



TEXAS TECH UNIVERSITY SYSTEM™

Information Technology Division Technology Operations & Systems Management

Over the past decade, Texas Tech University has made great strides in protecting the critical information resources of its colleges, institutions and departments. Technology Operations & Systems Management (TOSM) has a 4000 sq/ft data center that offers physical security for these electronic assets, protected by 24-hour surveillance cameras and restricted access entries. The facility has a fire suppression system as well as a 24x7 operations staff that monitors equipment and environmental factors around the clock. TOSM has dedicated staff whose areas of expertise range from server and database administration to enterprise backups and security. All equipment hosted in the data center is protected by a diesel generator. Through massive consolidation efforts, TOSM currently hosts more than 500 servers and 650TB of storage.

As a continuation of these efforts, all University mission-critical servers must be hosted at the TOSM data center. With imminent budget cuts looming on the horizon, TOSM can help reduce the IT burden felt by many departments, colleges and institutions, allowing these areas to focus on their core competencies, while improving the service, reliability and protection of their digital assets.

Below is a description of the various services and related policies offered by TOSM.

Server Hosting

TOSM currently provides rack space for rack-mountable servers in the data center at no cost to the department. We also provide Dell blade server slots for departments for \$750 per slot. Standard power and a single gigabit network connection are provided for each server hosted in the data center. Servers requiring multiple network connections or network connections exceeding 1gb will be charged our cost for those ports. For departments with less than 5 servers, we also provide free standard backups for up to 1TB of data per server, including offsite copies. Departments with more than 5 servers will be charged backup license and maintenance fees. These fees are currently \$480 per server for the first year, and \$80 per server for subsequent years. Servers exceeding 1TB of data will incur annual backup media charges at \$.25 per GB based on the largest month in the previous 12-month period, to be paid annually on September 1 for the previous fiscal year. Specialized backup agents for applications such as Microsoft SQL Server, Oracle, Microsoft Sharepoint, etc. will need to be purchased by the department as well as annually recurring maintenance charges for the specialized backup agents. We also manage the operating system patch installation for all systems hosted in the data center.

All servers that reside in the data center are subject to weekly security scans conducted by the Telecommunications Department in the TTU IT Division. If server vulnerabilities are identified, our security analysts and server administrators will work with the TTU IT Security Team, as well as departmental contacts to resolve them. Security vulnerabilities not addressed within a reasonable amount of time will result in those systems being flagged and removed from service until the TOSM security analysts and the TTU Security Operations Center determine the system has been remediated. For systems hosted in our facility, we require all departments to grant full system access to essential TOSM personnel. Administrative access is required for backup administration and management, as well as operating system patch management. We also implement host-based firewalls for systems in the data center to limit access exclusively to authorized applications and ports.



TEXAS TECH UNIVERSITY SYSTEM™

Information Technology Division Technology Operations & Systems Management

All systems that reside in the data center are subject to our regular weekly maintenance windows. The windows are 6pm on Saturday through 6am Sunday, and 6pm Sunday through 12am Monday. All maintenance being performed will be announced at least 72 hours in advance when possible, and only necessary maintenance windows will be used. Typically, TOSM conducts maintenance once every 4-6 weeks, depending on identified vulnerabilities and patch availability.

We ask that departments interested in hosting servers at TOSM coordinate the purchase and installation with our staff prior to the expected service date (preferably 2-4 weeks prior). Involving our teams as soon as possible will help ensure the correct server is purchased and necessary infrastructure at TOSM is in place.

Our operations staff and automated software will monitor the hardware and overall availability of all systems hosted in the data center as long as the server has a valid hardware maintenance contract. Servers with expired maintenance contracts will not be monitored. If an existing server is being monitored and its associated maintenance contract expires, the owning department will be responsible for extending the maintenance contract, or replacing the hardware with a server that has a valid maintenance contract. Critical servers requiring 24x7 maintenance contracts will be monitored 24x7. Servers covered by next business day (NBD) maintenance contracts will be monitored exclusively during business hours.

We also offer specialized infrastructure such as fiber channel, iSCSI, blade enclosures, multiple network connections, and network connections greater than 1gb. However, the department is responsible for the cost associated with these options.

The department will remain responsible for application support outside of base operating system and basic hardware functionality. The department is expected to be the primary contact for its customers and problems are escalated to TOSM staff only for issues relating to the operating system or server hardware. However, TOSM staff will remain available as level 2 support staff for technical issues not related to individual applications.

Custom hosting agreements outside of the policies stated above will be handled on an individual basis and clearly defined in a custom service level agreement between TOSM and the owning department.

