Internet Exchange for Fiji

John Chand | Fiji | May 2017

What is an IXP?

An Internet Exchange Point (IX or **IXP**) is a physical infrastructure through which Internet Service Providers (ISPs) and Content Delivery Networks (CDNs) exchange Internet traffic between their networks (autonomous systems).

Purpose of an IXP in Fiji

The Internet Exchange of Fiji (FiX), will be the neutral meeting point of the ISPs in Fiji. Its main purpose is to facilitate exchange of domestic Internet traffic between the peering ISP members.

IXP in Fiji

This enables more efficient use of International bandwidth, saving foreign exchange. It also improves the Quality of Services for the customers of member ISPs, by avoiding multiple international hops and thus reducing latency.

Benefits for ISPs and Internet Users in Fiji

- Substantial cost-savings

- More bandwidth becomes available for local users

- Local contents are much faster

- Growth of Local Contents

- Access to more Content Providers are available via the IXP

- Reduce of Upstream Bandwidth congestion

- 'Unlimited' bandwidth through the IXP

Other Benefits

- Root Server mirrors

- Time Servers

- Content Servers

- Public Route Server and looking glass

- DNS to provide local resolution of country code and generic top level domains (ccTLDs and gTLDs) such as e.g, .fj

Content Provider Benefits

- Google
- Akamai
- Netflix
- Facebook
- LinkedIn
- Amazon
- Yahoo

What is Peering?

Peering is a process by which two Internet networks connect and exchange traffic.

It allows them to directly hand off traffic between each other's customers, without having to pay a third party (Upstream Transit Provider) to carry that traffic across the Internet for them.

VFL & TFL Peering Benefits - Example

Vodafone Fiji and Telecom Fiji are currently doing direct peering which enables them to save more than 50Mbps Upstream traffic at peak hours.

Bandwidth Cost: 50MB

IXP Peering Member Benefits

The bandwidth saving on peering traffic can be significant as local content and traffic will always increase.

1 Provider = 50M
5 Providers = 250M

CDN Benefits Per ISP

The bandwidth saving on peering CDN traffic can be significant.

Facebook per ISP: 150Mbps
NetFlix per ISP: 150Mbps
Apple per ISP: 120Mbps
Amazon per ISP: 20Mbps

Establishing the IXP

The hard part with establishing an IXP is not really the technical part, but building a community and trust.

Peering ISP Members

- Vodafone Fiji Limited (VFL)

- Fiji International Telecommunications Limited (FINTEL)

- Digicel Fiji Limited

- The University of the South Pacific (USP)

- Telecom Fiji Limited (TFL)

Selecting the Location for the IXP

Besides creating a community to support your IXP, the other important factor for establishing a successful IXP is its location.

It is very important to have a neutral data centre where any fibre infrastructure can be built in. These locations can be hard to find but are very critical for success.

Where will the IXP be located/hosted?

1. Fiji Government ITC Centre

2. FINTEL Vatuwaqa Communications Centre

3. University of the South Pacific

Type of Switch that we need

We need a switch that will support 1GE and 10GE ports, preferably via SFPs, not an expensive and large switch with a massive amount of features.
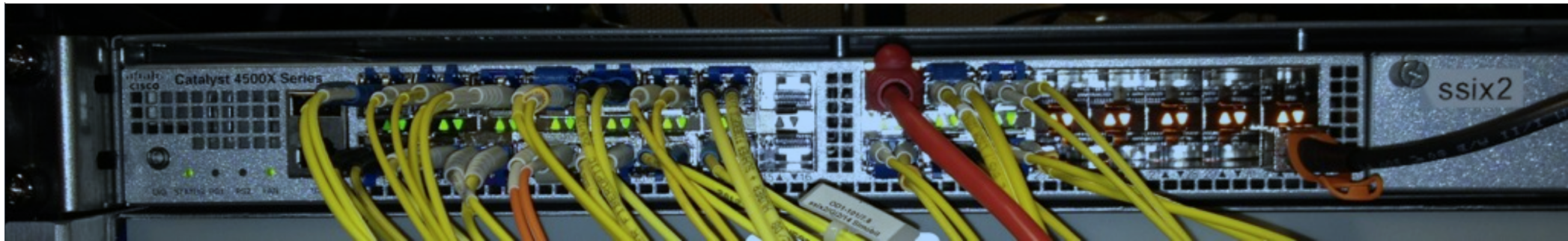
IXP Management & Operations

The IXP will be managed and operated on a Neutral basis and at a Neutral location, in line with the best practices for such initiatives globally.

Institutional Model to Operate IXP

1. Government Data Centre

2. Any University in Fiji

3. ISP Association of Fiji

Important Features of a Potential IXP Site

- Proximity to the networks of the potential peering members.
- Availability of electric power, including backup supply or generator.
- Availability of air-conditioning.
- Availability, capacity and reliability of telecommunication links
- Access to Fiber facilities or rights-of-way.
- Ability to build antenna towers or dig trenches for fiber.
- Ease of access. Independent 24X7X365 access for IXP member staff
- Quality of security. CCTV, 24 hour monitoring
- Availability of rack space.

