Agenda

• 8:00 - 8:15 Introduction
• 8:15 - 9:45 Ecosystems Collide: Campus Perspectives (panel) - Mark Berman (Siena College), Samantha Earp (Smith College), Adrienne Esposito (Rutgers U), Mark Katsouros (Penn State U), & Alok Vimawala (U. of Michigan)
• 9:45 - 10:00 Break
• 10:00 - 11:30 Internet of Things - Phil Crompton (Vantage Technology Consulting Group) & Mark Reynolds (U. of New Mexico)
• 11:30 - 12:30 Lunch
• 12:30 - 1:30 Ecosystems Collide: Industry Update - Geoffrey Tritsch & Jon Young (Vantage Technology Consulting Group)
• 1:30 - 2:30 Legislative Update - JG Harrington (Special Counsel Cooley, LLP)
• 2:30 - 2:45 Break
• 2:45 - 4:00 WHAMP Session - What’s Happening at My Place
• 4:30 - 6:30 ATUCA Reception
Ecosystems Collide: Campus Perspectives (panel)

Mark Berman (Siena College), Samantha Earp (Smith College), Adrienne Esposito (Rutgers U), Mark Katsouros (Penn State U), & Alok Vimawala (U. of Michigan)

8:15 - 9:45
Cycles

• CENTREX (cloud) → PBX (on prem) → VoIP (on prem) → VoIP in the Private Cloud → VoIP in the Public Cloud → ?????

• Standard (Tip/Ring) → Proprietary (VoIP) → Standard (SIP) → Interoperable (SIP trunking) → ?????

• Enterprise Tools → Consumer Tools → Enterprise Versions of Consumer Tools (e.g., Google Enterprise Voice) → ?????

• IT Developers → IT Integrators → IT Liaisons/Brokers → DevOps → ????? (IEEE “secret sauce?”)
“Dipity-Doo-Dah, Gone in a Day!”
Contact Center Application Usage, Data Ownership, and Overall Portability/Liberation

The contact center applications that we pay to develop, including all integrations with third-party systems (e.g., database DIPs), must be provided to us, at our will, in a format that can be modified and ported to others’, or our own, UCCE platform, should such circumstances be warranted (end of contract, failure to perform, etc). “Applications” in this context should include all source code / scripts, custom integrations/libraries, audio prompts, documentation, and everything else needed to, again, modify and port, without having to reinvest in development. This is not intended to imply intellectual property rights in the context of being able to sell these applications (in whole or in part), but rather to claim ownership in the context of perpetual “right to use.” This protects both our development investment and the vendor’s/vendors’ right to protect custom code/integrations from being sold by us.

Our full data set must be extractable, at our will, and in a standardly accessible format, with a complete schema definition, in order to be able to mine the data for granular metrics, report at the atomic level, and, perhaps most importantly, port the data to other systems (including replacement systems). This must include agent statistics data, call statistics data (particularly any such data that drives application behavior, such as prompt ordering), and any other data critical to the continuing operation of the application.
Some Key Questions for our Panel

• How does a campus position MS Skype/Teams, Cisco Jabber / Spark (now Webex Teams), Zoom, BlueJeans, Polycom / Real Presence, Blackboard Collaborate, Google Hangouts Chat, etc, in the UC/video/collaboration space?

• How do we make video conferencing/presentation hardware easy to use and with a consistent UI from classroom to conference/meeting room? How do we make presenting, videoconferencing, and videoconferencing with a presentation as intuitive as possible?

• How do we know which UC “communicator” client to use? The one that came with our phone system? The one that came with our integrated business application suite? Neither? Both?

• How do we know which collaboration platform to use? MS Teams, Yammer (also MS), Slack, Confluence/Wiki, Blackboard Collaborate, Google Hangouts Chat? What is each one’s “fitness for purpose?” Is the line between communication, collaboration, and learning management systems blurring? (Hint: “Social Learning Management Systems” are a thing for a reason.)

• Cost of switching cloud providers (e.g., BlueJeans to Zoom): Have you looked at it (holistically)? How are you dealing with it? How do we avoid vendor lock-in? Does the cloud make this easier or more difficult?

