Digital Cities Forum: WiMAX scored high

by Hans van de Groenendaal, Connected Communication

At the Digital Cities Forum held at Gallagher Estate, Gauteng in early November, WiMAX stole the show - with power line communications taking a back seat.

The aim of the forum was to share developments in the own-provisioning of city-wide communications to increase capacity, save costs and ultimately provide broadband internet access to all metro citizens.

Several speakers highlighted the ease with which WiFi and WiMAX systems can be installed and configured to not only cover administration building but also provide mobile access to the city network by metro police and other agencies. Steve Lewis of Telkom highlighted some of the complexities of an integrated communication network and advocated a city-telco relationship to take advantage of the telco's decades of communication network experience.

In his opening address, the deputy minister of communications, Roy Padayachie, highlighted the need to make broadband more accessible and said that the provisioning of broadband is the next frontal attack by the Department of Communication. He commended the Tshwane Metro for its digital hub initiative at Rooiwal, which will become South Africa's first digital village in January 2006. The minister also said that ICT's are the engine to drive economic and social growth.

The issue of bridging the digital divide was highlighted by several speakers who all agreed that it is more of an issue of access to PCs and IT literacy than the provision of infrastructure. They agreed that digital inclusion would be a more appropriate term than the 'bridging the digital divide' concept.

Greg Richardson, founder and managing partner of Civitium, a US-based consultancy, shared his experience in turning some major cities into digital cities. Talking about digital inclusion, an interesting case in point is Philadelphia. The city, as part of becoming a digital city, placed great importance on including its disadvantaged community. The People's Emergency Shelter in Philadelphia provides broadband access to the

internet, coupled with the establishment of a Teen Technology Network, using scholars to provide technical and user support after initial training. He said that the younger generation are naturals when it comes to ICT.

The study clearly showed that providing access to the latest technology is not enough if the incentive for using it is missing. This point was also strongly made by Denis Smit, MD of BMI TechKnowledge. For ICT to benefit the second

The pilot installation at Rooiwal. The signals is fed to the street box by fibre link and inserted on the the distribution network

economy, it is essential to that the benefit of information is understood, and that the people are empowered to use ICT to improve their standards of living and income potential.

Steve Nossel of Intel spoke extensively about Intel's philosophy to work closely with end user device manufacturers to include new platforms like WiMAX. He said that during 2006 notebooks on the market will have a WiMAX facility as a standard feature. He added to the digital inclusion debate by saying that companies should put more emphasis on home computing initiatives by providing PC acquirement schemes for their employees.

Both Cape Town and Johannesburg have a smart city strategy and have deployed WiFi, WiMax and optic fibre to interconnect the various administrative entities in their cities. The speaker from the City of Johannesburg highlighted the legal aspects and encouraged metros to apply to the Independent Communications Authority of South Africa (ICASA) for a PTN licence.

Several speakers from the vendor community spoke about WiMAX - clearly showing the fast maturing of the technology. WiMAX is a standards-based technology enabling the delivery of last mile wireless broadband access as an alternative to cable and DSL. WiMAX will provide fixed, nomadic and portable and, eventually, mobile wireless broadband connectivity without the need for direct line-of-sight with a base station. In a typical cell radius deployment of three to ten kilometers, WiMAX can be expected to deliver capacity of up to 40 Mbps per channel, for fixed and portable access applications. This is enough bandwidth to simultaneously support hundreds of businesses with T-1 speed connectivity and thousands of residences with DSL speed connectivity. Mobile network deployments are expected to provide up to 15 Mbps of capacity within a typical cell radius deployment of up to three kilometers. The industry formed the WiMAX forum in 2001 to facilitate the deployment of broadband wireless networks based on the IEEE 802.16 standard, by helping to ensure the compatibility and inter-operability of broadband wireless access equipment.

There were several legal discussions. Both ICASA councillor Zolisa Masiza and telecoms lawyer Lisa Thornton confirmed that in 2001 ICASA had ruled that municipalities may self-provide infrastructure and apply for a PTN licence.

While the City of Cape Town is not considering power line communication as an option at this point in time, Johannesburg is considering doing a trial in Alexander township. Tshwane is the most advanced and will switch on PLC in Rooiwal in January 2006 as part of a pilot study. Delegates to the conference were invited on a tour of Tshwane's power and telecommunication infrastructure on the Saturday. Only a handful of delegates availed themselves of this opportunity which included a visit to Rooiwal - soon to be South Africa's first digital village. This municipal township houses personnel of the Rooiwal power station. A last mile PLC system was demonstrated by GTS, the contractor for the pilot study. The bandwidth was impressive. The demonstration included remote cameras, streaming and the transmission of a full spectrum DVD. Doing a crude test with a portable radio, the system did show up on short-wave frequencies. The interference was not as strong as previously experienced with the first generation equipment. The PLC signals were injected into the power network without any notching applied. According to Tshwane Municipality, once the pilot is fully operational it will invite all role-players to carry out independent interference and compliance testing.

The provision of free internet access to all schools and low-cost access for metro citizens came up in many of the discussions. The value of connecting schools was demonstrated by the Ulwazi Project. The Ulwazi E-learning Partnership pilot aims to create a connected learning community by linking five schools in the Tshwane area to promote shared learning, cultural experiences and knowledge. See www.motorola.com/canopy.

Free or low-cost access to the internet for all citizens is high on the agenda of the Tshwane Metro. The ministerial determination of 3 September 2004 stated that PTN operators shall be entitled to resell spare capacity and facilities or to cede or assign his or her rights to use such facilities or to sublet or otherwise part with control thereof, clearly paving the way for the Tshwane vision. The determination also included reference to preparing the youth for the knowledge economy and creating a skilled and informed work force that is equipped to meet the demands of the information society and knowledge economy. Access to ICT is critical to the process and enriches the learning environment.

With the Electronic Communications Bill likely to be signed by the president into law soon, some interesting developments are on the horizon.

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Sasol SciFest

The Sasol SciFest visited Cradock, Graaff-Reinet, Queenstown, King William's Town, East London and Grahamstown before finishing off in Port Elizabeth In October 2005. The SciFest takes the form of a regional and national tour that features an interactive event from the eponymous festival, held in Grahamstown in March each year.

This year David Muller from the MTN ScienCentre in Cape Town performed his educational theatre piece entitled *Imagining Einstein*. Muller performed this popular piece to a full house every day during the ninth fest in March. The two week road show was expected to reach up to 10 000 learners, and introduced some of the broad scientific concepts that underpin our everyday lives.

The aim of the festival and the road shows is to present not only the best that science has to offer but also to allow people to understand science in a fun and interactive way. Mosibudi Mangena, minister of science and technology, feels that the road shows will inspire more of the youth to follow careers in science, engineering and technology.

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