TELECOMMUNICATIONS

STRATEGIC PLAN

MISSION STATEMENT

The Telecommunications department provides reliable, modern, and integrated communications services to enable teaching, learning, research, and outreach.

VISION STATEMENT

The Telecommunications Department will be a leader in enabling Texas Tech University to exchange thoughts and ideas through technology. Communications will empower students, faculty, and staff to reduce distance through collaboration.

GOALS, CRITICAL SUCCESS FACTORS, and

OBJECTIVES (including Strategies and Assessments)

Goal 1. Communication Infrastructure: Supply a highly reliable, effective, modern communications infrastructure.

Critical Success Factors *(measures the degree of success over the next 5 years):*

- Maintain network up time at 99.8%.

- Replace all shared Ethernet technology with switched Ethernet technology.

- Provide a 10Gbps core backbone with 1Gbps distribution to all crucial buildings.

- Make available 1000Mbps desktop technology to requesting departments.

- Deploy wireless LAN technology to 10% of campus buildings.

Objectives:

Objective 1.1:   *Provide a reliable campus data backbone and LAN infrastructure to meet the instructional, research, and business needs of Texas Tech University.*

Strategies:

- Upgrade the core and distribution backbone infrastructure as required and funded to meet the needs of the University.

- Provide cost-effective 10/100/1000Mbps data access service to departments and classrooms as requested and funded.

- Deploy point-to-point wireless LAN/WAN technology when construction or lease of cable facilities is cost prohibitive or impractical.

- Work with Housing and Dining to upgrade the distribution networks within the residence halls.

- Install redundant firewalls and VPN concentrators.

- Extend the TTUnet backbone to the Reese campus and provide network access to the High Performance Computing Center and all other TTU facilities.

- Continually monitor network activity to access its performance level and ensure its operational integrity.

- Provide on-call support staff for the rapid restoration of service in the event of unscheduled outages.

Assessments:

- Backbone network availability (excluding scheduled maintenance) is >= 99.8%.
- Core and distribution network bandwidth saturation < 80%.

Objective 1.2: ***Maintain sufficient connectivity to the outside world to ensure operations.***

Strategies:

- Add Internet connectivity as demand requires.
- Maintain multiple circuit connections with diverse routes to ensure communication with the Internet is maintained.
- Provide cost-effective remote access to TTUnet from outside ISPs.
- Continue to provide inexpensive dial-up access to TTUnet.
- Provide wide-area network access to all remote campus locations including future Hill Country locations sufficient to meet the communications needs.

Assessments:

- Internet bandwidth saturation < 95%.
- Number of Internet Service Provider connections >= 2.
- Ratio of dial-up customers to lines <= 10:1.

Objective 1.3: ***Develop and implement modern communications methodologies as they are needed.***

Strategies:

- Successfully deploy wireless LAN technology to campus departments as requested and funded.
- Integrate handheld computers and PDAs (Personal Digital Assistants) into the communications infrastructure.
- Develop H.323 audio/video and Voice-over-IP services on TTUnet.
- Provide campus phone service to remote TTU locations over the WAN infrastructure.
- Upgrade all shared Ethernet hubs to Ethernet switches.

Assessment:

- Benchmarks against peers and ongoing industry trends.

Goal 2. Network Security and Strategic Assets: Provide a fully integrated, secure data and video network for Texas Tech University.

Critical Success Factors *(measures the degree of success over the next 5 years):*

- Use a synchronized, single username/password authentication service to access all IT on-line services.

- Password-authenticate and data encrypt remote access to TTU intranet services from the Internet.

- Rapidly locate any network-attached computer upon request by the Texas Tech Police Department or other law enforcement agency.

- Rapidly terminate access to any network-attached device that threatens the operational integrity of the network.

Objectives:

Objective 2.1:   Increase network security to mitigate the University's exposure to unauthorized intrusions and denial of service attacks.

Strategies:

- Develop a written network security and access policy.

- Implement periodic security audits and report the compliance results to the Vice President of Information Technology.

- Proactively scan data network to locate systems and services with potential security problems and/or security policy violations.

