



FIJI-Internet Exchange Point (IXP)

FijiIX

What is an IXP

- An Internet Exchange Point is a physical infrastructure through which Internet Service Providers (ISPs) and Content Delivery Networks (CDNs) exchange Internet traffic between their networks (autonomous systems)
- The goal is to get the shortest route when sending local data or traffic so that the data quickly reaches its destination.

Purpose of IXP

- The Internet Exchange of Fiji is the neutral meeting point of the ISPs in Fiji. Its main purpose is to facilitate exchange of domestic Internet traffic between the peering members.
- It also improves the Quality of Services for the customers of member ISPs, by avoiding multiple international hops and thus reducing latency.



Purpose of IXP

- As Fiji ICT sector developed with 4 licensed ISP, it naturally set the need to setup a local Internet Exchange Point to exchange Internet traffic.
- The Fiji telecom regulator TAF liaised with ISPs to setup a Fiji-IXP to localise domestic internet traffic and the benefits it brings.
- Fiji-IX was setup in November 2017.



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)
- Fiji National University (FNU)
- Walesi Limited

IXP-Setup

- During the initial setup the Fiji-IX Steering Committee had limited resources available thus the first phase of setup was to use a single switch for private peering.
- Mode of operation – Non to Profit. Operational cost for IXP is equally divided amongst all the peering members.
- MOU was developed and signed between the operators.

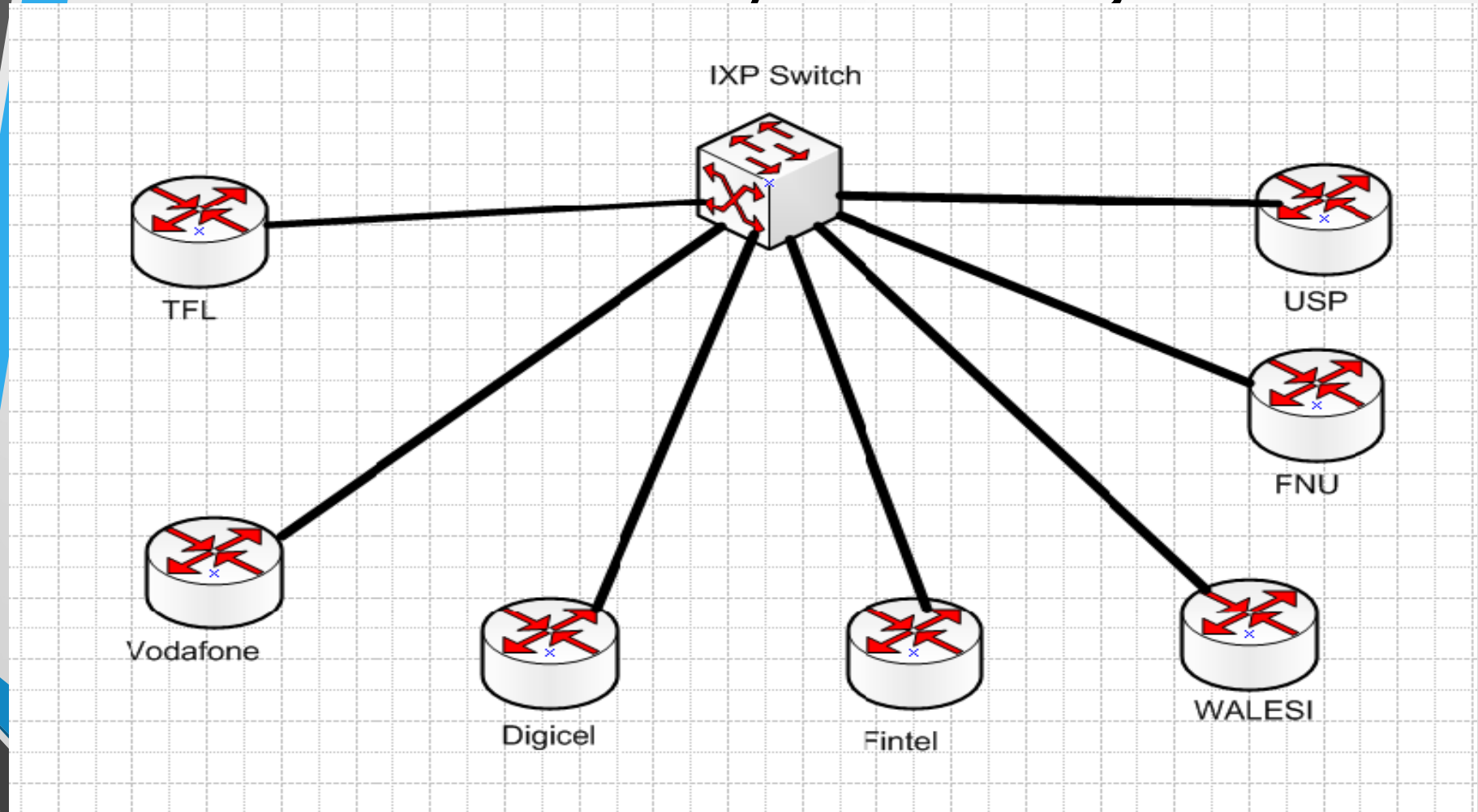
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- Phase 1 – connecting all ISPs in Fiji (Vodafone, Digicel, Telecom Fiji, FINTEL), which forms the Steering Committee for the Fiji-IX
- Phase 2 – connecting University of the South Pacific (USP), Fiji National University (FNU) , and WALESI Ltd which provide IP TV via mobile app.
- Phase 3 – Upgrade Fiji-IX through acquired Public ASN and IP Address from APNIC, backup switch for redundancy, Route Server, setup a IXP website and traffic monitoring.

