Case study: release three
London 2012 Olympic and Paralympic Games

Service delivery: the ultimate right first time challenge

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Howard Dickel
London 2012 Delivery Director
BT Global Services

Quick out of the blocks

Installing a communications infrastructure like that of a large town? Against an immoveable deadline and under global media scrutiny? Does anything get more mission critical than that?

Howard Dickel, London 2012 Delivery Director at BT Global Services, explains: “...London 2012 represents the ultimate right first time challenge. We are working closely with LOCOG and its technology partners to play our leading role in making the Games a resounding success and the most connected possible.”

BT puts its testing processes into practice for the London 2012 Olympic and Paralympic Games

With most of the communications infrastructure installed by mid-2011, BT is focusing on testing and verification, adopting end-to-end test methodologies proven in similar major infrastructure programmes. “A programme of this scale and complexity, serving knowledgeable and demanding customers,” Howard continues, “means all eventualities have to be envisioned and investigated.”

Now locked down, the London 2012 communications services design has been continuously refined to ensure everything works reliably in live situations. Every element was taken through a critical design review (CDR) using subject matter experts from within and outside the programme to evaluate its robustness against realistic Games scenarios.

BT, in collaboration with other technology partners and under direction of the London 2012 Organising Committee, has created a delivery process encompassing design reviews, functional testing, test events and full technical rehearsals, which together will ensure that London 2012 communication services are delivered right first time.
As soon as the venues are ready the Venue Telecommunication Centre Managers (VTCMs) call off equipment for racking and stacking by field engineering staff. The pre-configuration and testing ensures the communications infrastructure works first time, greatly reducing acceptance into service timescales. Full shared audit trail Industry standard programme management methodologies provide a delivery and governance framework across BT and its partners. Exhaustive evaluation is performed and up to 300 venue specific acceptance tests are completed. The results are captured, along with any resolution actions, to provide a full audit trail and objective assessment of operational readiness, which is shared with LOCOG.

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Let’s get physical

Having run the rule over the hypothetical design, BT made significant investments in the physical testing programme. For example, establishing a test facility at Adastral Park known as the Design Definition Environment (DDE). This, in effect, provides an offline model of the Games time communications systems that will be employed.

Fergal McShane, London 2012 Client Delivery Director in BT Global Services, explains: “Because the DDE facility mirrors the live Games time environment, problems can be identified and rectified safely. This not only means that solutions will invariably work first time, but also results in significant cost savings and much higher throughput than a manual system would allow.”

Final hardware configurations are built and tested at a dedicated BT staging facility north of London. Used successfully with major BT customers, this enables an impressive 400 devices per month to be pre-built and registered on BT support systems. A full suite of verification tests is run before the equipment is returned to the warehouse.

Incredibly, up to four thousand Cisco-supplied routers and LAN switches will be checked in this way. With only six staff, the facility relies on automated configuration processes using standard templates. These are built and uploaded to the devices using an automated configuration management toolset, which means minimal human intervention. Also, compliance management software ensures that configurations are pre-checked for conformance against LOCOG and BT business and security policies.

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Moving to inlife

Once moved to inlife operational management, the infrastructure and services for the entire communications for the Games are managed from the TOC. Over 90 people will work 12-hour shifts, with changeovers timed to avoid busy periods when events are running.

“With over ninety locations to cover across the country this approach allows staff to be used in the best way,” adds Gary Symes. “It means the service team are able to focus on major incidents and not get distracted by lower priority issues.”
BT is reliant on the expertise of sub-contractors to provide a complete service. A command and control structure sees our key sub-contractors having a lead representative in the TOC. Answerable to BT, these people will provide support on the ground via their field service teams.

BT will position field service personnel in strategic locations, based upon projected failure rates, around the venues. In the Olympic Park itself there will be up to 20 engineers on call at any one time around the clock. Depending upon where they are required from moment-to-moment, this flexible team can be moved like chess pieces to provide the best coverage from a finite resource.

Welcome to the real world

Service evaluation is using more than 40 live test events, like the London Prepares Invitational Marathon. Beamed across the world to huge audiences, using real Games time systems and processes, these test operational readiness in the most visible way possible.