Virtual Server Hosting

We currently provide virtual server hosting for Red Hat Enterprise Linux and Windows Server operating systems. The virtual server infrastructure includes hardware fault tolerance and redundancy to provide the highest levels of availability for departmental applications. The virtual server environment provides a very flexible computing model, offering multiple configurations based on departmental needs. An additional advantage includes no longer having to manage hardware life cycle replacement, perform hardware upgrades or negotiate hardware warranty extensions.

Basic fees include:



TEXAS TECH UNIVERSITY SYSTEM™

Information Technology Division Technology Operations & Systems Management

- A standard Windows virtual server will be configured with 1 processor, 1GB of RAM and 50GB of hard drive space and will cost the department \$500 per year;
- An additional 1GB of RAM up to 8GB total (must be justified) may be purchased for an additional \$25 per GB per year;
- Additional hard drive space up to 300GB (must be justified) may be purchased in blocks of 50GB for an additional \$100 per year;
- Standard Red Hat Enterprise Linux virtual servers will be provided at \$500 per year plus the cost of the associated Red Hat Network Subscription for required operating system updates and patches. The cost varies on the particular licensed purchased and can range from 1 to 3-year subscriptions.

We provide standard backup services for virtual servers hosted on our VMWare ESX clusters including offsite copies at no cost to the department. Servers that require specialized backup agents will be purchased by department as well as annually recurring maintenance charges for those backup agents.

All virtual servers are monitored by TOSM. Virtual servers that host critical services will be monitored 24x7. Non-critical virtual servers will be monitored by TOSM staff exclusively during normal business hours.

Database Hosting

We also provide database hosting services for departmental use; including, MySQL, Microsoft SQL Server as well as Oracle. Database hosting provisions and stipulations are handled on an individual basis. For database hosting inquiries, we strongly recommend coordinating with the TOSM database administration team prior to purchasing software.

Remote Backups

TOSM provides remote backup services for departmental servers that exist outside of the data center at no cost, providing the following criteria are met:

- No more than 5 remote servers being backed up by TOSM;
- No more than 250GB of data that is backed up per server, and backup is capable of completing in 8 hours;
- Server has a minimum 1gb dedicated network connection to TTU net per server, and;
- Server is fully patched with a supported operating system installed (a complete list of supported operating systems can be obtained by contacting serversupport.tosm@ttu.edu).

All exceptions to the above will be addressed on an individual basis and subject to cost recovery. However, remote servers exceeding 250GB will need to be relocated to the data center to ensure data protection operations are completed on a daily basis. Departments with more than 5 servers will be charged a one-time fee for backup licenses per server as well as annually recurring maintenance charges associated with their licenses. Current backup license costs are \$480 for the first year and \$80 per year thereafter. These departments will also incur an annual \$.25/GB backup fee based on the largest month in the previous 12-month period.



TEXAS TECH UNIVERSITY SYSTEM™

Information Technology Division
Technology Operations & Systems Management

Services Summary

Data Center Services for TOSM-hosted servers	Cost to TTU Departments
Rack space for rack-mountable servers/storage	\$0
Power (redundant UPS, PDU and generator)	\$0
Cooling and humidity control	\$0
Standard network connection (1gb)	\$0
Additional network connections	\$225 per gigabit connection, \$2525 per 10gbE connection
Server Backups (servers hosted in the data center and up to 1TB of data)	\$0
Server Backups (servers hosted in the data center and exceeding 1TB of data)	\$.25/GB, paid annually based on the largest month in the previous 12-month period
Remote Server Backups (for departments with less than 5 servers not hosted in the data center and each server not exceeding 250GB of protected data)	\$0
Remote Server Backups (for departments with more than 5 servers not hosted in the data center or remote servers containing more than 250GB of protected data)	Servers must physically be relocated to the data center and regular server backup policies and costs will apply
Operating system patch installation	\$0
Weekly security scans	\$0
Server monitoring	\$0; only applies to systems with active maintenance contracts
Virtual servers	\$500-\$1500 per year
Virtual server backups	\$0 unless specialized backup agents are required



TEXAS TECH UNIVERSITY SYSTEM™

Information Technology Division
Technology Operations & Systems Management

Virtual Server Sample Pricing Worksheet

Virtual Server Component	Unit Cost	Quantity	Total
Base server: Includes 1GB of RAM, 50GB HD	\$500/yr	1	\$500/yr
3GB Additional RAM (unit is 1GB)	\$25/yr	3	\$75/yr
100GB Additional Storage (unit is 50GB)	\$100/yr	2	\$200/yr
Virtual Server TOTAL (Configuration includes 4GB of RAM and 150GB HD)			\$775/yr