



Shared IT Services for Higher Education & Research

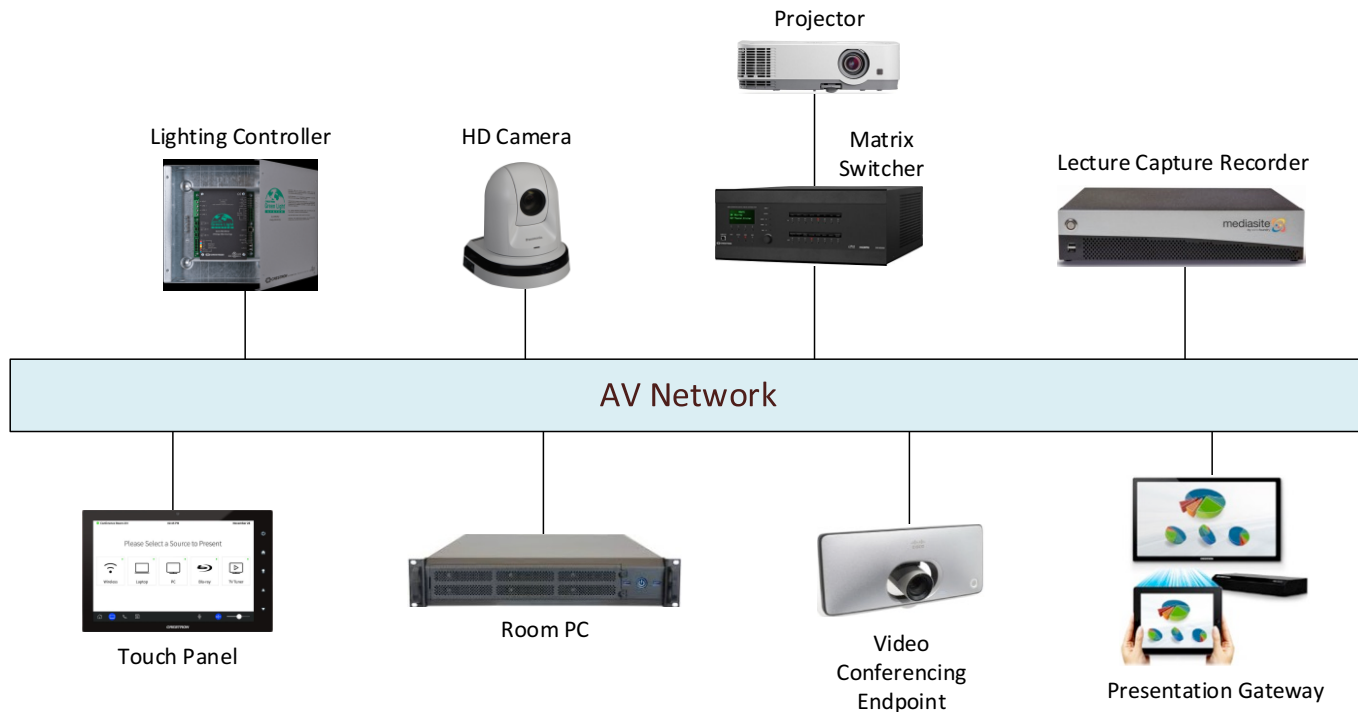
Conference 2018

Welcome!

When Worlds Collide: AV and IT Infrastructure Converge

Introduction

- Audio Visual systems have increasingly relied on an IT infrastructure to perform core functionality
- Existing robust and centrally distributed network reduces the pathway and installation costs
- Integration to other systems such as environmental controls improves the user experience
- Uninterrupted IT network service has become paramount
- AV manufacturers and integrators need to understand the IT standards



Discussion Panel



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Network Analyst
Hospital Network
and Infrastructure



Izaak Housden
UBC Faculty of Medicine
Collaboration Technology
Infrastructure Specialist



