Business Transformation for Application Providers



10 Questions to Ask Before Selecting an Enterprise Service Bus



10 Questions to Ask Before Selecting an **Enterprise Service Bus**



InterSystems regards the enterprise service bus (ESB) as a *business transformation engine* for application providers.

Why the emphasis on **transformation**? For many application providers meeting today's customer demands will require a change in business model. Customers are looking for unified solutions instead of application portfolios from vendors. They want these solutions delivered on their device of choice, from desktop to mobile. Above all, these solutions must be focused on the user experience. Data, functionality, and insight must be available to the people who need it, in the form they want it, wherever they are.

To make this transformation, distinct development organizations will need to provide compatible software components. Silos separating business units will need to be broken down. Everyone — from developers to implementers — will have to understand how components can work together in order to provide powerful new solutions.

An ESB becomes an engine for business transformation when it can:

- Unify a portfolio of applications into a cohesive, mobile-enabled suite.
- Empower users with information, analysis, and insight at the point of action, and enable them to drive business processes based on that insight.
- Reduce the customer's deployment time and costs by rapidly delivering applications that are interoperable, easy to configure, and scalable.

This Decision Guide provides guidelines for selecting a transformative ESB. It will help you to clearly define your selection criteria, including the important architectural components to consider, through a series of 10 key questions. Asking these questions as early in your initiative as possible will help your company save time and money, and reduce risk. This new approach to selecting and using an ESB can provide you with a platform for rapidly creating greater value for your customers and your business.

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Transform a Portfolio of Applications Into a Cohesive, Mobile-Enabled Suite

1 Can the ESB make smart decisions?

If an ESB is simply plumbing that passes messages between applications, it's not smart enough to enable business transformation. A transformative ESB will provide greater intelligence for your applications, achieved through rules-based decision-making and actions based on the content of messages and the metadata around them. This requires an ESB with integrated capabilities, including:

- An intuitive rules engine that customers can extend to make changes to running applications without additional coding.
- Event processing and alerting for immediate reaction to significant changes.
- Real-time analysis of unstructured and structured data to feed the rules engine and business processes, and to inform users in audited workflows.

2 Can the ESB orchestrate back-end business processes, including human workflow?

A business process is a sequence of operations performed to complete an objective, such as processing a mortgage application or checking a patient into a hospital. Orchestration is a design activity that focuses on business process rather than on technology.

Taking this view, the ESB should provide graphical tools that enable analysts or developers to diagram processes and information flows, including rules and workflow, with a focus on the logical interactions between systems.

Typically, an ESB focuses on synchronous requests and replies — and yet most businesses function asynchronously, sometimes with processes occurring over long periods of time. An ESB that also supports eventdriven, asynchronous, and long-running business processes is essential for business transformation.

For greatest efficiency and powerful composite applications, look for an ESB with:

- A rich graphical editor for diagramming process and information flows.
- Automatic generation of code from business process diagrams, and of diagrams from code.

- Support for long-running business processes, including human workflow.
- A workflow engine to distribute and move tasks among users while incorporating their decisions automatically into the business process.

3 Does the ESB support your strategy for mobile applications?

A mobile application strategy involves more than just providing a presentation layer to give users access to your enterprise applications on mobile devices. It's about using the ESB for access to the right application programming interfaces (APIs) at the right time. This will enable users to get the data and functionality they need in their current business context, whether they're using multiple task-specific apps on a mobile device or a single composite application on a desktop.

The ESB also needs to support a rich, shared data model that facilitates user collaboration. Success is not reached by whittling down applications to fit on a phone or tablet screen. Mobile apps at their best simplify the end-user experience of complex enterprise back-end services, making them simple to use, not less useful.

The crux of a mobile application strategy, then, involves identifying the APIs that need to be exposed to the ESB, and using the ESB to orchestrate calls to all of the enterprise applications needed to make the mobile user interface work. This "API first" approach is increasingly recognized as the way forward for successful mobile solutions and business transformation.

Mobile technology should be tightly integrated with the ESB — you shouldn't have to purchase it separately and then integrate it yourself. Its features should include:

- A rapid development capability.
- Use of the ESB's business process management features to serve as a natural bridge between mobile devices and enterprise applications, data, and analytics.
- The ability to access, transform, and combine information from back-end applications to provide composite services for consumption by every type of device — from the desktop to mobile.

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Empower Users

4 Can the ESB platform provide operational insights?

The ability to glean insights from information and quickly act on them is a source of competitive advantage for your customers. Choosing an ESB that captures the data from integrated applications and provides the analytical capabilities to gain insight from it will be a competitive advantage for your business.

ESB enablers for analytics and insight include:

- Real-time analytics technology that can be embedded in application workflows to help users make better business decisions based on comprehensive information.
- Analytics technology that works with unstructured data (such as free text) as well as structured data.
- Business activity monitoring based on user-specified thresholds and events that tracks system performance and alerts personnel to conditions requiring attention.

Rapidly Deliver Applications

5 How easy is it to configure services and build composite applications?

Whether the underlying services, applications, and data sources are deployed on-site or in the cloud, creating a composite application can be simplified with an ESB whose services can be configured intuitively and whose tools are easy to use.

