

## BT Private Compute at London 2012: release 2

# Scalable virtualised cloud computing platform helps break new Games records



PHOTO: GETTY IMAGES

### An Olympic challenge

London2012.com page views were forecast to run into the billions, a level never before seen in previous events, rivalling the world's largest enterprise sites. As the best-in-class source of real time London 2012 information, the site needed to deliver high availability anywhere in the world, while maintaining the very toughest standards of protection against denial-of-service attacks and other security threats.

"We knew we would require substantial server infrastructure to cope with such high levels of traffic, although this would only be needed until the end of the Games," says Brian Cook, Head of Technology Service Delivery at the London Organising Committee of the Olympic and Paralympic Games (LOCOG).

### Catering to the world

BT, the official communications services partner for London 2012, had committed to deliver the infrastructure carrying every official photograph, sports report and visit to London2012.com, along with millions of calls, emails and texts. BT worked with LOCOG to provide a custom-built managed web hosting solution for London2012.com. This was based on BT Private Compute, a dedicated private virtual data centre service, delivering the benefits of a virtualised environment without the security concerns associated with a multi-tenant environment.

Meanwhile, consultants from BT Diamond IP architected the DNS (domain name system) servers for London2012.com. These servers translate requests for site views from the familiar London2012.com URL (uniform resource locator) to the actual IP address needed to access the site. BT Diamond IP also provided third-line DNS support for London 2012. Thomas Starkey, Director of Customer Support at the BT Diamond IP headquarters in Pennsylvania, says: "We re-set our clocks and our calendars over here to offer support resources attuned to the UK time zone. I'm both highly delighted and slightly disappointed that we didn't receive a single call."

To provide the capacity needed without significant capital investment, BT employed innovative content delivery network (CDN) technology from one of its web services partners. This meant visitors to the site anywhere in the world would receive an end user experience identical to that of viewing content on a locally-hosted website.

This distributed BT architecture also helped provide inherent resilience against malicious attacks and other outages, because if a server failed there was always another server close by. Providing critical protection against denial-of-service attacks, the solution also included a range of world-class security products to ensure defence in depth against all known potential threats.

### Hitchless performance

The scale of the challenge facing London2012.com became apparent as soon as the Games started. Stuart McMillan, BT Technical Assurance Manager, explains: "The world descended on the website almost exactly as the first fireworks went off. You could see the numbers increasing exponentially."

As visitor volumes grew, BT became aware of something that, if left unchecked, might threaten the user experience. "We discovered a potential storage capacity bottleneck," says Stuart McMillan. "Usually that would call for website re-coding, but thanks to the virtual nature of the BT Private Compute infrastructure we were able to add storage hardware and migrate data within 24 hours, preventing the issue from turning into a problem."

It became apparent, as the Games progressed, that London2012.com was on course to become the most popular sports website ever. The true value of the site to end users became clear when surveying press agencies covering the event. It became apparent that the media was using the London2012 website – supplementing systems it was paying for – to access information like event schedules, athlete profiles and competition results. "You really know you've become part of the media ecosystem when you see that sort of thing happening," says Stuart McMillan.

Meanwhile, a comprehensive suite of BT MobileXpress services provided secure remote connectivity for mobile employees. These enabled application and content providers to connect securely across the internet to upload new content or make changes to London2012.com via fixed or mobile devices from anywhere in the world. A range of security measures, combining identity management, token-based authentication and resilient encryption helped ensure the site was not compromised.



## Fact file

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“Without exception, all content owners who needed to interact with the site were able to do so securely and wherever they were,” says Jonathan Brasnett, Head of BT Enterprise Mobility.

Another success for the London2012.com website was delivering so much information to so many people without succumbing to the intense attempts of hackers to bring it down. “We did see lots of people trying to hack us,” confirms Stuart McMillan. “We also saw comments on Twitter about targeting the website. A lot of people got frustrated quite early and moved on to easier targets.”

Finally, the BT solution offered LOCOG the capacity it required without the need to invest in data centre infrastructure that would be redundant after the Games. The result was lower total cost of ownership and less environmental impact – the latest virtualisation advances reduced server requirements resulting in lower power consumption. “The BT infrastructure was robust and scalable,” concludes Brian Cook. “What’s more we delivered the project free of significant capital investment and without compromising our environmental and sustainability credentials.”

#### BT Private Compute

BT Private Compute is part of a portfolio of award-winning services supported by industry-leading BT experts offering:

- The ability to do more with less – since consolidating and virtualising IT platforms frees up financial and management resources
- Flexibility and scalability – as computing power, network resources and data storage can be scaled to match changes in business needs
- Latest technology – BT has invested heavily in research and development, leaving customers to focus on core business

- Reduced risk – because one supplier on a single contract gives the simplicity of one point of contact, while deploying new applications becomes more predictable and straightforward
- Lower total cost of ownership – reducing complexity and management of IT infrastructure can help lower total cost of ownership by up to 40 per cent
- Greener by design – exploiting the latest technology means more environmental efficiency and a lower carbon footprint

Provided in a secure BT-managed data centre, BT Private Compute offers dedicated private physical server infrastructure set aside for the customer’s exclusive use.

#### Key facts and figures

- The London2012.com infrastructure was dimensioned to cope with more than a billion users, a scale that would usually require many more than two server sites to ensure high availability
- The London2012.com site was hosted at two BT UK data centres, on dedicated infrastructure set aside for exclusive use, based on an enterprise-class design
- BT Diamond IP architected the DNS (domain name system) servers for London2012.com and provided third-line support
- Forming the world’s largest CDN, static London2012.com content was automatically distributed to more than 100,000 edge servers across the globe as soon as it was uploaded to the site
- Third-party access for more than 100 content and application providers was achieved via BT MobileXpress
- London2012.com ultimately hosted more than 450 million visits from 109 million unique users, more than the official websites for the Vancouver Winter Games and the FIFA World Cup in 2010
- Overall the site enabled almost 40 billion page views, at a peak rate of 55,000 views per second
- Collaborating with UK mobile operators, BT helped create the single largest mobile infrastructure ever to support a sporting event
- London 2012 was the most digitally connected Games ever and, by virtue of its high concentration of high-density wireless networks, London became the most connected Wi-Fi city in the world during the Games



#### Offices worldwide

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