• Do you even have an inventory of cloud software used across your institution (communication/collaboration and otherwise)? Does data categorization have a role to play here?
How Healthcare Organizations are planning for the Integration of IoT Technologies

Phil Crompton, Principal
Vantage Technology Consulting Group
October 30, 2018
Phil Crompton, Principal
Vantage Technology Consulting Group

- Vantage’s Healthcare Practice Leader
- Responsible for Strategic Technology Planning and Consulting Services for Vantage’s healthcare clients
- Member of winning Aditazz solution for Kaiser Permanente’s “Small Hospital, Big Idea” competition
- Clients include OSU Wexner Medical Center, NYU Langone Medical Center, UCLA Health System and UCSF
“When we talk about the Internet of Things, it’s not just putting RFID tags on some dumb thing so we smart people know where that dumb thing is. It’s about embedding intelligence so things become smarter and do more than they were proposed to do.”

Nicholas Negroponte
Real Time Location System (RTLS)

- Locates Doctors, Nurses and other staff
- Tracks Patients and Visitors
- Identifies location of clinical and other valuable equipment
- Custom algorithms to determine specific events, activities and alerts
- Enhances workflow, improves healing environment, increases efficiency
RTLS Sensors and Tags

Stanley Healthcare and AiRISTA Flow (Ekahau)
RTLS Use Case – Way-finding

Smartphone App guides Patient to Hospital via GPS and directs to Parking Space / Valet.

App switches to walking directions to guide Patient to Main Entrance. App alerts Department that Patient is en-route and can inform and redirect Patient if appointment is delayed.

App allows Patient to select various destinations at Hospital, and can also provide real-time assistance if needed.
IoT Healthcare Use Case

- Sutter Health / CPMC $1.1B, 740,000 sq. ft. twelve story Acute Care Hospital
- 264 beds, 20 Operating Rooms, and Emergency Department
- Integrated Project Delivery (IPD)
- IoT / Modelling / RTLS integrated deployment throughout project lifecycle
Technologies included in building model

Data exported from model

Equipment delivered to warehouse and tagged

Custom equipment delivered to room
Benefits

• Revit model tracks locations of technology devices, IoT sensors and other components
• Supply chain simplified
  • Optimizes design and improves efficiency
  • Real-time budgeting and cost data available
  • Facilitates room-based packaging and delivery
• Components tracked from warehouse to hospital
IoT enhances the Patient Experience

- Personalized Room
  - Lighting
  - Temperature
  - Décor
- Enables Positive Distraction Therapy, improves outcomes, and empowers the patient and their family

Adopt-a-Room, University of Minnesota, Fairview
Video Footwall

• Education & Entertainment
• Clinical Systems
• Care Team
• Schedule
• Family Window
• Video Visit
• Multi-language / Speech Recognition
IoT Healthcare Use Case

• Laguna Honda Hospital; a $594M Skilled Nursing and Rehabilitation Hospital
• 780 beds in two Residence Towers, plus a Link Building for central services
• Traumatic Brain Injury and Alzheimer’s / Dementia Units
IoT facilitates Building as Caregiver
IoT facilitates Building as Caregiver
IoT facilitates Building as Caregiver
Benefits

• Allows staff to focus on high-value tasks while system monitors the location patients
• Improves patient safety and provides family members with sense of security
• Enhances environment by reducing opportunities for negative encounters
• Provides valuable clinical data regarding recovery state of each patient
Extending IoT to the home

- Hospital coverage extends to home
- IoT sensors deployed in home monitor health
- Reduces recovery time and improves outcomes

Healthsense Inc / WellAWARE Systems Inc
Extending IoT beyond the home

- Connected health via smartphone and/or smartwatch app
- Wearable technologies
- Predictive analytics allow first responders to preempt emergency
Summary

• IoT can be embedded in Digital Hospitals and Outpatient buildings to create smart facilities
• IoT can provide value by improving outcomes, enhancing the environment and optimizing workflow
• IoT can provide value throughout entire project lifecycle from design through construction and throughout operation
"[T]he Internet will disappear. There will be so many IP addresses, so many devices, sensors, things that you are wearing, things that you are interacting with, that you won't even sense it. It will be part of your presence all the time. Imagine you walk into a room, and the room is dynamic. And with your permission and all of that, you are interacting with the things going on in the room."

