I. Core Values and Purpose

As a learning centered institution, Honolulu Community College continually strives to achieve the highest levels of quality in its academic, student and administrative programs and services by performing on-going analysis, assessment and making improvements.

Our institutional core values are at the heart of everything we do. They are:

- Student-Centered Philosophy
- Respect
- Quality/Excellence

II. Mission of the College

Honolulu Community College's mission is to serve the community as an affordable, flexible, learning-centered, open-door, comprehensive community college that meets the post-secondary educational needs of individuals, businesses, the community; and, to serve the Pacific Rim as the primary technical training center in areas such as transportation, information technology, education, communications, construction, and public and personal services.

The mission of Honolulu Community College is consistent with the mission of community colleges as set forth in the Hawaii Community College Act of 1964, the Apprenticeship Act of 1967, the mission of the University of Hawaii system, and the State Vocational Education Master Plan --- all of which ultimately aim at developing the State's greatest asset---its people.

III. Information Technology Mission

HON ITS supports the college mission and Institutional Learning Outcomes by providing high availability access to college and instructional data as part of a ubiquitous learning environment. This environment will expand and adapt to the evolution of educational goals and demands of pedagogy to deliver a comprehensive learning experience in both physical and virtual classrooms. The voice, data, computing and media infrastructure will be maintained for optimum performance all campus communities.

IV. HON ITS Strategic Plan Goals and Objectives

Provide leadership, structure and processes that will insure the college IT investment sustains and extends the strategies and objectives of the college.

Develop an IT planning process that involves the whole campus and results in a continuously evolving IT strategic and tactical plans.

Insure student success in their individual student learning experience through the design and development of tools and methodologies.
V. Program Review of Information Services Units

GENERAL DESCRIPTION OF UNITS

Information Technology Service is comprised of seven Functional Area units within five departments:

A The Chief Information Officer and Director of Information Technology

The Chief Information Officer is responsible for all campus information technology including information security, data processing, storage, data communications infrastructure, along with strategy and planning for Information Technology implementation.

1. One (1.00) FTE
   a. (1.0) Chief Information Officer PBC (Casual Hire)

B Purchasing and Planning

Purchasing provides IT purchasing and planning support for all other campus units.

1. Two (2.00) FTE
   a. (1.0) Information Technology Specialist PBB (Lead)
   b. (1.0) Information Technology Specialist PBA

C Support

Support includes Service Desk, Support, and the Campus Computer Lab and provides Information technology and media support for the campus and IT purchasing and service request center.

1. Five (5.00) FTE
   a. (1.0) Electronics Technician PBB (Lead)
   b. (2.0) Information Technology Specialist PBB (1.0 Casual Hire)
   c. (1.0) Information Technology Specialist PBA
   d. (1.0) Electronics Technician PBB (Casual Hire)

D Networking

Networking provides infrastructure planning, design, implementation and support for campus data communication infrastructure both wired and wireless.

1. Three (3.00) FTE
   a. (1.0) Faculty (Position part of Tech II) (Lead)
   b. (1.0) Information Technology Specialist PBB
   c. (1.0) Information Technology Specialist PBA

E Operations
Operations is responsible for System Administration, Data Security, and Telecom systems and operation.

1. Three (3.00) FTE
   a. (1.0) Electronics Technician PBB (Lead)
   b. (1.0) Information Technology Specialist PBB
   c. (1.0) Information Technology Specialist PBA

INFORMATION TECHNOLOGY SERVICES FUNCTIONAL AREA UNITS

A. Chief Information Officer (CIO) Director Information Technology Services

Mission

The Chief Information Officer provides leadership and strategic planning and is responsible for the success of all campus Information Technology, Digital Communications and Voice operations. The CIO ensures that IT Governance, Security and Compliance, IT Planning, IT Processes and staff management are optimized for administrative and educational success.

Description and Analysis

The Chief Information Officer position is new and has been part of the official campus structure only since July 2012. The current occupant of the position has been in place since fall 2011 preparing the organization and technical changes. This has allowed the development of an aggressive IT strategic plan to move the campus into the forefront of digitally supported education specifically for CTE institutions.

