AV / IT Convergence: The Next Generation

The changing face of end-users and their needs.

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Over three decades of end-user experience:
- **JP Morgan Chase** – built & managed largest commercial Cisco TelePresence
- **Lehman Brothers** – built & managed all audio and video rooms and systems
- **Bloomberg** – design and build of all TV and Radio
- **NYU** - Development of TV and Media Services Dept. and Campus Cable TV
- **AT&T, Financial News Network, MTV, NBC, Rutgers University** & many others.

Industry recognition:
- **IMCCA** – Executive Board of Directors
- **InfoComm** – Adjunct Faculty - since 2007
- **NAB** – Broadcast Engineering Judge – 2001 - 2013
- **Consumer Electronics Show** – Industry Analyst since 2003, Judge 2011, 2013
- **Enterprise Connect** – Innovations Judge 2012, Presenter since 2013
- **Interop** – Presenter since 2014

Past & Current
Advisory Boards:

Polycom,
Plantronics,
AVI-SPL,
BlueJeans,
Ricoh

30 Year Journey

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Raising Questions

1) Off-the-shelf Systems

2) Blame-O-Sphere

3) Security

Discussing Answers

4) Adjourn for Panel Discussion

#ICConnections

@NJDavidD

AV / IT
"CONVERGENCE"

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AV / IT "CONVERGENCE"

This is no longer a conversation about:

AV installers knowing how to terminate RJ45 connectors
AV engineers understanding how to design AV networks
AV sales professionals being able to speak with the CIO

This is now a conversation about how users needs have changed. IT influences have driven the demand for simple, repeatable, manageable, reliable, self-service solutions.

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Change is Difficult
It means you may have to stop doing what has worked in the past

"Organizations must be willing to break their own paradigms to innovate"

CES 2015 Disrupt or Be Disrupted Panel: John Chambers, Cisco chairman and CEO, Neil Smit, president and CEO of Comcast Cable and Dr. Werner Struth, member, board of management, Robert Bosch GmbH.

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History Lesson

Average price of an existing home $75,500
Average US Income per year $22,100
Average Monthly Rent $375.00
Average Price for new car $9,005.00

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1985

- Payphone

- Encyclopedia

- VCR
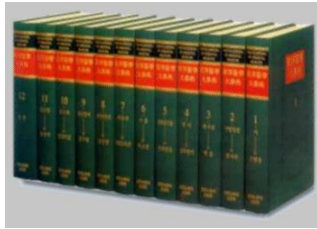
2015

- Mobile Phone

- Google

- DVR

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30 Year History Of AV - It's Time To Learn From The Past

1985

- Custom rooms needing AV Tech standing by
- Designed by $$$ AV Consultant & Installed by $$$ AV Integrator
- Undecipherable $$$ custom programmed touch-panel

AV Consultant   AV Integrator

2015

- Custom rooms needing AV Tech standing by
- Designed by $$$ AV Consultant & Installed by $$$ AV Integrator
- Undecipherable $$$ custom programmed touch-panel

AV Consultant   AV Integrator

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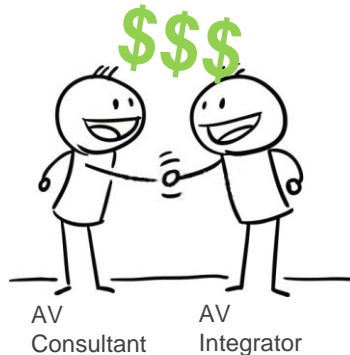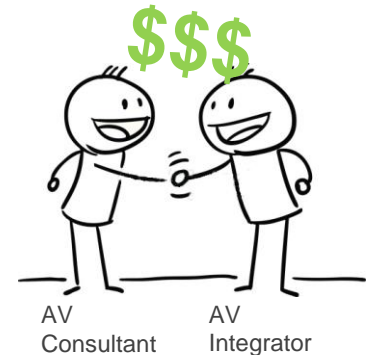
"That's the CXX's Room"
"We just use that for big meetings"
"I'm afraid to use the gear in there"
"Nobody uses the AV system"
"I wouldn't dare use that system without one of my AV/IT guys in the room to make sure it works"

