NAIJAWIFI

BUILDING A SUSTAINABLE NATIONAL WIRELESS BROADBAND NETWORK

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NAIJAWIFI

- BROADBAND EMERGENCY
- NAIJAWIFI INITIATIVE

NAIJAWIFI- Broadband Emergency

- Infrastructure Emergency – On Poor Statistics
  - Factors
    - Security
    - Wealth Creation
    - Job Creation
  - Sectors
    - Energy
    - Agriculture
    - Broadband??
  - Actions

“Yar Adua to Declare an Energy Emergency”

NAIJAWIFI – Broadband Emergency

- Broadband & Teledensity
  - What? Why? Where?
  - Teledensity Myth
    - Indian Experience

      The Obsession with Teledensity is costing rural India a lot. With massive expansion of mobile phones, teledensity is now an extremely poor measure of access”

    - Nigerian Experience
      - Telecoms Equipment Duty
      - Foreign Affairs Minister

NAIJAWIFI – Broadband Emergency

- Broadband Statistics (2005) – 130 Million People
  - About 3000 Cyber cafés (64kbps for 20 computers)
  - About 15000 CDMA Data Users (About 64kbps)
  - About 5000 Wireless Internet Access Users (8kbps)
  - About 15,000 Dialup Users (12kbps)
  - Very Low GPRS usage (About 32kbps)
  - Very Low ADSL usage (Above 128kbps)

NAIJAWIFI – Broadband Emergency

- Broadband Benefits
  - Attract Investment
    - Rivers – Ports – Railroad – Highways – Airport
  - Broadband brings Economic growth
    - For a 10yr review Michigan saw $440 Billion increase in GSP and 500,000 new jobs
    - For a 10yr review California saw $376 Billion increase in GSP and 2million new jobs
    - For a 10yr review India saw revenue from Software, call centers and services grow from $1 to $25 as of 2006 with about 4.5million direct and indirect jobs created ($60billio projected for 2010)

NAIJAWIFI – Broadband Emergency

- Broadband Benefits (cont.)
  - Enhances Quality of Life
    - Reduced Traffic
    - Reduced Pollution
    - Improved Education
  - Nations and States are more effective with eGov, eHealth, etc
  - Promotes Democracy

NAIJAWIFI – Broadband Emergency

- Broadband Action
  - Assessment – Meets all parameters
    - Security – wealth can be created in any state or locality no need for Oil, etc
    - Wealth creation
    - Job Creation
  - Target
    - People and Product
    - US Technet/Analysys Consulting Proposal
      - 100Mbps to 100million people in 8 years
    - Naijawifi Offers
      - ???kbps to ? million people in ?? months

NAIJAWIFI – The Initiative

- Technology
- People
- Finance
- Service

NAIJAWIFI – The Initiative (Technology)

Choice of Technology (Wifi vs Wimax)

- Standards
- Availability
- Cost
- Deployments
- Support

NAIJAWIFI – The Initiative (Technology)

Choice of Technology

- Standards
  - Wimax – From Dec 2001 802.16, 802.16a, 802.16c, 802.16d/802.16-2004 (All fixed wireless) 802.16e/802.16-2005 (Mobile), 802.16f-I (future)
  - Wifi – 802.11a/b/g, 802.11n
- Availability
  - Certification areas: Air Interface, QoS, Advanced Radio Features
  - Certification phases: 1st, 2nd, 3rd, 4th Waves (Air, outdoor, indoor, portable)
  - Few partial certification for 802.16d, with promises of Software update
- Cost
  - CAPEX Cost
  - CPE Acquisition Cost

NAIJAWIFI – The Initiative (Technology)

Choice of Technology (cont.)

