CORE TECHNOLOGY AND SECURITY SERVICES

Initiatives Report – Spring 2005

INTRODUCTION **3**

BACKGROUND ON CORE TECHNOLOGY AND SECURITY SERVICES **3**

SERVER ADMINISTRATION AND ENGINEERING 3
OPERATIONS CENTER 3
INFORMATION SECURITY AND COMPLIANCE 4

CURRENT INITIATIVES **4**

CTSS GROUP INITIATIVES 4
Project Planning *4*
Operations Center – Phase 2 ..... *4*
Intel Server RFP *6*
SERVER ADMINISTRATION AND ENGINEERING 6
Storage Area Network (SAN) Upgrade *6*
Intel Server Consolidation and Virtualization *6*
SMS 2003 Upgrade *7*
Exchange 2003 Upgrade *9*
FRS – Reducing Points of Failure *10*
Redesign and Upgrade of Citrix *10*
Enterprise Backup Software Solution *11*
PeopleSoft Development Server Upgrades *11*
Self Service Password Reset *12*
OPERATIONS CENTER 12
Preventive Maintenance Planning *12*
Customer Satisfaction Surveys *13*
Taking calls directly from Technology Support Staff *13*
INFORMATION SECURITY AND COMPLIANCE 14
HIPAA *14*
Account Processes *14*
Incident Response *14*
Firewall Processes *15*
Policy Development *15*

CONCLUSION **15**

Introduction

The purpose of this document is to summarize the major initiatives that are currently underway within the Core Technology and Security Services (CTSS) group in OTS. The document will also show the value of these initiatives and how we're trying to provide the best service possible to our campus-wide customers.

Since this is the first initiatives report released from the group, an introduction and description of the workgroups within CTSS has also been included.

Initiative reports will be released quarterly. Future reports will have two sections, one describing how well we did on the initiatives in the previous report, and one to describe the upcoming initiatives.

I hope you find this document interesting and useful, and that you check back every few months to see what new and exciting initiatives we're preparing to release.

Background on Core Technology and Security Services

Core Technology and Security Services centers on two very important roles. First is to provide the best level of service to our campus-wide customers. Second is to provide the most robust, reliable, well managed, secure, and affordable technology services to the campus.

Core Technology and Security Services is comprised of three business units.

Server Administration and Engineering

The Server Administration and Engineering group is managed by Richard Sullivan and is responsible for all aspects (except application support which falls into the Information Systems group) of the 110+ server environment in Cook library data center. These servers support all of our enterprise services as well as a large number of specialized application servers. Server Administration and Engineering also has an important direct customer service role by rotating its staff through the Operations Center on a weekly basis to provide direct second level support to customers.

One of the important changes to the Server Administration and Engineering group that occurred as a result of the department reorganization in February 2004 is new job descriptions and responsibilities for everyone in the group. Engineers now have well defined areas of responsibility and are now more involved with the ongoing planning, coordination, communications, risk analysis, and budgeting aspects of their respective areas. This model has already shown many benefits over the previous "generic engineer" model.

Operations Center

The Operations Center is managed by Stephanie Herpick. The Operations Center has also gone through a lot of changes since the reorganization of our department. The Operations Center now provides second level support to the campus community and does so in the following two ways:

- Direct integration with the Help Center. This is transparent to the user. A user calls the Help Center with an "advanced" problem, and the call gets routed to the Operations Center for assignment and resolution.
- Starting by March 2005, the Operations Center will also start taking certain types of calls directly from Technology Support staff on campus. This will provide a "hotline" type of service for those who directly support Academia and Administrative business units.

Information Security and Compliance

Information Security and Compliance is now managed by Lynn Ray who recently joined Towson on February 3, 2005. Lynn is responsible for making sure the university is compliant from a legal and legislative auditor's perspective and also for developing a secure yet functional computing environment for our campus.

Current Initiatives

CTSS consistently researches new ways of improving customer service and making services more cost effective and efficient. These CTSS group initiatives illustrate the major projects being implemented to help us accomplish our service goals.

