

# Underpinning and powering network growth

**The Switch extends its multi-year partnership with Net Insight to build 100G network capacity across North America simultaneously integrated with new cloud-based production and transmission service MIMiC**

## The Brief

To meet rising demand for more flexible production and distribution services, including remote production, The Switch embarked on a significant expansion of its production network. Specifically, the service provider wanted to create a new 100Gbit fiber network, bringing higher capacity connectivity to key media and sports hubs in the North American market. To further facilitate evolving customer models, The Switch launched MIMiC, an on-demand cloud-based production and transmission service leveraging the broadcast quality redundancy of its underlying fiber network with the transmission powered by Nimbra Edge.

## The Network Core

For over a decade The Switch has operated an extensive domestic private fiber network built on Net Insight Nimbra. This consists of more than 50 primary nodes and a further 500+ connections into customer sites at broadcasters and rights holders, playout centers, major venues and stadia.

The main nodes comprise of Nimbra chassis, communications equipment, in band and out of band control and an SDI router which supports local HD loops out to the customer when required.

Supplementing the 10 Gbit infrastructure are a series of fully fledged flight-based nodes, again based on Nimbra. The Switch ships these nationally and internationally to events (like Roland Garros in Paris) where the 'PoP in a Box' simply connect into The Switch's infrastructure.

## THE COMPANY

The Switch provides a platform for the production and global transmission of live video. Founded in 1991, the broadcast services provider offers local metro and long-distance video transport services in major cities across North America, Europe and APAC to broadcast networks, production houses and major sports leagues. It also operates 11 studios in LA, Burbank, New York, London and Singapore providing full turnkey production to transmission across linear TV, on-demand and streaming platforms for sports, entertainment and enterprise customers.



Robert Szabo-Rowe, The Switch's Senior Vice President of Engineering and Product Management explains, "Net Insight's Nimbra equipment has been at the center of our ability to deliver seamless feeds to our customers for many years. Nimbra is our Swiss Army knife. It supports all the main broadcast formats. We are able to manage it remotely so we don't have to rely on local support or local connectivity in order to have full visibility into metrics and configuration. That's really important when you have as many of these units deployed as we do."



**“Most important, the Nimbra platform is rock solid and able to operate the network at five 9s reliability. It is highly resilient, extremely robust and very deterministic which is exactly what our customers need.”**

With the foresight that only comes from working closely with customers, The Switch anticipated rising market demand for video, for video at higher data formats from 1080p to 4K UHD, as well as the need to accommodate more flexible workflow models.

Consequently, beginning in 2019 The Switch planned a major upgrade of its core infrastructure.

## The Next Phase of Expansion

In a significant expansion of its network capacity, The Switch planned to deploy 100Gbit connectivity once again in partnership with Net Insight.

Phase one involved installing 100Gbit equipment to service its main US Network Operation Centers in New York and LA and its major sports customers. This included new 100Gbit lines and 100Gbit nodes based on the Nimbra 1060 media transport platform enabling terabit network speeds.

A second phase, already begun, involves a 100Gbit upgrade to its trans-US backbone and will add further 100Gbit nodes. Far from having to rip and replace its existing Nimbra systems, these work into the 100G infrastructure.

Szabo-Rowe explains, “What is terrific about the Nimbra platform is its longevity. We don’t need to rip and replace. The Nimbra we installed into our network 10 years ago can be updated with new cards and new capability to enable our expansion. In fact, what we have built is a network capable of delivering a mix of line speeds and media to cater for every application from high-capacity tier one customers to those only needing HD-SDI local loops.

He adds, “Our network grows along with the market and Net Insight is a key part of our technology strategy. It allows us to support a more diverse range of production models that enable broadcasters, streaming services, and other content providers to be future-proofed in today’s fast-moving market.”

The Switch’s expansion didn’t stop there. The new 100Gbit fiber ring network also includes Nimbra 680 carrier-class multiservice media routers and the Nimbra Edge hyper-scale media cloud platform to integrate the company’s core network into a new cloud-based production and transmission service.

