MEMORANDUM
March 24, 1999

FROM: Bryan Wright
TO: HEET Selection Committee
SUBJECT: RE: Computer Facility HEET Request

Dear committee members:

The computer facility’s HEET request this year addresses a varied set of needs. Of primary concern are the ageing PCs now on the desks of our administrative staff. We also hope to improve departmental printing and backup capabilities.

In the following pages, I list the items requested, along with individual descriptions and cost justifications. The total cost of all items is $50,034.00.
• **Administrative PCs**
  
  **VENDOR:** Gateway  
  **PART NO.:** E3110 300  
  **PRICE:** $2,143.00  
  **QUANTITY:** 10  
  **TOTAL:** $21,430.00  
  
  **DESCRIPTION:**
  
  – 300MHz Pentium-II processor  
  – 19-inch monitor  
  – 64MB EDO RAM  
  – 4GB IDE disk  
  – Internal IDE Zip disk  
  – Tower case  
  – 3 PCI, 3 ISA (1 shared PCI/ISA) slots  
  – 4MB Video RAM  
  – Auto-sensing 10/100 MBPS ethernet card  
  – Windows95  
  
  **JUSTIFICATION:**

  Our administrative staff forms the backbone of our department. Without their support, other members of the department would be unable to perform their jobs. Much (perhaps most) of the work done by administrative personnel involves the use of computers. When an administrative user’s word processing, spreadsheet entry, e-mail or web access slows down or fails, major projects can be delayed.

  Unfortunately, most of these users have outdated computers on their desks. Vendors are currently shipping PCs with 400 MHz processors, while most of our administrative users still have computers with 75 MHz processors. We would like to replace these old machines with newer, 300 MHz machines.

  The people getting new computers would be Tammie, Brenda, Patti, Beverly, Faye, Gwen, Pam, Teresa, Diana and Rick.
• **Computer support PC**

<table>
<thead>
<tr>
<th>VENDOR: Gateway</th>
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<tr>
<td>PART NO.: E4200 400</td>
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<tr>
<td>PRICE: $4,038.00</td>
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<td>QUANTITY: 1</td>
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<td>TOTAL: $4,038.00</td>
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</tbody>
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**DESCRIPTION:**
- 400MHz Pentium-II processor
- 19-inch monitor
- 128 MB EDO RAM
- 14.4 GB IDE disk
- Internal IDE Zip disk
- Tower case
- 3 PCI, 3 ISA (1 shared PCI/ISA) slots
- 8 MB Video RAM
- Auto-sensing 10/100 MBPS ethernet card
- WindowsNT

**JUSTIFICATION:**

We’ve just hired a new computer support person for the department, and need to buy a computer for his desk. The machine listed above has the speed, memory and disk capacity necessary for the tasks he’ll be performing.
• Public Printers
  VENDOR: MicroSystems Warehouse
  PART NO.: HP LaserJet 8000DN
  PRICE: $3,229.00
  QUANTITY: 2
  TOTAL: $6,458.00

DESCRIPTION:
  – 24 PPM
  – 24 MB RAM
  – Supports Postscript
  – 1200 dpi
  – 3 paper trays (1100 sheets)
  – Duplex capability
  – JetDirect card

JUSTIFICATION:
  Our two current public printers (one in the Copier Room and one in the PC Lab) are getting rather old, and they lack features we’d like to have. In particular, we’d like to have printers capable of duplex printing. This would save half the paper we use, benefiting the environment and potentially saving about $1,000.00 per year. The printers described above have duplex capability, and they are also substantially faster than our existing printers. We propose assigning the existing printers to lighter duty (as lab printers or group printers for administrative staff) and purchasing these printers to replace them.
• **Ethernet switch**  
  VENDOR: DataComm Warehouse  
  PART NO.: Baystack 350T  
  PRICE: $1,879.99  
  QUANTITY: 1  
  TOTAL: $1,879.99  

DESCRIPTION:

− 16-port 10/100 ethernet switch (TX)

JUSTIFICATION:

Our department’s Beowulf cluster (purchased with last year’s HEET money) is just entering service. One vital component of the cluster is a 100 Mbps ethernet switch. We’d like to purchase a second switch for two reasons. First, the existing switch is a potential single point of failure for the cluster. If the switch should fail, the cluster would be unusable until it was replaced. This could take several days. Second, with the purchase of several additional ethernet cards, we could potentially double the speed of communication between the cluster nodes by using both switches simultaneously. (Beowulf includes a technology called ”ethernet channel bonding” which allows two ethernet cards to act as a single, faster card.) This would also give us automatic failover if one switch should fail.
• **Backup tape drives**

  VENDOR: Digital Basics  
  PART NO.: DBD20  
  PRICE: $4,250  
  QUANTITY: 2  
  TOTAL: $8,500  

**DESCRIPTION:**

- 40 GB max capacity  
- 6 MB/s max transfer rate  
- Backward compatible w/ existing 8mm drives

**JUSTIFICATION:**

Our backup server currently has a maximum capacity of 70 GB, of which we use about 50 GB. Since each new computer brought into the department has a disk of 4GB or more, and since we’ll be bringing online a 40 GB RAID array attached to our Beowulf cluster, Galileo, we desperately need to increase our backup capacity. The two drives listed above should suffice for the next few years.
- **Backup spool drive**

  VENDOR: High Point America Inc  
  PART NO.: Seagate Elite 47  
  PRICE: $2,850.00  
  QUANTITY: 1  
  TOTAL: $2,850.00

  DESCRIPTION:
  - 47 GB capacity disk drive

  JUSTIFICATION:

  With the increase in backup demand, the amount of time necessary to complete a full backup of our systems has greatly increased. Full backups (done monthly) now take about 16 hours to complete. With the addition of new large drives needing to be backed up, the time may exceed one whole day. Ideally, backups should take place while computers and networks are quiescent. Files created during the backup may not be recorded on tape, and the extra network activity generated by the backup can slow down network response for other users. The addition of a large spool drive to our backup server could greatly improve this situation. Writing data to the spool disk, then copying it in large chunks to the tape drive should significantly increase the speed of our backups.
**RAID Controller**  
VENDOR: CMP Express  
PART NO.: DPT SmartRaid IV  
PRICE: $1,288.00  
QUANTITY: 1  
TOTAL: $1,288.00  

DESCRIPTION:  
– PCI-to-Ultra/Wide 3 channel SCSI RAID controller  

JUSTIFICATION:  
The activation of the RAID array intended be part of our Beowulf cluster has been delayed due to unforeseen incompatibilities with the chosen RAID controller. The purchase of the controller listed above should allow us to bring the RAID array online. The existing controller can then be used to benefit one of our NT servers (either our Web server or one of our file and print servers).
• **Cluster Nodes**
  
  VENDOR: Various  
  PART NO.: N/A  
  PRICE: $1,800.00  
  QUANTITY: 2  
  TOTAL: $3,600.00  

DESCRIPTION:

– 400MHz Pentium II processor  
– 256MB EDO RAM  
– BX motherboard  
– 2 4GB IDE disks  
– Desktop case  
– 3 PCI, 3 ISA (1 shared PCI/ISA) slots  
– Trident 9680 PCI video card  
– 3c905-TX 10/100 ethernet card  

JUSTIFICATION:

The addition of the two nodes described above will complete the 16 nodes requested in last year’s HEET cycle.