

## Summary for 02-12-20 ITSSC Infrastructure Subcommittee meeting

### Topics discussed included:

1. Voice Service/Unified Communications “refresh” planning
  - a. The existing Avaya solution is nearing eight years of service life. It is very unlikely that a full “fork-lift like” upgrade will be performed.
    - i. A “Hybrid” solution is most likely; this would be a combination of on-premises equipment, to support a certain class of devices -- analog lines for emergency devices, for example -- and services -- such as contact center services, with cloud/mobile client integration for others.
    - ii. The desire is to integrate as much as possible with solutions already in use by many faculty and staff.
    - iii. A reduction in “hard” telephone devices is also likely.
  - b. What about students?
    - i. Could students take advantage of any future voice service?
      1. Residential students (and Resident Advisors) can certainly utilize voice services provided by the university.
      2. Chair will investigate how non-residential students might benefit from the future voice service offerings.
    - ii. Improving cellular service “dead spots” on campus is part of a parallel program NI&S is involved in, which comes in two parts:
      1. The Distributed Antenna System project (DAS) has been evolving over the last seven to eight years.
        - a. Lane Stadium and six residence halls (serving approximately 35% of the on-campus student population) have special antennae that improve coverage and capacity for the big three carriers -- Verizon Wireless, AT&T, and T-Mobile.
      2. The Division of IT and the Facilities Division are beginning a project to review architectural and aesthetic issues associated with the carriers desire to install “small cell” technology across campus.
        - a. Antennae could be installed on buildings, roof tops, and perhaps light poles for improved cellular coverage and capacity, both on the interior of buildings and outdoors. Once standards are established, this work could begin.

- iii. 5G offerings from all carriers could also improve the cellular experience for all affiliates and guests while on-campus, but it's still too early to tell how and when such enhancements would be available. (See also CBRS discussion below.)

## 2. Innovation campus update

- a. Interim occupancy in the National Institute for the Blind (NIB) building in Alexandria
  - i. “The program includes offices for the new Vice President for the Innovation Campus, conference/team rooms (2 with Zoom capabilities), collaborative/marketing/showcase space.”
- b. Wide Area Network (WAN)/internet connectivity for the Greater Washington D.C. Metro Region (GWDCMR) is in the planning phase, both expanding capabilities for new sites and enhancing capabilities for existing sites.
- c. Justin Davenport, in the still entitled National Capital Region Operations area, believes much will become clarified once the new VP comes on board in August. Placement of personnel, both physically and organizationally, will likely change.
- d. Jed Krisch reminded the group that the Fralin Biomedical Research Institute was expanding into space in the GWDCMR at the Children's National Hospital Innovation Campus in Washington, D.C. (formerly Walter Reed Army Medical Center hospital).
  - i. For more info go here→  
<https://research.vtc.vt.edu/news/2019/nov/14/childrens-national-hospital-virginia-tech-announce/>

## 3. Cloud services certifications in NI&S

- a. NI&S now has nine engineers in three different units certified as AWS Solutions Architects
  - i. Network Engineering
  - ii. Systems Operations
  - iii. Software Development
    - 1. Orchestra, the future replacement for Atlas -- which is the major application under which COLA and other pieces of the NI&S software infrastructure reside, is planned to be mostly deployed in the cloud.

## 4. Citizens Broadband Radio Service (CBRS) work and piloting

- a. CBRS is a 150 MHz wide broadcast band of the 3.5 GHz band (3550 MHz to 3700 MHz) in the United States. In 2017, the FCC completed a process, begun in 2012, to establish rules for commercial use of this band, while reserving parts of the band to limit interference with US Navy radar systems and aircraft communications.
  - i. On January 27, 2020, the FCC authorized full use of the CBRS band for wireless service provider commercialization. Under the new rules, wireless carriers using CBRS might be able to deploy 5G mobile networks without having to acquire spectrum licenses.
- b. Possible purchase of licensed spectrum to be auctioned by FCC.

## 5. Q&A

- a. What is the future of Cable Television services at the university?
  - 1. Discussions are underway with the major stakeholders/customers of this service regarding its future.
  - 2. That includes the Inn @ VT, the Division of Student Affairs, the Athletics Dept., and the Provost's office.
  - 3. Each group has expressed interests in changes to the service
    - a. The Inn is interested in a service that could support a hospitality system, similar to other chain hotels that utilize Smart TV technologies.
    - b. DSA would like to see this service be modified to enable more streaming/casting in group settings (lounges).
    - c. Athletics wants the ACC Network included → our current contract is with Comcast, and to date, Comcast is not offering ACCN
    - d. The Provost's office may not even realize that there are cable connections in all classrooms.
- b. Are there changes coming for the COLA system?
  - i. There will be a new customer portal in Orchestra, the replacement for the overarching system in use in NI&S known as Atlas
    - 1. Of special interest is dealing with individuals leaving a unit and changing services for them.

- ii. One of the themes NI&S is working towards is empowering customers as much as possible, so a “Self-service” aspect will be prevalent in any updates to customer facing software.
- c. Are tools utilizing protocols such as SHAKEN/STIR for blocking spam/unsolicited marketing calls on university lines under consideration?
  - i. This protocol/function would be implemented in the service provider space. Per Russ Eller, Escalation Engineer on the NI&S Communications Services team, “providers such as AT&T, Verizon, CenturyLink, etc., are working on implementing this, but to my knowledge none of them have successfully deployed it. The FCC had demanded service providers implement this by the end of 2019, but that did not happen. What I heard at the Avaya Engage conference last week is that most carriers hope to have a solution in place by the end of 2020.”
  - ii. And, yes, any future voice system would seek to include such functionality as well.
- d. Should a future meeting be scheduled this semester?
  - i. Consensus was Yes! So the chair will endeavor to do so.
- e. What’s the future of Zoom in any future voice system?
  - i. The previous tests that were conducted with Zoom devices indicated that they were not fully implementing features necessary for them to interoperate with the Session Border Controllers (SBC) under the Session Initiation Protocol (SIP).
    1. TLOS and NI&S engineers managed to allow the devices to place outgoing calls, but could not then receive incoming calls.
    2. NI&S will engage if new Zoom equipment, which may have software revisions or firmware upgrades in place, is available and TLOS wishes to conduct new tests.
    3. The goal for any new voice system is to ensure any such devices will function reliably in the future.