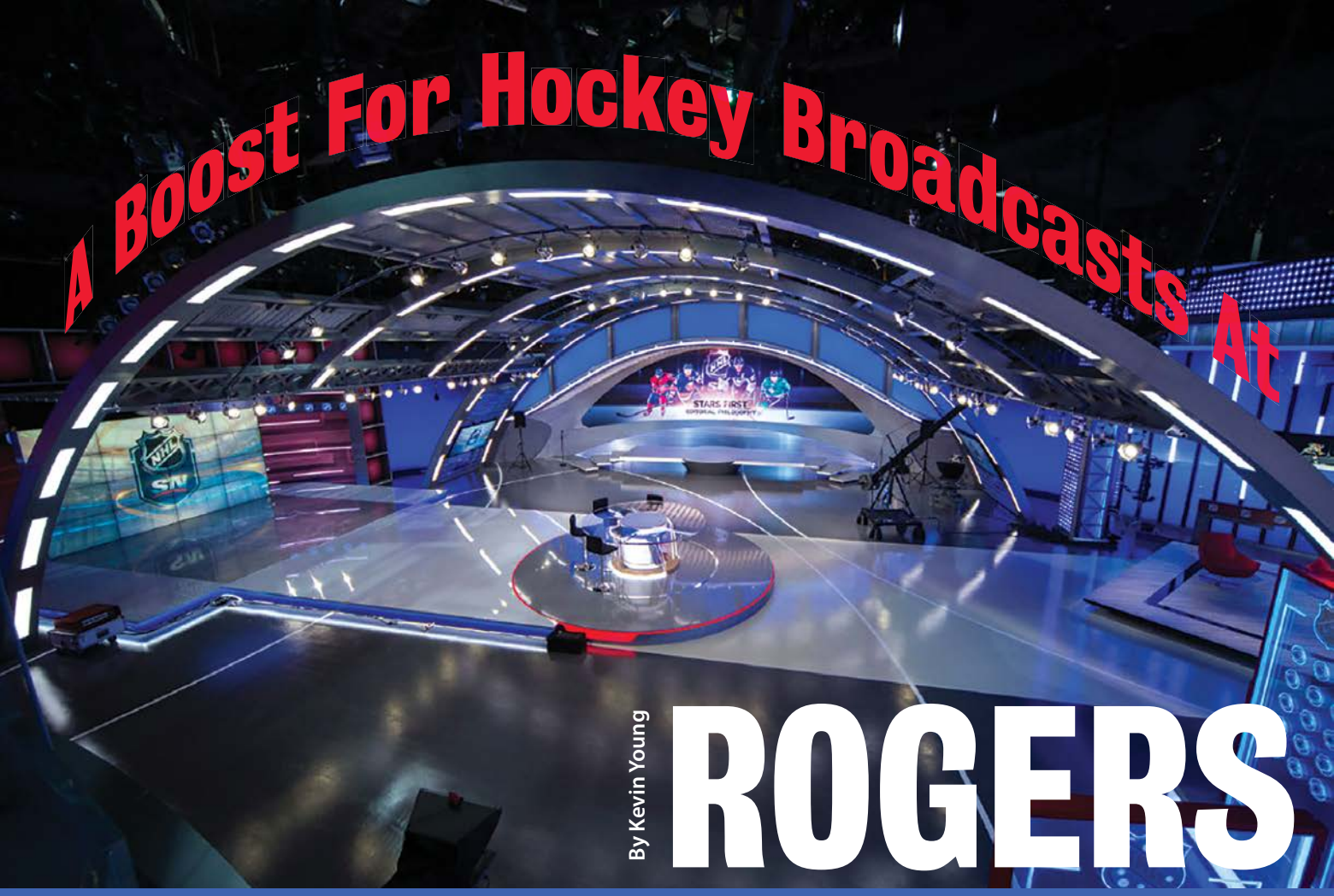


A Boost For Hockey Broadcasts At ROGERS

By Kevin Young

Hockey Night in Canada (*HNIC*) has been an iconic national institution for over 60 years, so when Rogers Sportsnet acquired the Canadian broadcast rights to NHL hockey and *HNIC*, they knew they'd be watched closely by both their peers in the industry and fans alike; consequently, one of the driving forces in the design/build of the facilities it would inhabit going forward was the longstanding legacy of the show.

Moving the institution to a new network impacted the job substantially, says John Christie, sales rep and wireless/broadcast specialist for Mississauga, ON's RP Dynamics, the audio consultants tasked with designing the systems required to meet Rogers' needs. "It set extremely high standards for the quality of content and the end result we had to provide. The onus was on us to provide Rogers with the tools to do it properly, with respect to that legacy. The final product and the team they put together were focused on that vision."

