

**INFORMATION TECHNOLOGY  
STRATEGIC  
PLAN**



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# Norfolk State University Information Technology Strategic Plan

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## Introduction

This information technology strategic plan is intended to serve as the guide to help us support the mission, vision, and goals of the university. The plan will help us meet the expectations of our students, faculty, staff, and other constituents by placing NSU among the leaders in information technology and services in higher education.

Implementation of the plan will take time along with other resources in abundance and our path to accomplishing goals may shift with the changing technology landscape. However, our vision and goals are firm as is our commitment to them.

## NSU Mission, Vision, and Core Assets

The mission of Norfolk State University is, “to provide an affordable, high-quality education for an ethnically and culturally diverse student population, equipping them with the capability to become productive citizens who continuously contribute to a global and rapidly changing society.”

The vision of the University is based upon three tiers:

Enhance students’ success by providing high-quality academic instruction and support to ensure an improved graduation rate;

Develop an efficient management structure to increase organizational efficiency and improve performance across all areas; and

Increase total funding by identifying multiple funding sources and new initiatives to form a solid fiscal foundation and provide ongoing services for NSU’s constituents.

The core assets for accomplishing the mission and achieving the vision are a talented student body, the support of the public, a highly motivated faculty and staff, and a long standing tradition of service.

## **Information Technology and Services in Support of the University Mission**

The NSU information technology environment must support all university activities, including undergraduate and graduate education, research, scholarship, the arts, engagement, administration, and outreach. The information technology services and support community is committed to work collaboratively for the creation and support of a world-class information resources environment and to offer reliable systems and services for the support of the University's mission and vision.

We believe that in order to fully support NSU mission, the information resources environment must provide seamless access to information and services for our faculty, staff, students, and other constituencies. We will support this mission with the best available technology-enabled services that, in turn, stimulate our reach for new technological directions and contribute to the achievement of University goals.

### **The Vision for NSU Information Technology and Services**

With a commitment to realizing NSU's mission and vision, the vision for information technology and services at Norfolk State University, simply stated, is to create a seamless, highly integrated and effective university information environment.

Our vision means that in all our information services-related efforts, we will adopt compatible technologies and strategies that enhance the quality of our interactions with each other and with the world around us in fulfillment of our goals. Achieving this vision will not be easily achieved. However, with the commitment of our academic and administrative leadership, and the skills and dedication of our IT professionals, we will succeed in creating this seamless and integrated information technology environment.

### **Current State/Issues**

The Norfolk State University information technology environment is advanced and highly complex. Enterprise Information Systems, (the Datatel 'Colleague' Student Information System, the Sungard/BiTech 'IFAS' Integrated Financial and Administrative Information System, and the Innovative Interfaces, Inc. Library Catalog System), are operating on IBM and Hewlett-Packard mid-range Unix based servers. There are also more than seventy Windows based, and, several Linux based network appliance specialized servers in operation. The Windows servers host such applications as the electronic mail & calendaring system; instruction software; the alumni system; housing services; and, public safety/police systems to name a few.

To provide the thousands of personal computer users of the University connectivity to the information systems and applications, as well as to the Internet, a very high speed switched Ethernet network has been installed campus-wide. This University network also provides connectivity for faculty, students, and staff at the University's satellite centers and for students living elsewhere who are enrolled in Norfolk State University web-based, electronic learning

programs or courses of study. There are well over two hundred network routers, switches; wireless access points along with firewalls, intrusion detection/prevention systems, traffic load balancing systems, and other network systems/devices operating that comprise the enterprise network. All of this must be intelligently managed and attended to virtually around the clock.

Telephone and voicemail services at Norfolk State University are provided by two means. The preponderance of service is CENTREX and Optimail which is provided by Verizon Corporation under the contract arranged by the Virginia Information Technology Agency. In May 2005, the University put into operation a Cisco Voice over Internet Protocol (VoIP) private branch exchange telephone system and a companion Unity voicemail system. This new VoIP telephone system has been configured to interoperate with the CENTREX system and the Public Switched Telephone Network (PSTN).

A cable television system, (CATV), is also operated by the Office of Information Technology so faculty, students, and staff can view University produced, as well as, public and commercial television programs including news when it is available, and, as needs arise.

There are approximately four dozen highly skilled information technology professionals serving in the Office of Information Technology who, together with a very few other specialists in certain departments and colleges, work diligently each and every day to ensure the University's technology environment is always available to support the institutional, academic, and research needs of the community.

