# ENTERPRISE INTEGRATION: Making Technology Serve The Business

## No organization with a past exists in an IT vacuum.

Whatever its size, it already has in place an array of legacy applications. These applications need to communicate and exchange information with one another, to prevent systemic inefficiencies and ill-informed business decisions. To make the best decisions and operate efficiently and effectively, an organization needs to gather complete information in real-time, and to share and collaborate internally. To do this, it needs an integrated information architecture across all of its business processes and data. Whatever form this new architecture takes, however, it must leverage the organization's past IT investments.

### The Historical Context

Historically, organizations chose individual applications based on their ability to meet a specific business need. Little or no regard was paid to how well these applications would cooperate with applications already in use elsewhere in the organization or how future growth would impact the current implementation. In some cases, the integration effort may be prohibitively expensive.

### Case study: Ubernog, Inc.

Consider the example of Ubernog, Inc, a retail consumer business that had grown, in large part, through acquisition of three other companies. Each acquired company, as well as Ubernog itself, had independently deployed a range of departmental software applications on separate servers. The Production, HR, Accounting, Marketing and Sales departments had given no consideration to how their different CRM, payroll, and accounting systems might work together to meet the company's broader business needs. Ubernog, Inc. had continued on this path for some years, ending up with scores of individual yet unconnected applications, with disparate data stores and content repositories located on multiple servers.

### As a Result:

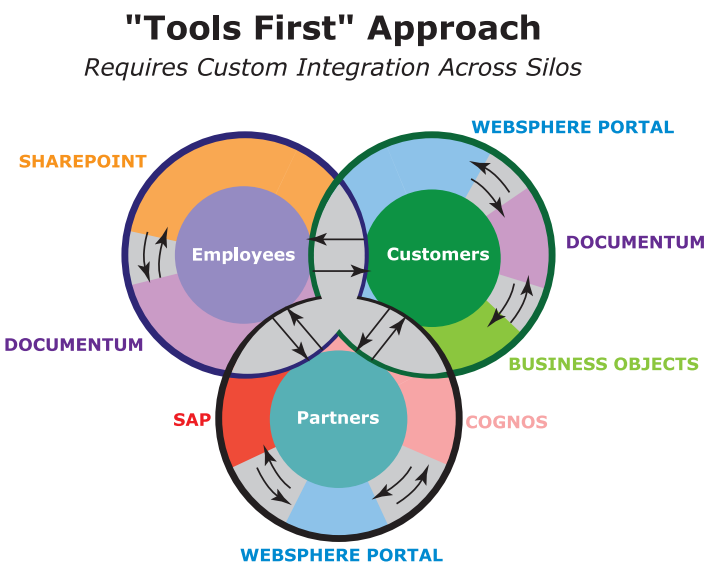
- Decision makers at all levels could seldom synthesize company-wide information in a timely, actionable way. In many cases, reconciling data in different formats was difficult, if not impossible. Management therefore lacked a complete, real-time picture of what was going on across the enterprise and had to make decisions based on incomplete, historical data.
- Collaboration was virtually impossible. Content creators in different parts of the company existed in effective isolation from one another. Materials were duplicated because there was no way of knowing they existed (or of accessing them if their existence was known). This was not only wasteful, but resulted in inconsistent messaging at best and the spread of misinformation at worst.
- Employees had to use multiple standalone applications, each with its own security protocol, to complete different business transaction. They had to log on separately to each application, and enter redundant data in multiple places, which increased the likelihood of errors.

### Why Application-to-Application Integration is Not the Answer

IT has always tried to serve business needs with ad hoc application-to-application integration, and Ubernog was no exception. The limits to this approach as an overall approach are, however, clear: it would require Ubernog's IT staff to code a custom set of many-to-many relationships between its individual applications, an impractical and time-consuming task. Moreover, the complexity of the resulting integration code would likely be highly unstable and difficult to maintain. This approach seems attractive because it's the "shortest distance between two points". However, when there are dozens of points to connect, all those straight lines become a big mess!

