Analysis Questions and Analysis Answers

For Administrative Support and Student Support Units

Informed by your assessment activities, what changes have you made in your unit in the last three to five years? Describe the changes, the general results that prompted the changes, and the impact on your unit’s clients/customers that you might attribute to these changes.

1. Network Infrastructure:

Significant improvements to the UA campus network had been deferred for many years prior to 2009. An initiative was put forward and approved to address the needed improvements. A comprehensive assessment and design was performed involving both OIT management and technical staff and third-party contractors. The design included a highly resilient MPLS 10GB core with dual building connections and modernized access layer components, a broad expansion and modernization of the campus wireless network, and the establishment of a geographically diverse backup network connection to our primary Internet connection point in Atlanta. The core network was implemented in the 2010-11 time frame along with many other technical improvements to both the network and network security components. Campus-wide wireless coverage was established in the 2011-12 time frame. The backup circuit to Atlanta was established in 2012. Access layer switch replacements and wiring closet overhauls began in 2011 and continue currently. Nearly all campus buildings now have dual 1GB connections to the core with capability to expand to 10GB.

5. Operationalize Continuity of Operations/Disaster Recovery

In response to concerns resulting from the increasing dependency on technology-based business operations, the University of Alabama directed the initiation of an IT Continuity of Operations initiative in 2010. That importance of that initiative was underscored by the Tornado events of April 2011. The Office of Information technology worked closely with the administrative departments to identify mission-critical applications and potential risk scenarios and goals were established for the business continuity capability. An out of area location was selected as a Continuity of Operations site based on economics, manageability, and technical factors. Foundation network, security, directory, server, storage and messaging services were established first. Next applications were modified and tested to support transition to the DR site if needed. In 2013 and 2014, switch-over tests were performed. These tests validated the processes to move operations to the DR site, to run them from that location for one week, and to transition them back to the primary data center in Tuscaloosa. As a result of this substantial and complex work, UA now has reliable Continuity of Operations capability in place for more than 50 mission-critical applications and services.

Mission / Purpose

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Goals

G 1: OIT Strategic Goals

Our Strategic Goals:

1. Ensure the quality of information technology services for all of the University community through expanded resources and infrastructure.
2. Enhance the research mission of the University through technology innovations and expanded capabilities.
3. Enrich educational experiences through technology to promote student success and faculty excellence.
4. Engage the community beyond the University of Alabama campus and build global initiatives.
5. Establish an environment that supports the development of the technology organization.

Other Outcomes, with Any Associations and Related Measures, Targets, Findings, and Action Plans

OthOtcm 1: Network infrastructure

The network infrastructure will facilitate the University's research, educational and administrative activities and processes.

Connected Document

Information Technology Timetable

Relevant Associations:

Standard Associations

SACS 3.3.1
3.3.1.2 Administrative support services
3.3.1.3 Educational support services
3.3.1.4 Research within its educational mission

Strategic Plan Associations

University of Alabama
1.8 Develop the research infrastructure and enhance the library resources necessary to be competitive
for grants and contracts.
1.9 Provide infrastructure and promote the utilization of intellectual property generated at the University.
3.8 Equip classrooms, libraries, and laboratories for state-of-the-art learning.
3.9 Ensure user-friendly support services for students, faculty, and staff.
3.10 Continue to modernize information technology resources.
3.13 Ensure the campus environment is safe for all members of the campus community.

Related Measures

**M 1: Reliable Core Network**
A highly-available (99.995%), high-performance (Min. 10Gbps), core network will be operational
Source of Evidence: Existing data

**Connected Document**
Information Technology Timetable

**Target:**
99.995% network availability

**M 2: Redundant Fiber connections in buildings**
75% of campus buildings will have redundant fiber connections
Source of Evidence: Benchmarking

**Connected Document**
Information Technology Timetable

**Target:**
Redundant fiber connections in 75% of campus buildings.

**Related Action Plans (by Established cycle, then alpha):**

**Network redundancy**
*Established in Cycle: 2011-2012*
Continue networking improvements to the extent possible.

For full information, see the Details of Action Plans section of this report.

**OthOtcm 2: Provide Administrative Functions**
Faculty, staff and students will be able to perform administrative functions efficiently and effectively with the assistance of current technology.

**Connected Document**
Information Technology Timetable

**Relevant Associations:**

**Standard Associations**

*SACS 3.3.1*
- 3.3.1.2 Administrative support services
- 3.3.1.3 Educational support services

**Strategic Plan Associations**

University of Alabama
- 1.6 Streamline administrative functions and improve their effectiveness.
- 3.8 Equip classrooms, libraries, and laboratories for state-of-the-art learning.
- 3.9 Ensure user-friendly support services for students, faculty, and staff.
- 3.10 Continue to modernize information technology resources.

Related Measures

**M 3: Upgrades and new implementations**
Perform upgrades and new implementations within current support offerings.
Source of Evidence: Service Quality

**Connected Document**
Information Technology Timetable

**Target:**
No Target Established.

**M 4: Sound business processes**
Analyze and establish sound business processes.
Source of Evidence: Client satisfaction survey (student, faculty)

**Connected Document**
Information Technology Timetable

**Target:**
No Target Established

**M 5: Technical skillset**
Develop technical skillset to remain technologically current
Source of Evidence: Existing data

**Connected Document**
Information Technology Timetable
OthOtcn 3: Prompt and effective IT support
The University community will receive prompt and effective support on desktop, network and telephone services.

Connected Document
Information Technology Timetable

Relevant Associations:

Standard Associations
SACS 3.3.1
3.3.1.2 Administrative support services
3.3.1.3 Educational support services

Strategic Plan Associations
University of Alabama
1.6 Streamline administrative functions and improve their effectiveness.
3.9 Ensure user-friendly support services for students, faculty, and staff.
3.10 Continue to modernize information technology resources.

Related Measures

M 6: Analysis service reports
Analyze work order and incident reports to ensure accuracy and timely resolution or installation.
Source of Evidence: Document Analysis

Connected Document
Information Technology Timetable

Target:
No Target Established

Related Action Plans (by Established cycle, then alpha):

Service Delays
Established in Cycle: 2011-2012
The infrastructure team struggled to keep up with the high demand of construction projects which also caused operational work de...