Octavian Jurca
UBC IT AV
Project Manager
Enterprise Projects



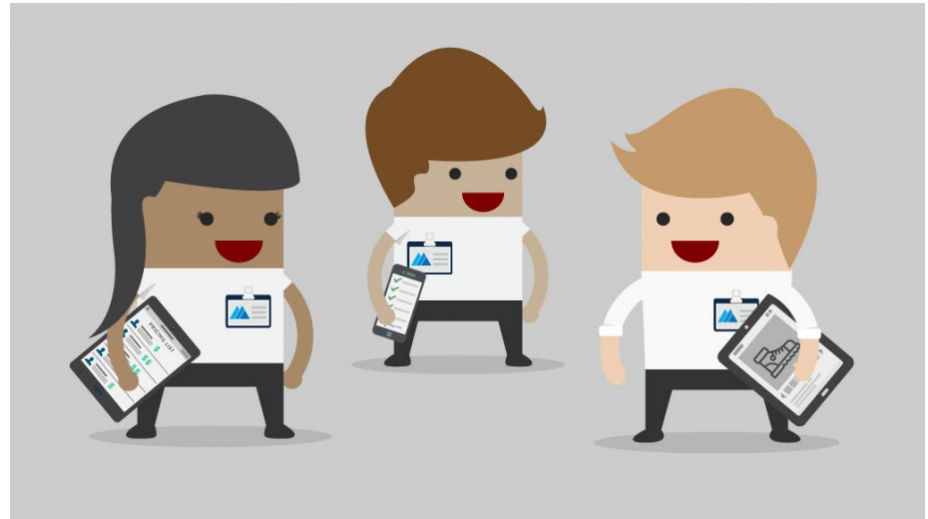
Paul Levinsen
UBCO IT, Classroom and
Media Services
Systems Analyst
Emerging Technologies



Jesse Steiger
UBC IT AV
AV Designer

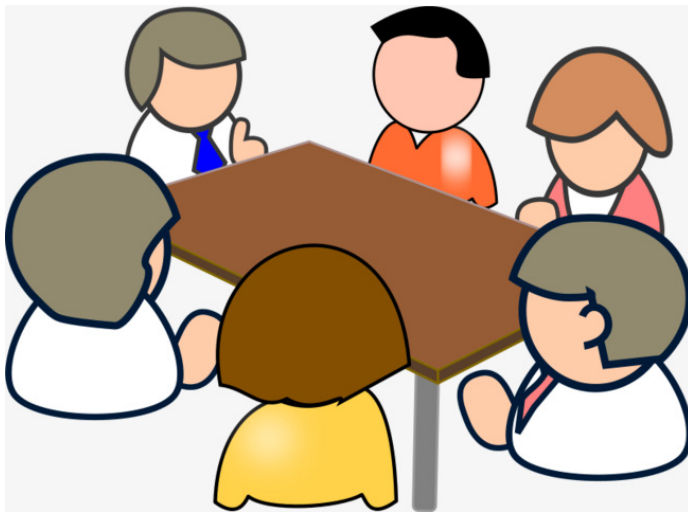
Discussion Topics

- AV and Network Team Relationship
- Network Architecture Management
- Infrastructure Management



AV and Network Team Relationship

- Understanding each others scope
- Process for requests
- Self-serve services that are available
- Regular collaboration meetings
- Main point of contact for AV related requests



Network Architecture Management

- Best approach to tracking device network configuration
- Naming convention for DNS entries
- DHCP or static IP address provisioning
- VLAN segmenting across a campus
- Externally routable devices

