The broadcast media and entertainment industries find themselves in the midst of a massive and disruptive transition from SDI to IP technologies. Over the past decades, SDI has proven to be a reliable and practical standard for the distribution of video, audio and data signals – and it will continue to be an important building block in broadcast facilities and production in the next years. However, IP-based systems have emerged to form a powerful and flexible infrastructure that can accommodate the increasing demands for higher-resolution video and better connectivity. Consequently, IP infrastructures promise a solution for the ever-growing demand for content production, as well as the capacity and flexibility to handle constantly evolving media formats.

So, yes. IP is the future! But we’re not entirely there yet. Until then, we’ll constantly evolve media formats. With its great versatility and flexibility, the distributed system excels in event or sports venues, broadcast centers or outside broadcast fleets, and corporate or governmental facilities. That’s why today there are millions of MediorNet SDI and IP I/Os deployed in different verticals all around the globe – from small installations to large and complex infrastructures. MediorNet’s futureproof modular structure and innovative app concept enable it to adapt easily to changes in the market: As the industry’s standards and expectations evolve, MediorNet evolves with them. Riedel’s most recent answer to the challenges arising from the IP transformation is a range of innovative FFP-based technologies to complement MediorNet’s MicroN, MicroN UltraHD, and Compact smart signal interfaces and the MicroN core switch. Bearing the highest density on the market, the processing modules and processing hubs MuoN, Fusion and Versit round out the MediorNet video portfolio with full IP solutions. All these versatile devices cover a wide range of different functions and applications, but are united by two key qualities that have been at the foundation of our philosophy for media infrastructures for years: They’re distributed, and they’re software-defined.

Distributed video infrastructures bring several benefits to productions on both the operational and system levels. For one, they enable routing of any type of signal from any point to any other without requiring staff to reconfigure any cables. Single points of failure are reduced and operational efficiencies result from the placement of physical I/Os closer to where they are needed. At the same time, distributed topologies allow for a high degree of flexibility on a system architecture scale: With MediorNet, you can easily add single devices to your system or even scale the entire system up from a small to a complex installation. Through this flexibility and scalability, Riedel’s video infrastructures are highly customizable to meet virtually any production requirement. Software-defined hardware devices like MicroNs or MuoNs can be swiftly reconfigured to fulfill a vast range of functions, reducing the need for single-purpose peripheral devices and thus saving critical rack space and associated costs. Operations are easy and flexible – and with just a few clicks, you can switch between apps, turning your device from a simple router to an advanced signal processor or multiviewer. Furthermore, app-based platforms like MuoNs allow you to grow I/Os in a very linear and organic manner, supporting a gradual move to IP workflows without radical hardware changes in your equipment room. At the same time, our FPGA-based devices will keep evolving with your demands. With a software-defined MicroNet device, you can not only run the product is capable of today, but also what it will evolve to in the future.

Within the extended MediorNet family, you’ll find all the tools you need for your production – whether it’s SDI-centric, IP-centric, or anything in between. Riedel is just the right partner to guide you through this challenging time, providing you with a perfect transition path from legacy SDI to full IP, at your own pace and within your budget constraints.

With the introduction of MediorNet more than a decade ago, Riedel has pioneered the distributed approach to video infrastructures by combining signal transport, routing, processing, and conversion in a redundant real-time network. Since then, MediorNet has grown to be the market’s most versatile and reliable AV networking backbone. To this day, MediorNet remains the only system that offers all the advantages of distributed, software-defined hardware.

The story of MediorNet’s success is a story of continuous evolution. In the past years, the MediorNet family has grown dramatically on both the hardware and software sides, greatly expanding its capabilities and its areas of application. With its great versatility and flexibility, the distributed system excels in event or sports venues, broadcast centers or outside broadcast fleets, and corporate or governmental facilities. That’s why today there are millions of MediorNet SDI and IP I/Os deployed in different verticals all around the globe – from small installations to large and complex infrastructures. MediorNet’s futureproof modular structure and innovative app concept enable it to adapt easily to changes in the market: As the industry’s standards and expectations evolve, MediorNet evolves with them. Riedel’s most recent answer to the challenges arising from the IP transformation is a range of innovative FFP-based technologies to complement MediorNet’s MicroN, MicroN UltraHD, and Compact smart signal interfaces and the MicroN core switch. Bearing the highest density on the market, the processing modules and processing hubs MuoN, Fusion and Versit round out the MediorNet video portfolio with full IP solutions. All these versatile devices cover a wide range of different functions and applications, but are united by two key qualities that have been at the foundation of our philosophy for media infrastructures for years: They’re distributed, and they’re software-defined.

