



# IP for Live Production

The IP transition is far from a one-size-fits-all proposition. While there's widespread agreement on the end goal of an all-IP environment, the journey will be unique to every customer.



If you're like most of your peers, you don't have a limitless budget or the luxury of forklifting your plant. So how do you make a move toward the network of the future in a way that works for your business?

The transition to IP is not easy, but the good news is that we've already done much of the heavy lifting. And we invite you to tap into Imagine's hard-won experience — gained through the dozens of next-generation deployments we've undertaken around the world.

Our in-house experts can answer all your questions and get you quickly up to speed on how to design, deploy and operate an IP live production system. And our standards-based solutions can help you protect your SDI investments, while transitioning to IP at whatever pace works with your business.

So whether you're a hybrid SDI-IP toe-dipper, or a digital-first trailblazer ready to go all-in IP, Imagine has a solution and migration strategy that will give you an edge whenever you're ready to jumpstart your IP journey.

## IMAGINE'S IP LEADERSHIP



Pioneer in IP video transport  
(first IP contribution product, 1998)

Founding member of



Document editor for **SMPTET 2110** standard

First to design a standards-based **SDI/IP router**



First to offer a standards-based **pure IP-capable processor**

First in processing over **COTS IP 100Gb/sec** switching network

First to deliver UHD video over single **SMPTET 2110-20 streams**



"It was important that we work with a technology provider that was a leader in the shift to IP and an aggressive supporter of and contributor to industry standards for large-scale interoperability."

Joe Micucci, Vice President, Global Broadcast Engineering at QVC

## COMMITMENT TO STANDARDS

At Imagine, we believe we've engineered some pretty awesome IP technology. But we also believe that customers should build architectures using precisely the tools they need — and that often means tapping multiple vendors.

Open professional standards are essential if media companies are to take full advantage of the move to IP. So we don't stand on the sidelines.

Imagine is an active participant in SMPTE and played a big part in defining ST 2022, ST 2059 and ST 2110. In fact, the editor of the SMPTE ST 2110 family of standards is John Mailhot of Imagine Communications.

Cross-industry cooperation is key to the adoption of these standards, and Imagine is all in. We were one of the founders of the Alliance for IP Media Solutions (AIMS) to ensure exactly that outcome.



# There's more than one way to get to IP

And there's no "right" way. It's really a matter of designing and implementing for your specific requirements. At Imagine, we've helped customers take each of these approaches to the IP transition.

## **BUILD AROUND AN SDI CORE**

If you're operating a mostly SDI plant today, but plan to add IP elements sometime in the future, this might be the model for you. You use a traditional SDI router, and then drop some cards into the router frame to translate from SDI to IP as needed. This low-risk path is essentially a ship-deliver-work approach.

## **TAKE THE DOWN-THE-MIDDLE "HYBRID" PATH**

If you want to move toward IP, but prefer to take a familiar path, consider the hybrid approach. In this model, you have an SDI zone and an IP zone, and you build translators as tie-lines between them — like SD/HD domains. This is a great way to move toward IP at a pace that aligns with the availability of budget and the time it takes your staff to get up to speed.

## **GO STRAIGHT TO THE IP END GAME**

If you already have a lot of equipment in your plant that natively speaks IP, this is a great option. Deploy IP switches at the core, directly connect IP devices, and then add gateways next to any equipment that speaks SDI. This is a cost-efficient approach, as it enables you to run much less fiber back to the switchers compared to an SDI build, reducing weight and power consumption.





Before you take the plunge into any new technology, it's always smart to take a look at who's already using it. Imagine works works with media companies all over the world and at all different stages in the transition to IP live production. Here are a few who have done some cool things on the road to IP.



### TPC

When UHD1 hit the road in late 2018, tpc became the first media company to broadcast a live sports event from a SMPTE ST 2110, full-IP, uncompressed UHD HDR OB truck.

Selenio™ Network Processor • EPIC™ MV • Magellan™ SDN Orchestrator



### QVC JAPAN

This leading global video and ecommerce retailer upgraded its teleshopping production studio in Japan, making it one of the first large-scale ST 2110-compliant, uncompressed UHD facilities in the Asia-Pacific region.

Selenio™ Network Processor • EPIC™ MV • Magellan™ SDN Orchestrator



### TV GLOBO

TV Globo used a facility move to take the first steps toward IP, deploying a hybrid SDI-IP infrastructure in their new Recife location and becoming the first Latin American broadcaster to implement IP for live production.