That team included many of the CBC professionals who had been creating the exceptional product Canadian hockey fans have come to expect over time, Christie continues. "It's an amalgamation with CBC. We're in the CBC facility (Studio 41) and *HNIC* itself is a blend of Rogers staff and the original CBC team, many of whom are used at other times during the week on other Sportsnet Hockey shows."

As RP Dynamics' lead on the project, Christie designed much of the new audio system, but he did so in tandem with Tim Hicks, senior broadcast technician of NHL operations for Rogers, and Mark Johnson, senior systems designer with Unity Systems Integration (formerly known as Hughes Integration), who took the lead on the install portion of the project.

Hicks' role during the design/install portion of the project was to oversee the build, but his work is ongoing. "I got involved in early spring 2014 and I guess you could say I was PM of the broadcast side of the build. We also hired Hughes Integration, who've since become Unity Integration, to help us," Hicks says. "I was responsible for medium purchases, high-end drawings, and working with the integrators to get the build done. That's where I fit in. Now, it's up to our team here to maintain and service any needs required by operations."

The project initially began under the oversight of Michelle Moy, then the manager of Sportsnet Engineering, who hired RP Dynamics in March 2014 – on the very day Rogers released the NHL announcement. Christie adds that the timeline for completion was "large, but extremely tight." That presented perhaps the greatest challenge from an install perspective, Johnson says. "The design began in earnest in May 2014 and it had to be built and the operations team had to be comfortable with it by October 9th."

Unity Systems Integration and Johnson, specifically, were tapped by Rogers to act as integrators for the project in April 2014. "It was very much a team effort," Johnson says. "Tim was the lead from Rogers and he would come up with ideas as to how he wanted to do things, provide high-level concept drawings, and have conversations with John about the best way to approach it. Then John would throw out ideas for gear and we would take the gear, do the detailed design, including the required cable connections in AutoCAD, and then provide construction documents for the Unity installation team."

Brett Manion, formerly the senior production audio engineer at CBC and now head of Brett Manion Audio Inc., was also a key player in the amalgamation, Christie adds. "Early conversations with Brett led us to the approach we took to integrating with the CBC systems because he designed the systems used within the building. The RTS intercom and consoles all connect via a pre-existing Direct Out Technologies MADI

SPORTSNET

router and our concept was based on integration with that router. They have an SSL C200 console in the Studio 40 control room [used as one of the control rooms to access Studio 41] and we needed to add two more control rooms that saw all of the gear and intercom. So we added another Direct Out Technologies MADI router with 16 ports of optical I/O that sends a selective MADI signal to the existing router."

As a longtime audio operator for *HNIC*, Manion, who continues to work as a freelancer on *HNIC* as lead audio engineer, knows the facility's technology intimately and has trained many technicians, including members of Rogers' staff, on the audio systems at CBC. Well before it was announced that Rogers would be taking over *HNIC*, Manion and his team were interested in upgrading the copper systems to fibre, a task they took on prior to the 2014 Sochi Winter Olympics. That upgrade had an impact on the design of the systems implemented in the Rogers build, and Manion says many of the suggestions he made for the amalgamation and upgrade were taken to heart by RP Dynamics.

Throughout the project, there was a sense of urgency driven in part by the high expectations of the Sportsnet and *HNIC* audience. "There was always a feeling of having to get this right," Johnson says. And while Rogers, he believes, had to put their own stamp on it, it was necessary to remain conscious of the past and not depart completely from the look and feel fans were accustomed to. Beyond the legacy of the CBC's work on *HNIC*, however, the need to ensure the new studio facilities operated smoothly and were flexible enough to meet the needs of the broadcast was paramount.

The scope of the job was huge, Christie adds, and required one large, open room divisible into multiple shooting areas: a main room, an interview area for George Stroumboulopoulos, a "stats wall" with a large touch screen interface, and three regional sets. The entire area is served by three control rooms – two at CBC and one offsite at One Mount Pleasant (OMP), Rogers' pre-existing Sportsnet headquarters.

In the main studio space, up to three independent shows may be shot simultaneously. For example, on Wednesdays, it's *Connected*, *Hockey Central*, and *Scotiabank Wednesday Night Hockey*, which may involve overlap in terms of both rehearsals and broadcast. Additionally, The Fan 590 Radio broadcasts out of one regional studio on a regular basis.