At the vast majority of client sites I've visited these big rooms are empty unless the boss is using them, and people are looking for spaces to hold 4-10 person meetings.
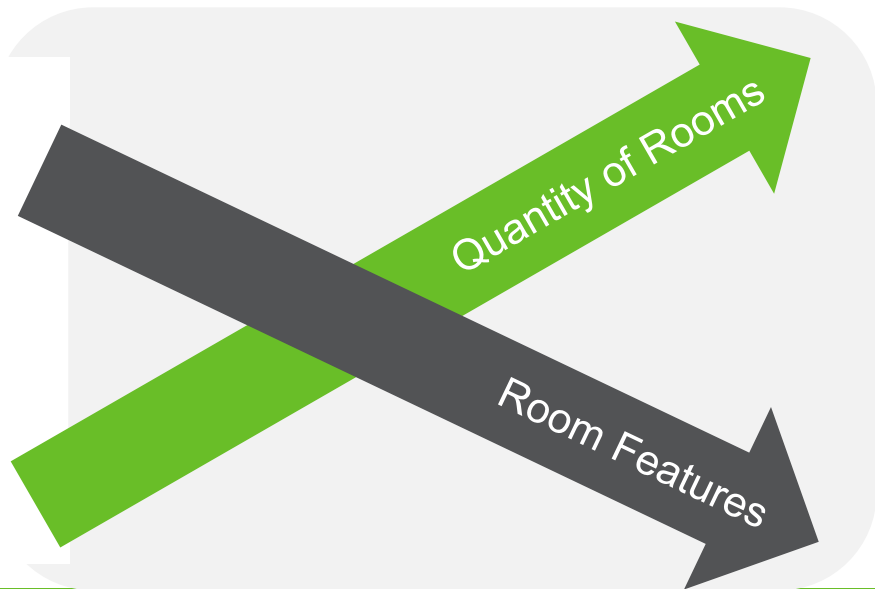
Video Demand and Utilization

Sources: Wainhouse, BlueJeans, Inrix, Ovum
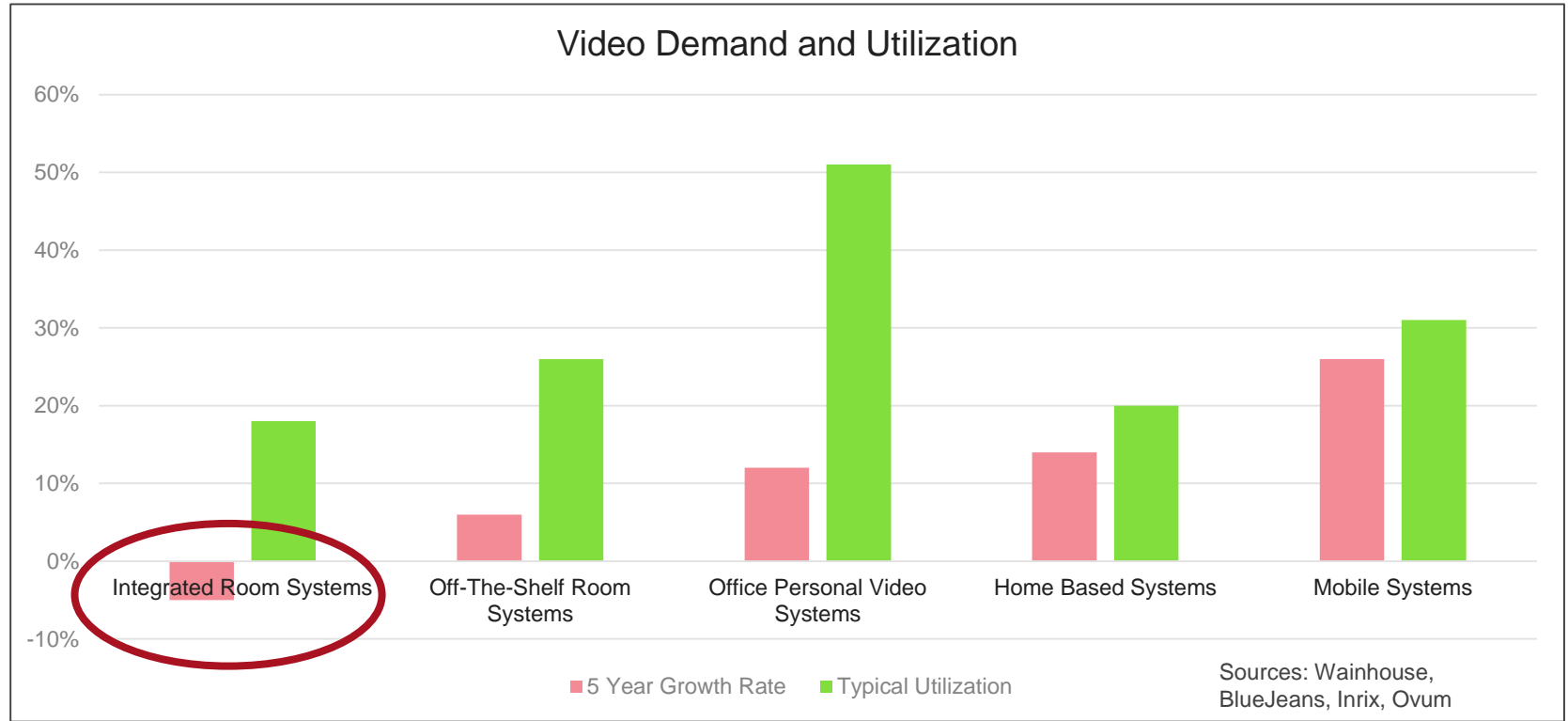
"More of Less, Less of More"