Platinum™ IP3 • Selenio™ UCIP • Magellan™ SDN Orchestrator



### GLOBAL PRODUCTION

This Italian OB leader drove its new hybrid SDI-IP UHD truck into the winner's circle during a recent color shoot-out at Monza, delivering the most accurate rendition of Ferrari's trademark red.

Selenio™ Network Processor • Platinum™ IP3 • Magellan™ SDN Orchestrator



### VICE MEDIA

This fast-growing media company became one of the first news organizations to adopt pure IP-based technology infrastructure when they constructed a next-gen production center in their New York-based headquarters.

Selenio™ UCIP • EPIC™ MV • Magellan™ SDN Orchestrator



### BBC STUDIOWORKS

A state-of-the-art hybrid SDI-IP routing and control foundation at London's iconic Television Centre provides BBC Studioworks with a seamless path to future support for IP-based production, UHD and HDR.

Platinum™ IP3 • Magellan™ SDN Orchestrator



As part of our commitment to open standards, Imagine offers proven, deployable solutions that support SMPTE ST 2110 and ST 2022-6/7 and span the media workflow.

Our award-winning platforms can take your live production operation from full SDI to full IP at whatever pace works for you — and ensure that today’s investment can support tomorrow’s business.

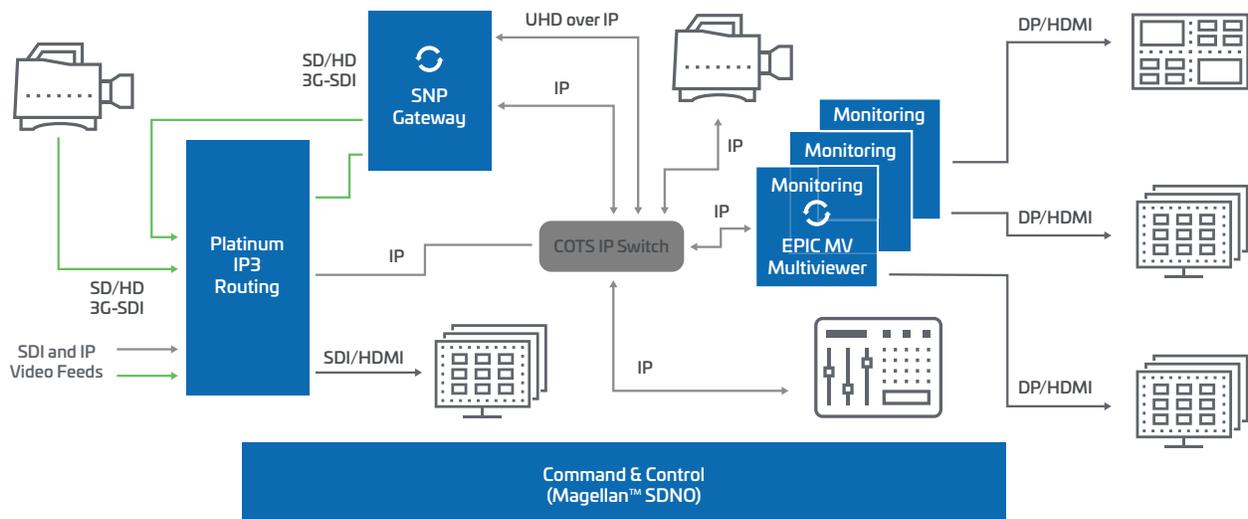
Whether you’re building infrastructure for mobile, studio or remote production, Imagine’s future-proof solutions enable you to:

- ✓ Leverage existing infrastructure, move to IP and deliver next-gen technologies at any time
- ✓ Provide the full capabilities required for live production via fully integrated, efficient systems
- ✓ Grow at your own pace to deliver video over IP and UHD

By working with uncompressed and standards-based UHD signals, Imagine solutions can process video signals to meet all client preferences without requiring a mezzanine compression scheme, while at the same time maximizing video quality and minimizing latency.

Most importantly, Imagine production solutions deliver all the benefits of IP connectivity and software flexibility — but with the same performance characteristics and operational look and feel as a traditional SDI system — enabling you to get up to speed quickly with the next-generation technology.