The technology is centralized, Christie continues: 28 channels of Shure Axient wireless systems and infrastructure, including custom antenna distribution, 24 Shure MX150B/O omni lavs, and 24 channels of Shure PSM 1000s as talent IFBs. "All of that is in one set of racks in the main room and covers the entire room," Christie explains. "It's all fed into two Direct Out Technologies Andiamo 2.XT MADI AD/DA converters into MADI. From there they go up to the Direct Out MADI router and to the control rooms, or wherever they need to go." The choice of PSM 1000s, he adds, was based on previous successful use of the systems over the past three years at OMP.

In all, there are nine Middle Atlantic BGR-4538 equipment racks housing a variety of AV equipment. Four were built and wired up offsite by RP – one containing the Shure Axient system; another for battery management for the Axient, IFB, and Andiamo 2.XT MADI AD/DA converters; a third for the IFB systems and PSM 1000s; and one housing the wireless intercom components. The remaining five racks house primarily video equipment and patch infrastructure.

The wireless system was a turnkey solution provided by RP Dynamics, Johnson explains, which, other than the provision of reference cabling, wordclock, and fibre patches for the MADI I/O, was essentially a standalone system.

Control Room 40 houses the CBC's pre-existing SSL console and standard matrix intercom. Studio 41, located on the mezzanine level, the 10th floor of CBC, is a completely new build. "It was gutted and we created a commentator lounge, a central equipment room (CER 41), and a production suite," Christie says. Studio 41's control room houses a Studer Vista 5 mixing console already owned by Rogers that had to undergo a substantial upgrade for its new use.

"We decommissioned the Studer, detailed it as we took it apart, and worked in extra expansion frames because they needed substantially more I/O. John provided the hardware, and rebuilding and rewiring the Studer at the CBC facility was primarily our job," Johnson says.

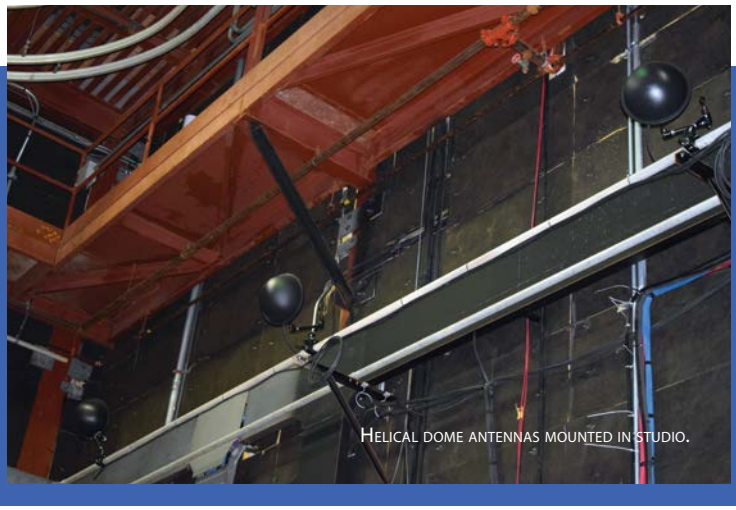
"It was simply inadequate in terms of I/O," Christie adds, "so we tripled the I/O and DSP in order to get the flexibility we needed. Typically, the regional shows or secondary broadcasts are handled using the Studer, but most evenings both consoles are in use simultaneously."

Initially, another control room in CBC was considered for use, but utilizing the offsite control room at OMP does provide an overall cost benefit. The OMP control room is linked to the CBC facility through various embedded audio and video feeds. "We do a full production from OMP remotely," Hicks says. "It's interesting because there's the staff at OMP, then the camera, talent, and floor directors are at CBC, so we have fibre links, Ethernet control, and video, which goes through baseband 1.5-gigabits fibre between OMP and CBC."

Also provided by RP Dynamics were Five Ma2chbox XT DA MADI converters, which are fed by a 64-channel MADI stream from the three audio control rooms. "The MADI streams are paired. I'm sending two independent audio signals in a pair – one and two are a pair, three and four are a pair, and so on – and the Ma2chboxes are designed to jump in pairs. So audio assists, at the beginning of their shift, turn the Ma2chboxes to the control room setting they're using," Christie says.

The Ma2chbox converters were deployed for on-set monitoring, while a pair of Andiamo XT 2s was deployed in the CBC studio to handle the main microphone feeds. An additional XT 2 was situated in the equipment room to support the Studer console and OMP embedded feeds. A Direct Out Technologies KYRA MADI monitoring unit was also pro-

A BOOST FOR HOCKEY BROADCASTS AT ROGERS SPORTSNET



Helical dome antennas mounted in studio.

vided for the engineering room on the main level. "One of the things we've done more recently is to send them a MADI split and they can choose what they want to hear from four different MADI sources using the monitoring unit," Christie says.

