

# The GEN2 Migration Project

Duncan Martin, 17 March 2005

## 1. What does GEN2 implementation entail for a site?

The GEN2 agreement provides for three major changes:

- 1.1 Upgraded bandwidths for the same monthly charge as before;
- 1.2 Migration from the Layer-2 HEIST platform with its ATM-based PVCs to the Layer-3 IPNet platform that runs MPLS and offer multiple service quality levels; and
- 1.3 A switch from ordering and being billed for

a trio of **CIRs : International, National and HE-Internetworking**

to ordering and being billed for

a trio of **bandwidths : International, National and Backbone Connection.**

Further information can be found on TENET's web site by clicking the "GEN2 agreement" link.

## 2. What has been done already?

- 2.1 The "CIR / PIR" terminology has been dropped. Internet access services to all sites are already described in terms of International bandwidth, national bandwidth and Backbone Connection bandwidth. The formulas for this translation are:

GEN2 International bandwidth = 2 \* HEIST International CIR

GEN2 National bandwidth = 2 \* HEIST National CIR

GEN2 Backbone Connection bandwidth = HEIST Access PIR

- 2.2 **Billing is already done in GEN2 terms:** From 1 January 2005, all sites have been billed at the lower GEN2 unit prices for services that continue to be delivered via the HEIST platform.
- 2.3 **Some sites have been upgraded within the HEIST platform:** Where the existing TELKOM infrastructure permitted it, TELKOM upgraded the bandwidths during December 2004 to give the benefit of the lower prices in the form of more bandwidth. TENET specified the upgrade quantities, but sites were free to adjust these. Sites for which this was not possible have had lower monthly charges since 1 January 2005.
- 2.4 **List of uncommissioned orders published on TENET's web site:** Every GEN2 site appears on the list of uncommissioned orders on TENET's web site. The Status column shows which sites have already been upgraded but still await migration to the GEN2 platform, and which sites await both upgrading and migration.

This list will be kept up to date as the migration proceeds.

## 3. What must the GEN2 Migration Project achieve?

- 3.1 "Migration" of a site refers to the site's disconnection from the HEIST PVCs, replacement of its existing HEIST access router by a new, MPLS-enabled one, its direct connection to IPNet, and its configuration to exchange traffic with the Internet via routes within IPNet and the new GEN2 gateways. By contrast, "upgrading" means increasing the GEN2 service bandwidths to new values, as ordered. The GEN2 Migration Project must migrate all 90 or so sites, and must upgrade those that have not yet been upgraded.
- 3.2 The GEN2 Migration project will also configure the new GEN2 Backbone network within TELKOM's IPNet network. New International and National gateway routers will be installed,

# TERTIARY EDUCATION NETWORK

and “stackers” on these routers will be used to limit inbound traffic flows to sites’ ordered bandwidths. Where required, TELKOM must upgrade the access infrastructure to GEN2 sites, and has been busy doing this for some weeks already.

The HEIST core network will be maintained in operation until the last site has been migrated to the GEN2 network. In fact, TELKOM will add an additional core router at Bellville, linked to those at UKZN, UCT and Wits, to serve as a gateway between the old and the new – i.e. between already-migrated sites and not-yet-migrated ones. One consequence of this is that UKZN, UCT and Wits will be among the last sites to be migrated.

## 4. Site migration schedule

4.1 **Down time limitations:** TELKOM’s migration plan provides for a maximum of two hours of down time per site. I have agreed that this downtime may occur on normal working days, but insisted that it may not start before 3 p.m. unless the IT Director agrees otherwise. With the 3 p.m. limit in place, TELKOM will be able to deal with at most two sites per working day.

4.2 **Provisional schedule of sites’ migration dates:** TELKOM has proposed a schedule of migration dates for all the sites for consideration by TENET and all sites. This Provisional GEN2 Migration Schedule may be downloaded an MS Excel spreadsheet from TENET’s web site.

According to the provisional schedule, migrations commence on 11 April 2005. After the first three sites have been migrated there is provision for a period of a few days in which procedures and communications will be refined. Thereafter the schedule shows one large site or two not-so-large ones being migrated per working day, with the last sites being migrated only at the end of June.

