

Information Services Annual Report 2019/20

Theme: Student Success and Economic Development

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Summary

Technology is a vital component in the support of teaching, learning, and business activities. This year, as in recent past years, Information Services has seen a growing demand for both new technologies and operational support needs for existing technologies from the campus community - this is reflected in the volume of requests and complete project lists. The list of accomplishments below is not exhaustive but highlights significant projects and trends of this past year.

Unique to our operations this year was the rapid shift to remote learning due to COVID 19. The technical staff assisted moving faculty and staff to a work from home, and students transitioning into a fully online environment, in a rapid manner.

Helpdesk

The Help Desk continues to generate support request tickets via telephone, e-mails, and walk-in traffic. During the period of July 1, 2019 – June 30, 2020 there were over 5,000 tickets created in PerfectTracker with 90% of these generated by the Help Desk technicians and student support staff.

The Help Desk continues to provide support and collaborate with various campus offices to provide efficient resolutions to support requests. According to our PerfectTracker ticketing system, the Help Desk closed 60% of all resolved tickets from July 1st, 2019 – June 30th, 2020.

The Help Desk effectively responded to the campus mission by providing equipment necessary for Faculty and Staff to work remotely, as well as providing equipment to those area students in need of technology to complete their academic success. As indicated in the previous year comparison, the Help Desk generated an increase of 13.4% in request tickets for the period of March 2020 – June 2020. This increase is mainly attributed to our efforts in our COVID-19 response. Tickets have remained relatively steady as the vast majority of assistance has been accomplished remotely. The addition of BeyondTrust software has been greatly effective in allowing us to assist students and campus members located remotely.

Multimedia Support

The Help Desk provided multimedia training or support for approximately 80 events occurring on the campus prior to our pandemic response. The mobile streaming carts were an instrumental tool that allowed interviewing candidates for the Provost to be streamed and available for the campus community. With support from the Help Desk Technicians and collaboration with the appropriate

party(s), the CARC presentation system again played part in appealing prospective students during Fall open houses.

Flex Classroom and Mobile Cart Support

The Help Desk and Learning Spaces Technician supported an increasing number of faculty members within the campus Flex classrooms and experienced no major disruptions to student experience. This fiscal year saw an increase of 21 hybrid-style courses (35 total) when compared to last fiscal year (14 total).

Technology Enhanced Classrooms and Student Labs

The Help Desk continues to provide reliable and rapid support for any technology issue arising in our enhanced classrooms and student labs. Our thorough testing of each academic space during semester breaks pays dividends to the college as very little issues arise to disrupt education. Only 6% of Help Desk closed tickets related to classroom technology and/or student access PCs.

Faculty/Staff Computers

In efforts to keep our computers current, the Help Desk deployed or replaced- just under 100 units to new or existing users throughout campus.

Student Lifecycle - 2020

- Acquired Dell quote to extend warranty on the 52 NS117-119 workstations for one additional year – modifying end of life to 2023
- Acquired Dell quote to extend warranty on the 26 NN119 workstations for one additional year – modifying end of life to 2021
- Work in progress to achieve BYOD to standard classroom instructor stations.

Multimedia Upgrades/Improvements/Other

- Cook Hall 133 – converged modality gear installed – September 2019
- Nevaldine South 138 Mechatronics lab Crestron technology installation – September 2019
- New Crestron gear installed in NS119 due to Extron gear failure – January 2020
- Cook Hall 111 –TComm instruction – Apple TVs are on our network – project completed – fall 2019
- Five additional streaming carts ordered, installed and are working successfully as planned – (3-CSOET, 1-SBLA, 1-SHCJ) August 2019 & January 2020
- Successful installation of Crestron-based technology in NN128 – August 2019
- Successful installation of Crestron-based technology in NN124 – January 2020
- Cook Hall 100 digital signage installation – September 2019
- Successful completion of Kingston Theater audio upgrade & subsequent projection screen motor– July 2019
- Wicks Hall 211a – SMART TV installation for conference room – PTA/Sports Management faculty space – July 2019
- Wicks Hall 213 – SMART TV installation for student presentations – July 2019
- Successful upgrade of projector & Crestron technology in WH214E – March 2020
- Successful installation of SMART TV & associated cable cubby technology in MAC 610
- Successful upgrade of DMPS & associated technology in Payson Hall 204 as a result of what we believe to be campus power outage failure – fall 2019