Eric Schmidt, Google
Questions we might ask…

- What parallels can we draw between the deployment of IoT in Healthcare and my institution?
- How can we ensure that the CapEx and OpEx for these systems provide value to my organization?
- What impact will BYO(IoT)D have on my campus?
- What provisions have we made regarding information security and intrusion prevention under this coming proliferation of smart IoT devices?
POWERING DIGITAL TRANSFORMATION IN SMART CITIES: THE ROLE OF SMART BUILDINGS

SMART UNIVERSITIES

Mark Reynolds
University of New Mexico
Associate Director IT

EDUCUASE Oct 2018
MARK REYNOLDS
ASSOCIATE DIRECTOR IT
HIGHER EDUCATION 35 YEARS
45 YEARS IN TELECOMMUNICATIONS
VOICE, DATA, SECURITY, INFRASTRUCTURE
BICSI - SOUTH CENTRAL REGIONAL DIRECTOR
TIA, EDUCAUSE, SAFER BUILDING COALITION
REYNOLDS@UNM.EDU (505-321-2968)
• 2.5 Q bytes of data/day
• 90% of all data today was created in the past 2 years
• Depending on what you do daily, contributing 2-13.5 GB/SIM/day
• Consuming 34 GB Data/Day
A SNOWFLAKE ON THE ICEBERG

• Monthly mobile data usage with surge to 98.34 GB/SIM by 2025

• Netflix Q3 207, 140 Hrs of viewing/day; 1B hours/week. With 109M viewers. Viewership estimated to grow to 140M to 230M by 2025.

• Twitch eSports viewers watched 475.5 million hours streaming video (2017), an average of over 79 million Hrs/mo - Viewership growing 12%/yr

• Robotic surgeries: Compound annual growth rate of 13.5%/year; 4,000 locations conducted 750K surgeries in 2016. Over year with 3M since 2000.

• Autonomous Vehicles: 4,000 GB/Hour of Driving
FIRST STEPS TOWARD A SMART CITY/BUILDING/CAMPUS

1. Energy
   • Smart Grid
   • Lighting – multi-sensor LEDs

2. Sustainability
   • Sewage (sensors)
   • Garbage management

3. Operations Services

4. Transportation
   • Public transportation tracking
   • Parking

5. Infrastructure
   • Gigabit Cities
   • Small Cells

6. Open Source Data
# HOW CITIES USUALLY FUNCTION

## City Infrastructure Technologies

<table>
<thead>
<tr>
<th>Urban Sector</th>
<th>Technologies / Concepts</th>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>Multi-modal integration via ICT applications and models, On-demand digitally enabled transportation, Design for biking and walking, Electrification of motorized transportation, Autonomous vehicles</td>
<td>Save time, Comfort or productivity, Low-cost mobility and universal access, Reduced operating expenses to transportation providers, Zero emissions, collisions, fatalities, Noise reduction, Lifestyles, Tailored solutions for the underserved, disabled, and elderly</td>
</tr>
<tr>
<td>Energy</td>
<td>Distributed renewables, Co-generation, District heating and cooling, Low-cost energy storage, Smart-grids, micro-grids, Energy-efficient lighting, Advanced HVAC systems</td>
<td>Energy efficiency, Zero air pollution, Low noise, Synergistic resource management with water and transportation, Increased resilience against climate change and natural disasters</td>
</tr>
<tr>
<td>Building and Housing</td>
<td>New construction technologies and designs, Life-course design and optimization, Sensing and actuation for real-time space management, Adaptive space design, Financing, codes, and standards conducive to innovation</td>
<td>Affordable housing, Healthy living and working environments, Inexpensive innovation and entrepreneurial space, Thermal comfort, Increased resilience</td>
</tr>
<tr>
<td>Water</td>
<td>Integrated water systems design and management, Local recycling, Water efficiency via smart metering, Re-use in buildings and districts</td>
<td>Active ecosystem integration, Smart integration of water, sanitation, flood control, agriculture, and the environment as a system, Increased resilience</td>
</tr>
</tbody>
</table>