Sites that have not already been upgraded (see 2.3 above) have been given priority, i.e. are scheduled for earlier rather than later migration, because they do not yet have the benefit of the lower prices in the form of increased bandwidth.

4.3 **Opportunities to request an alternative date:** There may well be good operational reasons why the dates shown on the provisional plan are not be feasible for some sites. Where there’s a problem with the dates, IT Directors are requested to explain the problem – or rather – what dates would be acceptable – in an email addressed to [migration@tenet.ac.za](mailto:migration@tenet.ac.za). Where gaps in the schedule open up, these will be utilised, but the solution to any problem with dates is likely to entail postponement to the near the end of the Project.

4.4 **What about migrations being scheduled for earlier than 3 p.m?** TELKOM is more than willing to schedule site migrations ant any time during working days, provided that the IT Director of the site involved has granted permission for this. IT Directors that are willing to grant such permission should please signify this in an email to [migration@tenet.ac.za](mailto:migration@tenet.ac.za), in which message any limitations of dates should also be spelt out.

4.5 **Revised Migration Schedule:** A revised migration schedule that takes into account any requests in emails to [migration@tenet.ac.za](mailto:migration@tenet.ac.za), will be drawn up in the week starting 4 April 2005.

## 5. Appointment of Mike Lawrie to assist TENET with the GEN2 Migration

5.1 TENET has appointed Mr Mike Lawrie as TENETs GEN2 Implementation Coordinator. This appointment will take effect from 5 April 2005, and will last at least until most, if not all, of the GEN2 sites have been migrated from the HEIST Platform to the IPNet Platform. Mike will report to Duncan Martin.

5.2 **Who is Mike Lawrie?** To many, Mike Lawrie needs no introduction, but there may be some younger people who will be involved in GEN2 implementations and who have not yet had the pleasure of working with Mike. Mike is one of the most experienced Internetworkers around. He is the man who first brought the Internet to South Africa – which he did in the early nineties when he was the IT Director at Rhodes University. Subsequently he was the

# TERTIARY EDUCATION NETWORK

manager of UNINET, which provided higher education and research networking in South Africa until 28 February 2001 when that responsibility passed to TENET and the HEIST contract with TELKOM came into force. Mike was also the person who first registered the ZA domain name and who administered it and many of its sub-domains in the national interest for many years.

Mike works as a consultant from his home in Pretoria, from where he has broadband Internet access.

## 6. Management responsibility structure

- 6.1 **Overall project management responsibility:** TELKOM is responsible for managing the implementation of the GEN2 agreement. **Gert Eybers** of TELKOM is the Project Manager. **Ernst Visagie**, the GEN2 Service Manager, will play the vital role of controlling the smooth migration of services from the HEIST to the GEN2 platform for each and every site. TELKOM technicians under Ernst's control will work with on-site staff at each site as regards arranging down time, gaining access to the TELKOM equipment, installing the new router and removing the old one, and conducting tests.

**Mike Lawrie**, as TENET's GEN2 Implementation Coordinator, will be each GEN2 institution's primary TENET contact on all technical matters relating to the commissioning of GEN2 services at all sites. Mike will act for TENET, and will keep track of all implementation actions at all sites. Mike will act as advisor to staff at sites or IT Directors, and will intervene as necessary to get problems addressed and to get each site's implementation well and truly completed as smoothly as possible.

Mike will also be TELKOM's primary contact person with TENET for the Migration Project.

**Franz Dullaart** is responsible for the MRTG graphs on TENET's web site. He has to make parameter changes in this system as each site is cut over, and will normally be triggered in this regard by TELKOM. Franz is the man to call if you see something amiss with the MRTG graphs.

Please raise any persistent concerns with **Duncan Martin**.

## 7. Commissioning and acceptance procedures

Once TELKOM has completed the installation at any site and has tested the GEN2 services to the site, Ernst Visagie will inform Mike Lawrie that migration for that site has been commissioned. Mike will then seek acceptance of the commissioning from the IT Director or other responsible person at the site. If there are problems or concerns that prevent such acceptance, these must be explained to Mike Lawrie directly, and he will intervene as required with TELKOM through Ernst Visagie. TELKOM's commissioning test results will be available if required.