Accelerated Web Development with Oracle HTML DB

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EXECUTIVE OVERVIEW

Every organization uses spreadsheets, desktop databases and other personal productivity software to collect and share data critical to its business processes. This approach to information management creates islands of information scattered throughout the organization. Besides making critical information inaccessible to the people who need it, these islands of data bring with them unnecessary costs and risks.

Oracle HTML DB helps you consolidate data and provide access from any web browser by combining the productivity and ease of use of a desktop database with the proven scalability, availability and security of the Oracle Database 10*g*.

INTRODUCTION

Oracle HTML DB is an environment for the development and deployment of data driven applications that run in any web browser. As a standard feature of the Oracle Database 10*g*, it turns a proven industrial strength platform for information management into an easy to use tool for the creation of sophisticated web applications.

Every business unit within your organization uses several homegrown applications to track and share information in support of its business processes. These applications may be tracking sales leads, project milestones or computer hardware assets, for example. Often, these departmental systems are implemented using personal or workgroup databases and spreadsheets, which are shared on departmental file servers or sent around as attachments to email messages.

This paper first outlines the problems associated with using personal productivity software for departmental or enterprise scale information management. Then, it discusses what Oracle HTML DB is and how it can be used to remove inefficiencies, reduce cost and mitigate risk.

INFORMATION MANAGEMENT THE WRONG WAY

Using personal productivity software to manage information that is maintained and consumed by more than one person brings with it unavoidable costs and risks. Although spreadsheets and personal databases are appropriate tools for communicating information, they are wholly inadequate for providing shared access to data. Let's examine some of the shortcomings of personal productivity software when it is applied to departmental or enterprise information management problems.

Fragmented Information

When spreadsheets are used to collect and share information, data could be stored on someone's personal hard disk, a workgroup file server or attached to an email. With data fragmented in many copies of spreadsheets and desktop databases there is no way to keep track of who owns a particular piece of information, much less a single consolidated place to access it all.

Inaccurate Information

Collecting accurate data requires enforcing referential integrity rules, checking for duplicate entries and for formatting errors, for example in phone numbers and social security numbers. Properly built applications use lookup tables to ensure data integrity and validity.

When spreadsheets are used to collect information from multiple people, the data entered is typically not validated or checked against other related data, inevitably resulting in inaccurate data.

Untimely Information

Information is only useful when you get it in time to make a decision. Getting a single, consolidated view of data usually requires waiting for an email to arrive and sometimes merging multiple copies of data. Information can only be timely when you have access to it anytime, anywhere.

Vulnerable Information

Information is one of your organization's key assets and it needs to be protected as such. When data is spread across hard disks and email attachments, it is subject to loss due hardware and software failures, theft and viruses.

Information with Limited Potential

By using personal productivity software for anything beyond personal information management, you run the risk of locking in applications and information onto software platforms that will not be able to grow with future requirements.

Inevitably, small systems developed at the departmental level grow up to be production, sometimes mission critical systems. This leaves IT departments with the impossible task to run these systems on software that's not intended to be deployed on the web, much less designed for concurrent access by a large user community.

WHAT IS ORACLE HTML DB?

Quick and Easy Web Development for the Oracle Database

Oracle HMTL DB is a complete web development and deployment environment built into the Database 10*g*. It is designed to make building web applications easy without compromising your flexibility to build sophisticated applications.

Applications in HTML DB are assembled from pre built components using wizards and declarative programming. This eliminates the need to write code or script typically needed to develop web applications.

The key features that make Oracle HTML DB uniquely productive are:

Page Rendering and Processing Engine

Rather than generating code, Oracle HTML DB stores user interface properties and data access and logic behaviors in an application definition. When an Oracle HTML DB application is run, pages are rendered in real time, based on the application definition stored in the database. Logic to determine how a user flows from page to page, data validation and form handlers are all built in to the processing engine.

Deployment mechanism

For applications developed with Oracle HTML DB, there is no separate deployment step required. Immediately after an application is built or after a change has been made to and existing application, users can start using it. For a formal separation between development, test and production platforms, Oracle HTML DB has the ability to export application definitions, including images and style sheets.

Pre Built Components

Commonly used components in web applications are quickly built using wizards, allowing the assembly of applications containing forms, reports and charts without writing any code.   In addition, several pre built navigational controls, authentication schemes and user interface themes are provided.

Oracle HTML DB has several best practices for web application development "wired in," allowing those building applications to focus on functionality rather than worry about implementation details. Oracle HTML DB's Built in best practices include:

- **User interface consistency.** Use of templates throughout the product for components such as pages, reports and regions ensures a consistent user interface.

- **Shared, reusable controls**. Reusable definitions of lists of values, menus, and navigational controls avoid tedious programming tasks and makes application wide changes easy.

- **Flexible authentication.** Built in authentication mechanisms allow for integration with single sign on or an LDAP (Lightweight Directory Access Protocol) repository for identity management.

- **Reusable authorization rules.** Centrally defined authorization rules can be applied to most every element in an Oracle HTML DB application, for example a column in a report, making it easy to control access to data and functionality.

