

Offering Seamless Cross Application Business Processes using Oracle Application Integration Architecture

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Offering Seamless Cross Application Business Processes using Oracle Application Integration Architecture

EXECUTIVE SUMMARY

This paper explains how Oracle enables cross application business processes today with Oracle Application Integration Architecture. Using a combination of industry leading middleware and best in class applications, Oracle provides business processes that bridge traditional operational silos, increasing cost effectiveness and decreasing cycle times. By providing customers with pre-built integrations and ongoing support and enhancements on these integrations, Oracle has reduced the time, complexity, and cost of implementing and deploying industry best practice processes that connect and optimize business operations.

INTRODUCTION

This white paper will demonstrate why there is a need for Oracle Application Integration Architecture. It will outline how, using a combination of Oracle Applications and Oracle Fusion Middleware, Oracle delivers adaptive industry processes today. It will also cover what the Application Integration Architecture is, how it enables best of breed application integration, and how Fusion Applications enable the Application Integration Architecture.

BUSINESS-IT BOTTLENECK

In the last several decades, many companies automated core business functions such as accounting, human resources, and customer service using application software from ERP, CRM, and supply chain vendors such as Oracle, Siebel, SAP, and PeopleSoft. Despite a worldwide investment totaling over \$100 billion in software alone, most companies still have an increasing application backlog – in other words, a greater business demand for application functionality than the IT capacity to fill it. There are three key reasons for this:

1. **Lack of industry specific functionality.** While today's CRM and ERP suites did an excellent job of satisfying basic requirements, they often lacked the specifics for strategic business tactics such as multi-order channel management in retail, provisioning in telecommunications, and account origination in financial services. This means that companies have

had to continue to augment standard solutions with niche industry solutions or custom developed applications, increasing demand for IT services.

2. **Complex, custom integration.** While an increasing number of industry applications can be purchased commercially, the integration between them is still an expensive customer development challenge. Different systems for different product lines, business units, or geographies further complicate integration needs. Worse, much of this integration must be rebuilt with each change to the underlying applications, thus reducing IT productivity.
3. **Limited overall process coordination.** While most ERP and CRM programs do an excellent job of collecting information within a process, many do little to facilitate work across steps, such as managing exception processing or coordinating orders across locations. This means that much of the critical business coordination happens outside of traditional CRM and ERP applications in custom-built middleware solutions, again increasing complexity and costs.

At the heart of all of these reasons is the need for adaptability – to change business logic, integrations, and processes as the business changes – with an architecture and support structure that allows these changes to be made in business time.

Breaking through the business-IT bottleneck requires a new type of application, one that is industry-specific, includes packaged integration to common applications, and manages end-to end business processes – not just application data – using a state-of-the-art platform that can adapt as the business changes.

Bundling Products in Telecommunications

To understand the types of solutions that Oracle is delivering, it's helpful to look at an example. One industry looking at a dramatic change in the way it delivers products and services is telecommunications. Why does it need to change? Fierce competition is the simple answer: the telecommunications industry is facing competition from all sides. Not only does the internet and cell phones take away from the traditional bread and butter of land lines, but increasingly, the consumer can use their high speed internet connection in conjunction with Voice Over IP for local and long distance telephone calls. Bundling products and enabling customers to manage these products in a more seamless way can give telecommunications companies a differentiator from their niche competitors. These companies need to offer cell phones, land lines, DSL, and satellite TV at an attractive price on a single, unified bill. They also must be able to change the offer, for example, by adding a higher speed DSL or an upgraded phone, when competition dictates, not when the IT systems can support it.

Unfortunately, it's not as easy to bundle products as many people think. First, as all large companies do, telecommunications companies have a diverse IT

infrastructure. Each geography and product line often has its own systems for customer acquisition, customer care, fulfillment, and billing – yielding a complex environment of tens to hundreds of disparate systems. This is compounded by industry consolidation, bringing in additional systems and business processes that must be rationalized, consolidated, and integrated.

How can products be bundled when telecommunications companies are running multiple systems to handle fulfillment, billing and customer service? The answer is that it's possible, but it takes a long time and significant effort. Companies often spend many man years defining and documenting business processes like bundling, and then spend months integrating each additional application to work seamlessly on a given customer order, all while keeping the business running on the underlying systems.