- Detect network intrusion attempts and denial-of-service attacks on mission-critical servers and network services.

- Install firewalls in front of IT Division server farms to improve the robustness to attacks and reduce exposure to hacking.

- Telecommunications will provide general network intrusion detection service, and proactively take steps necessary to ensure the operational integrity of the network.

- Centrally manage and operate to the port and device level all Texas Tech University data communications networks within 3 years.

- Maintain an up-to-date cable plant database, which indicates each outlet and the corresponding network device to which it is connected.

- Provide secure Internet access to TTUnet with virtual private networking service.

Assessments:

- Detect ion rates of network-based attacks.

- Detect ion rates of host-based vulnerabilities.

- Location of outlet locations when requested by law enforcement agencies.

Objective 2.2: ***Provide authentication and digital certificate services to enable students, faculty, and staff to access needed information on-line.***

Strategies:

- With eRaider network accounts, provide the basis for a centrally administered, single-username/password authentication scheme.

- Develop eRaider authentication services for, but not limited to, NT 4.0, Windows 2000, UNIX/Linux, VMS, and IBM mainframe systems.

- Develop a public-key infrastructure (PKI) service to provide digital certificates for e-Commerce initiatives.

Assessments:

- Percentage of students and employees having an eRaider account.

- Availability of digital certificates.

Objective 2.3: ***Operate and administer Texas Tech University's local and wide-area networks as a strategic resource.***

Strategies:

- Centrally manage and operate to the port and device level all TTU data communications networks within 3 years.

- Review and approve all network equipment purchases to ensure proper interoperation, to provide consistent manageability, and eliminate duplicative or inconsistent expenditures.

- Create a university-wide ability for all members of the TTU community to obtain telecommunication services.

- Provide a Network Operations Center to operate, and maintain the University's data and video network.

Assessments:

- Percentage of all data and video communications that is centrally installed, managed, and operated by the IT Division.

- Benchmarking costs, level, types of service, and degree of integration relative to peers.

Goal 3. Cable Plant: Design and install high-quality cable plants and communications facilities.

Critical Success Factors *(measures the degree of success over the next 5 years):*

- Develop the ability to locate any communications channel to a specific building location.

- Implement capability to deliver any data, voice, or video communications service over a common UTP/Fiber-optic cable path.

- Develop strategy to ensure minimal need to re-cable the University's communications infrastructure.

- Become the single source for all communications cable plant installations.

Objectives:

Objective 3.1:   Centralize design of TTU data and video communications facilities.

Strategies:

- Provide standards-based, communications cable plant design service for all communications facilities at Texas Tech.

- Provide all University data communications LAN and WAN design services and network project management.

- Participate in the Construction Coordination Team to assure proper communications cable plants and facilities are incorporated in all major TTU construction and renovation projects.

- Develop and publish architectural and engineering design development criteria for TTU communications facilities.

- Provide a single source for the design of the University's communications facilities, and eliminate the need for departmental "self-help" projects.

Assessment:

- Percentage of network design performed by Telecommunications.

Objective 3.2:   Install state-of-the-art cable plants in a cost effective manner.

Strategies:

- Provide a single source for the installation of the University's communications facilities, and eliminate the need for departmental "self-help" projects.

- Continue to purchase high-quality materials aggressively at the best prices available.

- Test and certify UTP cable plant construction to Category5E levels.

- Test and certify all fiber-optic communications cable installation.

- Maintain an up-to-date cable plant database, which indicates each outlet and the corresponding network device to which it is connected.

Assessments:

- Turn around time for all small (< 5 outlets) jobs.
- Ratings of overall customer satisfaction.

Goal 4. Videoconferencing: Provide state-of-the-art, cost-effective video services.

Critical Success Factors *(measures the degree of success over the next 5 years):*

- Operate ITV (Interactive Televideo) classrooms and meeting rooms with a high percentage of successful conferences.

- Expand video conferencing and collaborate beyond custom room installations to the desktop and set top.

