

Brent Council reduces IT power consumption by 80% through the use of desktop virtualisation

Fordway and Brent Council have implemented a virtualised desktop infrastructure which has reduced power consumption by more than 80%, saving money on electricity costs and significantly reducing the council's carbon footprint.

The solution supports flexible working for council staff, including home working and hotdesking, and enables the IT team to provide a better service for users while improving data security. The new infrastructure is one of the many environmentally friendly features of the council's new civic centre, which has been recognised as the greenest public building in the UK.

The organisation



The London Borough of Brent is the 15th largest London borough by area and spans two distinct regions: the densely populated inner city and leafy outer London suburbs. It is one of the most culturally diverse local authority areas in the country, with more than 311,000 residents speaking over 120 languages.

Brent is probably most well-known for Wembley Stadium, the home of English football, while neighbouring Wembley Arena is one of the capital's largest music venues. It is also the location of the Shri Swaminarayan Mandir (Neasden Temple), and includes two of London's largest industrial estates, Park Royal and Wembley, where major UK companies such as United Biscuits and Guinness are based. Brent Council is one of only eight councils in the UK to win double Beacon status, which identifies centres of excellence in local government.

Brent's new Civic Centre

The Civic Centre provides a community hub as well as the headquarters for Brent Council and some of its partners. Public facilities include a flagship central library and learning centre, community meeting and performance spaces, registrar's services, assembly hall, retail and exhibition space.



Fig 1 : An artist's impression of the Civic Centre foyer

The Civic Centre is saving the borough around £2.5 million a year and has received a BREEAM 'Outstanding' rating from the Building Research Establishment, the world's foremost environmental assessment award for building projects.

It is officially the greenest public building in the country and the fourth greenest building worldwide out of only ten that have received the BREEAM Outstanding rating.

The building will achieve a 33 per cent reduction in carbon emission, with energy consumption 100% more efficient than similar buildings.

The business need

To support flexible working and reducing power consumption - When Brent Council approved plans to build a new Civic Centre opposite Wembley Arena, it provided an ideal opportunity for the council's IT department to implement a solution which they had been considering for some time.

"We knew that a thin client solution would be ideal from both a user and an IT perspective," explained Prod Sarigianis, Head of IT Service Transition at Brent Council. "It would facilitate home working and hotdesking, key elements of the council's strategy. It would also be easier to manage and, importantly, would enable us to provide a consistent user interface and improved support to Brent staff. So the new Civic Centre was the perfect focus for us to implement new ways of working and obtain these benefits."



Fig 2 : An artist's impression of Brent Civic Centre

Two additional drivers for the change were efficiency and sustainability. As well as saving the Borough money, the new Civic Centre aimed to be the greenest public sector building in the UK, with the highest possible BREEAM rating of "outstanding", and Brent wanted to limit the power consumption of at least 70% of desktops to under 30W.

This could not be achieved using traditional PCs, so the challenge for the IT team was to find a solution that would reduce energy consumption, save money and reduce Brent Council's carbon footprint.

Brent needed additional support to design and implement a new infrastructure, and so ran a public tender to select an IT partner for the project. The council chose Fordway for both the strength of its proposed technical solution, which achieved the highest technical score of all the tenders, and Fordway's experience in implementing large desktop roll-outs for other public sector organisations.

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Industry: Public sector – local council

Platform: Primarily Microsoft

Solution: RDSH and VDI using 10Zig thin clients, Quest vWorkspace on Microsoft HyperV, Dell servers, Compellent SAN

Benefits:

- Saved money, lowering power consumption by more than 80% and reducing hardware needs
- Provided location independent working to enable home working and hotdesking
- Better support and quality of service to users whilst improving security
- Reduced total cost of ownership

"During the tender process Fordway gave us confidence that they really knew what they were talking about. We wanted a partner who had the experience to get the project started and handle any issues that came up while transferring skills to our team. They would then hand the project over to us so we could complete the roll-out."

"Fordway were flexible in their approach and were happy to work in this way, moving from implementation to third line support for the final roll-out."

Prod Sarigianis
Head of IT Service Transition
Brent Council

The solution

Fordway had to design an IT infrastructure on the basis of just 30W of power per desktop. They recommended a solution based on Quest vWorkspace supported by Microsoft HyperV Server, combined with Dell Server hardware and Dell Compellent SAN arrays at Brent's two data centres to provide a fully resilient back end solution. The design was a hybrid of virtual desktops (VDI) and terminal services (enhanced remote session host or RDSH).

Microsoft AppV was used to package the majority of applications, which would be streamed to both VDI and RDSH desktops. This enables a mix of standard and more specialist applications to be run on a single server without conflict, reducing the number of servers required.