Solution: Oracle Application Integration Architecture

Oracle Application Integration Architecture provides the foundation for adaptability within a business process. Oracle Application Integration Architecture includes all of the required components to create cross application business processes – including industry-specific end-to-end business processes and pre-packaged integration.

- Industry best practices. Oracle intends to offer pre-packaged and documented best practices on an industry basis that enable firms to optimize their business practices. The core aspect of these is Industry Reference Models. These are the models that outline what are the best practice processes for the industry along with how Oracle applications behave within this context. It also includes standard Enterprise Business Objects and Services that enable these processes.
- Sustainable integration. Through the use of technology and abstraction, Oracle provides sustainable integrations that can be implemented quickly and extended and upgraded over time. Oracle will support these integrations, and ensure that they will work with new versions of the underlying applications. The resulting integrations will last as the IT landscape evolves.
- Best in class foundation. Unlike other application vendors, Oracle's technology stack is a leader in its category; ensuring customers that their infrastructure offers the industrial strength technology needed to run their modern IT departments.

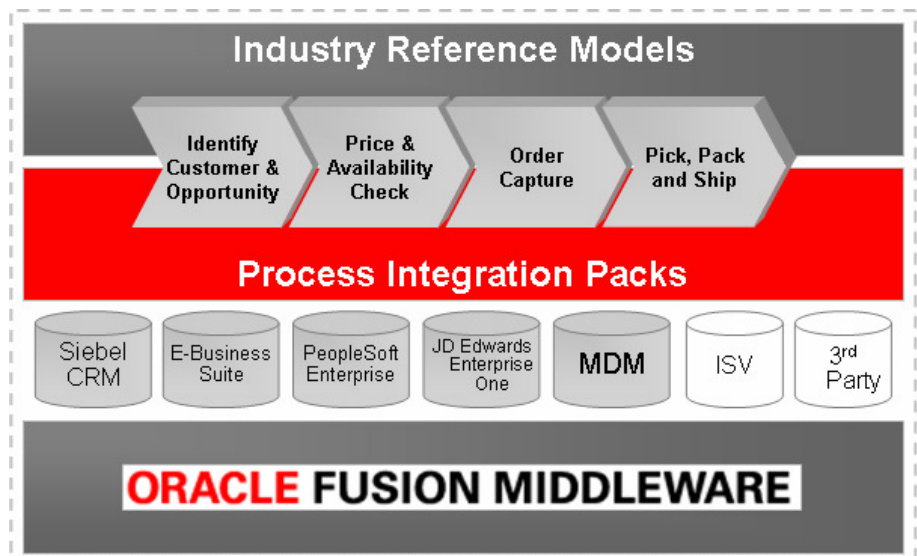


Figure 1: Application Integration Architecture

Industry Best Practice Processes

The key challenge for many businesses is making connections across departments, business units, and lines of businesses, to seamlessly deliver value to the customer. While some of these processes are fairly standardized, most require in-depth industry expertise to handle specialized processes and data that makes selling widgets different from selling biscuits or enterprise software. Without industry-specific functionality, companies must spend years modifying software and business processes and creating new integrations, negating many of the advantages of a packaged solution.

Oracle is in a unique position to satisfy the requirement for packaged industry processes, as the provider of many of the best in class industry solutions that comprise the underlying business processes. For example, in telecommunications, Siebel's industry-optimized customer service can now be linked to MetaSolv's Operational Support system (OSS) and Portal Software's billing solution – creating a more seamless customer experience from new product introduction and fulfillment to ongoing customer service and billing. These applications – often outside of today's ERP and CRM footprints – provide the industry-specific brains that make standard functions like human resources or accounting more effective. By bringing Oracle's knowledge of specific industry processes together with integrated CRM and ERP applications and best in class middleware, Oracle offers a more industry-optimized total application solution. In the near future, Oracle intends to deliver a set of packaged process-driven integrations based on this and other targeted industries.

Industry Reference Models

At the core of industry best practice processes are Industry Reference Models. Industry Reference Models are a logical representation of the key business

processes of an industry, along with a logical data model of the key information collected and used by each of the processes. Oracle's Industry Reference Models will encompass several levels of each industry process. The top level (level 0) outlines the key processes within the industry, listing all the key steps required for the industry, such as Order to Activation or Customer Care for the telecommunications industry. Oracle works with customers, industry experts, and partners to determine the top level of processes to describe.