- Endorsement
  - Deployment
    - Volume: over 100,000, with the recent largest addition of Russia by Golden Wifi
    - Institutions
      - Operators BT, Vodacom
      - Investors- Goole, Boingo, Ipass, etc
      - Goverments – Local councils, states etc
  - Equipment Manufactures
    - Mikrotik, Cisco, Siemens, Nortel, Proxim, Senao, Edimax, Tropos, etc
  - Governments
    - US: New Democratic Congress on Municipal Wifi
    - Taipei: 30% subsidy for total city coverage

NAIJAWIFI – The Initiative (Technology)

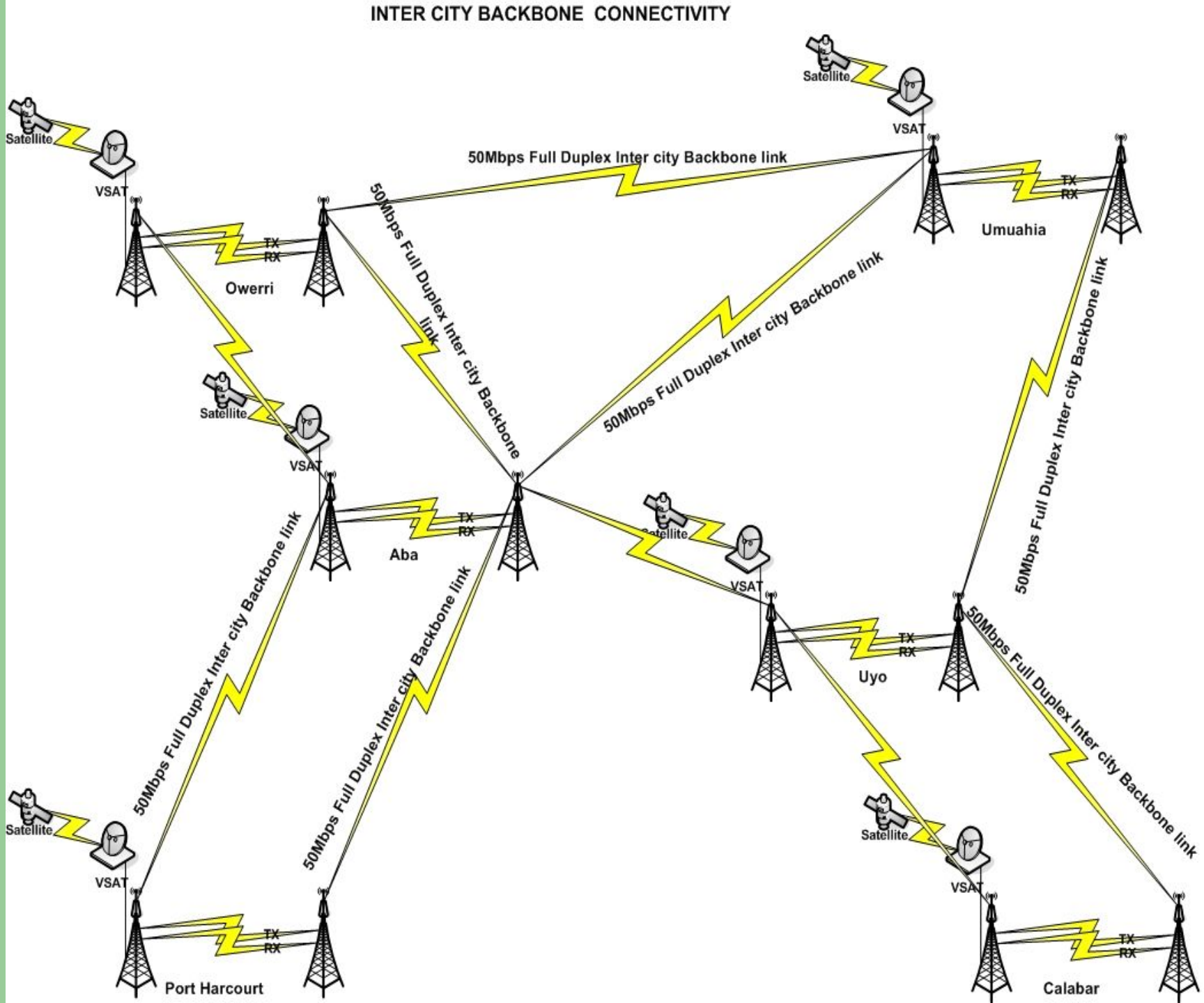
Our Choice – Wifi/Wimax (The Taipei Model)