For full information, see the Details of Action Plans section of this report.

M 7: Analysis of Call Center reports
Analyze IT Service Desk Call Center reports to ensure efficient telephone coverage.
Source of Evidence: Document Analysis

Connected Document
Information Technology Timetable

Target:
No Target Established

M 8: Analysis of territory assignments
Review territory assignments and ticket volume to ensure reasonable resolution time.
Source of Evidence: Activity volume

Connected Document
Information Technology Timetable

Target:
No target established

OthOtcn 4: Provide a comprehensive IT security program
The University community will have a comprehensive IT security program that ensures compliance with federal, state, and industry regulations and best practices for protecting critical IT resources.

Connected Document
Information Technology Timetable

Relevant Associations:

Standard Associations
SACS 3.3.1
3.3.1.2 Administrative support services
3.3.1.3 Educational support services
3.3.1.4 Research within its educational mission

Strategic Plan Associations
University of Alabama
3.9 Ensure user-friendly support services for students, faculty, and staff.
3.10 Continue to modernize information technology resources.
3.13 Ensure the campus environment is safe for all members of the campus community.

Related Measures

M 9: Defense-in-depth model
Review, evaluate and enhance the defense-in-depth model for the protection of critical IT resources. Conduct periodic reviews of our security architecture in order to update the security roadmap for continuous improvement of our defense in depth model as technology changes or risk changes.
Source of Evidence: Evaluations

Connected Document
Information Technology Timetable

Target:
No Target Established

Related Action Plans (by Established cycle, then alpha):

**Security needs**
Established in Cycle: 2011-2012
Additional needs include Anti-Virus/Anti Malware protection through web content filtering; Security Information and Event Manage...

For full information, see the Details of Action Plans section of this report.

M 10: Compliances with regulations
Review, evaluate and enhance compliance with industry and government regulations. Provide leadership and guidance to University entities that require compliance with industry and government regulations through regular compliance committee meetings as updates are required based on changes in the regulation or changes in technology.

Source of Evidence: Government standards

Connected Document
Information Technology Timetable

Target:
No Target Established

M 11: Blocking attacks
Block known unauthorized and malicious attacks. Continue to monitor and actively block malicious attacks at the University border. Provide enhancements and improvements as technology and risk change.

Source of Evidence: Activity volume

Connected Document
Information Technology Timetable

Target:
No Target Established

M 12: Training and policy required by regulatory agencies
Review and update training and policy required by regulatory agencies. Continue to review and revise training required by our regulatory agencies in order to provide the most up-to-date annual training for those affected within the University.

Source of Evidence: Professional standards

Connected Document
Information Technology Timetable

Target:
No Target Established

OthOtcM 5: Operationalize Continuity of Operations/Disaster Recovery
Transition the Continuity of Operations plan into operational procedures and test them.

Connected Document
Information Technology Timetable

Relevant Associations:

Standard Associations
SACS 3.3.1
3.3.1.2 Administrative support services
3.3.1.3 Educational support services
3.3.1.4 Research within its educational mission
3.3.1.5 Community/public service within its educational mission

Strategic Plan Associations
University of Alabama
1.6 Streamline administrative functions and improve their effectiveness.
3.9 Ensure user-friendly support services for students, faculty, and staff.
3.10 Continue to modernize information technology resources.
3.13 Ensure the campus environment is safe for all members of the campus community.

Related Measures

M 14: Operational Testing
OIT established a secure colocation facility in Atlanta, Georgia to provide continuity of operations. Foundation network, security, storage and messaging services have been implemented and tested in this facility. Testing, referred to as failover, was performed at the colocation site in May 2013. Failover entailed switching from the primary network, servers and critical applications such as Banner ERP, located in Tuscaloosa, Alabama to the colocation facility's replicated network, servers and applications in Atlanta, Georgia. Failover was conducted for one week's time and was successful in performing all functions and processes. Failover is performed on an annual basis.
The annual failover exercise for mission critical systems is scheduled for May 2014.

Source of Evidence: Administrative measure - other

Connected Document
Information Technology Timetable

Target:
No Target Established

Related Action Plans (by Established cycle, then alpha):

Application deployment at DR location
Established in Cycle: 2011-2012
Complete the development of processes and procedures and the deployment of applications. Begin disaster recovery readiness test...

For full information, see the Details of Action Plans section of this report.

OthOtcm 6: Support of Research Computing

Provide technology support for research computing including sustained operation of the High Performance Computing Cluster, support for development of data management plans, and provision of general purpose server and storage resources including backup and archival.

Connected Document
Information Technology Timetable

Relevant Associations:

Standard Associations
SACS 3.3.1
3.3.1.3 Educational support services
3.3.1.4 Research within its educational mission

Strategic Plan Associations
University of Alabama
1.1 Promote and enhance areas of academic, scholarship, and research excellence.
1.4 Align resources to most effectively support academic, scholarship, and research excellence priorities.
1.8 Develop the research infrastructure and enhance the library resources necessary to be competitive for grants and contracts.
1.9 Provide infrastructure and promote the utilization of intellectual property generated at the University.
2.8 Promote collaborative research approaches to address large scale problems of regional and national interest.
3.4 Increase involvement of undergraduate students in research and scholarly activities.
3.10 Continue to modernize information technology resources.

