



# **MEDIA LINKS**®

Media Defined Networking®

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***Solution Overview***

**2022**

*This brochure is intended to serve as an overview of the Media Links MD Series Ecosystem, a comprehensive platform of media-over-IP solutions and services. In the pages that follow we'll describe how this ecosystem applies, adds value and differentiates itself in solving today's (and tomorrow's) challenges facing the broadcast and media industry. For more specific detail and technical information on the various products, services and applications mentioned, please reference the Media Links website at [www.medialinks.com](http://www.medialinks.com).*



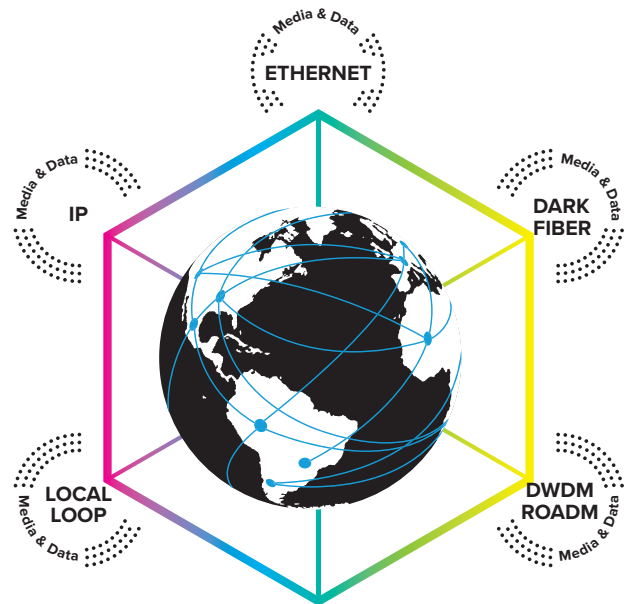
For the past two decades, major entertainment and sporting events around the globe have relied on Media Links' IP-based networking technology for their most critical real-time video and audio needs, and to lately support the booming use of high speed data transport. For these premier events, service providers using proven, trusted IP media technology is essential for delivering live content to hundreds of millions, if not billions of simultaneous viewers on every continent.

Providing this functionality requires a carefully balanced set of hardware, firmware, and software capabilities, as found in today's MD Series ecosystem of products, solutions, and accompanying professional services. This comprehensive line of hardware devices and software tools covers a full range of network architectures and applications. IP technology has been natively at the core of all MD-based networks since their inception, allowing nearly every type of professional media signal to be securely transported across private, public and carrier-based networks.

## Challenges facing media networks

Media networking is undergoing a revolution today, and it's not all about IP. A host of other factors are driving change throughout the media supply chain, at every step along the way from the camera to the viewer's display. Consider the following challenges:

- Video formats are changing, in both content origination and content delivery. Some of these changes are causing bandwidth to increase dramatically. For example, 4K Ultra HD signals consume four to eight times as much bandwidth as standard uncompressed HD and HDR video. This is having a significant impact on networking and storage facilities alike.
- Workflows throughout the broadcast television industry have been rapidly evolving, not only due to the need to support changing signal types, but also due to myriad new business models that are being tested. Companies that are building infrastructure in today's turbulent markets are placing a premium on flexibility. Systems that support virtualization, where new functions can be downloaded by way of software and firmware instead of replacing hardware, offer a significant advantage in terms of asset utilization and the ability to adapt to new requirements.
- Television broadcasters have a well-earned reputation for reliability, and the same expectations now exist for all types of media services, even those delivered over the public Internet. In these environments, unpredictable "best effort" signal routing and delivery is not good enough. Today's media providers need to know that their signals will be delivered intact and on-schedule, without having to contend for inadequate resources.
- Internet and cloud technology integration have enabled new applications and created new system requirements, for both media production and signal distribution to viewers. Today, broadcasters need to deliver finished programming to a variety of partners, including satellite, terrestrial and virtual MVPDs (Multichannel Video Programming Distributors) as well as support a variety of streaming services alongside in-house content channels. Cloud technology is also making massive inroads into media production, by enabling cloud resources to be used to handle peak loads as well as for innovative functions such as virtualized production tools and machine learning.
- Finding, hiring and retaining high-quality staff who have experience in both IP and broadcast technology has become more difficult for a majority of media organizations. Using high-reliability, long-haul media networks for centralization of key personnel and operations can help reduce the number of qualified specialists required. Many savvy operators have also increased usage of professional services provided by outside experts to complement their staff for design, configuration, installation and maintenance activities.



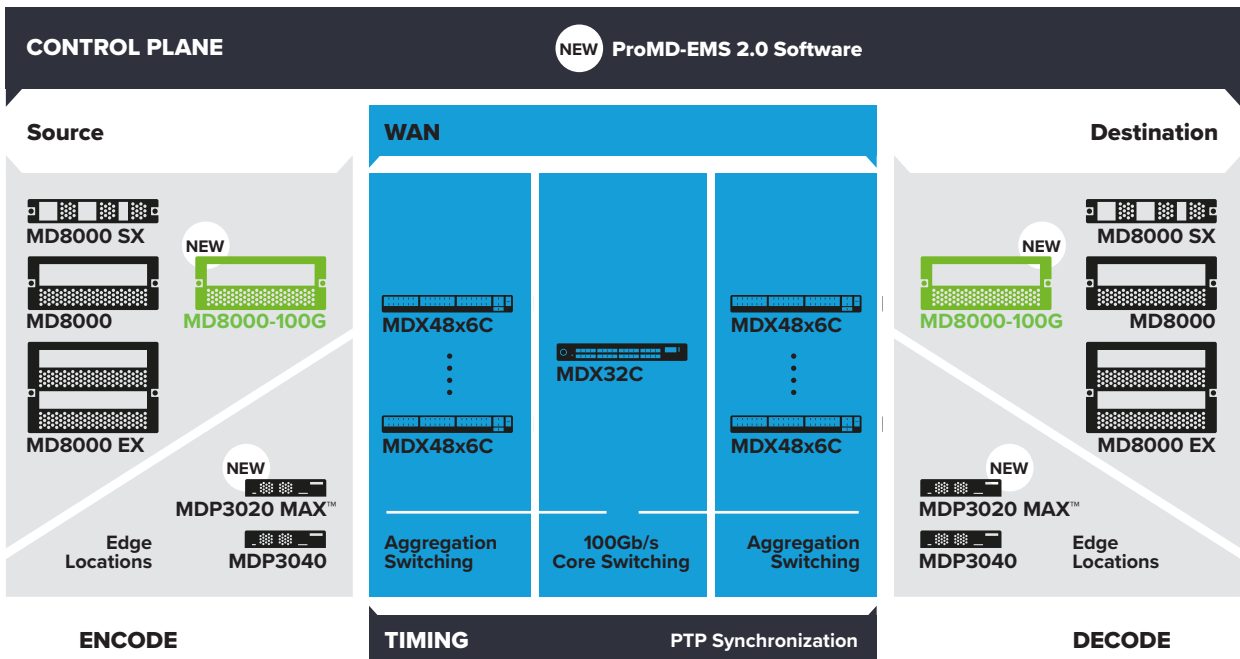
Media Links **Global Signal network**

The Media Links Solution Family

# A Platform for Transition, Growth and the Long Haul

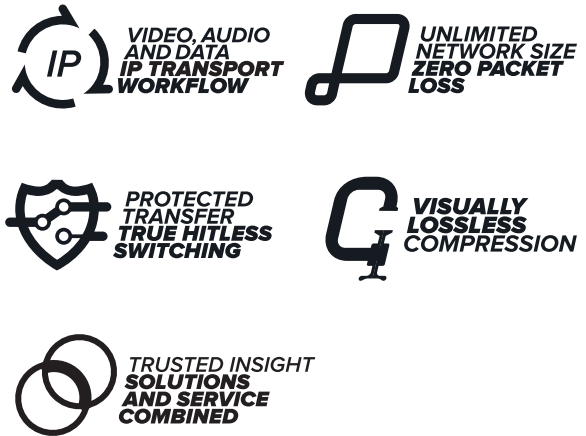
The Media Links Solution Family has always used IP technology at its core to deliver high-performance video signals over IP backbones. Long before standards such as SMPTE ST 2022 and ST 2110 were developed, IP packets were used in early Media Links products to transport high-profile event signals, such as those from the 2002 World Cup. Building on this long history of innovation and experience, today's Media Links' MD Series provides a wide range of capabilities to support carrier-based and private media networks.