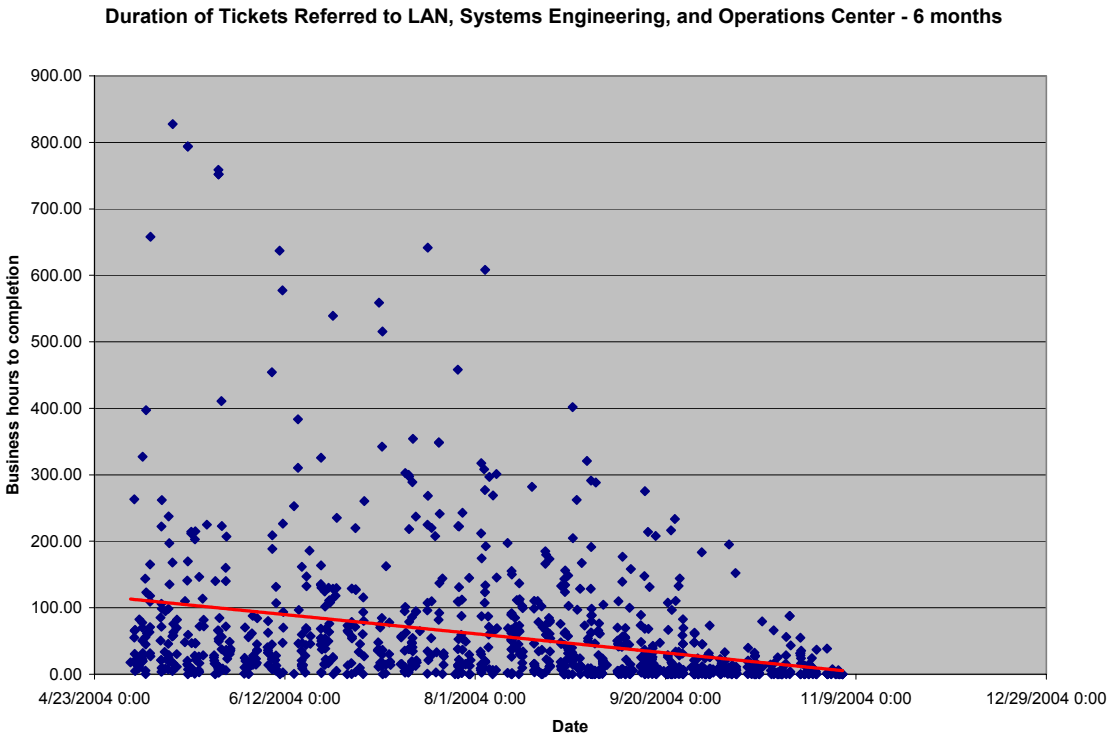
CTSS Group Initiatives

Project Planning

One of the big changes in CTSS is the way we are starting to manage projects. Through the use of project templates, checklists, project review meetings, project approvals, and proactive communication, we will be much more organized and able to easily describe what we are doing, what the value is to campus, and when we will be doing it. Most of the initiatives in the Server Administration group have associated full project plans. If you're interested in seeing the template we use, or would like to see a specific project plan, just ask!

Operations Center – Phase 2

The Operations Center, which assumed the second level support role in the Fall of 2004 has made a significant difference it the service our customers have received. The graph below shows the amount of time each service request took to resolve in the engineering area.



We are excited about this accomplishment, but we discovered that there are still issues we need to address and there is still room for improvement.

Phase 1 Issues

- Inefficient to have server administrators doing most of the TSR processing
- Cross-training, documentation, efforts are not always based on needs
- We have had some TSR (Technology Service Request) routing errors
- We haven't been able to start developing and performing Preventive Maintenance
- We're not getting feedback from customers which makes it difficult to know how well we're doing and what areas we need to improve

Phase 2 Goals

- Ability to handle the majority of requests that come to Operations
- Built-in data collection that will drive cross-training, tool development, and documentation efforts
- Professional Development via cross-training efforts
- Meaningful Reporting including reports from user surveys
- Implementation of a Preventive Maintenance plan

The main objective of Phase 2 is to work smarter. Through reporting and data collection, we'll be able to apply our cross-training, tool development, and documentation to the areas that will be most helpful. This will result in quicker resolution to service requests and give us better coverage in the event someone is out of the office.

