



Powering the Customer Driven Enterprise

The State of the Art in Fulfillment System Technology



...how does an executive know that the firm delivers exceptional customer experiences?

About Jagged Peak:

Jagged Peak is a technology company that powers the customer-driven enterprise by providing Information Services and Software Solutions that enable companies to effectively optimize and manage business processes related to E-commerce, supply chain management and order fulfillment logistics.

Jagged Peak's flagship application is EDGE (Enterprise Dynamic Global Engine), a web-based solution that sits at the "edge" of the enterprise in the Internet cloud. EDGE enables companies to immediately expand the efficiency and range of their B2B, B2C & B2I transactions, in a self-service, on-demand environment. EDGE quickly and easily integrates across organizational boundaries, uniting software, hardware and broadband connectivity through a distributed architecture with an open and flexible interface to multiple and varied data sources and destinations.

An integration interface at the heart of EDGE enables it to communicate with essential internal and external legacy, ERP, SCM, IMS, WMS and CRM systems in your organization and, at the same time, aggregates orders from all of your sales channels. EDGE consolidates all of this data and, responding to the business rules and user profiles you set up, funnels it back out to your specific user groups through Web portals where data can be presented in a customized manner.

We invite you to read this white paper and consider Jagged Peak's capacity to improve your E-commerce, supply chain and order fulfillment processes.

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Introduction

Direct Commerce Order Management and Fulfillment Solutions (OMFS) have been in a near-constant state of evolution since they were first brought onto the market by catalog companies in the mid-1970s. This evolution shows no signs of slowing, and currently presents anyone searching for software with a bewildering array of choices.

Adding to the confusion are two other significant factors:

- 1) There is no generally accepted group of functions that must be included for a package to qualify as an OMFS application, and
- 2) There are also no generally accepted standards for OMFS functionality within each type of application

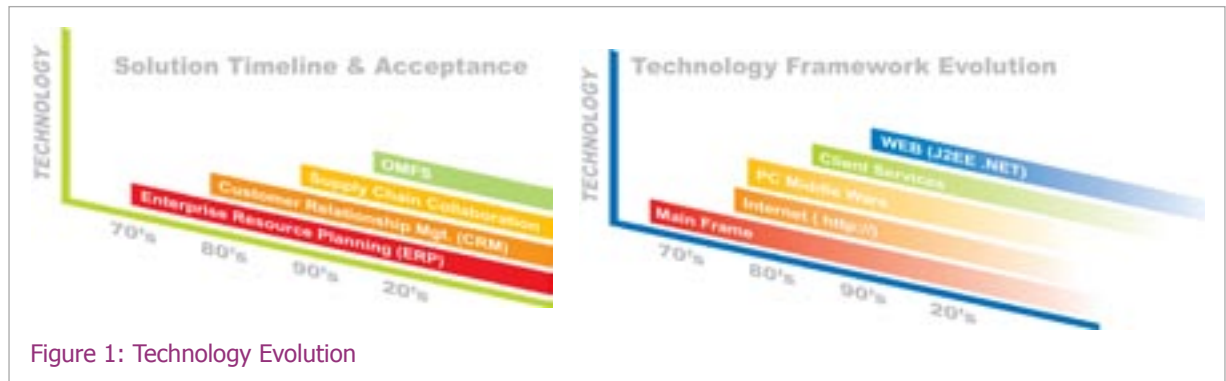


Figure 1: Technology Evolution

Basic Functions

With regard to the first point, the basic functions required for any system to qualify as an OMFS are:

- Order entry/order capture
- Order management
- Transaction and payment processing
- Inventory management receiving and put-away
- Purchasing
- Order fulfillment and returns management
- Customer database management and profiling
- Customer service and interaction management

It is no coincidence that these are the same basic functions that are required to manage a catalog business. They were the essential elements that catalog companies programmed into their own in-house solutions in the 1970s, when mini-computers were first introduced and it became possible for mid-size companies to own their own computer hardware (such as the HP3000, the IBM System 32, or the DEC Vax).

Of course, at that time there were no “packaged” application programs available, at least not any that were as complex as those required to run a catalog business. So some of the pioneering catalogers wrote their own solutions, and it never occurred to them that these should be assembled from customer-focused or inventory-centric sub-systems. It was all one business, so it should be all one system. There were customer management and inventory management components, to be sure, but these were both brought together

in creating an order, and it was in order management that these systems excelled.

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Having invested several million dollars in writing their own systems, many of these same pioneers then spun off software marketing organizations, or sold the rights to their system to a software marketing specialist.