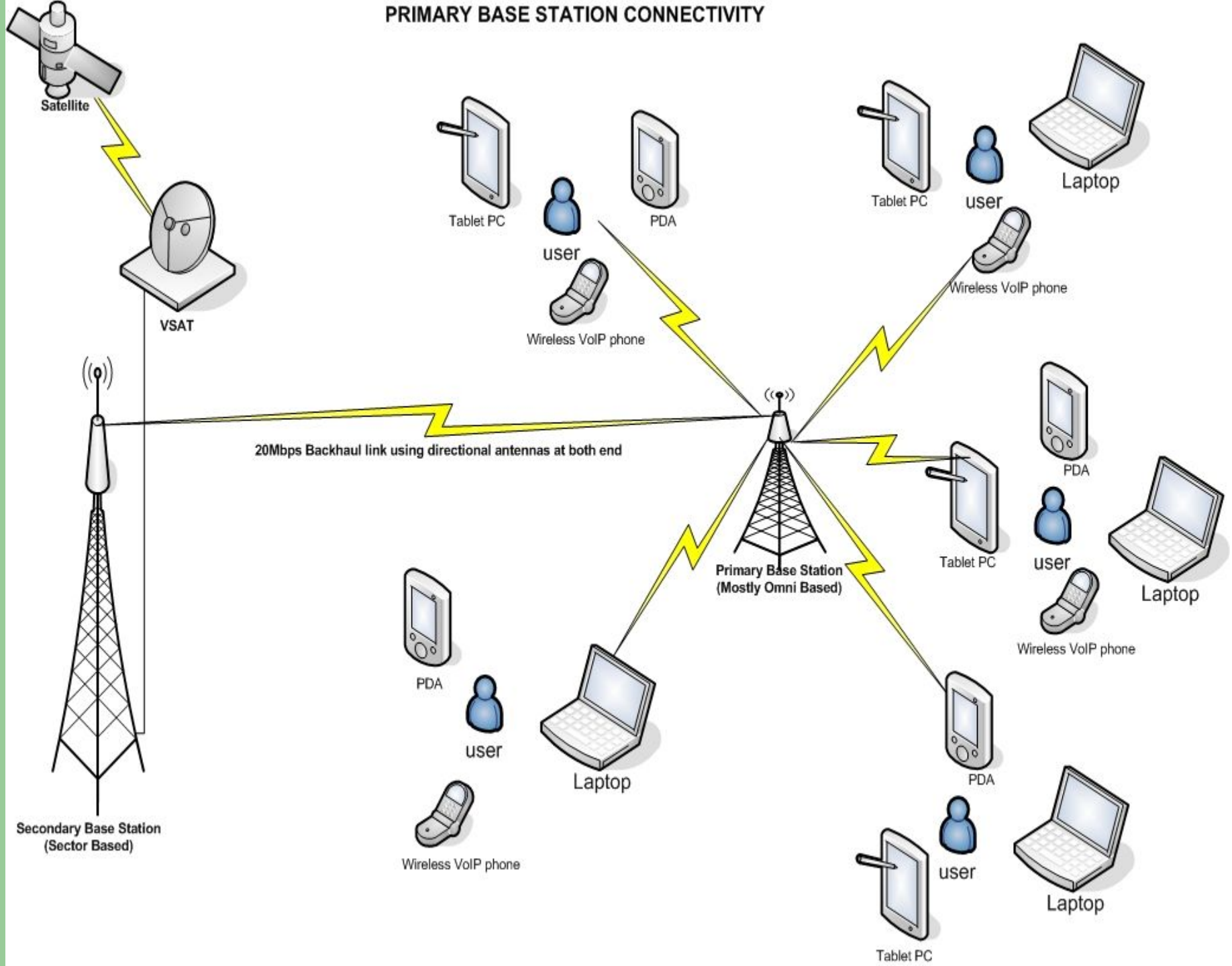
Wifi now, migration to wimax for expansion when fully available

NAIJAWIFI – The Initiative (Technology)

Network Design

- Primary Base Station
- Secondary Base Station


INTER CITY BACKBONE CONNECTIVITY
Satellite
VSAT
50Mbps Full Duplex Inter city Backbone link
Owerri
TX
RX
Umuahia
Aba
Uyo
Port Harcourt
Calabar