As part of the reorganization of IT management for the campus the emphasis has been put on communication and planning with annual fall updates to the ITS Strategic Plan and Project Presentation. This will increasingly include education for faculty and staff on the new services being brought online.

While considerable progress has been made the lack of clerical support staff has necessitated the use of IT staff to handle both management and purchasing support for the division.

The first two years of change to the ITS operation has focused on networking, security, organizational restructuring to reflect standard IT operations in equivalent sized institutions and organizations. This has reduced network outages on campus to zero with the exclusion of external causes and allowed the re-engineering of the campus network to achieve a minimum of 1 GBPS speeds between all buildings with migration to 10 GBPS speeds planned.

End user services implementation will be the focus for the next two years starting with Microsoft Office 365 for the campus plus the launch of faculty, staff and
administration conversion to Virtual Desktop Interface. This will tremendously improve on campus and student communication with collaboration and storage management based on SharePoint. The details of this are presented in the above Strategic Planning links.

Areas of concern in the CIO operation are the lack of clerical staff to support a large campus organization. This has necessitated the use of IT band B staff to provide clerical and management support. This has caused delays in the implementation of centralized IT purchasing for the campus and will hinder the planned transition from hardware and software acquisition to service subscriptions both internal and external to the campus and the UH system.

The specific goal of the CIO is now to improve the operational structure of the Support and Service Desk department to improve response and increase campus satisfaction with IT services. This is an overall goal of the division which will be reflected in process integration between and departmental units. This will also allow improved performance of all staff in the Support department.

B. Planning & Purchasing

Mission

The Planning & Purchasing unit primary mission is to support the student learning environment and track IT inventory for asset planning purposes. The Planning & Purchasing unit provides information technology services in the following areas: project planning, purchasing and asset management as well as the development and administration of internal policies and procedures for these areas.

Description

The Planning & Purchasing unit is responsible for all information technology planning & purchasing functions at the College. The Planning & Purchasing unit:

1. purchases information technology equipment to support the student learning environment;
2. tracks information technology equipment with value exceeding $1,000 unit cost;
3. consults with college personnel in purchasing information technology equipment;

Staffing

Purchasing provides IT purchasing & planning support for all other campus units.

1. Two (2.00) FTE
   a. (1.0) Information Technology Specialist PBB (Lead)
   b. (1.0) Information Technology Specialist PBA


**Assessment of Data**

Information technology will continue to support the student learning environment. We need to insure the procurement of information technology remains timely so that no projects are delayed or services are degraded.

**Service Area Outcomes – Data Collection and Measurement**

**Service Areas** –

1. Support the student learning environment.
2. Track IT Inventory for asset planning purposes.

**Service Outcomes:**

1. Provide leadership, structure and processes that will insure the college IT investment sustains and extends the strategies and objectives of the college.
2. Develop an IT inventory system for asset tracking.

**Assessment Method:**

1. Number of delayed projects or degraded services due to procurement delays.

**Metric:**

1. 90% on-time delivery.
2. 90% of the inventory is accounted for.

**Primary Areas of Concern**

Information Technology projects need to be clearly defined and successfully managed. We need to be sure a project is feasible and the payback is worth it.

Procurement delays are often outside the control of ITS. Multiple levels of approval are needed when cost of equipment exceeds the Fiscal Officer purchasing authority. This often contributes to delays. However, all project implementations were on schedule and no degradation in services were attributed to procurement delays.

**89.6% of capital assets (value > $5,000 per unit) were accounted for in 2012.**

**97.8% of capital assets were accounted for in 2013.**

While the college tracks non-capital assets (value between $1,000 and $5,000 per unit), no inventory of these items were conducted in 2012 and 2013.
Future Direction - Plan of Action

1. ITS must ensure IT project management is applied to all projects.

2. ITS needs to clearly identify delays which are outside of its control and streamline the internal procurement process.

3. ITS will continually track capital and non-capital assets to minimize inventory losses.
C. Support

Mission Goals

The Support unit primary mission is to directly support the academic mission of providing high quality educational and related services to the students, faculty and staff of Honolulu Community College. The Support unit provides information technology services in the following areas: service desk, support, the campus computer lab and media support as well as the development and administration of internal policies and procedures for these areas.

