

Saving Operating Dollars Using IAM, BPEL and DRM

SAVING OPERATING DOLLARS USING IAM, BPEL AND DRM

A WHITE PAPER

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EXECUTIVE SUMMARY

This paper describes how an enterprise can save significant amounts of recurring operating dollars, improve productivity, offer new services and improve on security by rethinking the enterprise's business processes using BPEL (Business Process Execution Language), IAM (Identity Access Management) and DRM (Digital Rights Management). The paper uses a practical business process example to illustrate the benefits.

INTRODUCTION

A new revolution is taking place in the world of business. The revolution is how business processes can work differently than in the past. Today, it is relatively easy, using off the shelf business products from companies like Oracle and Adobe to:

- Rethink business processes within an enterprise and between enterprises to reduce time and costs
- Use digital rights management to ensure the documentation involved in the business process is legally acceptable
- Provide strong security for the entire business process by utilizing identity access management and digital rights management

The revolution uses three components:

- IAM – Identity and Access Management
- BPEL – Business Process Execution Language
- DRM – Digital Rights Management

It can be applied to almost any business process. To illustrate this, we'll use a purchasing example. The example will describe each component.

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PURCHASING BUSINESS PROCESSES

A company has business processes for purchasing parts. In the past, the processes took a lot of time and paperwork to complete. The processes required high labor input. Budget approvals would be required by managers, then purchasing would be involved in preparing RFQ's, which would then be faxed or emailed out to suppliers. The responses would then be faxed or emailed back, requiring someone to review the responses, select the supplier and then issue a purchase order. Now let's look at a new way of doing business.

The company reviews the process for buying parts. The business process is first mapped out using BPEL (Business Process Execution Language). This is a globally recognized protocol allowing business processes to be defined using web services (http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=wsbpel).

Web services are the ability to operate cross-platform and cross-application without having to recode and develop new API's. Web services are open protocols (http://www.oasis-open.org/committees/tc_cat.php?cat=ws). They use XML documents and internet protocols which all major suppliers now support.

Oracle has a BPEL server that allows you to graphically lay out the business process and define the interactions with different applications and databases as well as provide for human interaction where required and monitoring capabilities for the different components. The skills required could be performed by most business analysts>

In this business process, the enterprise decides that the parts buying can be initiated manually in some instances and generally automatically when parts levels reach a certain depletion level. They also define the budget approval requirements for different parts orders. Below certain levels, no management sign off is required, at other higher levels line management sign off is required, and at even higher levels, line and senior management sign off is required.

The enterprise business process must integrate with its ERP for both management approvals and for parts database queries. The ERP data store is Oracle. The parts data stores involved are a Microsoft SQL and IBM DB2.

Further, the business process must integrate with three preferred suppliers. Two of them are willing to use web services. This means they will use XML documents and have the infrastructure to have system to system interactions via the internet. The third supplier only is able to use email and faxes.

Time limits for the supplier responses are predetermined. If the supplier doesn't respond in a given time, then in most cases the supplier is dropped from consideration. A manual override process is also desired for exceptions.

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Next the enterprise determines the digital rights management requirements for the documentation. They will use Adobe's Live Cycle. This is a product that utilizes the enterprise directory for determining who can view and edit the documents. They also will use digital signatures for line and senior managers who will be approving the documents.

The two suppliers who are using web services also agree to use Adobe and will provide digital signatures on the documents. Document version control will also be controlled by Adobe LiveCycle.

Finally, the security requirements for the business process are then considered. Only certain line managers and their senior managers can be involved in approving the budget, RFQ's (Request for Quotation) and PO's (Purchase Orders). These policies are defined in the identity access management and the digital rights management systems.

Further, the two web service suppliers also provide identities who can respond. Since the supplier's staff can change, roles are defined for the supplier allowing anyone with a certain role to be allowed to digitally sign the documents. This will be used to check the documents at the enterprise firewall and allow them inside the enterprise.

With all the homework done, the enterprise deploys the business process. The two parts databases (DB2 and Microsoft SQL) are routinely queried by the BPEL server at predetermined times. When inventory levels drop below certain levels, BPEL makes some decisions. It does calculations to determine budget requirements.

If they are below the lowest levels, it then sends a message to the ERP requesting an RFQ number and states the amount required.

The ERP then constructs the RFQ using Adobe. It sends the RFQ to the BPEL server along with the names and contact information for the suppliers.

BPEL takes the RFQ Adobe documents and then sends them out to the two suppliers who use web services. The documents are checked at the enterprise firewall to determine if they can leave the enterprise. The identity access management system (IAM) sees that this is an application sending the documents and not a human identity. It then checks to see if the application is approved to send the document. Since it is, the IAM then allows the documents to leave the firewall.

The web service at the suppliers receives the documents. The advantage to the suppliers for using the web service is that it doesn't matter what operating system and application programming language was used by the enterprise sending them the documents. Web services offer inter-platform and coding language interoperability.

The suppliers web service sees that the documents are encrypted using the enterprise's private key. They use the enterprise's public key to decrypt the documents automatically and then proceed with their internal processes to provide the quote.

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Meanwhile the BPEL process has recognized that the third supplier requires a fax. It sends the RFQ documents to a fax machine and the documents are sent out to the supplier.

The two suppliers using web services send back their quote using Adobe. The Live Cycle ensures that version control is in force on the quote and that only the supplier can make changes to the electronic document. The supplier's digitally sign the quote with their private keys. The quotes are then encrypted and sent to the enterprise.

When the documents arrive at the enterprise firewall, the enterprise determines the security policies for the documents. It sees that the documents are being sent to the ERP application. It determines if the ERP application is acceptable for receiving the documents and let's them enter the firewall.