## Data Enabled Pilot Projects

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Program descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reducing Air Pollution</td>
<td>Some basic tools have been developed associated with the emerging Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC), developed under the recent agreement known as the Compact of Mayors. Some tools have been developed to reduce the emissions from transportation.</td>
</tr>
<tr>
<td>Eliminating Deaths and Serious Injuries on the City’s Streets</td>
<td>Data and analysis offer cities means to reduce the dangers of automobile-based transportation systems. Often referred to as Vision Zero, the idea can be summed up as: &quot;when a child runs after a bouncing ball into a residential street and a speeding car strikes and kills him, the Vision Zero philosophy maintains that the death shouldn’t be seen as an unavoidable tragedy but as the result of an error of road design or behavioral reinforcement, or both.&quot;</td>
</tr>
<tr>
<td>Fire Prevention</td>
<td>The New York Fire Department (NYFD) started using data mining and predictive analytics to determine which buildings are most likely to erupt in a major fire. Roughly 60 different factors have been built into an algorithm that assigns each of the inspect-able buildings with a risk score. The risk score now determines the order of inspection, as opposed to a process that returns to previously inspected buildings randomly or based on safety priorities.</td>
</tr>
<tr>
<td>Street Services</td>
<td>The city of Los Angeles is currently in the process of adding Global Positioning Systems, sensors, and cameras to their street sweepers. This will allow the city to open streets for parking more quickly, track water usage, tune or change routes to real-time priorities, and track coverage to make sure street sweeping is complete.</td>
</tr>
<tr>
<td>Recycling</td>
<td>The city of Los Angeles is rolling out a franchise management system to integrate private waste companies into the cities’ system of service calls, data tracking, and billing to work together to deliver yard waste services to multi-unit dwellings and commercial locations.</td>
</tr>
<tr>
<td>Load-Balancing of Street Systems</td>
<td>A number of apps have been published that let drivers and passengers identify shortest routes over city streets. Cities are sharing real-time data with these apps, and receiving reports from them, in an effort to optimize the use and management of city streets.</td>
</tr>
</tbody>
</table>

Source: President’s Council of Advisors To Science & Technology: Report to the President: Technology and the Future of Smart Cities (February, 2016)
A CONFLUENCE OF ISSUES

The Smart Community

• Need for Quick ROI (single/local issue focus) vs. Overarching Strategy
• Budget
• Governmental policies
  • Supportive Policies, Regulations and Incentives
  • Lengthy and expensive licensing and procurement
• Lack of Accepted Guidelines and Standards
  • Isolated Systems
  • Individuated Networks
  • Silos of Data (if any)
• Project and Product Scalability
• Prototype Projects
• Technology Understanding
  • Incomplete knowledge of possible solutions
  • IT vs. OT
  • Trained Personnel
• Desire to Attract and Retain People
• Security & Privacy
• Public Safety
• Where Do We Start

The Building Microcosm

• Long term application vs. Need for Quick ROI
  • Broaden the strategy and see opportunity as strategic
• CAPEX/OPEX
• Lack of Accepted Guidelines and Standards
  • Isolated Systems
  • Individuated Networks
  • Silos of Data (if any)
• Technology Understanding
  • Incomplete knowledge of possible solutions
  • IT vs. OT
  • Trained Personnel
• One-off Buildings and Campuses
• Desire to Attract and Retain People
• Security & Privacy
• Public Safety
• Where Do We Start
DELOITTE’S THE EDGE (AMSTERDAM, 2015)

