Department of Administrative Services

Norman H. Bangerter
Governor
Alice Shearer
Executive Director
G. Steven Grimshaw
Division Director

Division of Information Technology Services
5000 State Office Building
Salt Lake City, Utah 84114
(801) 538-3833

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To: Dennis Goreham

From: Val Stanley
Information Technology Services

Subject: INTERNET Information

ITS received a request from AGRC to investigate establishing an INTERNET node at the State Office Bldg. This memo will list various topics concerning INTERNET and some of the costs involved. The information was obtained from Mr. Allen Cole of the University of Utah.

INTERNET is a world-wide equipment independent network used in the commercial, government, and educational arenas. The transport currently has a T-1 backbone, but there are plans to upgrade the backbone to T-3 in the near future. INTERNET supports TCP/IP and OSI protocols. There are E-mail and file transfer packages available among other capabilities. INTERNET provides a common transport for many different types of equipment and connects many agencies for the purpose of sharing data.

The University of Utah (U of U) is the 'primary' INTERNET node for this area. They have selected certain equipment and would prefer using it, but they would consider using other vendor equipment if necessary. The equipment they have on contract and approximate costs are:

- SYSCO router with Ethernet interface (end node) $4,000. There is about a 2 month wait for delivery.
- Two (2) Dowty CSU/DSUs for 56k bps circuit $500 ea. or T-1 circuit are $2300 ea.
- One time hookup fee of $3,000
- Large site yearly fee of $5,000 or small site yearly fee of $3,000
- One time data circuit installation fee
- Data circuit monthly fee (T-1 is approximately $600/mo) A T-1 circuit usually can be installed within 3 weeks.

If customers select the type of equipment the U of U personnel are familiar with, they can monitor the line and do preliminary trouble shooting for 10 hrs. per day. This will cover prime time during the normal work week. Staff at the U of U have replacement parts for their DSUs / CSUs and currently repair the DSUs / CSUs at no charge. They are evaluating if charging for this service is reasonable.

Mr. Cole recommended using an Ethernet interface because the hardware is less costly. IBM Token-ring is also supported but at a greater cost. It is estimated the router with a Token-ring interface would cost about $10,000.

INTERNET requires unique identifiers to be able to get transaction addressing correct. A recommended name would be submitted to INTERNET for approval. An example is 'xxx.yyy.Utah.Gov'. xxx and yyy could be location and/or department identifiers. The INTERNET system is similar to a peer to peer network. Therefore, the identifier given is at the CPU level. An individual customer / terminal is addressed by the 'normal' user ID known to the owning CPU.

I have requested a manual be sent which may describe the use, and functions for INTERNET in more detail. This documentation also describes connection requirements.

Mr. Cole indicated the AGRC Prime computer would have to have a TCP/IP Ethernet interface and software in order to interface directly with INTERNET. AGRC personnel will need to research the capabilities of the Prime to determine if the INTERNET node should be brought into the Prime directly, or if other options need to be explored. Network Planning and Engineering staff members are willing to work with AGRC and INTERNET personnel to investigate other options if required.

There are many more technical questions which need to be explored once justification and approval for basic costs has been given. There will need to be a logical network design which goes far beyond the initial transport facilities between the State Office Bldg. and the University of Utah. Also, hardware may have to be evaluated and obtained before this project can proceed.

Please review this document and feel free to call me if you have questions. My direct telephone number is 538-3447.

cc Randy Swalberg
Joe Leary

INTERNET

"VS-INTER" 1/15/92