The MADI infrastructure for the build was extensive, Johnson says, and with over 100 fibre patch cables supporting the MADI, the RTS intercom, and the two main broadcast networks, this is the first build he's seen that relies so heavily on MADI.

For foldback and stage announcing throughout the studios, there are four QSC K10 and four Fostex 6301BX powered speakers; two K10s in the main studio area and one in the auxiliary "horseshoe" regional set. In each of the upper and lower regional sets, the two Fostex loudspeakers are deployed and placed under the on-air talent's desks. "Originally, they were supposed to get K10s as well, but there was no ideal place to put them, so we went with the under-desk Fostex units," Christie says.

Redundancy was a key factor throughout the build, Johnson says, describing the links between OMP and CBC. As far as the resources Rogers drew on for the build, as mentioned, it was truly an amalgamation of technical resources and people, and necessarily so. "With the extensive use of MADI, the deep thinking into channel alignment, and working in built-in redundancy element, it had to be." Johnson says. "From the get-go, that was hugely important. If something went down, we had a way around it."

And although fail-safe backups are an important consideration in any project, that was especially the case here. "Take the talent microphones," Johnson continues. "In that studio you've got the main wireless mics, a backup wireless stick under the desk that talent can grab if their lavalier mics get in trouble, and then there's a hard wired microphone plugged into the bulkhead that an A2 can bring on set if necessary."

The necessity for smooth, reliable operation during broadcasts informed the choice of equipment utilized in every aspect of the audio systems and was a primary factor in the choice of Shure technology, 24 Audio Implements IFB earsets, and two Audio Implements t-coil induction earsets.

"With roughly 340 to 350 frequencies in the CBC broadcast centre, it's an extremely busy and constantly fluctuating environment and I needed frequency protection for Rogers' operation," Christie says. "Axient is the only product on the market that will automatically switch your system to a new, known, good, active backup frequency using the system's AXT600 Spectrum Manager for scanning and analysis."

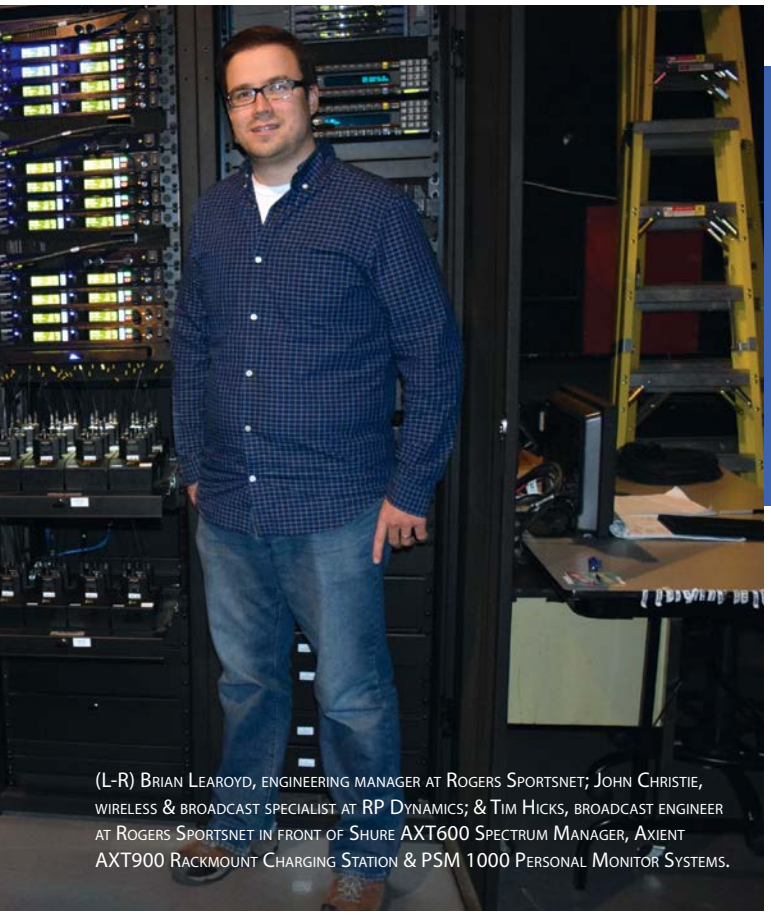
The other feature set of Axient that was key is its capability to control transmitters remotely via ShowLink Access Points in real time – to mute, sleep, change frequencies, or alter the transmitter's output power and fine-tune the gain structure of a given transmitter.

Additionally, a custom antenna distribution system for the wireless utilizing helical antennae systems was designed by RP and provides an extremely clean noise floor between multiple IFB transmitters and microphone receivers.