## Media Links **The all new Media Links 100G Ecosystem**



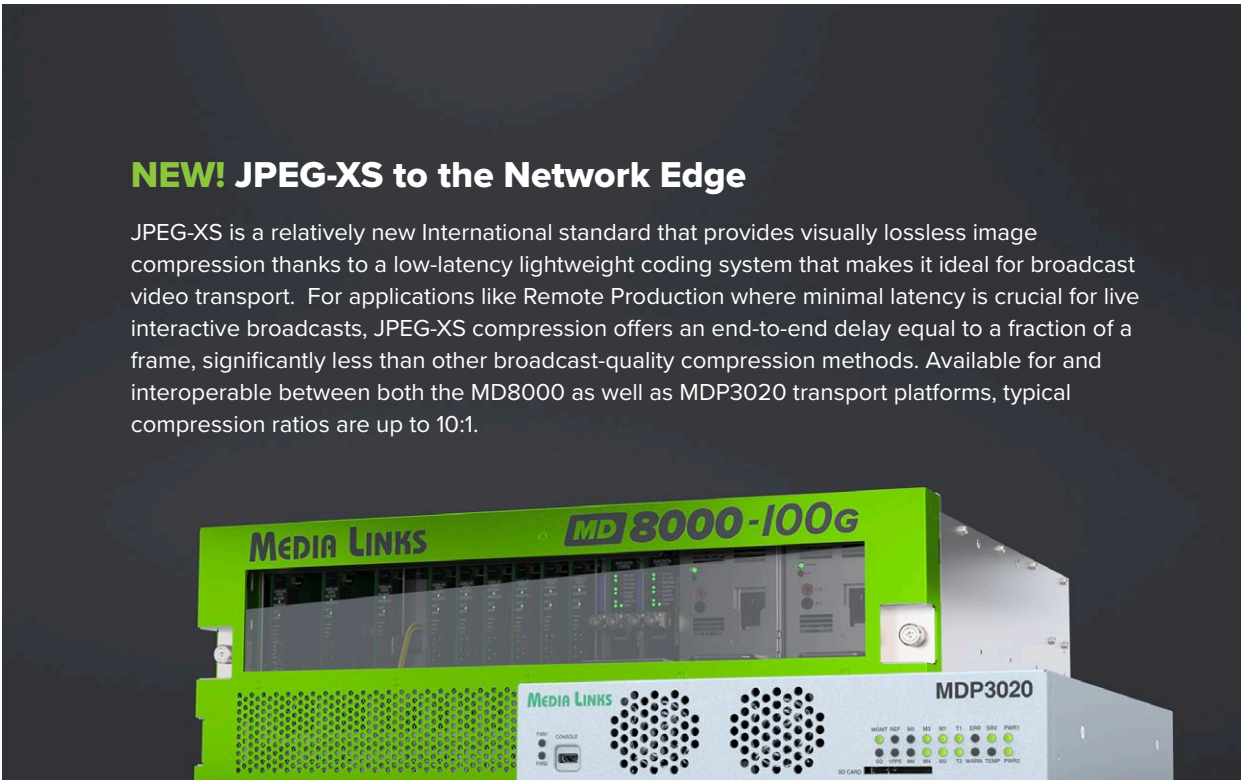
**Flexibility** is one hallmark of IP media technology, which Media Links fully embraces. Every MD Series solution is IP to the core, greatly simplifying the transition to all-IP workflows. The MDP line of edge devices provide cost-effective, compact gateways for low-density or remote applications, without sacrificing overall system interoperability. The MD8000 offers a wide range of chassis configurations and interface cards that support small and large media nodes. The MDX IP switch series provides high-throughput packet processing designed specifically for aggregation and core switching of high-availability networks. And the ProMD-EMS (Enhanced Management System) provides a flexible, Client/Server control system that oversees the entire MD Series ecosystem.

**High Capacity** systems, long the exclusive domain of expensive, carrier-based networks, are now becoming common within the professional media landscape. 100 Gbit/s links are no longer rare, and switch bandwidths have had to increase accordingly. To fully exploit this greatly expanded link capability, several MD Series products support 100 Gbit/s interfaces, and more upgrades are being scheduled for release in the near future.



## NEW! JPEG-XS to the Network Edge

JPEG-XS is a relatively new International standard that provides visually lossless image compression thanks to a low-latency lightweight coding system that makes it ideal for broadcast video transport. For applications like Remote Production where minimal latency is crucial for live interactive broadcasts, JPEG-XS compression offers an end-to-end delay equal to a fraction of a frame, significantly less than other broadcast-quality compression methods. Available for and interoperable between both the MD8000 as well as MDP3020 transport platforms, typical compression ratios are up to 10:1.



**Intrinsic reliability and survivability** have been key elements of major carrier networks for over a century. Features such as redundant power supplies, extended operating temperature ranges and built-in resilience to a host of environmental stresses have combined to greatly reduce system failure rates and deliver consistent performance over many years of error-free operation. With today's ever-present pressure on broadcasters to consistently deliver flawless media signals, the MD Series provides an ideal solution for contribution and distribution applications, from wide area to regional/metropolitan networks to intra-studio environments.

**Dynamic reconfigurability** enables devices to be customized and upgraded as system requirements change over the lifespan of a product. This can be accomplished by using hardware upgrades, software upgrades, and by downloading new firmware to critical components to change their operating behavior. The MD Series employs all three of these techniques to allow customization for a range of applications, and to support new standards and offer new features as they are introduced into the market.

**Manageability and deterministic behavior** ensure that each user of a system is fully supported and prevented from interfering with other signals and users. A key aspect of this is the ability to use fully configured packet forwarding tables inside MD Series switches, particularly for high bitrate video signals. Use of configuration tables, instead of best-effort switching and routing algorithms, allows end-to-end paths to be provisioned across multiple devices, ensuring that critical signals are delivered intact using reserved bandwidth from source to destination.

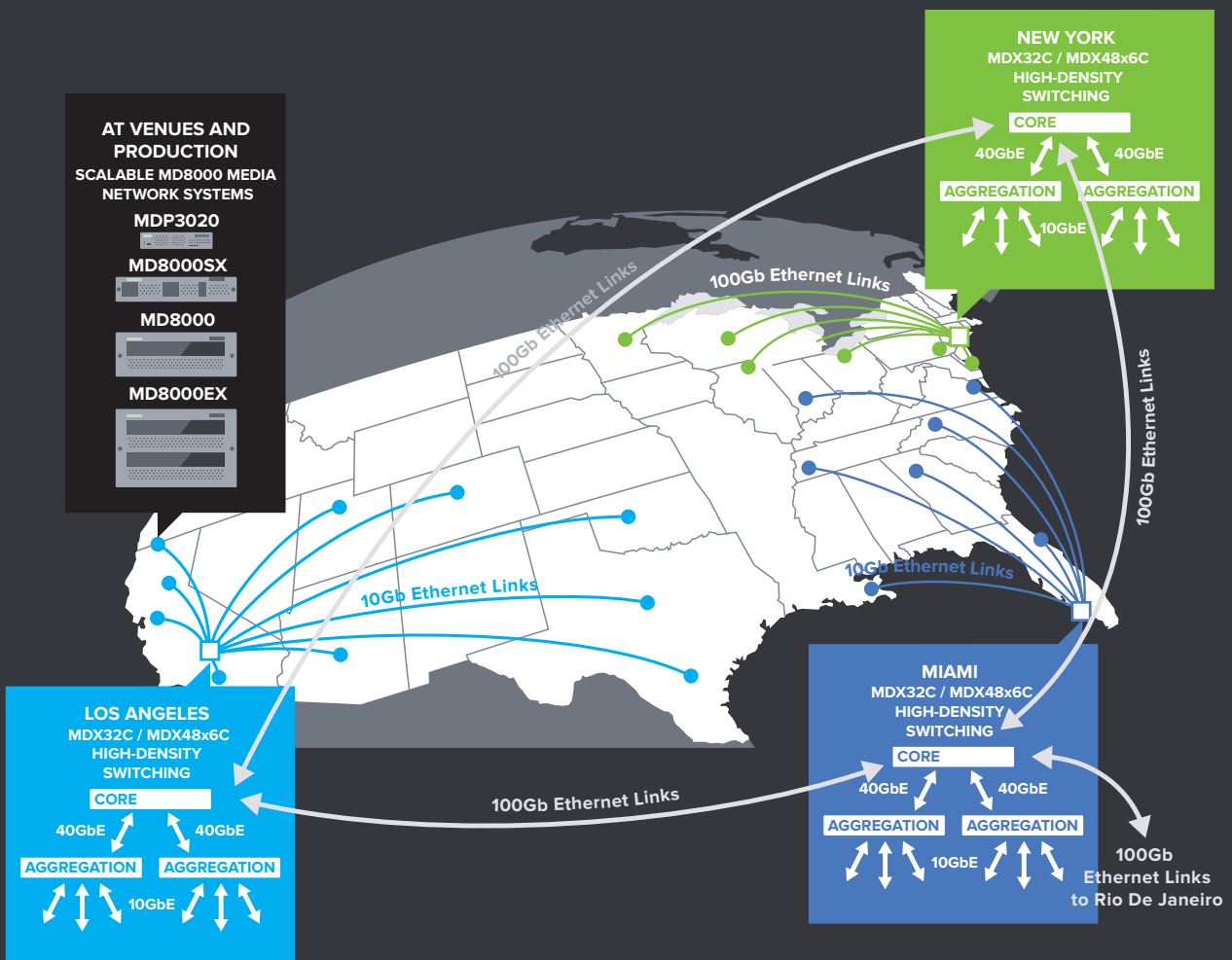
**System-wide interoperability** requires that each component of an MD Series system works together harmoniously with every other component. This compatibility includes signal flows, which means that signals are encapsulated into packets once and transported throughout an MD-based network without requiring decoding/re-encoding or signal format conversion at intermediate points along the path.