Objectives:

Objective 4.1:   *Provide a straightforward method of scheduling videoconferences at the University.*

Strategies:

- Develop and publish TTUnet Digital Video Network operating procedures that provide access methods for distance learning, general academic, and other University videoconferencing needs.

- Provide a videoconferencing coordinator to oversee general operations and scheduling issues.

Assessment:

- Satisfaction rates in scheduling requests.

Objective 4.2:   *Support video conferencing and streaming services in such a manner as to ensure success and reduce barriers to use.*

Strategies:

- Provide an easy, on-line means for students, faculty, and staff to request the ability to interact with colleagues at other institutions connected to Internet2.

- Increase distance learning ITV classrooms as requested and funded.

- Provide full-time staff available to facilitate campus videoconferences and meetings.

- Leverage the existing expertise of the staff in the TTUnet Network Operations Center to support the underlying DVN infrastructure in addition to the data network.

- Work with the Teaching, Learning, and Technology Center (TLTC) to provide faculty training.

- Develop the infrastructure and supportive services necessary to allow students, faculty, and staff to collaborate over TTUnet using low-cost desktop videoconferencing systems.

- Provide Web-casting services to deliver satellite teleconferences and other broadcasts to any location on TTUnet.

Assessment:

- Rate of growth in use.

Goal 5. Technology Evaluation: Research, assess, and develop communications technologies and approaches.

Critical Success Factors *(measures the degree of success over the next 5 years):*

- Implement new communications services developed by industry in a manner coherent with the University environment.

- Implement a Voice-over-IP infrastructure and service.

- Successfully deploy 1Gbps and 10Gbps Ethernet technology.

Objectives:

Objective 5.1:   *Prototype new technologies to determine their production readiness and the best implementation strategies.*

Strategies:

- Analyze, evaluate, and prototype Giga-bit Ethernet access devices for both server farms and high-end desktop use.

- Determine how wireless phones, WANs, and LANs will be best utilized by the University, and develop a program for their deployment.

- Research, develop, and test a Voice-over-IP strategy.

- Research and develop services that provide unified voice, facsimile, and e-mail messaging.

- Involve the Network Site Coordinators and Support Specialists in the planning, prototyping and testing of new communications services.

- Develop a Public Key Infrastructure service, and assess its utility with the e-Commerce initiatives of the University.

Assessment:

- Number of successful and unsuccessful implementations.

Objective 5.2:   *Maintain staff knowledge of new technologies and industry standards.*

Strategies:

- Provide the staff with access to information about new technologies.

- Provide the hardware resources to prototype and assess new technologies.

Assessment:

- Skill development.

Goal 6. Information Services: Deliver advanced network information services.

Critical Success Factors *(measures the degree of success over the next 5 years):*

- Implement a comprehensive e-mail directory for both on-network and external inquiries.

- Operate a modern messaging system providing e-mail, calendaring, and data collaboration services to all students, faculty, and staff.

- Provide individuals with on-line management of their eRaider accounts and services.

- Provide Network Site Coordinators with on-line management tools.

Objectives:

Objective 6.1:   Provide enterprise level mail and messaging service.

Strategies:

- Scale up the TechMail MS Exchange system to handle all students, faculty, and staff.

- Integrate TTU.EDU e-mail aliases and TechMail addresses to be one and the same (e.g. John.Doe@ttu.edu).

- Provide anti-virus protection to all TechMail clients.

- Provide a Web-based interface for Internet connected clients.

- Provide alumni with long-term e-mail service.

- Provide alumni with Internet dial-up access.

Assessment:

- Benchmarks of performance relative to peers.

Objective 6.2:   Provide centralized and automated network account and directory management.

Strategies:

- Automatically create eRaider accounts and TechMail e-mail service for all new students, faculty, and staff.

- Maintain a meta-directory of client information that programmatically controls Windows 2000 Active Directory, Exchange global address lists, and the official e-mail address of each student, faculty, and staff member at the University.

- Continually enhance the eRaider Account Management System that provides individuals access to their online information and services.

Assessment:

- Benchmarks of performance relative to peers.

Objective 6.3:   Provide centralized communications network administration.