## Introducing MIMiC Cloud Transmission, Powered by Nimbra Edge

In spring 2020, The Switch launched MIMiC, an on-demand cloud-based production-as-a-service designed to cater for the groundswell in demand for remote production of live and virtual events.

“The launch of MIMiC reflects the fact that, in a multidevice world, viewers are no longer tied to the TV screen to watch sports or other live content,” Szabo-Rowe says. “Streaming and social media are increasingly driving viewer engagement. At the same time, rights holders are seeking ways to more efficiently meet the seemingly insatiable demand for live content.”

On top of these macro trends, the pandemic has compressed adoption timelines as major sports broadcasters, and leagues work to keep live content on air despite travel restrictions and social distancing measures.

Integrated into its end-to-end production-as-a-service, The Switch launched a cloud-based global IP transmission product in summer 2021. This enables sports broadcasters, streaming services and other rightsholders to take video feeds from anywhere in the world and simultaneously deliver them to multiple – up to hundreds – of destinations via the internet, cloud networks and The Switch’s private network.

“Our global managed IP transmission network uses a combination of cloud-based networking and our own private fiber network to transport traffic with total resilience,” Szabo-Rowe says.



# Open Standards, Cloud Agnostic

Designed to enable ultra-reliable long-distance media networking across any infrastructure, Nimbra provides a single platform for The Switch media and network functions whether over private network or cloud.

"We looked at a number of systems and found that most tend to be based on one type of transmission technology, usually SRT or Zixi," Szabo-Rowe says. "What attracted us to Nimbra Edge was its support for multiple protocols. It is based on RIST but has the advantage of working with all standard ARQ protocols to manage media over the public internet."

The MIMiC transmission network transports H.264/265 encoded signals using RIST internally to maximise the performance and lower the latency but thanks to Nimbra, can fully support both SRT, Zixi and even RTMP.

A second strategic consideration for The Switch was to avoid being locked into one cloud provider. Szabo-Rowe explains, "One of the things we are wary of is running our operations on a single supplier's data centers. If there is any issue with reliability or service you need to have the ability to change supplier and take your platform elsewhere. The open standards and data center agnosticism of Net Insight technology was a particularly important part of the design for MIMiC."

MIMiC is currently hosted on two data center providers. "It means we're able to leverage the best attributes of the hosting companies to maximise use and the host cloud provider's coverage. This model also protects us a bit from the pricing strategies of the cloud providers. Once you are embedded you want to make sure you have leverage. Essentially, we wanted the flexibility to stand a service up wherever and whenever our customers need it."

The MIMiC TX is designed to enable cost-effective, high-quality transmission of HD and UHD broadcasts and expressly targets the secondary distribution of mid and lower tier type productions and events. The Switch's fiber network promises pristine video quality and ultra-low latency for tier 1 events and applications such as talking to track side talent and sports betting.

"Essentially the MIMiC transmission service offer allows us to offer globally a point to point and point to multipoint distribution for compressed feeds with 15 and - 30 Mbps type contribution," Szabo-Rowe says.

For events in remote locations with limited internet access, The Switch can also support cloud-based transmission with bonded cellular services for either the primary feed or as a backup – leveraging 5G where possible.

## Comprehensive end to end solution

The extensive rollout of higher capacity fiber connectivity and a hybrid managed infrastructure combined with cloud, has been timed to help content producers galvanise the live events market in a post-Covid world.

The result is a unique combination of agile cloud production capability and global network reach. Content producers can now leverage The Switch to cost-effectively meet increasing demand for efficient and flexible broadcast quality (remote as required) production for any live event.

"Basing our network on Nimbra allows us to extend an end-to-end service leveraging cloud-based transmission technologies underpinned by high quality and high reliability fiber connectivity," Szabo-Rowe says.

"Our partnership with Net Insight has been an important step in preparing our network for this evolution," he adds. "Having a partner like Net Insight which listens to what we need them to develop is very important. They help us to deliver new services for our customers. Not every supplier would do that."