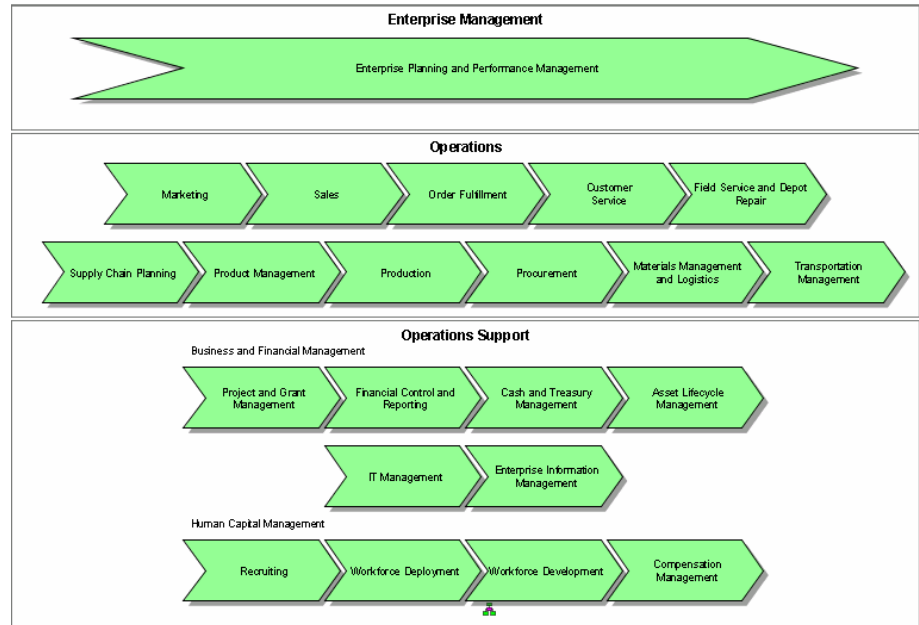


Figure 2: An example of an Industry Reference Model, level 0.

From there, a drill down to the level 1 model shows the steps in the business process. For instance, the level 1 model shows all of the steps required in the level 0 Order to Activation process. These are decomposed into several steps, including capturing the sales order, and configuring the service.

Further drill down is possible to level 2 models. These models show the activities in the business process and how they are linked. This stage is quite detailed on what the steps are. The service configuration step includes activities such as finding inventory, assigning the phone number, and determining the IP address.

The final drill down (level 3) provides the application touch points and the integration flows to show exactly how the application works along with the integration flows.

Industry Reference Models enable firms to see where they are in terms of industry best practices. It provides a head start in documenting processes (the first step in improving them). In addition, Industry Reference Models highlight areas where firms should consider adopting best practice processes.

Sustainable Integrations through Process Integration Packs

Over the years, IT departments have struggled with integrations. Integrating applications is difficult, costly, and are prone to breaking. Packaged integrations reduce the cost but can still be prone to fragility. Oracle is raising the bar, by offering sustainable integrations through Process Integration Packs. Process Integration Packs provide the run-time process flows between applications. They include the business logic, business process execution language (BPEL) process flows, web services, business rules, and so on, that bind the applications together to create a seamless process. Due to Process Integration Pack design and the use of Enterprise Business Objects, they don't break across upgrades or when new applications are inserted into the mix. In addition, Process Integration Packs come with the full resources of Oracle support, with maintenance and upgrades to protect the value of your integrations over time. This is what makes them sustainable.

“BPEL is the future of the integration space in my view... Why? Because the value is so much higher when you provide not only a way to integrate applications, but also a way to create services from them and put them into business processes.”

— John Rymer, Vice President
Forrester Research.

But how do Industry Reference Models relate to Process Integration Packs? While level 0, 1 and 2 of the Industry Reference Models provide details on how the industry should run, level 3 of the Industry Reference Models actually model detailed application functionality. At level 3 of the Industry Reference Models, specific task flows and detailed analytics for the task and integration points are outlined. This directly corresponds to the behavior in the Process Integration Packs. In essence, the Industry Reference Models provide the design of Process Integration Packs.

