telecommunications Association (PITA).

4. Key Outputs

a) Study: "Feasibility of a Pacific Internet Exchange Point (IXP)";
b) Enhanced knowledge and awareness on appropriate policies, business model, opportunities and risks, and
c) Enhanced awareness of costs and benefits of possible alternative solutions.

5. Venue and Date

a) Venue: Suva, Fiji
b) Date: 3-5 December 2019

6. Feasibility Study (Terms of Reference) Draft

The findings of the feasibility study are expected to contribute to the following strategic initiatives of the AP-IS as follows:

- Initiative 1 (Identification, coordination, deployment, expansion and integration of the regional backbone networks at the cross-border intra- and interregional levels);
- Initiative 2 (Establishment of a subregional IXP);
- Initiative 4 (Enhancing ICT infrastructure resilience);
- Initiative 5 (Policy and regulations for leveraging existing infrastructure, technology and inclusive broadband initiatives); and
- Initiative 6 (Capacity-building).

Roles of ESCAP and role of partner institutions

Role of ESCAP

- To coordinate with Partner Institutions activities for the project;
- To provide related data, information and researches of ESCAP's AP-IS initiative;
- To facilitate collaboration between related experts, member countries, other AP-IS partners and the Partner Institution;
- To review, comment and evaluate the results of the feasibility study carried out by the Partner Institution; and
- To provide a regional capacity training and opportunity to discuss the findings and possible implementation within the framework of the regional AP-IS;

Role of Partner Institution (Internet Society)

- To conduct feasibility study, "Feasibility of a Pacific Internet Exchange Point (IXP)on regional IXP for efficient and effective Internet traffic management in Pacific Island countries", covering the following key issues:
    i. Evaluate the Internet speed, latency and other appropriate technical specifications of telecom operators in Pacific Island Countries, analyse trends and identify gaps/opportunities for improvement;
    ii. Evaluate undersea cable connectivity between Pacific Island Countries and its capacity and resiliency with respect to the feasibility of a regional IXP;

iii. Assess the economic, social, political, governance, and institutional risks and opportunities of Pacific Island Countries that may affect the successful deployment of a regional IXP;
iv. Assess the technical as well as other factors and recommend an institution in a Pacific island country to host the regional IXP, including business model and sustainable operation in the long-term;
v. Formulate a regional IXP modelling with governance structure, IXP policy, and IXP service in Pacific Island Countries; and
vi. Provide network design, network policy, operation and maintenance guideline, and cost-estimation for implementation of regional IXP in Pacific Island Countries;

Role of Partner Institutions (Pacific Islands Telecommunications Association)

- Co-host with ESCAP & ISOC a Pacific Expert Working Group meeting to discuss the findings of the IXP study and decide on the way forward.

Role of Partner Institutions (University of the South Pacific – Chair of Pacific CROP ICT Taskforce)

- Provide expert insights into Pacific ICT issues, including consolidation and updating the next Pacific Islands Forum Leader's meeting of the plans and activities of the AP-IS Pacific group.

Role of Partner Institutions (Asia-Pacific Network Information Centre)

- Develop training material based on the feasibility study's findings, and moderate regional training on operation and maintenance of regional IXP in Pacific island countries.

Work Plan

Activities	Description	Responsible Entity	Time Frame
1	Feasibility study: "Feasibility of a Pacific Internet Exchange Point (IXP)"	ISOC & ESCAP	3 months
2	Capacity training workshop: "Subregional capacity building on the benefits of establishing a Pacific Internet Exchange Point (IXP) in support of implementation of the Asia-Pacific Information Superhighway initiative"	APNIC, ISOC & ESCAP	3 days