BPEL takes the documents and decrypt the documents using the suppliers' public keys. It then passes the documents to the ERP. When the fax arrives from the third supplier, BPEL sends this to a certain role within the enterprise for consideration.

The person playing the role then makes the purchase decision and selects the supplier. They then commence cutting the purchase order within the ERP.

The ERP then cuts a PO. This is converted to an Adobe document. It is digitally signed by the person approving. The document is then encrypted is then sent by the BPEL server to the successful supplier.

In other instances where the budget amount is higher, BPEL then determines that senior management approval is required. It sends an email form request to the line manager requiring them to approve the budget request. When the line manager has digitally approved the document, BPEL then sends the electronic form to the senior manager for approval. When the senior manager digitally signs the document, BPEL then proceeds to execute the RFQ.

The business process also has exception capabilities. So, if a PO has to be revised, BPEL monitors the process, requiring line management and/or senior management approvals if required. Further, the revised PO is controlled by the digital rights management in Adobe LiveCycle. Only certain roles are able to edit the document. Version control of the document is controlled.

Finally, the business process also allows for RFQ requests to be initiated manually. When this occurs, the line manager must initiate the request. They fill in an electronic form and digitally sign the form. Depending on the budget amount, BPEL will either commence the RFQ process or, if the amount is over a pre-set limit, takes the form and submits it to the senior manager for approval before initiating the RFQ process.

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BENEFITS

The benefits illustrated in the above example are:

- Automated many parts of the purchase process
 - Reduces labor costs
 - Reduces time to complete the purchase
- Could totally automate some processes
 - In the example above, if the budget request was within pre-set limits allowing for automatic pre-approval and, if all suppliers used web services, the enterprise business process could occur without any human intervention. BPEL would select the lowest price supplier and the ERP would create the PO which BPEL would then send out to the supplier
- It was cheap to install web services for the suppliers
 - Off the shelf software incorporated into most suppliers products
 - Didn't matter what operating system or application coding was being used by the enterprise (XML and IP eliminate the compatibility problems)
- Enforced approval levels automatically
 - Used the identity access management system, combined with the ERP and DRM to determine who could approve the documents
 - BPEL coordinated the process by sending the forms and letting the ERP handle most of the internal work
- Used strong security
 - Digitally signed management signatures where required
 - Encrypted the documents being sent over the internet to the suppliers
 - Enforced document security at the firewalls
 - Enforced security policies at the firewall to make sure that the applications involved could send the documents out of the firewall
 - Enforced security policies at the firewall to make sure the suppliers were able to receive and send in documents
- Allowed for manual exceptions
 - BPEL provided a way for manual exceptions to be made
- Version control used on modifications of documents
 - Used DRM version control to control the security over the purchase order changes ensuring that only certain roles within the enterprise could make the changes
 - Supplier's also could use version control if the enterprise required them to change their bids
- Used off the shelf products from Oracle and Adobe to set up the process quickly
 - Oracle's BPEL server
 - Adobe's LiveCycle
 - Oracle's Identity (Identity and Access Management)

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CAN BE APPLIED TO MOST BUSINESS PROCESSES

What is very important to note is that BPEL, DRM and IAM can be applied to almost any type of business process. Human resources, finance, manufacturing, sales, marketing, etc. are all applicable.

It doesn't matter within the enterprise what kind of data stores are involved. It could be DB2, Oracle, Microsoft or whatever. BPEL is a coordinating protocol. It can create queries to any data store.

It doesn't matter the underlying operating and application systems you're using. This cuts down development costs and time to implement. Most suppliers' products now support XML.

Digital rights management is now coming of age. Adobe LiveCycle provides the enterprise with the ability to control who creates documents, digitally signs the documents, who can view and/or edit the documents and provides version control. It seamlessly integrates with the enterprise directories and identity management systems.

Oracle's Identity Manager provides complete identity and web service access management. It offers enterprises policy control and enforces it at the firewalls. It also offers identity and application identity services.

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CONCLUSION

The recurring operating dollar savings from deploying BPEL, IAM and DRM are significant. Together they offer the enterprise:

- Ability to lower labor costs
- Dramatically improve productivity
- Enforce enterprise security standards
- Provide a legal electronic document trail
- Work quickly with other enterprises.

BPEL, IAM and DRM also leverage existing infrastructure. Most enterprises now have enterprise directories and identity and access management systems. Oracle is an industry leader in the identity and access management space.

Almost all enterprises are currently using Acrobat reader and Adobe PDF documents. LiveCycle can be added at a reasonable cost and quickly implemented within 30-90 days.

Most enterprises also have limited PKI ability. This allows them to digitally sign the documents.

The cost of deploying BPEL servers is very reasonable. The time to deploy new business processes can be on the order of 30-90 days.

The infrastructure described can be used for almost any business process internally within the enterprise and between the enterprise and its suppliers, suppliers and business partners. Further, BPEL can also be integrated into customer and CRM related business processes.

For additional papers covering specific benefits to different enterprise roles as well as examples:

- [“Six Reasons the COO Should Be Interested in BPEL, IAM and DRM”](#)
- [“Rethinking HR Business Processes”](#)
- [“Rethinking Corporate Counsel Business Processes – An Example”](#)
- [“Five Reasons Why Corporate Counsel Should Rethink Their Business Processes”](#)
- [“The Challenges With Using BPEL”](#)

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For more information on the components used in this example:

- Oracle Identity - <http://www.oracle.com/products/middleware/identity-management/identity-management.html>
- Oracle BPEL Server - http://www.oracle.com/appserver/bpel_home.html
- Adobe LiveCycle - <http://www.adobe.com/products/server/policy/>

ABOUT THE AUTHOR:

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