



**HIGH-AVAILABILITY**



# Success Story



## The world never stops...



### The Customer

Formed in 1974 and established as a Unitary Authority in 1998, the authority sits on both sides of the River Mersey at its lowest bridging point, in North Cheshire adjacent to Merseyside. It comprises the twin towns of Widnes and Runcorn, together with the villages of Hale, Moore, Daresbury and Preston Brook.

The two towns were formally joined following a national reorganisation of local government, but links between Widnes and Runcorn stretch back nearly 900 years to the early 12<sup>th</sup> century when land on both sides of the river formed part of the Halton Barony.

Halton is an urban, industrial area whose main businesses are in chemicals, food processing, clothing, metal products and furniture manufacturing. The main service sectors are retail, financial, public and health administration. The most densely populated district in Cheshire at 15 persons per hectare, Halton is within an hour's drive of the stunning scenery of North Wales and the Lake District and half an hour from the cities of Liverpool and Manchester.

### The Business Need

Within the Council, Unix forms the basis of the IT infrastructure, and Halton's Unix cluster handles a very wide range of core applications. These include the administration of Council Tax and Business Rates for 52,000 homes and 3,100 businesses, as well as rent collection and repairs for 6,700 council houses. Key tasks include production of annual bills, reminders, summonses and collecting 23,000 direct debits every month.

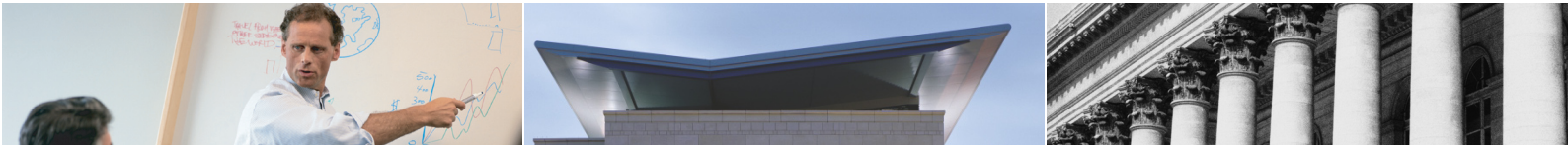
Other applications include admin of housing benefits for 13,800 claimants: payroll for 6,000 staff, teachers and other workers; maintaining education data for 14,000 schoolchildren; 33,000 social services case histories including payments to 200 foster and other carers; and over 900 annual planning and 700 building control applications.

In addition, the cluster handles systems to track consumer cases for trading standards and supports the workload of environmental officers. It also monitors and manages secure storage for over 265,000 office documents. The cluster is built around two



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Andrew Miller



powerful computer nodes from Sun Microsystems, each capable of supporting the full workload. With different acquisition dates, one node contains four UltraSparc processors running at 300MHz and the other contains two running at 480MHz.

Within each node error-correcting 144-bit UPA buses interconnect the processors allowing them to co-operate effectively. Each node contains a 4Gb memory store connected to the processors via a dedicated 576-bit error-correcting bus capable of delivering throughput up to 1.78GB/second. All data is stored separately in two dedicated storage arrays, with each containing a full and up-to-date copy of data and programs. Each storage array has 12 disc drives with a total capacity of 396Gb – expandable to 864Gb without any interruption to service.

Each array is connected to each node via high-speed differential Ultra-SCSI links. There are separate electrical supplies, each with their own independent battery-backup, power the two nodes and storage arrays. By eliminating any single point of failure and using HAC's powerful RSF-1 clustering software to monitor the whole configuration, continuous availability is virtually guaranteed.

“Up until 1989, the council ran its core applications on ICL Series 39 mainframes. As new business needs arose, a number of smaller unix boxes were acquired from a variety of different manufacturers” says Halton Council's IT Technical Support Manager in charge of Unix, Andrew Miller. “If there was a failure, then the application just stopped working. Occasionally, it might require going to backup, but usually it just meant getting an engineer round. That might take a day or so, but with such a wide spread of applications across nine separate servers, it didn't worry us too much”.

