

> Ease of use

> ROI

> Scalability



PERVASIVE
Data Integrator™

Recruitment consultancy automates global information management with Pervasive

Pervasive reusability is a key to worldwide synchronization of heterogeneous data

“We have daily moves of data where we have to update databases around the world with the latest information. If we had to push that data out via ODBC, we’d be waiting hours for it to run, and invariably, it would crash. Pervasive® Data Integrator™ condenses the time from hours to minutes.”
 –Company Database Administrator (DBA) and Developer

Executive Summary

This case study looks at one of the world’s leading professional recruitment consultancies. With 38 offices spanning 17 countries, it operates in Europe, Asia, Australia, South Africa, New Zealand and the U.S. The company manages standalone front office recruitment databases at all offices as well as region-specific back office financial and management databases at three key offices. Maintaining a competitive edge means designing processes to share global data in a way that can increase company performance. With company growth, new offices have opened along with the need to migrate systems from other platforms and integrate data into the global fold. Management reporting requirements drive the need to centralize global financial and recruitment data.

Pervasive provided a solution that allowed the organization to migrate their front office recruiting system at one office from an Oracle database to a Sybase system with a different schema and architecture. The complex project went very smoothly, and since then the company has implemented numerous one-way migrations in other offices and implemented ongoing synchronization worldwide.

Challenge

The biggest challenge to the first phase of integrating data around the world was that the wide area network could not handle heavy data loads. Updates had to be compact, simple, fast and lightweight. They needed to exchange HR recruiting information, disseminate data pulled from the website, clear unsubscribe mailboxes and transfer financial data to a central financial management system—all without

Company Profile

This company is one of the world’s leading global specialist recruitment and recruitment outsourcing businesses. It specializes in permanent and contract recruitment across all industry sectors, and counts the world’s leading investment banks and multinational blue-chip commercial organizations as clients.

overloading the network. In addition, as the company Database Administrator and Developer explained, “The solution had to save development time—we couldn’t afford a build-out. And this is a multi-phase project so it had to provide reuse benefits.”

Solution

Pervasive provided a solution to migrate the company’s front office recruiting system at one office from an Oracle database to a Sybase system with a different schema and architecture. Both systems needed to be operated in parallel for over 12 months, so data had to flow in both directions. This complex project went very smoothly, and gave the company’s personnel an idea of what Pervasive Data Integrator could do. Since then they have implemented a dozen one-way migrations in other offices. With Pervasive as a proven

technology in house, it was the natural pick to begin solving the organization's global synchronization issues.

The company placed Pervasive Integration Engines in seven offices—in Japan, Hong Kong, Singapore, Australia, New Zealand, South Africa, and the UK. These seven offices served as integration nodes. Data would be moved between these nodes and taken to either databases or people who needed it around the other offices. The company DBA and Developer points out, "If we had to push that data out via ODBC, we'd be waiting hours for it to run, and invariably, it would crash."

Using Pervasive Process Designer, a solution was set up that exported new or changed data out of Oracle or Sybase databases on a daily basis into a simplified ASCII delimited format with the largest file around 240 MB. The largest file was then compressed down to about 20 MB as part of the Pervasive process and pushed across the WAN to each of the other nodes.

With the full process of exporting, condensing and pushing across in place, the DBA and Developer said, "Pervasive Data Integrator condenses the time from hours to minutes." On the other end, a Pervasive process monitors the folder where the file would land and then downloads, decompresses, and reloads it into the local database or emails it to personnel who wanted that information. "The beauty of it all is that using the Pervasive Process Designer, you can visually and easily control and design it, and then plug it in as a job," he added.

The nodes run about 25 Pervasive Data Integrator maps and processes. Each job initiated by a node is different, so the number of maps and processes associated with a job may vary from 10 to 40. The process is automated and there is a

basic management interface. The DBA and Developer said, "We can push about 70,000 records in one job associated with a transfer of financial data from say Australia to London. This equates to an uncompressed 7MB ASCII file."

Benefits

Maintainability. All of the processes and maps were created in a single Pervasive Data Integrator design environment and cloned out, making maintenance a simple matter.