Issues that affect the current state of information technology at Norfolk State University include:

- Equipment modernization is always a necessity, and, the cycle of modernization is compressing. Where in the past you might not need to replace computer systems as often, it is not uncommon today for systems to become technologically and/or functionally obsolete within twenty-four to thirty-six months.
- Software, both systems and applications, change as rapidly, and as newer versions are released older versions are no longer supported.
- University information systems/applications are not fully integrated to the level that they might be, and, they are not all web-enabled which makes ongoing operations and technical support more difficult.
- There is not enough redundancy and resiliency (i.e. real-time failover) built into our current systems and supporting environment mainly due to the lack of additional funding.
- The voice, data, and television video networks are by-in-large not converged.

- Many buildings on campus are old and they were not properly designed to accommodate the extensive introduction and use of information technology systems and equipment which means it does cost more when this is done.
- Funding for technology continues to be relatively austere.

### **Factors Impacting Information Technology**

There are a multitude of factors which impact information technology at Norfolk State University, these include the following:

- Faculty, researchers, and staff expect that information systems and technology resources available to them will be state-of-the-art.
- There is a highly ‘competitive market’ for college/university students today, and in many cases the availability of technology is the ‘tie breaker’ in deciding which institution student and/or their parents/guardians will select.
- Students enrolling in colleges and universities are sophisticated technology users, and their expectations are very high. In general, young men and women who enroll in universities today are knowledgeable in the use of computers and multimedia systems for such purposes relevant to education as animation, simulation, gaming, presentation, information interchange, and to enhance personal productivity.
- The threat to information systems posed by hackers, spammers, and spyware authors expands and changes each and every day. Not a day goes in which we cannot read about the increasing threat and/or detect actual attempts to gain access to networks and information systems.
- New buildings are planned to be constructed on campus and other buildings are to be renovated (a new University Library, a new Student Center, a new General Education Building, and major renovations to the Fine Arts Building, the existing library, and the existing student union building). These new and renovated buildings will require newer IT systems and equipment when the work is completed.
- Funding for technology continues to be relatively austere.

### **Anticipated Changes/Desired State**

When Norfolk State University over time obtains the funding needed to support the many major and non-major IT procurements specified in the strategic information technology plan, the

University can truly be considered, and also known as, a leading higher education institution with respect to its implementation and exploitation of information technology.

The University would achieve a high level of information systems integration.

The University would achieve a high level of network integration and convergence with respect to voice, data, and video services.

The University's information systems and networks would be virtually immune from the many threats posed by individuals and/or activities that are always attempting to do harm to the systems and networks operated by others.

The University would provide its faculty, staff, and students - the real consumers of IT services - the most advanced application information systems and software available and this will surely promote efficiency in our business processes and enrich the teaching & learning environment.

### **FY2009 Information Technology Strategic Goals**

To make our vision a reality, the following four goals outline an information technology direction for the university.

Goal 1: Assure the University community (student, faculty researchers and staff) receive timely and effective information technology/ system technical support to accomplish academic and administrative tasks assignments.

Goal 2: Advance the overall state of information technology deployment and utilization.

Goal 3: Continue to develop support for Teaching & Learning and Research environments.

**FY2009**

**Information Technology Goals, Objectives, Activities, Outcomes, and Metrics**

**Goal 1**

**Assure the University community (student, faculty researchers and staff) receive timely and effective information technology/ system technical support to accomplish academic and administrative tasks assignments.**

**Objective 1: Provide Network Availability**

Activities	Outcomes	Metrics
Enhance the capability of NSU's infrastructure network by using fault tolerant management devices in the Enterprise Data Center	Failover capability for the NSU enterprise servers which will provide a more robust environment for their operation	This will double the processing power of the data center switch which connects over 100 of NSU's servers together
Develop a DMZ network (network outside of the NSU network) for students and wireless guests	Proves a separate network for students and wireless guests	This will move 2800 students and all wireless guests into this isolated and secured network
Install redundant routers	Enhance the stability of the network infrastructure connectivity at the University	This will eliminate a single point of failure on the University's network
Upgrade Switches in Classroom areas for Brown Hall and Woods Science Building	Upgrades equipment which is no longer supported by the vendor	This will provide electrical power over the network for an additional 480 locations which would include phones, cameras, and wireless access points
Develop an annual assessment program for refreshing residence halls data network connectivity	This will ensure the OIT and residence hall staff are working together to provide enhanced network connectivity for the students	Produce an assessment analysis and report on eight residence halls and work with Residential Housing and Life on the repairs and costs

