Wireless broadband, mobile phones to connect Africa

The penetration of mobile phones in many African countries is higher than the world average. Data on the number of mobile subscriptions per 100 people show that penetration rates in Algeria, South Africa, Gabon, Tunisia, Mauritius, Botswana, Morocco and Mauritania are all above the world average of 60%.

So while a large percentage of the African population is still yet to make their first phone call, many others are connected to the world through their cell phones.

"These increasing connectivity levels are key to the development of the continent," says MD of Alvarion SA and Southern Africa and Nigeria, Winston Smith. "Having access to wireless broadband internet via mobile devices gives students the ability to access knowledge and training, gives producers access to the global market and gives companies access to a vital business tool," he says.

"Africa's lack of fibre optic cable makes fixed line internet connectivity very challenging, and increases the opportunities for wireless broadband operators on the continent. While there are a number of fibre optic cable projects underway to deliver cable to Africa, fixed line connectivity is not going to be able to reach the masses in rural areas across the continent," says Smith. "At present, fixed line operators are able to provide inter-city service and high corporate services in countries such as Uganda and Kenya, but fibre optic cables will always remain limited with fluctuating reliability," he says.

Opening the door for mobile ISPs

This reality opens the door for mobile internet service providers on the continent. Many GSM operators such as Orange and MTN have joined the data market, providing 3G services to the masses through dongles, while WiMAX operators service the residential and corporate market.

Some African governments are acknowledging the importance of increasing broadband access in the undeveloped world and the opportunities that wireless broadband internet access poses in Africa. The Ministry of Telecommunication in Burkina Faso has set up a wireless local loop in the seven major cities in the country. The service is working across over

500 schools, government offices and public offices generating huge government savings. Mali is now implementing a similar project.

"The major challenge in building wireless networks in rural Africa is the lack of energy supply," says Smith. The electricity supply to rural areas in Africa is minimal, and solar panels remain too expensive.

ROI challenge

"The other main challenge is the return on investment. Operators need to provide a cost-effective product that will not require too much maintenance, and yet provide a reliable network connection to customers. Many internet service providers are tempted to install cheap systems which require low capital expenditure. However, this often ends up as the expensive choice when they add up the costs of sending in maintenance engineers to these remote areas," says Smith.

Alvarion has over 70 WiMAX networks commercially deployed, with a growing percentage being WiMAX 16e. Most of these networks are data only, with some large customers using voice applications as well. The company also has a number of base transceiver stations (BTS) providing wireless connectivity to rural areas. These stations have low power consumption and are powered by direct current from solar panels or other sources. These stations connect users over more than 50km in Uganda, Namibia and Burundi.