# Long range WAN Networks

Television, event, and sports broadcasters have long relied on a diverse array of legacy and newer network technologies to deliver critical video, audio, and data signals from venue to destination. This varied mix of legacy and current WAN transport methods includes satellite and microwave feeds, SDH networks, dark fiber, MPLS networks, metro Ethernet, and ATM, DTM, and DWDM transmission systems.

While each of these technologies offers users benefits in terms of rate, reach, and cost, their continued use has left broadcasters with a disjointed set of networks that are expensive to operate, hard to provision, and difficult to troubleshoot. Due to network fragmentation and isolation (islands of connectivity), critical items such as Quality of Service (QoS) guarantees, end-to-end circuit visibility, multipoint connectivity, and error protection are often lacking in these solutions.

- ✔ **Scalable, high performance bandwidth** demanding video signals including HD 4K and UHD 8K
- ✔ **A common, shared network architecture** for the transport of video, audio, and data signals
- ✔ **Reliable, standards-based technologies** for improved vendor support and interoperability
- ✔ **Intelligent network transport**, including low latency, traffic prioritization, QoS assurances, lossless transmission, error control/correction, bandwidth management, and route failover options
- ✔ **Agile network styles**, such as point-to-point, point-to-multipoint, access to secondary distribution networks, multihoming, signal aggregation, and more
- ✔ A rich set of **standards-based (SNMP) network management** and diagnostic tools to speed provisioning and troubleshooting





*Proven transport, real world dependability*

## **Application showcase**

**Service Provider networks** have been implemented using MD Series products since their inception. Carriers require their systems to be flexible enough to handle rapidly changing customer configurations, where services may be enabled for a single event lasting a few hours, and then torn down to free up resources for another user or event. Reliability is also a key requirement – with networks spanning thousands of kilometers and serving multiple simultaneous transmissions, there is literally no acceptable amount of time for system repair and restoration – it simply needs to keep working constantly. In these networks, it is common for a single resource, such as a signal collection point within a sports venue, to have different customers and signal types in use every day. Being able to remotely support and manage this flexibility is a key requirement for any service provider. Also noteworthy in today's sporting world is the need to provide the necessary video bandwidth, frame synchronization, low latency compression and data carriage capabilities to support “at home” – or remote-production, saving the broadcaster (i.e. the service provider's customer) significant time and money by keeping their resources centralized.

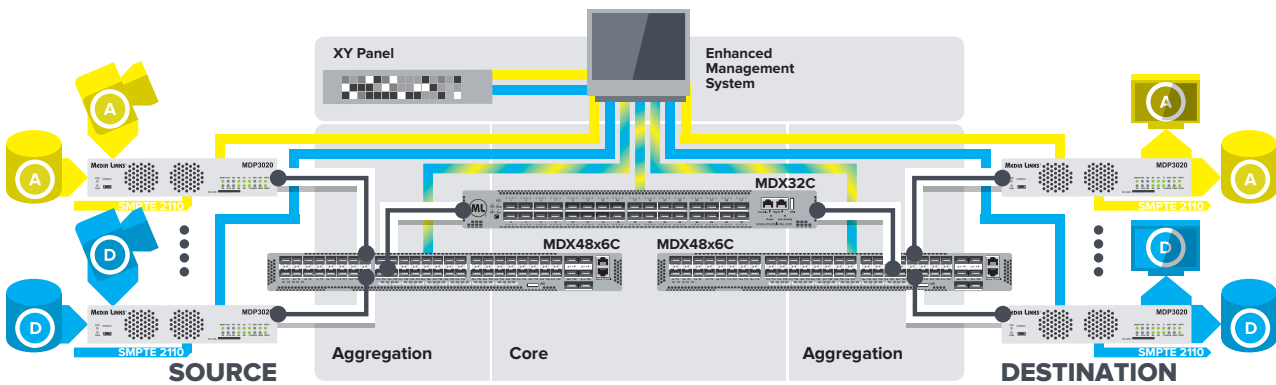
**Connections between media facilities** can be demanded for both short-and long-term applications. Short-term links are used for specific projects, such as collaboration on a live production or a multi-step post-production workflow. Long-term links can be installed to connect multiple outposts of large organizations, and can be particularly helpful for connecting new partners in these days of media mergers and consolidation. Regardless of duration, these installations require highly reliable, flexible, and cost-effective systems that can support real-time media streams, enormous files, and other routine office data traffic. Scalable, turnkey packages that provide for a SDI to IP migration with integral network control and core switching can be of benefit in these types of environments.

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**Cloud uplinks and downlinks** are increasingly important as live production and playout move to either public or private cloud networks. The costs and delays associated with connecting live streams from their source to the cloud for processing or retrieving finished programming from the cloud can have a major impact on overall budgets and schedules. High-performance, flexible networks can greatly simplify these emerging media workflows.



**CDN and MVPD handoffs** are part of almost every media organization’s output. Content delivery networks (CDNs) are used to distribute OTT content to millions of consumers, and so are normally fed using redundant, geographically diverse origin points. Multichannel video programming distributors (MVPDs) for linear channels (including satellite, terrestrial, Internet and other technologies) are increasingly fed by way of direct IP network connections to programmers’ handoff sites, reducing their dependence on traditional satellite links. Many organizations are taking advantage of the greater bandwidths available on terrestrial networks to use less compression (or even uncompressed formats) to deliver a higher quality end result to viewers. Above all, these links must be extremely reliable – many delivery systems are specified for 99.999% uptime, and the availability of primary content handoffs can have a major impact on overall performance.