If you are interested in the full written Phase 2 plan, please don't hesitate to ask.

Intel Server RFP

With one of our major goals being to provide the most reliable, cost effective, service offerings to campus, it made sense to reevaluate our vendor for our Intel server infrastructure. We need to make sure the campus is getting the best hardware solutions money can buy. Because of this we are currently going through a full RFP to get leading vendors proposals on the many initiatives mentioned later in this document.

We are now in the final stages of the RFP process, and are very optimistic that the result will mean a higher quality service offering to the campus and a strategic partnership with a vendor that can help get us where we need to go.

As things stand, we hope that the contract will be awarded sometime in March. Obviously, negotiations of the details could potentially delay hardware delivery, which could also delay the projects mentioned below.

Server Administration and Engineering

Storage Area Network (SAN) Upgrade

For those of you who are unfamiliar, a Storage Area Network (SAN) is a way to centralize disk storage, increase availability, and get a better grasp on storage utilization and growth trends. Another major benefit of a SAN is that it allows us to simplify recovery procedures in the event of a hardware failure and greatly simplifies Disaster Recovery procedures.

Towson and our storage vendor (EMC) have worked together to completely replace and upgrade our existing Storage Area Network. Our old unit had a capacity of 6TB (6,000 GB). Our new SAN device has a capacity of 14TB. Most of the projects listed below will be utilizing this storage, which will provide many of the benefits mentioned above.

Intel Server Consolidation and Virtualization

Project Owner	Matt Rising
Core Team Members	Matt Rising, Guy Noce, Richard Sullivan, Mark Addy
Overall Objective	Implement a VMWare ESX server environment to reduce the number of physical servers which we manage by 20. Eliminate some of the out-of-warranty hardware from our environment.
Value to Campus/Campus Impact	Reduced hardware purchase costs. Reduced maintenance costs. Reduced management time. Improved turn-around time for new services. Reduced downtime for services due to hardware failure. Improved research and development.
Estimated Effort in Hours	500 hours
Estimated Completion Date	July 2005 provided hardware acquisitions don't delay startup.

A successful implementation of VMWare ESX to meet the goals of complete virtualization of more than 20 servers has immediate near-term and long-term effects that include:

Expected:

- A large reduction in the number of servers that need to be maintained
- Reduced numbers of hardware-related issues (fewer machines means fewer points of failure)
- Efficient utilization of hardware resources
- Reduced downtime for hardware issues
- Faster service recovery for either failure of either a virtualized machine or of physical hardware

Future Potential:

- The ability to provide departments a virtual server for a cost less than what the department would pay for their own hardware
- Less servers purchased throughout the year
- Increased speed of deployment for new services
- An excellent research and development platform

The Intel Server Consolidation project is a 'first step' and proof of the concept that virtualized hardware can provide a huge benefit to the way we manage and deploy services. While it is limited to an initial batch of currently in-production servers, it will serve as a springboard for future services.

By far the largest cost associated with this project is the purchase of several 'large' servers (multi-processor with copious memory) to handle the processing load. Primary storage space for the VMWare application will reside on our Clariion SAN device. The disk space for this project has already been allocated and is considered as part of the cost for the Clariion upgrade project.

Primary range of impact of the project will be to staff within OTS, especially the Application Support group who will need to understand how to access the virtualized servers as well as have the necessary rights within the VMWare ESX environment to access the virtual machines in the case of a virtual OS failure or network outage. Additionally, Application Support will need to be informed of any downtime necessary for migration to a virtual server and act as advisors and testers for the applications running on the virtual servers.