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Distributed Routing

MediorNet provides versatile distributed routing and gateway capacities for any SDI, IP, or hybrid production environment. Instead of a central router, MediorNet infrastructures are based on an array of decentralized network devices and intelligent nodes. This distributed system intelligence allows the free placement of physical I/Os, which increases the flexibility of any installation while significantly reducing cabling and set-up time. With MediorNet, you get one unified TDM or IP backbone for all your signals. Because MediorNet is not just about... even audio, intercom, serial data or ethernet can be transported and routed effortlessly to and from any conceivable point.

Distributed Signal Processing

Basic signal processing is integrated across all MediorNet gateway devices. These processing functions allow for seamless routing across the decentralized MediorNet network and across different formats. With a wide selection of apps, enhanced processing capabilities like up/down/cross conversion, color correction, or encoding/decoding, can be added to the system just where they are needed. As MediorNet solutions are software-defined and FPGA-based, you buy not only what the product is capable of today, but also what it will be capable of in the future.

Distributed Multiviewing

Multiviewing remains one of the most important processing and monitoring features in any video system - and distributing multiviewer capacities may considerably streamline all associated processes and workflows. For one, the integration into a distributed MediorNet ecosystem enables efficient monitoring of any signal and flexible routing of multiviewer heads to any physical output. For another, the various MultiViewer Apps available for MicroN, MicroN UHD, MuoN and FusioN provide unmatched scalability, flexibility and density, as well as support for 3rd party interfaces like Ember+, NMOS, and TSL, making them just the right choice for any production.

Remote and Distributed I/O

There are ever-larger distances to be covered between the various parts of modern production chains, e.g. between venue and production truck, between buildings on a campus, or between facilities in different parts of the city. The MediorNet family is fully suited to all these needs. For IP networks, it includes JPEG-2000 or JPEG-XS encoder/decoder solutions and the compact FusioN devices, which can be installed right at the signal sources and destinations to transfer the signals directly. And for both SDI and IP environments, there are powerful and efficient stagebox solutions to be implemented with MediorNet Compact or FusioN, or the MicroN Point-to-Point App.

Micron & Fusion MultiViewer Apps

The Micron & Fusion MultiViewer Apps enable access to any IP video signal in the network to be monitored and fed back to any IP destination. Riedel’s microservice approach makes all Micron and FusioN multiviewers incredibly flexible: There are three different MultiViewer Apps (4x1, 9x1 or 16x1 PiPs) and various widgets and layouts available, allowing to tailor the solution to individual needs. In combination with the VirtI/O, these apps allow to build a highly dense multiviewer with up to 512 PiPs on 32 heads in 1RU.

Micron & Fusion Encode/Decode Apps

The Encoding/Decoding Apps for Micron and FusioN handle conversion to and from IP ST2110 with JPEG encoding and decoding, while also providing SDI for your inputs and outputs. When used with MediorNet VirtIO devices, they boast the highest density in the market with 64 encoder/decoder channels within a single RU. Additional benefits of the powerful Encode/Decode Apps include low latency, support of HD-SDI signals and configurable compression schemes & bitrates.

Micron & Fusion Standard App

The standard app is the core of the Micron platform. It integrates all the essential features for a basic operation, such as source and destination addressing, monitoring and control capabilities. With the Micron Standard App, you can easily and efficiently transport any SDI or IP signal across your network. It enables seamless integration with other Micron devices and ensures a reliable connection at all times.
MEET THE MEDIORNET FAMILY

MICRON UHD

MicroN UHD is the next generation of MediorNet signal distribution and processing devices. Building on Riedel’s distributed and software-defined concept, this new node adds more bandwidth, more I/O, higher resolutions, and more processing power to the MediorNet platform. The new addition to the MediorNet family provides 400G backbone connectivity for signal distribution over meshed architectures, includes 12G-SDI for native UHD (4k) workflows, and allows reliable operation due to link redundancy.

