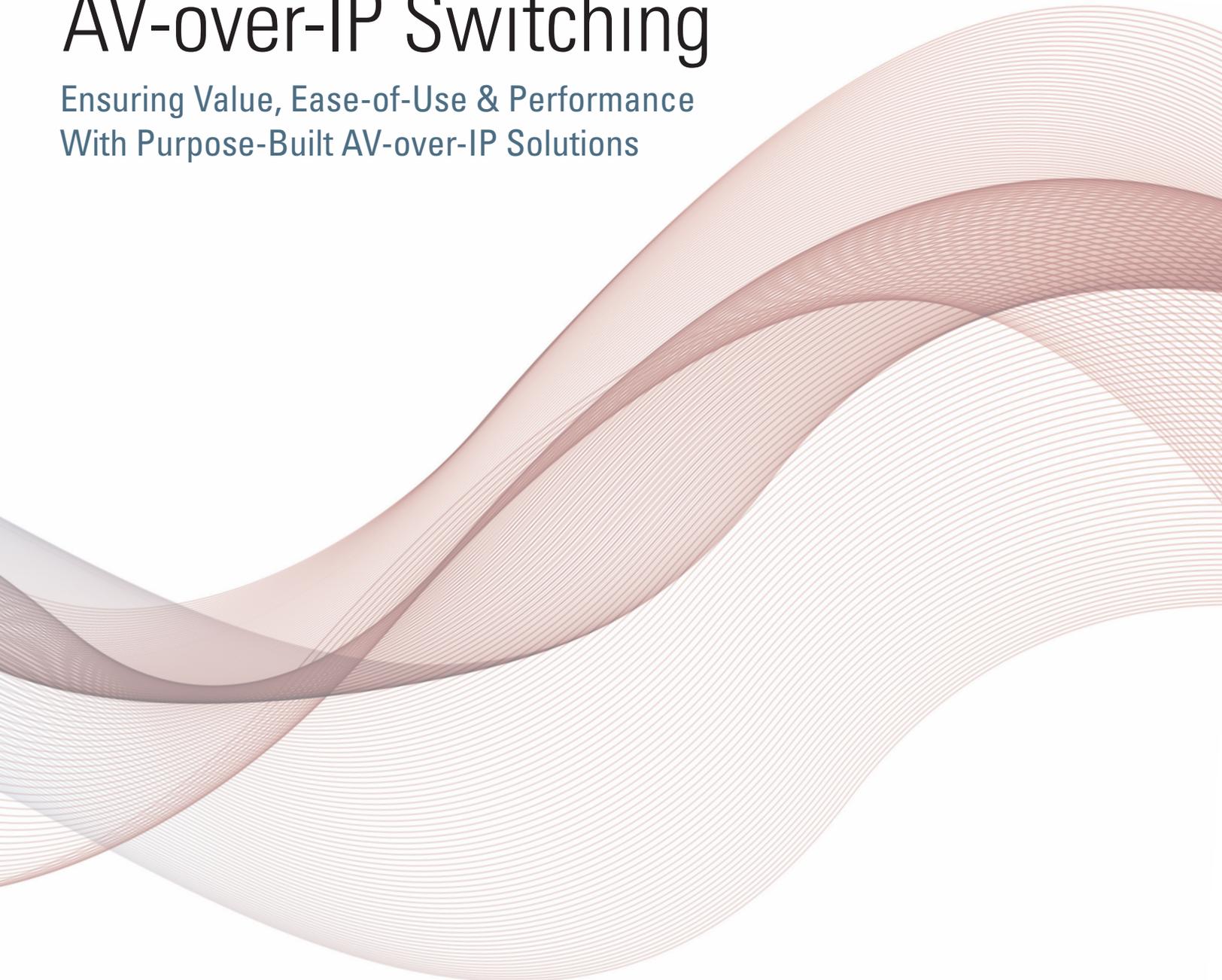




The Case for AV-over-IP Switching

Ensuring Value, Ease-of-Use & Performance
With Purpose-Built AV-over-IP Solutions



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BUSINESS

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AVTECHNOLOGY

By Margot Douaihy

Exceptional Flexibility, Engineered for AV over IP

There is no doubt about the disruptive power of the Ethernet in the professional AV industry. To send more AV sources to more destinations, at further distances, new topologies are being considered in which traditional matrix switchers are replaced with Ethernet switches. The AV-over-IP approach is on display with impressive results at The Quadram Institute in Norwich, England.

The groundbreaking medical center brings together more than 100 clinicians and 300 researchers from several partner organizations. Snelling Business Systems, the UK-based global AV systems integrator, was selected to handle the comprehensive AV requirements—creating the first endoscopy site in the UK utilizing SDVoE technology to distribute lossless 4K video over a robust NETGEAR 10GB Ethernet network.