Enterprise Business Objects Enable Sustainability

Enterprise Business Objects and Services are the single most important part of Application Integration Architecture, offering the core of sustainability. Enterprise Business Objects (EBOs) are a generic representation of a business object such as customer, sales order, invoice, etc. Enterprise Business Objects are used within the Process Integration Packs to determine the content of services. Oracle has a rigorous methodology to produce such objects.

The first step in that methodology is to look at standards, such as Open Applications Group and UNIFACT along with industry standards such as TeleManagement Forum's Shared Information/Data Model. These are standard bodies that focus on defining what a business object should be. In the second step, Oracle takes the definition and compares it to our applications. This step is a must, as each application grew up organically to meet the needs of the customer and in doing so, may require and support concepts not yet incorporated into the base of the standards. All of the application teams (Siebel CRM, JD Edwards EnterpriseOne, PeopleSoft Enterprise, Oracle Transportation Management, Oracle Retail, etc.) then provide input.

“Oracle has a long track record of supporting open standards, including our standards initiative, which Oracle helped found in 1994.

Standards save money, reduce risk, and provide investment protection for customers.

The use of standards within Oracle's Application Integration Architecture will help provide investment protection.”

— David Connolly, CEO
Open Applications Group.

Finally, a mediating committee weighs the input and circulates the document for a final review. By using this process, Oracle ensures that the starting point of the EBO is robust and well defined.

Enterprise Business Objects and Enterprise Business Services (EBSs) provide the foundation for sustainability. (An EBS is a web service implementation of the EBO.) By representing the contents of the EBO generically, and then mapping all applications to the EBO structure, sustainability is provided in three ways.

First, the number of mappings is reduced. Customers only need to map to the common definition, not all possible participating applications. A reduction in number of maps increases time to value and reduces maintenance. This enables a dramatic drop in the time IT spends on maintenance, freeing them to spend more time on new business projects.

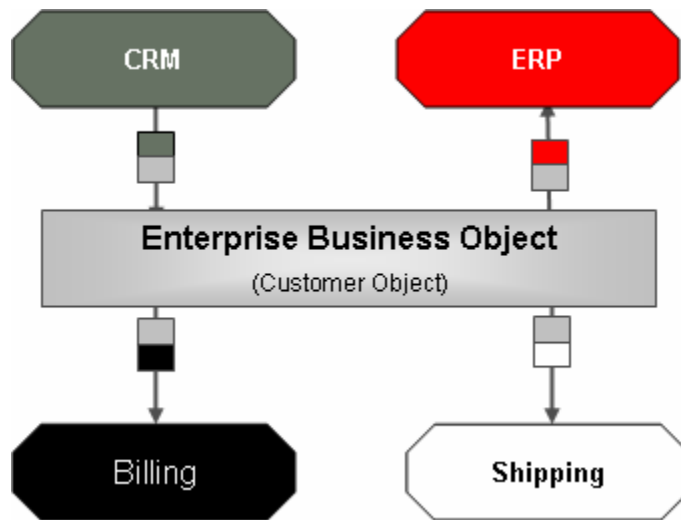


Figure 3: A visual depiction of how an Enterprise Business Object connects applications

Secondly, another important aspect is the ability to plug in different applications. Since the requester of the application functionality is shielded from the other side, it's easy to switch out applications or even have multiple systems offer that functionality. This means that flexibility is increased, as customers can change the integration without fully recoding it. The value of the Process Integration Packs can be realized even if Oracle Applications are not used.

Finally, the EBOs help protect investments during an upgrade. By mapping to an EBO, when an application is upgraded, the mappings can be used to connect the new application into the existing integration. Thus, the integration survives an application upgrade.

Connection to Oracle Applications

As mentioned above, the Enterprise Business Objects and Services are independent from the Oracle Applications, allowing companies to use them with a variety of packaged and custom built applications. But they are connected. The

connection of Oracle Applications to Enterprise Business Services will be provided as exposed web services from Oracle Applications. These web services are based on the business activities to be supported rather than by the legacy APIs of each application.

In comparison to traditional web service enablement, which is typically taking an API and putting a web service wrapper around it, right-sized services provide service accessible functionality at a natural level for web services – such as “create customer.” They are not so granular that requesting applications have to stitch together calls to make an API. With legacy APIs, an action like “create customer” might involve a series of more granular calls to determine if the customer exists, to add or update the customer and related (such as install base) records, and to add any cross reference information. By right-sizing the underlying web services, Oracle helps ensure that the resulting business processes are efficient and optimized for each underlying application.

