



AHTIC Internet Exchange Point (AIXP), the value of competition and trust building

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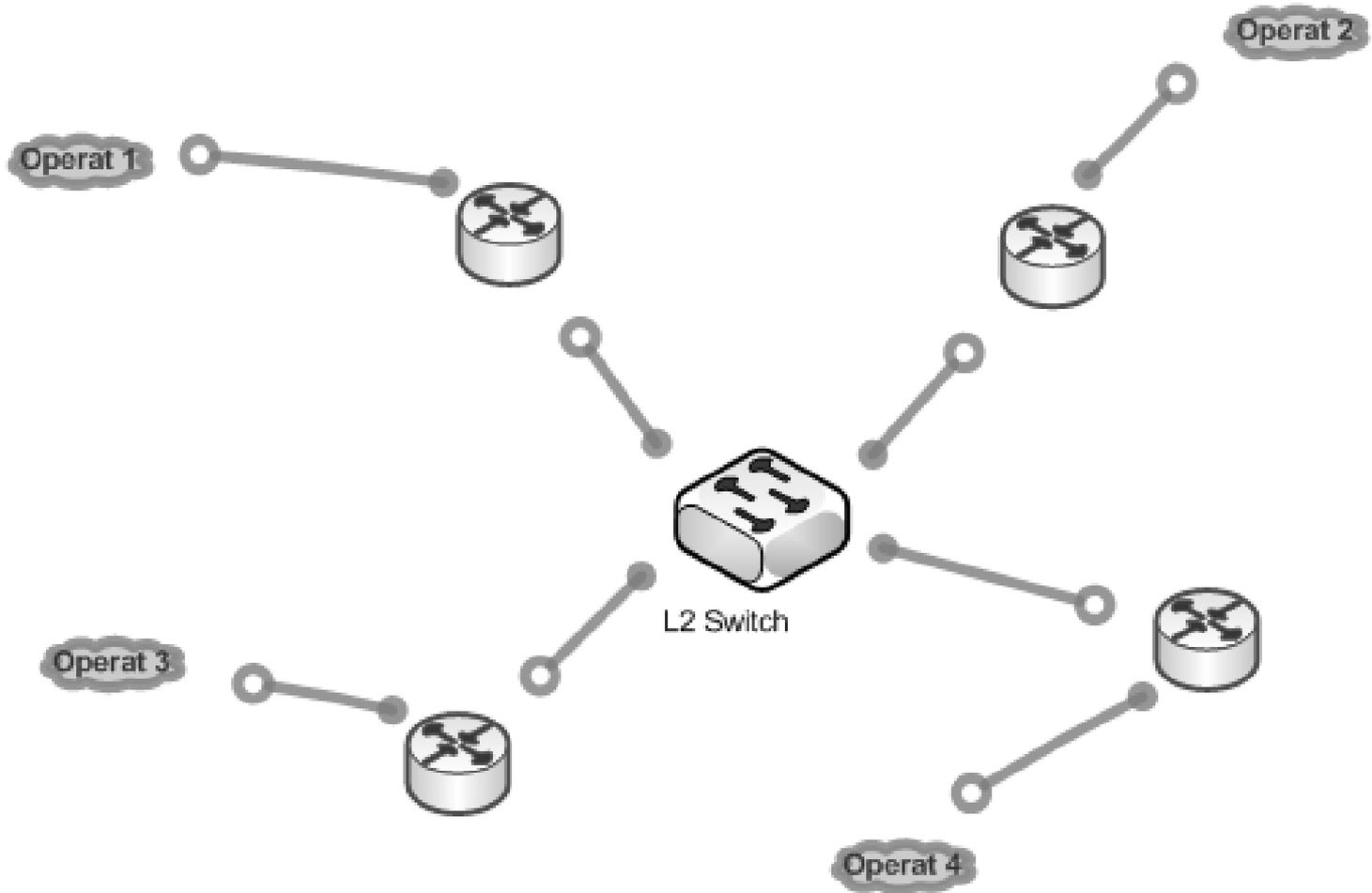
ccNSO Tech Day