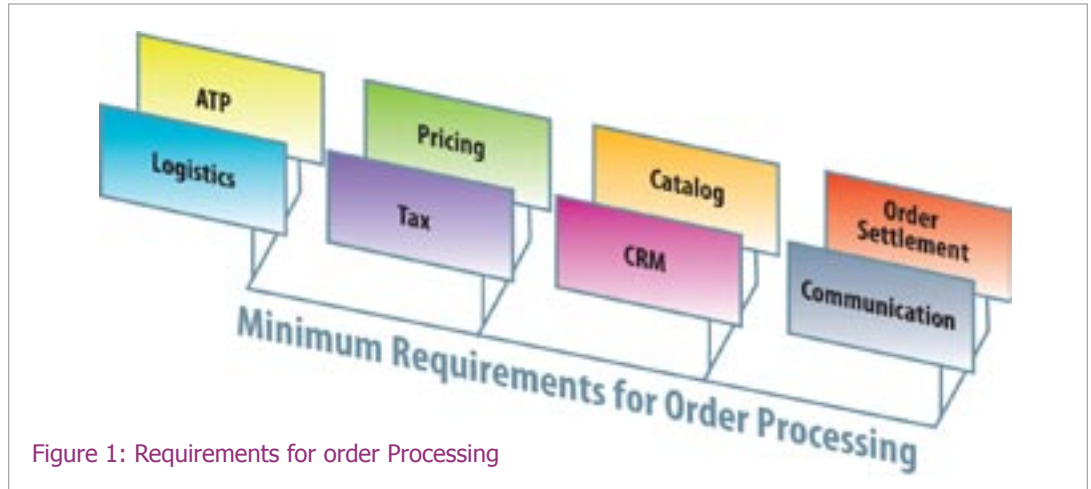


Figure 1: Requirements for order Processing

The Gold Standard

For the next twenty years, the "gold standard" in OMFS were systems that met the basic functional requirements established by the catalog pioneers. Even when microcomputers and PC software emerged as sound enterprise options in the early 1990s, the same model applied.

Yet notwithstanding the consensus in functionality, there remained no consensus regarding how even very basic functions operated. For instance, some systems permitted assigning promotional source codes at the line-item level on an order, while others did not. Similarly, some systems supported assignment of a different ship-to name and address for each line item, while others did not. On issues as fundamental as when and how line items are allocated, there was not only no consensus but no agreement on the definition of such distinctions as "hard" allocations versus "soft" allocations -- and most systems did not even bother with that distinction at all!



Figure 3: OMS Best Practice

Point by point, issue by issue, the three dozen OMFS systems all covered more or less the same ground, but each very much in its own fashion.

The Impact of E-commerce

It is no surprise that the advent of E-commerce shook the OMFS world to its core. There were several key factors in this transformation.

The first two factors were largely negative. First was the domination of early E-commerce initiatives by supply-chain oriented software enterprises. Even though the types of companies such systems were intended for had little to do with direct commerce, some of the labels applied to these types of systems, such as "sell side" or "buy side," became a dominant perspective for categorizing any type of order management application, including OMFS.

The second was the tendency of many new systems vendors to bolt together system modules from existing applications, in particular Customer Relationship Management and Enterprise Resource Planning solutions. Even though these types of systems don't have any order management functionality, they were perceived as appropriate building blocks for managing customers and inventory. While this did not have a direct impact on OMFS applications, it added confusion to an already murky systems environment.

But there were three much more positive influences, and these were ultimately even more revolutionary in their impact on the OMFS world.

Appropriate Technology

The first of these was the gradual acceptance of hosted solutions, or "Software-as-a-Service" (SaaS), as an alternative to licensed applications. Of course, this was based on the maturing of the Internet more than on E-commerce, per se. When SaaS was first introduced it relied on point-to-point Virtual Private Networks, but with the Internet as a backbone, the distribution of and access to hosted solutions became much easier to manage on a distributed basis. Indeed, within the last few years, SaaS has become one of the fastest-growing channels for software distribution.

SaaS has not yet been adopted by the majority of the OMFS players. Another positive influence, however, that of "Web services" and a services-oriented architecture has been much more widely-adopted within the OMFS field.