Related Measures

M 15: Support for HPC
Sustain reliable operations and general administration of the HPC cluster.
Source of Evidence: Service Quality
Connected Document
Information Technology Timetable

Target:
No Target Established

M 16: Support of HPC Cluster
Support growth of the HPC cluster - add nodes and storage as required as HPC use increases.
Source of Evidence: Service Quality

M 17: Provide on-line tools and resources for research
In coordination with UA libraries and Office of Sponsored Programs, provide on-line tools and resources to support the effective development of Research Data Management plans as required by granting agencies.
Source of Evidence: Service Quality

M 18: Provide storage and backup for researchers
Provide virtual server and storage provisioning, backup, and archival services for researchers.
Source of Evidence: Service Quality

Details of Action Plans for This Cycle (by Established cycle, then alpha)

Application deployment at DR location
Complete the development of processes and procedures and the deployment of applications. Begin disaster recovery readiness testing.
Established in Cycle: 2011-2012
Implementation Status: In-Progress
Priority: High
Relationships (Measure | Outcome/Objective):
  Measure: Operational Testing | Outcome/Objective: Operationalize Continuity of Operations/Disaster Recovery
Implementation Description: 1. Develop processes and procedures 2. Deploy applications 3. Test and verify applications
Responsible Person/Group: Scott Montgomery

Network redundancy
Continue networking improvements to the extent possible.
Established in Cycle: 2011-2012
Implementation Status: Planned
Priority: High
Relationships (Measure | Outcome/Objective):
  Measure: Redundant Fiber connections in buildings | Outcome/Objective: Network infrastructure
Responsible Person/Group: Scott Montgomery

Additional Resources: The budget for the 6 year Network and Security Strategic Initiative was $18,000,000. The funding is $5,400,000 shy of the budgeted request as of FY12.
Budget Amount Requested: $0.00 (no request)

Security needs
Additional needs include Anti-Virus/Anti Malware protection through web content filtering; Security Information and Event Management System for log analysis and event correlation; Network Access control for security evaluation of all devices connecting to the University network; and Identity and Access Management process and tools to aid in provisioning and de-provisioning faculty, staff and students to all of our major systems.
Established in Cycle: 2011-2012
Implementation Status: Planned
Priority: High
Relationships (Measure | Outcome/Objective):
  Measure: Defense-in-depth model | Outcome/Objective: Provide a comprehensive IT security program
Responsible Person/Group: Ashley Ewing
Budget Amount Requested: $0.00 (no request)

Service Delays
The infrastructure team struggled to keep up with the high demand of construction projects which also caused operational work delays.
Established in Cycle: 2011-2012
Implementation Status: Planned
Priority: Medium
Relationships (Measure | Outcome/Objective):
  Measure: Analysis service reports | Outcome/Objective: Prompt and effective IT support
Implementation Description: The cabling of construction projects will need to be included in the building bid and construction documents. OIT will provide detail cabling specifications to Construction Administration to include in construction documents for outsourcing this service.
Responsible Person/Group: Patty Benton
Mission / Purpose

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5. Establish an environment that supports the development of the technology organization.

Other Outcomes, with Any Associations and Related Measures, Targets, Findings, and Action Plans

OthOtcm 1: Network infrastructure
The network infrastructure will facilitate the University’s research, educational and administrative activities and processes.

Connected Document
Information Technology Timetable

Related Measures

M 1: Reliable Core Network
A highly-available (99.995%), high-performance (Min. 10Gbps), core network will be operational
Source of Evidence: Existing data

Connected Document
Information Technology Timetable

Target:
99.995% network availability

Finding (2012-2013) - Target: Met
The UA campus core network implementation was completed in Q4 2012.
UA now has a fully redundant 10Gpbs operational core network.

M 2: Redundant Fiber connections in buildings
50% of campus buildings will have redundant fiber connections
Source of Evidence: Benchmarking

Connected Document
Information Technology Timetable

Target:
Reducant fiber connections in 50% of campus buildings.

Finding (2012-2013) - Target: Partially Met
Fewer than 50% of campus buildings have redundant connections. Funding and human resource constraints prevented completion of this goal.

Related Action Plans (by Established cycle, then alpha):

Network redundancy
Established in Cycle: 2011-2012
Continue networking improvements to the extent possible.
For full information, see the Details of Action Plans section of this report.

OthOtcm 2: Provide Administrative Functions
Faculty, staff and students will be able to perform administrative functions efficiently and effectively with the assistance of current technology.

Connected Document
Information Technology Timetable

Related Measures

M 3: Upgrades and new implementations
Perform upgrades and new implementations within current support offerings.
Source of Evidence: Service Quality
M 4: Sound business processes
Analyze and establish sound business processes.
Source of Evidence: Client satisfaction survey (student, faculty)

M 5: Technical skillset
Develop technical skillset to remain technologically current
Source of Evidence: Existing data

OthOtcm 3: Prompt and effective IT support
The University community will receive prompt and effective support on desktop, network and telephone services.

M 6: Analysis service reports
Analyze work order and incident reports to ensure accuracy and timely resolution or installation.
Source of Evidence: Document Analysis

M 7: Analysis of Call Center reports
Analyze IT Service Desk Call Center reports to ensure efficient telephone coverage.
Source of Evidence: Document Analysis

M 8: Analysis of territory assignments
Review territory assignments and ticket volume to ensure reasonable resolution time.
Source of Evidence: Activity volume

OthOtcm 4: Provide a comprehensive IT security program
The University community will have a comprehensive IT security program that ensures compliance with federal, state, and industry regulations and best practices for protecting critical IT resources.
No Target Established

Finding (2012-2013) - Target: Partially Met
Enhancements have been made to our vulnerability assessment capabilities. Improvements have been made in our encryption of data in storage as well as encryption of data in transit. Enhancements have been made to our firewall infrastructure to improve protection and stability.

The security architecture is reviewed constantly and enhancements are made based on new threats, risk information, and/or emerging technology.

These efforts are on-going improvements.

Related Action Plans (by Established cycle, then alpha):

Security needs
Established in Cycle: 2011-2012
Additional needs include Anti-Virus/Anti Malware protection through web content filtering; Security Information and Event Manage...

For full information, see the Details of Action Plans section of this report.

M 10: Compliance with regulations
Review, evaluate and enhance compliance with industry and government regulations.
Source of Evidence: Government standards

Connected Document
Information Technology Timetable

Target:
No Target Established
Finding (2012-2013) - Target: Partially Met
Enhancements have been made through bi-monthly HIPAA and PCI meetings to constantly improve policy and procedures, and monitor compliance with these regulations.

