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An audience of 70,000 watched 2,000 performers and 6,000 athletes representing 50 nations in 20 sports open the games

# Getting people talking

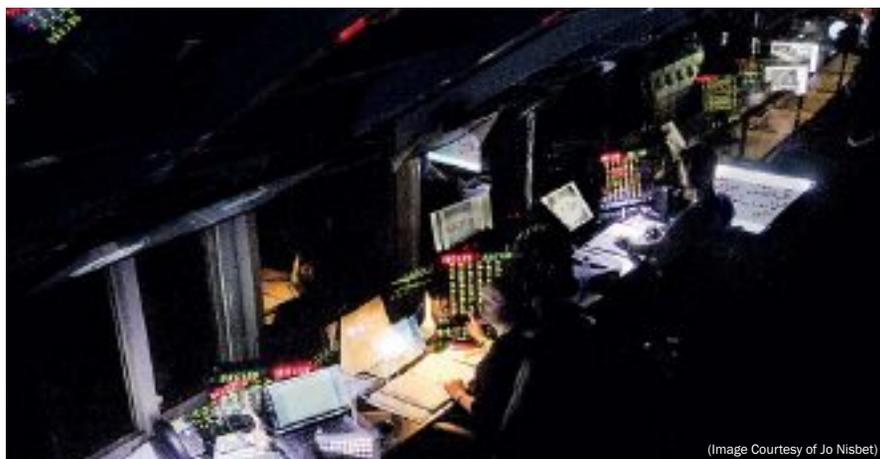
The PA People delivered the world's largest ceremonies communications system for the recent European Games in Baku. *Pro Audio Middle East* listens in

## THE PA PEOPLE RECENTLY PROVIDED

the communications, CCTV and technical services to the ceremonies of the inaugural European Games held in Baku, Azerbaijan. In the newly constructed Baku National Stadium, an audience of 70,000 watched 2,000 performers and 6,000 athletes representing 50 nations in 20 sports open the games with a combination of traditional music and poetry, aerial effects, multimedia, international superstars and pyrotechnics.

Central to the opening ceremony was the giant revolving stage set in the centre of the ground. At different times, it was called on to hold hundreds of performers, rotate to display complicated scenery, emulate the birth of a mountain range with hydraulics, and have both water and fire emerge from it. Its first big moment in the ceremony was a section called 'Miniatures', in which 300 performers and 200 trap doors were utilised to create a revolving panorama.

Bringing just this one scene to life took 26 stage management staff working in unison on the stage, all on full duplex wireless comms, with a further 54 full duplex wireless comms packs and around 25 wired packs under the stage as its own separate system. The comms system as a whole included over 1,000 two way-radios, more than



(Image Courtesy of Jo Nisbet)

## The control room team relied heavily on the comms system

200 IP-enabled intercom panels, and hundreds of belt-packs. It was one of the largest communications systems ever used in a live event.

The biggest technical challenge was how to make 80 full-duplex wireless comms packs work in the same place. 'It had never been done before on that scale,' says Nick Eltis, senior technical director for the ceremonies for creative and production firm FiveCurrents. 'We have often tried to do big full duplex wireless systems and it has literally never worked, as the technology hadn't been reliable enough.'

'The production crew did not

include full duplex on the original specification,' recalls The PA People's MD, Chris Dodds. 'But as the artistic component of the event developed, and after we had been appointed as the contractor, it was determined that a full duplex solution would constitute a significant advantage for the ceremonies.'

The PA People solved this technical difficulty by using Clear-Com's new FreeSpeak II DECT wireless technology. 'The FreeSpeak II system was flawless,' comments Mr Eltis. 'There were 26 different talk groups and a global talk group for the stage

management team and tech crew running the scenery on the revolve, and it was perfect.'

Fritha Truscott, the games' associate show producer – show control, for FiveCurrents, was in charge of the team under the stage. 'I had a staff of more than 65,' she explains. 'A fifth were local stage management and 18 were employed just for the opening ceremony as the "block captains" on the revolve for the "Miniatures" section. The comms we had on the revolve were extraordinary. I have never been on such clear-sounding comms. I had all these locals out there, that had

never done anything like this before, doing their own mini show-call on each section of the revolve, and I was able to communicate with them clearly.'

Having the frequency space for such a large system was vital and ensuring this was a process that involved the technical team from FiveCurrents, The PA People and the Azerbaijani government. 'We did the initial spectrum plan and allocated how many duplex and simplex channels we needed, as well as radio microphones, in-ear monitors, WAPs and anything else with a frequency,' recalls Carl Gosine, the game's technical director – systems, for FiveCurrents. 'It was all put in a spectrum allocation chart. That was sent to the organising committee and to the government. We put in our first spectrum request in September. New TV stations started coming on-line in January and we had to go back and say "this is affecting our spectrum". There was a lot of back and forth.'

The final piece of the RF puzzle was solved by splitting up the full duplex systems. 'In the end, we used two FreeSpeak II systems in two different frequency bands,' clarifies Mr Dodds. 'With the support of the Azerbaijani authorities, we were able to operate one system in one local license band and the other outside of that. With the two systems

co-located, we could achieve the desired 80 packs in one physical RF space to the satisfaction of all. It was a great achievement.'

