High-Performance A/V and Considerations for your Network

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Agenda

• Emerging technologies impacting networks
• How we can prepare
• Landscape of A/V choices today
• Building a networking plan with A/V in mind
• A/V Case Study
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<th>Collaborative environments</th>
<th>Untethered workforce</th>
<th>Internet of Things (IoT)</th>
<th>Streaming content</th>
<th>5G</th>
<th>Augmented and virtual reality</th>
<th>Audio/Visual</th>
<th>Power over Ethernet (PoE) applications</th>
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<tbody>
<tr>
<td></td>
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<td></td>
<td>BYO device</td>
<td></td>
<td>LEED</td>
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<td>Smart buildings</td>
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Level Set – A/V Evolution

- A/V is business critical in today’s workplace
- Mobility is Key
- Separate infrastructures for dedicated A/V networks are converging
- Special design and implementation requirements
- Installers are shifting from A/V specialists to network technicians.
- New standards and higher frame rates are putting a strain on networks
In-building Networks are Changing

Wireless Technologies
Access Nodes
Audio Visual
Wire it Once. Enable Everything.

- **Deliver power and data** to enable hard-to-reach remote devices including IP devices connected via software-defined LAN (SD-LAN) and distributed antenna systems (DAS).

- **Fewer cable runs** take up less space in crowded or narrow pathways

- **Lighter** cable bundles are easier to handle

- Reduce IDF closets and associated maintenance costs by **reaching further distances**

- **Eliminate multiple runs** of single-purpose infrastructure

- Prepare for future demands with **scalable, adaptable solution**
Enabling Future Flexibility

- Full pathways with little room for day-two applications
- Rip-and-replace upgrades
- Costly ancillary networking components (building IDF, cable trays, conduit, cooling, racks, etc.)

- Save space with fewer, longer runs of future-ready Composite Cable
- Reduce future upgrade costs
- Extend the reach of the network
- Reduce ancillary networking expenses
A/V - Any Source Anywhere
Solution of Every Space
A/V in the Enterprise

- Audio Video technology is the glue that ties the enterprise together
  - Enables content sharing, efficient work environments
  - Signage and messaging
  - Consistent collaboration and communication from personal workspaces to custom spaces.

Personal Workplaces
Small Rooms
Medium or Large Rooms
Custom Spaces
Outside the Room
# Types of A/V Solutions

<table>
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<tr>
<th>Traditional AV Matrix Switchers</th>
<th>AV-Over-IP</th>
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<tbody>
<tr>
<td>- Symmetrical - fixed number of inputs and outputs</td>
<td>- Network is Flexible</td>
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<tr>
<td>- Limited by scale and size</td>
<td>- Any Source, Any Where</td>
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<tr>
<td>- Cost efficient for small scale/ in-room switching designs</td>
<td>- Scalable up to thousands of endpoints</td>
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<td>- Operates on Standard Infrastructure</td>
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<td>- Fiber or Copper</td>
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</table>

![Diagram of traditional AV matrix switcher](image1.png) ![Diagram of AV-Over-IP network](image2.png)
Types of AV-Over-IP

- **<100Mbps**
  - Low Bandwidth
  - High Latency
  - High Quality
  - High Scale
  - H.265
  - H.264

- **1GB**
  - Medium Bandwidth
  - Low Latency
  - Medium to High Quality
  - High Scale
  - TicoXS
  - JPEG 2000

- **10GB**
  - High Bandwidth
  - Low Latency
  - High Quality
  - Limited Scale
  - Tico

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Finding the Right Solution

• Conversation with the Stakeholders
  – IT, AV, CEO, Employees, HR
  – Understand the vision of the business to ensure the technology meets the needs of the organization

• What are the Audio-Visual requirements?
  – Any room to any room
  – 1080p, 4K, 6K, 8K or beyond
  – What is the acceptable latency
  – How large is the system expected to scale

• What are my system requirements?
  – Converged or Separated Networks
  – Redundancy
  – Security requirements
Solutions Built on Industry Standards for Reliability and Interoperability

• Standards Based Networking
  – Ensures reliability on converged enterprise networks
  – 1 Gigabit bandwidth
    • Allowing Scalability
  – Security Protocols

• Support for A/V Standards
  – Standard Control APIs
  – HDMI, HDCP, Audio
Corning Optical Communications HQ

- 170,000 square feet
- 800 employees
- 6 floors

**Applications:**
- Wi-Fi access points
- 4K TVs
- Café menu boards
- Scheduling panels
- Conferencing phones
- Video conferencing
- In-building cellular
- Printers, workstations
- Sound masking
- Security cameras
The Solution

• Key to pull the right infrastructure day 1
  – Remain “Future Flexible”
  – Enable all high-performance applications
  – Fiber & power deep
• Select forward looking partners
• End to end solutions to seamlessly handle end user experience
  – Focus on wireless
  – Scheduling
  – Room Control
  – Wireless presentations & conferencing
Wrap-up Discussion

• For new projects, at what stage of the design-build process should A/V needs be addressed ... and what are the advantages of starting earlier?

• What challenges may come up if it’s addressed after opening?
Wrap-up Discussion

• What interesting projects are you working on now? Can you explain the network challenges you are running into? Any lessons learned you can share?
Wrap-up Discussion

- As Corning begins to re-open its workspace, how will the A/V system play a role in that?
Watch our HQ Video:

Read our Case Study: