

# The future in action

## Gearhouse Broadcast's Inspirational Remote Live Production for Seven Network



### The Company

Gearhouse Broadcast is a global market leader in broadcast services, specialising in Event Communications, Equipment Rental, Outside Broadcast, Project Solutions and Systems Integration. Operating globally with offices in the UK, Australia, USA, Qatar and France, they can meet the most complex, mission critical broadcast requirements locally or on location anywhere in the world.

The company have supplied equipment and project management facilities for a variety of world-class events including the Olympic Games and Commonwealth Games, iRB Rugby World Cup, FIFA World Cup, FA Premiership football, PGA Golf, ATP Tennis, reality television programmes and music awards.

For Seven Network's coverage of the Australian Open, Gearhouse provided a turn-key remote production solution including the remote broadcast facility, network connectivity and operational crews to Seven Network. Seven Network is the Australian rights holding broadcaster for Australian Open Tennis.



# Remote production/at-home production

Having people working centrally and only sending a small, fast vehicle to provide a significantly small load of equipment to the arena, enables substantial cost savings and prevents empty runs of production equipment, while providing the home based production crew access to central archives and an established studio production environment. On-air talent can do more than one production, and the best operators for replay, vision mix and audio can be deployed to create high-quality content.

Remote Production 2.0 is the next step towards fully distributed and plug-and-play workflow, enabling to connect, orchestrate and to use the best resources across Wide Area Networks and allowing content producers and broadcasters to create more with less.

Gearhouse Broadcast decided to partner with Net Insight to deploy Remote production for their Australian Remote Broadcast Centre located in Melbourne in January 2018.

Below follows descriptions of the major challenges with classic onsite production and further sections the major advantages with the state of the art solution Remote production 2.0 for enabling better video, audio and transport workflows and how Gearhouse Broadcast utilized the solution.

## Classic onsite production

Challenges related to classic onsite production when sending big teams and large OB vans to sports venues includes:

### Cost

- Real estate used at the venues to build operational facilities cost significantly more compared to set up a production facility somewhere else.
- Transport, space and accreditation for all crew members need to be managed with associated costs rising with the event's scale.
- Venue catering is expensive, and very often does not meet special requirements and taste.

### Time

- Access to the live venues is limited due to security and crowd levels. Entering and leaving is time consuming and not particularly flexible.
- Plan for congested roads and limited parking locations. Public transport can be very crowded. The crew transport to and from the venues is limited.

### Flexibility

- Reusing resources (people, systems and material) efficiently between different games and venues is difficult.
- Changing equipment, people and systems during an ongoing live-production is almost impossible.

## Solution

Gearhouse Broadcast used Net Insight's Remote Production 2.0 solution to reduce costs as well as minimize the equipment and crew on the venue site. Gearhouse built a remote broadcast centre (RBC) about 8 km away from the Australian open venue in

the Olympic Park in Melbourne for Seven Network. The venue, the RBC and Seven Network facility were connected with a low latency Nimbra MSR network that carried all video, audio and data signals. The RBC accommodated more than 120 people who had easy access to the site, with superior catering options and experienced a much more comfortable working environment.

### Benefits

The biggest benefit is gained from remote production when resources are located at a distance from the actual venue site. Also having the resources in another location means all video, audio and data signals must be available at the RBC as if it were located inside the venue. Hence, all video, audio, data and communications have to be transported with very low latency and at lossless video quality.

In an environment where nothing can go wrong, protection of the signals is another crucial requirement in addition to backing up equipment, links and ports to enable the highest possible availability. Potential failure mechanisms need to cover any occurring errors and protect the link with automatic rerouting, hitless protection and forward error correction adding no visible delays.

The entire Nimbra network for the Australian Open was prepared and pre-configured in Stockholm prior to shipment. Onsite, the only requirement was to install the equipment in the racks, finish the cabling work and perform final checks and adjustments. The network was fully operational after a couple of hours.

Net Insight's Nimbra MSR switches were chosen by Gearhouse Broadcast to transport all video, audio and data signals. More than 80 JPEG2000 compressed video, 200 audio channels transported over MADI and eight separate data networks for the customer's IT were transported over the Nimbra network.