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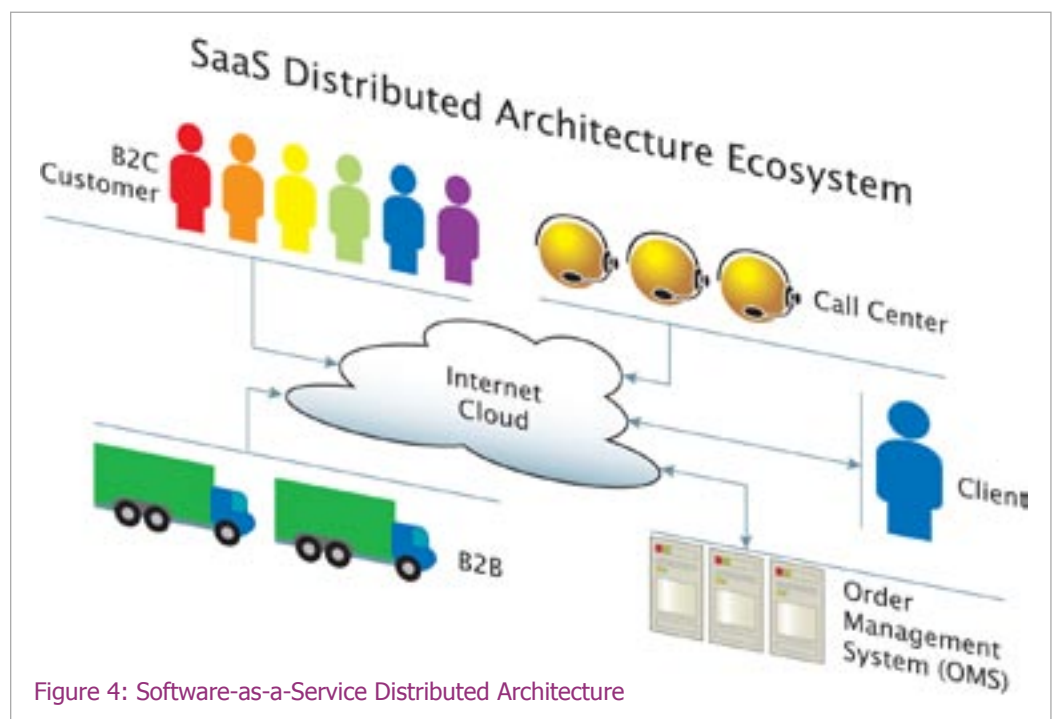


Figure 4: Software-as-a-Service Distributed Architecture

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Though popular as an option, SaaS has not yet been adopted by the majority of the OMFS players. Another positive influence, however, that of “Web services” and a services-oriented architecture has been much more widely adopted within the OMFS field. For the moment, most such implementations have been for utility features such as data look-ups or payment processing. But Web services have the potential for eventually encouraging a far more standards-based environment than ever before, particularly as part of a “componentized” systems architecture.

Finally, the introduction of “rules-based” system design in the last few years, influenced in large measure by services-oriented architecture, has had a major positive impact on OMFS software. It also offers some hope that there is a way out of the standards impasse; if each user can manage a rules-based system according to its own specific business rules, then virtually everyone wins.

Unresolved Issues

But there are still major unresolved issues in the OMFS field, chief among them whether an OMFS solution includes its own E-commerce platform. At the present time, most do not, but instead can be tightly integrated with any third-party E-commerce solution.

Accordingly, OMFS applications currently fall into four very large categories:

1. Licensed solutions without an E-commerce platform
2. Licensed solutions with an E-commerce platform
3. Hosted solutions without an E-commerce platform
4. Hosted solutions with an E-commerce platform

Some systems are available as either licensed or hosted applications, and although it somewhat defeats the purpose, one could bypass an integral E-commerce platform to integrate with a third-party E-commerce solution. Nevertheless, the four categories above are a reflection of the four separate directions that system users follow in looking for an appropriate application.

Appliances

The first generation of Order Management and Fulfillment Solutions were installed on proprietary mini-computers that the software vendor took responsibility for specifying, as they did for the installation of the system on the hardware. Coming full circle, we are about to see the advent of an “appliance” approach to OMFS, in which licensed applications are installed on open microcomputer-based hardware that the vendor installs at the user’s site.

Jagged Peak is on the leading edge of the appliance strategy. While we offer our EDGE system (Enterprise Dynamic Global Engine) in licensed or SaaS versions, we believe that EDGE as an appliance offers a rapid implementation path for companies that prefer a licensed systems option, and who want the flexibility of opting for a bundled E-commerce platform or of integrating with a third-party E-commerce solution.

“Essentially, EDGE excels not only as an Order Management and Fulfillment solution but as a Business Process Management platform,” says Schell.

Rules-Driven

Notes Ernie Schell, Director of Marketing Systems Analysis, and a leading consultant in the OMFS field, “The highly parameterized EDGE system from Jagged Peak is one of the most intensive rules-based order management and fulfillment suites of applications available today. This makes it easily configurable for rapid implementation, and lets users from a wide spectrum of vertical markets benefit from its array of configurable options.