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Fact Sheet (technical)

- The AHTIC Internet Exchange Point (AIXP) has been operational since May 6, 2009 at 1h00AM
- Currently, 4 ISPs are connected to the Exchange
 - 2 are connected via a fiber optic link
 - 1 reaches the IX location by a radio link then connect via Ethernet
 - 1 connects via Ethernet (because it is close to the IX switch fabric)
- The Exchange is composed of:
 - a gigabit switch, with Ethernet and fiber ports
 - one router that will be used in the future as a mirror
 - 4 routers (one by ISP) connected to the switch
 - A server that polls stats from the switch every 5mns
- The general setup is a full BGP mesh where ISPs are peering with each other
- The IX has its own ASN number and IP address space
- The interfaces of the routers connected to our switch use our IP address space which are not advertised outside of the IX

General Architecture



Fact sheet (policy)

- Only local traffic is allowed (no transit)
- For now, any licensed operator in Haiti may become a member of the AIXP and peer directly in the AIXP
- Only aggregate traffic is public (no stats per ISP are published)
- The AIXP is run as a non-profit
- Members are free to peer with whoever they want (but now everybody peers with everybody)

Prerequisites to peer at the AIXP

- For now, be a licensed operator in Haiti
- Must have own ASN and IP address space
- Must implement BGP on their border routers (and iBGP internally)
- Must bring a router to the exchange
- Fees:
 - US\$2500 one-time adhesion fee
 - US\$300 monthly
- Must abide to our policies and rules

IX Location



IX Location close-up



What you see from the IX location (Left)



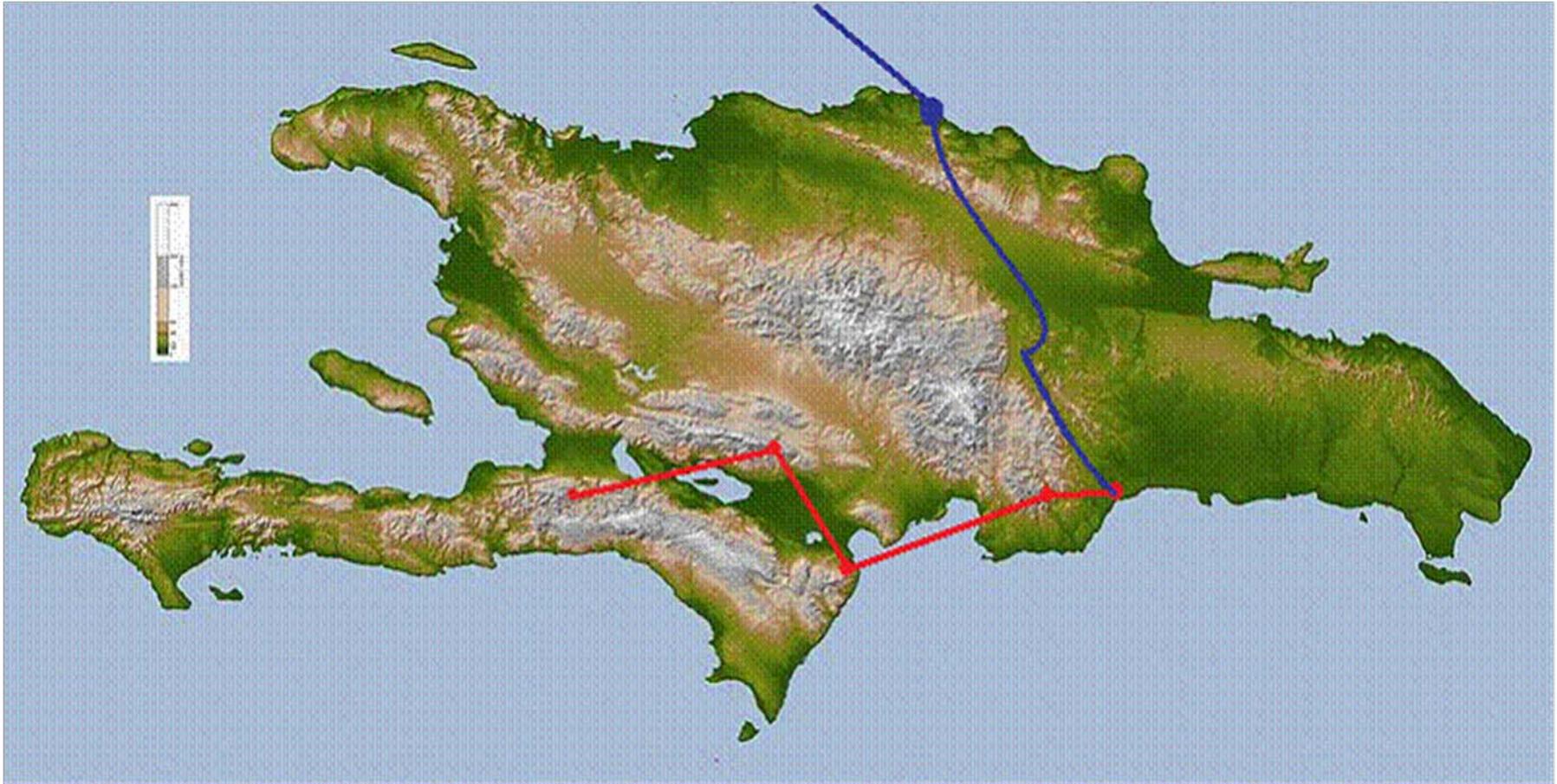
What you see from the IX location (Center)