VMWare has been successfully implemented by Black and Decker—a company whose IT department has many ties with former Towson employees and students. Engineers at Black and Decker have already contributed valuable advice and knowledge and are always open for more questions.

SMS 2003 Upgrade

Project Owner	Aaron Czechowski

Core Team Members	Brian Hendricks
Overall Objective	Design and implement a desktop management system that provides hardware/software inventory, remote control, software distribution, patch management, and reporting that can be used by all technical support groups at Towson, and that can be properly monitored and maintained by OTS
Value to Campus/Campus Impact	Greater client stability and reliability, improved security update reporting, on-demand application (select) installation, improved client system tracking (location, health, etc.)
Estimated Effort in Hours	550
Estimated Completion Date	May 2005

The current Citrix environment is getting close to the end of it's useful life.
The Microsoft Systems Management Server (SMS) system we are running is at the end of it's useful life. SMS is currently the primary tool for remote support, desktop inventory, and Windows updates delivery.

SMS 2003 was chosen as the central desktop management system because of the reduced cost to the university (compared to systems from other vendors, e.g., Altiris, LANDesk), the existing knowledge of the system within OTS, and the available support for and extensions to SMS in the management industry. New hardware will be purchased and the system will be installed from scratch, completely external to the existing system. The project plan includes two months of analysis, design and testing before the new system is ever installed. Documentation, change management, and many new processes and procedures will be developed during the project to ensure necessary support and maintenance of the system after deployment.

The project started in December 2004 and is expected to conclude in May 2005, requiring approximately 550 total man hours. One engineer was trained on SMS 2003 at Learning Tree in October 2004. The cost of the server software is greatly reduced because of the MEEC contract and the existing client access licenses. The approximate cost of this project to the university is $20,000. Other desktop management systems are more than fifteen times that cost for just the server software alone.

There is a community of SMS administrators at myITforum.com as well as a high traffic mailing list devoted to SMS at ListLeague.com. The University of Maryland, Baltimore County, the University of Houston and the University of Iowa are all using SMS 2003, as well as McCormick and Black & Decker, all of whom are good external contacts.

OTS Field Support needs to be included in the project as this service is a major tool for their work. Additionally, technical support staff in various departments across campus must be included in the testing and deployment to ensure full campus acceptance of the new system. Historically SMS has not been used in many student computing labs; this project must be an agent of change to bring those labs onto the TowsonU domain and as functional SMS clients.

Exchange 2003 Upgrade

Project Owner	Patrick Rohe
Core Team Members	• Matt Rising – involvement with Active Directory modifications and EMC Clariion storage reallocation/SAN zoning • Rich Sullivan, Mark Addy – management involvement
Overall Objective	Replace and upgrade existing Exchange environment which is roughly four years old with new hardware and the Exchange 2003
Value to Campus/Campus Impact	• Improved server performance and Outlook 2003 client performance • Improved Outlook Web Access performance and feature set • Improved mobile device e-mail synchronization support • Support for native Outlook 2003 client connectivity from off-campus (without the use of the VPN) • Improved server-side virus scanning and spam filtering (not to be implemented immediately) • Improved security (inter-server communication, Outlook Web Access logon) • Improved administrator tools (for migration, recovery and queue management)
Estimated Effort in Hours	250
Estimated Completion Date	July provided hardware acquisitions don't delay startup.

The current Exchange infrastructure hosts e-mail and public folder services for faculty, staff, departments and student employees, and consists of five Exchange 2000 servers: two back-end Exchange servers which host the databases and are connected to the SAN; two front-end Exchange servers which host Outlook Web Access and POP/IMAP connectivity; and one Exchange server only used for handling backups, also connected to the SAN. This project will focus on upgrading these five Exchange 2000 Servers to Exchange Server 2003.

Benefits of the upgrade include: improved server performance; improved Outlook 2003 client performance; improved Outlook Web Access interface, features and performance; support for the use of native Outlook 2003 client connectivity from off-campus (without the use of the VPN); improved server-side virus scanning and spam filtering; improved tools (for migration and recovery), improved security (Outlook Web Access logon, inter-server communication) management options (queue management), and programmatic solutions (tool development, distribution list automation) for engineering staff; and improved mobile device e-mail support.