Configuration Mode

☒ Static ☐ DHCP

I.P. Address

192.168.1.110

Netmask

255.255.255.0

Gateway

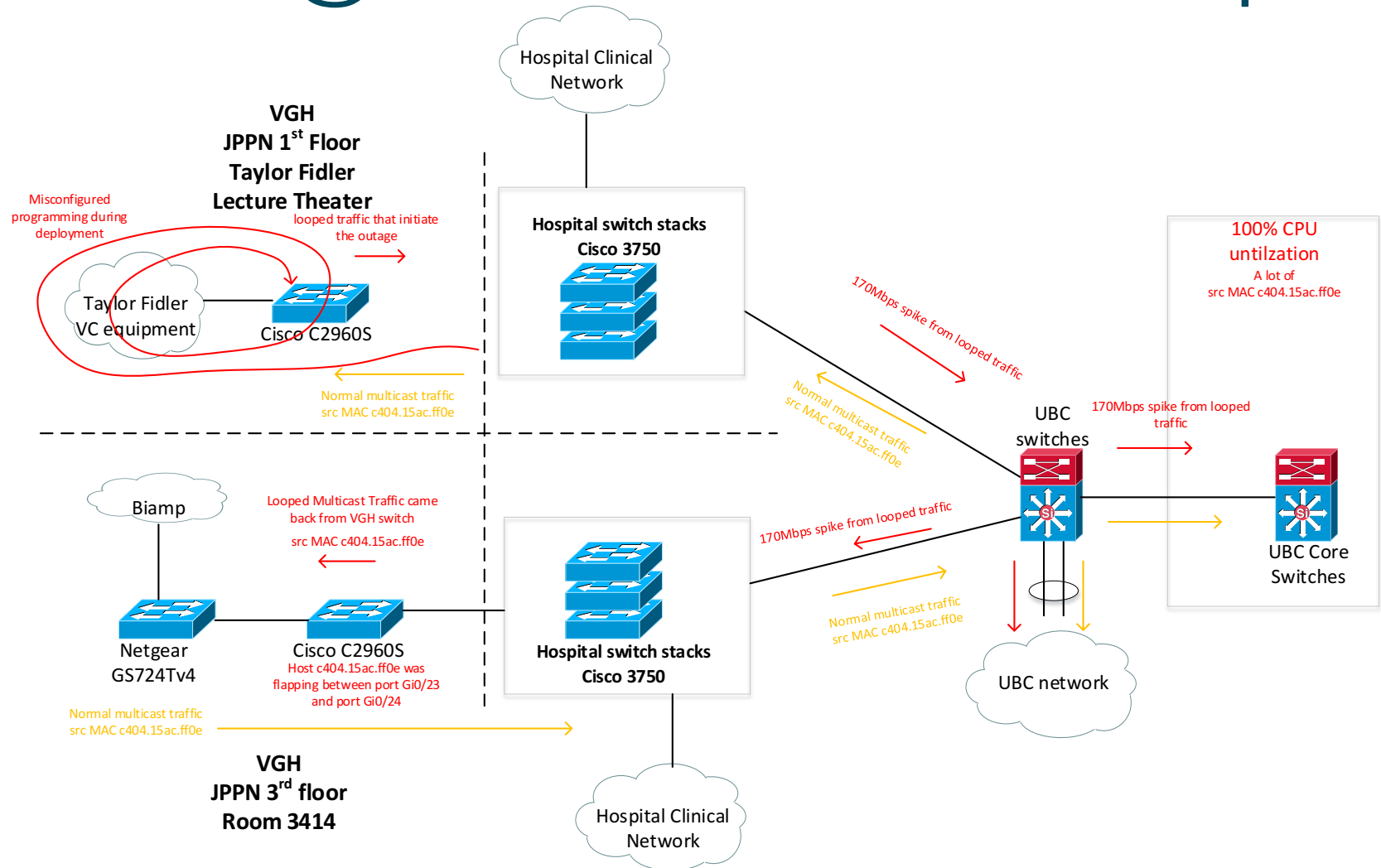
192.168.1.20

Primary DNS

192.168.1.20

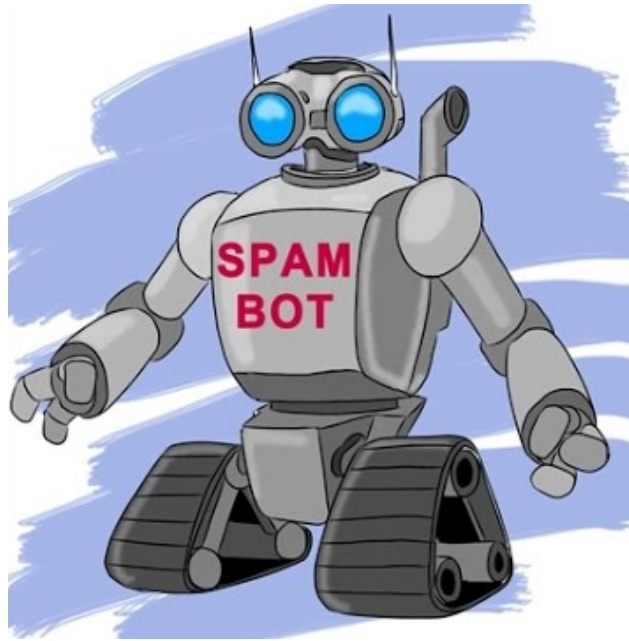
	A	B	C	D	E	F	G
1	Room#	Device	VLAN	CCT#	IP Address	Subnet Mask	Gateway
2							
3	BUTO 825	Crestron MPC-M10	CLASSROOMAVR20(VLAN260)	CCT121318	172.26.10.102	255.255.224.0	172.26.31.254
4		Crestron AM 101			172.26.10.105		
5							
6	BUTO 1099	Crestron MPC-M10	CLASSROOMAVR20(VLAN260)	CCT016280	172.26.10.112	255.255.224.0	172.26.31.254