- Seamless integration into MediorNet SDI family
- 4x 10G Highspeed links
- 8x 12G/3G/HD-SDI – SDI In & 8x 12G/3G/HD-SDI – SDI Out
- 8x 3G/HD/SD-SDI In & 8x 3G/HD/SD-SDI Out
- 16x 3G/HD/SDI In / Out (switchable)
- 2x SFP ports (for MADI)
- Sync reference In / Out (BB, Tri-Level, WC)

MICRON

MicroN is software-enabled, app-based hardware that can be many different things: It can be a throw-down signal processor, a simple point-to-point link for up to 12 bi-directional HD signals, or part of a large de-centralized router – but it can even serve as a Multiviewer or a bridge between MediorNet networks and IP networks!

- Seamless integration into MediorNet SDI family
- 8x 10G Highspeed links
- 12x 3G/HD/SDI inputs & 12x 3G/HD-SDI outputs
- 2x SFP ports (for MADI)
- Sync reference In / Out (BB, Tri-Level, WC)

METRON

The MediorNet MetroN core router provides intense real-time signal-routing capacity (152x10G/122x4.25G ports) and offers non-blocking switching. The 2 RU device features switching delays of <40ms as well as high-speed re-routing that allows as many as 1,000 connections to be re-routed in less than a second.

- 64 auto-sensing ports (152x 10G / 32x 4.25G)
- 5 ethernet ports plus 1 config port
- 1 sync In / 2 sync out
- Rack-mountable in various positions
- Redundant power supplies and fan modules
- <40ms switching delay

COMPACT

MediorNet Compact is the cost-effective and easy-to-use entry to the world of MediorNet. With a network bandwidth of 50 Gbit/s, MediorNet Compact provides enough capacity for bi-directional transport of 12 HD-SDI signals, dozens of MADI streams or GBit-Ethernet signals and hundreds of audio channels or intercom ports. The multimedia stagebox is available as Compact BASIC, Compact PLUS and Compact PRO.

- Wide array of I/Os, capacity for 2 HD-SDI signals, dozens of MADI streams or GBit-Ethernet signals and hundreds of audio channels or intercom ports
- Powerful integrated processing functions including sample rate conversion, delays, test pattern generator
- 16 channel audio embedder / de-embedder
- Built-in backup sync reference and seamless takeover
MuoN SFPs are pluggable gateway and processing devices that can be used inside the VirtU frames or inside COTS IP switches (MuoN A series). The software-defined hardware is available with a range of different input and output configurations, including BNC, fiber, or HDMI (1.4 and 2.0). MuoN SFPs can be configured with a wide range of different apps: A simple change of the software license turns the device into an up/down/cross converter, JPEG-2000/XS encoder or decoder, an audio router, or even a 16x1 multiviewer.

MEET THE MEDIORNET FAMILY

**MUON**

- Software-defined platform with up to 4 app spaces per Muon SFP
- Available with different I/O port configs or as an IP-to-IP SFP without external connectors
- Powerful processing apps, including Gateway, UDX, Multiviewing, or Encode/Decode Apps with optional Frame Sync and Clean Switching Add-Ons
- Extremely compact, low weight, low power consumption
- Field-upgradable

**FUSION**

The Fusion series of compact standalone I/O and processing devices can be configured with a range of software apps to act as IP gateways, encoders/decoders, or as IP multiviewers. Due to their small form factor and low power consumption, the devices can be placed close to signal sources or destinations, creating powerful efficiencies in any production environment.