• Highest BREEAM accreditation score ever for an office building—98.36 percent
• 430K sq./ft. 2,500 works, 1,000 spaces; ¼ of the building is a place to meet (hot desking)
• 28,000 sensors
• LED panels powered by PoE (made especially by Philips Lighting). The panels packed with sensors—motion, light, temperature, humidity, infrared—creates a “digital ceiling” that wires the building like a neural net.
• 15-story atrium at heart:
  • Mesh panels between each floor let stale office air spill into open space, where it rises and is exhaled through the roof, creating a loop of natural ventilation.
  • Slight heat variations and air currents make it feel like the outdoors.
  • Natural light pervades even on a stormy day.
• Every workspace is within 7 meters (23 feet) of a window.
• Solar panels produce more energy than building uses.
• Central app that tracks you, guides and preps space for you. Find colleagues. Manage schedule including exercise.
• Workspaces are based on your schedule: sitting desk, standing desk, work booth, meeting room, balcony seat, or "concentration room."
• Wherever you go, the app knows your preferences for light and temperature, and it tweaks the environment accordingly.
• Data tracked, analyzed and used: How edge and employees interact, when coffee supplies run out; shut down building sections if no employees.
• Lockers serve as home base for the day. Find a locker with a green light, flash a badge, and it’s yours.
• Access control: A camera snaps a photo of the license plate, matches it with a person's employment record, and raises the gate.
• Behind each ceiling tile is a massive coil of thin blue piping that delivers water to and from the building’s subterranean water storage for radiant heating and cooling.
• Ethernet data communications infr
• Thermal energy system: 400 feet deep in the aquifer beneath the building, where it sits, insulated, until winter, when it’s sucked back out for heating. Precision controls throughout the building.
• A coming app upgrade will boost efficiency further by suggesting desk locations to employees based on their temperature preferences and meeting locations throughout the day.
• Security bots. And cleaning bots that work with staff to clean the most trafficked parts of the building.
• Workout gym captures your energy and cycles it back to the building.
• Bathrooms track usage so cleaning crew knows when items run out.
DELOITTE’S THE EDGE

HTTPS://WWW.YOUTUBE.COM/WATCH?V=F86JI7-6PIA
SMART BUILDING STATISTICS

Can’t Optimize What You Cannot Measure

- Edge uses 70% less energy than the average office building
- Ethernet-powered LED lighting system is 80% more efficient than conventional illumination
- HVAC, lighting, and some types of electrical loads, can expect savings 10%-25% savings with a proactive energy-management programs
- Effect a desk to colleague ratio of 1:14 (Hot Desking)
- Personalized control of room temperature can raise productivity by 3%
- Optimized air quality can increase productivity by 11%
Smart Building

Smart Campus

Smart City
SMART UNIVERSITIES
SMART UNIVERSITIES

• Same as Smart Building requirements as a baseline service
• Smart Education
• Smart Learning Environments
• Smart Teachers
• Smart Learning Communities
• Smart Classrooms
• RFID technology
• Taxonomy of smart university
• Attraction for Students
• Ubiquitous Wi-Fi and Cellular
• Safe environment
SMART BUILDING AS CONNECTED ASSET

- In-building Cabling
- Multi-Point Access Points
- LPWAN
- IP
- Security
- DAS
- Sustainability
- Smart Kiosk
- Smart Elevator
- Welcome Industry Certified Level 3 Building
- CBRS
- Camera / Video
- Building Automation
- Building Management Systems (BMS)
- NB-IoT
- Location Services
- Intra Office Connectivity
- Micro / Edge Data Center
- FirstNet
- WiFi
- LTE-M / LTE-U
- LAA
- Satellite
- Microwave
- Rooftop Cooling Units
- Solar & Green
- IoT Experience & Engagement Apps
- Public Safety Comms & Services
- Tenant Services Enhanced Services
- Macro Cell Real Estate
- Drone Access
- Real Estate
- Microwave
- Small Cells
- Smart Parking

ENERGY / POWER / CONNECTION TO THE GRID / MICROGRIDS
BUILDING TO CAMPUS / CITY SYSTEMS AND PLATFORMS INTEGRATION
MOVING BEYOND EFFICIENT BUILDING MANAGEMENT