What you see from the IX location (right)



Links to the DR



Ownership of the AIXP

- The AIXP is owned and operated by an IT Association : Association Haïtienne pour le développement des TIC (AHTIC)
- AHTIC is a not-for-profit association that regroups all businesses and professionals working in ICT, as well as IT education institutions
- Currently, all operators in Haiti (ISPs and mobile phone companies) are members of AHTIC, except two (Haitel the smaller mobile operator, and TELECO the incumbent telephone company)
- A subset of them are members of the IX (4 ISPs; mobile cellular operators are not yet members)
- But membership in AHTIC is not a prerequisite for being a member of the AIXP

History of the AIXP (Act I)

The birth of the idea

- The history of the IX is closely linked to the history of .ht
- We started to discuss the need to have an Internet Exchange Point in 2001, at the HT2001 Summit (a yearly event organized by the now ccTLD manager, RDDH, on Haitian Internet issues)
- At that time, RDDH was a UNDP project and all the work for the .ht redelegation was done by this project
- Once .ht has been redelegated in 2004, RDDH was transformed into an independent foundation and in charge of .ht, part of a Consortium with the Faculty of Science of the State University

History of the AIXP (Act II)

RDDH initiatives

- From 2001 to 2005, RDDH made the following initiatives:
 - With financing from UNDP, conduct a feasibility study, and provide technical solutions for the IX, support travelling to visit other IXs (Paris, Sao Paulo)
 - Organize various local meetings to reach a consensus among ISPs
 - Technical Assistance from AFNIC for the policies, design of the Exchange
 - Organize workshop with LACNIC and PCH in Haiti for the ISPs on the issue
 - For 3 years in a row, RDDH obtained financing from the French Ministry of Foreign Affairs through their membership in the Collège International of AFNIC
 - As a strategy to have a certain legitimacy, RDDH even signed an agreement with the regulator that stipulates that RDDH is authorized to run “THE” Internet Exchange Point
 - A taskforce of ISP representatives has even been created but went nowhere
 - ISPs agreed verbally but they never committed (the project stalled)

History of the IX (Act III)

