# Infrastructure Technologies Advisory Group

Agenda/Notes

# October 1, 2020

# **Present:** Kirk Main, David Goodwin, Andrew Kotynski, Ralph Castanza, Daniel Lucio, Franklin Finch, Greg James, Gary Li, Aaron Peeler, Ed Rogers, Jonas McCoy, Greg Sparks, Josh Jury, Keith Boswell, Vijay Tailor, Dan Deter, Chris Allen, Dustin Duckwall, Eric Sills, Debbie Caraway, Mark Williams, Mike Kastellec, David Ladrie, Kevin Lee, Douglas Flowers, Chris Eichman

# **Welcome**

Reminder: Google group… [group-intag@ncsu.edu](mailto:group-intag@ncsu.edu)

**Server Infrastructure**

* DC2 VMware ESXi network related issues addressed
  + Applied firmware updates
  + DC2 VMware clusters moved to 10G where applicable

**Storage Infrastructure**

* OIT Storage and VM rate refresh FY20-21 published
  + [Storage Rates](https://oit.ncsu.edu/campus-it/oit-general-storage-services/)
  + [VM hosting rates](https://oit.ncsu.edu/campus-it/virtual-hosting/pricing-and-billing/)
* NAS replication between DC2 and EDC Isilons activated

**Software Infrastructure**

* VMware - vCenter upgrade to 6.7 U3G 10/10/2020
  + vcenter.ncsu.edu will not be available during upgrade
* VCL - Azure Windows Virtual Desktop (WVD)
  + VCL - Access to legacy VCL windows images disabled 8/31 for non-vdi users
  + Microsoft WVDStats added to VCL statistics page
  + Linux Lab machine brokering
* Microsoft VDA general site license expired 8/31/2020- VDA (Virtual Desktop Access)
  + [Software Lic. FAQ](https://software.ncsu.edu/faqs/microsoft-vdi-faqs/)
  + [Original sysnews post](https://sysnews.ncsu.edu/news/5e5ffcbc)
  + [VCL FAQ](https://vcl.ncsu.edu/windows-applications-moving-to-azure-wvd-for-students/)
  + Colleges will go through OIT Software Licensing to get individual VDA licenses (and ensure compliance) after that. More information is provided by [Software team in FAQ](https://software.ncsu.edu/faqs/microsoft-vdi-faqs/)
    - Per Bill Coker -**The VDA license (now referred to as VDI-Windows E3) can be purchased for $16.52 per named user. To purchase, please send a request, along with Project ID and bookkeeper's name, to software@ncsu.edu.**
* RedHat Licensing
  + Oracle Enterprise Linux (OEL) continues. No decision has been made between Red Hat and Oracle. Oracle provides an OEL site license if we decide to go that way.
  + Based on the latest from Oracle - Oracle provides the option of 2 Kernels, one is UEK (Unbreakable Enterprise Kernel) and other one is RHCK (Red Hat Compatible Kernel). When you opt for Red Hat Compatible Kernel (RHCK), this is Binary Compatible with Red Hat. Which means any workload/applications that you are running on Red Hat Linux would work the same way on Oracle Linux. Additionally if you don’t want to change your kernel, Oracle can support your Red Hat servers in place without any change.
* EPS for Linux desktops and laptops
  + Working on documentation. Slow progress because of competing priorities.
* Sysnews Monitoring and Paging
  + The current SSL CERT tool will continue to exist under the new systools link at<https://systools.oit.ncsu.edu/>
    - CSI is also supporting a CERT checker for customers on Zabbix that are using the product
  + At this time we have ~350 systems running in parallel with the current Sysnews Nagios.
  + We are ready to accept more groups interested in getting systems in and testing. To onboard, send a ServiceNow ticket to the 'OIT\_UNIX' group with your current Nagios on call group. If you are not already a customer in Sysnews Nagios, just send a good contact that we can work with to get your group into the new system.
    - General message is now out to all existing groups using Sysnews / pager.ncsu.edu
    - OIT Newsletter posting coming as well.
* Working with Operations group on getting them into Zabbix, working with how they will interact with, and support customers in off hours
* CSI is putting an on call template in place as a guide to groups ingesting their systems. We are working with groups to first get systems in, then set up notification / on call queues, and finally when to go live.
* Setting up a PoC external to NCSU networks to monitor the new system.
* Goal at this point is to be fully production on the new system 1/11/2021. The proposed retirement of the current system is 3/1/2021.
  + Both the current Sysnews Nagios and the Zabbix / ONCALL system will run in parallel for a time while groups are moving over, testing, and going live.

**Campus Network**

* Developing a solution for remote site connectivity outside of Wake County - looking at Ubiquiti bridges, APs and switches for Lake Wheeler
* Now focusing on core firewall upgrade - two Palo Alto 7050 chassis are installed in lab, NCSU-1 will be first context to migrate off of ASAs.
  + Rule clean up happening as well
* Backbone updates - Investigating requirements and implementation standards
* Life Safety Centrex Replacement
  + NMDF and SMDF zones - cutovers in progress
  + CMDF - construction in progress
  + WMDF - design complete
* Redundant fiber entrances - SMDF zone - cabling in progress
* 2806 Hillsborough, Milton Small bldg, Turner House - ductbank complete
* New Greek Village fiber X-connect - PZA Hut building under construction

**Access Layer**

* TUNAMELT project - 3560x switches - designs completed (26%)