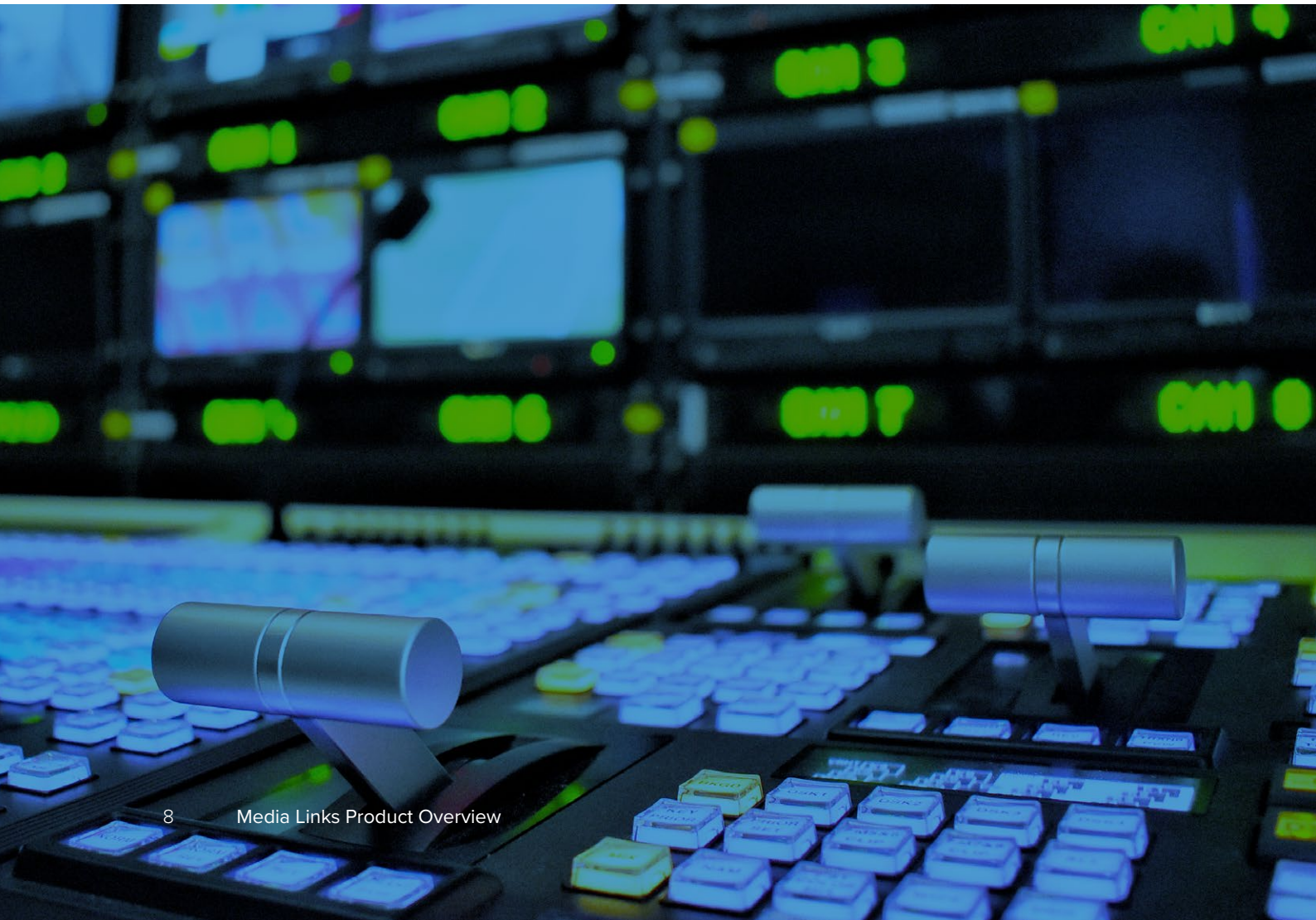


**Intra-studio transport** is rapidly migrating to all-IP technology, so reliable switching and transport are at the core of any successful installation. In place of traditional best effort enterprise-class data switches and routers, enlightened organizations are recognizing that managing quantities of multi-gigabit time critical, media-centric signal flows requires a customized architecture and control system. Existing legacy equipment may also need to be supported through the use of SDI to IP gateways. A truly media-aware system can ensure that network resources are available on schedule for key events, while allowing managed flows of all types to work smoothly alongside each other over a common backbone.

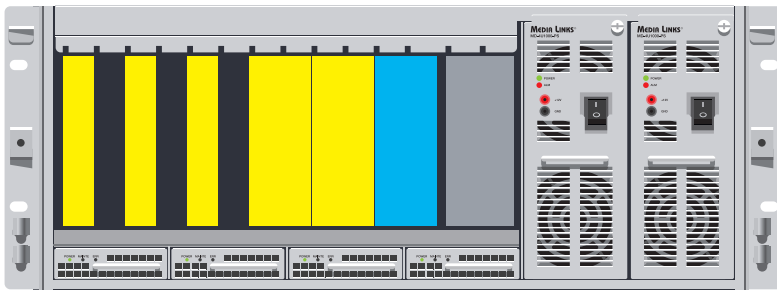
*The world's most trusted IP based transport*

## **Media Links Solution Portfolio**

The MD Series of solutions from Media Links can be configured in a variety of different topologies to support a wide range of applications, able to scale from simple, closed private networks to multi-client carrier networks spanning multiple continents. Five main categories of solutions comprise the MD Series ecosystem: MD8000 media transport system, MDX high-capacity core IP switches, MDP network edge gateways, ProMD-EMS Enhanced Management system software, and a comprehensive Media Links lineup of Professional Support Services.



# The MD8000 Platform



### MD8000 supported signals

Video: 4K Quad-SDI/3G/HD/SD/DVB  
Other: TS, ETHER, Audio, etc.

### Redundant Power

2x Redundant PSU on every MD8000 model

### Interchangeable Line Card options

- 4K
- 1080p
- HD-SDI
- DVB-ASI
- H.264
- JPEG-XS
- JPEG2000
- 1GbE
- 10GbE

### Trunk interfaces

- 1/10GbE
- 100GbE
- CWDM
- Dark Fiber
- IP
- DWDM/ROADM

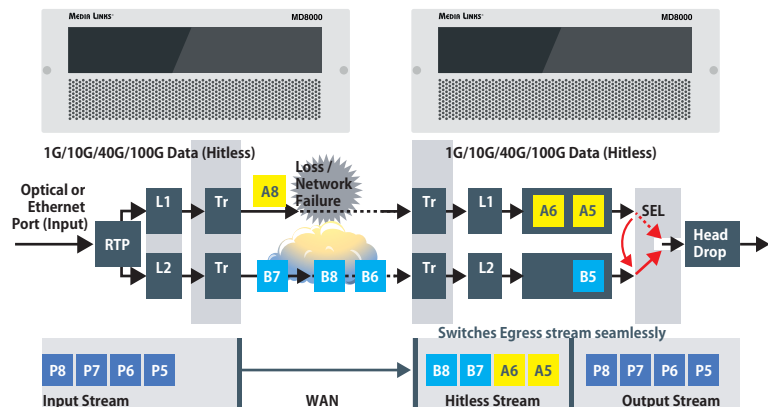
### On-board Switch controllers

- Non-blocking L2 Switch Fabric
- Redundant 90Gb/s

The MD8000 media transport system delivers high-performance, professional media signals across IP network fabrics. As the workhorse of the MD Series, the MD8000 packetizes and adapts media signals from their native formats (SDI, compressed, and asynchronous) into IP packet flows that can be routed through high-speed networks. Native IP signals, such as SMPTE ST 2110, can also benefit from the manageability and reliability provided by MD8000 networks. Signals can either be delivered to another MD8000 chassis for format conversion, or they can be transmitted directly to other destinations in a variety of industry-standard formats. Some of the key features of the MD8000 include:

**Built-in reliability**, which is achieved through extensive use of key component redundancy, such as power supplies in every chassis, along with redundant controllers and switch fabrics in the larger chassis.

**Hitless protection switching** transmits a signal over two separate network paths, and recombines them at the destination, allowing errors that occur on either path to be eliminated. All of the major MD8000 components include this capability, which can be enabled under user control. This technology, which was pioneered by Media Links, has now become an industry standard known as SMPTE ST 2022-7.



**Carrier-grade design** and construction means that the MD8000 can operate across a wide range of environmental conditions, including low and high temperature and humidity, as well as resistance to airborne pollutants, mechanical shock and vibration, and electromagnetic interference. Long-term studies have shown these design rules, collectively known as NEBS, greatly increase system availability, and hence are required by many carriers.

**Deterministic signal routing** within the MD8000 layer 2 packet switching fabric means that signals are not normally delivered using traditional “best efforts” packet forwarding algorithms. Instead, each end-to-end connection is made up of bandwidth that is allocated in the amount required by the signal at each step along the path. Of course, unoccupied bandwidth can be made available for use by other signal types, including routine, bursty traffic and Internet up/downlinks.