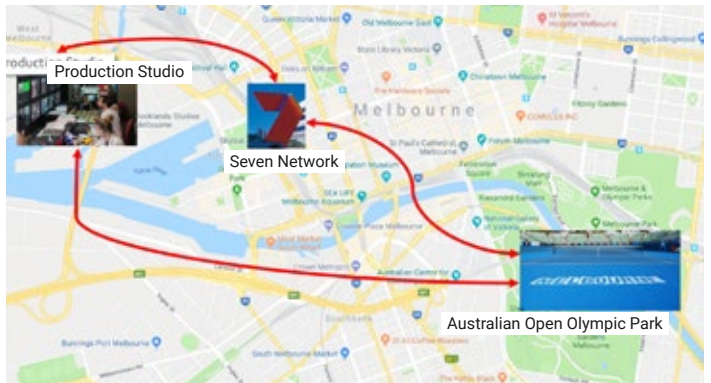


Monitoring of all equipment feeds, between Melbourne Olympic Park, the RBC and Seven Network's premises were performed constantly. Nimbra MSR nodes enabled Gearhouse to build a fully redundant low latency network where all feeds were protected with hitless switching to deliver world class event coverage for the Australian Open 2018.

Net Insight's link utilization and JPEG 2000 high-quality codec Nimbra provided Gearhouse Broadcast with tremendous savings on bandwidth costs with its 100% link capacity utilization, which enabled transport of about the double amount of signals compared to other solutions on the market, over the same link with full service separation. Gearhouse Broadcast further decided to use JPEG2000 compression for the majority of video services, enabling them to transport 80+ video feeds over just two 10G IP links. JPEG2000 adds minimum latency compared to transporting video uncompressed. This did not at all affect any production workflow.

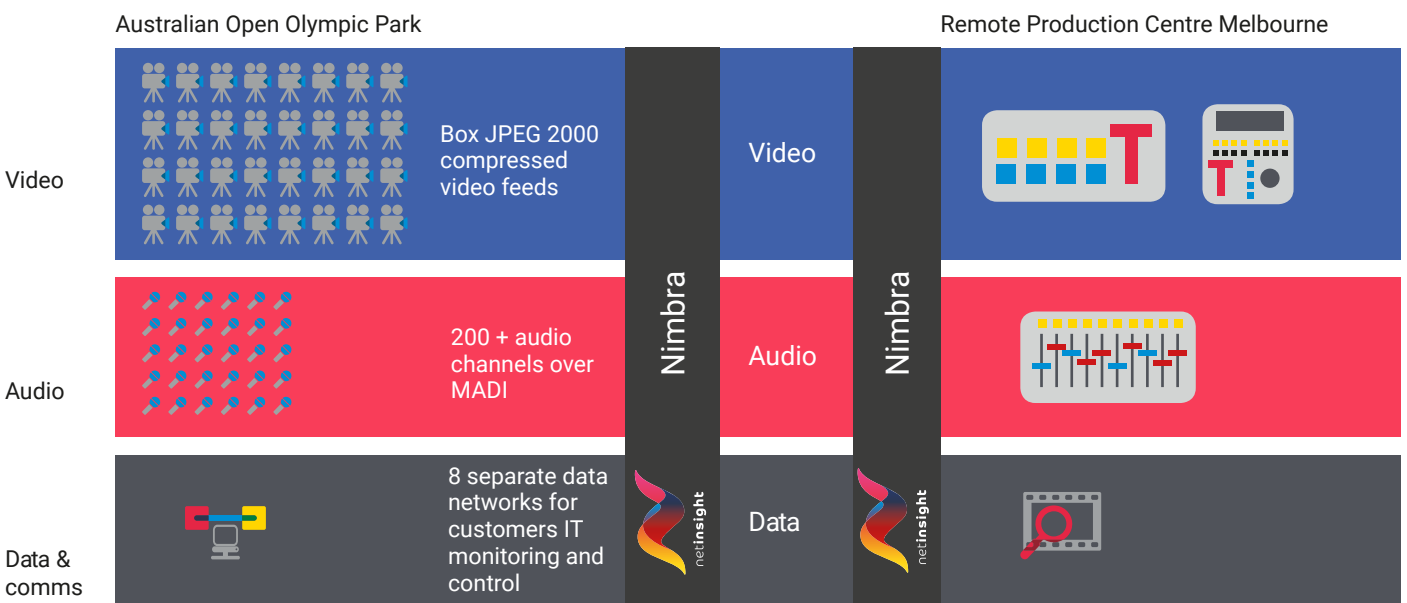
With only one pair of dark fiber available between the sites, the team decided to use passive CWDM optical muxes to multiplex the 4 x 10GE Nimbra trunk links. The two 10GE links between each site were connected to two Nimbra MSR nodes on each site in a redundant ring topology.