To capture and stream AV sources for this ground-breaking system, Snelling selected ZeeVee ZyPer4K SDVoE encoders for fiber Ethernet, which deliver uncompressed 4K 4:4:4 video over a 10G NETGEAR optical IP network.

“The level of performance and sophistication we were able to achieve would not have been possible using an HDBaseT or compressed SDVoE AVoIP (AV over IP solution),” said Kevin Madeja, Snelling Business System.

In applications like The Quadram Institute, where scalability is required, two-way communication is vital, and every pixel is crucial, only NETGEAR’s AV-over-IP infrastructure will deliver.

WHEN 1GB IS REQUESTED

While the market potential for 10GB is vast, “there is also a big opportunity for the AV channel to offer customers cost-effective

AV-over-IP solutions based on 1GB, which in many cases, will fit their needs,” said NETGEAR’s Sam Broadbent. “NETGEAR M4300 series is also certified by many AV vendors such as Crestron for instance, to deploy all types of AV applications”

“NETGEAR can provide a 1GB-connectivity solution that is simple, reliable, flexible—it just works, without any specialist knowledge,” said Bill McGowan, ATEN US Distribution Account Manager. For 1Gb AV-over-IP connectivity, ATEN is using the M4300 switch in its demo center in Southern California.

USE CASES

NETGEAR offers a range of AV-over-IP switches with its M4300 and M4500 Series that can expand, upgrade, and meet virtually every performance and budgetary need with a flexible and modular approach—up to 100GB bandwidth. NETGEAR’s Ethernet ports are fully bi-directional, so each port may be treated as an AV input or an AV output. Unusual 1x23, 6x18, 4x20 configurations—are all possible. One of the M4300 series has a

KEY TAKEAWAYS:

1 As technology stakeholders evaluate methods for transporting high-quality multicast streams and 4K and 8K feeds across an enterprise, campus, or region, the use case is clear for a 10GB and higher Ethernet switching infrastructure.

2 NETGEAR’s M4300 and M4500 Series AV-over-IP switching solutions are purpose-built to provide up to 100GB switching in a preconfigured, works-out-of-the-box experience for true multicast AV with NETGEAR IGMP Plus™ network configuration.

3 While the market potential for 10GB is vast, 1GB still makes sense for some clients. NETGEAR can provide a 1GB-connectivity solution that is simple, reliable, and scalable. Whatever the use case, NETGEAR has the right switch.

unique modular switch design, with up to 96 ports in 2U, giving NETGEAR another immediate benefit.

One of the features that makes AV-over-IP applications possible is NETGEAR IGMP Plus™. “IGMP Plus is proprietary to us,” said Alex Pendleton, ProAV System Design Engineer, NETGEAR. Many switches can be used in the ProAV environment, but they are often much more complicated to setup. The NETGEAR M4300 and M4500 switches comes equipped with IGMP Plus as a standard feature. IGMP Plus allows ProAV engineers to configure any Layer-2 VLAN

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on their network infrastructure to send and receive multicast streams with a single command via the command line interface (CLI) or check box in the web-based GUI. User error is removed from the equation.

All of these features and functions make NETGEAR's fully managed M4300 and M4500 Series ideal solutions for the full range of commercial, high-end residential, and "resimercial" (light commercial) AV-over-IP applications.

Popular use cases for NETGEAR's AV-over-IP portfolio include higher

education and K-12 classroom applications; government and mission-critical applications; transportation hubs; command and control centers patching in surveillance feeds; offices and workspaces of all sizes; corporate installations, especially those with large or global footprints; entertainment venues; restaurants, sports bars with high-end AV, recording, and streaming facilities rivaling broadcast facilities; nightclubs and bars; sports stadiums and e-sports arenas; and healthcare installations requiring pristine visual acuity, real-time collaboration, and 4K feeds.

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THE BUSINESS CASE

When outlining the business case for a new technology investment, essential elements to consider are the reasons, options, benefits, costs, timescales, and risks. First, define the nature of the need or problem. What are potential risks of the technology investment? Will new levels of user training or support be required? What is the value of each option or alternative? What is the strategic fit of a new technology system or product?