Since its implementation (according to the logs automatically generated by the Axient system in the NHL studios) there were five frequency changes deployed automatically during the first three weeks of the 2014-15 season, but the system prevented any audible wireless problems during *HNIC* and other broadcasts.

"We've had a couple of frequencies that people have jumped on that we've reserved, but that doesn't bother the Axient system," Hicks says. "You never hear that on air. The other reason for deploying the Axient, he adds, "is that we've used it at OMP and we're familiar with it. We looked at different options, but reliability was critical."

Each control room houses a computer running Shure's Wireless Workbench software, which is networked into the main system. Additional access points were installed in various spaces, near dressing rooms and the commentator's lounge, allowing the production team to control all of the microphone transmitters everywhere the on-air talent is likely to go during the course of the evening. Wireless Workbench allows all the Shure equipment in the facility to be manipulated in real time. "So, rather than programming a device manually using a list of frequencies, you push one button – deploy to inventory – and all devices are



(L-R) Brian Learoyd, engineering manager at Rogers Sportsnet; John Christie, wireless & broadcast specialist at RP Dynamics; & Tim Hicks, broadcast engineer at Rogers Sportsnet in front of Shure AXT600 Spectrum Manager, Axient AXT900 Rackmount Charging Station & PSM 1000 Personal Monitor Systems.

programmed. It makes life far easier," Christie says.

"From an RF perspective, they've done a fantastic job," Manion remarks. "When I was still on staff at CBC, John and I went through everything multiple times because in this building you cannot afford to have rogue frequencies flying around. The consolidation of CBC and Rogers' systems has been quite an incredible feat."

Additionally, RP provided Spot-On Playback Software, used in both Studio 40 and 41 as a touch screen audio playback source with tracks of music that include pre-defined fade ins or fade outs and various bumpers and themes that can be selected instantly. That makes it far easier for technicians to keep things moving fluently during both normal broadcast situations and when, owing to the nature of game coverage, it becomes necessary to improvise on the fly.

RP's design also incorporated a CEDAR DNS8Live noise reduction unit. "The CBC ACR40 control room had one," Christie says, "and we realized once the set was built that ACR41 would need one as well. It's an exceptional piece of hardware that taps directly into the Studer or SSL and eliminates room noise by learning the ambience of the room – you just tap it and by the time you lift your finger, it's done. It's active and reduces repetitious noises from equipment, lighting, some of the reflectivity, and general room noise, but leaves dialogue."

Crestron control systems were installed in ancillary spaces such as offices, dressing rooms, and an executive lounge for playback of various AV sources. "They basically came to us and said they needed a slick, elegant, but user-friendly control system," Christie summarizes.

Another integral element was the Clear-Com Eclipse Digital Matrix intercom with a CellCom wireless intercom card and a total of 17 CellCom wireless intercom beltpacks and headsets.

Early on, RP Dynamics considered using a new product for intercom, but owing to their production schedule, release time, and the sheer newness of the product, felt it better to proceed with another manufacturer's technology.

That led him to Clear-Com. "Midway through the summer, I realized this could not have been done another way and was beyond thankful for the choice we made," he shares. "The complexity of the wireless intercom required is extreme, in the least. There's anywhere from three to nine camera operators for each control room. Obviously, they're not all using nine cameras simultaneously, but at the same time, there are camera and audio assistants, floor directors – a variety of people with different requirements in terms of who they need to hear and talk to."

Additionally, custom IC antenna coverage was provided to expand the coverage area so operators can move freely throughout the facility – four access points in the studio, one by the makeup and dressing rooms, and one serving the commentator's lounge and Production Control Room 41. "We also have plans to expand our coverage area so it's even more seamless," Christie adds.

In the end, Christie believes that the new system has allowed Sportsnet and *HNIC* to up their game substantially. "Previously, they could only ingest and record six or seven games or sources at once. Now, all potential games on a given night for the NHL can be ingested, edited, and utilized" – which, given Rogers' need to handle multiple shows and games, often shown on different networks and channels in different time zones, is a necessity.

Christie, Manion, Hicks, and Johnson are proud to have been involved in this project and are as happy with the end result as they are with the route taken to achieve it. "We relied on the expertise of CBC and brought our expertise in as well," Hicks says. "We worked as a team and, in my opinion, this is a world-class studio and production. We didn't go in thinking we wanted to be the best in hockey; we wanted to put on a presentation that, arguably, would challenge other [sports] productions. I think it was genius to repurpose the venue and draw on the expertise of the people at CBC to deliver a product Canadian sports fans would be really proud of." ■

Kevin Young is a musician and freelance writer based in Toronto.