The new best practice – an approach where the quantity of AV and / or videoconference rooms and their advanced features are in inverse proportion.

Quantity of Rooms

Room Features

▶ **More rooms that are simple, repeatable, reliable, cost-effective**

▶ **Less rooms that are complex, feature rich, over-engineered**

▶ **All rooms with a standard, easy to operate user interface – think elevator**

Off-The-Shelf Systems

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Off the shelf then   vs.   Off-the-shelf today

Modern Off-The-Shelf System
http://youtu.be/SJPKtfGf98A?list=PLOYuUH-1YfygmBxu795QXKtNiHkVyKGcv

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Custom   vs.   Off-The-Shelf

Let's Do The Math – 14 Person Conference Room - Purchase

	Custom Room		Off The Shelf Room	
Install Time	Two Weeks	✖	Four Hours	✔
Programming	Custom	✖	None	✔
Solution Appropriateness	90%	✔	80%	✖
Ease of Use	Complex	✖	Simple	✔
Up-Front Hardware Cost	$80K to $200K	✖	$30K to $60K	✔
Designer / Consultant / Staging Required	Yes	✖	No	✔
Every room identical at all locations	No	✖	Yes	✔

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Do The Math – 14 Person Conference Room - Support

	Custom Room	Off The Shelf Room
Everything Remotely Manageable	No ✖	Yes ✔
Need IT/AV in-room support to handhold	Yes ✖	No – Self Service ✔
Repair Process	Send qualified tech to room to perform diagnostics to identify failed component. Order replacement or arrange service call. Keep room offline until re-install can be arranged. ✖	Get Spare ✔
Replacement Component New Model	Costly Reprogram ✖	NA ✔
Firm Logo Change	Costly Reprogram ✖	No Impact ✔

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Not Every Off-The Shelf System Is Good

The Truth About Webcams in Conference Rooms

What the marketing suggests:
- Big "head & shoulders" shots
- Clear expressions
- Eye-contact

The likely reality
- Small, distant shots
- Difficult to see expressions
- Odd angle, no eye-contact

"Video for video's sake" is not a best practices solution. Without clear facial expressions there is no added value. Also:

- **No dedicated QoS**
- **No Remote Management Strategy**

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A Public Service For The AV/IT Industry

= Webcam - Can NOT be called a "Conference Room Camera", as a stretch it could be called a "Huddle Room Camera"

= Conference Room Camera - Able to capture the image of a face of participant so you can actually recognize that person

= Dual Conference Room Camera – Able to smoothly capture recognizable image of multiple participants as speaker changes