- Successful installation of SMART TV/Crestron sound/video technology in MAC 228 for Tonka – January 2020
- Successful installation of TV & associated ports for connectivity in CH117 for Kambiz research lab

Projects in Progress

- Dana Hall – tech equipment planning, design & configuration conversations ongoing
- Wicks Hall Nursing Lab tech upgrades – on hold
- NS 127A&B tech upgrades – on hold
- Digital signage project for French Hall vestibule.

Additional Accomplishments

- Participated in multiple vendor site surveys, phone conversations and email exchanges with the vendor during the planning stages for campus upgrades including quote development for said projects.
- Worked closely with Kivuto to ensure our work-at-home offerings & license files for students/faculty/staff remain current on our web store.
- Created & distributed annual academic software survey to the campus and generated a composite of the results for the team's use during lab image creation.
- Accomplished software license renewal cycle for campus, including acquisition of software downloads & license files for our applications as needed/required.
- Acquired ITEC-hosted files & licenses for our instances of SPSS
- Acquired ITEC-hosted files & licenses for physical plant only use of Autodesk
- Acquired ITEC-hosted files & licenses for SPSS, both academic and administrative
- Updated for currency - SOPs for specialized tech installs for use by Help Desk.
- Maintain campus standard Dell hardware quotes for IS website as periodically required
- Continue to arrange for site visits from PCC for equipment maintenance and repairs in our technology-enhanced spaces and assure work progresses.
- Aided in selection of MFUs and printers for various campus areas, including student access spaces

Systems and Security

The biggest news item was the COVID response in the latter half of the spring semester. In response, staff organized and led the deployment of a Microsoft Remote Desktop Services (RDS) farm. The RDS farm provided access to a selection of lab applications, such as Matlab, AutoCAD, Maple and National Instruments among others. In addition, Apache Guacamole remote desktop gateway was deployed. Through Guacamole, Remote Desktop access was made available for the physical computers in NN119, NN120, NN128, NS117 and NS119. The RDS farm and Guacamole were not widely advertised but they were offered up to some pilot groups.

In total, over 400 man hours were spent by the team in the deployment, configuration and testing of fourteen new virtual servers. To support the environment, we had to appropriate the two host servers

that were purchased for the Cybersecurity program as we needed the compute and storage resources they offered.

Since the end of the semester, staff have been working on enabling multi-factor authentication (MFA) for both the RDS farm and Guacamole. As we move forward, MFA will be required for access, given the security risks of remote access to on-campus resources.

To address the students inability to access their files on the student file server remotely, staff worked on a project to migrate their data to their individual OneDrives in Office 365. On our file server, we have a hard quota for students of 500MB, but in Office 365 they are provided 1TB of storage in OneDrive. Over the course of a week, just over 300GB of data was migrated to their individual OneDrives. A final determination of what to do with the on-premise file server will need to be made. We have been working on methods to auto-configure the OneDrive client upon login and may provide us a means to retire local.

Additional work was done for the licensing and authentication/authorization for the Adobe products. Also, we assisted the Help Desk with prepping some of the laptops that were sent out to faculty and staff. Configuration and testing of group policies for Bitlocker was also completed and used to encrypt the hard drives of some of the deployed laptops as a pilot.

Client systems and labs

During this past year, the computer lab software and imaging responsibilities have been transferred the new Client System Administrator. During the transition period several improvements were made, including additional efficiency in management and delivery of applications, as well as improved insights to client systems security. In addition, all of the software license servers have been migrated to the most current operating system.