“These same assets position it ideally for use by third-party fulfillment service bureaus, who have to ramp up specific functionality for new clients within tight timeframes.”

Centrally defined, fully configurable demand rules and user profiles enable EDGE to adapt to a wide variety of demand execution scenarios and collaborative business processes, with support for many-to-many relationships. You apply the business logic necessary to determine what information your various constituencies can see and access, including identifying the individuals within your organization who will manage selective aspects of your operations and data.

Special Strengths

Some of the special strengths of EDGE, which according to Schell are not widely available in the OMFS field, are:

- Multi-source order processing (B2C, B2B, B2I)
- Complex kit management, for both products and literature fulfillment
- Digital asset and catalog content management
- Sophisticated template-managed item personalization
- Continuity and subscription fulfillment and renewals
- Membership management

Schell further notes; “The highly parameterized EDGE system from Jagged Peak is one of the most intensive rules-based order management and fulfillment suites of applications available today.”

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By using appropriate, scalable, open relational database technology our users are able to create and employ database marketing on a global scale. Our multi-layered security allows worldwide users, in turn, to control system access and behavior based on user role, so that all marketing activity can be carried out on a global scale, as well.

Integration Platform

While EDGE comprises a comprehensive suite of order management, customer interaction, inventory management and fulfillment modules, it is more than that. EDGE provides an all-important integration interface, allowing you to communicate with, integrate, and coordinate multiple internal and external legacy, ERP, SCM, IMS, WMS and CRM systems within and across organizational boundaries – regardless of platform, database, or programming language – and, at the same time, aggregates orders from all of your sales channels.

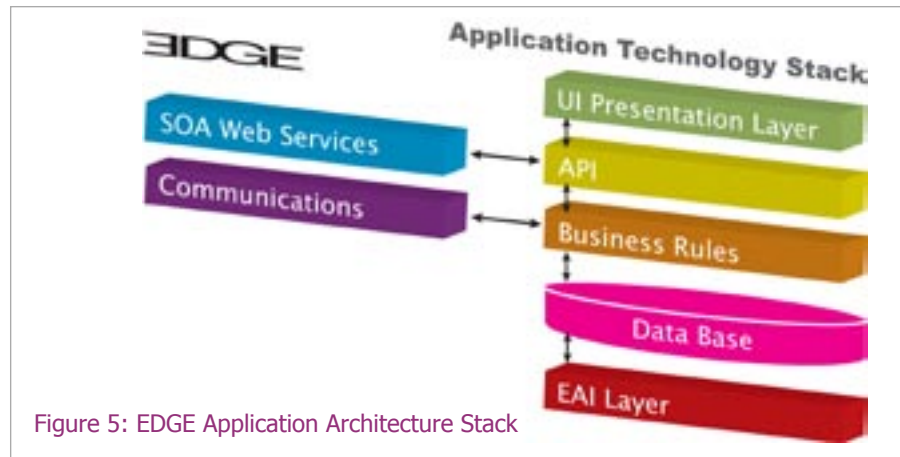


Figure 5: EDGE Application Architecture Stack

“That’s why EDGE will probably excel as an appliance,” says Schell, “the way the Cast Iron Systems Web-services integration appliance associated with Salesforce.com offers an extremely user-friendly and easy to implement integration platform. Since EDGE is much less expensive than Cast Iron, there is a huge up-side potential here.” With EDGE serving as a complete integration layer, you don’t need to invest in any other integration platform.