**FY2009**

**Information Technology Goals, Objectives, Activities, Outcomes, and Metrics**

**Goal 1**

**Assure the University community (student, faculty researchers and staff) receive timely and effective information technology/ system technical support to accomplish academic and administrative tasks assignments.**

**Objective 2: Provide Enterprise Information Systems Availability**

Activities	Outcomes	Metrics
Automate the SpartanCard Authorization process	Provide a self-service solution to allow students to direct funds that are to be refunded to them from their Colleague student account onto their SpartanCard account in the Blackboard Vending & Dining system via SpartanShield	The number of students waiting in-line for SpartanCard Authorization will be reduced and those using the automated system counted.
Implement additional self-service components of SpartanShield	Provides expanded services for students, workflows supporting electronic checks for payment via E-Commerce and collection of banking information to support EFT/ACH (direct deposit) of student refunds. It is expected that this will expand usage of SpartanShield E-Commerce beyond credit card payments. Eliminate the need for students to come in person to the cashier's office to pay student account balances via check. Reduce and in some cases eliminate the generation of student refund checks (less check stock, MICR toner, postage, manpower for check distribution dates and un-claimed property to be processed in accordance with COVA requirements.	The number of students using the self-service components of SpartanShield will be counted.

<p>Acquire and develop Datatel's Active Campus Portal</p>	<p>Provides expanded role-based, personalized, secure, and customized gateway for all campus constituents – staff, faculty, students, alumni, and others.</p>	<p>This will involve the acquisition and development of the portal. The number of students who can use the new portal will be counted. It is expected that this service will improve outreach services to students, facilitate collaboration among users and groups and provide for cohesive and consistent personalized identity.</p>
<p>Faculty Course Evaluation System Implementation – Phase II</p>	<p>This will provide a secure interface with reporting options for reviewing the results of the online student course evaluations.</p>	<p>The number of clients using the system will be counted. This should reduce or eliminate the need for paper distribution of Faculty Course Evaluation results.</p>
<p>IFAS Server Migration: Migrate IFAS from existing server in Bowser Bldg to new server in MCAR</p>	<p>Re-location of production IFAS data to the new server in the McDemmond Center. This positions NSU to transition to IFAS 7i – web based version of software</p>	<p>Upgraded Oracle database platform and from version 9i to 10g and enhanced and performance and transaction handling.</p>

**FY2009**

**Information Technology Goals, Objectives, Activities, Outcomes, and Metrics**

**Goal 1**

**Assure the University community (student, faculty researchers and staff) receive timely and effective information technology/ system technical support to accomplish academic and administrative tasks assignments.**

**Objective 3: Develop an IT Strategic Plan that is in-line with VITA requirements, includes the goals and objectives as presented in this document and provides enterprise IT services to the academic and administrative units of the University.**

Activities	Outcomes	Metrics
Assess the IT needs and IT capabilities of the University, compile the data collected, and produce a report	This will provide a plan that is activity driven and can be more straightforwardly communicated to the user community than the VITA format now provides.	Production of the New/Revised Plan.

**FY2009**

**Information Technology Goals, Objectives, Activities, Outcomes, and Metrics**

**Goal 2**

**Advance the overall state of information technology deployment and utilization.**

**Objective 1: Provide Information Systems Security**

Activities	Outcomes	Metrics
Increase and improve perimeter security and network availability by implementing new, state of the art firewall and VPN technologies with failover.	Successful and complete migration of the old checkpoint firewall to the two new Cisco ASA firewalls configured in failover mode	This would achieve 100% coverage of all NSU networks protected by the new firewalls. Increased performance can be measured by CPU utilization comparison of the old vs. the new firewall. Availability is increased by a factor of two since two devices must fail at the same time for the system to fail.
Improve visibility over network based attacks by deploying an additional Open Source IDS tool.	Improved visibility over network attacks providing a more secure environment.	Successful implementation of the open source Snort Intrusion Detection System. The number of attacks captured by Snort and not captured by our current TippingPoint IPS can be counted.
Phase 1 Network Admission Control Deployment will improve Student personal computer overall security by requiring that at least 50% of all student computers be checked for current anti-malware and patch level before they can be plugged into the dorm network	Improved computer security can be observed by comparison reports of student computer security compliance before and after NAC is applied as well as by noticing a reduction of network based attacks from the IPS/IDS	Network Access Control will be implemented in at least 50% of all student dorms.