### SOLUTION ARCHITECTURE



Platinum™ Router, EPIC™ MV Monitoring, Selenio™ Network Processor (SNP), Magellan™ Management & Control

## Platinum™ IP3 Hybrid IP, UHD-ready router



- ✓ Highest integration of functionalities – processing, multiviewers, synchronization, IP gateways
- ✓ Simplest path from SDI to IP, HD to UHD, HDR, and future formats
- ✓ Best SDI expansion ability, even while on-air; unlimited scaling when combined with a COTS switch

### FEATURES

- Mixed-format video and audio routing
- Integrated multichannel uncompressed over IP (UCIP) option
- Field-proven control system enables hybrid infrastructures — SD, HD, IP
- Up to 576x1024 video in a single 28RU frame
- Over 2000x2000 video matrices supported with multiple-frame configurations
- Independent signal paths and crosspoints for video and audio
- Full redundancy for power, control and signals
- Clean and quiet switching for on-air applications

## Selenio™ Network Processor IP Media Processing Platform



- ✓ First standards-based pure IP-capable processor
- ✓ First in processing over COTS IP 100Gb/sec switching network
- ✓ First to deliver UHD video over single ST 2110-20 streams

### FEATURES

- High-density, FPGA-based processing platform
- Multiple ST 2110 processing “personalities”
- SMPTE ST 2110 gateway for UHD (with or without HDR) and HD
- 100GbE interfaces with 2022-7
- Low and deterministic latency
- Frame sync to PTP with adjustable output phasing and delay
- UHD 2SI/SQD/12G support on BNC connectors
- HD Proxy (as separate 1080i stream) for UHD signal monitoring

## EPIC™ MV Hybrid IP, UHD-Ready Multiview Monitoring Solution



- ✓ Industry's only mixed signal monitoring (SDI, IP uncompressed/compressed) within single mosaic/layout
- ✓ Low-TCO monitoring solution with mix of SW and smart HW acceleration — ideal for hybrid environments
- ✓ Scalable to thousands of PiPs and hundreds of displays

### FEATURES

- Mosaic output in SMPTE ST 2110
- Ability to input proxies for UHD
- 48 HD inputs via 4x PCIe cards per 2RU
- 1 UHD/4 1080p displays
- H.264 and MPEG-2 CODECs standard
- Strong tally/UMD support, advanced content-based alarming
- PiP copies and sharing between devices
- Low latency; high video quality

## Magellan™ SDN Orchestrator Software Control System for Hybrid Baseband/IP Facilities



- ✓ Simplifies management/operations, making an IP network look like SDI
- ✓ Utilizes COTS IP switching, leveraging the latest generation of IP routers
- ✓ Works seamlessly within existing workflow — no operational disruptions

### FEATURES

- Control system for HD/UHD/IP facilities
- Full support for ST 2110 and ST 2022-6
- Supports a vast list of third-party IP endpoints
- Virtual re-entry that works for both SDI and IP routing
- Support for all traditional routing paradigms
- Fast and deterministic switching
- Seamless redundancy switching in main and backup network configuration (SMPTE 2022-7)
- High availability through 1+1 redundant configuration

## DEPLOY WITH CONFIDENCE



Our EPIC™ MV multiviewer, Selenio™ Network Processor, and Versio™ modular payout system are all badged “JT-NM Tested” for SMPTE ST 2110.\*

Products badged with the JT-NM Tested mark will have passed a rigorous set of tests —administered by two leading European technical bodies, the EBU and IRT — to align with SMPTE ST 2110 and SMPTE ST 2059 standards.

\*For more details on the JT-NM Tested program and its test results, please go to [http://jt-nm.org/jt-nm\\_tested/](http://jt-nm.org/jt-nm_tested/)

YOUR PATH. YOUR PACE.

# Take it on with Imagine.

## Why Imagine?

### EXPERTISE

At the risk of bragging, we have some pretty smart people on our team. Got questions on SMPTE ST 2110? The document editor of the standard works for Imagine!

### EXPERIENCE

We've done a lot of IP. We can share the many lessons learned that will help you turn disruption into opportunity.

### ENDORSEMENTS

You don't have to just take our word for it. Media companies all over the world are working with Imagine to make their IP visions a reality.

Ready to get started on your transition to IP?  
Visit: [imaginecommunications.com/ip-transition](http://imaginecommunications.com/ip-transition)



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