



Land Registry looks to the future with Shadow mainframe integration

Case study



The Land Registry for England and Wales is the largest managed property register in the world. It holds computerised information on over 20 million properties, worth some £3 trillion, with approximately £1 million worth of property being processed every minute. The job of Land Registry, put simply, is to guarantee title to land and make property transactions easier for all.

Land Registry is the first port of call when checking the ownership or title to land or property in England and Wales and the place to discover the record of transactions connected to a property, such as sales and mortgages and prices paid. As a UK government department, it serves the general public, as well as providing professional services to nearly 150,000 registered users at 15,000 companies – including solicitors, conveyancers, banks, building societies and estate agents. Maintaining and developing a stable, effective and accurate land registration system is critical in order to perform the role of guaranteeing title and meet the progressive improvements in service performance which are set by the Lord Chancellor.

Accessing both mainframe and distributed systems-based records with similar speed and ease helps Land Registry to field the tens of thousands of requests received each day – mostly via mail but also via telephone – to check ownership, transfer a title or to register new properties. “Shadow plays the pivotal middleware role,” says Steve Dean, principal data services manager at Land Registry, “in enabling these local applications to interact with the IBM mainframe z/OS operating system and DB2 database, such as when bringing text documents and mapping information together, but also and very importantly, Shadow allows the regional systems to update and change the records on the mainframe, securely and in real time.”

The challenge

Land Registry is a long-time customer of DataDirect Shadow mainframe integration software. They wanted to improve the high performance of accessing and updating records on the DB2 mainframe to which they had grown accustomed; enhance operational capabilities; make more efficient use of machine resources and provide for an indeterminate increase in future volumes.

The solution

By upgrading to the latest version of Shadow, Land Registry can take full advantage of the Dynamic to Static SQL analyser in Shadow to improve performance, and the Shadow Instrumentation Server to simplify systems management, diagnostics and graphically view all integration activity across their Sysplex environment.

The benefits

As well as the fast access to DB2 mainframe data from their ODBC and JDBC distributed applications, Shadow is a fundamental part of the infrastructure helping Land Registry to achieve high levels of customer satisfaction from near perfect reliability and high availability, despite massively high transaction rates, peaking at 20 million SQL calls per hour.

Shadow plays pivotal integration role

Land Registry operates from a number of regional offices. Whereas the mainframe and DB2 database remain the platform of choice for storing the property text-based documents and coping with high transaction rates, the regional offices operate a number of distributed ODBC and JDBC applications. Usually developed in-house, in Delphi, they include the mapping system which provides spatial plans of the properties and their boundaries. Shadow supports access to mainframe data from around 180 different systems and provides the infrastructure for making DB2 data available to non-mainframe users.



Shadow has proved highly reliable

Shadow has proved to be highly reliable, as Steve Dean comments: "I cannot recall the last time Shadow failed us. Shadow is very stable and gives us high resilience and high availability in our Sysplex environment. Complementary facilities in Shadow allow clever workload balancing which means that any failure for any reason, not just Shadow reasons, will have minimum impact on us, because work can carry on within the Parallel Sysplex. Secondly, Shadow plays its part in providing high resilience across the wider systems environment."

Land Registry is updating its Shadow environment

Following years of reliable running supporting access to terabytes of data with business-critical queries, Land Registry is updating its Shadow environment.

"The new Eclipse-based GUI will make building and administering components in Shadow much easier," said Steve Dean. "The dynamic to static feature has been important to us for number of years to increase processing throughput. Without this feature,



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DataDirect Technologies is the world leader in data connectivity, mainframe integration, and XML query technology. Simplify development and dramatically improve performance and scalability with the DataDirect Connect line of ODBC drivers, JDBC drivers and ADO.NET data providers. Reduce the complexity of integrating mainframe data and applications into service-oriented architectures with the DataDirect Shadow RTE line of mainframe web services, events, SQL and web-enablement products. And discover the latest in XML query technology with our embeddable XQuery engine, which greatly simplifies XML and relational data integration.



ODBC compliant software which uses dynamic SQL, is fairly expensive in terms of machine resource. Shadow enables us to convert to higher-performing static SQL, but until now, it has been a manual operation. The new Eclipse-based graphical user interface greatly simplifies the systems management and performance tuning environment. It is very welcome and will enable us to extend Shadow's use to more applications." Shadow's dynamic to static feature can improve performance by up to 70%.

The way that Shadow supports workload balancing across a number of mainframes or logical partitions has also improved with the introduction of the instrumentation server. In the past if a problem occurred or a query failed, it had to be tracked down across each instance of Shadow in each logical partition. Land Registry will now have a graphical, logical, Sysplex-wide view as if a single instance of Shadow was running, which together with various filtering capabilities will make diagnostics a lot easier. "The important benefit is not to understand why Shadow fails, because that's a rare event, but it will help us to analyse why some business processes fail, which of course is crucial," says Steve Dean.

The database continues to grow

Land Registry has been building its records since 1862, but they remain incomplete even today. In the past, registration has occurred on transfer of ownership, and whilst that has addressed a high proportion of properties, approximately 40 per cent of land (in spatial terms), such as some land owned by the Church, government bodies and national parks, remains unregistered. Land Registry is pursuing a programme to encourage land owners to register which will result in an increase in new registrations and higher processing volumes for Shadow. The new contract with DataDirect which covers use of Shadow until 2009, takes into account this growth.

Customer satisfaction levels are high

With 8000 internal and 150,000 external users, Land Registry has a lot of customers to satisfy. "Last year 99% of our customers reported themselves satisfied or very satisfied and Shadow plays its part in that," says Steve Dean. "We too remain highly satisfied with the product. Our original decision to go with Shadow was taken because at the time it was simply the best product around. We have not needed to consider anything else — it is a stable and highly effective product for us. Shadow is very strong in terms of back-end monitoring, flexible in terms of its tuning capabilities and gives us the ability to control and configure our environment to best meet our application needs. The fact that most people running their applications have forgotten that this middleware exists, is a great testament to the stability of Shadow."



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