**Data Center**

* DC1 Decommissioning
  + All of ComTech network services evacuated from DC1
  + All VMs migrated
  + HP Blade centers empty, final disconnect
  + Storage arrays scrubbed
    - VNX7600, VNX5400, xtremIO, cfx4-480 unplugged this week
  + All remaining devices are expecting to be decommissioned by Nov.
* Decommissioning of 3750s and N7Ks in DC2
* DC2 - analyzing costs for construction vs. COLOs
* Parking lot item - “virtual data center” – 9/3/20 conversation confirms there’s still some need for “flat” networks outside the data center (new fabric facilitates this among data centers).
* General service offering for colo - COVID has slowed this a bit but we’re handling needs on an “as needed” basis
  + Intake processes being refined -- email jdperry5@ncsu.edu for intake
  + Cost model for rack space being finalized - [current draft](https://docs.google.com/spreadsheets/d/1MQhV3Q25NK4AuoIJWamuWuV-yl7auDlI6IqyqLAdaUg/edit#gid=826436317) - these costs will hold through June 2021
  + Special challenges of tape libraries - need to change tapes on a regular basis, etc

**CATV**

**MDFs**

* NMDF - finalizing design for elec/mech upgrade.
* Lake Wheeler MDF - designer selection in progress

**Infrastructure Records**

* Outside plant inventory project - creating database and drawings for 500+ manholes
* Fiber jumper inventory - field work to start early Oct

**Building Infrastructure Projects**

* Design – Alpha Delta Pi, Student Health, Lake Wheeler Islands 1-3
* Construction – West Dunn, Materials Mgmt., Sigma Kappa, Zeta Tau Alpha
* Substantial Completion - Carmichael Pool and 1987 Wings
* UPS RFP - final 3 vendors in lab evals

**Cellular/mobile**

* Small cell consultant RFP - list narrowed to three
* Indoor - Spidercloud - we have received preliminary cost numbers from VZW if NCSU decides to fully fund a building on the list. No ComTech funding this FY.
  + List: [SpiderCloud](https://docs.google.com/spreadsheets/d/16ZpdmpP7JNH1_P2tvzCISjmNXMzE-VyaEY1KrZv3uPc/edit?usp=sharing)

**IT Strategic Planning**

* Awaiting next University Strategic Plan - task force [reports posted](https://mail.google.com/mail/u/0/#search/strategic+planning/FMfcgxwJXfnhgKCGRcbtptBsHdvCptTn) this week
* Service Planning
  + CMDB - discovery process is ramping up
    - Where are others related to CMDB desires?
      * Leaning towards requiring CMDB entries for all items in enterprise data centers to aid with compliance (UNC 1400.3)
  + Event Management - postponing for now but will gradually ease into early process work
  + Planning for Change Management moving along well
    - Working to move from QuickBase to SNow
  + Moving of sysnews to SNow - November 11th

**Unified Communications**

* Investigation of options for spam blocking and text messaging
* All Voice Servers from DC1 to MDF
* Renewing Cisco EA -- Finalizing documents with purchasing for Enterprise Agreement
* Partner Updates: UNCG, App State, NC A&T, Pembroke
  + App State SIP trunks installed
* NC DIT -- Tools, Training, Support
* Life Safety rollout underway -- NMDF transition Complete, planning for SMDF
* Evaluating hybrid service for cloud integration

**Systems & Development**

* Tools Updates
  + 90% complete integrating Firewall tools with Palo Alto
  + Eduroam with AD Certificates / Radius
* All servers transitioned out of DC1
* Collaborating on architecture for container service
* Collaborating on UPS RFP evaluation relating to automated provisioning
* Mobile management tool for Life Safety lines
* Pulling outside plant copper into EPIC

## Wireless

* Wi-Fi 6 Project - Design in progress: Jordan, Textiles, Davd Clark, Leazar. Priority list [FY20-21 Priority List.xlsx](https://docs.google.com/spreadsheets/d/19lc181qUq-C9jAZNUReJMCt06ranuePI/edit#gid=1206202891)
* Projects in construction: King Village, Fitts-Woolard, 210 Classrooms (180)
* Projects in design: New Carmichael building
* Outdoor Wireless: design work started for: Stafford Commons, Wolf Plaza, Brickyard, Court of NC
* Upgrading code on Carter Finley controllers, then will do ResNet later
* EDUROAM (secure SSID) -
  + [Wifi.ncsu.edu](http://wifi.ncsu.edu) is now live with links to SecureW2 for eduroam
  + Now tracking wireless metrics as part of overall [monthly metrics](https://oit.ncsu.edu/campus-it/campus-data-network/communication-technologies-metrics/)
* Look at practicality of loaning out to departmental staff - No movement on testing more handheld devices
* Grassroots effort by University of Delaware to build an [EDUROAM map](https://wifi-map.hpc.udel.edu/) for available wifi

**Budget**

* Reminder: Centrex lines are now being billed to departments at actual cost - have shared a list of lines with CITD. **Contract has been extended 3 years (Dec 2023)**. Working to migrate lines ahead of that unless technical/compliance constraints.
* ResNet shortfall (as much as ~$2 million depending on Spring ‘20) will have some impact on academic/admin due to backbone contribution. Meeting later today to talk through details

### Parking Lot Items

* Routing licenses at the BDF level – when and how much should occupants pay? Interim solution is 50/50 when “desired”, ComTech funds when required

## Upcoming Meeting Dates

* Next InTAG Meeting – November 5, 2020 9:30am