The impact on the campus will be minimal, except for:

1. The client-side benefits
2. Downtime required to migrate mailboxes from the Exchange 2000 to Exchange 2003 databases (which should be minimal – most likely a brief ten minute period per mailbox in which the client will not have access).

The project will be managed by the E-mail and Collaboration Services Engineer, but will involve assistance by the Directory Services Engineer for modifications to Active Directory, reallocation of storage on the Clariion, zoning modifications on the SAN, and VMWare work. It is also assumed that Technology Training will be involved in the

development/modification of client documentation. The Communications Specialist will be involved in any campus communications. Customer support (primarily the help desk) will be cross-trained and provide direct support to clients.

Even though the benefits of this project provide mostly back-end and engineering improvements, it still provides specific tangible benefits to clients.

FRS – Reducing Points of Failure

Project Owner	Guy Noce
Core Team Members	Guy Noce, Stephanie Herpick, Shirley Regler, Mardette Wetzelberger, Brian Hendricks, Patrick Rohe, Matt Rising, Josef Teclaw, OTS Help Center
Overall Objective	Configure and install second Alpha server to TOA cluster and use this server as the primary FRS server.
Value to Campus/Campus Impact	In order to maintain a continuous computing environment for the FRS systems, another server must be brought online to maintain continuity in the event of a catastrophic disaster involving the existing Alpha server. The project will include software improvements to existing Pathworks functionality now being served from VAX hardware.
Estimated Effort in Hours	100+
Estimated Completion Date	April provided hardware delivery from UB isn't delayed much further.

The successful completion of this project will offer the University a more reliable FRS application environment. The project will be managed in a serial fashion so that each individual step (OS install, upgrades, configuration, etc.) can be undone and recovered in a like fashion. Some aspects (DNS, networking) can be accomplished in parallel with other aspects of the project. OTS Operations personnel and Financial Services personnel, will be required to successfully implement and test this project. The ultimate risks are relatively low in scale as the development server (TOA01) is already in place and functionally handling the requirements of FRS.

Redesign and Upgrade of Citrix

Project Owner	Aaron Czechowski
Core Team Members	Brian Hendricks, Patrick Rohe (Web portal), Matt Rising (server hardware assistance)
Overall Objective	Design and implement a new Citrix farm to replace the existing farm with current technology, designed to be upgraded and maintained, a larger and more maintainable system of servers, a more functional and recognizable user experience, greater support for thin clients, and properly monitored and maintained by OTS
Value to Campus/Campus Impact	A more scalable and flexible Citrix environment that can be used for a variety of purposes, a more stable and reliable environment with built-in redundancy and seamless failover. Replacing the current environment with a redesigned system will provide the foundation for future Citrix goals, including increased thin client support, use of Citrix in labs, and additional published applications.
Estimated Effort in Hours	Unknown at this time, but substantial
Estimated Completion Date	Unknown at this time.

The current Citrix environment is getting close to the end of it's useful life. There are two servers in the farm, one primarily available to users, the other is maintained for failover. The user experience on Citrix does not mirror the standard desktop environment, many of the applications are out of date, and possible user profile problems can arise if the published applications have to failover to the secondary server. There is little to no documentation on the current environment and no one is trained or fully knowledgeable on Citrix.

Citrix was originally implemented at Towson to answer a very specific need (access to Outlook 2000 for Macintosh users), but has quickly become popular among many in the campus community for off-campus access, and dedicated access to specialty software. Additionally, Citrix is the foundation to the use of thin clients which are known to have a much lower total cost of ownership than traditional desktops. Several new servers (probably blade servers) will be procured to create a fully redundant and scalable Citrix farm. The environment will be built from the ground up with all of the latest software versions and a fresh look at configuration options, settings and policies. The user experience will be re-engineered to mirror (as closely as possible) the desktop environment and seamlessly transition between servers. Analysis and design of the new Citrix environment should be able to commence towards the end of the SMS 2003 implementation so that testing and deployment can occur immediately after the SMS 2003 project enters maintenance mode, currently scheduled for mid-April 2005.

