



Case study

Industry sector:
public sector

Capital moves ever faster with a high-speed BT network

Leading edge BT broadband communications helps Cardiff realise its vibrant e-enabled city vision

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Crispin O’Connell
Chief ICT Officer
Cardiff Council

Executive summary

Cardiff has emerged as a modern city on the move, fulfilling its vision of creating an e-enabled business and residential regional hub. The council recognises the role of high-speed networks in supporting economic regeneration and, by repositioning Cardiff as a leading edge technology environment and the UK’s first wireless city, the council intends to attract significant inward business investment.

Working closely with BT, Cardiff Council has developed a broadband metropolitan area network, to drive operational efficiencies and improve service delivery. 100Mbps core nodes were installed in six of Cardiff’s buildings with 10Mbps edge connections to council offices and other buildings. The same model was used to provide 10Mbps access for all of the city’s schools and libraries. Further innovation saw BT Openzone wireless broadband hotspots installed.

Cardiff has used the broadband network to improve the delivery of its services and the BT Openzone hotspots are enabling its people to be more efficient on the move. Services delivered via ‘Connect to Cardiff’ the council’s multi-channel contact centre, have also been further enhanced by providing high-speed LAN access to centrally held information, supporting an efficient and informed single point of contact for the public. In addition, Cardiff citizens are enjoying high-speed Internet access at libraries, and educational benefits are being seen through an extension of the network to every school in Cardiff.

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Marcella Maxwell
Head of Economic Development Division
Cardiff Council

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Marketplace

With its industrial legacy waning, Cardiff has emerged as a modern city on the move. Home to the Welsh National Assembly, the Millennium Stadium, the Wales Millennium Centre and Cardiff Bay – one of Europe’s most ambitious waterfront re-developments – Cardiff is fulfilling its vision of creating an e-enabled business and residential regional hub.

Amongst the many drivers of urban regeneration, leading edge technology is the magnet that pulls all the other elements together. Working closely with BT, Cardiff Council has looked to the latest generation of high-speed broadband networks to provide the cohesiveness that a progressive city needs to move forward. Simply put, a community that communicates thrives and grows.

High-speed networks improve local government services by supporting the sophisticated applications that council workers need to speed delivery and improve performance. Better public access to information is provided through Cardiff’s many libraries and schools, and broadband is also helping to stimulate the local economy.

Business opportunity

The same kind of efficiencies and increased productivity that Fortune 500 businesses enjoy through their use of technology is available now to local authorities and other public sector bodies. The opportunity was not lost on Cardiff Council. Using high-speed networks would not only improve service delivery but also redirect significant savings to the enhancement of front line services

Crispin O’Connell, Chief ICT Officer at Cardiff Council, says: “The connectivity such a broadband network provides, allows Cardiff to amalgamate applications previously replicated in every department. By centrally hosting applications our people are ensured both a total view of the data and the necessary continuity for better inter-departmental collaboration.”

Cardiff’s challenge was to strategically target resources, while not compromising the level of security and availability a local authority demands, creating still more efficiencies while releasing valuable real estate by adopting new organisational models. In rising to that challenge, Cardiff chose BT as the ideal partner with whom it could move forward.

Crispin O’Connell continues: “Our partnership with BT has been an ongoing dialogue where we can brainstorm the best way of doing something or adding value to what we’ve already done. We’ve been inspired by BT’s willingness to innovate and on several occasions that’s given us the confidence to do more than just dip our toes in the water.”

BT solution

The originally-existing 10Mbps links connecting Cardiff's main network databases at County Hall, Atlantic Wharf were upgraded to 100Mbps connectivity, and the links to council nodes were upgraded from copper to 10Mbps fibre. The result was a council network – available across the whole of Cardiff – with broadband connections at ten times ADSL speeds. This was the first time a local authority in Wales had explored the comprehensive use of fibre-based broadband networking to connect its corporate sites.

One of the first network applications was to support 'Connect to Cardiff', the council's award winning multi-channel contact centre. Based upon a service model developed in partnership between the Council and BT, the centre provides a single point of contact for the public.

By connecting the contact centre via the network to the necessary databases at County Hall, agents are made orders of magnitude more efficient. They can now not only answer questions on a full range of issues from planning applications to late bin collections – with full information instantly flashed onto screens in front of them – but are also able to fully transact service requests electronically into main line of business applications where and when necessary.

Crispin O'Connell says: "The benefits of the network extend beyond the Town Hall to provide the public with a single centralised point of contact to correctly answer and route their queries."

Not only has this eliminated delays while enquiries are being made but it has also improved the quality of the council's response. For example all agents have access to the Cardiff GIS (geographical information system) to confirm and cross-reference addresses. So, if someone reports a faulty streetlight, the agent can have an immediate and informed conversation with the caller, resulting in significantly increased customer satisfaction.

In 2003, in response to a Welsh Assembly funding initiative, a new public network was created based on the same low cost model designed for the council's internal use. Using four strategically located 100Mbps nodes linked back to County

Why BT?