IXP Location

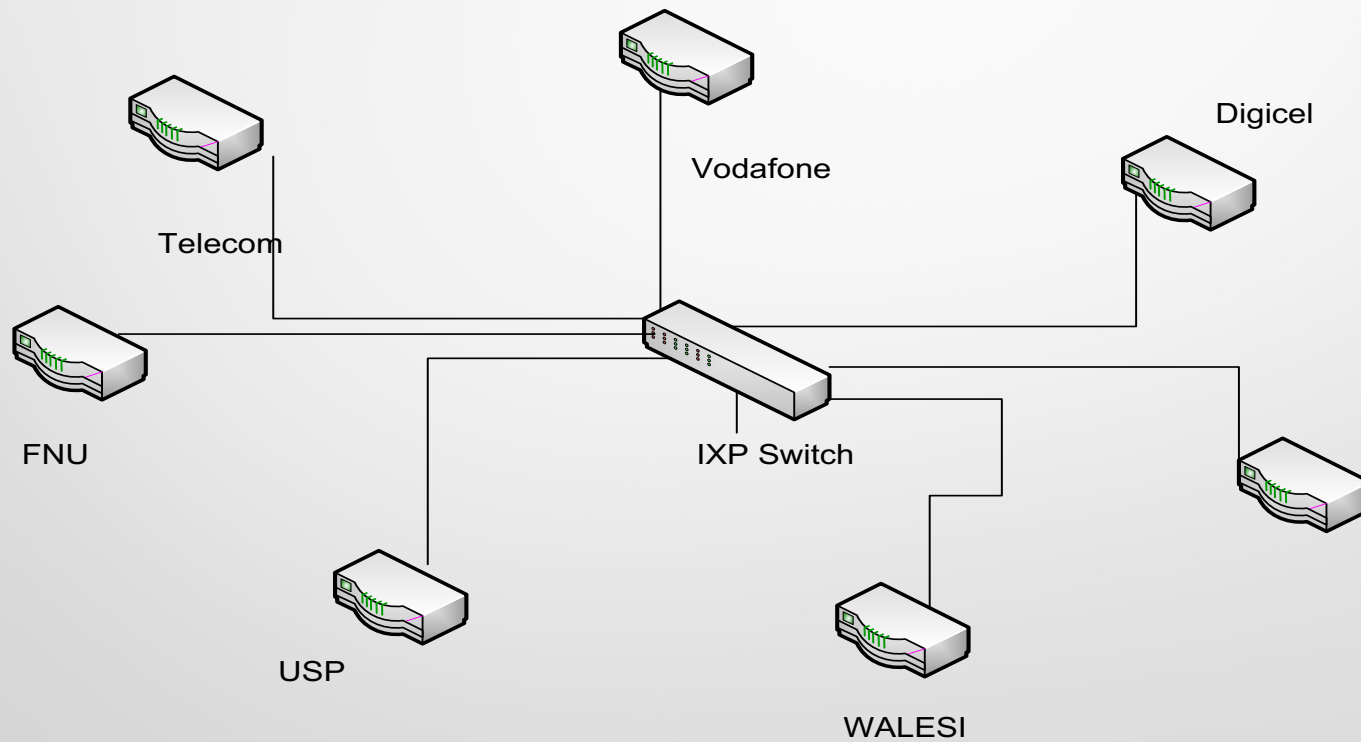
- The Fiji-IX is hosted at the FINTEL Vatuwaqa Communication Centre (VCC). Location was ideal for its proximity to the international gateway submarine cables.
- FINTEL was chosen as the best location as every major ISP provider already had a fibre connection to it, meaning there would be no large additional costs for ISPs to run lines

Network Layout Diagram



FIJI IXP

Fiji – Internet Exchange Point



Operators Comments

- The latency to reach other operators was minimum of around 60ms, as the nearest point of exchange between VFL and Digicel, for example, was in Australia (or 120ms+ if the exchange was happening in US). After the Fiji IX deployment, we can reach out to their IPs within 2ms.
 - **Vodafone**

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- The average latency has greatly improved averaging around 20ms from Fintel to the other providers. Before it used to be far more than this so we can say connectivity has improved a lot.
 - **Fintel**

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- We have seen traffic spike up to 100 Mbps over the past month and this is saving us bandwidth and any upgrade costs on our upstream circuit. The IXP allows Digicel to venture into more locally targeted services.
 - **Digicel Fiji**



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- The Fiji IXP has not only improved network performance, it has also improved communication and collaborative efforts between network operators. This collaboration will greatly impact the future enhancement of Fiji's Internet to be more open and secure.
 - **Telecom Fiji Limited**



IXP Benefits

- Operators are routing local traffic through the IX switch which benefits the operators by saving bandwidth on their expensive upstream links.
- For consumers, the domestic connectivity and the quality of service have improved as the route to reach the local contents is shorter.
- Local contents are much faster
- Substantial cost-savings
- With the Fiji-IXP in place Fiji is able to provide free access to education and health websites for all Fijians during the COVID-19 pandemic.
- IXPs have a positive impact on the cost, speed, quality, stability and robustness of the Internet. The benefits of an IXP directly influence the end-user experience

Future

- Working with UNESCAP and ISOC in setting up a Pacific IXP that will connect Fiji, Samoa and New Zealand, a feasibility study has been done by UNESCAP and technically a Pacific IXP will work.
- Pacific IXP will bring ICT economic benefits to Fiji.
- By hosting a node in Fiji for the Pacific IXP will position Fiji to become the ICT hub for the Pacific



International Support

- APNIC - Asia Pacific Network Information Centre
- ICANN - Internet Corporation for Assigned Names and Numbers
- NSRC - Network Startup Resource Center
- ISOC – Internet Society



Thank you !