Most of the project will be managed and implemented by OTS Server Administration and Engineering. OTS Field Service will need to be included in this project for design and configuration of the applications and user environment. OTS Operations Center will be included as necessary for monitoring and maintenance activities. A possible part two of this project may be to include technical staff from other departments on campus that are interested in pursuing thin client initiatives.

Enterprise Backup Software Solution

As part of the RFP mentioned earlier, we are asking vendors to provide us with a consolidated software solution to manage all of our backups in our data center. Currently we use four different pieces of software, which limits who knows how to administer certain pieces of it. Once we settle on one software solution to manage our backup needs, we will be in a good position to purchase an enterprise tape library for the environment.

Enterprise backup software + SAN + Enterprise library =
A manageable and scalable environment with no data loss!

PeopleSoft Development Server Upgrades

One of the "behind the scenes" upgrades that is currently underway is the upgrade of the majority of the PeopleSoft Development servers. The current servers are unsuitable for the job as they are roughly 5 years old, and the PeopleSoft environment has grown considerably since its inception. The new servers are already in-house and the upgrade process will be managed by Joe Teclaw.

Self Service Password Reset

Although not as large an undertaking as the aforementioned projects, this will have a major impact on the campus community and the Office of Technology Services. This initiative will result in a secure, easy to use, and easy-to-find Web application that will allow customers to reset their password without needing to call OTS. It will be driven by the use of a stored "hint" phrase and answer. It also addresses security issues with our current password reset tools and procedures. Matt Rising will handle most of the technical details of the project, while Richard Sullivan will coordinate the effort with the Information Systems group and other support areas within OTS. Full delivery of this service is scheduled for April.

Operations Center

Preventive Maintenance Planning

One of the key collaborative efforts between the Operations Center, Server Administration, and Information Security is the creation of a Preventive Maintenance Plan. During spring 2005 we will develop and implement Phase I of our Preventive Maintenance (PM) Plan.

The goal of Phase I is to get all of the tasks that need to occur on a regular basis for the services listed below together and documented and put into action. Quite often important maintenance tasks don't occur regularly because of other activities. A well documented and managed PM Plan will resolve such issues.

After working through Phase I for critical services, PM efforts will be extended into other service areas.

Service	Service Description
DHCP Service	This allows you to get a network address without specifically configuring one on your machine. This is supported 24x7 in the event of complete failure, but not for PC connection problems
Active Directory/DNS/DDNS/WINS	Network authentication and name resolution systems. Without these, many services are disrupted.
Email Services	Email services as well as mail hubs which route all email on and off campus. This is supported 24x7 in the event of complete failure, but not for individual email problems.
PeopleSoft	University's Human Resources and Student Administration systems
VAX TOA/FRS System	University's Financial System
Blackboard	Online Learning Environment
Web sites	www.towson.edu, insde.towson.edu, tiger.towson.edu, students.towson.edu, pages.towson.edu, wwwnew.towson.edu
Student computing environment	Computing environment on Tiger, which includes Open Webmail, Web-based file access, student homepages, etc. This is supported 24x7 in the event of complete failure, but not for individual services running on the machine.
COSC Unix environment on Triton	COSC Student computer environment. Primarily used for programming. This is supported 24x7 in the event of complete failure, but not for individual services running on the machine
H and O drive environment	Computing environment on White and Gold. Primarily used for network file storage for faculty, staff and departments. This is supported 24x7 in the event of complete failure, but not for individual H and O drive connectivity problems.

Customer Satisfaction Surveys

The Operations Center will soon be performing customer satisfaction and feedback surveys for customers that have had requests processed by Operations. Being that the Operations Center has assumed the new role of second level support, we want to make sure that we get feedback from customers to know just how well we're doing, and where we need to make improvements.

