Applications and Technical Services 2001- 03 Biennium Budget Request

During the current biennium, ATS was provided funding to accommodate a new version of the student information system (SIS). The funding request covered needed hardware enhancements and expenses directly associated with the new system (e.g., licensing fees, travel and training, etc.). Rather than place all of the needed additional capacity on the existing Reno machine, the decision was made to purchase a second machine along with the necessary peripheral equipment and to locate it in the Las Vegas data center. This machine will house (April 2000) the financial and human resource applications with SIS residing on the Reno machine.

This decision was made for two reasons. First, balancing the application load between two machines isolates the financial and HR applications from the load spikes associated with registration. For example, normal daily transaction loads vary from an average daily count of 250,000 to over a million during peak registration periods. In addition to the peak periods, our arrangement with the SIS vendor (Informs) calls for SCS to perform performance and stress tests of the new Java version of the application on our machine. This arrangement will produce non-registration stresses, which would have compounded the problem had the second machine not been available.

The second reason for opting for a second machine was for disaster recovery purposes. The one machine scenario left us extremely vulnerable with full recovery estimated at one to three months in the advent of a disaster at the northern site. With the second machine this is reduced to one to two weeks regardless of which site was affected.

Full funding for this enhancement unit was not available. As an alternative, the Chancellor and the President's Council authorized SCS to enter into a four year financing arrangement with IBM. Current funding covers payments for this biennium with an outstanding balance of $1.8 million due IBM during the 2001-03 biennium.

As we are currently configured, the Reno installation has an IBM R45 Enterprise Server with a R24 in Las Vegas. In the IBM vernacular the first digit stands for the number of active processors while the second references the generation. Total processing power is approximately 205 mips (million instructions per second) in Reno and 92 mips in Las Vegas. Storage (tape and disk) at each site is approximately proportional to processing capability and workload requirements.

Upgrade Administrative Computing Platforms—$2,195,063
The request to upgrade the Administrative Computing platform in the 2001-03 biennium is driven by growth and the need to move to new versions of the administrative applications. In the past couple of bienniums, demands on the systems have grown rapidly due to student growth, more complex applications, web enablement of applications (especially SIS) and demands for additional storage.

Transaction counts have been growing accordingly and especially at peak periods (between January 1999 and January 2000 peak workload counts increased by nearly 41 percent) while storage needs have increased 30-60 percent per biennium. There is little question that this trend will continue if not accelerate with new campuses coming on-line, the movement to web enabling existing applications (i.e., making applications available via web browsers) and the planned move to the new version of SIS in 2002.

In addition to growth, both vendors (Integral for HR and AMS for the financial system) recently announced plans to move to web-based systems deployed on IBM's relational database, DB2. The AMS initial release is scheduled to occur during the biennium but they will continue supporting the existing version into the 2003-05 biennium.

Integral's plans are not as detailed as of yet but they have announced that they will be moving to a new development tool during the current biennium. Complicating the Integral outlook is the fact they will

continue to support a VSAM (IBM's older database technology) version of their application in addition to a DB2 version.

The advantage of moving HR and financial to DB2 during the 2001-03 biennium (SIS is already scheduled to move to DB2) is that it provides a far more efficient and flexible means of managing and retrieving data— for both technicians and users alike. The downside is that it changes the manner in which data is stored and retrieved requiring more I/O, additional storage and more/faster processors. In addition, managing an application running on DB2 requires specialized skills (e.g., database administrators).

Financial Realities
The initial budget iteration included a fifth processor on the northern machine (Bighorn) and DB2 on the southern machine (Mustang) plus an additional processor. The enhancements on the southern platform would allow HR and Advantage to move to DB2 based versions. The additional processor on Bighorn would provide insurance that the rapidly growing demands stemming from the student information system could be accommodated without any serious degradation in service.

The financial realities dictated that the above enhancements were not feasible and were subsequently dropped. The consequence of not having DB2 on Mustang are not critical though they preclude the applications from making use of new technology and, in at least the case with Advantage, increase the conversion requirements in the future biennium. Eliminating a fifth processor on Bighorn will undoubtedly mean the machine will be seriously stressed handling peak loads during registration toward the end of the biennium given current growth rates.

What remains in the request is the following:

- Add disk and tape drives to the Reno and Las Vegas systems.
- Upgrade Mustang CPU to level of Bighorn (this will also provide an additional 30 mips).
- License DB2 on the Reno system to accommodate SIS.
- DB2 database administrator position.
- Funding to move to the new VSAM version of the HR system.

The detailed costs are contained in the attached spreadsheet.

Consequences of not funding
The consequences of not funding this scaled-down enhancement unit are serious. They are: (1) an inability of the administrative systems to process workloads on a timely basis and to provide (or maintain) new functionality, (2) the inability to implement and support the new SIS system and (3) having HR unsupported by the vendor.

Convert Edify to NT — $246,000
During the 1995-96 biennium, SCS purchased nine Edify boxes to support phone registration. Two machines were dedicated to each of the two universities, one for each community college, and one for development. This equipment has aged to the point that it needs to be replaced. Additionally, Edify has announced it is dropping support for OS2, the operating system SCS currently uses to run the Edify equipment, as of July 2001. In order to upgrade to NT, an operating system that they support, we must replace the hardware and acquire new software. See attached spreadsheet for details.

Consequence of not funding
Failure to fund this unit would mean that phone registration (currently 50 percent of students use this tool to register) would not be available and students would be left with web and in-person options.