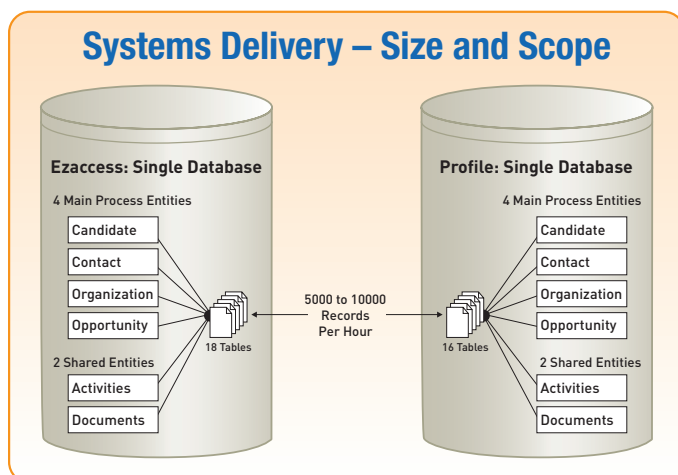
Reliability. Any issues with network latency or outage can be managed by the Pervasive process, making it very fault tolerant. Also, the use of compressed message files eliminates the need for a consistent open connection to be maintained between offices such as an ODBC/database connection or a long-duration OpenFile operation.

Development speed. "Once you know how to use the product, you can easily create a process end-to-end to complete a job, whether on a one-off or a regular basis. If I had to build something up from scratch using VB or any other language, it would take much much longer. And you can't easily build in the fault tolerance and reliability that you get using Pervasive," said the DBA and developer. "I've been more efficient in my job. I think that the returns are going to get greater and greater over time."

Extensibility. "The beauty of the Process Designer is that you can plug in. You don't just get the functionality of Pervasive itself, you can control external applications via it as well, which makes it just incredibly powerful and flexible," said the DBA and developer.

Support. The DBA and developer did the global synchronization project entirely on his own, but requested help from the Pervasive support team for a few issues. He was very pleased with Pervasive responsiveness, saying that he "couldn't believe how quickly they got back to me!"

Reusability. Pervasive has already succeeded with flying colors on two major projects, front office data migration and global application synchronization. Another is currently in the works, a data warehouse/business intelligence project. The DBA and developer notes, "From the initial purchase of the product, it's realized its value, and other members of the organization are seeing it as an asset, too. Our IT director has a great deal of confidence in the product. We really benefit from the 'buy once, use many' capabilities provided by Pervasive Data Integrator as we expand to additional uses."