M 11: Blocking attacks
Block known unauthorized and malicious attacks.
Source of Evidence: Activity volume

Connected Document
Information Technology Timetable

Target:
No Target Established
Finding (2012-2013) - Target: Partially Met
Over the past year:

- A weekly average of 47,419 attempts to infect 7,980 computers with viruses, malware, or other malicious code were blocked
- A weekly average of 19,262,666 emails were delivered to the University, and a weekly average of 18,810,585 were blocked as malicious or SPAM leaving a weekly average of 1,152,081 email messages passed to users.
- A weekly average of 10,761,805 attempts to intrude on the University network were blocked by our intrusion detection/intrusion prevention system

M 12: Training and policy required by regulatory agencies
Review and update training and policy required by regulatory agencies.
Source of Evidence: Professional standards

Connected Document
Information Technology Timetable

Target:
No Target Established
Finding (2012-2013) - Target: Partially Met
Enhancements have been made through bi-monthly HIPAA and PCI meetings to constantly improve policy and procedures, and monitor compliance with these regulations. Training is conducted annually to affected faculty and staff.

OthOthcm 5: Implement a Disaster Recovery foundation
By the end of 2011, the analysis, planning, and deployment of foundation infrastructure at a remote, hardened, Disaster Recovery co-location facility will be in place. Analysis, planning, and the establishment of processes to sustain Disaster Recovery/Business Continuity capabilities for mission and business critical systems and applications will be partially in place by the end of 2011 with expected completion in Q1 of 2012.

Connected Document
Information Technology Timetable

Related Measures

M 14: Deployment at the DR location
Deployment of mission critical systems and application instances at the DR location. Disaster Recovery / Business Continuity processes and procedures will be complete in draft form by the end of 2012.
Source of Evidence: Administrative measure - other

Connected Document
Information Technology Timetable

Target:
No Target Established

Finding (2012-2013) - Target: Met
Enterprise mission-critical systems now have fully tested Business Continuity capabilities at the DR location. These systems are recoverable within 4 hours of any disaster that should render the UA primary data center non-operational.

Related Action Plans (by Established cycle, then alpha):

Application deployment at DR location
Established in Cycle: 2011-2012
Complete the development of processes and procedures and the deployment of applications. Begin disaster recovery readiness test...

For full information, see the Details of Action Plans section of this report.

OthOtcm 6: High-Performance Computing platform
Provide a reliable general purpose High-Performance Computing platform, and responsive system hosting services, and other related services in support of academic and research computational needs.

Connected Document
Information Technology Timetable

Related Measures

M 15: Development and support for HPC cluster
Provide development and support for HPC cluster to the Research Community
Source of Evidence: Service Quality

Connected Document
Information Technology Timetable

Target:
No Target Established

Finding (2012-2013) - Target: Met
OIT now operates and supports a current-technology undergraduate research HPC cluster as well as a Research HPC cluster.

M 16: Provide storage for HPC
Add storage as required as HPC use increases.
Source of Evidence: Service Quality

Details of Action Plans for This Cycle (by Established cycle, then alpha)

Application deployment at DR location
Complete the development of processes and procedures and the deployment of applications. Begin disaster recovery readiness testing.
Established in Cycle: 2011-2012
Implementation Status: In-Progress
Priority: High

Relationships (Measure | Outcome/Objective):
Measure: Deployment at the DR location | Outcome/Objective: Implement a Disaster Recovery foundation

Implementation Description: 1. Develop processes and procedures 2. Deploy applications 3. Test and verify applications
Responsible Person/Group: Scott Montgomery

Network redundancy
Continue networking improvements to the extent possible.
Established in Cycle: 2011-2012
Implementation Status: Planned
Priority: High

Relationships (Measure | Outcome/Objective):
Measure: Redundant Fiber connections in buildings | Outcome/Objective: Network infrastructure
Responsible Person/Group: Scott Montgomery

Additional Resources: The budget for the 6 year Network and Security Strategic Initiative was $18,000,000. The funding is $5,400,000 shy of the budgeted request as of FY12.
Budget Amount Requested: $0.00 (no request)

Security needs
Additional needs include Anti-Virus/Anti Malware protection through web content filtering; Security Information and Event Management System for log analysis and event correlation; Network Access control for security evaluation of all devices connecting to the University network; and Identity and Access Management process and tools to aid in provisioning and de-provisioning faculty, staff and students to all of our major systems.
Established in Cycle: 2011-2012
Implementation Status: Planned
Priority: High
Relationships (Measure | Outcome/Objective):
  Measure: Defense-in-depth model | Outcome/Objective: Provide a comprehensive IT security program
  Responsible Person/Group: Ashley Ewing
  Budget Amount Requested: $0.00 (no request)

Service Delays
  The infrastructure team struggled to keep up with the high demand of construction projects which also caused operational work delays.
  Established in Cycle: 2011-2012
  Implementation Status: Planned
  Priority: Medium

Relationships (Measure | Outcome/Objective):
  Measure: Analysis service reports | Outcome/Objective: Prompt and effective IT support

Implementation Description: The cabling of construction projects will need to be included in the building bid and construction documents. OIT will provide detail cabling specifications to Construction Administration to include in construction documents for outsourcing this service.

Responsible Person/Group: Patty Benton
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Other Outcomes, with Any Associations and Related Measures, Targets, Findings, and Action Plans

OthOtcm 1: Network infrastructure

The network infrastructure will facilitate the University’s research, educational and administrative activities and processes.

Connected Document

Information Technology Timetable

Related Measures

M 1: Reliable Core Network

A highly-available (99.995%), high-performance (Min. 10Gbps), core network will be operational

Source of Evidence: Existing data

Connected Document

Information Technology Timetable

Target:
99.995% network availability

Finding (2011-2012) - Target: Met

Results Summary - Core network buildout has been completed and highly available core network is in place and operational. Based on operational monitoring statistics, the network has been highly available with minimum campus wide network outages. Unplanned outage time as a percentage of total time was calculated.

Associated Interpretations and Conclusions - Transition of groups to fully use the new core network is underway and should continue to make full use of the core network.

M 2: Redundant Fiber connections in buildings

50% of campus buildings will have redundant fiber connections

Source of Evidence: Benchmarking

Connected Document

Information Technology Timetable

Target:
Redundant fiber connections in 50% of campus buildings.

Finding (2011-2012) - Target: Partially Met

Results Summary - Network project funding was significantly reduced resulting in a slowdown of network project deployments. At this point, fewer than 10% of campus buildings have redundant fiber connections.

