



The Evolution of an Academic Network in Palestine

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1. Summary

This paper gives details of the environment, and process, for a study of the needs of the academic and related community in the Occupied Palestinian Territories. The study was sponsored by the United Nations Development Program – Program of Aid to the Palestinian People (UNDP-PAPP) and took place during September 1994. The objective of this study was to provide the Palestinian universities and research institutions with Internet connectivity. This would give them the capability to share resources between each other and to access resources outside Palestine. It would also provide a reliable and speedy route for electronic mail and for access to library catalogues both inside and outside Palestine. This network could be later extended to other Palestinian educational institutions and non-profit organization and possibly commercial companies.

2 Politico-Geographic Considerations

The Palestinian universities have expressed interest in the establishment of an Academic Network in Palestine with connections to the international Internet. This is perceived as of considerable potential benefit in increasing access by the universities to information resources. The Occupied Palestinian Territories (OPT) consists of the West Bank, including East Jerusalem, and the Gaza Strip. The West Bank and Gaza Strip are not connected at any point. At this stage it is not clear if any telephone or other connections between them will be in Palestinian control. At the stage of writing this report, responsibility for education in the West Bank and Gaza has been turned over to the Palestinian National Authority (PNA). However communications remain in Israeli hands. Moreover it is unclear whether the establishment of microwave transmitters by the PNA is permitted even in Gaza and Jericho. In addition, telephone communication in the West Bank and Gaza has ceased to be a monopoly of the Israeli telephone company (Basiq). Another company will also provide long distance service. This will affect any analysis of future costs. Basiq appears unwilling to invest in upgrading of lines in the West Bank and Gaza, as illustrated by Birzeit University's problems in obtaining lines. This means that, although costs of Basiq lines can be used in estimates, availability of those lines cannot be determined until a request is submitted for the connection. No substantive information is available on the alternative long distance provider or its pricing policies.

3 Current Status

3.1 General Context

Networking in the Occupied Palestinian Territories is still at an early stage. At the time of this

visit only one university, Birzeit, had a LAN running over Ethernet, which was available for student use. Another, Bethlehem has a student LAN running over serial lines, Nablus has a DECnet Ethernet LAN for administrative use, and Al Quds and Hebron were in the process of establishing LANs for academic and administrative use respectively. It is clear that, in addition to the establishment of an inter-university network, there is also a need to train both users and technical support staff on uses of LANs and the Internet. A fuller discussion of the situation in each university was contained in a Trip Report submitted to UNDP [Trip].

3.2 UNDP Internet Connection

The UNDP East Jerusalem office currently has a CISCO Router which is connected to the Israeli Academic Network by a 64 kbps digital leased line. The main access point to the Internet is a Sparc Classic running Solaris 4.2. This provides, in principle, acceptable performance for interactive applications. Tests show that, in practice, access to sites in the U.S. and to a lesser extent in Europe gives less than satisfactory performance at times, particularly for interactive applications. This would appear to be due to excessive latency in the connection leading to failure of typed characters to appear for some seconds. This is probably due to saturation of the Israeli link to America and also possibly to a satellite link with high latency to America.

3.3 Domain Naming

A problem exists in allocating Internet Domain Names (DNS names) to sites in Palestine. There is no current national (two-letter) abbreviation for Palestine. Such abbreviations are assigned by the Internet authority, but are normally designated to be the two-letter country code assigned by the ISO. Such an ISO code does not currently exist. In order to obtain such a code it is necessary for the appropriate authority, normally the government, in the country to apply to the ISO. It is not envisaged that obtaining such a code will constitute a problem, since Palestine has tentatively been assigned an international country code for telephonic communications (Pending an application by the Palestinian National Authority for such a two-letter code an interim, politically acceptable, solution was required. This was arrived at by registering the universities in the .edu domain and also registering a domain pi.org for Palestinian non-profit organizations. This was accomplished by Yaser Doleh in co-operation with local contacts at each institution. A list of the currently registered Palestinian universities follows:

Domain Name	Institution
birzeit.edu	Birzeit University
an-najah.edu	An-Najah University, Nablus
alquds.edu	Al-Quds University

Table 1: Currently Registered Palestinian Organizations

3.4 Other Initiatives in Palestine

There exist two other initiatives which are related to the Academic Network, in that they could employ such an academic network as a medium for their accomplishment. The first is an initiative to provide copies of a unified library catalogue for all the Palestinian universities. The process currently proposed is for each institution to download their new additions to Birzeit using a modem. Birzeit then produces a unified catalogue which each institution can then upload by modem. Difficulties are currently being experienced due to the lack of availability and quality of the phone lines, lack of local staffing and the manual nature of the process. The Academic

Network could be used to perform all the transfers involved or alternatively to provide on-line access to the actual catalogues at remote institutions. In this manner it is currently possible to access many of the library accession systems in universities around the world over the Internet.

The other initiative is PLANET, which is primarily an initiative to establish an electronic library in the form of on-line databases and data sets to host academic references, journals and research materials. Particular interest is in medical databases. A secondary aim is the establishment of a Palestinian academic network with connectivity to the Internet. This is clearly a necessary prerequisite to distributed access to such databases.

4. Study Process and Observations

In order to evaluate local conditions and make recommendations, the following areas were identified as requiring attention:

1. *To liaise with the Palestinian Academic community on further strengthening the establishment of a structure to sustain a workable Academic Network in Palestine.*

This was achieved by visiting the Palestinian universities to:

- discuss and receive input on the potential uses, benefits and problems (both normal and unique to the OPT) of establishing the network
- explain the steps required to do so • to request the appointment of a technical/administrative contact in the university
- seek input on or evaluate the situation with regard to telephone lines in the area of the university for the purpose of identifying special problems which might occur with test installations using Serial Line Internet Protocol (SLIP) [1] over ordinary telephone lines.

2. *To estimate the training needs in each of the institutions regarding the establishment and maintainance of an Academic Network.* To accomplish this it was necessary to identify the different levels of technology and expertise available in the various institutions, and the degree and nature of training both for network administrators at the sites and later ordinary users.

3. *To estimate the training needs in establishing local expertise..* In addition to network expertise at the various institutions, greater expertise will be needed to establish and run the network as a whole. In the current situation in the OPT, where travel for Palestinians is regularly arbitrarily restricted, this expertise would need to be based close to the central hub and probably at that site. Such local experts could in addition to managing the Academic Network as a whole, act as a resource for assistance and training of the network administrators and users at the various institutions.

4. *To make a proposal outlining the steps needed to establish an academic Network.* This will be discussed in detail in an additional report. The primary requirements for establishing the physical network are to obtain :

- permission for UNDP Jerusalem to act as an Internet provider to the Palestinian Academic Community.

This has been accomplished.

- permission for each university to connect to the Internet
- permission from the Israeli Ministry of Communications for each university to obtain a leased line to UNDP
 - a leased line from each university to UNDP
 - an IP address or addresses for each university
 - an Internet domain for each university. This has been secured by Yaser Doleh in the case of most universities.
 - the physical hardware (router and Unix machine) to allow connection to the leased line.

5. *To make a proposal on the systematic approach to administering the Academic Network.* This will also be dealt with in detail in another report. To facilitate the planning and setup of the network, technical/administrative contacts in each university have been identified. These can constitute an Ad-Hoc

Technical Committee and be used for information on local conditions and input to the planning process. Actual meetings may however be difficult or impossible to accomplish due to the problems with travel in the OPT.

References

- [1] J. Romkey, A nonstandard for transmission of IP datagrams over serial lines: SLIP, RFC 1055, Network Information Center, 1988.