University of Nevada, Las Vegas

A Strategic View of Information Technology

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Introduction

This report provides a high-level view of the current status and potential future of information technologies at the University of Nevada, Las Vegas (UNLV). It is based on the author's meetings with numerous campus constituencies during a two-day campus visit on November 13-14, 2000 (see itinerary in Appendix A).

Over the years, UNLV has been successful in accomplishing a stable and useful information technology (IT) environment for its diverse population of students, faculty, and staff. However, given the momentous recent growth of the campus and the strategic presidential direction towards becoming a research university, it is now a good time to develop a plan for sustainable state-of-the-art IT infrastructure and services.

In order to keep this report focused and reasonably short, it concentrates primarily on the key opportunities, problems, and strategic decisions that the campus needs to address.

Obviously, it is not possible to properly review and research all relevant issues in just a couple of days. Therefore, this document should be read with the understanding that all the information, views, and recommendations are based on the author's impressions, which may be incomplete or erroneous.

Findings

Readiness
It is clear the UNLV is ready for a change. Practically all faculty and staff who participated in the discussions recognized the importance of IT to the future of university and expressed strong interests in strengthening the campus IT environment.

Funding
The current funding levels and budget processes are inadequate. It seems that there is no ongoing budget for equipment replacement, for network infrastructure, and for keeping staff compensation levels aligned with the market.

Fragmentation
UNLV seems to have excellent support staff that are motivated and interested in providing good customer service. However, given the lack of a campus-wide IT plan and an agreed set of institutional priorities, there seems to be a fragmentation of efforts among the various entities (e.g., OIT, System, Library, Telecommunications, Supercomputer Center, Publications, etc.) resulting in less than optimal use of staff resources.

Services

The quality of IT services has generally improved over the past few years, especially after the establishment of the Office of Information Technology (OIT) under the direction of Lori Temple. Most interviewees have acknowledged that the integration of academic and administrative computing services has been a positive step. There is, however, a general feeling that quality of services has deteriorated recently due to OIT staffing constraints (e.g., long turnaround for PC repair, no enhancements to administrative computing systems, etc.)

Network

There is a general perception among the users that the campus network is too slow, that most classrooms are not wired, and that bandwidth is too limited. This may be more of a perception than reality, since some people equate slow servers or workstations with a slow network. Further review is needed to determine network bottlenecks and service levels.

Email

Most participants perceived email services to be unreliable and fragmented. The Lotus Notes system seems to fail often, it is perceived to be too slow, and it is not available 24 hours/day. Undergraduate students do not have university email accounts. The campus has several email systems and suffixes (@neveda.edu, @unlv.edu). Most people would like to see a consistent email addressing scheme using the @unlv.edu suffix and they view the current fragmentation as a "lack of identity" issue.

Administrative Processes and Data Availability

The campus administrative systems are a hybrid of core UCCSN legacy systems supported by SCS (e.g., financial, student, and human resources), campus systems supported by OIT (e.g., data warehouse, position control, etc.), and departmental system (e.g., Library, Engineering, etc.) Most administrative processes are still manual and paper-intensive. Access to administrative data has improved since the creation of the data warehouse and FIMS, but there is still much room for improvement.

Recommended Strategies

Display a clear unequivocal presidential commitment to IT

The President's leadership and support of IT initiatives is probably the single most important strategy required at this crucial time in UNLV's history. This support can manifest itself in a variety of ways, including budgetary allocations, priority setting, addition of a permanent IT advocate (e.g., CIO) to the Cabinet, and personal attention to critical initiatives.

Encourage usage, risk taking, and innovation
In order to position UNLV as an upcoming research university, it is important to establish a culture that encourages usage of resources, promotes innovation, and accepts reasonable risk taking. Translated into IT terms, this means that computing and network resources (e.g., state-of-the-art computers, network bandwidth, support staff) need to be made widely (and often freely) available so that the campus community will use them as and when needed. The cost-effectiveness of such resources should be evaluated based on their overall, and often indirect, impact on teaching, research, and administrative activities. Such a cultural change is usually slow, difficult to achieve, and requires substantial executive commitment.

Develop a funding strategy
Sufficient funds need to be allocated in order to build and sustain a sound IT infrastructure. Detailed analysis should be conducted to determine the necessary level of funding, appropriate staffing levels, and equipment replacement cycles. Realizing that new funds for IT initiatives may not be easily identified, the campus should explore the possibility of generating external funding sources. These may include increase to the student technology fee (currently $4/unit), leverage of the new state-of-the-art library, and strategic alliances with industry partners. Such partnerships may generate new funds/resources (e.g., equipment, joint research projects, software development, free training, and even cash) for IT-related projects. Given their temporary nature, however, such partnerships are normally not suitable for ongoing funding of the infrastructure.

Develop a campus-wide IT plan and architecture
A campus-wide IT plan needs to be developed and widely communicated. The plan should clearly state priorities, define service levels, determine equipment replacement cycles, and delineate organizational responsibilities. In order to be effective, the plan must be customer-focused, inclusive, and jointly developed by the various campus constituencies. From a technology perspective, the plan should endorse and encourage the use of open industry standards (e.g., TCP/IP, Java, XML, SQL) and consistent interfaces (e.g., common look & feel, web portals).