Apple/Mac devices

There have been several improvements involving the management of the Mac OSX laptops. We now have an almost completely automated deployment process using a variety of free and open-source tools (Mac Deploy Stick) that will save time, resources and reduce deployment errors. Through the use of Munki, another open-source tool, there have been additional improvements in the centralized management of these devices that were not available previously, including improvements for printing, software deployment, and additional metric gathering capabilities.

Microsoft Windows Clients

Improvements in reporting and software utilization have been made with the implementation of POWERBI server. The completion of the transition from Sophos endpoint protection has been made migrating the remaining 390 staff computers to Windows Defender Advanced Threat Protection. Working with the Help Desk, the migration from Windows 7 to Windows 10 is nearly complete with only 41 Windows 7 machines showing up in System Center inventory reporting. As mentioned earlier with

the migration of the student file shares to OneDrive, testing for the OneDrive sync client implementation is currently in progress.

Cybersecurity/Linux

During the upgrade of the Cybersecurity lab another free and open-source tool, FOG, was implemented to aid in the deployment of the operating system for the unmanaged and standalone Linux boxes required by the CISIT and Cybersecurity curriculums. The FOG server and automation allows for the deployment of operating systems over the network and the deployment to occur for both labs typically within 2 hours. It should be noted that the Systems team assisted in the setups of both NN128 (August 2019) and NN124 (January 2020) upon completion of their construction.

eSports

In the eSports arena we were able to move from proof of concept to production with the open-source LanCache server. This was deployed to a server that hosts update content close to the gaming computers. This reduces the load on the network which in the past has caused bandwidth utilization issues on the network, impacting campus services. It also improves the time for installing updates on the gaming computers. Additionally, we have built images that are pre-configured to optimize the game downloads.

Server infrastructure / “Cloud”

The Dell VxRail servers/switches, which will be replacing our current VMware virtual infrastructure, arrived on campus on 2/13/2020. Due to the COVID shutdown and additional delays, the servers and switches were not installed in our server rack by Dell until 6/2/2020. The setup and configuration of the VxRail, performed remotely, was essentially completed during a remote session on 6/12/2020. There is some additional configuration needed by the Dell consultant and then migration from the old environment will need to commence. The systems team will need additional training to familiarize themselves with the new environment. We anticipate that three of our old host servers will be able to be surplus out, while we intend on using some of the old hosts that are newer models for testing and in secondary roles.

System Center Configuration Manager (SCCM) has grown in importance, where several automated and self-service installations have been added. SCCM is also responsible for managing the Windows Defender clients.

System Center Operations Manager (SCOM) has been deployed as a pilot that will soon move to production. SCOM will provide improvements with monitoring of our servers and alerting to issues.

The retirement of end-of-life server operating systems is ongoing. We currently have nine Windows Server 2008 R2 servers, two Windows Server 2003 servers and one Windows XP virtual machine serving the Help Desk's ticketing software. CHARON, the server that Banner reports are sent to, was finally migrated from 2003 at the beginning of June. The two remaining 2003 servers are telecom related; one is the CallPilot voicemail server and the other is the license server for the phone softclients. We should

be able to migrate the license server, with assistance from RONCO, but nothing can be done for CallPilot short of deployment of a new voicemail system.

Among the remaining 2008 R2 servers are our three file servers for staff, students and departments. As part of the migration to VxRail, we will be exploring an option that we used with the CHARON migration that may allow us to migrate the file shares to new file servers. The other 2008 R2 servers will also have projects setup for migration to new servers.

DHCP was migrated to two new 2019 servers, replacing the 2008 R2 servers.

ADFS was upgraded from 2.0 on 2008 R2 to 3.0 on 2012 R2 in June 2019. This allowed us to shut down and remove the four 2008 R2 virtual servers for ADFS 2.0. The move to 3.0 also improves our upgradability of ADFS as when we are ready to move to 2016 or 2019 servers for ADFS, they can be added to the current ADFS farm with little to no disruption.

Also in June 2019, the Kivuto WebStore was migrated from LDAP authentication to ADFS.

