

Extending eduroam into South African townships

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Abstract

South Africa is a land of contrasts, and the digital divide is a real and growing problem. Our universities are conducting world-class research, and students generally have good access to information and communications technologies whilst on campus. However, despite rapidly growing infrastructure and an evolving regulatory landscape, Internet access remains an expensive luxury for the majority of South Africans (Bhero, 2012).

Rhodes University is a research-intensive university located in the city of Grahamstown which, notwithstanding its city status, is a small semi-rural town in the poorest province in South Africa (DEDEAT, 2013).

The University, which is the smallest in South Africa, has a varied and diverse student population. There is a strong contingent of international students, both in exchange programmes as well as regular full-time students from all over sub-Saharan Africa (Rhodes University, 2011). Its South African students come from equally disparate socio-economic backgrounds. Whilst the majority of students come from upper- or middle-income households, a growing proportion comes from disadvantaged backgrounds.

For these students, home might be an “RDP house”¹ or a makeshift shack in the local township². Access to electricity cannot be taken for granted, nor can Western norms such as water-borne sanitation. Internet access in these locations generally means GSM-based cellular solutions (Mphidi, 2008), which border on unaffordability for students whose sole income may be a state-funded bursary or social grant. They live the digital divide on a daily basis – in the seven kilometres between the University and their home, Internet access goes from being a freely-available basic necessity to being an expensive luxury. This impacts their ability to access online learning materials, and noticeably disadvantages them relative to students living on campus (Hodgkinson-Williams *et al.*, 2006).

¹ Reconstruction and Development Programme, a low-cost government funded housing programme.

² In South Africa a *township* or *location* is an informal or semi-formal settlement at the periphery of an urban area that resulted from apartheid-era town planning policies.

The local municipality, Makana, is in the midst of a financial and infrastructural crisis. The problems include city-wide water outages that have lasted in excess of a week, and have brought the University to the brink of closure on a number of occasions (Wild, 2013). As a result, the Municipality was placed under provincial administration in August 2014 (Velaphi, 2012).

It is within this context that this paper explores the extension of Rhodes University's wireless network, and specifically access to eduroam, into the local municipal libraries in Grahamstown.

From a Eurocentric perspective, deploying an eduroam service provider in a public library may seem commonplace and mundane; for a university student living in a South African township, it represents a potentially life-changing development.

The original intention behind this project was to improve access to the Internet and e-learning resources for Rhodes students living within the township. However, it quickly became apparent that the project was more significant than that: by providing access to eduroam, the University was making access available to students from all participating universities. This includes distance learning students registered at other South African universities (particularly the University of South Africa, UNISA). In many ways these institutions represent Rhodes' direct competitors, and the number of their students living in Grahamstown East likely far outnumbers the University's own students.

Nevertheless, it was widely recognised that the community empowerment benefits far outweighed the potential costs (both financial and intangible) of providing such a service. In addition, the idea was broadly in line with the idea of shared learning support centres as envisioned by national strategy (DHET, 2013). This meant that the project received the full support of the University's community engagement office, and indirectly, of its vice chancellor.

The current state of the local municipality greatly complicated the deployment. Fortunately the project has on-the-ground support from the municipal librarians, which proved to be the key to gaining access into the libraries. However, without further political support it may be difficult for the project to realise its full potential.

Connecting libraries in the township to the University's network – particularly on a shoestring budget – has required that the University re-think its traditional connectivity strategies. However, the project enjoyed grassroots support and relied on the generosity of volunteers to build some of the infrastructure (including erecting a twelve metre mast close to one of the libraries). Some of this infrastructure will also be used to improve connectivity into public primary and secondary schools.

In addition, the project has served as a catalyst for further community networking initiatives in town.

The University has kept usage statistics since the first access point was deployed, and utilisation of the resulting hotspots has been steadily growing. This shows that the project is starting to make inroads into the digital divide, and is bringing freely-available Internet access closer to students.

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Vitæ

Guy Halse is IT Operations Manager in the Information & Technology Services Division at Rhodes University, his *alma mata*. He oversees all centrally-provided network, telecommunications and server infrastructure for the University. Guy currently serves on the eduroam and identity federation steering committees in South Africa as well as the management committee of the Internet Service Providers' Association (ISPA). As an undergraduate he majored in physics, and holds a Masters degree in computer science. From time to time he contributes to various open source projects, and prefers FreeBSD.