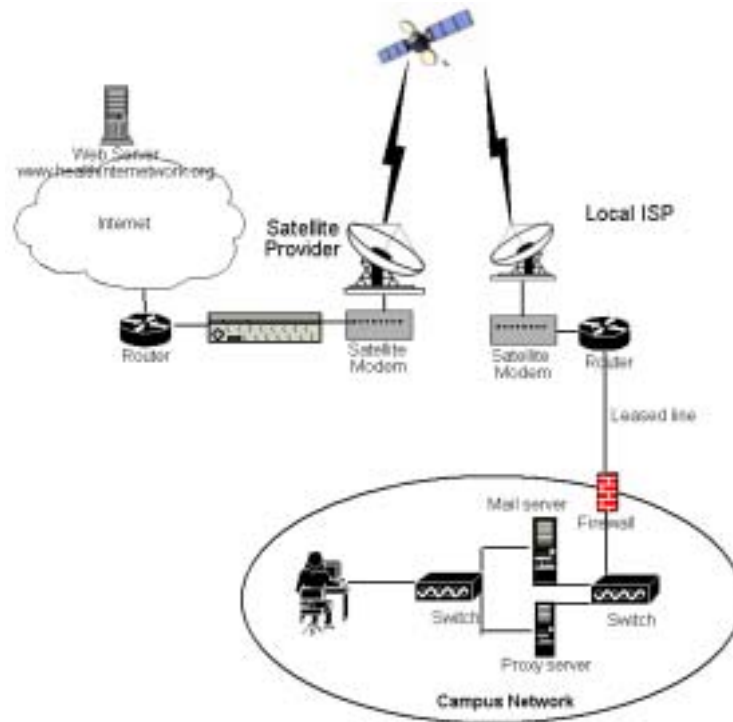


## 7. Network design

Management could ask the network team to present a diagram (such as the example below) that indicates how network packets get to a Web server on the Internet and back, and showing the position of the proxy servers, for example.



It is also useful to know about the various protocols used on the Internet, and to decide whether all of them should be allowed, or only some.

Web (HTTP) traffic remains the biggest user of Internet traffic (more than Mail, FTP or entertainment-related protocols such as IRC and Kazaa). Web traffic is also increasing its share against protocols such as FTP and Mail because file downloads are increasingly being done using HTTP, and e-mails are being sent and read using the HTTP protocol (through Web-based e-mail services such as Hotmail). Almost everything that is worthwhile for academic purposes is available via HTTP and FTP. E-mail has become essential for personal, administrative and academic communications. HTTPS is essential for secure communications such as online banking and shopping.

A university might decide that, in view of the expense and scarcity of their bandwidth, they will allow users access only to HTTP, HTTPS, FTP and Mail, since most other protocols are either entertainment-related, or are related to system administration and therefore not relevant to most users. Examples of the latter include RDP, pcAnywhere, VNC and Secure Shell.

But this decision must consider other protocols essential to someone's work. For example, an external collaborator might make certain resources available using a different protocol. (This should be discouraged if possible.) If this is the case, an alternative method of access should be devised for the department concerned.

Certain network layouts, discussed in Appendix A, would make it completely impossible to use protocols such as Kazaa, and to only use HTTP, HTTPS, FTP and Mail.