- HVAC
- Building Management
- Water
- Energy
- Elevators
- Security
- Cameras
- Fire & Safety
- Building Access
- Lighting
SMART BUILDINGS ECOSYSTEM

Influencers
- Architects
- Engineers
- Consultants
- Construction
- Specifiers

Partners
- Building Operators
- Facilities Managers
- CIOs

Buyers
- Building Developers
- Estate Brokers / Agents
- Investors
- Bankers
- Insurers

Informed
- Systems Integrators

“Smart” Solution Suppliers
- Building Subsystems
- Telecommunications
- Utilities

Service Providers
- Architects Designers
- CIOs

Tenants Visitors
- Informed
SMART BUILDINGS ECOSYSTEM

Building Types
- Campuses of all kinds
- Airports
- Office Buildings
- Commercial Buildings
- Government Buildings
- Data centers
- Education/Universities
- Medical/Hospitals
- Cruise Ships
- Industrial and Manufacturing
- Hotels and Hospitality
- Religious
- Warehouses
- Parking / Storage
- Stadiums/Entertainment
- Residential/MDU Properties

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SMART BUILDING INTEGRATED ECOSYSTEM

Innovation and Services Enablement
- Connectivity
- Data
- Personalization
- Energy
- Security
- Maintenance
- Janitorial
- Security
- Parking
- Lighting
- Ridesharing, etc.
- Managed services
- EV charging
- Drone charging
- Content delivery
- Air quality
- Traffic Mgmt.
- Safety alerts
- Emergency Mgmt.
- Energy Grid
- Sewage
- Microservices
- Personalized
- ergonomics
- Wayfinding
- Energy self mgt.

Owner/Manager
Packaged Services

Building Driven Services

Externally Provided Services

City/Community Integrated and
Created Services

Tenant Created Services

Value Generation
Building as a Service

Quality of Visitor/Tenant Experience
Productivity and Efficiency
Visitor/Tenant Safety
Health & Wellness
Security
Resilience
Sustainability
Mobility

Economic Development

M2M, Machine Learning, Artificial Intelligence

Interoperable Processes, Systems, Operations and Management

Information Management

Basic Building Services Infrastructure, that includes:
- Power & Energy - Distribution/Sensors/Controls
- Connectivity and Telecommunications – Internal/External

Interconnected Systems
& IoT Capabilities
BASIC BUILDING INFRASTRUCTURE

Basic Building Services Infrastructure

(Plumbing, cabling, ducting, sensors, etc.)
Connectivity and Telecommunications – Internal/External

Basic Building Services Infrastructure

(Fiber, Wi-Fi, Cellular, LPWAN, Others)

(Plumbing, cabling, ducting, sensors, etc.)
BUILDING SUBSYSTEMS

IoT stack

Building Subsystems

Connectivity and Telecommunications – Internal/External

Basic Building Services Infrastructure

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Operations and Management processes

Building Subsystems

Connectivity and Telecommunications – Internal/External

Basic Building Services Infrastructure

Building Operations and Management

(Integration, automation, cyber security, standards, policies and support)

(HVAC, AV, lighting, energy, security, safety, digital)

(Fiber, Wi-Fi, Cellular, LPWIN, Others)

(Plumbing, cabling, ducting, sensors, etc.)
SMART BUILDING LAYERED ECOSYSTEM

- Basic Building Services Infrastructure
- Connectivity and Telecommunications – Internal/External
- Building Subsystems
- Operations and Management processes
- Data, Analytics and Intelligence

Integration, automation, cyber security, standards, policies and support
(Analyse, predict, optimize)
(HVAC, AV, lighting, energy, security, safety, digital)
(Fiber, Wi-Fi, Cellular, LPWAN, Others)
(Plumbing, cabling, ducting, sensors, etc.)
INNOVATION AND SERVICES

Innovation and Services Enablement

Data, Analytics and Intelligence

Operations and Management processes

Building Subsystems

Connectivity and Telecommunications – Internal/External

Basic Building Services Infrastructure

Application Development, Tools, Deployment
(Analysis, predict optimize)
(Integration, automation, cybersecurity, standards, policies and support)
(HVAC, AV, lighting, energy, security, safety, digital)
(Fiber, Wi-Fi, Cellular, LPWAN, Others)
(Plumbing, cabling, ducting, sensors, etc.)