7							
8	BUTO 997	Crestron MPC-M10	CLASSROOMAVR20(VLAN260)		172.26.10.122	255.255.224.0	172.26.31.254

Incident @ Vancouver General Hospital

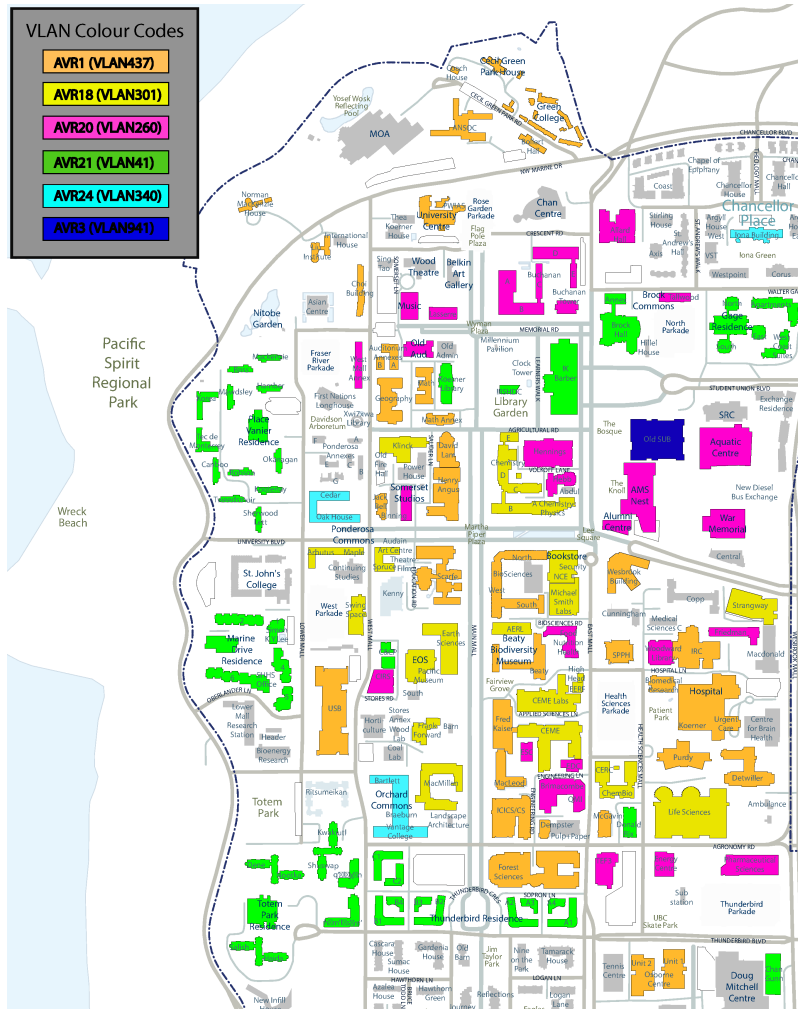


Incident @ UNBC

- Technicians wanted publicly routed IP address for an AV system to be able to remotely support
- The system ran for several years without any issues
- Sony alerted UNBC that a device was spamming their network
- The audio DSP was hacked and turned into a spam bot