## A "Tools First" Integration Approach Creates Silos

Ubernog tried to solve its integration challenges with more of the same tactical "best of breed" tools selection approach that created the information silos in the first place. It chose integration solutions based on their individual advantages for three key constituencies - Employees, Customers and Partners. As the figure below illustrates, IT chose different collaboration, content management, business intelligence and portal tools based on each constituency's need for rationalized data repositories, information retrieval and user interfaces




## "Tools First" in Action

Powerful as these best of breed tools were, they could not overcome the limitations of what was still only a partially integrated environment. Separately implemented content management, reporting and portal systems ensured that content and data continued to reside in silos and that collaboration across the enterprise remained more of a dream than a reality. (Note that "portal", as used in this paper, refers to a framework and/or toolset for IT to build Web-based user interfaces for any application. It does not refer to a specific Web application itself and/or tool for only a particular application.)

As a result, Ubernog's Production and Design teams —operating entirely within the Employees silo—missed vital pieces of information from customer and partner wish lists. They couldn't access that information because even though in some cases both groups were using the same tools, their data was sitting on various servers with different, disconnected repositories. For similar reasons, Sales and Marketing were unable to easily access new product release information essential to their launch preparation efforts.

## The Business Goes Unserved

Ubernog had paid for and deployed the very best of everything. Management couldn't understand why they still didn't have a single, streamlined system that would, without further customization, help the company achieve greater efficiencies and make better decisions. They weren't interested in the details of the technology reasons why. They wanted—and expected— an overall business solution. Instead, what they had was akin to a car with four wheels pointed in different directions and a dashboard display with 10 seconds delay.

## How "Tools First" Impacts IT

From IT's point of view, the "tools first" best of breed approach meant they had to build and maintain a many-headed custom integrated monster with multiple security interfaces, content silos and presentation layers. The integration that existed had been built using native APIs, without a framework. Each new business requirement, therefore, meant further resource-intensive and error-prone customizations for IT - and an inevitable opportunity loss while the business waited for IT to address their latest request. Furthermore, as the various proprietary best of breed components evolved and were upgraded at their own pace, there was no guarantee that they would continue to work together.

## A "Functionality First" Approach Unifies the Enterprise

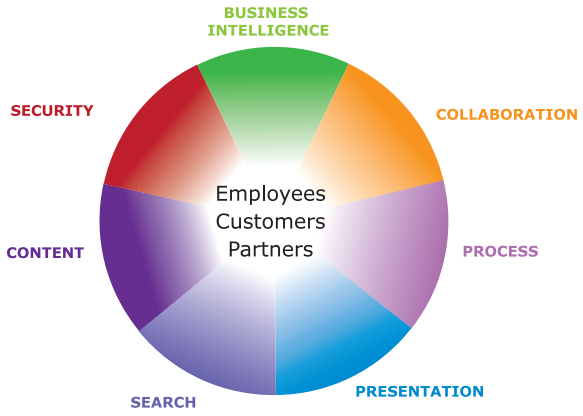
Ubernog's management has now recognized that the tactical needs of its different internal constituencies should no longer drive strategic IT decisions. They are determined to create an information architecture to enable:

- Seamless exchange of all content and data across the enterprise, between user constituencies and tools
- Availability of real-time content and data, without further manipulation, to all who need it
- Continued use of existing tools and applications
- Enterprise-wide search capabilities for content and data

This architecture would aggregate the business functionality and provide a single view of the enterprise to its various constituents, as depicted below.

**"Functionality First" Approach**

*Creates an Integrated View for all Constituents*




## The Architecture for the Job: Business-Driven Integration

Such a business-driven "functionality first" approach would demand nothing less than full integration across content, display and enterprise reporting. With legacy tools a key part of the equation, Ubernog needed an enterprise-wide information architecture to reside on top of all existing silos and integrate them all, both from a technology and business perspective.

Based on these business requirements for its new architecture, IT must now choose the components it should use to build it. Faced with the different advantages of proprietary and open source solutions, it has drawn up a list of the qualities that such an architecture and its component parts should ideally have (see sidebar below).

