

12. Connection options

12.1 Technologies

Options for connecting to the Internet are discussed in Appendix B. These are VSAT, wireless and leased line. Where a country has an undersea cable connection to the Internet, the organization should attempt to get a leased line connection to this infrastructure.

12.2 Peering

University networks are often among the largest computer networks in a country. As such, they might decide to start initiatives to keep local traffic local. This can be achieved by setting up an Internet Exchange Point (IXP). For example, if a university (which already has its own connection to the Internet) makes a connection to the largest ISP in the country, in order that traffic between the university and customers of the ISP can be routed directly within the country, that is called a peering arrangement, and helps to keep traffic between the university and customers of the ISP within the country. Such an initiative could be extended to make connections to other ISPs and universities within the country.

This arrangement requires some investment, but can save the country money, because less money needs to be paid for bandwidth obtained from foreign satellite companies, and local traffic will reach its destination much faster.

Peering also makes creating local software mirrors more useful, because there are more potential users that can access large downloads without using international bandwidth. For example, the Sri Lanka LEARN network, which is a network of educational institutions that have their own network, has its own mirror sites of popular software download sites such as GNU, Sintel, MySQL and Tucows, as well as of Linux distributions.

These links also give local access to the local online newspaper and business sites, and local e-mail remains within the country.

Unfortunately, peering requires co-operation and trust, and these might be difficult to get right. The link and quote below, illustrates this problem:

http://www.balancingact-africa.com/news/back/balancing-act_156.html

The major issue is one of trust. You need to be able to work with your competitors and in some countries this level of trust has not yet been established. As Brian Longwe told a recent workshop at the Southern African Internet Forum: "Getting any IX/peering arrangement off the ground is 10% technical work and 90% socio-political engineering." He also pointed out the importance of getting ("written") regulatory support. Setting up a local IXP is neither costly nor difficult.

Of course, the link between the institution and the ISP must be cable or wireless. It makes no sense to use a satellite connection for such a link.

Appendix B contains more information on peering.

12.3 Academic networks

Where universities and other educational institutions can make local network connections with each other, they can pool resources and make a joint connection to the Internet. This enables them to negotiate a better deal, because they will be buying more bandwidth: buying in bulk is cheaper. It also enables them to keep traffic between these universities local, and to share certain resources, such as mirrors of software download sites, as described in the previous section.

Such co-operation exists in many countries – for example, the LEARN network in Sri Lanka (<http://www.ac.lk>) and the Janet network in the UK (<http://www.ja.net>). These networks are discussed in more detail in the Moratuwa and Bristol case studies.