The business case for 10GB AV over IP can include applications where clients are willing to use more bandwidth for heavier feeds,

BUSINESS BENEFITS CHECKLIST

- ✓ **EASE OF INSTALL:** The NETGEAR M4300 and M4500 work right out of the box—plug and play. There is low or no provisioning required.
- ✓ **USER FRIENDLINESS:** Set it and forget it. There is no need for manual adjustment by users. No risk of user error.
- ✓ **NETWORK IMPACT:** NETGEAR supports AV/IT convergence with standard IP switching. Leverage existing IT infrastructure and Cat6A cabling. Combines Copper and Fiber connectivity in a single switch.
- ✓ **SECURITY:** Rigorous, best-in-class security. Compliant with all industry standards for security.
- ✓ **FLEXIBILITY:** "We used NETGEAR switches as we needed a modular switch that would allow us to provide maximum flexibility and expandability in the future. The nice thing about this NETGEAR solution is that it is basically pre-configured to work with AV-over-IP encoders/decoders. Multicast configuration can be tricky; using NETGEAR switches was very simple."
—Kevin Madeja, Snelling Business System

BUSINESS CASE

but cannot tolerate loss or latency based on the amount of compression. To distribute unlimited, uncompressed 4K content over IP at faster speeds, with no visible latency or artifacts, 10GB is the most sensible path. While there may be costs associated with the structured cable topology (or overlay topology), Ethernet switches cost at least 10 times less per port than custom AV switchers; upgrading the resolution can be done with the existing switch. Clients will also save on the total cost of ownership (TCO) with NETGEAR's native support for the encoder; NETGEAR accommodates SDVoE encoder cards directly in the switch.

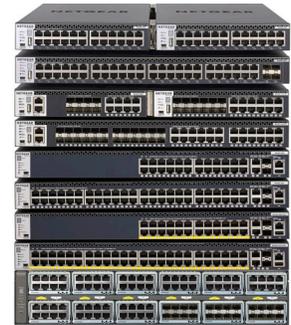
FULL SUITE OF SERVICES, EXCEPTIONAL UX

In further support of the business case, NETGEAR offers free design services with a dedicated team of highly trained professionals to help before, during, and after a Pro AV install. Other

support offerings include a lifetime hardware warranty and next business day replacement with 24/7, 90-day phone support, 24/7 lifetime chat support, and additional ProSUPPORT for Business packages for installation services. Clients can select extended warranties and phone support, as needed.

As the pro-AV industry moves from traditional switching fabric over to IP, "we want to make sure that, right out of the box, it's a good experience, and no one does that better than NETGEAR," said Randy Keener, business development manager for strategic accounts, NETGEAR ProAV. "Enterprise networking is our heritage. We've spent years perfecting our AV-over-IP series, making networking as easy as possible. With our design team and ProAV support, we can be your network experts—almost like your in-house networking team."

PRODUCT SPOTLIGHT



NETGEAR's M4300 Intelligent Edge Series are zero-touch, stackable switches with non-stop forwarding. This line is the world's only 1GB, 10GB, and 40GB stackable platform designed for server and audiovisual installations, converged access layer, and dependable core in SMB environments. M4300 topologies deliver 384-port 1GB, 768-port 10GB, 192-port 40G, or a combination in redundant, unstoppable systems for edge to core connectivity. Dual redundant, modular power supplies equipping full width models contribute to business continuity management.

TCO/ROI PROOFPOINTS

Per port, NETGEAR costs lower than traditional custom switches. Clients will save on the total cost of ownership (TCO) with NETGEAR's native support for the encoder; NETGEAR accommodates SDVoE encoder cards directly in the switch. On top of that, only NETGEAR offers a lifetime hardware warranty and next business day replacement with 24/7, 90-day phone support, 24/7 lifetime chat support, and additional ProSUPPORT for Business packages. The NETGEAR Business Division will help you plan, design, implement, and support your next AV-over-IP system.

VENDOR PERSPECTIVES

Leveraging its decades of success as an enterprise networking leader, and its role as a founding member of SDVoE (Software-Defined Video over Ethernet) Alliance, NETGEAR is helping clients unlock the potential of multicast AV over IP. Only NETGEAR switches are engineered for AV over IP, delivering better value, performance, scalability, and best-in-class support—every step of the way.

One of the key features that sets NETGEAR apart is its proprietary IGMP Plus. "From a higher level, IGMP Plus is a really smart handling of the IGMP Group query in order to have that switch-to-switch communication and prevent flooded video traffic," said NETGEAR's Alex Pendleton. "We enhance Layer 2 so you can get to bigger and broader multi-switch environments quickly, easily, and reliably."

ABOUT THE AUTHOR

Margot Douaihy, Ph.D, has covered the AV/IT industry as a reporter, editor, and analyst for 20 years. In 2018, she was awarded the Jesse H. Neal Mattera Award for Mentorship in the publishing industry. As editor, her magazine, AV Technology, won the 2018 Neal Award for Best Media Brand.

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