Associated Interpretations and Conclusions - Redundant building connection improvements to the campus network continue at a substantially slower pace than originally planned due to limitations in project funding.

Related Action Plans (by Established cycle, then alpha):

Network redundancy

Established in Cycle: 2011-2012

Continue networking improvements to the extent possible.

For full information, see the Details of Action Plans section of this report.

OthOtcm 2: Provide Administrative Functions
Faculty, staff and students will be able to perform administrative functions efficiently and effectively with the assistance of current technology.

**Connected Document**
[Information Technology Timetable]

**Related Measures**

**M 3: Upgrades and new implementations**
Perform upgrades and new implementations within current support offerings.
Source of Evidence: Service Quality

**Connected Document**
[Information Technology Timetable]

Target: No Target Established.

**Finding (2011-2012) - Target: Met**
Results Summary: Over 15 Banner upgrades, multiple database upgrades, several new software development projects and 7 new implementations were successfully performed within the established timeline. All of the supported applications are functioning according to customer specifications.

Associated Interpretations and conclusions: Project management guidelines and schedules were followed per customer requests for upgrades and new implementations. The project management process has enabled OIT staff to successfully complete projects on time and within budget.

**M 4: Sound business processes**
Analyze and establish sound business processes.
Source of Evidence: Client satisfaction survey (student, faculty)

**Connected Document**
[Information Technology Timetable]

Target: No Target Established.

**Finding (2011-2012) - Target: Met**
Results Summary: EDAS (Enterprise Development and Application Support) teams have been restructured to ensure efficient management of work and project requests. A three-level structure providing primary, secondary and backup support is in place for each application. Ongoing cross training ensures depth of knowledge on supported applications. All EDAS projects are managed by the OIT Project Management Office.

Associated Interpretations and conclusions: All applications are supported by the three-level structure ensuring constant support and services.

**M 5: Technical skillset**
Develop technical skillset to remain technologically current
Source of Evidence: Existing data

**Connected Document**
[Information Technology Timetable]

Target: No target established.

**Finding (2011-2012) - Target: Met**
Results Summary: Staff development budget was allocated for training, certification and conferences. Nine staff received specialized certifications, 32 attended offsite or onsite training and 24 attended various conferences. On-line training, webinars, self-directed tutorials and Human Resources development classes were utilized when possible to help with budget constraints. Over 60 IT Pro and 45 Business Skillport licenses were acquired and over 450 courses have been completed. OIT has created an internal Cisco Academy to train and certify OIT technical staff.

Interpretations and Conclusions - Training and certification is necessary to remain technologically current. Skillport has proven to be a valuable resource and will continued to be utilized.

**OthOtcm 3: Prompt and effective IT support**
The University community will receive prompt and effective support on desktop, network and telephone services.

**Connected Document**
[Information Technology Timetable]

**Related Measures**

**M 6: Analysis service reports**
Analyze work order and incident reports to ensure accuracy and timely resolution or installation.
Source of Evidence: Document Analysis

**Connected Document**
[Information Technology Timetable]

Target: No Target Established.

**Finding (2011-2012) - Target: Partially Met**
Results Summary: The IT Service Desk created over 7000 service tickets. Average ticket resolution time was 1.3 days. The desktop and infrastructure team handled over 5000 tickets with an average resolution time of 4.0 days. The telecom staff resolved over 1700 issues with an average of 1.8 days to resolved while 1800 work order requests had an average completion time of 8.5 days. Customers are receiving courtesy calls...
to verify work completed and satisfaction.

Associated Interpretations and Conclusions: Requests for services have increased over the years resulting in delays in resolution time. The start of each semester have created additional resource constraints. The high volume of construction projects have drained the infrastructure team and caused delays in operational network and telecom work completion.

**Related Action Plans (by Established cycle, then alpha):**

**Service Delays**

*Established in Cycle: 2011-2012*

The infrastructure team struggled to keep up with the high demand of construction projects which also caused operational work de...

For full information, see the Details of Action Plans section of this report.

**M 7: Analysis of Call Center reports**

Analyze IT Service Desk Call Center reports to ensure efficient telephone coverage.

**Source of Evidence:** Document Analysis

**Connected Document**

[Information Technology Timetable](#)

**Target:**

No Target Established

**Finding (2011-2012) - Target: Met**

Results Summary: Monthly reports from the IT Service Desk call center and from Perceptis after-hour support were analyzed. The ITSD call center reported 25,000 calls over a 12 month period with a 3.5% abandoned rate. The higher abandoned rates were more evident at the beginning of each semester. Perceptis reported 2400 calls over a 12 month period with a 27% callback rates. The callback rates were higher during the beginning of each semester.

Associated Interpretations and Conclusions: The beginning of each semester creates additional resource contraints. Effort has been made to provide for additional planning and training to better prepare staff for the peak times.

**M 8: Analysis of territory assignments**

Review territory assignments and ticket volume to ensure reasonable resolution time.

**Source of Evidence:** Activity volume

**Connected Document**

[Information Technology Timetable](#)

**Target:**

No target established

**Finding (2011-2012) - Target: Met**

Results Summary: Monthly reports by building were analyzed quarterly to determine number of tickets and time spent for desktop support. Adjustments were made as needed.

Associated Interpretations and conclusions: Due to the reduction in viruses and malware, staff assigned to specific buildings were more able to handle the ticket load. Only minor changes were needed to accommodate new buildings.

**OthOtcm 4: Provide a comprehensive IT security program**

The University community will have a comprehensive IT security program that ensures compliance with federal, state, and industry regulations and best practices for protecting critical IT resources.

**Connected Document**

[Information Technology Timetable](#)

**Related Measures**

**M 9: Defense-in-depth model**

Review, evaluate and enhance the defense-in-depth model for the protection of critical IT resources.