In fact, the application spread is very diverse. It includes the Northgate Revenues Council Tax and Business Rates system, the OLM CareFirst system for social services, CAP Solution's Uniform Planning Building Control, the EMS Education Management System from Capita and Academy's Threshold housing management system.

Equally diverse are the databases employed, including Ingres, Oracle and Reality – all operating on a single machine simultaneously. “With such a variety of machines, it was not economically feasible to have standby systems. For example, the ICL mainframes were very expensive and the idea of having another one just in case would have been impossible to justify. However, once we decided to consolidate most of the applications onto a single cluster, the world looked different. Now, if the hardware failed, all our applications would go down at the same time. Maintaining availability was no longer an interesting rather academic concept, it was now top of the ‘to do’ list”.





### The Solution

“Finally, we moved completely to Sun because in our view they offered the best price performance hardware available,” says Miller. “Having made that decision, we looked at the high availability solution options. For several reasons – cost, performance, resilience, support, supplier/product track record – we felt there were only two practical choices: Sun and High-Availability.Com”.

“Of the two, Sun was the more expensive, and their proffered solution involved moving to a fibre optic connection between machines. For a number of reasons, including cost, we preferred to retain the existing electrical connection. This was not an issue for HAC”

“High-Availability.Com’s RSF-1 solution was chosen because they were able to demonstrate previous experience of clustering Sun E450 hardware,” says Miller. “Halton Council already had one Sun E450 system which we purchased in 1999, and we were considering acquiring a second Sun E450 to meet increasing demand for systems,”

RSF-1 was originally released in 1995 and is designed to make services ‘highly available’ by switching between servers if a server or service fails. It provides multi-directional redundant ability that allows servers to constantly monitor and shadow each other. Rather than maintain a standby option idle as a failover server, RSF-1 allows operational systems to act as standby servers, ensuring that hardware investment is optimised.

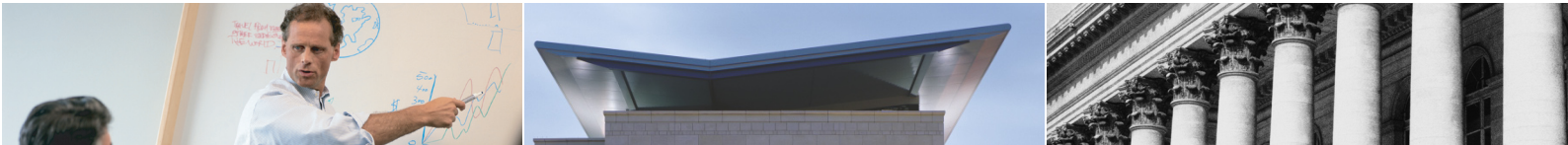
RSF-1 includes both Java and Windows based system admin modules that allow the cluster to be monitored and administered in real time – showing the status of any RSF-1 instances available on the network and provide manual switchover functions.

High-Availability.Com designed and developed the first high availability solution for Sun Unix servers and has been leading the mission-critical market ever since with innovative products to help customers maximise their business IT and Internet functions. The company sells and supports products to customers throughout the world, ensuring critical applications and services keep running in the event of system failures.



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## The Benefits

“We now have the assurance that our applications won’t fall over,” says Miller. One might have taken the view previously that because each application was running on its own hardware, then the overall risk was low. Or that we’re just a council, not a business. These days, local authorities are very much businesses. And once we’d loaded all the applications onto one machine the argument for a reliable availability solution was unassailable. Now we get the best of both worlds, the economies and benefits of scale – together with the knowledge that whatever happens all applications will keep running”.

“Overall, we like the simplicity and ruggedness of RSF-1. We are also comforted by the solution’s use across a broad user base, including a significant number of similar local authorities, some of them running substantially more challenging and difficult applications than ourselves”.

“Even though we hope that we don’t have to employ it – just like an insurance policy – we know its there if ever the worst happens. In fact, it plays an active, important role in maintenance and patching, allowing us to successively failover to and from each machine overnight while we upgrade”.



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