As part of the Library's ALMA deployment last summer, a print solution was needed since they could not print directly from the Alma web application. SUNY's preferred solution was Namtuk Email Manager which was deployed onto a new virtual server. After some rounds of testing with Library staff, it was put into production. However, not long afterwards, an update for Alma resolved their printing issue and the virtual server was destroyed.

Additional surveillance cameras were added to our Genetec system. Two each in Nevaldine North 124 and 128. We currently have 145 cameras in Genetec.

Systems team closed out 548 Help Desk tickets between 6/12/2019 to 6/13/2020.

Information Security

Improvements have been made to centralized logging with Window event forwarding. Security logs are being shipped to a centralized location and are then shipped to Security Onion for alerts and correlation of events. The event logs have also been improved using sysmon which gives more accurate and detailed logging. The system processes approximately 17 million log events per day for servers and select clients.

NTOP Enterprise has been deployed. This system serves as bandwidth monitor and is used to track traffic flows and network anomalies. This will be integrated into Security Onion in the next release for additional network insight.

The OpenCanary honeypot network alerting system has also been implemented to alert on internal network scanning and possible data exfiltration.

Azure Advanced Threat Protection sensors have been implanted on the domain controllers with network taps to correlate data in Azure for reporting and alerting of suspicious activities with logins. Using this

and the additional applications in Azure we can detect compromised accounts and perform forensics and remediate when necessary.

A prepended warning has been added to all incoming external email to alert staff and students that the email originated from outside the campus.

SUNY Projects

- SUNY Online
 - Assisted throughout summer 2019 with the SUNY Online rollout, specifically in regard to authentication.
 - SUNY Managed Print Services
 - Deployed the Pharos agents to staff and lab computers in fall 2019.
 - SUNY Strategic Identity Initiative
 - For the SII, a new Azure AD Connect server was deployed, replacing our old 2008 R2 server. In the new AAD Connect configuration, we are now syncing campus computers to Azure AD. While we have not proofed it out as of yet, this hybrid Azure AD should allow us to use Intune to help manage campus computers that are remote. In addition, we are now syncing password hashes to Azure AD. While we remain federated with Microsoft, the syncing of passwords would allow us to defederate if needed.
 - The Active Directory schema was extended with the various SUNY-required attributes (eduPerson, campusPerson, sunyPerson) since using our existing AD LDS instance that has the attribute would have required a customized AAD Connect configuration.
 - Forsyte's Cloud Connect has been configured and we are syncing staff to the SUNY UWide O365 tenant. The final task is to sync UWide back to us, which will display all UWide contacts in our GAL.
 - Windows Virtual Desktop
 - For WVD, a domain controller was deployed in Azure and is replicating with our on-prem domain controllers over a VPN tunnel.
 - Two "gold image" VMs have been built in Azure and a file server has been deployed for user profiles.
 - While this project has been giving us experience in Azure, and having a DC in Azure offers some opportunities for disaster recovery, the ongoing costs associated with running VMs in Azure will likely make WVD unaffordable.
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Telecommunications

Operations

- Call pilot voice mail system crashed- replaced a bad memory stick which allowed the system to boot and come back online
- Facilitated all moves, adds and changes requests in a timely fashion as they were requested
- Maintain Telstrat Engage call recording system
- Maintained Verasmart call accounting data base, providing accurate billing reports to our Student Accounts Office for non NYS customer recharges

Ongoing Projects

- Blue Light phone upgrades- systematically moving Mod 234 flush mount phone to the latest 397-001 version
- Replacement of old RG11 coaxial infrastructure that is vulnerable to signal ingress or egress- 2 new routes established
- Installation of new coaxial infrastructure to locations in need on campus- 3 projects completed
- Removal and replacement of RG59 coaxial service drops
- Rehabbing of existing copper wiring panels
- Transferring users with analog connections to our digital phone platform- 80% complete
- Audit of elevator locations- Infrastructure paths, floorplans, phone types- 60% complete
- Infrastructure cabling data base administration.