PRIMARY BASE STATION CONNECTIVITY
Satellite
VSAT
Tablet PC
PDA
user
Wireless VoIP phone
Tablet PC
user
Laptop
Wireless VoIP phone
20Mbps Backhaul link using directional antennas at both end
Primary Base Station
(Mostly Omni Based)
PDA
Tablet PC
user
Laptop
Wireless VoIP phone
Secondary Base Station
(Sector Based)
PDA
user
Wireless VoIP phone
Laptop
PDA
Tablet PC
user
Laptop

NAIJAWIFI – The Initiative (Technology)

The factors that guided our technical definition for the Primary Base Station were the following

- Lack of Intracity Backhaul infrastructure
- Need for Low Cost CPE with a preference for indoor models
- Very Poor power availability
- Need to guarantee broadband Access with a minimum of 300kbps
- Compact Equipment design to ease deployment
- Security concerns
- Guarantee QoS at the Base Station level

NAIJAWIFI – The Initiative (Technology)

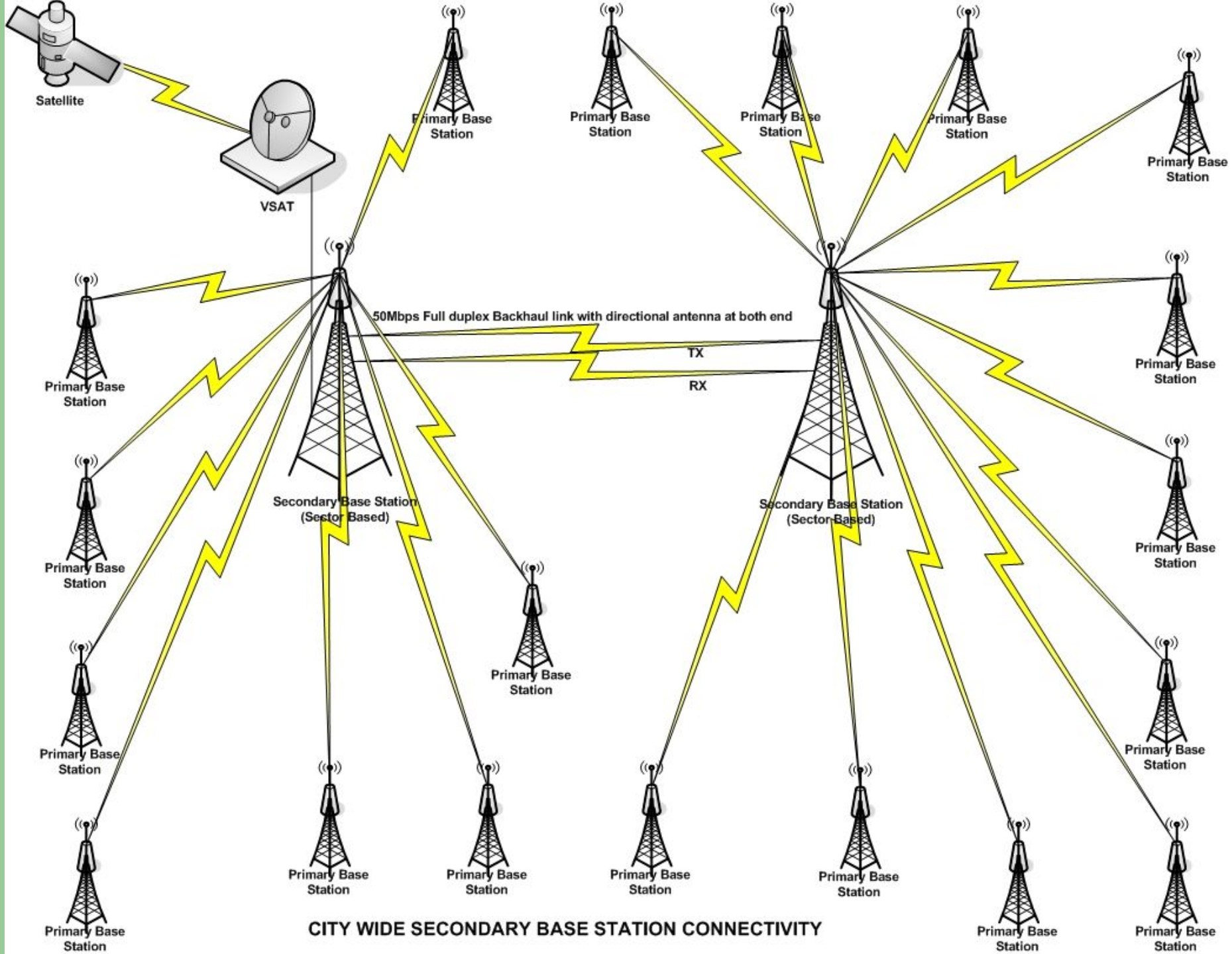
To achieve this Naijawifi blueprint draws from global standards like WISPr, among others and was able to achieve a sustainable technical solution with the following key factors