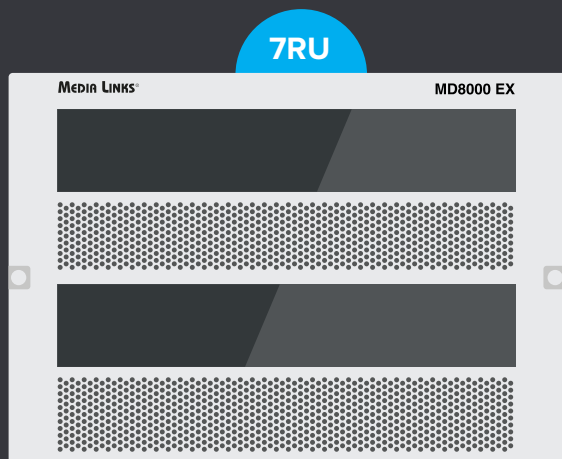
**Reconfigurable interface modules** allow many of the MD8000 signal interfaces to be converted as needed to accommodate new signal formats, as end-user demand changes and as new standards become popular. Through the use of devices such as FPGAs (Field Programmable Gate Arrays), new configurations and capabilities can be downloaded on-the-fly whenever needed, greatly reducing the need to carry a broad selection of hardware modules.

*Flexible choice of footprint and peerless*

## MD8000 Chassis choices

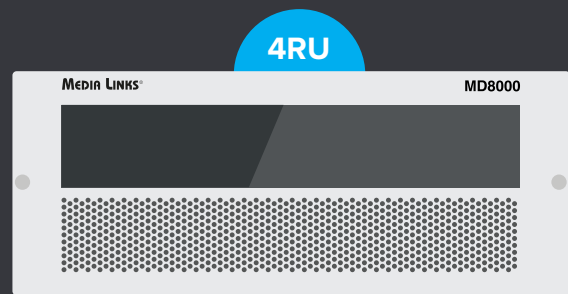
Three chassis options are available in MD8000 system. Each chassis accepts one or more trunk cards, which provide interfaces to the high-speed IP network core, and each also accepts line/access cards that support a variety of interfaces to user signals, including multiple video formats and, of course, data. Every chassis includes a high-performance, Layer 2 switching fabric to provide flexible interconnection between all of the trunk and line cards. In addition to redundant power supplies, each chassis includes a controller function that manages the behaviors of the installed modules, monitors the status of incoming and outgoing signal flows, and generates status reports for centralized control systems.

All MD8000 chassis use a “mid-plane” design, which places the majority of active signal processing components in larger modules that plug into the front of the chassis. Smaller, rear-panel modules are used to house different types of signal connectors, such as coaxial BNCs, wired data connectors, and SFP cages for electrical and fiber optic interfaces. This design philosophy allows front modules containing active components to be replaced in the event of failure or swap-out without disturbing the cabling to the rear modules. Note that this “mid-plane” does not contain active components, virtually eliminating the chance of failures that would require chassis replacement.



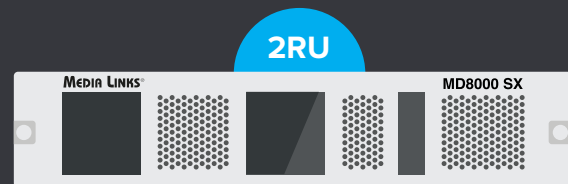
### MD8000 EX

The highest-capacity chassis, the MD8000 EX, offers 24 line or trunk card interface slots, and dual-redundant 240Gbit/s switch/controller modules. Each slot in the chassis is fed with redundant 10Gbit/s connections, one to each of the redundant switch/controller modules. Dual redundant power supplies complete the 7RU shelf; any module can be swapped without disturbing the other installed cards.



### MD8000

The workhorse 4RU MD8000 chassis supports 9 slots for any combination of line and trunk cards.



### MD8000 SX

MD8000 SX is a compact chassis that contains 6 slots that support the full range of MD8000 line and trunk cards. This chassis can be equipped with redundant power supplies and a single 60Gbit/s switch controller card.

## Products for the MD8000 Platform

# Access/Line Cards

Line cards provide the interfaces to user signals, including video, audio, data and other formats. Two basic line card types are used for various signal types, including UHD 4K video. Each line card comes equipped with two 10Gbit/s, full-bandwidth paths that connect to the switch/controller in each chassis, permitting fully redundant operation, including hitless protection switching. Video line cards can also be configured to perform compression and decompression using technologies such as JPEG 2000, H.264, and JPEG XS.

Two different versions of each line card are typically deployed: a Transmitter line card accepts a user signal, packetizes it, and creates an IP data stream that can be routed through an MD8000 network. A Receiver line card performs the inverse function: it receives a stream of packets from an MD8000 backbone, extracts the desired signal from the packet contents, and delivers the resulting signal to a user application. Note that transmitters and receivers do not need to be deployed in pairs; in fact, one transmitter can feed a multitude of receivers in different locations for a real-time multicast. Furthermore, transmitters can forward standard signal formats (such as SMPTE ST 2110 signals) that can be fed to non-MD8000 destinations, and receivers can accept and de-encapsulate signals originating from outside sources.



**NEW! A 100Gbit/s MD8000 edition**

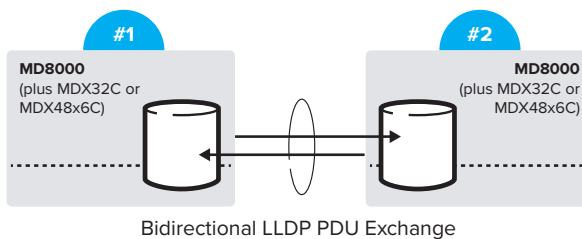
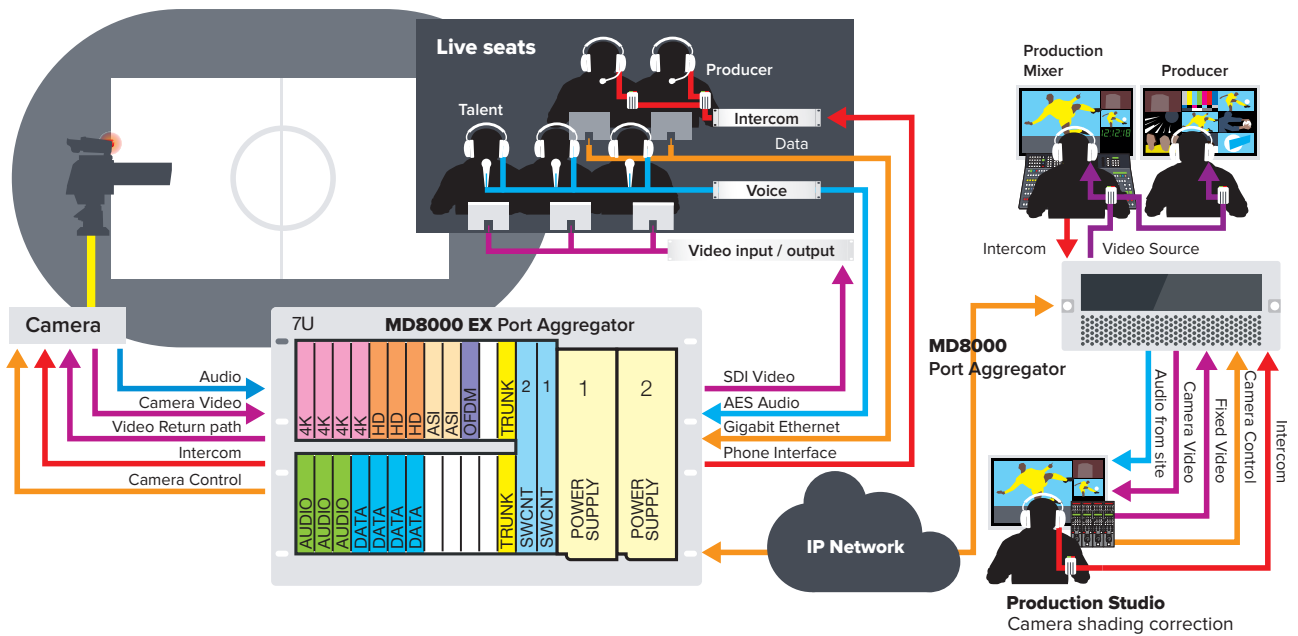
Introducing the all new MD8000-100G Edition. With integrated switch controller and trunk card functionality, this new edition provides a 10X increase in trunk bandwidth from 10 to 100Gbps, primarily to accommodate the surging demand for media transport from today's sporting venues. Each line card in the MD8000-100G chassis effectively now has a clear, wide open 10Gbit/s path to the network.