These web services, whether exposed natively or through an adapter, are then transformed and connected to the Enterprise Business Services in the Application Business Connector service (ABCs). An ABC is a service that runs in Oracle Fusion Middleware, which provides for mapping and cross referencing to Oracle Applications.

These right-sized services are not limited to use in Process Integration Packs. The services for each application are available to all customers, and can be used for custom developed integrations as well. The services can also be extended to add business-specific logic or other processing. These services will be discoverable through the use of the Business Services Repository, which is the repository for all Oracle application services.

Built for Adaptability

Industry-specific business processes and packaged integrations help break the business-IT bottleneck by decreasing development time and reducing maintenance costs. However, Oracle recognizes that not all firms can use the core version of the delivered objects. Therefore, Oracle intends to design Industry Reference Models and Process Integration Packs for flexibility. Companies can change a process, add fields to an Enterprise Business Object or customize Industry Reference Models. To ensure that these changes are made in a sustainable way, Oracle also provides a methodology and extension framework. This allows customers to ensure that each process is optimized for their specific environment, without sacrificing future upgrades and support.

The architecture ensures that the extensions require very little coding. Instead of coding for a change in behavior, configurations can be adjusted to change behavior. This is a declarative development paradigm, which focuses on options, or configurations, as opposed to writing code. The configurations control the behavior of the Process Integration Pack, allowing users to change behavior – such

as order routing – by changing data values rather than by complex programming. This results in faster time to value, since less effort is required to meet custom needs. In addition, the data elements in Enterprise Business Objects can be extended to account for industry or custom requirements.

Furthermore, since extensions require minimal coding, they are more easily upgraded. For instance, the use of configurations instead of coding enables the creation of conversion tools that can move those configurations to the new version. This means that extensions will have the capability to move forward, as the integration is upgraded.

Best in Class Foundation

Oracle is uniquely positioned to deliver Application Integration Architecture. It's the only vendor to own both industry leading applications and middleware. Application Integration Architecture leverages the unique capabilities of each to create cross application business processes.

Oracle Fusion Middleware is the world's fastest growing family of middleware solutions, spanning from SOA, portals, and process management, to application infrastructure, identity management, content management, and business intelligence.

This comprehensive and well-integrated family of products offers complete support for development, deployment, and management of Application Integration Architecture. And because maximum uptime is good for business, the unbreakable qualities of Oracle Fusion Middleware's core technology minimize the disruption of planned or unplanned outages, keeping Process Integration Packs running.

Foundation for the Future

Not only does Application Integration Architecture offer a platform for customers to derive value today, it also offers them a path forward. Application Integration Architecture is a product customers can adopt to get to Fusion Applications:

1. **Processes and Models.** The models and industry processes will serve as the foundation for Fusion Applications.
2. **Architecture.** The Application Integration Architecture uses key elements that will make up Fusion Applications. Investments in this architecture will continue to offer value with Fusion Applications.
3. **Fusion Applications Application Compatible.** With the release of Fusion Applications, Oracle intends to make sure that Fusion Application modules can be plugged into Application Integration Architecture, enabling customers to upgrade to Fusion but retain their investments. Customers can be assured that investments in Application Integration

Fusion Middleware ranked as Leader
in the following Gartner Magic Quadrants

Application Platform Suites
Development Tools
Application Server
Web Services Platform
Enterprise Portal
Business Integration
Identity Management
Web Services Management
ETL Data Integration

Architecture will continue to have value even after they adopt Fusion Applications.

WHAT NEXT?

This paper has shown what Oracle Application Integration Architecture is and how it works. From Industry Reference Models to the Enterprise Business Objects, the value is clear. Customers can use the Industry Reference Models to optimize their business with industry best practice processes. Enterprise Business Objects and Services reduce maintenance costs and allow other applications to plug into the pre-built integrations, offering sustainability. Finally, it has shown how Application Integration Architecture provides a start towards moving to Fusion Applications.

But what can you do today to start to get value?

1. The first step is to learn more about Application Integration Architecture. Start by visiting <http://www.oracle.com/>
2. Model business processes using the Industry Reference Models when available.
3. Implement Process Integration Packs. These will automate processes across current applications today, and deliver seamless mission critical business processes.
4. Extend value by developing custom integrations using Application Integration Architecture.



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