IoT stack
SMART BUILDING LAYERED ECOSYSTEM

Value Generation

- Quality of Visitor/Tenant Experience
- Productivity and Efficiency
- Economic Development
- Visitor/Tenant Safety
- Sustainability
- Mobility
- Health

IoT stack

- Building Subsystems
- Connectivity and Telecommunications – Internal/External
- Basic Building Services Infrastructure

Innovation and Services Enablement

- Building Driven Services
- Externally Provided Services
- City/Community Created Services
- Tenant Created Services
  - Application Development, Tools, Deployment
  - Analyze, predict, optimize
  - Integration, automation, cyber security, standards, policies and support
  - HVAC, AV, lighting, energy, security, safety, digital
  - Fiber, Wi-Fi, Cellular, LPWAN, Others
  - Plumbing, cabling, ducting, sensors, etc.

Data, Analytics and Intelligence

- Mobility
- Productivity and Efficiency
- Visitor/Tenant Safety
- Economic Development
- Sustainability
- Mobility
- Health

- Visitor/Tenant Experience
- Quality of Visitor/Tenant Experience
- Productivity and Efficiency
- Economic Development
- Visitor/Tenant Safety
- Sustainability
- Mobility
- Health

- Maintenance
- Janitorial
- Security
- Parking
- Lighting
- Ridesharing, etc.
- Managed services
- EV charging
- Content
- Air quality
- Traffic Mgmt.
- Safety alerts
- Emergency Mgmt.

- Microservices
- Personalized ergonomics
- Wayfinding

- Microservices
- Personalized ergonomics
- Wayfinding

- Microservices
- Personalized ergonomics
- Wayfinding
QUESTIONS – SMART CITY/BUILDING/HIGHER EDUCATION

• Where do you see the value of IoT in your environment?
• What do you see your University or vertical doing today with IoT project or inactive?
• What do you regard as the most interesting use of IoT?
• What is the biggest risk with IoT?
• What one factor would most accelerate the benefits of IoT?
• What’s one policy change that would accelerate the benefits of IoT?
• What shouldn’t be connected and why?
• What happens to big data and privacy?
• What skill level do you anticipate for an IoT engineer, technician, support group and the associated training?
THANK YOU

EDUCUASE Oct 2018
LUNCH BREAK

Four Seasons Ballroom, 11:30 - 12:30
Ecosystems Collide: Industry Update

Geoffrey Tritsch & Jon Young (Vantage Technology Consulting Group)
12:30 - 12:30
Industry Trends in UC
Avaya | Cisco BroadSoft | Microsoft

EDUCAUSE Annual Meeting 2018
Pre-conference Workshop
Jon Young, Associate Vice President
Geoff Tritsch, Principal
Industry Trends

• Gap between what is sold and what buyers want to buy
• Changing importance of voice
• Changing industry focus
• Changing competition

Especially for higher education
Selected Players

(Selected by CIA Steering Committee)

Avaya
Cisco/BroadSoft
Microsoft
• Out of bankruptcy
• Traction on CS-1000 migration and promos
• Courting their VARs
• Transforming their platform
  o Breeze
• Focus still on call centers
• IPOffice
Cisco/BroadSoft

- Into the cloud
- Cisco phones on BroadSoft
- Recurring revenues
- Internet2
• Transition from SfB to Teams
• Focus on cloud, not prem
• Feature gaps still there
• Transition from SfB to Teams
• Focus on cloud, not prem
• Feature gaps still there
Conclusions/Discussions/Questions
Legislative Update

JG Harrington (Special Counsel Cooley, LLP)

Legislative Update - JG Harrington (Special Counsel Cooley, LLP)
1:30 - 2:30
What’s New in D.C.: A Whirlwind Tour