Huddle Rooms

Conference Room

Large Conference Room
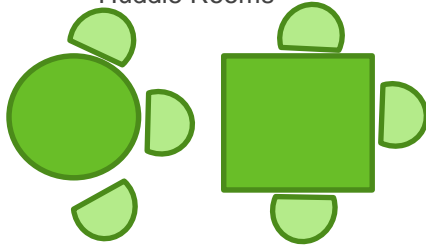
OK to use a webcam (but not ideal)
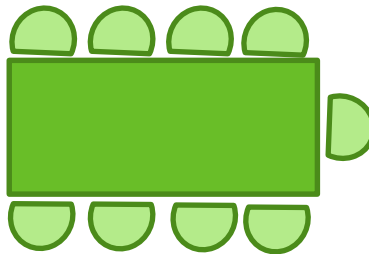
Not OK to use a webcam

Not OK to use a webcam

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In A World Where...

Standard (80%-90%)

Custom (10%-20%)
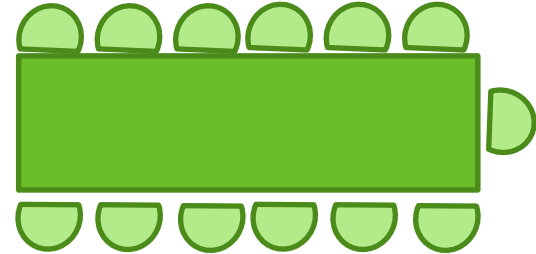
Where Does This Leave

Who have traditionally earned their living on what is now the remaining 20%?

The Architect

The AV Consultant

The AV Integrator

- ***Disagreeing***
- ***Claiming that Off-The-Shelf isn't good enough***
- ***Cutting informed users out of the process***

…and some doing the right thing – partnering with clients to use their expertise and tell the truth

The Architect   The AV Consultant   The AV Integrator

Doing The Right Thing

- *"In these rooms you should use an off-the shelf system. No need to reinvent the wheel to gain a few percent."*

- *"These are compatible off-the-shelf room systems that will give you a great experience, and these are based on hype and will not."*

- *"Let's augment this off-the-shelf system with better mics/speakers for a bit more"*

- *"We'll have to customize these few big rooms."*

The Architect   The AV Consultant   The AV Integrator

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- **Send Questionnaires**

- **Visit Sites They've Completed**

- **Speak With Their Existing Clients (users, not builders)**

- **Ask The Manufacturers You Trust**

- **Disqualify Any With Poor Records**

The Architect   The AV Consultant   The AV Integrator

Game Show Break

Lets Play
The AV Blame Game!

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From: AV Integrator
Sent: 2012
To: Client's Location Manager
Subject: Crestron DM Equipment Failure

Below please find a list of 18 defective Crestron units we need to replace thus far: *(List of Crestron DM removed)*
In addition, we seem to be running into a lot of issues with VGA inputs failing on most of the transmitters.

Please feel free to contact us with any additional questions or concerns.

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From: Client's Location Manager
Sent: 2012
To: Client's Real Estate manager
Subject: Crestron DM Equipment Failure

As a follow-up to my earlier mail, here's a list of equipment (18 pieces) at XXXXXXX that have failed…the installation is only 3 months old. As you can imagine, this is significantly disrupting our client and makes for a negative external customer impression. Have we seen this kind of failure rate at other locations? If so, are we developing an alternative to the Crestron equipment? In addition to escalating at Crestron for resolution, we need them to explain why the equipment is failing and understand if they have made changes to ensure no further failures…or find another manufacturer.

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From: Danto
Sent: 2012
To: Client's Real Estate manager
Subject: Crestron DM Equipment Failure

18 Crestron DM units don't fail at the same time on a new installation. Impossible. Let me escalate with the manufacturer with your permission

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From: Crestron
Sent: 2012
To: Danto
Subject: Crestron DM Equipment Failure

We visited the site and found that the systems were not properly powered, the cables were not properly run and terminated, standard code and firmware was not installed and EDID tables were not configured correctly. Apart from that, everything was done perfectly…

AV Blame-o-sphere

This NEVER Happened Before
You Wanted It To Do What?
The Program Was Late
You Wanted It To Do What?
We Weren't Allowed Into The
You Missed Staging
The Manufacturer Shipped the Wrong Unit
We Can't Fit Our Cables Into Those Conduits
The Manufacturer Changed Models Since You Ordered
We Never Got The IP Addresses
We Used The Wrong Regional Settings
The Power Isn't Live
The Consultant's Design Didn't
The GC Was Late
The Power Isn't Live
The IT Guys Never Answered Our Emails
The Program Was Late
Design Didn't
We Never Got The IP Addresses
Wrong Regional Settings
The IT Guys Never Answered Our Emails
You Missed Staging
This NEVER Happened Before

Every AV Integration firm I've ever met with explains that they've had to fix another firm's disaster at some point, but no one is willing to admit that bad firms exist.