MD8000-100G is available as both an upgrade for existing owners and for new customers.

Products for the MD8000 Platform

# Trunk Cards

Trunk cards provide connectivity between chassis, and interfaces to wide-area networks. Signals that have been encapsulated into IP signal formats by the line cards are aggregated in the switch/controller cards in each chassis, and then passed along to one or more trunk cards for connection to the IP network backbone. In some cases, these backbones are comprised of fiber optic connections directly between MD8000 chassis. In many other cases, high-speed network facilities provided by a metro or long-haul carrier will be used for interconnecting MD8000 shelves. The 10Gig LAN trunk card supports the industry-standard 10 Gbit/s interface that is used in an enormous variety of 10Gig Ethernet switching and routing equipment. XFP module enclosures are used, which support a multitude of optical (and electrical) interface modules, including multimode and single mode optics that can be selected for low-cost, short-distance applications or high-powered, temperature stabilized optics to interface with long-haul WDM networks.



**LLDP (Link Layer Discovery Protocol)** is also incorporated in not only the MD8000, but in all MD Series products, providing discovery of network “neighbors” as well as visibility into network disruptions affecting local, metropolitan, and long haul optical links, multiplexers, and repeaters. The value behind this functionality is greater network fault visibility with the ability to more easily correlate problematic events and determine the root cause.



Proven Transport Switching at up to 100Gb/s

# MDX Core and Aggregation Switching

MDX high-bandwidth network switches greatly expand the reach and flexibility of MD8000 architectures. An integral part of the MD Series Ecosystem, these units can accept trunk signals from different sources and interchange signals between them. High speed interfaces, operating at 10, 40 and 100 Gbit/s are provided in the MDX series, allowing multiple network feeds to be simultaneously processed. As media-focused devices, these units feature rapid reboot times in the event of a power failure and provide non-blocking connectivity between every input and every output.

The real power of the MDX is in the precise way that signals can be routed using SDN (Software Defined Networking) technology that is integral to these switches. Any flow can be given guaranteed bandwidth (in increments of 1 Mbit/s), and the end-to-end connection can be reserved within the switch fabric to assure uninterrupted signal flows. This is in contrast to many other switching devices, which use best-efforts routing for signals. For media signals, this difference is critical; adequate network bandwidth must be available along the entire route that a signal travels. Typical non-time critical Data signals and file transfers can withstand momentary bottlenecks, whereas real-time video or audio signals become useless if all of their packets are not delivered intact and in the correct order. With the MDX, every route for every media signal can be planned and provisioned for the entire span of that signal, and the system can ensure that none of the selected paths are overloaded. Also, since most media streams flow only in one direction, the SDN function has been optimized to support one-way, high-speed packet streams.

<b>AT-A-GLANCE COMPARISON</b> <b>MDX Series vs Typical COTS IP Switches</b>	Media Links MDX Series Switches	Typical COTS IP Switches
<b>High Count Multicast Flow Support</b> Low count limits will compromise critical media services	YES	LIMITED
<b>Over-Provisioning / Over-Subscription Prevention</b> Guards against accidental port oversubscription which can cause errors in every flow and possible damage to all service ports	YES	NO
<b>Loop Protection</b> Pre-empts data loops/flooding from inadvertent provisioning and causing large service interruptions/outages	YES	NO
<b>Network Troubleshooting Toolbox</b> Aids in quick trouble isolation and resolution, minimizing service downtime through various traps, including FCS Threshold Errors, LLDP, and Optical levels	YES	NO
<b>Uni-Directional Operation</b> Keeps the transmit port ON even though the receive port is OFF for more robust, efficient one-way media operation, improving up-time and reliability	YES	NO
<b>Multi-Point Service Protection</b> Protected media flows as well as data VLANs and inband telemetry against hardware or fiber failures	YES	LIMITED



Explore the range

## MDX 48x6C™



MDX48X6C Forward face

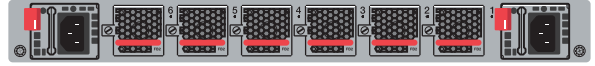


MDX48X6C Rear face

## MDX 32C™



MDX32C Forward face



MDX32C Rear face

The **MDX48X6C Aggregation Switch** provides 48 ports of 10 Gbit/s and 6 ports of 40/100 Gbit/s connectivity. This provides an ideal centralized routing solution for smaller MD8000 networks, allowing signals to be interchanged efficiently between multiple remote endpoints. For larger networks, signals from multiple low-speed sources can be accumulated and transmitted using the high-speed interfaces for connecting to large core switches and for transiting across long-haul backbones. Each of the 48 low-speed ports can be equipped with an SFP28, supporting a variety of different optical wavelengths, optical powers and speeds. Each of the 6 high-speed ports accepts a QSFP28, which are also available in many different configurations.

The **MDX32C Core Switch** provides 32 ports of 40/100 Gbit/s connectivity, for a total switching capacity of 6.4 Tbit/s. This high-performance system is ideally suited for cross-connecting and managing thousands of media streams while preventing network oversubscription or blocking. Each port supports a QSFP28 module, accommodating an impressive range of optical performance choices

# MDX SWITCHING™



OpenFlow



Multicast  
Enhanced



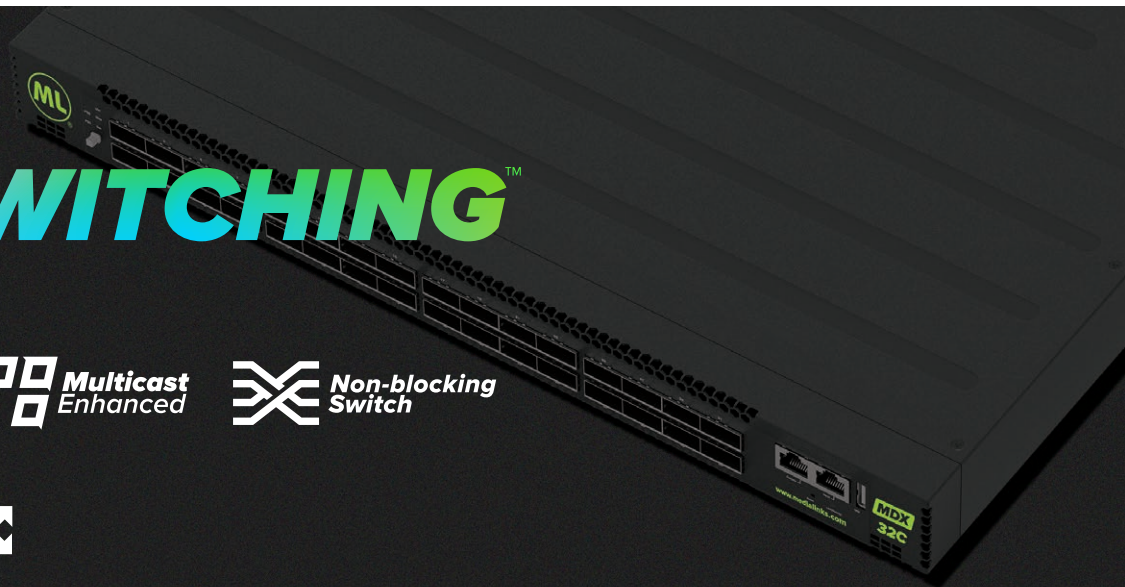
Non-blocking  
Switch



MDX48x6C



MDX32C



The all new **MDP3020 MAX** is Media Links' breakthrough agile edge device. With your choice of **JPEG-XS, JPEG 2000 or Uncompressed Video** plus **Audio and Data**, the **MAX** provides the ultimate in flexible, compact interfaces that are easy to adapt and easy to deploy, day-in and day-out.