Conclusion and Next Steps

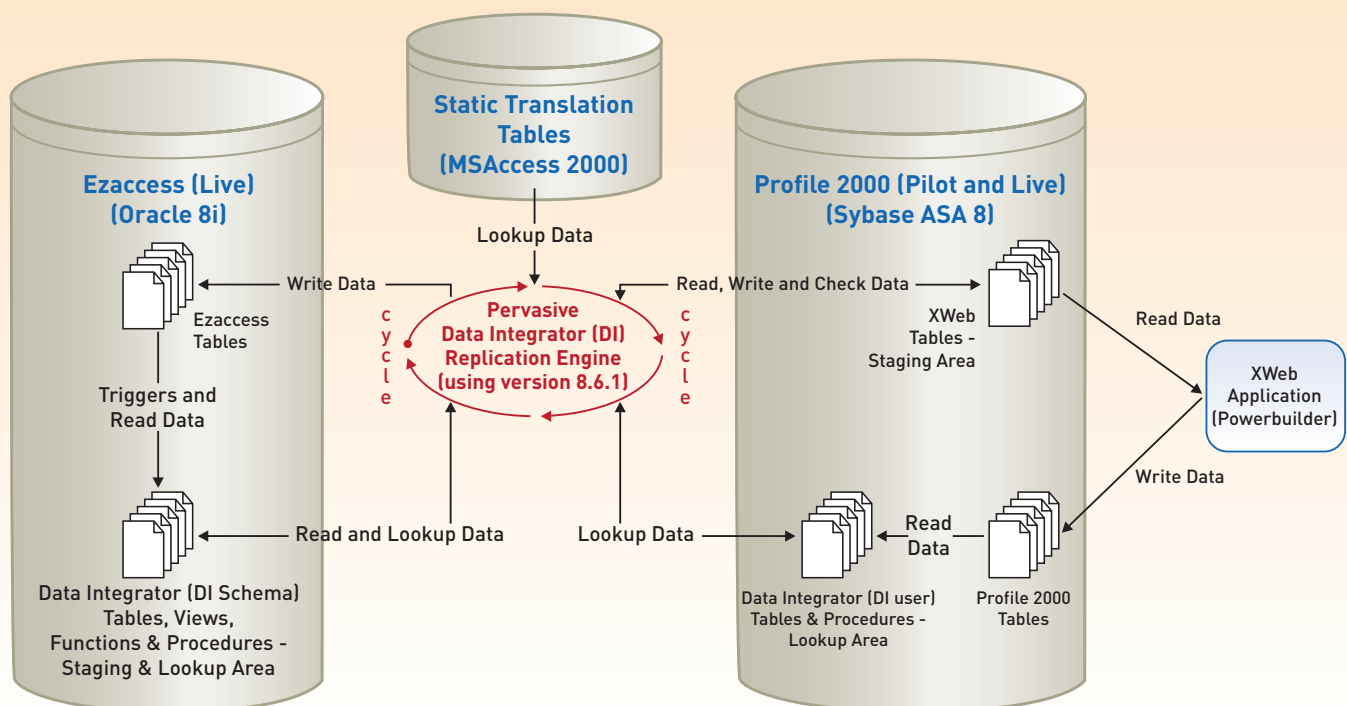
The new global synchronization process has been running since October 2007. Each Pervasive process sits over a lightweight Access database. At any time, the database can be interrogated to find out the status of jobs, history, etc. The process also can send a series of email notifications to give the status of each node, whether there is a problem, whether there are jobs outstanding, etc.

The next phase of global information integration coming on line for the company will be an Infor PM financial data consolidation for management, accounting and reporting. The Infor PM database is essentially a data warehouse for financial data based in London. The company will need to extract, transform and load data from three back office financial systems scattered globally, as well as front office data from all global offices, including HR and recruitment information and data from other databases such as credit control systems and payroll systems.

The DBA and Developer is ready: "All processes have been built, including directory polling and ETL of the data from each office system. Having the Pervasive product in place and having the structure to be able to pull and move data means I just have to focus on the start and end components of the process. Once I have an understanding of where and how I've got to push that data into the system, I can very quickly create that using Pervasive."

He added, "With Pervasive, we can integrate anything if we want to. With recruitment, information is a key to being proactive. This year, with the introduction of a new performance management product, and also with the future data warehouse database coming on line, we'll have more information to make better decisions. We'll be able to ride out the harder times better than we have in the past. And, of course, Pervasive will be a part of it."

Development – The Design Framework



Comprehensive Connectivity

Pervasive connectors enable rapid access to heterogeneous data. A comprehensive set of 150+ connectors allows a broad range of seamless connectivity to file systems, databases, message buses, EDI networks, Web-enabled applications, business applications and industry-standard protocols on numerous platforms. Also included is Pervasive's unique capability to process non-relational and semi-structured content buried in most companies.

File

Access Access 97 Access 2000 Access XP Alpha Four ASCII (Delimited) ASCII (Delimited) Join ASCII (Fixed)	Clarion Clipper CLF Webserver DataEase DataFlex DJ Document Schemas DJ Log File Data dBASE II, III III+, IV, V, (IDAPI)	Dialog DIF Enable Excel 95, 97 Excel 2000 Excel XP Folio Flat File Foxbase	FoxPro LDIF Lotus 1-2-3 Lotus Notes Lotus Notes 5 Lotus Notes Structured Text Lotus Works Mac ASCII Delimited	Magic PC MAILERS+4 (dBASE) Microsoft Word (Mail Merge) Paradox v5 (IDAPI) Quattro Pro Windows v5 Rich Text Format (RTF) Unicode (Delimited) Unicode (Fixed)	WordPerfect 6.0 (Mail Merge) Wordstar (Mail Merge) WordPerfect 4.2/5.0 Visual FoxPro Visual dBASE 5.5
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Database

