Alternatives to Plain Old Telephone Service (POTS)
Our Panel

- Robert Talley, PE, Assistant Director, State Construction Office
- Bill Bagnell, Associate Vice Chancellor Campus Operations, East Carolina University
- Miriam Tripp, Director of Capital Planning, UNC System Office
- Cynthia Register, Engineering Executive Director, University of North Carolina at Chapel Hill
What is POTS?

• Land-line telephone service

• Copper wire technology

• Frequently used for
  • Elevators
  • Fire alarms
  • Emergency blue light telephones
  • Area of rescue telephones
  • Building control systems
  • Building access control
So what’s wrong with that?

• Services and rates no longer regulated by the Federal Communications Commission (FCC) as of August 2, 2022

• Cost

• Availability

• Reliability
What to do?

• Continue as-is to failure

• Proactively consider and implement alternative solutions
Alternatives

- Cellular
- Internet Protocol/Voice over Internet Protocol (IP/VoIP)
- Radio
- Local, dedicated telephone service
- Own internal network
- Combination solutions
Considerations

• Signal strength – cellular, radio

• Power (battery) back-up – cellular, radio, VoIP

• Answering station interface – cellular, radio, VoIP

• Code compliance

• Cost

• Service availability, reliability, repair, maintenance

• Technology obsolescence – cellular, fire alarm industry
Experiences

• East Carolina University

• University of North Carolina at Chapel Hill
ECU Experiences

• Voice over Internet Protocol (VoIP)
UNC-CH Experiences - Timeline

• Jul 2018: Discussion of problem, impacted systems, and potential solutions
UNC-CH Experiences – 2018 Assessment

- **Equipment**
  - POTs: 42%
  - IP: 52%
  - Unknown: 6%

- **Fire**
  - POTs: 100%
  - IP: 0%
  - Unknown: 0%

- **Security**
  - POTs: 54%
  - IP: 35%
  - Unknown: 11%

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UNC-CH Experiences - Timeline

- Aug 2018 – Present: Campus Fire Alarm Communication System
  - Aug 2018 to Feb 2019: Study of Meshed Radio vs Ethernet IP
  - Nov 2019: Ph 1 Funding Identified
  - Jun 2020: Design Contract Initiated
  - Mar 2022: Construction Contract Awarded
  - Dec 2022: Ph 1 Completed
  - Jan 2023: Ph 2 Started (projected completion July 2023)
UNC-CH Experiences - Timeline

- Jan 2022 – Present: Campus Elevator Emergency Phone
- Jan 2022 to Apr 2022: Review of Cellular vs VoIP
- Dec 2022 & Jan 2023: Cellular Option Installed; Approved by DOL (2 Buildings)
- Dec 2019 - Present: Area of Refuge Two-Way Communication
  - Jan 2020: Decision to use VoIP for Swain Hall Renovation
UNC-CH Experiences - Timeline

• Pending – Discussion of Options for:
  • Blue Light Call Stations
  • Security Alarms
  • Critical System Alarms (High Containment Labs & Equipment)
UNC-CH Experiences – Systems Using POTs

- Fire Alarm Communication
- Emergency Elevator Phones
- Emergency Blue Light Call Stations
- Area of Refuge Emergency Communication
- Other Essential Alarms
  - High containment (BSL3) Alarms
  - Burglar Alarms
  - Equipment Alarms
- IP Solutions already in place for Building Control Systems and Access Control System
UNC-CH Experiences – Meshed Radio

Meshed Radio for Fire Alarm Communication

2019 Study Compared Meshed Radio to Ethernet IP

• More Economical: $3.37M vs $31.23M
• Mesh technology provides multiple and varied pathways back to Supervising Station
• Strong self-testing capability for monitoring signal transmission
• Easily expandable
• Provides its own battery backup for standby power
UNC-CH Experiences – Meshed Radio

Meshed Radio for Fire Alarm Communication Limitations

• One-way communication only, so not suitable for Elevator, Area of Refuge, or Blue Light Call Stations

• Well-suited for dense campuses that have their own Supervising Station
UNC-CH Experiences - Cellular

Cellular for Elevator Emergency Phone

- POTs sunsetting is coinciding with new elevator code requirements for voice and video monitoring of the cab when emergency phone is activated.

- Cellular solution that is being provided by 3rd Party monitoring service. UNC-IT is not providing cellular service and UNC Police are not monitoring. Cost of service is captured in the Elevator Maintenance Contract rather than a phone service charge from IT.

- DOL has approved this approach and has accepted two new elevator modernization projects with this solution.
UNC-CH Experiences - Cellular

Cellular for Elevator Emergency Phone Limitations

- Technology obsolescence could require equipment replacement sooner than other solutions
- Cell signal strength and reliability
UNC-CH Experiences - VoIP

VoIP for Area of Refuge

• VoIP dials the Fire Alarm Supervising Station followed by call to UNC Police

• Supports 2-way audio and visual communication

VoIP for Area of Refuge Limitations

• Not as robust as other technologies
### UNC Experiences – Technology Comparison

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<th>Technology</th>
<th>No Monthly Fees from Third Party</th>
<th>Fast Response Time</th>
<th>Employ UNC Infrastructure</th>
<th>Secondary Power Requirements</th>
<th>Dependability</th>
<th>Sustainability</th>
<th>SCO/Code Concerns</th>
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Questions?