2018-19 Accomplishments

- Migrated all faculty to the Nortel M3903 digital phones to homogenize the technology to make office moves easier to facilitate and more comfortable for the users
- Added the recording “pause button” functionality to the One Hop Shop phones
- Rerouted 607 area code calls to Verizon trunking as this area code joined 315 as in lata. We realize better calling rates via Verizon
- Installed auto attendant functionality for Davis Health Center
- Provided enhanced custom call accounting reports to various campus departments such as the One Hop Shop and Admissions
- Made significant strides in our copper infrastructure rehab project
- Verizon macro cell finally established- Assisted Verizon Wireless agents in this process- VW signal significantly enhanced on campus
- Migrated all faculty to the Nortel M3903 digital phones to homogenize the technology to make office moves easier to facilitate and more comfortable for the users
- Completed conversion of analog to digital licenses as needed to support system expansion-

Covid- 19

- Responded quickly to the needs of the campus when users had to leave and work from home
- Spent some 250+ man hours supporting users in the transition to “work from home” - that support continues daily
- Added 100 IP / IP User licenses to increase our ability to deploy the Avaya 2050pc soft phones to staff
- Deployed 65+ IP phones so that staff could operate from home the same as if they were at their desks on campus
- When the covid crisis is over we have 100+ extra licenses in case the campus wishes to maintain or expand the “work from home” environment
- 2 additional 32 channel “media cards” were installed to accommodate tdm>IP and IP>tdm call traffic
- We are now capable of up to 96 simultaneous calls of these two types
- Installed 2 additional Verizon PRIs to expand trunking count from 46 to 92
 - This allowed designated faculty, staff and athletics personnel to forward their business phone off campus to home or cellular phone numbers. As this type of forwarding consumes 2 Verizon trunks; this trunk expansion was necessary

Enterprise Applications

Accomplishment Statistics

- 2856 Help Desk/Ad hoc tasks completed
- 24 projects completed
- 27 ongoing projects
- 22 pending projects
- 1 potential projects

The team’s workload falls under 3 basic categories, day-to-day operations, project management and project development.

Day-to-day tasks include the following:

- Generating ad hoc reports and data extracts
- Troubleshooting and diagnosing reported problems
- Research
- Security and access privileges administration of Banner, BDM and Workflow systems
- Support for non-Banner systems such as Blackboard, Academic Works, TutorTrac, BDM and Degree Works
- Administrative tasks such as meetings and status reporting
- User Training
- Liaison with remote database administrators of SICAS and ITEC for technical upgrades and maintenance

- Setup/support semester processes such as orientation, application, registration, billing, health requirements compliance, institutional research reporting, grade processing, grant proposals
- Coordinate department processes through the use of operations calendars and through regular communications such as via Banner Advisory meetings

Breakdown of Day-to-day/Ad Hoc Tasks Completed

Banner	1263
Administrative	1127
Other Systems **	238
Account Setup	228
TOTAL	2856

Number of Outstanding Help Desk Tickets: 200

**Other Systems covers work done in support of non-Banner systems including the following:

- Banner Document Management
- Banner Workflow
- Blackboard (Canton and SUNY Online)
- DegreeWorks
- OnGuard (Door Access Control Management System)
- TutorTrac
- EMS (Event Management System)
- MedicaT (Medical Records System)
- Academic Works (Scholarship Management System)
- Credentials (Electronic Transcripts)
- Maxient
- HR Acuity
- Rave Emergency Notification System
- Cbord Odyssey
- Slate (Canton and SUNY Online)
- Starfish (RooSuccess)

Projects/System Enhancements Completed

- Day-to-Day/Help Desk Requests (refer to stats in prior page)
- Starfish Implementation
- SUNY Online Implementation
- Banner Feed to Alma
- Workflow – Course Change Day 4 Plus
- ASC 2020
- SUNY Online Campus Code Indicator
- Adjustments to Spring 2020 End of Semester Processing (COVID-19)
- SIRIS Course Attributes (COVID-19)
- Email students of a given Major via UCanWeb

- Global Proxy Access
- Alumni Weekend 2019 Registration
- GSS Conference Registration 2019
- Server Migration to Tomcat
- Implementation of Banner Ethos
- Migration of Banner Advancement to Raiser's Edge
- Academic Works Banner Integration
- Academic Works – reports/updates running simultaneously
- Handshake Implementation
- Banner 9 Licensing
- IntelliJ Support
- Degree Works Quarterly Updates
- Degree Works Pass/Fail
- Continuing project to convert processing tasks to self-service so users can do it themselves. Also convert processing tasks to be more autonomous so programmer intervention will not be needed. For example, programs that self-advance to the next term. For this year, beneficiaries include SAS and Public Relations.