- Dual Radio Capable (More better)
- Dual Frequency Capable (More better)
- One Radio/Frequency must be 2.4GHz and fully WiFi compliant
- Second radio/Frequency to be on 5GHz(or others) but with proprietary coding (Nstreme for Mikrotik) to ensure adequate backhaul
- Cellular Architecture
- Low Power consumption
- Direct DC Powered
- WISPr support
- Supports SNMP
- Dedicated Backhaul Link
- Support for Radio and full radius attributes
- Support for on Radio QoS functionality

NAIJAWIFI – The Initiative (Technology)

Primary Base Station Components

- Radio/Antenna Kit
  - Coverage, Data Rate, Network Load
- Power Pack
- Mounting/Accessories


Satellite
VSAT
Primary Base Station
Secondary Base Station (Sector Based)
50Mbps Full duplex Backhaul link with directional antenna at both end
TX
RX
CITY WIDE SECONDARY BASE STATION CONNECTIVITY

NAIJAWIFI – The Initiative (Technology)

CITY NETWORK SUMMARY

With the 35 Primary Base Station, two secondary base stations among others the total network capacity can be summarised below

	Parameter	Capacity
1	Concurrent Subscriber	2500
2	Total Subscriber support	15000
3	Guaranteed Minimum bandwidth to subscriber	300kbps
4	Total Intracity Backhaul capacity	700Mbps
5	Total Intercity Backhaul Capacity	100Mbps
6	Total Internet Capacity	??Mbps
7	CAPEX Per Subscriber	=N=3,500

With the 250 Primary Base Stations, 15 secondary base stations among others the total network capacity can be summarised below

	Parameter	Capacity
1	Concurrent Subscriber	17500
2	Total Subscriber support	120000
3	Guaranteed Minimum bandwidth to subscriber	300kbps
4	Total Intracity Backhaul capacity	5Gbps
5	Total Intercity Backhaul Capacity	300Mbps
6	Total Internet Capacity	??Mbps
7	CAPEX Per Subscriber	=N=2,500

NAIJAWIFI – The Initiative (People)

PARTNERS

- NETWORK
  - Number – Over 30 and projected to hit 40 Licensed ISPs
  - Coverage – National
  - Expertise – Deployed most LAN/WAN networks all across the country
  - Manpower – Sourced from Partners
  - Assets – Existing offices, masts, etc

NAIJAWIFI – The Initiative (People)

Partners (cont.)

- SERVICE
- OPERATOR
- CHANNEL
- ROAMING
- TECHNICAL – Best of breed

NAIJAWIFI – The Initiative (Finance)

- Partners
  - Aggregator
  - Hotspot/Hotzone Operator Funding
- Financial Instituitions
  - Equipment Lease
  - Loan & Overdraft Facility

NAIJAWIFI – The Initiative (Service)

- Service Capability
- Elearning
- Video conferencing
- VoIP
- TvoIP
- Movie on Demand
- Video Streaming
- Ecommerce Solutions
- Messaging applications
- Telemedcine
- E-Government
- VPN for remote workers
- File sharing
- Etc

NAIJAWIFI – The Initiative (Service)

- Service Cost (cont.)
  - Service Usage Cost
    - Morocco/South Africa
      - GDP/Per Capita Income
      - Population
      - Length of Deployment
    - Morocco Broadband
      - Over 400,000 users
      - $17 per month for 128kbps
    - South Africa
      - Just 200,000 Adsl subscriber
      - Over $60 for the same 128kbps

NAIJAWIFI - Conclusion

Time to empower your community and country!!!

Thank You

AMSCO TELECOMS