No process exists for identifying and removing industry accreditation from bad firms.

What should our industry do?

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Light At The End Of The Tunnel…

Nearly all modern AV components are now IT / Network ready ☺

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That Light at the End of the Tunnel

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That Light at the End of the Tunnel

"The breaches reportedly didn't come from a direct attack to the strongest points of defense, but rather the weakest, least likely systems. In one case an HVAC contractor on a service call brought malware into the network through standard system adjustments."

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That Light at the End of the Tunnel

"Just about every piece of room AV gear is sitting on the network now. Maybe a different segment or VLAN, but it's in the door and past the firewall. AV install and repair technicians connect personal notebooks and adjust code and settings all the time."

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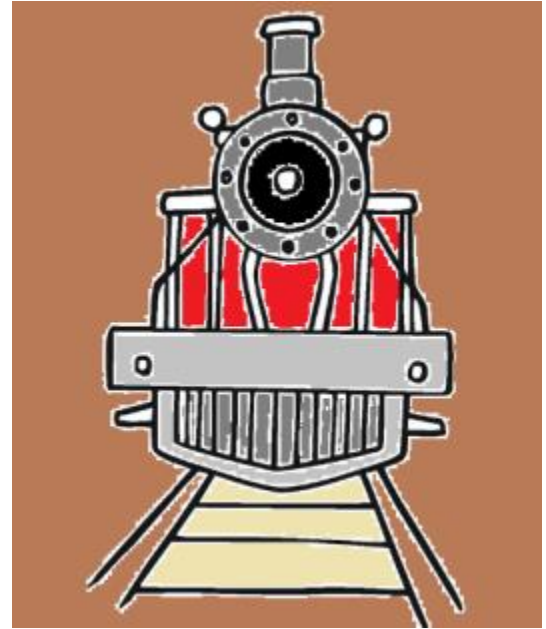
That Light at the End of the Tunnel