Description

The Support unit is responsible for all information technology support functions at the College. The Support unit:

1. Processing of and responding to email, phone, and paper, GLPI ticketing system, and walk-in requests for assistance with support, maintenance, repair, installation, and planning for IT, Educational Environments, and campus events.
2. Provide staff for public lab areas.
3. Provide staff for campus media events
4. Install/construct multi-media classroom environments

Staffing

Five (5.00) FTE
a. (1.0) Electronics Technician PBB (Lead)
b. (2.0) Information Technology PBB
c. (1.0) Information Technology PBA
d. (1.0) Electronics Technician PBB

Assessment of Data--Service Area Outcomes – Data Collection and Measurement

Outcome areas:
Providing reliable operation of campus enhanced technology in the classroom.
Develop campus enhanced technology plans required by divisions, departments, programs, and students.
Provide timely response to initial request.
Management, maintenance, update, and publish service catalog.

Assessment method:
1. Meeting the instructional needs of faculty.
2. Update, review, and approve the plan.
3. GLPI tickets

Metric:
1. 90% of the time.
2. Minimum twice a year.
3. 95% are responded to within 24 hours.
4. Insure service are correct as advertised within 5 business days.
Assessment Data 2013 Survey [See Support & Training]

**Primary Areas of Concern**
1. Only 2 of the 5 full time staff are currently working with support. Other staff members are either working in different areas or on sick leave.
2. Students are being used as replacements for full time staff.
3. Due to construction and reorganization work space is spread over multiple locations making it difficult to manage inventory and communications.

**Future Direction - Plan of Action**
1. Plans to consolidate the support group into building 7, 325 after floor is renovated.
D. Networking

Hon ITS Networking provides planning, design, implementation and support for the campus converged data communication infrastructure both wired and wireless as well as the development and administration of internal policies and procedures for these areas.

Mission Goals

The mission of Hon-ITS Networking is support the educational mission of Honolulu Community College by providing a data network that is robust, highly available, capable of supporting data, video and voice while ensuring protection and privacy of data and communications. The goal of the data network is to enable and assist the HCC community including, students, faculty, staff and administration to fulfill their role within the college.

Description

The Network Infrastructure unit provides information technology services in the following areas: infrastructure planning, design, implementation, management and support for the campus data communication network.

The Networking unit is responsible for all networking administration, provisioning, operation and maintenance which include:

- Network planning, architecture and design
- Management of the campus network connection to the UH Net and the Internet
- Maintaining working relationship with internal and external network customers
- Management of the cable plant
- Network related budget preparation
- Network related asset tracking
- Network provisioning, operations and maintenance
- Network security
- Maintaining staff expertise in current and emerging technologies which impact the campus network
- Staff work assignments
- Development of policies, processes and procedures as related to campus network management
- Disaster recovery planning

Staffing

1. Three (3.00) FTE (No vacancies as of this report)
   a. (1.0) Faculty
   b. (1.0) Information Technology B
   c. (1.0) Information Technology A
Assessment of Data

Service Area Outcomes – Data Collection and Measurement
SAO – Assurance that campus data network has sufficient capacity and has been provided with sufficient controls and protection mechanisms in order that the educational and business functions of the college are not impacted and that the mission of the college can be achieved.

Service Uptime data collection by automated systems:
Device uptime – Nagios monitoring system
Bandwidth usage – Cacti graphs
Wireless uptime – Nagios monitoring system
Network maintenance and budgeting

Network Reliability
Internet reachability uptime as measured by Nagios system to neighbor UH Systems
For the year 2013 Jan1 – Oct 28 uptime listed as 99.879% with a 2.5 hr outage reported on Jan 23 from 9:33 pm until midnight which was outside normal business hours.

Entrance Router Uptime 100%
Core Router Uptime
Router 1 uptime indicates 99.998% uptime. This device was exhibiting what appeared to be memory errors and required a reboot every 6 weeks. The supervisor module was replaced which has seemed to resolve this problem as the device has now been up for 28 weeks 6 days without incident.