- An ongoing dialogue with a willingness on the part of BT to encourage and support innovation
- Leading edge MPLS network architecture – with class-leading security and availability – providing the opportunity for Cardiff to profit from technological development now and in the future
- Public private partnership offering the opportunity for new income streams, such as shared revenues from hotspots

Hall, a 10Mbps fibre connection was distributed to each of Cardiff's 164 schools and libraries, to provide internet access and shared information.

The next area addressed by Cardiff and BT was to target network resources for the benefit of the city's business community. The initial requirement to provide broadband ADSL at home for each of Cardiff's 75 councillors, led to a high profile campaign of broadband demand stimulation to open up every exchange within the city.

The Council placed ICT and broadband at the heart of its Economic Development Strategy and in 2003, joined forces with BT and Cardiff University to establish the Cardiff Broadband Centre. The first of its kind in the UK, its role was to provide a focal point to small and medium enterprises (SMEs) for the promotion and understanding of the benefits of broadband as a major enabler of e-commerce.

Marcella Maxwell, Head of Economic Development at Cardiff Council says: "Broadband is considered an essential driver for successful economic development, and the introduction of wireless broadband gives Cardiff the reputation and capacity to be a truly e-enabled, competitive and connected city. A city that is always on the move and open for business."

Having established a citywide high-speed backbone, Cardiff turned its attention to broadband wireless access. Inspired by the ODPM-sponsored National Project For Mobile Working (NOMAD), a public

private partnership with BT Openzone was set up to install sixteen 11Mbps wireless access points in key areas of the city in May 2004. Augmenting those already located in the city to bring the total number of such 'hotspots' to 50, this broadband wireless 'lake' allows Cardiff to enable mobile working practices especially for key workers such as planners and social services who need remote access to critical LAN-based applications.

Crispin O'Connell says: "Cardiff is a city on the move and the availability of wireless broadband in fifty locations across the City Centre and Bay area provides a unique proposition to attract investment and visitors to the area. Our own people are able to conduct their business on the move, and businesses and the public are able to work and pursue leisure activities more flexibly and with better information at their fingertips. The BT Openzone hotspots provide secure connections, and availability is guaranteed because they are built on a BT network."

Results

Centralising service provision allows the council to expand other services. For example, the increase in the number of automatic or self-service administrative transactions facilitates the redeployment of administrative staff to more strategic functions. For mobile workers wireless networks mean that they do not have to report to a central location to pick up their work schedule, they simply download it at home or while in range of a hotspot.

And the Cardiff return on investment figures offer some hard data it is difficult to ignore.

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Crispin O'Connell again: "In creating our own high speed LAN, even taking into account the capital investment required to install fibre connections, we've seen a total saving of around 10 per cent on Cardiff's network bill but – very much more importantly – the council is getting a thousand-fold improvement in performance along with that saving."

Cardiff was a first-mover in adopting a broadband approach to improve the efficiency of its own business. Moreover, by having made Wi-Fi hotspots available to the business community such as the advertising and production media companies based in the Cathays Park locale both BT and Cardiff benefit from an increase in shared revenue. In fact, Cardiff receives a proportion of connection revenues from the hotspots.

Moving forward, Cardiff has the basis for a more inclusive community as the public, especially in their role as consumers, increasingly participate in society

electronically. John Dacey, Corporate Director at Cardiff Council, concludes: "By dramatically increasing fixed connectivity speeds and providing mobile broadband through the newly created Wi-Fi lake, Cardiff has the basis to effectively reposition itself as an e-enabled city. That's important in attracting inward investment, because today big business expects such immediate connectivity – wired or wireless – wherever it chooses."

Technology blueprint

The partnership with BT is enabling Cardiff to keep abreast of leading edge technology as it becomes available. The Cardiff network uses MPLS (multi-protocol label switching) technology over fixed links, using Nortel Passport 8600 routers located on Cardiff Council premises. In the case of the education network segment, BT manages these routers via their 'Reactive Management' service.

The class-of-service (CoS) functionality enabled by MPLS allows the network to separate and prioritise different types of data on the same links, for example speeding mission critical applications traffic or giving priority to time sensitive voice packets. That latter capability enables applications such as Voice over IP (VOIP), an opportunity that Cardiff is now exploiting. The council has installed over 600 VOIP handsets across the network using Mitel 3300 IP telephony switches – including a number connected over ADSL services used by home workers – allowing the distribution of internal telephone calls on the same high-speed converged network.

Main BT products & services

- Twelve 100Mbps nodal hubs providing 100Mbps connections to County Hall network databases
- Over 200 10Mbps fibre connections serving council offices and 164 schools and libraries
- Managed Nortel Passport 8600 routers providing an MPLS network architecture, and Mitel 3300 IP telephony switches
- Over 150 Business Broadband 500 ADSL circuits
- Sixteen BT Openzone Wi-Fi Hotspots



Offices worldwide

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Registered in England and Wales no. 1800000.

Designed by Ecoutez Limited.

PHME 00000000

Printed on paper which meets international environmental standards.