jacks to ensure a higher level of protection.	reports.	
Improve VoIP availability and performance by deploying a new set of Cisco ASA Firewalls in failover mode.	Successful migration of VoIP network from the old Cisco Pix firewall to the new Cisco ASA firewalls configured in failover mode.	Availability is increased by a factor of two since two devices must fail at the same time for the system to fail.
Improve Security of the Blackboard Dining and Service Servers by placing the server behind a firewall.	Successful network reconfiguration of the Blackboard Dining and Service Server and improved security.	Improved security can be measured by the number of protection layers. At this time the BBDS Servers are only protected by a Symantec Antivirus. After placing the servers behind the firewall they will be protected by two layers of security achieving a double the protection.
Improve the Police Department network security and availability by migrating the network to a new set of Cisco ASA Firewalls in failover mode and enabling visibility over network-based attacks.	Successful network reconfiguration of the police department network. The network will be moved away from an old Netscreen firewall into a set of Cisco ASA Firewalls in failover mode.	A measure of “improved visibility” is the ability to receive firewall stats from the new firewall while the old one could not. Availability is increased by a factor of two since two devices must fail at the same time for the system to fail.
Deployment of a new and improved desktop/server antivirus/endpoint security solution to replace the current Symantec product.	Improved virus detection speed and protection.	33% improvement on full system scan speed

**FY2009**

**Information Technology Goals, Objectives, Activities, Outcomes, and Metrics**

**Goal 2**

**Advance the overall state of information technology deployment and utilization.**

**Objective 2: Planning for New Campus Facilities**

Activity	Outcomes	Metrics
Establish student lab requirements for new NSU Library.	Design of a state of the art student lab.	Inclusion of student lab requirements into the architectural plans.
Ensure an advanced information technology infrastructure and appropriate internal IT systems & equipment are provided for the new Student Center.	Design of technology within the new student center and renovated Godwin Annex which contains state of the art technology infrastructure and capabilities.	Review construction plans to ensure the suitable internal infrastructure is identified and subsequently installed. Provide advice on campus network system and equipment ordering.
Ensure an advanced information technology infrastructure design and appropriate internal IT systems & equipment are recommended for the new Police/Public Safety Building.	Design of technology within the new Police/Public Safety Building which contains state of the art technology infrastructure and capabilities.	The creation of a 100% appropriate networking, telephone service, multimedia presentation systems and equipment recommendations for implementation in the new facility.
Ensure an advanced information technology infrastructure and appropriate internal IT systems & equipment are provided for the new Academic Classroom Building	Design of technology within the new Academic Classroom Building which contains state of the art technology infrastructure and capabilities	Provide advice on networking, telecom and multimedia presentation systems and equipment ordering.

## FY2009

### Information Technology Goals, Objectives, Activities, Outcomes, and Metrics

#### Goal 2

**Advance the overall state of information technology deployment and utilization.**

#### **Objective 3: Enhance IT Capabilities and Develop New Services**

Activity	Outcomes	Metrics
Provide 'Live' Webcasts of the Fall 2008 and Spring 2009 University Commencements	Production of webcasts which can be viewed worldwide.	Transmit an uninterrupted webcast of the December 2008 and the May 2009 ceremonies.
Implement SharePoint 2007	Establishment of capabilities for online collaboration and information sharing.	Migrate SharePoint 2003 sites and establish new SharePoint 2007 sites.
Implement Systems Management Server 2007	Improved visibility over the server infrastructure with virus reporting tools.	Provide clients enhanced capabilities and improved reporting tools.
Implement SQL Server 2008	Provide users with improved database and management services which have enhanced capabilities.	SQL Server to the current standard for 2008.
Develop and Implement the Support Technologies Standardization Project	This will provide for the deployment of an enhanced set of standard PC applications throughout the University.	Accomplishment of the success criteria of the project as listed in the project definition document
Develop and implement the HelpDesk Customer Experience Enhancement Project	Creates a new helpdesk service environment for the users and establishes a more cohesive and supportive location for the team which in turn lends itself to more responsive customer service.	Accomplishment of the success criteria of the project as listed in the project definition document
Develop and Implement a Plan for Outsourcing Student E-Mail	This will provide an economical method for providing email to NSU	Migrate student email from NSU Exchange Mail System to an