"This is going to be unacceptable to many organizations going forward…."
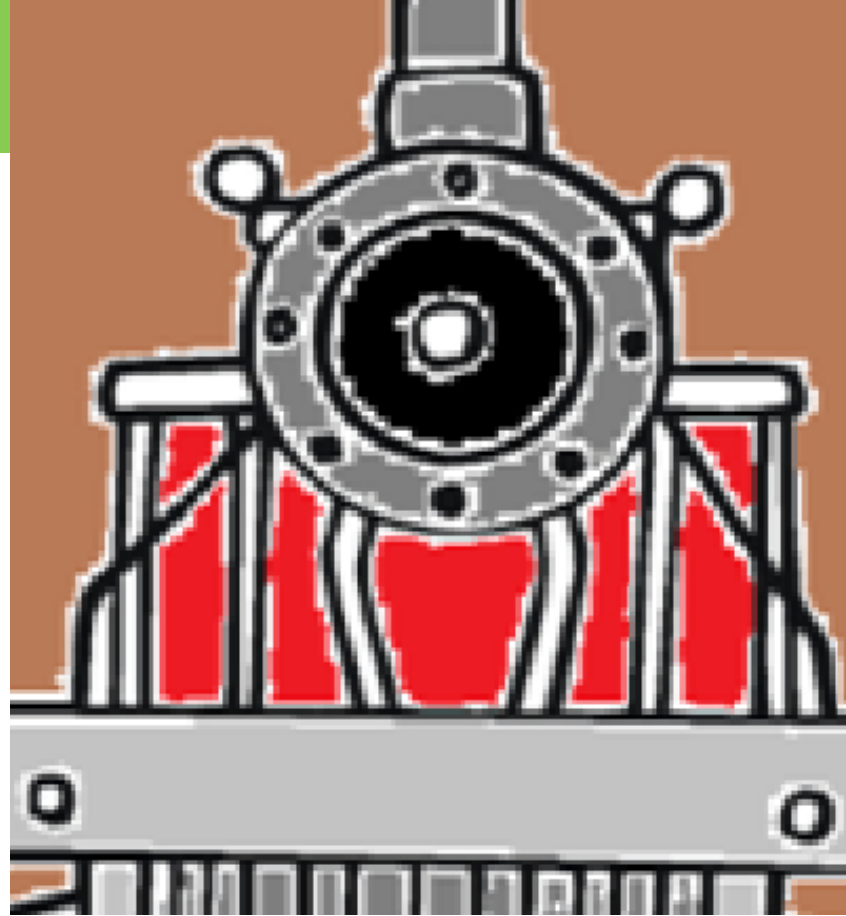
The AV Train Wreck of 2015
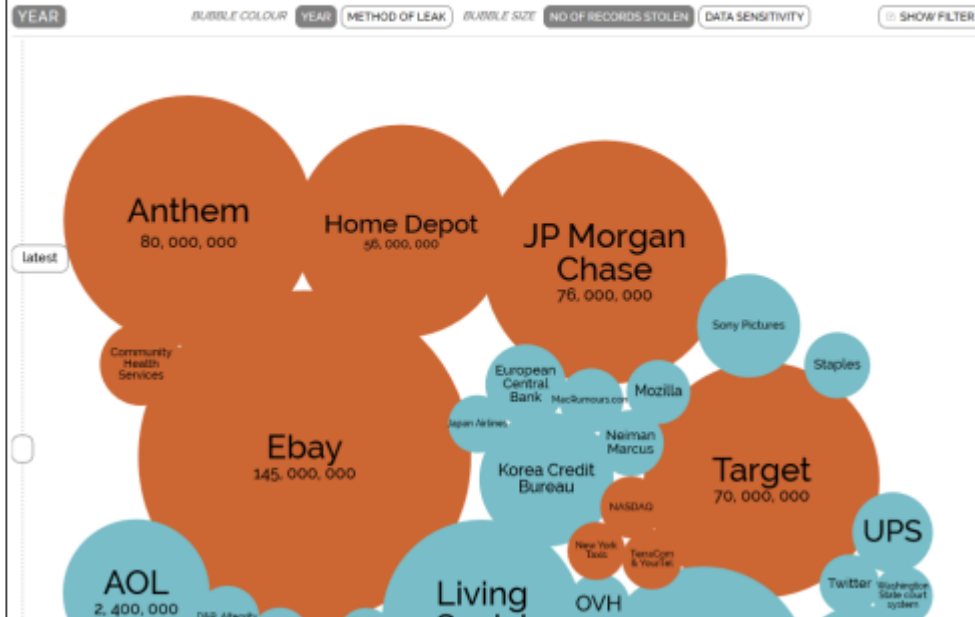
bit.ly/18LmRbh
Informationisbeautiful.net

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Security realities have already fundamentally changed the world of AV – it's just that very few AV companies realize it yet

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Train Wreck…

Train Wreck…

Authentication Explain the authentication mechanism(s) of the solution at all IT layers (application, middleware, DB, system, network, client)	Password Policy Does the system enforce a minimum Length of 15 characters?	Password Policy Can the system be set to limit the use of the 4 most recent passwords?	Password Policy Does the system support setting a password age of min 1 day & max 90 days?	Password Policy Can an account lockout be set to 5 unsuccessful attempts, the account must be disabled for 30 min?	Authorization Explain the authorization mechanism(s) at all IT layers (application, middleware, DB, system, network, client) - Roles/Rules, User Provisioning, approval, seperation of duty, access certification & de-provisioning process.	Known Vulnerabilities Is the application/technology vulnerable to known forms of attack?	Network Controls Please explain the network security controls? (IDS/IPS, Host IDS, FW, NAC, Bit9, FireEye, WAF, SOAP, Segmentation, Time-outs, etc)	Data controls Please explain security controls implemented for data protection at various data stages (storage, transmission and disposal)	Encryption What encryption mechanisms are available? (include key strength, encryption methods & key management processes)	Remote Access Does this application require remote access capabilities? (How will this be implemented?)	Backup Have backup requirements been identified and communicated to the Fund Backup team?	Auditing Does the system provide tamper proof auditing capabilities at all IT layers? (application, middleware, DB, system, network, client)	Please list moitoring tools used and explain review mechanism for logs (privileged activity, login, security, etc)	Maintenance, Support & Remote Management Explain the maintenance and support model for this solution.	Documentation Does this system have well documented manuals and user guides?