Oracle 7, 8, 9i, 10g, 11g Oracle 7, 8, 9i, 10g, 11g Multimode Oracle Direct Path Oracle SQL Loader Pervasive.SQL 8, 9, 10 Pervasive.SQL 8, 9, 10 Multimode PostgreSQL PostgreSQL (ODBC 3.x) Btrieve 5, 6, 7, 8	CA dB-Fast C-ISAM Cloudscape CWM DB2 7.2, 9.5 UDB DB2 7.2, 9.5 UDB Multimode DB2 Loader DB2 UDB Mass Insert DB2 (ODBC) eXcelon, eXcelon XIS 3 Hitachi Hi-RDB	IDAPI Informix DB Loader Informix (ODBC) Informix Online DS Informix/SE Ingres (ODBC 3.x) Interbase (IDAPI) JDBC MUMPS (ODBC) MySQL NonStop SQL/MX	ODBC 3.5 ODBC 3.5 Mass Insert ODBC 3.5 Multimode RBase 4.5 (ODBC) Red Brick Scalable SQL SQLBase SQL Script SQL Server 6, 7, 2000, 2005 SQL Server 6, 7, 2000, 2005 Mass Insert	SQL Server BCP SQL Server Mass Insert SQL Server (ODBC) Sybase 11, 12 Sybase 11, 12 Mass Insert Sybase 11, 12 Multimode Sybase BCP Sybase (ODBC) Sybase SQL Anywhere Sybase SQL Anywhere 6 Sybase SQL Mass Insert	Sybase SQL 11, 15 Sybase SQL 11, 15 Multimode Teradata (Fastload) Velocis (ODBC 3.x) Watcom SQL v5 Watcom SQL (ODBC)
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Application

AccountMate ACT! for Windows ADABAS (NatQuery) Apache CLF Champion Acct. CYMA Acct. GoldMine	Great Plains DOS Great Plains UNIX/Mac Navision Financials (ODBC 3.x) Macola Acct. Market Force Microsoft Dynamics CRM 4	Microsoft Dynamics GP 9, 10 Microsoft IIS ELF NetSuite Oracle Applications Oracle Siebel CRM On Demand PayChex DJF	Peachtree Acct. Personal Librarian Pivotal CRM Platinum Acct. RealWorld Acct. RightNow Sage CRM SalesLogix	Sage MAS 90/200 Sales Ally Salesforce SAP BAPI, IDoc, EAA SAS SBT Acct. Solomon Acct.	SPLUS SPSS Statistica SYSTAT USMARC
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Technology

BizTalk XML DataRush Email Email Attachments Erwin	File Folder Queue (FFQ) File Transfer Builder FTP HTTP/S HTML	JMS LDAP Microsoft MQ Websphere MQ Oracle AQ	Oracle BPEL Progress Sonic ESB, MLLP, FIX Salesforce CRM Outbound Message Service	SGML SOAP TCP/IP URL/URI XML	XML Schema, DTD, XDR XSLT Transformer
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Legacy

ACUCOBOL (ODBC 3.x) ACUCOBOL-GT v7 BAF Binary	Binary Line Sequential COBOL 01 COBOL Copybook COBOL Flat File	C-tree Plus C-tree 4.3 Fujitsu COBOL ISAM	Micro Focus COBOL QSAM Sequential Binary Tape Drive Sequential	VSAM Variable Sequential (MVS) Variable Sequential (Record-V UniKix)	Variable Sequential (SyncSort) Variable Sequential (User Defined)
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B2B

ACORD EDI (EDIFACT) EDI (X12)	FIX HCFA 1500-NSF HIPAA	HL7 HR-XML MIB	NCPDP NSF SWIFT	Text (Delimited - EDI) Text (Delimited - EDIFACT) Text (Delimited - HL7)	TRADACOM UB92-NSF
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About Pervasive Software

Pervasive Software provides agile data integration software that speeds the flow of data between applications and between organizations. Our robust technology addresses SaaS, SOA and traditional integration modes and allows customers to re-use the same software for integration scenarios that span data warehouses, real-time application integration and data exchange with trading partners.

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