How cloud computing and analytics enhance efficiency and the Wimbledon experience

IBM solutions increase engagement with the Wimbledon Tennis Championships

Overview

Challenge
Maintaining Wimbledon's position as the world's premier tennis event by delivering innovative ways to share the excitement of the tournament and engage millions of people around the globe.

Solution
IBM and Wimbledon continue to work together to create an increasingly reliable, secure and responsive infrastructure to keep pace with the demands of an international grand slam tournament. New developments were introduced for the 2011 Championships: IBM's use of cloud computing enabled the addition or deprovision of hardware and software quickly and as required – saving cost and energy; IBM's PointStream increased engagement by providing insight into likely outcomes based on historical data analysis; IBM's SecondSight – new to Wimbledon and first at any grand slam tournament – enabled the real-time tracking of player movement, including direction, speed and distance covered.

For two weeks every year, the All England Lawn Tennis and Croquet Club (AELTC), a private members' club with fewer than 150 permanent employees, scales up to stage the Wimbledon Tennis Championships – one of the world's biggest and best known sporting events.

Wimbledon 2011 was the 125th staging of The Championships by the AELTC since the first tournament in 1877. Throughout its history and continued growth in popularity, the All England Club has always managed to retain both the charm of English lawn tennis and keep pace with the demands of modern sport, global broadcasting and multiplying digital channels.

During Wimbledon fortnight, the Club accommodates nearly half a million spectators onsite, while simultaneously meeting the needs of the world's sporting media with over three quarters of a billion television viewers on 129 TV channels in 173 countries.

To remain the premier tennis event – the "premier grand slam" – the Club understands it needs to build on its already global brand and increase its reach to a more diverse audience. Yet in a world of growing choice and distractions this is a challenge. The Club endeavors to engage its audiences by giving people the ability to share, interact with and connect to The Championships experience as though they were actually there – and to do this in new and exciting ways.

The Wimbledon cloud
IBM is the Official Information Technology Supplier and Consultant to The Championships and has been developing and managing IT systems for the Club and The Championships since 1990. By handing the hosting and management of The Championships' data solutions to IBM, the Club benefits from a secure, scalable infrastructure, incorporating the latest technologies. Having developed a deep understanding of the Club's culture, brand and values over the years, IBM works in collaboration with its executives and the IT Department to ensure the IT strategy and implementation helps the Club meet its business goals.

Business Benefits

- IBM's cloud services to the AELTC saved the Club costs and energy as it was able to add or remove hardware and software as demand required.
- A scalable, robust and secure website withstood up to 80,000 attacks each day of the tournament, had 15 million unique visitors and 451 million page views.
- Data analytics allowed IBM to collect data about every game, set and match, providing real-time information to the media, spectators, online visitors and even the coaches.
- IBM PointStream holds more than 39 million data points enabling insight into the key areas for players to work on to increase the potential for winning.
- IBM SecondSight is unique in producing real-time statistics which track every move a player makes on the tennis court.
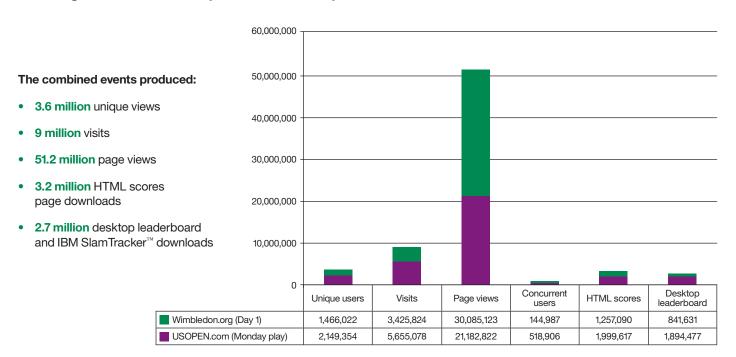
One example of this has been IBM's use of cloud computing at The Championships. This provides the ability to add and deprovision hardware and software quickly as and when demand requires – saving costs and energy.

IBM was also able to support the Club's online and interactive ambitions. During the tournament the website saw a tremendous volume of traffic with 15 million unique visitors and 451 million page views. It also faced up to 80,000 cyber incidents each day. By providing a scalable, robust and secure website, these threats were mitigated, protecting data and ensuring the website was available and responsive 24/7.

Wimbledon.com runs on the IBM SmartCloud™ Enterprise and SmartCloud Enterprise+ infrastructure that allows dynamic provisioning/deprovisioning of resources, ideal for fluctuating requirements across the sporting year. This highly optimised environment can cope with rapid increases in users whilst simultaneously lowering the cost per user. This enables Wimbledon to deal with tremendous year-to-year growth in traffic, increased user demand and frees up operational budget for new investments.

An innovative feature of the cloud service provided by IBM to Wimbledon is that the same infrastructure also hosts the other three tennis Grand Slams, the Tony Awards in entertainment and the Masters and US Open Golf tournaments. These events have similarly demanding requirements. Sharing in this way creates a significant economy of scale and allows each event to benefit from a world-class infrastructure.

Bursting out of the Cloud: plan for the unexpected

The combined events produced:

- **3.6 million** unique views
- **9 million** visits
- **51.2 million** page views
- **3.2 million** HTML scores page downloads
- **2.7 million** desktop leaderboard and IBM SlamTracker™ downloads

	Unique users	Visits	Page views	Concurrent users	HTML scores	Desktop leaderboard
Wimbledon.org (Day 1)	1,466,022	3,425,824	30,085,123	144,987	1,257,090	841,631
USOPEN.com (Monday play)	2,149,354	5,655,078	21,182,822	518,906	1,999,617	1,894,477

In 2009, the US Open Golf overran due to bad weather. This meant that the IBM infrastructure had to quickly scale up to accommodate both the start of Wimbledon and the last day of the golf.

