

Challenges and Solutions

HaiREN

Réseau Haitien d' Education et Recherché

Challenges

1. Government Body
2. International Access
3. National Backbone
4. Last Mile Connectivity
5. Data Center
6. In campus infrastructure
7. Content
8. Technology Competence
9. Human Resources
10. Master Plan
11. Finance
12. Project Management
13. Pilot

Principles

- **Build the network over**
 - Infrastructure already available
 - Infrastructure already planned
 - Human Resources available in Haiti and from diaspora
- **Avoid Duplication of efforts**
- **Avoid over-specification and over-engineering**
- **Economically self sustainable**
- **Use technology that can be mastered in Haiti**

Challenge 1 :: Government Body

- Use FRDDH
 - **Fondation Réseau Development Durable d' Haiti**
- Staff initially with
 - Project manager
 - Technical consultant
- Initial mandate Prepare
 - Technical master plan
 - Bylaws and Regulations
 - Implement Pilot Deployment
- Allocate a minimum resources so that this project can start

Challenge 2::

International Access Network

- Available Infrastructure
 - Submarine fiber from Bahamas
 - A terrestrial fiber from Puerto-Plata to the north border is in phase of completion
- Planned infrastructure
 - A terrestrial fiber from Haina to the East border of Malpasse is in advanced stage of planning
- Considered infrastructure
 - Fiber landed in Cap-Haitian, Gonaives, Port-au-Prince, Jacmel

**Discuss with international, Dominican and Haitian Operator
the solution is there**

(12 to 18 month for implementation)

Challenge 3 ::

National backbone Network

- Existing Infrastructure
 - Towers and Microwave Radio from existing operators
- Under construction
 - Aerial fiber of the National Operator
- Under Contract
 - Study financed by IADB to build a terrestrial fiber backbone owned by the GOH, Built operated and maintained by a private operator, to deliver long haul connectivity to local licensed operators

Solution imply new legislation, agreement between Local Operators, Financing and time
3 to 5 years for implementation

Challenge 4 :: Last Mile Connectivity

- Reliable Last Mile Connectivity to national backbone
 - Plan For Fiber Interconnection in the long run
 - Use Fiber where and when available
 - Use Microwave or WiMax at the beginning
 - Keep Wireless connection as backup for fiber

**This is the last of the problem as all existing ISP
master this technology**

Challenge 5 :: Data Center

- 1. Data and content must be stored in Haiti as much as possible**
 1. To minimize need on International capacity
 2. To increase quick access
- 2. Avoid that each institution build is small, unreliable poorly staffed/managed Data Center**
 1. Contract Data Center co-location to specialized firms
 2. Contract Computer Power as a Service to local specialized firms
 3. Facilitate Cloud Computing

Data Center Enterprises start to emerge in HATI

The use of DATA CENTER and CLOUD Computing and Virtualization must be encouraged

Challenge 6 ::

In campus infrastructure

Each institution connected to the HaiRen must have a reliable internal IT infrastructure

1. **Redundant connection to the National Backbone**
 1. Fiber access (when and where Available) and
 2. Wireless Access by Microwave (at least at the beginning)
2. **Secure and redundant power**
 1. Grid power + Alternative power (Possibly Solar)
 2. Good Grounding and Overvoltage protection
3. **Secure Core network**
 1. Routers, Switches, Firewall, Virus Protection etc
4. **Internal distribution network**
 1. Wired and wireless
5. **Data and Application Storage**
 1. We encourage as much as possible to use Data Centers
6. **Good Network Administration**

Biggest Challenge is to have professional Network Administrators

A formal training and qualification program must be prepared.

In order to obtaining access to HaiREN an institution should engage a **QUALIFIED NETWORK ADMINISTRATOR** with predefined Job Description

Challenge 7 :: Content

most difficult component to develop

1. Look for content already available

1. In French from other countries
2. In English and Spanish
 1. Consider translation in French and Creole

2. Look for content available in Haiti on paper

1. Transpose the content in
 1. Digital web page
 2. Interactive applications

3. Build capacity of developing or adapting content

1. Facilitate the emergence of small digital editors of professionals
 1. By means of training
 2. By means of developing a market
 3. By giving contracts to develop and put on line content

Challenge 8 :: Technology Competence

The is already a good base of competence in Haiti regarding
Information and Communication technology

1. Identify
 1. the available human resources
 2. Identify the institutions
 3. areas of weakness
2. ness

Challenge 9 ::

Human Resources

- Availability
 - Well trained
- Limitation
 - No experince
- It will take 2 to 5 years to accumulate experience
- It will take 2 to 5 years to build the network
- It make sense to start giving experience to peoe with a low scale project

Challenge 10 :: Master Plan

PLAN YOUR WORK :: WORK YOUR PLAN

1. Identify the institutions to be deserved
 1. What category of institutions
 1. Universities, Hospitals, Technical Schools, etc
 2. Existing institutions and new planned institutions
 1. Where they are and capacity that they need
2. Take quick decisions not to fall in the **ANALYSIS PARALISIS**
3. Prepare topology of the network
 1. Deserved areas, Initial capacity, rollout plan
4. Prepare budget

involve the maximum of local or diaspora firms and professionals in the elaboration of the master plan

Challenge 11 ::

Finance

Will need external support

Challenge 12 :: Project Management

**Will need external support as
this competence is
very limited in Haiti**

SMALL SCALE PILOT PROJECT

- It will take long time to have the full scale HaiREN in place
- Once in place it will be necessary to have trained and competent personnel to manage the network and develop and deliver the services
- It will take time to build technical and business experienced Human Resources

Define a Small Scale Pilot Project to train and develop technical capacity and experience

MiniHaiREN Beneficiaries

- Chose 10 to 30 institutions
- CRITERIA
 - Are in Port-au-prince and Cap-Haitian Area
 - Demonstrate that
 - have the vision and a plan on how exploit the network for Academic Education
 - A business and implementation plan
 - A qualified and motivated leader
 - The support of the top management

Project Budgetary Items

- Contract with a local operator for 24 months
 - Internet Access Capacity of 300Mbs
 - Distribution capacity of 10Mbs average for 30 sites
- Upgrade Local Area Network to 10 campuses
 - Use a Local structured cabling contractor
- Contract Data Center Storage
 - Use one local Data Center Storage operator
- Develop Content
 - Using both Internal Institution personnel and external contractors
- Train Network Administrators and Managers of Information Systems
- Finance the internal staff of the institutions on basis aof performance