

Internet Infrastructure and the earthquake in Haiti

Stéphane Bruno,
Vice-President, AHTIC
sbruno@websystems.ht, sbruno74@gmail.com

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The Internet Infrastructure before the earthquake (1/3)

- International bandwidth:
 - 1Gb capacity going through the Dominican Republic (wireless OC3 links)
 - 10Gb submarine cable in Port-au-Prince coming from Bahamas
 - 300Mb of pre-Wimax installed and 45Mb of Wimax installed
- 4 ISPs running WIMAX networks and other wireless technologies
- 3 mobile operators (2 GSM and 1 CDMA) for a total of 3 million mobile subscribers on a population of 9 million
- The incumbent TELECO in the process of “recapitalization”. The offer of VIETEL has been retained
- About 60.000 Internet users

The Internet Infrastructure before the earthquake (2/3)

- An Internet Exchange Point (IXP) operational since May 6, 2009
- Currently, all 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 IXP is a result of a cooperation between the Network Startup Resource Center at the University of Oregon and the local ICT Trade Association (AHTIC)

The Internet Infrastructure before the earthquake (3/3)

- The management of the .ht domain is done locally since the redelegation to a local organization in 2004
- The DNS servers are scattered on three different continents and we are using a shadow master outside the country

IX Location



IX Location close-up



What you see from the IXP location (Center)



After the earthquake (1)

- Due to the destruction of base stations and cell towers, telecommunications were badly hit, mobile operators the worse, with limited service
- But the core Internet infrastructure was intact, as well as the IXP
- Because of the extensive use of wireless technologies, telecommunications were restored rapidly
- ISPs had lost about 40% of their clientele and have regained about 20%
- It is believed that their capacity has been restored at 98%; but some glitches still remain

After the earthquake(2)

- The landing station for the undersea cable was completely destroyed
- However, VIETEL which was concluding the deal to invest in TELECO, stated that they are still interested and the deal has gone forward
- VIETEL will restore the landing station to put the cable in service again
- VIETEL will install about 5.000kms of fiber optic network in the country within a year or so (as stated by the CEO)
- A second cable is said to be brought to Haiti
- Currently, operators are considering creating a consortium to manage a second cable

The role IT played during the earthquake (saving people texting from under the rubbles)

- Thanks to its distributed architecture and coordinated intervention of the ICANN community and .ht managers, the .ht domain service never stopped working
- The IXP never stopped working either
- This allowed internal communications between networks
- A few hours after the quake, Internet access was restored on my phone
- I, then, saw messages on Facebook posted by people who were receiving SMS messages from friends and families texting under the rubbles
- I started collecting those messages, and with the help of Steven Huter from NSRC, relayed them to State Dep. which in turn sent them to rescue workers on the field (<http://bit.ly/a2nlaW>)

The role IT played (2/2)

- www.noula.ht : an Internet portal for the management of the crisis, developed by a local firm
- PeopleFinder, a service deployed by Google to locate missing persons
- Twitter used by a journalist to share information (Carel Pèdre, a young Haitian journalist, just received an award for his use of twitter to inform about the earthquake)

The overwhelming demand from NGOs

- The reduced capacity combined with the vast number of NGOs coming in the country complicated the telecommunications situation
- Ad hoc networks started to pop up with negative impacts on local networks (interference, unfair competition, etc.)
- Thanks to the intervention of local IT, the damages were contained (Read <http://bit.ly/dse6Hk>)

AHTIC, an Association advocating coopetition and raising awareness

- AHTIC is a not-for-profit association of enterprises and professionals involved in the ICT industry
- AHTIC promotes coopetition (“cooperation between competitors”) for the general good of the industry
- Currently, all ISPs and the two major mobile companies are members, other IT businesses in software development, equipment vendors, IT consulting
- Students and other sectors are associate members
- Each sub-sector has a number of seats on the board and decisions are taken, negotiated, using a participating approach and transparent processes

AHTIC (2)

- Created in 2005, the Association intervened in a number of fields, among others:
 - The regulatory framework
 - The establishment of the IXP
 - The realization of a technological fair with participation of major IT companies (Google, Motorola, HP, Cisco, etc.)
 - The realization of various regional projects (telecenters, incubator projects with the DR, etc.)
- AHTIC is a forum to discuss policy issues from the point of view of the enterprises

The Presidential ICT Task force

- The task force (20 members) was created in January 2009 for one year
- Goal: create an ICT strategic plan for the country
- Several members of AHTIC are also part of this task force
- The mobile is important in the ICT strategy as well as e-governance
- Four goals:
 - Improve governance
 - Create jobs (in a sustained way)
 - Improve the global competitiveness of the nation
 - Improve social cohesion

Lingering issues

- Bandwidth cost is still too high in Haiti: ISPs are paying 3 to 4 times more than the average in the region because of a lack of competition in international communications options
- The basic infrastructure is very weak : operators have to generate their own energy, bad roads
- Centralization of economic activities in and around Port-au-Prince, uneven development level throughout the country
- No national backbone
- Understaffed regulator and sub-optimal policy decisions
- Still 2G networks, but VIETEL owns a 3G license

Perspectives (1)

- The earthquake has emphasized the need to decentralize
- The paralysis of the State and the Public Administration that relied on paper created awareness on the necessity to modernize and to use more technology in the management of the State
- A lot of money is being poured into the country and the international community will team up with nationals for the management of those funds
- The ICT task force leaded a project with IDB to equip the public administration with an information system where services can be “plugged in”, with an emphasis on mobile applications

Perspectives (2)

- Mobile money will soon be a reality in the country
- I strongly believe that a strategy leveraging mobile will be what makes our country different
- Mobiles have spread throughout the country and reach more Haitians than other channels
- With a population of 9 million, the Haitian market is the biggest one in the Caribbean (excluding Cuba) and on par with the Dominican Republic

Conclusion

- The hurricanes created an opportunity to establish the IXP (See the story there <http://syd.icann.org/files/meetings/sydney2009/presentation-aixp-bruno-22jun09-en.pdf>)
- The earthquake created an opportunity to start again on solid ground
- The biggest obstacle we had was fear of change; now the change has been imposed to us: seize this opportunity with us!