- **Globalization awareness.** Oracle HTML DB is built with globalization of applications in mind. Translatable labels for buttons, fields, report headers, etc. are easily made available in a single file for translation by a third party.

Hosted Development

Oracle HTML DB uniquely turns the Oracle database into a hosted development platform. This enables an IT department to offer development and deployment of database centric web applications as a service. This removes the need to distribute or manage software on individual client machines, thus eliminating any hurdles associated with building web applications for everyone in the organization.

To allow for hosted development, Oracle HTML DB divides the Oracle database into workspaces. A workspace provides users with a virtual private database complete with all the tools needed to view database objects, load and extract data and build web applications. From a web browser, anyone with a need to share some data or to build a quick application can register for a workspace in the Oracle database. Workspaces can be accessed by multiple users working as a team, from any location with a web browser.

SPEND LESS, KNOW MORE

So far, we've identified the problems with relying on personal productivity software for critical information management. Having reviewed the functionality and benefits of Oracle HTML DB, let's now examine how it can be used to solve these problems.

Stop Wasting Time

Managing a business efficiently requires instant access to information. Waiting for someone to send you the latest spreadsheet with sales leads or project status is not an efficient use of your time. The reality is that most organizations waste time using spreadsheets as information management tools. Although a spreadsheet is a great tool for communicating information, it is an inappropriate tool for providing shared access to a single data set.

Data collection using spreadsheets tends to follow one of two approaches: it can be a "chain letter" approach, where a spreadsheet is being emailed from employee to employee, each adding some data to it until the last person sends it back to the original sender. In another approach spreadsheets work their way up the organizational chart in a funnel or a "pyramid scheme" with higher-level executives eventually wasting valuable time merging spreadsheets and aggregating data. Both approaches have obvious flaws, forcing people to wait for each other, and preventing users from having instant access to information.

Oracle HTML DB has unique capabilities to help turn a spreadsheet into a sophisticated web application without requiring programming skills. Once a spreadsheet is turned into a web application, everyone can report on the latest information without delay while multiple people can contribute to the same data set concurrently –all from a web browser.

Build Applications you Never Could

With Oracle HTML DB you can move your critical information out of personal productivity software and securely manage it in an Oracle database while making it accessible from the web.

It is no coincidence that business units trying to manage information have been using spreadsheets and desktop databases. This type of software is easy to use, usually readily available and therefore provides the path of least resistance, especially when the requirement is to get something up and running quickly.

On the other hand, building a database driven web application requires budget, resources and skills that executive management is not willing or able to take away from mission critical enterprise application development. Until now, there has been no choice than to use personal productivity software in most cases.

Oracle HTML DB brings sophisticated, enterprise database features to power users and business unit developers, through a familiar browser interface, with the productivity and ease of use you would expect from a personal database. This allows just in time development of professional quality web applications – something that was previously unthinkable.

Reduce Infrastructure Cost

Consolidating development and deployment of web applications from multiple small desktop machines and departmental servers reduces IT infrastructure cost in several ways. First, it's often possible to eliminate hundreds of licenses for desktop or workgroup databases by moving data into a single database and providing web access. Secondly, consolidating many small applications and databases into a few larger Oracle databases means your IT staff has fewer machines to administer and fewer backups, patches and upgrades to perform.

Exploit the Power of the Oracle Database

Oracle HTML DB is tightly integrated with the Oracle database. This means that in building your application, you have access to sophisticated database features such as:

- **Oracle Text**. Powerful text search and text management capabilities.

- **XML DB**. High performance storage, retrieval and manipulation of XML documents.

- **Oracle Locator**. Spatial object type storage and location based services.

- **Advanced Security.** Security features such as encryption, row level access control and auditing.

- **Business Intelligence.** Features such as OLAP, analytic functions and data mining.

REDUCING RISK

In addition to reducing cost and improving access, Oracle HTML DB will ultimately reduce your exposure to risk through consolidated administration of backups and access control. One of the main risks of managing critical information using personal productivity software is data loss. Data loss can be caused by several events:

- **Hardware or software failure.** The more machines you

- **Attacks by viruses or worms**. Personal computers are subjected to viruses and worms at least a few times per year. When a virus is destructive and deletes files from a hard disk, there is usually no way to recover lost data.

- **Theft.** Spreadsheets and personal databases are easily attached to an email or copied to some for of removable storage, making it trivial for someone to steal data.

Safeguard your Data: Put Professionals in Charge

Having data scattered across your organization makes it nearly impossible to prevent data loss, since regular backups are unfortunately not part of every employee's routine. By consolidating data into fewer databases managed by professionals, you guarantee regular backups. In addition, centrally managed databases allow for consolidated security and auditing policies to be enforced.

CONCLUSION

In this paper, we've examined how making personal productivity software part of your organization's information management infrastructure has associated costs and risks. Oracle HTML DB uniquely enables you to build applications for the web just in time, without putting practical constraints on the size of the deployment audience or the level of sophistication you can incorporate into your applications.

Providing web access to data that's currently scattered throughout your organization will save you time. Consolidating the development and deployment of applications currently built using spreadsheets and personal databases into a few databases, managed by professionals, will reduce the cost of your IT infrastructure while at the same time reducing your exposure to risk of data loss.

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