Router 2 uptime 100%
Router 3 uptime 99.986 Downtime related to construction moves in building 7
Router 4 uptime 100%
Router 5 uptime 100%
Router 6 uptime 100%

Network Bandwidth
On the date this report was compiled, Oct 28 2013, maximum campus incoming data traffic exceeds 100 megabits per second with peaks recorded at 112 megabits per second recorded at the campus entrance router. Traffic patterns indicate that the volume of traffic has increased by 50% since May 2013. If this rate of increase continues (which is unlikely) bandwidth will not exceed 25% of campus uplink capacity until past the year 2018. This indicates that internal bandwidth capacity between key devices needs to be addressed at this time.

Wireless uptime as indicated by Wireless LAN controller2 100%
Wireless uptime as indicated by Wireless LAN controller3 95% (100% since monitoring began Jan 16)
Individual Access Points have been placed on the monitoring schedule incrementally over the last 8 months and so up-time comparisons will not be valid until next year
Router and Switch Replacement Schedule
There are 67 primary network switching and routing devices on campus with a total installed value of $267,600. The average time before these devices need to be replaced is 4 years which works out to about $66,315 per year for an annual replacement schedule.

Primary Areas of Concern

1. Virtual infrastructure and storage network capacity to meet college needs through 2018
2. Disaster recovery plan for overall network
3. Adequate physical facilities to support on campus equipment requirements through 2020
4. Reduced risk of unauthorized disclosure of sensitive or highly regulated data
5. Changing landscape of technology innovation in higher education along with emerging usage patterns.
6. Improve project tracking and completion times

Future Direction – Plan of Action

Addressing Item 1.
Purchases have been initiated to procure equipment that will increase storage net capacity with additional disks for storage arrays located in Data Center 2-503A and Alternate Location 7-2.5
Planning is underway to procure and deploy dedicated pair of switches for Alternate 7-2.5 Planning is underway to procure 24 terabytes of storage and 24 terabytes of backup capacity for Data Center 6-116. Procure 10gig switch for storage network access in Data Center 6-116.

Addressing Item 2
Need to develop formal disaster recovery plan for key network components
Deploy Catalyst 6509 as primary core router
Procure redundant supervisor 7E for entrance router
Procure and deploy sufficient standby equipment

Addressing Item 3
A project was initiated at the CC System level to replace and upgrade the Air Conditioning System for Data Center Room 6-116 and Data Center Room 2-503A

Addressing Item 4
A project has been initiated to build and deploy a test environment for transparent firewall filter policies. A plan is being developed to deploy transparent firewall filter policies on campus entrance links.

Addressing Item 5
Ensure that IT staff, as well as other college stakeholders, are aware of the impact of key emerging technologies on education; through formal presentations and discussions of
papers such as the Educause NMC Horizon Report. Implement usage pattern analysis on wireless controllers and central firewalls. Implement *Aruba Airwave* in order to gather data on device and usage patterns for planning purposes. Increase the use of Netflow Analyzer and the Fortigate firewall to provide data for planning purposes. Implement policy for formal use of IT management frameworks and validated reference designs.

**Addressing Item 6**
Most projects in the IT area are managed by one person and reviewed by the team at least on a weekly basis. What is needed is to formally define goals and objective of individual endeavors and keep a weekly log of progress.
E. Operations: Telecom & Administrative, Educational Solutions

Mission Goals

The Operations unit provides information technology services in the following areas: Administrative and Educational Solutions, System Administration, Data Security, and Telecom systems and operation as well as the development and administration of internal policies and procedures for these areas.

Description

The Operations unit is responsible for all information technology operational functions at the College. The Operations unit:

- Develop and support information management services for administration and education under the Administrative and Educational Solutions functional area.
- Provide reliable operation and functionality of the campus’ VoIP telephone system to include voice messaging services
- Upgrade and improve the campus’ network infrastructure
- Provide reliable operation of the security surveillance system

Staffing

Operations is responsible for

1. Three (3.00) FTE
   a. (1.0) Electronics Technician PBB (Lead)
   b. (1.0) Information Technology Specialist PBB
   c. (1.0) Information Technology Specialist PBA

Assessment of Data 2013 Survey [Note Technology & Collaboration Services]
Service Area Outcomes – Data Collection and Measurement