Clarify the IT relationship between UNLV and UCCSN
UNLV currently depends on UCCCSN for its core administrative computing systems. This arrangement seems to be cost-effective even though the systems are relatively old and are not web-based. Since replacement of core systems is a highly expensive and often a painful endeavor, it is recommended that UNLV and UCCSN continue with the current arrangement. However, in order to meet its requirements, UNLV needs to receive a higher priority from UCCCSN. This is currently difficult to achieve given that there are more votes for the community colleges than there are for the two universities. It may be possible to overcome

this difficulty by forming an alliance between UNR and UNLV and/or by allocating dedicated funds to university needs.

Establish a measurement system

Most universities often neglect to establish measurement systems that evaluate the success or failure of technology initiatives. UNLV is encouraged to consider the implementation of a simple measurement system, perhaps based on the balanced scorecard methodology (see http://www.balancedscorecard.org).

Recommended Action Items

Review organizational responsibilities

In order to achieve better efficiencies and reduce fragmentation, UNLV is encouraged to strategically review the roles and organizational structure of its IT-related units. Specifically, the campus may benefit by integrating the Telecommunications department with OIT and review the mission and resources of the Supercomputer unit. Integration or increased cooperation among these units can result in improved campus services, especially given the accelerating integration of data, voice, and multimedia technologies.

Fix the email system

Electronic mail is most likely the #1 mission-critical administrative computing application in any modern organization. An unreliable and periodically unavailable email system disrupts lines of communication and negatively affects the image of the IT service providers. The UNLV email systems need to be reviewed as soon as possible with the goal of providing uninterruptible and highly reliable email services. The campus should consider upgrading the Lotus Notes servers (to improve fault tolerance and provide 24 hours service) or replacing it with a more robust email solution (e.g., Popmail, Exchange). Additionally, the campus should take the steps to provide a @unlv.edu email address to all its faculty, staff, and students. Although it may seem to be a superficial issue, many people on campus seem to associate the @unlv.edu address with organizational pride and a sense of belonging.

Improve PC and media support services

Once OIT fills its open positions, steps should be taken to improve the quality and timeliness of desktop and media services. Service levels as to turnaround times and repair quality should be established and adhered to. Special attention should be given to providing timely media services in the classrooms. The campus should also consider abandoning the "cart the projector" approach and have permanent multimedia equipment in many of the classrooms. The risk of potential equipment theft should be balanced against the costs of manually hauling equipment all over campus.

Improve network services
The quality of the campus network has improved significantly over the past few months. However, there are still many campus buildings that need to be upgraded (cabling and network equipment) and there is a perception that the network is slow and bandwidth-constrained.

Enhance the Data Warehouse
It is probably not feasible to make drastic changes to the core legacy systems in the near future. However, UNLV can significantly benefit from substantial enhancements to its data warehouse. A comprehensive and accessible data warehouse will provide the campus with excellent decision support capabilities that would enhance campus management and administrative processes. In the long run, UNLV should consider partnering with UCCSN and UNR in automating the manual/paper processes and establishing a modern web-based administrative computing environment.

Additional initiatives
There are numerous additional issues that the university should consider addressing. These include: common phone/email directory, selective wireless networks where needed, computer literacy training for students and faculty, consistent web templates, policies on email/web/privacy, and a sponsored projects tracking system.

Conclusion

The strategies and action items recommended in this report may seem to reflect a monumental and perhaps an impossible task. This is not the case. UNLV is well positioned and is ready to take on the IT challenge. The campus has accomplished a lot in the past few years and it is blessed with outstanding dedicated staff that can deliver excellent results. With strong executive leadership, consistent priorities, cooperation among the units, and reasonable funding, I am convinced that these goals will be achieved.

APPENDIX A

Itinerary for Dr. Elazar Harel
November 13 – 14, 2000

November 13 (Monday)

7:40 a.m.	Dick Jensen – Pick up at Hotel
8:00 – 10:00 a.m.	Computer User Group – MSU 202
10:00 – 12:00 p.m.	Davan Weddle – SCS 310
12:00 – 1:00 p.m.	Lunch – Steve Farinella
1:00 – 3:00 p.m.	Lori Temple – FDH 165
3:00 – 5:00 p.m.	President's Cabinet – President's Conf. Room
6:00 p.m.	Dinner

November 14 (Tuesday)

7:30 – 9:00 a.m.	Juanita Fain / John Gallagher - Meet for Breakfast (Sunset Station)
9:00 – 10:00 a.m.	Larry Hamilton – HWB 108A
10:00 – 11:00 a.m.	Les Raschko – PRO
11:00 – 12:00 p.m.	Brad Eden – Lied Library
12:00 – 2:00 p.m.	Lunch – Tony Flores / George Scaduto
2:00 – 3:00 p.m.	Ken Marks – Lied Library
3:00 – 5:00 p.m.	Technology Group – CBC B-113
6:00 p.m.	Dinner – Dick Jensen / Julian Kilker