AHTIC enters the scene

- In April 2005, AHTIC was created (all ISPs were founding members, among others)
- From the beginning, AHTIC was created in the spirit of cooperation (cooperation between competitors) and progressively developed a process of consensus building and impartiality for the sake of fair competition
- In the meantime, all ISPs deployed WIMAX and pre-WIMAX services
- Since 2005, issues have been dominated by the battle of ISPs versus mobile telcos over VOIP, WIMAX, regulation, etc.
- AHTIC started to have authority even in front of the regulator, and progressively the telcos and mobile operators understood the necessity to join the Association
- The AHTIC board is built on the ICANN board model (there are a number of seats for each sector)
- AHTIC has become the place to discuss all public policy issues in ICT

History of the IX (Act IV)

Seizing an opportunity

- In 2006, Haiti was hit by a Hurricane that destroyed all the links to the DR
- During about 36 hours, the country was disconnected from the rest of the Internet, only served partially by backup and sluggish satellite connections
- The ISPs realized that they had to build a ring between themselves so that one could provide transit services to the other in case of a failure
- As an AHTIC board member, I then suggested that they convert this “ring” into an Exchange Point that would be more scalable (a new player would just need to connect to the Exchange)

History of the AIXP (Act V)

Transferring intellectual property from RDDH to AHTIC

- AHTIC gets the authorization from RDDH to use all the studies conducted on the matter to build “AN” Internet Exchange Point
- So, the two of us (Max Larson Henry and myself) who had worked on the matter for RDDH (as .ht admin and tech contacts) were free to use all the material within AHTIC
- A sub-committee is created to conduct the project. The sub-committee is composed of Reynold Guerrier (AHTIC board member), Max Larson Henry, and myself as the project manager

History of the AIXP (Act VI)

Consensus building and partnerships

- Using the processes developed in AHTIC since 2005, we started a consensus building process on the policies, rules, even the choice of the location for the AIXP
- Thanks to relations established within ICANN, AHTIC entered a cooperation with the University of Oregon and NSRC (represented by Steven Huter)
- NSRC and its team provided all the equipments, books, and two people came in Haiti for a 3-day workshop and the actual setup of the IX (4-6 May 2009) – Steven Huter and José Dominguez
- Contrary to RDDH, we did not request any authorization from the regulator

Perspectives

- Actual International bandwidth in Haiti :
 - 1Gb capacity going through the DR
 - 10Gb submarine cable going to Bahamas and actually sitting in the Port-au-Prince bay
 - The DR is looking at raising capacity for the Haitian market that is growing
 - Actually 300Mb of pre-Wimax installed and 45Mb of Wimax installed
- 3 ISPs just renewed for US\$5 million each for a VOIP license, putting the VOIP operators to 4
- The incumbent TELECO is being privatized and the buyer will have a 3G licence and the obligation to build national fiber-optic backbone that must be open for all operators (see <http://www.haititelecopp.org/>)
- About 3 million mobile subscribers in a population of about 9 million
- About 60.000 Internet users and growing

Next steps for the AIXP

- We are encouraging the mobile operators to become members of the Exchange (sensitive issue)
- We are contemplating the installation of a root server in the AIXP
- We will start identifying the top destinations of Haitian Internet users to repatriate caching servers or content providers to the AIXP to keep local traffic local

Conclusion

- The establishment of the IX in Haiti is the result of...
- ... 8 years of talk...
- ... and 3 days of technical setup !!!!!
- No, seriously, at some point, we had:
 - the money
 - the technical expertise (always)
 - the specter of the regulator with an official agreement
- Finally, it is the trust, the participative, transparent approach and the spirit of coopetition that prevailed...
- ... with some help from Mother Nature ☺

Thanks

- To ICANN
 - For inspiring me in participative and multistakeholder approaches
 - For allowing me to network with the right people
- To NSRC, University of Oregon, for the technical support and for providing all the necessary equipments
 - Steven Huter, José Dominguez, Alain Aina
- To my local team:
 - Reynold Guerrier (AHTIC board member)
 - Max Larson Henry (.ht tech contact)
- To the founding members of the IX:
 - AccessHaiti (www.accesshaiti.com)
 - ACN (www.acn.com)
 - Multilink (www.multilink.ht)
 - Hainet (www.hainet.net)