Solution Components

Data Centres
- IBM POWER7®
- IBM AIX6®/Linux
- IBM System x® x3650's
- IBM Director Active Energy Manager
- IBM WebSphere® VE – planned for 2011
- IBM WebSphere Application Server v7.0
- IBM WebSphere Message Broker
- IBM DB2® v9.5
- IBM WebSphere Replication Server V9.1
- IBM WebSphere Business Events eXtreme Scale v7.0
- IBM WebSphere MQ 6.0

Security
- IBM Proventia® Network Internet Intrusion Prevention System (IPS)
- IBM Proventia Management SiteProtector
- IBM SiteProtector Security/Fusion Module
- IBM Proventia Network Anomaly Detection System (ADS)
- IBM Tivoli® Security Compliance Manager (TSCM)
- IBM Rational® Performance Tester (2011 Masters)
- IBM Rational App Scan (2011 Masters)
- IBM Rational Policy Tester (Privacy Module)

Systems Management
- IBM Tivoli Monitoring v6.2 (ITM) w/ Tivoli Enterprise Console® (TEC)
- IBM Tivoli Netcool®/OMNIbus
- IBM Tivoli Provisioning Manager (TPM) – planned for 2011
- IBM Tivoli Usage and Accounting Manager – planned for 2011
- IBM Tivoli Composite Application Manager (ITCAM) for WebSphere
- IBM Tivoli Composite Application Manager (ITCAM) for Internet Services Monitoring (ISM)
- IBM Tivoli Composite Application Manager (ITCAM) for Web servers
- IBM Tivoli Application Dependency Discovery Manager (TADDM)
- IBM Tivoli Monitoring for Databases
- IBM Tivoli OMEGAMON® XE for Messaging

Information Management
- IBM Tivoli Data Warehouse (TDW)
- IBM DS4800 Storage Area Network (SAN)

Scoring
- IBM System x x3650's
- IBM DB2 v9.1

Publishing
- IBM System x x3650's
- IBM DB2 v9.1
- IBM WebSphere Application Server v6.1
- IBM WebSphere Portal v6.1
- IBM Lotus® Web Content Management v6.1

Staging
- IBM DB2 v9.1

David Provan, IBM Senior IT Specialist, states: "Our hosting team has done a lot of work on what we refer to as our private cloud, so we can look at extra volume and provision a new load within three minutes. This means we can handle more and better respond to trends, yet keep control of costs and energy usage."

A better online Wimbledon experience

The AELTC wants to be at the forefront of new innovations that will enhance the stakeholder experience. The use of data analytics at the 2011 Championship is a great example of this commitment.

IBM collects data about every point, game, set and match across the whole tournament. Each individual point played has numerous data points associated with it – from the speed of the serve to rally counts, from foot faults to whether returns were forehand or backhand etc.

All of these data points are collected and displayed in real-time, providing a wealth of information to everyone online or at Wimbledon itself. The BBC can instantly provide data and statistics on every aspect of the game, enabling commentators to discuss more in-depth statistics live on air. A coach can also use them to analyse what their player could change to give them a better chance of winning and fans around the world get instant access through the web or smartphone apps.

Never missing the point

Another solution that allows everyone from fans to press to get more engaged in The Championship is IBM PointStream – a tool that provides real-time insight into what could happen in any given match based on historical data patterns.

IBM analysts have gathered together five years' worth of Grand Slam data into a data warehouse (more than 39 million data points) and analysed it using SPSS® predictive analytics software. From this, they can glean which milestones ('keys') need to be achieved by each player in order for them to increase their chance to win. The progress of live matches is then measured against these 'keys' to provide additional insight into the momentum and direction of the game. "PointStream enables more insightful choices by players who can see what they need to achieve in order to beat their opponent and adds to the excitement of those watching the game," says Alan Flack, IBM Programme Executive for the Championships.

David Provan says: "Ultimately we are taking data and repurposing it into something that gives people greater insight – in this case to better understand the science behind a game of tennis."

IBM is pioneering the use of similar techniques in the business environment. If a business can define and present the three (or more) most important aspects or variables that it must focus on – at a particular point in time – in order to achieve an objective, this can have a significant impact on business performance.

Such analytical modelling techniques, based on detailed evaluation of historical patterns and using SPSS predictive analytics have been applied to multiple business challenges in the areas of attracting more customers, retaining existing customers, growing customer value as well as unearthing fraud and evaluating various kinds of operational risks.

Performance monitoring

Another solution delivering a richer analytical experience is IBM's SecondSight – the real-time tracking of player movement, including direction, speed and distance covered.

This was piloted on court 18 in the 2011 tournament where it tracked the movements of up to four players simultaneously. It provided statistics such as who had run the furthest during the game and who was the fastest. This provided real opportunity for fans, press, coaches and the players themselves to find out more about performance as well as scores and strategies. For the professionals it could also provide valuable insight into key areas for development and improvement.

"We are steeped in history at Wimbledon and are, of course, passionate and proud of our heritage. At the same time, working with a partner like IBM, we look forward to continued innovation to help share the beauty and thrill of being at Wimbledon with our fans around the world – however they engage with us."

– Mike Desmond, Commercial Director of the AELTC