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Train Wreck…

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Train Wreck…Not a lot of options to avoid it

- Have all AV manufacturers sing Kumbaya and begin using identical OS, Ports, Protocols, etc…

  Not gonna happen

- Go back to the days of analog connections and RS-232 for data and control…

  Not gonna happen

- Perform the exhaustive research and testing required to certify each new device and every technician's notebook before servicing…

  Unlikely

- Minimize the number of components in each system from different manufacturers…

  Which Brings Us Back To Off-The-Shelf

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What Should Informed End Users Do Now?

1. **Identify actual needs**
2. **Create an internal solutions catalog that minimizes problematic issues**

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There are six critical phases of successfully deploying any technology within an enterprise. The first starts with an honest assessment of user's actual needs…

1-People Discovery & Planning

2-On-Boarding, Establishing Needs, Creating Service Framework

3-Product Selection

4-Awareness Program

5-Policy & Process Design

6-Ongoing Evaluation & Measurement

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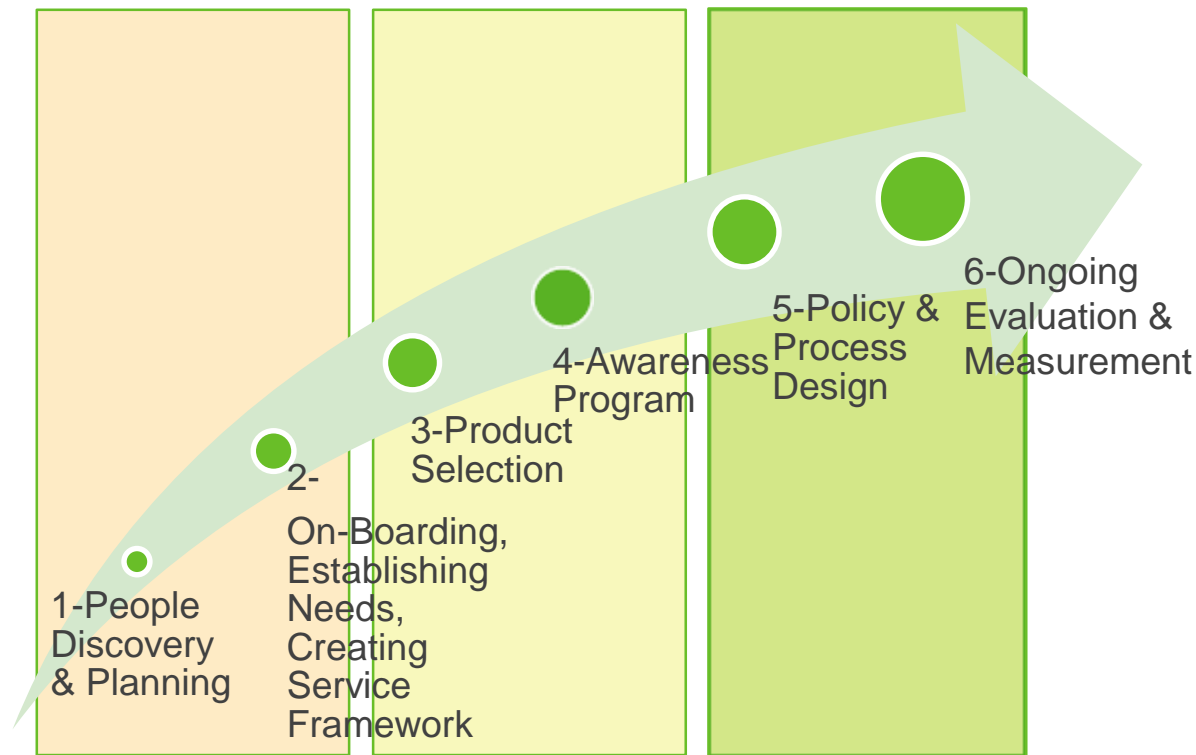
Identifying The Actual User Needs Of An Organization

Only after a user segmentation plan is developed can technologies to fit each actual user need be selected.