**Source of Evidence:** Evaluations

**Connected Document**

[Information Technology Timetable](#)

**Target:**

No Target Established

**Finding (2011-2012) - Target: Partially Met**

Results Summary: OIT’s ability to detect and block malicious internet traffic through our intrusion detection/prevention system, antivirus/anti malware tools and our firewall technology has been enhanced. Additional intrusion detection/prevention tools were purchased to add to our alternate internet firewall and ingress/egress point to maintain our defense during a primary internet outage where we have to switch to our backup. Significant enhancements have been made to our antivirus/anti malware/anti spyware deployment. Statistics show a noticeable reduction in the number of infected machines.

Associated Interpretations and Conclusions: OIT’s defense in depth model is well underway and working as planned. Results are reviewed and additions will continue to be planned and made as needed to existing environments.
Information and Event Manage...

For full information, see the Details of Action Plans section of this report.

**M 10: Compliance with regulations**
Review, evaluate and enhance compliance with industry and government regulations.

Source of Evidence: Government standards

**Connected Document**
Information Technology Timetable

**Target:**
No Target Established

**Finding (2011-2012) - Target: Met**
Results Summary: The HIPAA Compliance committee and the PCI Compliance committee meet a minimum of once per month to manage the regulatory progress for each. HIPAA recently introduced requirements for breach notification on certain incidents. The HIPAA Compliance Committee has made adjustments to prepare for any such notifications.

Associated Interpretations and conclusions: Continue committee work regularly to ensure that regulatory compliance is understood and implemented properly.

**M 11: Blocking attacks**
Block known unauthorized and malicious attacks.

Source of Evidence: Activity volume

**Connected Document**
Information Technology Timetable

**Target:**
No Target Established

**Finding (2011-2012) - Target: Met**
Results Summary: Malicious threats blocked include:
- Antivirus threats blocked weekly (51,601 – 134,923) on approximately 7300 devices
- Malicious/SPAM email blocked weekly (12,239,469-41,215,181) approximately
- 1,000,000 clean emails delivered weekly
- Internet Intrusions blocked weekly (logged 2,284,734-27,348,349)
- Firewall packets blocked weekly (4,000,000-15,000,000)

Associated Interpretations and conclusions: Unauthorized and malicious attacks are being blocked. Need to continue researching threats and techniques and to make improvements to properly detect and defend against malicious unauthorized traffic.

**M 12: Training and policy required by regulatory agencies**
Review and update training and policy required by regulatory agencies.

Source of Evidence: Professional standards

**Connected Document**
Information Technology Timetable

**Target:**
No Target Established

**Finding (2011-2012) - Target: Met**
Results Summary: Security Awareness training was updated for new school year along with additional materials. HIPAA training has been reviewed and updated. PCI policy, awareness and communications are reviewed and updated annually. Other security communications are delivered related to identifying email attacks and available security services.

Associated Interpretations and conclusions: Effort needs to continue on the review and update of policies and training annually that will maintain a proper awareness of UA's policy, the threats and risk to our environment.

**OthOtcm 5: Implement a Disaster Recovery foundation**
By the end of 2011, the analysis, planning, and deployment of foundation infrastructure at a remote, hardened, Disaster Recovery co-location facility will be in place. Analysis, planning, and the establishment of processes to sustain Disaster Recovery/Business Continuity capabilities for mission and business critical systems and applications will be partially in place by the end of 2011 with expected completion in Q1 of 2012.

**Connected Document**
Information Technology Timetable

**Related Measures**

**M 13: DR foundation infrastructure**
Disaster recovery foundation infrastructure including basic network, security, and messaging services will be in place, tested, and operational by the end of 2011.

Source of Evidence: Administrative measure - other

**Connected Document**
Information Technology Timetable

**Target:**
No Target Established

**Finding (2011-2012) - Target: Met**
Results Summary: This objective has been completed. The DR foundation is in place and network, security and messaging have been tested.
Associated Interpretations and Conclusions: The disaster recovery foundation infrastructure including basic network, security and messaging services are in place. The services have been tested and verified to be operational.

**M 14: Deployment at the DR location**

Deployment of mission critical systems and application instances at the DR location will be underway by the end of 2011. Disaster Recovery / Business Continuity processes and procedures will be complete in draft form by the end of 2011.

Source of Evidence: Administrative measure - other

**Connected Document**
- Information Technology Timetable

**Target:**
- No Target Established

**Finding (2011-2012) - Target: Partially Met**

Results Summary: Application deployments are in progress but processes and procedure drafts have not yet been completed.

**Related Interpretations and Conclusions:** Work associated with deploying applications is underway.

**Related Action Plans (by Established cycle, then alpha):**

- **Application deployment at DR location**
  - Established in Cycle: 2011-2012
  - Complete the development of processes and procedures and the deployment of applications. Begin disaster recovery readiness testing...

  For full information, see the *Details of Action Plans* section of this report.

**OthOtcn 6: High-Performance Computing platform**

Provide a reliable general purpose High-Performance Computing platform, and responsive system hosting services, and other related services in support of academic and research computational needs.

**Related Measures**

- **M 15: Development and support for HPC cluster**
  - Provide development and support for HPC cluster to the Research Community

  **Source of Evidence:** Service Quality

  **Connected Document**
  - Information Technology Timetable

  **Target:**
  - No Target Established

  **Finding (2011-2012) - Target: Met**

  Results Summary: A team has been established to support the High Performance Computer's ongoing support and operation.

  **Associated Interpretations and Conclusions:** This objective was successfully completed. OIT will continue to increase the utilization of the HPC platform and expand it as needed to meet growing demand.

- **M 16: Implementation of new HPC cluster**
  - Implement new HPC cluster for undergraduate research opportunities.

  **Source of Evidence:** Service Quality

  **Connected Document**
  - Information Technology Timetable

  **Target:**
  - No Target Established

  **Finding (2011-2012) - Target: Met**

  Results Summary: This objective was successfully completed. The new HPC platform for undergraduate research opportunities is in place. A team has been established to support its ongoing operation.

  **Associated Interpretations and Conclusions:** The HPC platform will allow for undergraduate students to develop research opportunities.

**Details of Action Plans for This Cycle (by Established cycle, then alpha)**

- **Application deployment at DR location**
  - Complete the development of processes and procedures and the deployment of applications. Begin disaster recovery readiness testing.