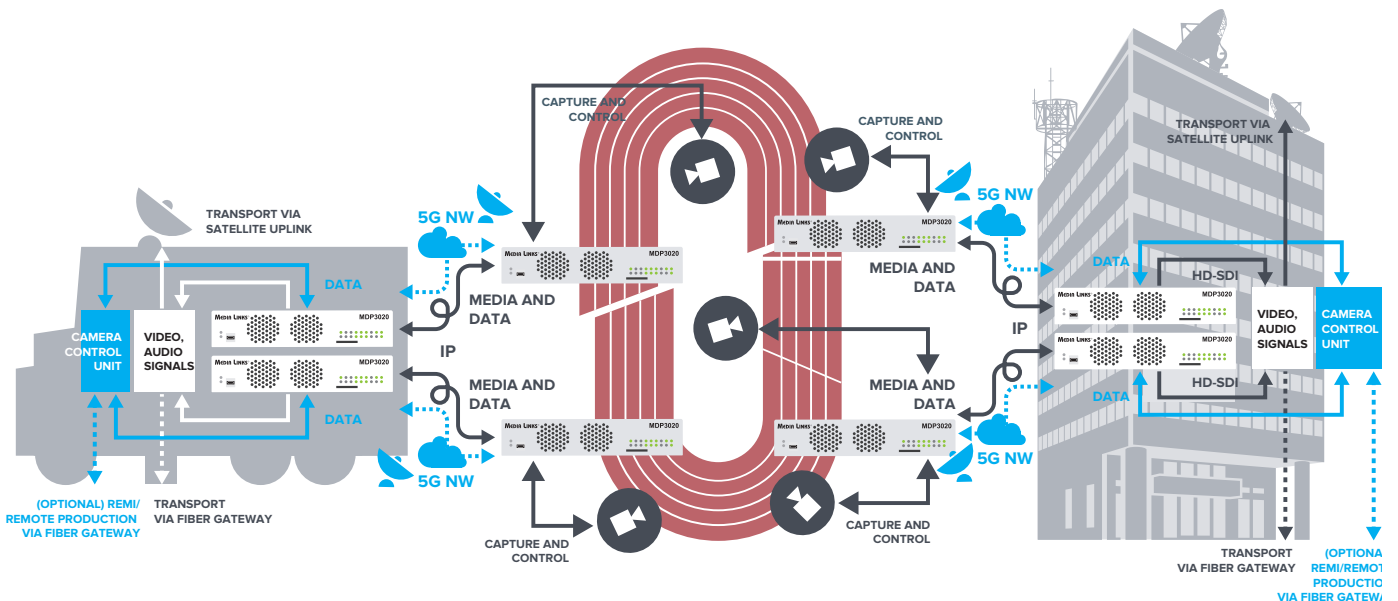
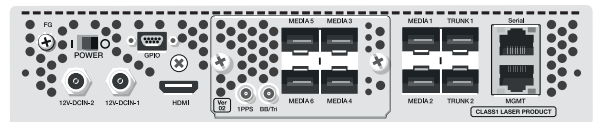
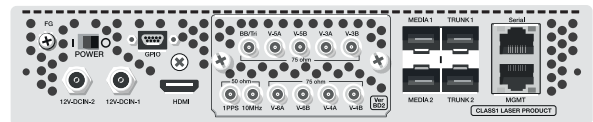
Agile Edge Encoders and Decoders

# Meet the MAX!

**MDP3000 Series**

## MDP3020 MAX™

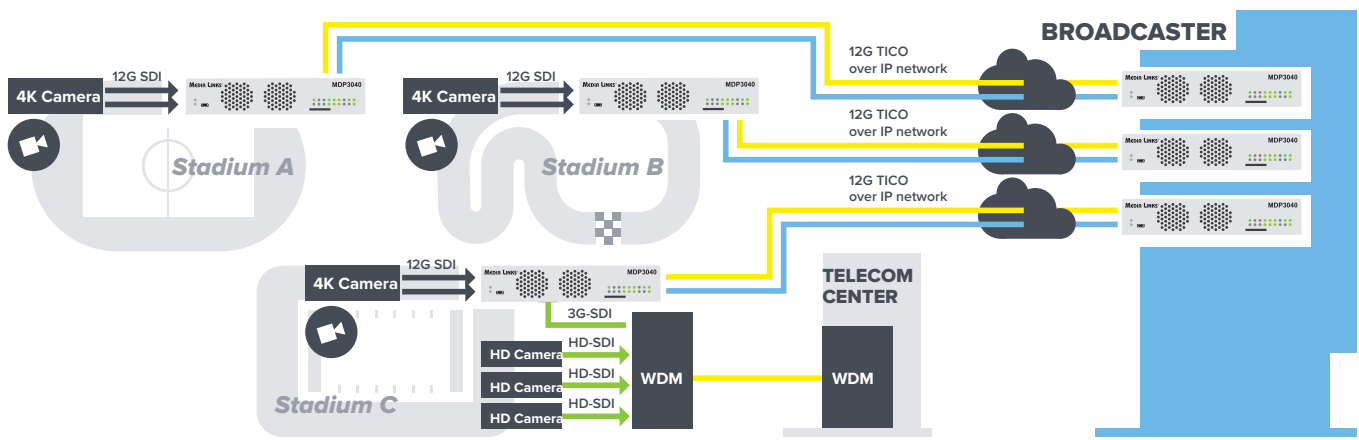
With JPEG-XS, JPEG2000 or Uncompressed Video streams, the new **MDP3020 MAX** supports a wide variety of video streams including SDI, HD-SDI, 3G/1080P, 4K/UHD (Future), and DVB-ASI. Each MAX can transport up to 2 channels of data, and 16 of Uncompressed Audio over either 1 or 10 Gigabit IP interfaces. For all services users benefit from Media Links' Protected Transport with both Power redundancy and Hitless switching over dual network trunk lines. By supporting standards such as SMPTE ST 2022 and VSF TR-01/07, the MDP3020 MAX can be deployed as remote, low-cost outposts for Media Links networks as well as generating or receiving signals to and from other standards-compliant systems.



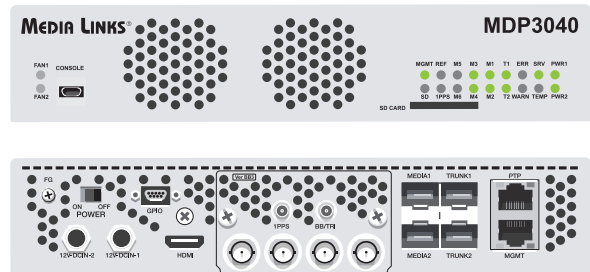
**MDP3000 Series**

# MDP3040 with TICO compression

The **MDP3040** supports UHD-1 (4K) video, and uses TICO compression to reduce the nominal 12Gbit/s video rate down below 3 Gbit/s, to fit two channels within the 10 Gbit/s Ethernet trunk output. This compression is visually lossless, so there is no meaningful loss of video quality or resolution as measured after passing through a complete compression/decompression cycle. Alternatively, the compressed video signal and its associated audio and data information can be wrapped into a 3G SDI compatible output, so the compressed signal can be transported over existing links that support uncompressed 3G SDI signals.

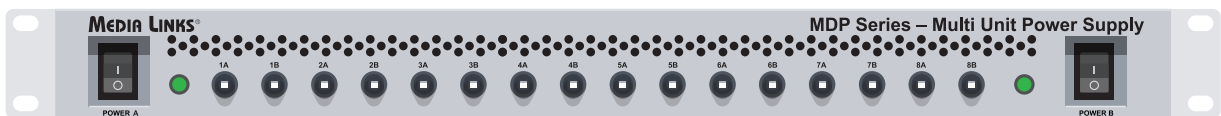


In addition to large-capacity 10G network interface converted to 3G-SDI output by TICO compression, SDI-based network interfaces are also available. As a result, the use of 3G interfaces for WDM transmission enables the transmission of high-bandwidth 4K signals over studio networks.