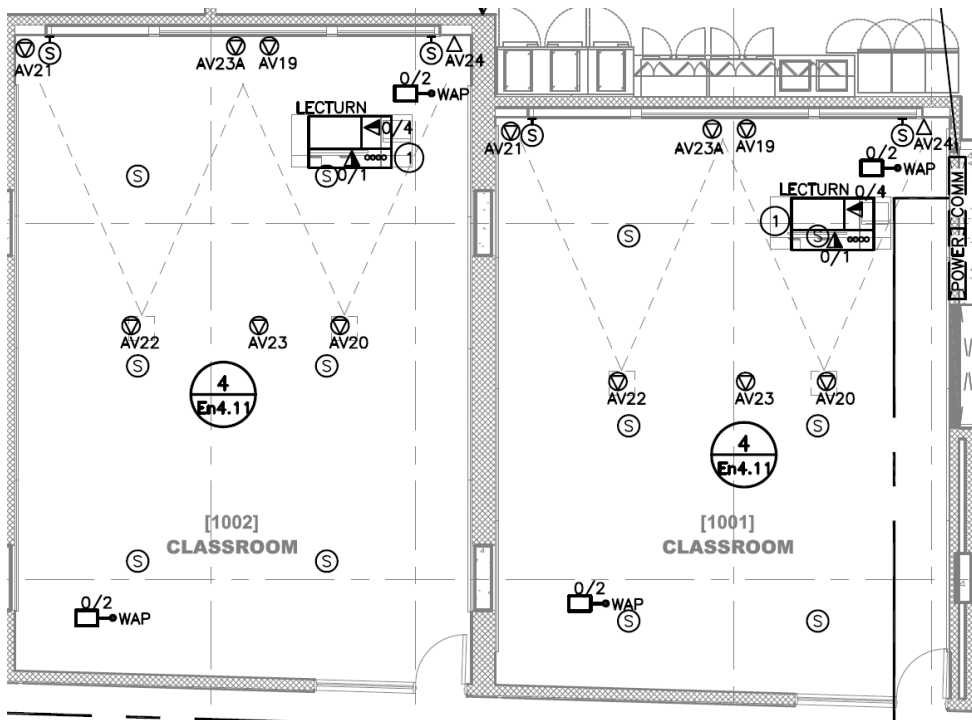
AV VLAN Map @ UBC Point Grey



- VLANs are divided by router and have a subnet size of /19 (8190 hosts)
- UBC IT AV currently manages inter-building IP address ranges in excel files to try and avoid conflicts
- How does your campus currently provision the AV network?