  **Established in Cycle:** 2011-2012
  **Implementation Status:** In-Progress
  **Priority:** High

  **Relationships (Measure | Outcome/Objective):**
  - **Measure:** Deployment at the DR location | **Outcome/Objective:** Implement a Disaster Recovery foundation
Implementation Description: 1. Develop processes and procedures 2. Deploy applications 3. Test and verify applications

**Responsible Person/Group:** Scott Montgomery

### Network Redundancy

- **Established in Cycle:** 2011-2012
- **Implementation Status:** Planned
- **Priority:** High

**Relationships (Measure | Outcome/Objective):**
- **Measure:** Redundant Fiber connections in buildings
- **Outcome/Objective:** Network infrastructure

**Responsible Person/Group:** Scott Montgomery

**Additional Resources:** The budget for the 6 year Network and Security Strategic Initiative was $18,000,000. The funding is $5,400,000 shy of the budgeted request as of FY12.

**Budget Amount Requested:** $5,400,000.00 (one time)

### Security Needs

- **Established in Cycle:** 2011-2012
- **Implementation Status:** Planned
- **Priority:** High

**Relationships (Measure | Outcome/Objective):**
- **Measure:** Defense-in-depth model
- **Outcome/Objective:** Provide a comprehensive IT security program

**Responsible Person/Group:** Ashley Ewing

**Budget Amount Requested:** $1,500,000.00 (one time)

### Service Delays

- **Established in Cycle:** 2011-2012
- **Implementation Status:** Planned
- **Priority:** Medium

**Relationships (Measure | Outcome/Objective):**
- **Measure:** Analysis service reports
- **Outcome/Objective:** Prompt and effective IT support

**Implementation Description:** The cabling of construction projects will need to be included in the building bid and construction documents. OIT will provide detail cabling specifications to Construction Administration to include in construction documents for outsourcing this service.

**Responsible Person/Group:** Patty Benton
### III. Timetable: What Assessment Measures will be Administered When for Each Expected Outcome

<table>
<thead>
<tr>
<th>Outcome #1 Network Infrastructure</th>
<th>Outcome #2 Administrative Functions</th>
<th>Outcome #3 Desktop, network and telephone support</th>
<th>Outcome #4 Security</th>
<th>Outcome #5 Disaster Recovery/ Business Continuity</th>
<th>Outcome #6 High Performance Computing for Academic/ Research</th>
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</thead>
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<td>1.1 Monthly reports on network availability</td>
<td>2.1 Upgrades/ Implementation s 2.2 Review Processes</td>
<td>3.1 Analyze work orders and incident reports 3.2 Analyze Call Center Reports 3.3 Review Territory assignments</td>
<td>4.3 Block malicious attacks 4.4 Update training and policy</td>
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<td>1.1 Monthly reports on network availability</td>
<td>2.1 Upgrades/ Implementation s 2.3 Training</td>
<td>3.1 Analyze work orders and incident reports 3.2 Analyze Call Center Reports</td>
<td>4.1 Evaluate defense in depth model 4.2 Evaluate compliance</td>
<td>6.2 Implement HPC cluster for undergraduate student research</td>
</tr>
<tr>
<td><strong>November</strong></td>
<td>1.1 Monthly reports on network availability</td>
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<td>3.1 Analyze work orders and incident reports</td>
<td>3.2 Analyze Call Center Reports</td>
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<td>January</td>
<td>1.1 Monthly reports on network availability</td>
<td>2.3 Training</td>
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<td>3.2 Analyze Call Center Reports</td>
<td>4.3 Block malicious attacks</td>
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<td>February</td>
<td>1.1 Monthly reports on network availability</td>
<td>2.1 Upgrades/Implementation s</td>
<td>2.3 Training</td>
<td>3.1 Analyze work orders and incident reports</td>
<td>3.2 Analyze Call</td>
</tr>
</tbody>
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  - 1.1 Monthly reports on network availability
  - 2.3 Training
  - 3.1 Analyze work orders and incident reports
  - 3.2 Analyze Call Center Reports
  - 4.3 Block malicious attacks
  - 5.2 Review Business Continuity process and procedures

- **February**:
  - 1.1 Monthly reports on network availability
  - 2.1 Upgrades/Implementation s
  - 2.3 Training
  - 3.1 Analyze work orders and incident reports
  - 3.2 Analyze Call
  - 4.3 Block malicious attacks
  - 5.2 Setup and testing of mission critical systems at DR location
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<th>5.2 Deployment of 20% mission critical systems at DR location</th>
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<tr>
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<td>2.3 Training</td>
<td>3.2 Analyze Call Center Reports</td>
<td>4.4 Update training and policy</td>
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<td>1.1 Monthly reports on network availability</td>
<td>2.2 Review processes</td>
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<td>4.3 Block malicious attacks</td>
<td>5.2 Deployment of 40% mission critical systems at DR location</td>
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<td>2.3 Training</td>
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<td>5.2 Deployment of 60% mission critical systems at DR location</td>
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<td>3.2 Analyze Call Center Reports</td>
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<th><strong>July</strong></th>
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## Timetable: What Assessment Measures Will Be Administered When for Each Expected Outcome