Ongoing Projects

- Slate Implementation
- Late Start to Fall and Winterterm (COVID-19)
- Workflow – Change of Major
- Workflow – Leave of Absence
- Workflow – Readmit
- Workflow - Academic Forgiveness
- Workflow Upgrade to v8.8
- Pass/Fail Processing (COVID-19)
- Page Builder Web Development for SSB 9
- Groovy Training
- Page Builder Training
- Page Builder Development
- SSB 9 Migration
- GitLab Implementation for SSB9
- SQR Migration
- EIT
- Photo ID Survey
- Streamlining/Automation of Backend Processes
- BDM Migration for Trio
- NPSAS 1920 data collection and reporting for Finaid
- Various Workflow requests
- Change Good Academic Standing Code from 00 to GS
- APR Reporting
- Catalog Extract XML to Terminal4 CRM
- Presence
- Automated Waitlist
- Operations Documentation

Pending Projects

- Groovy Development for SSB 9
- Forced Survey Research
- Display SUNY Online indicator in Workflow
- Display SUNY Online indicator in SSB
- Student Comments in UCanWeb
- Workflow – Preferred Name
- Workflow – Election of a Minor
- Auto-alert when Basis job goes down
- Standards of Academic Progress (SAP) automation
- Rewrite Deposit Warehouse programs to SQL
- DegreeVerify
- Enrollment Verification
- Account Creation Rewrite
- SICAS Auto-Refunding implementation
- SUNY Collaborative Reporting Implementation
- CIC Feed Rewrite
- Trio Grant Renewal
- Student Course Comment Survey
- Blackboard Jobstream Streamlining
- BDMS rebuild on CONV
- PTND Enhancements
- File Encryption/Decryption

Networking

Completed Projects

- Implemented BGP with NYSERNet
- Cutover to new Palo Alto 3250 Firewall from out-of-date ASA 5520
- Temporary cutover of VPN from ASA 5520 to Palo alto 3050 with eventual cutover to PA3250
- Currently working on implementing New Cogent secondary ISP connection (BGP configuration change)
- Spectrum physical like upgrade to 10 gig (CPE and optics swap out) with service of 2Gig.
- Continued cutover to new equipment. Few areas remaining:
 - CARC wired and wireless, including press box.
 - Substation
 - Cooper – wireless
 - French – wireless
- Completed NN128 and Cyber Lab rehab projects.

- Completed connectivity for Dana Gym
- Preparation and planning of infrastructure for main Dana project.
- Technician responded to over 100 recorded troubleshooting and port activation calls
- Technician started data closet cable plant re-organizations. These are time consuming as there can be well over 100 circuits in the larger data closets. This involves re-arranging patch cables, cutting them to length, color-coding AP patch cables and then re-bundling and re-dressing. He has completed Nev South 104A and is currently working the Library Data Center when not working on other calls.

Statistics

- **Wireless:**
 - We currently have 213 active APs on the WiFi 5 (802.11ac) capable equipment.
 - During the Fall 2019 daily peak times, we saw upwards of 1,500 active clients with AC gaining as the top protocol followed by 2.4GHz 11.n and 5GHz 11.n in third place.
- **Applications:**
 - HTTPS remains the top application seen, followed by DNS and HTTP, LDAP and SMB.
- **Device types:**
 - Windows 8/8.1/10 devices are seen the most, followed closely by Apple iOS devices with Android a distant third. Mac OS devices are fourth followed by Windows Vista/7 devices with a smaller number of miscellaneous devices such as Chromebooks.