The User Experience

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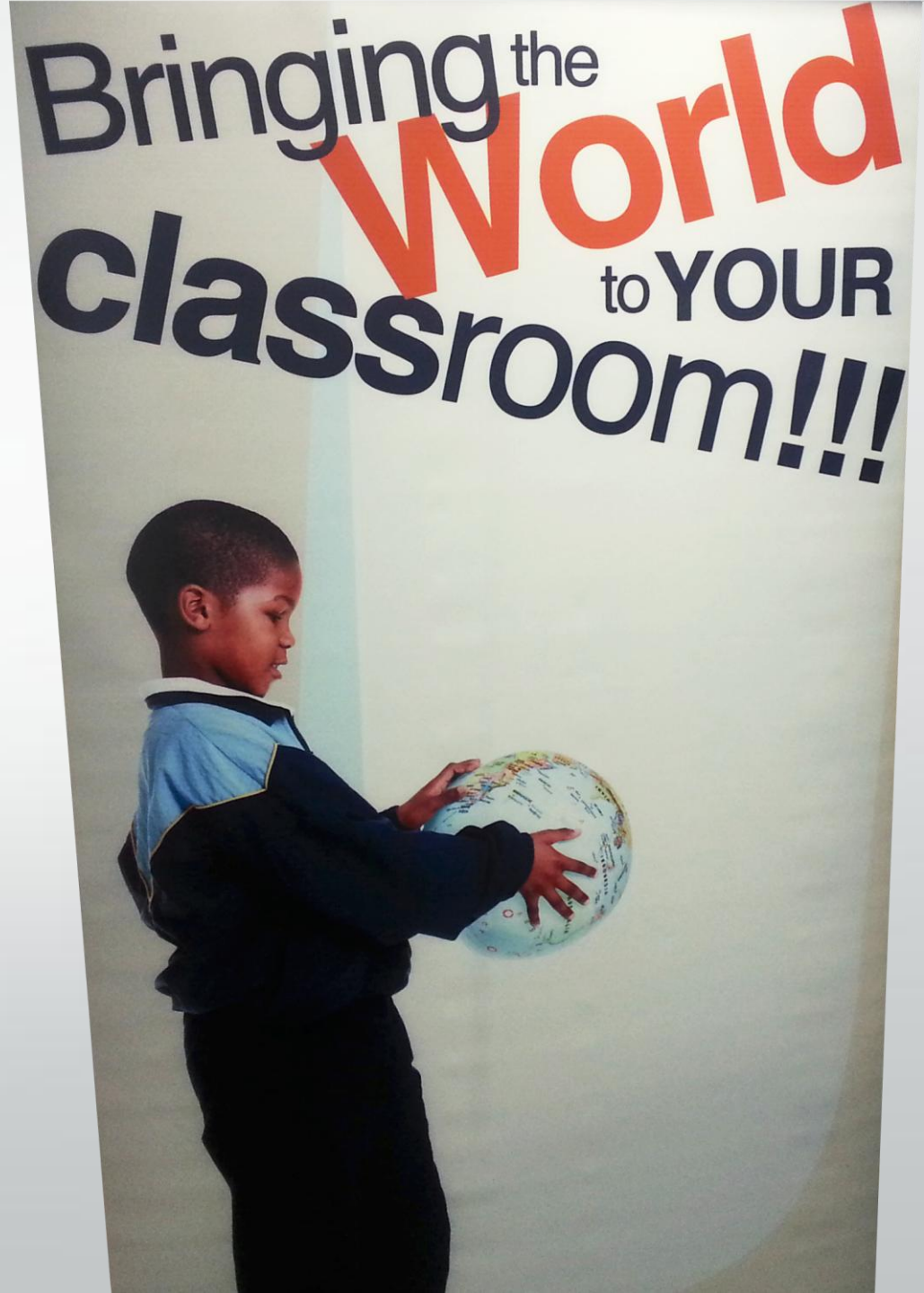
Main Points

- Base-Line Conditions
- TVWS Experience
- Case Study in Uptake
- Conclusion



Schools in the Trial

Sector 1	Sector 2	Sector 3
Bellville High School	Parow High School	Cravenby Combined School
D F Malan High School	President High School	Elswood Secondary School
Fairmont High School	Settlers High School	Norwood Primary School
		Range Secondary School

Well-Funded Schools

Under-Funded Schools

What the schools were running on

Well-Funded Schools

- Maximum of four ADSL lines
- Up-to-2 Mbps to Up-to-10 Mbps ADSL lines
- 2 Mbps to 4 Mbps ADSL accounts
- Mix of Business and Residential Uncapped accounts

Under-Funded Schools

- Maximum of one ADSL line
- Up-to-1 Mbps ADSL lines
- Maximum of 1 Mbps ADSL accounts
- Residential accounts, lower cost, higher contention with some services being Capped accounts

Schools attitude to Internet Usage

Well-Funded Schools

- Well established users
- Used for regular lessons as teaching aids, admin staff and computer labs
- Outsource networking support to private vendors
- "Make sure that admin, students and teachers always have fast and reliable access"

Under-Funded Schools

- Intermittent usage
- Primarily limited to computer lab activities and the admin staff usage, other teachers go between lessons or after hours
- Networking support from the Provincial Government
- "We can't afford to let everyone freely access the internet"

Server Room Differentiation

TVWS Experience

- At the under-funded schools TVWS was the primary source for connectivity
- At the well-funded schools TVWS was initially the secondary source for connectivity
- Peak Download: 12 Mbps
- Peak Upload: 5 Mbps
- Rich educational materials: YouTube; Skype

Symmetry

- Greater download / upload ratio
- Emails
- Voice over IP
- Update their website quicker
- Rich education media
- Research Faster

Uptake of Internet Services

Well-Funded Schools

- Traffic volumes grew
  - Low computer to pupil ratio
  - Computers all over the school which are easily accessible by staff and pupils
  - Large network coverage via LAN /WLAN

Under-Funded Schools

- Traffic volumes remained constant and low
  - High pupil to computer ratio
  - Computers only in computer labs which are generally locked up
  - Limited LAN / WLAN access
  - Computers are running very old hardware
  - Stringent firewall rules

Wireless Access Point

- Help increase the uptake
- Additional opportunity to access the internet
- Under-funded schools could use laptops to teach

Conclusion (Lessons to be learned)

- For Schools to use the versatility of TVWS:
  - Capacity Building:
    - Teacher training
    - Upgrading computers / networks
- Providing underserved schools with TVWS connectivity, coupled with capacity building, is critical to achieving increased traffic at these schools and the real benefits are what lies behind the traffic graphs
- TVWS presents an opportunity to improve broadband penetration and uptake in South African Schools and e-Schools' Network looks forward to an early rule making in this technology to scale it nationally