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<th>Expected Outcome 2</th>
<th>Expected Outcome 3</th>
<th>Expected Outcome 4</th>
<th>Expected Outcome 5</th>
<th>Expected Outcome 6</th>
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<td>Upgrade Network Infrastructure</td>
<td>Perform Administrative Functions</td>
<td>Prompt and Effective IT Support</td>
<td>Provide comprehensive IT security program</td>
<td>Continuity of Operations/Disaster Recovery</td>
<td>Research Computing Support</td>
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<td><strong>August</strong></td>
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<td><strong>Measure 1</strong></td>
<td>Analyze monthly network usage reports</td>
<td>Measure 6</td>
<td>Analyze service reports.</td>
<td>Measure 9</td>
<td>Review security architecture and update roadmap</td>
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<tr>
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<td>Review Project Plan on core network improvement and redundancy</td>
<td><strong>Measure 7</strong></td>
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<td>Plan, schedule and test the following applications at DR site: SharePoint Test SharePoint Prod Digital Signage</td>
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<td>Analyze performance of HPC</td>
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<td>Plan, schedule and test the following applications at DR site: Bnrsupport-test.ua.edu</td>
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<td>Measure 17</td>
<td>Research online tools and resources</td>
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<tr>
<td>Measure 9</td>
<td>Review security architecture and update roadmap</td>
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<tr>
<td>Measure 10</td>
<td>Review compliance requirements</td>
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<tr>
<td>Measure 11</td>
<td>Monitor reports on threats blocked</td>
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<tr>
<td>Measure 12</td>
<td>Review and update training requirements</td>
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<tr>
<td>Measure 13</td>
<td>Plan, schedule and test the following applications at DR site:</td>
<td></td>
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<tr>
<td>Measure 14</td>
<td>Action Card – Sequoia QuadPoint Banner Workflow (test)</td>
<td></td>
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<tr>
<td>Measure 15</td>
<td>Analyze performance of HPC</td>
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<tr>
<td>Measure 16</td>
<td>Analyze tickets request for more nodes and storage</td>
<td></td>
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<tr>
<td>Measure 17</td>
<td>Research online tools and resources</td>
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<tr>
<td>Measure 18</td>
<td>Review tickets request for storage and archival services</td>
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</tbody>
</table>

**December**

- **Measure 1**: Analyze monthly network usage reports
- **Measure 2**: Review Project Plan on core network improvement and redundancy
- **Measure 3**: Upgrades/implmentations performed and review new applications.
- **Measure 4**: Processes reviewed.
- **Measure 5**: Training Provided
- **Measure 6**: Analyze service reports.
- **Measure 7**: Analyze call center reports
- **Measure 8**: Analyze territory assignments

**January**

- **Measure 1**: Analyze monthly network usage reports
- **Measure 2**: Review Project Plan on core network improvement and redundancy
- **Measure 3**: Upgrades/implmentations performed and review new applications.
- **Measure 4**: Processes reviewed.
- **Measure 5**: Training Provided
- **Measure 6**: Analyze service reports.
- **Measure 7**: Analyze call center reports
- **Measure 8**: Analyze territory assignments

**February**

- **Measure 1**: Analyze monthly network usage reports
- **Measure 2**: Review Project Plan on core network improvement and redundancy
- **Measure 3**: Upgrades/implmentations performed and review new applications.
- **Measure 4**: Processes reviewed.
- **Measure 5**: Training Provided
- **Measure 6**: Analyze service reports.
- **Measure 7**: Analyze call center reports
- **Measure 8**: Analyze territory assignments
- **Measure 9**: Review security architecture and update roadmap
- **Measure 10**: Review compliance requirements
- **Measure 11**: Monitor reports on threats blocked
- **Measure 12**: Review and update training requirements
- **Measure 13**: Plan, schedule and test the following applications at DR site:
  - **Research Dashboard (Prod)**
- **Measure 14**: Analyze performance of HPC
- **Measure 15**: Analyze tickets request for more nodes and storage
- **Measure 16**: Review tickets request for storage and archival services
- **Measure 17**: Research online tools and resources
- **Measure 18**: Analyze tickets request for storage and archival services
| Month | Measure 1 | Measure 2 | Measure 3 | Measure 4 | Measure 5 | Measure 6 | Measure 7 | Measure 8 | Measure 9 | Measure 10 | Measure 11 | Measure 12 | Measure 13 | Measure 14 | Measure 15 | Measure 16 | Measure 17 | Measure 18 |
|-------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| **March** | Analyze monthly network usage reports | Review Project Plan on core network improvement and redundancy | Upgrades/ implementations performed and review new applications. | Processes reviewed. | Training Provided | Analyze service reports. | Analyze call center reports | Analyze territory assignments | Review security architecture and update roadmap | Monitor reports on threats blocked | Review compliance requirements | Review and update training requirements | Review tickets request for storage and archival services | Analyze performance of HPC | Analyze tickets request for more nodes and storage | Review tickets request for storage and archival services |
| **April** | Analyze monthly network usage reports | Review Project Plan on core network improvement and redundancy | Upgrades/ implementations performed and review new applications. | Processes reviewed. | Training Provided | Analyze service reports. | Analyze call center reports | Monitor reports on threats blocked | Review tickets request for storage and archival services | Analyze performance of HPC | Analyze tickets request for more nodes and storage | Review tickets request for storage and archival services |
| **May** | Analyze monthly network usage reports | Review Project Plan on core network improvement and redundancy | Upgrades/ implementations performed and review new applications. | Processes reviewed. | Training Provided | Analyze service reports. | Analyze call center reports | Monitor reports on threats blocked | Review tickets request for storage and archival services | Analyze performance of HPC | Analyze tickets request for more nodes and storage | Review tickets request for storage and archival services |
| **June** | Analyze monthly network usage reports | | Upgrades/ implementations performed and review new applications. | | | Analyze service reports. | | | | | | | | | |
| Measure 1 | Analyze monthly network usage reports |
| Measure 2 | Review Project Plan on core network improvement and redundancy |
| Measure 3 | Upgrades/ implementations performed and review new applications. |
| Measure 4 | Processes reviewed. |
| Measure 3 | Training Provided |
| Measure 6 | Analyze service reports. |
| Measure 7 | Analyze call center reports |
| Measure 11 | Monitor reports on threats blocked |
| Measure 12 | Review and update training requirements |
| Measure 15 | Analyze performance of HPC |
| Measure 16 | Analyze tickets request for more nodes and storage |
| Measure 18 | Review tickets request for storage and archival services |

**July**

| Measure 2 | Review Project Plan on core network improvement and redundancy |
| Measure 18 | Review tickets request for more nodes and storage |

**July**

| Measure 3 | Upgrades/ implementations performed and review new applications. |
| Measure 4 | Processes reviewed. |
| Measure 3 | Training Provided |
| Measure 6 | Analyze service reports. |
| Measure 7 | Analyze call center reports |
| Measure 11 | Monitor reports on threats blocked |
| Measure 12 | Review and update training requirements |
| Measure 15 | Analyze performance of HPC |
| Measure 16 | Analyze tickets request for more nodes and storage |
| Measure 18 | Review tickets request for storage and archival services |