Pending Metric Implementation

Primary Areas of Concern
- An upgrade of our PBX to allow certain key individuals to broadcast a message on all of the stations located throughout campus
- Linking all of our satellite sites to the main campus so that telephone and data services can be provided to them via fiber optic cable
- An upgrade of both hardware and software of our security surveillance system
- An upgrade of all of our file servers
- Budget for more network infrastructure upgrades/renovation.
- Making Office 365 services available to campus
- Converting admin1 to a virtual server then upgrading the OS from Windows 2000 to Windows 2003 R2
- Setting up the Active Directory domain for the campus

Future Direction – Plan of Action
- Continue to slowly upgrade all necessary equipment and software to improve services provides
- **Working on making Office 365 services available to campus.** Currently, we are able to generate HCC users based on UHIMS data. This data is provided via the UH Messaging service. Office 365 service is provided and hosted by Microsoft. In order to authenticate with the Office 365 services, we had to federate the authentication from Microsoft’s Azure service to our federation services. This is working.
- **Converting admin1 to a virtual server then upgrading the OS from Windows 2000 to Windows 2003 R2.** We are scheduled to convert the server from a physical machine to a virtual machine. Once we convert, we will then upgrade to Windows 2003 R2 operating system. This has been difficult with the amount of users relying on this server for day to day operations especially users in Building 6. This conversion should have been done when Windows 2000 operating system reached its end of life. There was a lack of resources to upgrade the OS so it was never done. Now that we have installed the vSphere environment with adequate storage and performance, we can now not only upgrade the OS but virtualize the server to extend the service of the server until we set up a new and better reliable storage service.
- **Setting up the Active Directory domain for the campus.**
  - User management
  - Workstation management
  - Group Policy
  - User Policy
  - We wanted to allow our campus resources to be accessed by HCC people via their UH account credentials. We were working with UH ITS on allowing users to authenticate via UH domain controllers but allow HCC to
authorize those authenticated users to access our resources. We spent almost two years trying to work this out but finally realized that it would not be possible. It would take a major change on UH’s side to allow us the system administrative access to their domain controllers.

- We were able to apply group policies to our resources but could not apply our user policies since the users are not under our control. After realizing this, we abandoned the idea of using UH as the authentication services role and moved to create our own users based on UH accounts.

- Since UH ITS has the UH Messaging Service, we decided to use that so our HCC domain accounts would be up to date as much as possible. We have all active HCC users (staff, faulty, and students) as of Fall 2013 semester. We are currently working on maintaining the status of all HCC user accounts
VI. Summary

The first year of fully combined HON ITS operation has revealed the difficulty of overcoming years of IT neglect on campus. This occurred despite a solid staff and committed people. The lack of resources could not be made up for with a fragmented workforce spread across different divisions and departments without strong centralized management and leadership.

During the first foundations have been put in place to build to a strategic plan that will produce and leading edge campus digital system producing a new pervasive learning environment. This will be the product of the new cloud campus. The implementation of new, highly reliable, fast, and scalable network architecture has reduced problems will enabling rapid change and new Internet based cloud services. The transition from the current pilot model for Microsoft Office 365 to production implementation during the spring semester will begin to bring new services to all campus users with new collaboration capabilities to link faculty and students. The consolidation of IT purchasing has begun to limit the waste of duplicate systems and inappropriate hardware that has long plagued this and many other campuses. Centralized printer management also promise to limit waste of over purchased toner cartridges.

The role out of expanded Virtual Desktops to computer lab and computer classrooms tied to the new Active Directory campus domain will bring convenience, centralized policy for security and ease of access for instructors in any campus classroom. The introduction of Virtual Desktops to faculty and administrators will reduce support costs while improving secure access to sensitive data. Combined with the implementation of Microsoft SharePoint data storage will tremendously improve information access and data storage organization for all campus communities.

The problems with the previous Support and Service Desk organizational model that was inherited from the previous organization are being addressed within the next thirty days by relocating Support and Service Desk to a refurbished facility while separating those operations from the main computer lab. Enhanced training and expanded escalation of trouble tickers to full time IT staff will also begin to correct the obvious perceived shortcomings identified in our current campus surveys against stated Service Area Outcomes.

Continued IT Plan implementation over the next year with hoped for placement of missing IT staff and much needed clerical support will create a clear improvement by the end of the spring semester.