	students. It will also provide more storage for their email than NSU can presently provide. It also opens up new possibilities for expanding email services to students even after they graduate.	appropriate application service provider, (such as Microsoft or Google).
Prepare an OIT Business Continuity Plan	Provides a baseline document that OIT will use to achieve continuity of centralized IT operations and services.	Publish the BCP plan. Place the plan on the OIT website. Provide briefings and orientations. Update the plan as changes occur.
Implement the Verizon Direct Service Plan	More cost efficient telecommunication services within the University.	Eliminates VITA surcharges on telecommunications services to save money. Develop new procedures for the direct submission of telecommunications service requests to Verizon Business to save time and money. Develop new procedures for receiving, reviewing, and processing telecommunications services invoices to save time and money. <i>(Exact dollar amounts to be determined).</i>
Enhance the OIT Creative Services Teaching and Learning Environment	Create a more effective broadcast and multimedia production environment for student learning and faculty teaching.	Install a new television studio & multimedia production center equipment and systems (camera control system; video cameras; multimedia production workstations; multimedia software;

		<p>studio and portable lighting kits; etc.) when received.</p> <p>Provide students and faculty members group and/or individual orientation on new equipment/ systems.</p> <p>Oversee faculty and student use of new/replacement equipment and systems.</p>
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FY2009

**Information Technology Goals, Objectives, Activities, Outcomes, and Metrics**

**Goal 3**

**Continue to develop support for Teaching & Learning and Research environments.**

**Objective 1: Enhance Learning Systems**

Activity	Outcomes	Metrics
Double the number of academic courses using media such as iPods, iTunesU, and Blackboard which can build on the development of a mobile learning (M-Learning) environment using faculty developed and publisher materials.	This will increase the University's ability to implement more up to date and learner centered course materials to the student anytime anyplace anywhere.	Mobile learning materials for at least two additional courses which can be accessed via portable media devices and Blackboard or iTunes as appropriate.
Develop a robust iTunes University online site for faculty and administrative materials at Norfolk State University	This will increase the faculty and administrations ability to provide materials to students in a wider variety of formats such as audio (MP3) and video (MP4).	Establish at least three components of iTunes University in the area of administrative communications, training and materials from courses which can be viewed and downloaded by students anywhere anytime.
Enhance the television studio and multimedia production center	This will provide the ability to work with latest multimedia systems for producing administrative and instructional materials.	Install a new television studio & multimedia production center equipment and systems (camera control system; video cameras; multimedia production workstations; multimedia software; studio and portable lighting kits; etc.). Provide students and faculty members

		group and/or individual orientation on new equipment/system
Develop processes to maximize efficiency in the area of academic classroom deliveries and support.	This will increase the ability to deliver equipment to faculty classrooms in a timelier manner.	Establish at least three additional mediated classrooms that have high equipment delivery scheduling requirements.
PC Systems Refreshment	The University community will request updated desktop and some laptop equipment which is provided through Equipment Trust.	Install the number of PCs provided by the Higher Education Equipment Trust Fund.

**FY2009**

**Information Technology Goals, Objectives, Activities, Outcomes, and Metrics**

**Goal 3**

**Continue to develop support for Teaching & Learning and Research environments.**

**Objective 2: Build Technology Skills & Awareness**

Activity	Outcomes	Metrics
Host a University-wide Informational Seminar to inform faculty and staff of the work of OIT and receive input from them on their needs and concerns.	A more aware University community with regards to IT initiatives on campus and the ability provide feedback.	Take attendance and administer survey at the Seminar to be held in NSU's Virtualization and Collaboration Center.
Improve High Performance Computing (HPC) Environment Visibility by creating an online web site and brochure.	There will be information on NSU's HPC environment more easily available to the public.	Production of a web site and a brochure.
Implement Microsoft High Performance Computing (HPC)Cluster	This will broaden our capability to collaborate with a wider range of public and private companies.	Microsoft High Performance Computing Cluster Software is installed.
Increase IT Security Awareness among the NSU Community by expanding the on-line security awareness program	The NSU community is more aware of the importance of security and audit requirements are met and/or exceeded.	Provide on-line security awareness training able to track the number of NSU faculty, staff and students trained and achieve at least 50% of Faculty and Staff training participation.