This will likely be done as a fairly manual process at first utilizing student workers. It may develop into something more over time, but what's important at this point is that we get the feedback from the customers which will help guide our efforts.

Taking calls directly from Technology Support Staff

OTS has held to Collaboration Technology Forums to take the time to bring Technology Support personal (external to OTS) up to speed on the changes that have occurred within OTS and how it affects the way they receive support.

Aside from the changes to the deployed model for Field Support, the next biggest change is the new ability for named Technology Support personnel to call directly into the Operations Center to report critical issues that are effecting instruction or critical business processes.

A final announcement will be sent to technology support personnel very soon giving them the information on "who to call when." Here are the main reasons support personnel would call the Operations Center:

For Administrative Support Personnel

- PeopleSoft Process Scheduler issues
- FRS and PS Production Management
- Crystal Enterprise processing issues
- Any connectivity issues to the network, servers, services, and/or applications (for more than one client)
- Application errors or access issues that are holding up business processes
- Performance issues on critical systems that are impacting business operations
- 3rd party application issues that are effecting business operations
- Any server or service issue that is keeping individuals from getting their work done
- Any security related item that could impact Towson's network
- Concerns about an upcoming outage that may effect business operations

For Academic Support Personnel

- Any connectivity issues to the network, servers, services, and/or applications (for more than one client)
- Service unavailability for more than one machine
- PeopleSoft or Administrative application performance problems or errors
- Realization of a security breach or security related issue

- Concerns about an upcoming outage that may affect instruction
- Pressing configuration questions - Not an immediate answer but logged and tracked to ensure feedback happens

The best way to determine if you should call the Operations Center instead of the Help Center is to answer the following questions:

- Are you calling about a pre-existing service that is now suddenly unavailable or not working correctly?
- Is the problem effecting more than one user, or is it a critical instruction or business function?
- Is it urgent in nature? Does it need to be fixed immediately?

If one answers "yes," then they would likely contact the Operations Center.

We're excited about this new service offering and are confident that it will make a difference in quality of service provided to these customers.

Information Security and Compliance

Lynn Ray, the new Information Security Officer, is diligently digging into helping TU improve its security posture. He is currently developing an Strategic IT Security Plan that will identify particular goals and objectives for accomplishing this task. Over the next quarter, he will also be concentrating on the following:

HIPAA

Lynn will be working on understanding Towson's current level of compliance by doing a HIPAA Compliance Analysis. Once completed, Lynn will develop a plan on getting us where we need to be. This is a high priority project, and there are a lot of people involved with getting us to a level where we are compliant from an auditor's perspective.

Account Processes

A second area, in which Lynn and Tammy Weichseldorfer will be working, is our account processes. They will be focusing on Phase I of our Account and Role Management project. This phase of the project focuses on the analysis of our current environment. Phase II, which will likely start this summer, will be the design phase.

Incident Response

We currently receive as many as 5 messages a week from off campus about machines on our network that are likely infected based on traffic to locations outside of our network. Since the network upgrade, we have lost the ability to locate the machines on campus due to the new addressing scheme.

Lynn is currently developing a strategy of how we will quickly translate these incoming notifications into action. This will involve the Networking group, Server Administration,

and the Field Support group. The goal is that we can quickly locate the offending machine and either fix it, or remove it from the network.

Firewall Processes

Lynn will be refining the way we manage firewall conduit requests. He will help us improve service to the customer (known turnaround time) and that we also get a grasp of what all of the conduits are and how we can prepare ourselves for an audit. Auditors want to see that there is a formal process, and that we can prove we follow that process.

Policy Development

Lynn will be working closely with senior management to prioritize the development of University Policies. This will help us meet the challenges of providing quality service to our customers.

Conclusion

If you made it to here, I hope you enjoyed learning about the group and the projects of which we're currently involved. We plan to distribute our Initiatives document quarterly to keep everyone well informed of the many important and valuable projects of which we're involved.