Infrastructure Management

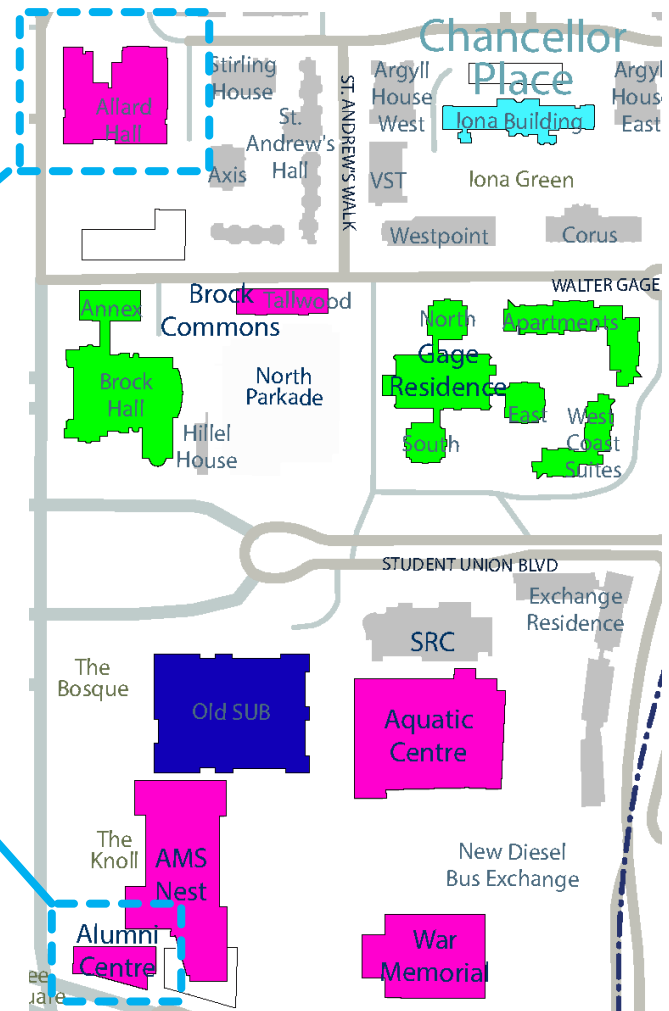
- Physical security of networked devices
- Homerun network connections or field switches
- IT infrastructure that can handle the bandwidth and PoE requirements



Incident @ UBC Point Grey

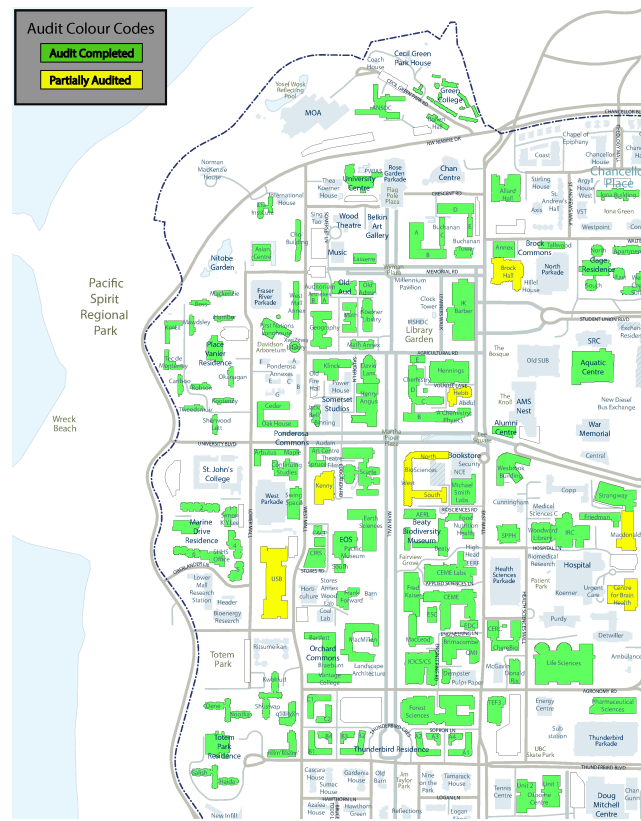
- AV Upgrade included connecting AV systems to the campus-wide VLAN
- Core switches saw critical amount of multicast traffic
- Inserted managed switch to be able to better monitor the traffic
- Identified multicast traffic was coming from port in Alumni Centre
- Crestron matrix switcher was “reflecting” multicast traffic back into campus-wide network

- Discovered standalone Biamp AVB network had patch connection to building network
- At time of implementation, vendor required link to be able to control field devices
- New firmware would allow segregation of the networks



Attacking the Problem @ UBC Point Grey

- Network audit of all AV systems on campus
- Move to per building VLANs
- Redesign AV systems with edge switch at AV rack



AV Network Suggestions

- Team building between IT and AV departments
- Develop self-serve tools to offload “easy” requests
- Establish a common naming convention across both departments
- Limit traffic between buildings to keep issues isolated
- Use VPN to secure the AV network from external hosts