The Nimbra capabilities gave Gearhouse Broadcast full control over service performance with instantaneous round the clock knowledge of network traffic and conditions on site. End-to end service quality monitoring and service visibility for Ethernet, video and audio services, including full network performance monitoring are standard features of the Nimbra platform that were monitored constantly from the Remote Production Centre. The Nimbra network supports hitless protection of video, audio and Ethernet services. As availability of services during live broadcast events are mission critical, Gearhouse Broadcast decided to enable 1+1 hitless protection on all services.



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## Net Insight's Remote Production 2.0 solution



# Gearhouse for Seven Network at Australian Open 2018



27 Camera feeds 10 robo cams 2 robo cams on site Hitless 1+1



Cost saving estimates about 20–30% due to not renting venue space



150 people in the production hub instead of on site



Use one link instead of 86 service circuits by local service provider



Produce programs for Seven, Seven two, Seven sports and OTT channels Seven channel



The Olympic Winter games have been produced the same way in the RBC



## Deliverables

- Ready to use Remote Production MSR network based on The Nimbra 600 platform
- On-site and remote expert guidance
- Synchronization design assistance for the entire solution
- Installation and configuration of Nimbra Vision Network Management Tool



## Value for customer

- Nimbra experts using best-practice for design and configuration
- Pre-configuration and pre-testing gives high-quality when going live
- Pre-configured MSR equipment helps to meet the very short lead time
- Network installed and implemented on time for Australian Open



## Value for net insight

- Customer has confidence in our ability to deliver also with tough times schedule
- Pre-configuration gives good quality control and a known state at delivery
- Engineer at site give good insight in overall solution
- Successful demo = business prospects going forward in Australia

## Remote control, monitoring



**Network performance monitoring** to allow link utilization monitoring



**Automatic signal routing** across large networks to allow easy source and destination routing



**Service-aware provisioning** of the video, audio and data services



**Fault management** to enable and automate the right mechanisms in case of error

All processing for replays, editing, camera control, audio and video production are installed at the RBC.

More than 120 people worked in a comfortable and non-distracting production environment as used in central broadcasting facilities.

## Service isolation

**End to end resource allocation** to avoid overprovisioning

**Traffic shaping and admission control** at ingress protect the overall QoS



netinsight

# Results

Remote production enabled more efficient workflows for Gearhouse Broadcast and Seven Network resulting in savings of manpower, time and equipment over distance and leased lines.

Net Insight offer an end-to-end automated remote production solution that is easy to setup, enables full control over finance, links and workflow and huge cost savings due to its outstanding reliability, capacity utilization and network performance.

At the end of the day all involved parties were very happy with the new way of working and the viewers worldwide received a flawless experience. Also the initial concern about JPEG2000 adding to much latency proved to be unfounded.

Net Insight's Remote Production 2.0 solution is state of the art for handling complex production setups today and in the future. This technology enables a change of workflows and opens up concepts like distributed and cloud production delivering multiple live signals around the world instead of sending a broadcast truck to the venue.

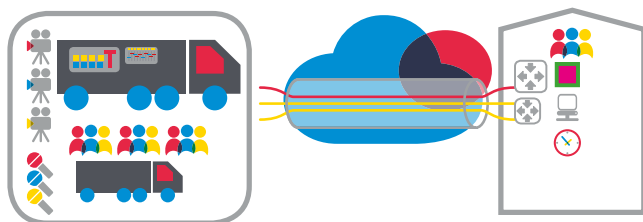
This Gearhouse Broadcast remote production project will set the benchmark for other future remote production projects inspiring opportunities for other companies and sporting federations. The project was recognized by a Content + Technology Award, during ABE 2018, for the excellent work at Australian Open 2018.



**Project Engineer, Ian Stokes at Gearhouse Broadcast**

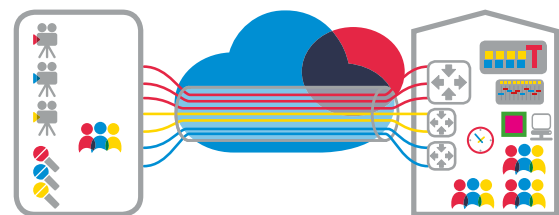
## Remote production enables ground breaking efficiencies

Traditional production



Traditional outside broadcast with OB vans and lots of human and technical resources on site

Remote production



Resources stay "at-home" at the central production hub to produce more content with less resources

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