Strategies:

- Maintain reliable, enterprise-wide DNS, LDAP, MS Active Directory, and WINS directory services for all TTUnet computing systems.

- Maintain reliable, enterprise-wide DHCP configuration services for all unregistered systems connected to TTUnet.

- Provide on-line registration applications to the Network Site Coordinators for the registration and assignment of static network addresses and DNS names.

- Efficiently administer the IP address space allocated to the University by the Internet registration authorities.

- Work with the Network Site Coordinators to provide needed services and to develop operational policies.

Assessment:

- Benchmarks of performance relative to peers.

Goal 7. Customer Services: Promote and enhance customer services to the campus community.

Critical Success Factors *(measures the degree of success over the next 5 years):*

- Make the campus community aware of the services provided by Telecommunications Services.

- Ensure that students, faculty, and staff readily know how or can easily determine how to obtain services provided by Telecommunications Services.

Objectives:

Objective 7.1:   *Maintain a departmental Web site that provides both Internet and intranet information and services.*

Strategies:

- Provide on-line Web access to the majority of provided services.

- Develop an on-line installation project request and authorization application.

- Continue to develop the Network Site Coordinator intranet applications.

- Continually enhance the eRaider Account Management System that provides individuals access to their on-line information and services.

- Maintain up-to-date, on-line information regarding network policies, practices, configuration information, and events.

Assessment:

- Satisfaction of Network Site Coordinators and others.

Objective 7.2:   *Communicate effectively with the TTU campus community about telecommunications issues and services.*

Strategies:

- Market services to the campus community through printed and electronic media.

- Periodically inform all department heads of the services provided by Telecommunications Services.

- Develop the current relationship with the Network Site Coordinators, and keep them informed of communications issues and event.

- Incorporate input from the Network Site Coordinators in the planning and activities of communications services.

- Provide an e-mail notification, a subscription service accessible by the entire TTU community that will provide timely notice of network issues, events, maintenance and outages.

- Provide on-line and in-print customer feedback mechanisms.

Assessment:

- Satisfaction of Network Site Coordinators and others.

Objective 7.3: ***Collaborate and communicate with external entities and agencies.***

Strategies:

- Maintain current relationships with peers at other research universities, especially those in Texas.

- Participate in local community organizations and advisory groups to provide guidance in the use of technology and communications.

- Participate in communications seminars and conventions at the national level to stay in touch with industry and educational issues.

- Solicit the services of News and Publications to release important technological developments to the general public.

Assessment:

- Number of collaborative ventures

Goal 8. Staff development: Continually improve the expertise and professionalism of the staff

Critical Success Factors *(measures the degree of success over the next 5 years):*

- Retain 80% of staff more than five years.

- Ensure staff skill sets and knowledge base is at an expert level.

Objectives:

Objective 8.1:   *Offer continuing education and professional training opportunities to professional staff.*

Strategies:

- Encourage and support staff to take courses and seek degrees in related fields at the University.

- Provide professional staff with training opportunities leading to industry recognized certifications (i.e., MCSE, CCIE, etc.) in work-related areas.

- Ensure that all staff members are trained in the *ServicePlus* approach and are encouraged to take advantage of the training available through the Office of Quality Service.

Assessment:

- Amount of training.

Objective 8.2:   *Develop staff skills to maintain pace with changing needs and technology.*

Strategies:

- Purchase up-to-date books and periodicals and make them available.

- Encourage staff to spend two hours a week on technical skill development during normal business hours.

- Develop professional relationships with peers at other universities.

- Foster a team approach to knowledge sharing and problem solving among the staff.

- Assign projects to staff that will provide good learning opportunities to master new technology and/or management skills.

Assessment:

- Amount of skill development.

Objective 8.3:   ***Take steps to improve employee satisfaction.***

Strategies:

- Continue Telecommunications limited flex time policy.

- Allow employees the opportunity to perform peer evaluations.

- Establish a technical career and managerial career path.

- Devote time and money to activities solely for the purpose of morale and team building.

Assessment:

- Retention and turnover rate.