Directly engaging representatives of the user community is critically important to satisfaction and ROI.

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A successful AV/UC strategy is all about the right blend
Picking the right tool for each job as part of a unified ecosystem

Immersive Collaboration & Specialty Rooms

- Excellent for group to group extended meetings

- Unique needs (auditoriums, Extra-large Boardrooms) require custom configuration

Meeting Rooms

- Not "videoconferencing" or "audio conferencing"
- Driven by people and communications, not technology
- Identical, repeatable, non-custom rooms from standard catalog
- No need for elegance "form follows function"
- NO WEBCAMS!

Desktop

- No need to reserve shared spaces – "dial-tone"
- Software for occasional needs, appliances for frequent and/or mission critical
- Use case drives correct selections
- New desktop all-in-one consoles available now

Mobile

- Access all collaboration from anywhere
- Best efforts connections supported
- Enables full productivity while away from usual workspace

All Systems Must Work Together Seamlessly - For Internal And External Connections And Users – No Technology Islands!

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Create An Internal Catalog – *"Any to Any"*

Our Firm's Internal Catalog

Name	Typical Picture	Configuration/Functionality	Can Be Used For
Large Conference Room		✓ Single, or dual flat panel screens ✓ Integrated videoconferencing ✓ Ceiling-mounted speakers, integrated audio-conferencing ✓ Wireless touch panel user interface ✓ Table microphones	✓ Reviewing PC data / slides ✓ Extended collaboration ✓ Video and/or audio meetings with local and remote participants ✓ Internal or external groups ✓ Cable TV viewing
Medium Conference Room		✓ Single or dual flat panel screens ✓ Videoconferencing ✓ Tabletop speakerphone for audio conferencing ✓ Manufacturer touch panel control	✓ Reviewing PC data / slides ✓ Video and/or audio meetings with local and remote participants ✓ Internal or external groups
Team Room		✓ Single flat panel screen ✓ Speakers on display ✓ Speakerphone (or SIP Trunk) for Audio Conferencing	✓ Team meetings ✓ Reviewing PC data / slides ✓ Group audio conferencing
Huddle Room or Enhanced Office		✓ Single screen for PC display & Videoconferencing ✓ Connection for PC and Data integrated at table ✓ Speakerphone for audio conferencing	✓ Reviewing PC data / slides ✓ Small group audio conferencing ✓ Small group videoconferencing
Home Office		✓ Single screen ✓ Audio and video conference appliance(s) ✓ Connection for PC display	✓ 1 to 3 people ✓ 1 on 1 chats / local or remote ✓ Hotoling, power user
Personal / Mobility Solution		✓ Single screen ✓ PC or tablet based	✓ 1 person ✓ Remote collaboration / traveling

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Create An Internal Catalog – *"Any to Any"*

- **Use as many off-the-shelf solutions as possible**

- **Identify solutions based upon use case, so end-users know how to choose**

- **Design custom systems ("engines") where needed only once, then re-use that design where applicable in the future (with exceptions for space considerations.) Minimize brands and vendors**

- **Don't let perfection be the enemy of good**

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Open Questions For Our Discussion

The Important Questions For The AV Industry

- **Custom Rooms** – Why are AV Consultant firms and Integrators still suggesting / creating custom BOMs with multiple points of failure if simpler, excellent solutions exist?

- **Break Paradigms** – How do we put a stop to the practice of AV professionals specifying the same type of solution they did on the last job?

- **Inappropriate Vendors** – How do we drive our industry to self-police? What will we need to do to restore faith and increase the quality of the industry?

- **Security Nightmare Coming** – Can we get manufacturers to adopt a standard for operating systems, ports, protocols, etc?

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Our Panelists:

Paul Depperschmidt
Collaboration Business
Development
Cisco Systems

Josh Srago
AVNation &
ICS Integrated
Communication Systems

Felix Robinson
Strategic Consultant
Relationships
AVI-SPL

Amy (Reynolds)
Smith
Director of
Collaboration
Nexus

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2045