J.G. Harrington
Today’s Itinerary

- The FCC
- White House
- Congress
- Looking forward
The FCC

Cooley
Atmosphere

- Acting more like politicians
- Significant ideological differences
  - Some within the majority
- More cooperation on spectrum
- Pai handing off issues
  - Infrastructure
- Still not a full slate
Key FCC Issues

- Network Neutrality
- Wireless Infrastructure
- Spectrum
- Rural Broadband
- Enforcement
- Mergers
Network Neutrality

- Repeal adopted December 2017
  - Reinterpreted statute
  - Reversed common carrier status
  - Retained disclosure rules
    - Enforcement by FTC
    - Preempted state rules
- Appeal pending
- State responses result in challenges
Wireless Infrastructure

• March 2018 – Environmental issues
  • Removed NEPA and NHPA review for small facilities on non-Tribal lands
  • New rules for Tribal participation on large facilities
  • No environmental assessments for certain facilities in flood plains
  • Time limits for FCC review of environmental assessments
Wireless Infrastructure

• September 2018 – State and local issues
  • Limits state and local fees
  • Limits aesthetic and undergrounding requirements
  • Shot clocks for considering applications
    • All approvals subject to shot clock
Spectrum

• Big picture
  • Opening spectrum high priority

• Specific bands
  • 28 GHz/24 GHz
  • 3.5 GHz
  • 2.5 GHz (EBS)
  • 6 GHz
  • 2 GHz
Rural Broadband

- Ongoing focus
- Auction status
  - CAF II auction complete
  - Mobility Fund next?
  - Working on Remote Areas Fund
Enforcement

• General approach is to focus on easy cases
  • No decisions so far have broken meaningful new ground
  • Fines seem to be bigger, but largely because violations mostly are wide-scale and egregious
• Continuing policy of requiring admission of guilt in consent decrees
Mergers

• Sinclair-Tribune
  • Outcome surprised many people
    • General sense that Sinclair overreached
  • Still technically not over

• T-Mobile-Sprint
  • Indications suggest will be approved
  • No action likely until 2019
Other Issues

- **High speed data services**
  - Reversed course from 2016 plans
  - Reduced regulation
- **Privacy**
  - No longer on the agenda
- **Television**
  - Repack continues
  - ATSC 3.0 moving forward
The White House

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The White House

- Wireless
  - 5G Summit
  - Spectrum Strategy
- Infrastructure plan
  - Still not really fleshed out
The White House

• Internet
  • Internet governance
  • Data privacy
  • Internet of Things

• Broadband connectivity
  • White paper coming out
Congress

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Legislation

- **RAY BAUM’S ACT**
  - Requires FCC reporting on competition
  - Kari’s Law – 911 from multiline systems
- **Not much other activity**
  - Network neutrality legislation
Midterms

• Current projections
  • Republicans likely to keep Senate
  • Democrats likely to retake House
  • Considerable uncertainty about turnout
Looking Forward

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Likely Agendas

• FCC
  • Continued focus on spectrum and build out
  • Rural issues disproportionately important

• White House
  • Completion of Spectrum Strategy
  • International issues are significant
  • Agenda may depend on midterms
• Dem-controlled House would be much different
  • Could be more telecom legislation than under unified Congress

• Possible areas of interest
  • Privacy
  • Network neutrality
Any questions?

J.G. Harrington
Cooley LLP
jgharrington@cooley.com
202-776-2818
BREAK

2:30 - 2:45
WHAT'S HAPPENING
at My Place

Facilitators:
James Jokl (University of Virginia) &
Mark Reynolds (University of New Mexico)
2:45 - 4:00
Communications Infrastructure and Applications
Community Group Session (open to all)
Meeting Room 406, Wednesday, October 31, 1:30 - 2:15
Reception

Hyatt Regency Denver at Colorado Convention Center (650 15th Street, Denver), Mineral Room A
5:00 - 8:00

Sponsored by:
Alcatel Lucent, Averistar, Cisco/Broadsoft, Convergent, Mitel, NEC, NVT Phybridge, & Vantage