It wasn't just Clear-Com's FreeSpeak II that made it into the stadium's comms system. A huge range of equipment from the brand was used, including two Eclipse HX-Omega digital matrix systems, two Eclipse HX-Median digital matrix frames, 15 HelixNet master stations, HelixNet beltacks, and more than 200 Clear-Com V-Series intercom panels. Clear-Com even provided two support engineers to ensure that everything ran smoothly. 'This was another in a long line of great collaborations with The PA People,' says Bob Boster, president of Clear-Com. 'We really have a great partnership with them. They have highly trained and knowledgeable personnel who know exactly how to get the most out of the systems, as the deployment at Baku demonstrates.'

Another standard requirement in Baku was the need to interface with the broadcast trucks, but at the time of shipping the systems from Australia the broadcast vendor was unknown. Since the number of intercom circuits was an unknown, The PA People decided to provide a Madi interface card from Clear-Com as the solution. The Madi card fits in a Clear-Com Eclipse HX frame, and provides a single 64-channel Madi interface over either a fibre and/or a coax interface.

'The PA People proposed the Madi solution rather than the more traditional analogue four wires that we have used in previous ceremonies,' says Ian Cooper, technical manager - audio and communications for FiveCurrents. 'The system worked flawlessly with 14 discrete four wire circuits between our ceremonies system and the system in the broadcast trucks. It was simple and elegant.'

The entire comms system in Baku was delivered over a large Ethernet network. The PA People deployed 20 fibre-connected network nodes in and around the venue, including one at the Bulvar Cauldron in



**(Clockwise): The biggest technical challenge was how to make 80 full-duplex wireless comms packs work in the same place; Clear-Com Eclipse HX-Omega digital matrix systems frames were put to use; The entire comms system in Baku was delivered over a large Ethernet network; The RF puzzle was solved by using two FreeSpeak II systems in different frequency bands**  
(Images Courtesy of Jo Nisbet)



the city centre 10km from the venue. 'Our philosophy is to create a network-centric environment and to deliver and connect all of our comms' elements over that backbone,' notes Paul Barrett, The PA People's senior system engineer for the project. 'Not only do we deploy our services across the network, but we also monitor almost all our sub systems using IP and SNMP technology, from the radio bases to the UPS' and everything in between.'

Similar to many aspects of the Baku ceremonies, the sheer number of two-way radio bases in itself was remarkable. The main system for the stadium comprised some 40 duplex radios and 56 simplex radios each of which was coupled to a complex multi-coupling and filtering system. 'You just can't do this level of work without high

sensitivity radios, quality multi-coupling equipment and the right test gear - it just results in poor coverage and interference which is simply unacceptable,' notes Campbell Waller, project manager and RF engineer for The PA People.

The end result has received a lot of praise from those involved with the ceremonies. Ted Wells, a senior lighting designer with lighting design group Full Flood knows The PA People well. 'Baku was the second time I've worked with The PA People team,' he offers. 'Both times the comms clarity has been excellent, but Baku was exceptional. I couldn't get over the clarity; no

operator said they couldn't hear me! The clarity was the best I've ever experienced, and my colleagues expressed the same opinion. We had 26 positions for follow-spot around the stadium and had no problems at all understanding and communicating. There was no static and no buzz. Follow-spot operators are dependent upon cues, and for me it means they're on-point if they can hear you. I can't say enough positive things because this is what makes the difference between a good show and a great show.'

Travis Hagenbuch, lighting designer for Full Flood concurs. 'Everything supplied to us worked flawlessly, was flexible, and was intuitive to use, and I've never seen a comms system this large and complex. The integration of all three of the lighting's radio channels into the headset panels was a life-saver when trying to talk to the crew and find someone quickly - that's a feature I wish was on a lot more shows. The PA People's staff made communication on this project effortless. There was always a quick reply on the comms channel, and help was always quick to come if we needed anything. The importance of good communication multiplies with the scale of a show this large, and we were very happy with the system and support we had.'

'Communication is everything.'

If you can't talk to the people you need to talk to, you can't do your job,' observes FiveCurrent's Fritha Truscott. 'The best thing about The PA People is their people. Everyone's willing to do whatever they have to make it work for you. There was always a raft of comms technicians listening to every word I said, so if I said "Sorry, I can't hear you" someone immediately popped into the room to make sure there wasn't an issue. It's about response and customer service, and they're the best.'

'These are very big, very complex systems,' Mr Eltis points out. 'One part of delivering on a project like this is having the gear, another part is having an understanding of the technology and how to make it do what we need it to do, and the third part is all about customer service. The PA People understand that you can have all the greatest hardware and technology in the world, but if you don't service the end-user, there's no point. Comms is all about end-user experience, and The PA People know how to make that a good experience.'

'There's not a lot of people that can deliver the scale of system we needed,' adds FiveCurrent's Carl Gosine. 'While we needed a system that was very robust and very flexible, the equipment is just equipment. When it comes down to a communications company, it's having people that can work with others that makes them strong. The PA People's staff are great to work with. They were flexible when we needed them to be, and provided some very good solutions working with our team. They came with a positive attitude in order to get the job done, across the board, for everybody.'

[www.thepapeople.com.au](http://www.thepapeople.com.au)



The closing ceremony in Baku Image Courtesy of Jo Nisbet