Fergal McShane explains: “Test events are about bringing together people, processes, and partners to create a collaborative culture, which will be essential once the Games begin for real. Each test event layers on broader and more challenging operational conditions as well as incorporating changes from previous events to fine tune operational performance.”

During a test event potentially hundreds of key learning points are captured and these are logged, categorised, and prioritised in a workshop environment and embedded into the Operational Readiness Plan. Connected learning across a cluster of test events ensures key learning is being applied productively.

Finally, the International Olympic Committee (IOC) mandates two full technical rehearsals. The first will use a controlled environment derived from a playbook of over 1,000 different technology scenarios built up over previous Games. The second, which takes place during May 2012, is a final opportunity to test the communications solutions that will be employed at Games time as media, broadcasters, and athletes arrive. It marks the opening of the Games from a technical perspective.

During the Games, BT will use its market leading order and incident management systems (it would be impractical to create a Games-specific solution). However, the Games will see transactions accelerate to levels far beyond normal, so war-gaming is being used to identify and rectify problems before they have the chance to happen.

Knowledge is power

It is essential that knowledge transfer is optimised, and a dedicated team has been established to make sure this happens. During the countdown to the Opening Ceremony the BT delivery team for London 2012 will quadruple in size to around eight hundred people. It’s crucial that new joiners quickly scale the learning curve, absorbing and applying the collective knowledge of the wider team.

BT also has a contractual commitment with LOCOG to capture learning from London 2012 and make it available to the Rio 2016 Organising Committee for the Olympic and Paralympic Games, as well as other countries bidding for future Games. The BT team has established a continuous improvement process to capture and publish knowledge in an iterative fashion, right back to its earliest involvement in the London Games, providing a complete and accurate record.

BT has also learnt a great deal from the two most recently staged Olympic Games; Beijing 2008 and Vancouver 2010. In fact, six of the current BT team were seconded to Bell Canada, the official telecommunications partner to the Vancouver 2010 Olympic and Paralympic Winter Games, in the lead up and during Vancouver 2010 and are now managing a cluster of London venues from a communications services perspective.

Meanwhile two of the BT London 2012 venue managers are now in turn on secondment from Bell Canada to BT.
The knowledge management cycle is supported by an intranet accessible across the extended team. Usable by future team members in advance of joining, this allows them to hit the ground running. Webinars are held regularly for the VTCMs and their people to update them on progress. There will also be corporate learning benefits after the Games are over. “For the vast majority of people involved this will be the first and only time they will be involved in an Olympic and Paralympic Games, and the shared learning is invaluable,” says Tim Boden, London 2012 Business Technology Director at BT Global Services. “As teams move back to their parent units they’ll be equipped with a unique London 2012 Games experience, which they can apply as best practice to new customer opportunities.”

The comprehensive process described – from selection and freezing of the communications services technology that will be used at Games time two years in advance of the Games, through functional testing, to test events and technical rehearsals – is designed to ensure that London 2012 communications services will indeed be right first time. Just as the whole world is expecting.

Offices worldwide
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Breaking ICT records
BT is building and running much of the communications services infrastructure for the London 2012 Olympic and Paralympic Games. In all there are 94 competition and non-competition venues throughout the UK. All will be all connected via the high-speed BT national network. The telecommunications services that BT will be providing encompass the WAN, MAN, LAN, TV, and OBS-supplied services. The scale of the challenge is breathtaking.

- 80,000 voice and data outlets, 16,500 fixed telephone lines, 14,000 mobile SIM cards, and 1,000 wireless access points
- London 2012 Games website hosting with an estimated 12 billion page views
- Estimated 60GB of multimedia data generated every second by 20,000 accredited media personnel using 14,000 cable TV outlets (the equivalent of 3,000 high definition photos every second)
- Core network providing 160Gbps between points of presence and 20Gbps to each of the individual venues
- In excess of 4,000 Cisco-supplied routers and LAN switches

It’s in the nature of the Games that the communications network must ramp up to full capacity from a standing start, handle demand peaks and troughs, and achieve 100 per cent reliability. Then it must be wound down just as quickly after the Closing Ceremony. Delivered on a cloud-based, hosted IP platform, most services can quickly scale as required. BT has also created new design, delivery, and support processes. These will be applied to other large programmes in the future.