- Miniature processing frame with 3 or 6 SFP slots supporting 2x fiber links for ST2022-7 hitless redundancy
- Auto-sensing for SD, HD and UHD formats
- Mountable to the back of a standard monitor or installed into 2RU bracket housing up to 9/18 frames
- Powerful processing apps, including Gateway, UDX, Multiviewing, or Encode/Decode Apps with optional UHD, Frame Sync, and Clean Switching Add-Ons

**VIRTU**

The VirtU IP infrastructure platform can host an extremely dense array of Riedel MuoN SFP processors in just 1RU. The frame can be used as a bulk gateway, as a very dense processing unit or for any combination of gateway and processing. This modular platform allows users to gradually build their key advanced gateway and processing power as their needs grow.

- 8 independent clusters of 4x MuoN SFPs connected to a dual set of 40G/100G uplinks for ST2022-7 hitless redundancy
- Allows any mix of MuoN SFPs (per cluster host data rate must be the same)
- Very high reliability: fully passive signal path from QSFPs to SFPs, redundant power supply
MediorNet is all about the perfect production environment. Whether in broadcast centers, OB vans, convention centers, houses of worship, cruise ships, concert halls or stadia, MediorNet provides the necessary flexibility and efficiency for you to realize the best possible productions. Its highly modular concept of distributed video infrastructures and software-defined hardware allows us to offer a solution that not only reflects our customers' current needs, but a steady stream of advances to meet their future expectations.

Below you will find two typical setups. While live events still mostly rely on SDI infrastructures and broadcast urges towards IP technology, both technologies are, of course, very suitable to either production. Whatever your application and your legacy equipment, MediorNet can be tailored to meet your requirements, resulting in relieved operators, happy clients, and satisfied investors.

MediorNet's decentralized approach provides massive benefits including redundancy, flexibility, and the ability to scale the system as your needs dictate. For those reasons, MediorNet was the perfect choice to meet our complex needs distribution and communications requirements.”

Christian Castelli, Audiovisual System Engineer, French National Assembly

MediorNet can be tailored to meet your requirements, resulting in relieved operators, happy clients, and satisfied investors.

Riedel’s robust MediorNet SDI devices are built for the rigors of live events. With its distributed, flexible topology and its innovative app concept, the system is highly adaptable to rapidly changing production needs. This is particularly useful in dynamic environments like festivals, where MediorNet allows us to add more devices and apps on the fly and with minimal effort. Need additional video capacity at side stage 2? Just add a MicroN or Compact Pro node, connect it to the network and off you go!

As an all-round event backbone, MediorNet incorporates various infrastructures in one network and provides an ethernet tunnel for systems including CCTV, internet access, weather monitoring, cashless payment, lighting control and of course intercom.

Not only suitable for large festivals, MediorNet offers a host of advantages to smaller events and venues. These benefit from devices like MediorNet Compact Pro and MicroN providing integrated signal processing at the cost of simple multiplexing point-to-point products.

Planning to go full IP in your TV studio? The MediorNet family is just the kind of company you’ve been looking for. Our full IP solutions are scalable, simple, and both space and cost-efficient, offering a wide range of processing functionality. Their flexible and scalable distributed architecture lets you swiftly add not just single devices but entire subsystems like backup glue.

Boasting 64 (UHD) processing channels per rack unit, MediorNet provides the highest density available and, with each channel consuming only a few Watts, is by far the most economical system in the market. Besides its fully open, standards-based and proven interoperability, it easily integrates in Ember/NMOS-based orchestration and control. And since it is software-defined hardware, you can have multiviewing, processing, and routing in one system with a minimum number of devices but maximum flexibility.

Or are you looking to make a first step towards IP but don't want to abandon all your trusted legacy SDI equipment? Thanks to MediorNet, you won't have to! Our flexible systems allow for hybrid solutions that combine the best of both worlds and support a smooth, incremental transition to IP workflows. The MediorNet IP bridge creates high-speed IP pipes between your SDI infrastructure and your IP network, while the MuoN IP-based SFPs allow you to gradually grow your IP-based routing, multiviewing and processing capabilities.

So the options are varied and versatile. Thanks to its flexibility, MediorNet is the perfect infrastructure for your future-proof studio – whether as a hybrid IP solution based on your legacy SDI equipment, or as your cutting-edge full IP non-proprietary production environment.