IXP Setup Cost

- Server Room / Data Center
- Rack Space
- Power
- Air condition
- CCTV Camera
- Fiber access

IXP Network Design
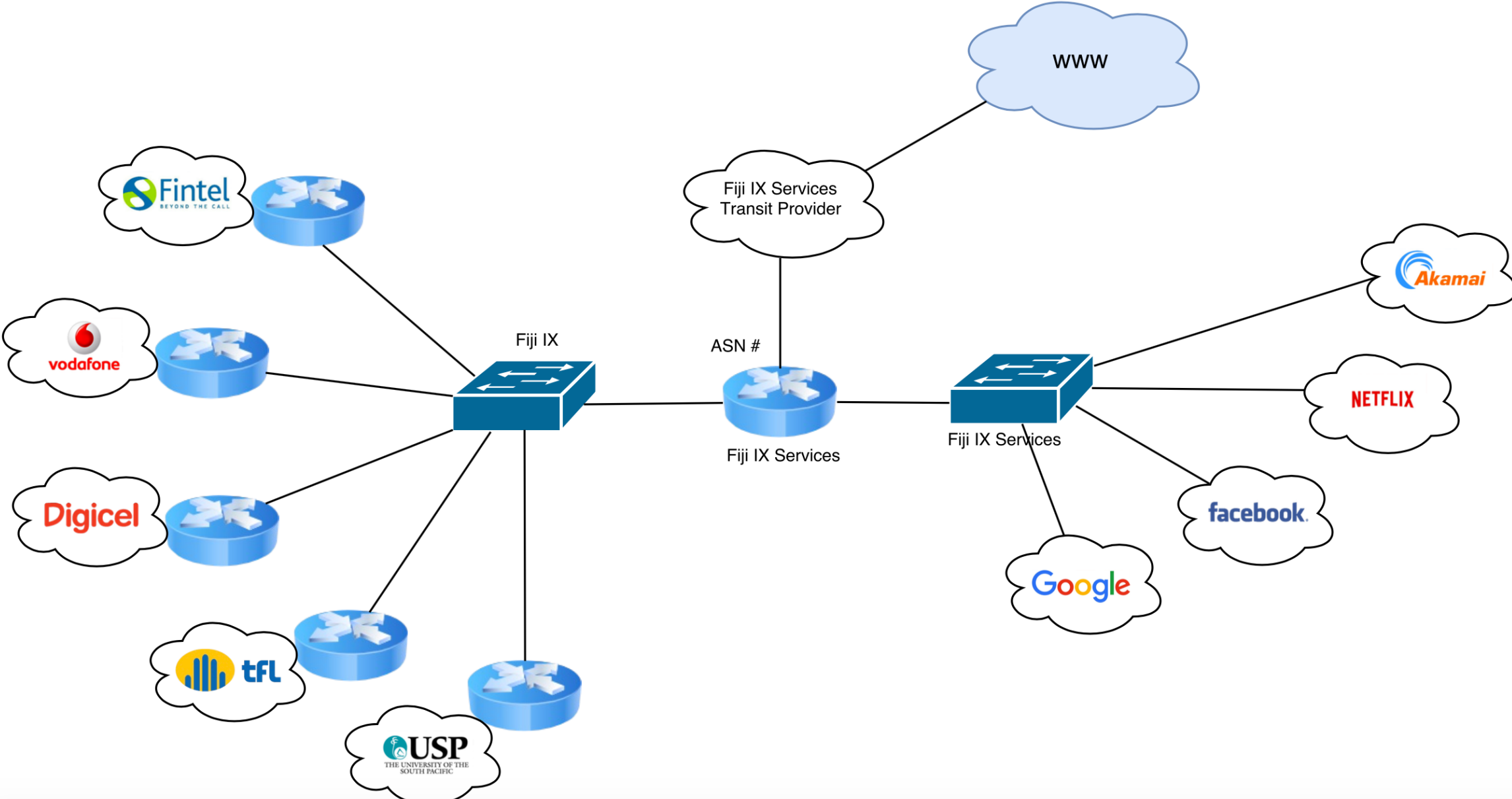
Vanuatu IXP - VIX

In December 2012, five local network operators signed an MOU to formally establish Vanuatu Internet Exchange with all industry stakeholders (bar an incumbent telecom operator).

Internet experience for the local community has improved significantly since the establishment of the Vanuatu IXP and continues to do so as more contents/services are added to the IXP.

The Vanuatu IXP, which is currently housed at the Vanuatu Government Datacenter, has since become critical infrastructure for Vanuatu.

PNG IXP

Papua New Guinea can expect an improved Internet experience as local Internet Service Providers (ISPs) begin connecting to the economy's first neutral Internet Exchange Point – PNG - IXP.
A soft launch event was held on 5 April 2017 to commemorate its operation with an official launch set for 17 May.

Hosted by PNG's telecommunication regulator, the National Information and Communications Technology Authority (NICTA), the new IXP will help reduce delay and operational costs associated with routing local traffic via international links, improving the quality of connectivity and service.

Regional IXP

Potential to setup a Regional IXP after the successfully establishment of local IXP.

- Vanuatu
- Tonga
- Samoa
- PNG

International Support

- APNIC - Asia Pacific Network Information Centre

- ICANN - Internet Corporation for Assigned Names and Numbers

- NSRC - Network Startup Resource Center

- ISOC – Internet Society

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Thank You

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