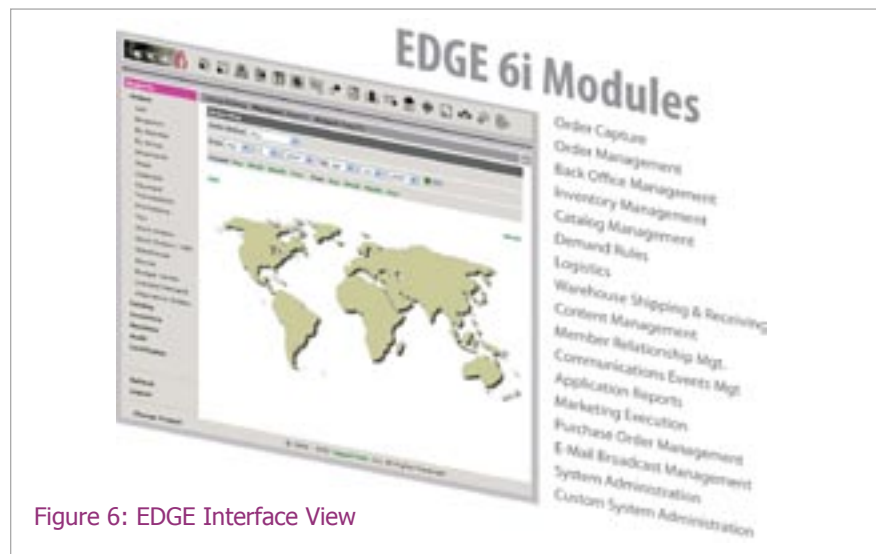


Figure 6: EDGE Interface View

Portal Management

EDGE allows you to consolidate all of your business data and, responding to the business rules and user profiles you set up, directs it back to specific user groups through Web portals where it can be presented in a customized manner.

External order capture portals can serve as branded customer or call center interfaces where catalogs can be viewed and orders placed. Using the internal EDGE direct portal, authorized users can view data and fulfillment activity, and can conduct administrative and management activities.

Once these variables are defined, marketers can publish as many Web portals as needed to support multiple user communities. These dynamic, secured-access portals can be linked to one or more real-time inventories to feed online catalogs displaying customized pricing and other content tailored to the needs of various users and marketplaces, with changes and updates in real time.

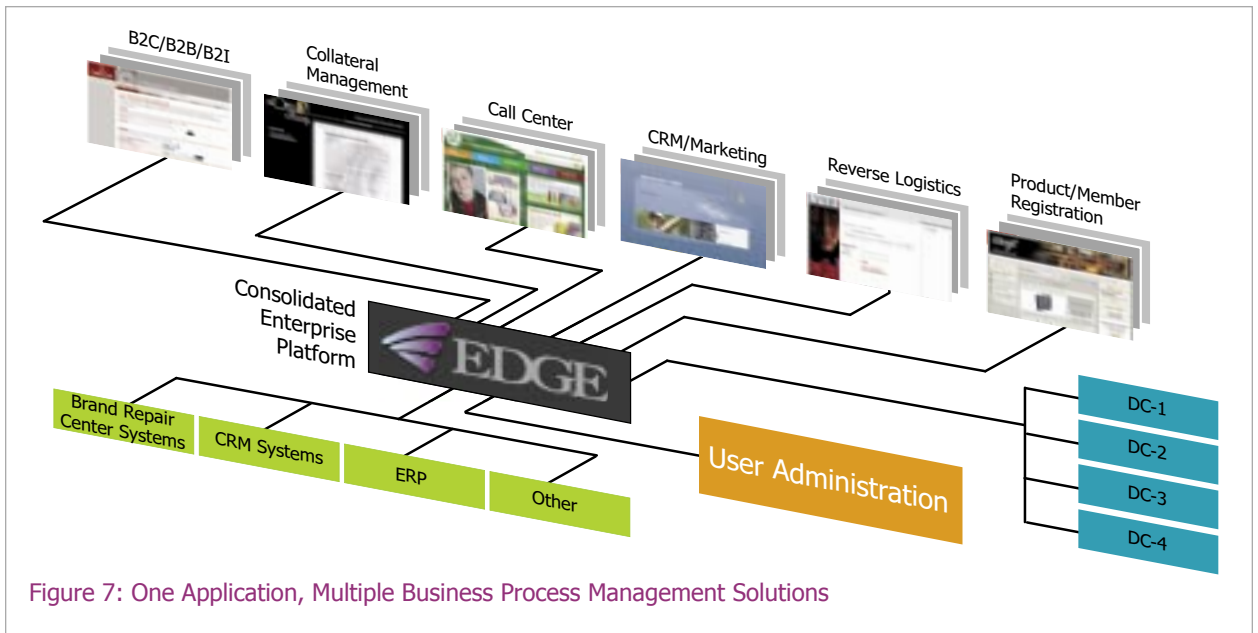


Figure 7: One Application, Multiple Business Process Management Solutions

As Schell points out, the EDGE application is so versatile because its architecture is highly scalable and configurable. Information is processed in a distributed, open database environment so all your data is available, as appropriate, whenever and wherever it's needed, making it possible to coordinate real-time interaction among vendors, call centers, fulfillment houses and customers, regardless of their location.

"Order Management and Fulfillment requirements have come a long way since the heyday of the niche gift catalogs that codified them," notes Schell. "A solution like EDGE, relying on a Web-based, distributed rules management environment, is well suited to serving the evolving needs of the new virtual marketplace."

For further information about EDGE, contact Vince Fabrizio, Chief Sales & Marketing Officer, Jagged Peak Technologies, **1.800.430.1312 Ext. 221**.

<http://www.jaggedpeak.com>