The implementation also had to include the roll-out of Microsoft Exchange 2010 and Microsoft Office 2010. Fordway's approach leveraged Brent's existing infrastructure and licenses as much as possible to reduce costs, and minimised the number of servers and storage required in order to reduce the overall power consumption. The infrastructure was designed to provide improved resilience, with no single point of failure.

"By choosing a best of breed solution we were able to design a green infrastructure which met all Brent's needs," explained Richard Blanford, managing director of Fordway. "We had to provide appropriate desktop services for a range of user groups, each with different requirements, so it was vital to avoid a 'one size fits all' approach. This solution delivers the appropriate functionality to each user group while providing a single management and administrative procedure."

The project began with detailed design and analysis. Fordway used Liquidware's VDI tool to assess user needs and hence determine the optimal delivery model for each user: thin client terminal services (RDSH), VDI, full PC or notebook. The solution needed to be compatible with a range of peripherals, from printers to library barcode readers and screen readers.

The analysis also looked at the average and maximum user numbers to size the infrastructure appropriately. It had to ensure a high performance, reliable desktop service for all users while minimising the operational and management overhead and providing failover and resilience. There had been ongoing issues with the existing infrastructure, such as slow and unreliable user login. It was vital that the new infrastructure provided quick start-up and a consistent user experience across all applications. Brent has a total of 3,500 users, and after examining user concurrency data the new infrastructure was sized to support 2,700 concurrent users.

The original tender had assumed a split of 30% VDI and 70% terminals, but after completing the analysis the appropriate mix was determined to be closer to 10%: 90%, which resulted in a much more economical solution. Cost often prevents organisations using VDI, as VDI desktops are more expensive both to buy and to maintain. By ensuring that VDI was only provided to the users who really needed it Fordway was able to keep costs down while retaining the benefits and flexibility, thus improving the return on investment.

Once the design was signed off, the next stage was to build a proof of concept environment, pilot it and roll it out for an initial 250 users. Fordway designed a custom image and front end to enable users to access sessions. This included providing special needs accessibility as part of the user shell.

The proof of concept ran for three months and quickly won over council staff. *"Users were delighted – they forgot that they were using a thin client environment as it's completely seamless, and it has eliminated historical issues such as slow logins,"* explained Prod. *"A lot of our users also appreciate the fact that we're implementing a much greener solution."* The Brent team completed the roll-out to all users in mid-2013, with Fordway providing third line support as required.

The benefits

One key benefit of the new desktop environment is reduced power consumption – contributing significantly to the new Civic Centre's green credentials. The 10Zig thin client terminals use just 14-15W of power per desktop, compared with 80W or more for a standard desktop PC. Additional power savings come from intelligent user management, such as automatically suspending some servers overnight when users have gone home.

The use of these terminals also reduces Brent's hardware costs and materials use, as they are expected to last for a minimum of seven years. In comparison, Brent's replacement life for PCs was five years and even this was considered ambitious, as many local authorities work on a replacement life of three or four years. The total cost of ownership is significantly reduced, potentially providing a 40% saving on what Brent previously paid for full PC clients.

The desktop solution provides location independent working, enabling home working (reducing travel) and hotdesking, while removing the need to provide laptops to some 400 users. It also improves security because all information stays in the data centre, not on the user terminals. It also has the ability to support 'Bring Your Own Device', allowing secure remote desktop from iPads.



For Brent's IT team, there are further benefits. They can now respond much more quickly to desktop support issues, the majority of which can be solved by the support team correcting the user session on the server while the user is on the phone. This eliminates the need for an engineer's visit and reduces costs, while providing improved support and quality of service to users. There is a single point of management, and the solution is flexible and scalable – it is easy to add new users, and every element can scale to at least five times the initially proposed capacity by adding standard components into the live environment.

Through the development of the thin client infrastructure, Fordway and Brent's Information Technology Unit have contributed significantly to Brent Council's aim of becoming a more sustainable and greener local authority. As well as dramatically reducing power consumption, the project has cut the council's carbon footprint and help to reduce waste, and will promote flexibility and efficiency. It is the perfect complement to the new Civic Centre.

The green benefits of the IT infrastructure solution were recognised when at the proof of concept stage it won the 'Public Sector Project of the Year' Award at the Green IT Awards 2012. Brent Council and Fordway were runners-up in the Team of the Year category at the same awards.

Next steps

Since completing the desktop transformation project Fordway has also implemented a network infrastructure and associated security at the Civic Centre and Brent's data centre in partnership with Juniper and Symantec. The project is being delivered using the same PRINCE2 project management methodology, and is of course compatible with the Civic Centre's BREEAM "Outstanding" rating.

"Fordway were extremely helpful throughout the desktop transformation project," concludes Prod. "They provided a dedicated project manager, which worked very well, their engineers are extremely capable and we could talk to Richard at any time. They provided skills transfer as part of their day-to-day work, as well as running workshops on the new technologies as they were implemented on site, which ensured that we had the skills to complete the roll-out ourselves."