## Accessories

### MDP Series – Multi unit power supply (Optional)



Multi unit power supply for MDP series  
Up to 8 MDP3020 / MDP3040 devices at 1RU height  
Provides a fully redundant power supply function



*Software provisioning and orchestration*

# ProMD-EMS 2.0 Manage and assure your entire media network

The ProMD-EMS software solution provides a perfectly tailored means to manage and control MD Series resources. This system provides a comprehensive view of every aspect of system operation, ranging from individual media signals to the overall health of the complete end-to-end network. A configurable graphical user interface coupled with a comprehensive status logging and reporting tool provides both real-time and historical data that is essential for managing both current and long-term system performance. ProMD-EMS can be operated in a stand-alone / self-contained mode, or interfaced to other management tools such as customer billing systems or enterprise management systems for even greater functionality.



**Centralized  
Server / Client  
System with  
Redundancy**



**Flexible  
Architecture  
Design**



**Quick  
Implementation  
of New Devices**

ProMD-EMS uses a powerful, flexible client/server architecture, allowing multiple client devices supporting users in different locations to be connected simultaneously. Each user can be authorized to view the entire network or only a relevant portion; privilege levels can also be controlled for each user to enable or disable specific capabilities. Plus, in keeping with the “always-on” philosophy of the rest of the MD Series, the ProMD-EMS can also be made fully redundant, providing a high level of availability for its full range of management and control activities.



**Quick  
Provisioning of  
Future Planning**

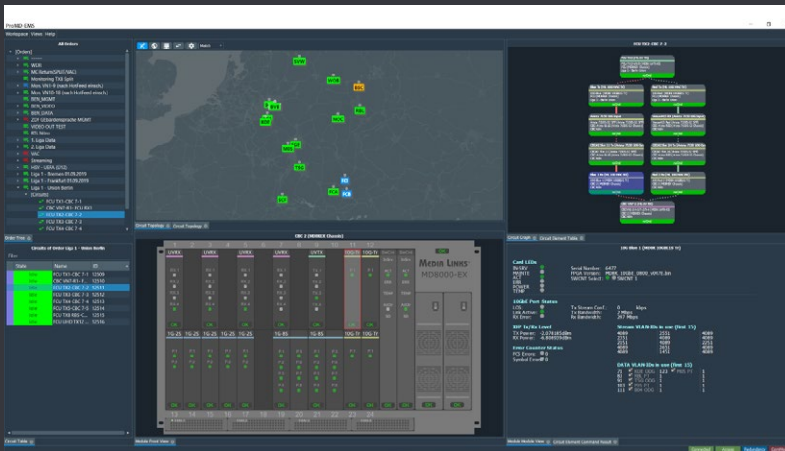


**Quick First  
Time Set-Up**



**Scalable  
from single to  
multiple users**

## ProMD-EMS Highlights



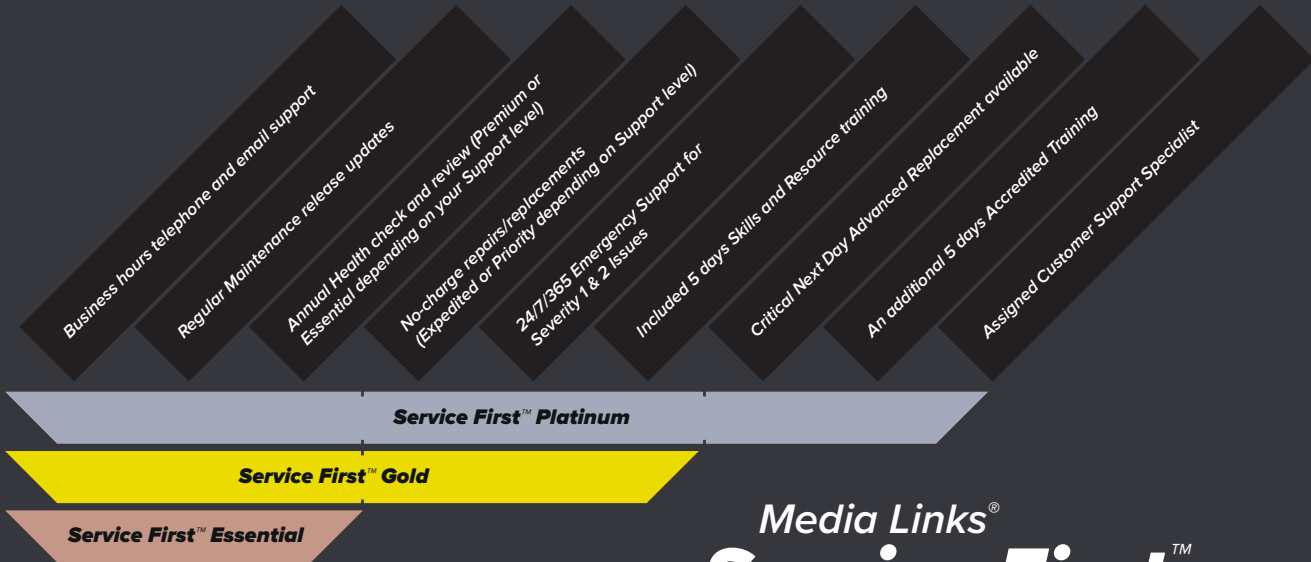
A wide variety of functionality is supported by ProMD-EMS, including:

- Status displays of every signal flow. Any media signal or data path can be tracked from input, through multiple chassis then on to one or more destinations. Results can be displayed using graphical topology map overlays to support path tracing and signal quality checking. Capabilities include real-time monitoring of key performance indicators such as bit rate, error count, alarm status, and long-term trend analysis.
- Provisioning new endpoints, interfaces and services. As new sites and services are connected to the network or new modules are installed in existing chassis, they need to be configured and their signal interfaces need to be enabled. Key identifying information (site name, signal identifiers, etc.) can also be added during this process.
- Operational status and performance of every card in every chassis. Graphic displays are provided for all front panel indicator lights of every card. Detailed current conditions and accumulated data can be gathered and displayed for any device or signal from built-in status logging registers.
- Customizable fault surveillance. When faults are detected within MD Series devices or in the connected signal paths, alerts can be generated automatically as well as being displayed on the system consoles. Intermittent errors can be tabulated and correlated to aid in root cause analysis. Alarm severity can be configured to categorize faults into higher priorities that require immediate attention or lower priorities based on current operational status.
- Connection scheduling and management. Media signals, particularly ones used for sporting event contribution, need to be configured as temporary end-to-end connections across a network. Scheduling software ensures that these connections will be available at the appropriate time and that all of the required system resources are not being utilized for other signals during the entire reservation period.
- Northbound data interface. Real-time information gathered by ProMD-EMS can be fed continuously to other control and monitoring systems by way of an application programmable interface (API), allowing smooth integration into enterprise resource management and reporting systems.

*Media Links Professional Services*

# **Media Links Service First™ Support and Services**





# Media Links® Service First™

Overview of Maintenance and Support Tiers

All types of media workflows are undergoing rapid changes. Not only are all-IP production and distribution growing to become dominant, but other key trends such as all-cloud production, DVB/ATSC evolution and 5G mobile networks are having a disruptive effect on media organizations. Staying current with these innovations while maintaining a 24/7 operation can be extremely challenging for engineering and operations staffs at all levels throughout the industry.

Fortunately, Media Links is ready to help, by offering a broad range of highly-skilled professionals supporting multiple technology areas. Architects, engineers and technicians are available to support every phase of a media project, from initial concept on through to ongoing operation and maintenance. The following types of project activities can be supported:

## Service highlights



**Requirements analysis and system-level design.**

**Detailed design.**

**Rack assembly and integration.**

**System turn-up and testing.**

**Operations support and training.**

**Ongoing maintenance.**

\* Service levels vary depending on Support Level selected

**Media Links has a long, rich history of innovation in IP media transport systems. As an Emmy Award winning pioneer, technologies such as uncompressed SDI over IP and Hitless Protection Switching were fundamental to the company's early growth and success in critical applications such as sporting events with worldwide audiences.**

By using design techniques such as redundancy and environmental hardening, MD Series ecosystem solutions have earned a well-deserved reputation for reliability and high availability. Not content to rest, Media Links continues to innovate by introducing new features and products, including the new MDP3020 MAX, MDX Series of 100G switches and the MD8000-100G edition.

[www.medialinks.com](http://www.medialinks.com)

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