## Realizing the "Functionality First" Architecture

Ubernog explored different ways to realize this information architecture. It considered a number of well-known commercial proprietary products — all of which made use of web-based portals and claimed to be complete solutions. These products had dominated the "tools first" solutions market for the past several years, and with good reason. They were powerful and could be extremely effective, assuming ample financial and IT resources were available to implement and maintain them.

## Qualities of the Ideal Architecture and Its Components

The information architecture for an effective integrated collaborative environment should:

- Provide best of breed functionality at the component level, including CMS, Portal, Business Intelligence and Search
- Integrate easily and completely with all legacy components
- Eliminate duplication of both content and custom integration code
- Create a security framework that unifies access and provisioning across all the components
- Provide enterprise quality performance and support
- Be affordable and scalable
- Enable fast and flexible deployment
- Limit its demands on IT and be leveraged by the broadest range of architects and developers
- Allow easy and unlimited adaptation to changing business needs

*The bottom line: IT focuses on the business objective, not technology hurdles.*

## Challenges with Commercial Solutions

In order to reap the benefits of full integration with commercial solutions, Ubernog would have to overcome:

- Significant license and implementation costs
- Further integration complexity, often requiring multiple application servers, data and content silos
- Limited support for legacy applications, with products designed as part of a single-vendor stack

## Challenges with Open Source Solutions

Ubernog also considered a number of high-quality open source CMS, portal and business intelligence projects, which its own IT team would integrate and customize. Low or non-existent licensing costs were very compelling, as was the community development approach to leverage greater innovation and adaptability. Plus, these projects are designed to co-exist with legacy applications so inherently offer easier integration with other projects and commercial tools. However, Ubernog would have to:

- Assume the role of software developer to debug and maintain the projects they chose
- Take complete responsibility for integration to other open source projects, its legacy applications and any necessary customization
- Bear the risk of maintaining and upgrading the projects in the future, without enterprise-caliber support

## A Blended Approach

Reflecting on their architecture requirements, they could clearly see that neither commercial nor open source solutions fully met their needs. Both would effectively provide best of breed functionality at the component level, but neither met all of the other criteria on their own. A solution that combined the enterprise-quality stability, security and support of the proprietary products with the flexibility and affordability of open source would be ideal. The obvious answer was a vendor-supported information architecture, with integrated open source components and full commercial support.

## Bluenog ICE: An Integrated Collaborative Environment

One such answer is Bluenog ICE – a comprehensive commercial infrastructure stack built on open source projects. Bluenog ICE combines a tightly integrated XML-based Enterprise Content Management System, secure collaboration through wikis and group calendaring, state of the art portal functionality and a powerful reporting platform. Developers work across all four modules in an integrated Eclipse-based development environment. Unlike proprietary solutions, Bluenog ICE readily integrates with legacy applications of all kinds, including Oracle, SAP and Documentum. Further, its flexible and affordable licensing models include comprehensive support, maintenance and complete source code.

### Bluenog ICE:

*A Blended Approach for the "Functionality First" Architecture*


## Conclusion

For optimal business decisions and operational efficiency, an organization needs to gather complete information in real-time and enable enterprise-wide collaboration. This demands an integrated information architecture across all business processes and data. A blended approach, such as Bluenog ICE, provides a true "functionality first" information architecture, offering the best of both commercial and open source solutions. Its tight integration of content management, portal and business intelligence eliminates application silos, reduces total cost of ownership and accelerates application development. When IT puts business functionality first, it can get back to solving the business, not the integration, problem.

## Benefits of Bluenog ICE

The Bluenog ICE solution supports an information architecture that provides:

- Integrated and high-quality open source CMS, Portal and Business Intelligence projects
- Out-of-the-box integration with a wide range of platforms and technologies
- A security framework for Single Sign-On (SSO) between components
- Enterprise-level support and performance across various systems
- Affordability and scalability
- An Eclipse-based IDE across components and foundation application, which simplify and speed development and deployment

*Bluenog ICE: Accelerated development and deployment, at a fraction of the cost of traditional alternatives.*