Sydney Olympic Games to be viewed by 3.7 billion people

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Extraordinary developments in broadcasting and telecommunications over the last four decades, allowing the production and live broadcast of high quality images and commentary from any part of the globe have dramatically changed the relationship of masses of people to each other and to world events.

When the Olympic Games open in Sydney on September 15, the largest audience for a sporting event in history will watch live broadcasts of the world's best sportsmen and women in competition. Over the next 17 days, no less than 15,500 accredited journalists and photographers from more than 100 countries and thousands of technical personnel will service a peak of 3.7 billion viewers and a cumulative audience of more than 30 billion people. This will include the production of more than 3,400 hours of television from 300 Olympic events.

Forty-four years ago in 1956, the last time the Olympic Games was held in Australia, broadcasting was extremely primitive. Although television had just been introduced into the country, live broadcasts were confined to the tiny number of Australians with television sets (less than two percent of the population) and sports fans around the world had to wait days, weeks or sometimes months before they could watch newsreels of the event. Those who listened to international radio broadcasts will recall the ebb and flow of the short-wave signal as it made its way from the other side of the planet.

All this was transformed in the 1960s by rapid advances in satellite technology, broadcasting and communications that made global television possible. The Munich Olympic Games in 1972 saw the first live international television transmissions and since then every Games has been a showcase, not just of human athleticism but also of broadcasting technology.

This is demonstrated by the advanced equipment and services now established at Olympic Park, the event's main sporting complex in Sydney. Eighteen months ago broadcast facilities at the site, previously used as an agricultural showground, were rudimentary and only designed for the handful of journalists and announcers filing stories from the annual agricultural event. The International Broadcast Centre (IBC), the building now used by thousands of journalists and technicians, was the showground's cattle and horse pavilions. But in the course of 12 months the rather crude structure was transformed into the largest, and one of the most technically advanced, broadcasting facilities in the world.

The centre now has the world's largest bank of TV monitors, a wall 50 metres long and two-and-a-half metres high containing 402 individual screens and displaying coverage from all Games' venues. Video signals from up to 40 simultaneous separate sources are fed to broadcasters who edit and transmit their data anywhere in the world via international fibre optic link, satellite or from antennae at a battery of IBC satellite dishes nearby.

The IBC contains 35 studios, 1,600 broadcasting rooms, an 800-seat press conference room, four additional conference rooms each seating 200 journalists, and a 22-metre broadcasting tower with three large glass-fronted studios providing spectacular views of the main stadium and Sydney Olympic Park. Security conscious broadcasters can access the main stadium from the media centre via a special footbridge and the Superdome stadium through a tunnel.

The facility contains 300 kilometres of power cable, 350 tonnes of electrical, video, communications and power cables and consumes as much power as a town of approximately 30,000 people. Telstra, Australia's

central telecommunication company, is providing two exchanges to service the hundreds of phones and also high-speed data transmission facilities, including two megabyte per second data links. The IBC also contains a large shopping precinct with a range of facilities including a bank, general store, post-office, two food courts, a bar and a restaurant able to service 2,500 people at a time.

Almost 800 digital television cameras have been installed at strategic positions in sporting venues for tight close-ups of competitors in every event and at key locations for panoramic shots of Sydney and the harbour. When Dick Ebersol, head of NBC's Olympic coverage, requested an elevated camera to provide footage in a single shot of the main stadium and the Olympic cauldron with the Sydney Harbour Bridge in the distance, the state government erected a special tower and removed high-tension electricity lines blocking views of the city skyline.

Many cameras are rigged to overhead wiring eliminating the need for cranes and other encumbrances; others are so small they can be placed in competition equipment. For example in archery, a tiny camera has been placed inside the target's bulls eye; in baseball a camera has been put inside the home base; and another is located in the floor immediately under weightlifters. Tiny underwater cameras attached to long poles will photograph the swimming section of the grueling triathlon in Sydney Harbour and a fully automated camera will move alongside athletes for almost the entire circumference of the main athletic stadium providing the most intimate shots of competitors in track and field events.

Digital footage captured by these cameras will pass through some of the 58 television control rooms and outside broadcast units at Games venues to the IBC in Homebush where it will be electronically enhanced for transmission.

IBM, the accredited computer company to the Games, has deployed 6,000 of its personnel to install key mainframe computers and service the vast array of technical equipment required to run the official Olympic Internet site and Games intranet facilities in Sydney. The Olympic website, which together with NBC.com has a monopoly on Internet video streaming, is expected to attract a record 6.5 billion hits, or 10 times more than the Nagano Winter Olympic website

two years ago.

IBM has also supplied thousands of printers, PCs, computer monitors, and some of the fastest mainframe computers and servers currently available to process the vast amounts of data generated by the event. The Games computer facilities include separate Games Management, Results and INFO systems. The Games Management System was developed to process logistical and management aspects of the event; the Results System to collect and distribute competition data to the media and venue scoreboards; and INFO is a high speed intranet-based information service for more than a quarter of a million people involved in the Games. IBM software developers have produced 12 million lines of new programming code to run these systems.

These remarkable facilities are the result of a veritable revolution over the last 15 years in computer science and communications: the emergence of fibre optics, digitalisation of video images, camera miniturisation and countless other developments.

The rapid assembling of these resources demonstrates that when budgets are no object and highly trained technicians are provided with the most advanced equipment, astonishing feats can be accomplished. They underscore the capacity that exists for the development of conscious planning and cooperation on an international scale and indicate that the potential for resolving many of the world's most intractable problems is already within humanity's grasp.