However, even after the available services are orchestrated, there is often still a gap between the functionality that users expect and what is presented to them. You need to be able to quickly and easily create business logic to fill that gap without bringing on additional developers and development tools, or delaying the project. Look for ESB products with strong development capabilities, including:

- A single, consistent graphical development environment encompassing service creation, business process orchestration, business rule creation, data transformation, workflow, event processing, and dashboard creation.
- Rapid development capability to complete projects when existing back-end services can't provide all of the required business logic or data.
- Service-enablement of existing applications without requiring programming.
- Service exposure and consumption without requiring coding.

6 How interoperable is the integration platform?

From a business perspective, interoperability is one of the keys to ongoing success. Your unified application must integrate easily into your customers' existing systems for bi-directional information sharing. It has to enable information sharing with your customers' business partners as well. Having an ESB that handles both integration scenarios will reduce complexity, deployment time, and costs, as well as support optimal use of your development resources. Look for:

- Support for a broad range of communications standards. REST and SOAP are essential, but to leverage capabilities and information in legacy systems, databases, files, and other sources, the ESB should also support TCP/IP, SSL, FTP, SFTP, email, xDBC, CSV, and custom interfaces.
- Integration of applications and services built with different technologies, such as Java and .Net.
- An embedded high-performance database that stores all messages to protect against data loss and ensure the integrity of business processes (including long-running processes).
- A robust adapter framework that manages errors, retries, timeouts, and recovery. The adapters deal with the bad things that may happen in the real world so you can focus on higher-value work.

ESB Basics

Successful business transformation requires a platform that can support the results of success — more users, heavier use, and higher expectations for performance. It requires an ESB platform with a strong management capability to keep you in control, along with proven reliability, performance, and scalability. It should have the capacity for growth, yet be able to scale down to meet changing needs — all transparently to the users and the services it supports.



Will you be able to stay in control?

Governance is critical to the health of your ESB and the services deployed through it.

Service-oriented architectures, composed of loosely coupled services, can present thorny governance challenges, balancing control against sufficient freedom so users can get their work done. Some aspects of governance, such as the security of your customers' data, are non-negotiable. Others, such as a framework for agreeing on service levels or procedures for version control, will depend on the type of application and the relationships between you and your customers.

Once you have made the critical decisions over policy and process, the technology has to provide the security, information, and tools to implement them. This should include easy and flexible deployment and management options for virtualized and non-virtual ESB instances.

Having an ESB with a robust, role-based security model, support for varied authentication methods, and strong auditing is essential for security. A browser-based management portal with access to a wealth of information for end-to-end monitoring and management can provide a powerful base for governance-related activities, including:

- Reporting that indicates who's doing what.
- Statistics gathering, for managing service-level agreements.
- Access control, i.e., role-based authentication and authorization (such as managing rights to access APIs, and which ones).
- Version management that supports moving from old to new versions of services — especially where there are differences between them without disrupting applications.
- A high-performance message repository for proactive monitoring; message replay in case of error; and exception identification, analysis, and response.

How reliable is it?

ESB reliability means proven performance, guaranteed message delivery, and the ability to minimize downtime through automatic recovery from hardware failures without data loss. It should provide:

- Proven performance. The ESB must have demonstrated success in widespread use, in both complex and simple integration environments. And it must operate without undue complexity, which can hinder manageability, lead to instability of integrated systems, and give rise to recurring "fires" to extinguish.
- Guaranteed message delivery. Critical data must always be available when and where needed. You can avoid data loss and message delivery delays if your ESB includes a high-performance embedded database.
- Minimal downtime. In the event of a hardware failure, power loss, or other adverse event, the ESB must provide recovery options to match your service-level goals and tolerance for latency.

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How scalable is it?

However you look at cloud, big data, and iPaaS (integration platform as a service), they will change the world of ESB just like they have elsewhere. Applications now stream far more messages than ever to feed big-data analytics, and cloud-based applications may support hundreds or even thousands of customers in a multi-tenanted environment. Customers processing a million requests per day just a few years ago may now be looking to support many thousands of requests per second, 24 hours a day.

On-premises systems still need to support traditional highly available fail-over architectures with easy installation and monitoring. But now cloud-based systems need to support huge multi-tenanted and elastic architectures that can scale up and down according to changes in demand. So the question is not just whether it scales, but how it scales. How easily can you deploy and manage systems as they scale to support the new supersized integration solutions? Ensure that your ESB can:

- Deliver the same functionality whether your solution is deployed on-site or in the cloud.
- Allow you to build a robust, multi-tenanted solution to support your customers.
- Provide centralized management for all instances of your solution.



10 Does the product have a growth path?

Once you've chosen the ESB to integrate into your portfolio, will your platform be able to meet your organization's needs? Will it grow with you? Make sure the vendor has a positive track record and an ongoing commitment to product innovation and backward compatibility. You don't want your progress stifled because your vendor has decided to sunset the product that you chose and continue to rely on. The product you select should enable you to deliver solutions and meet changing business requirements over the next 10 years or more.

Conclusion

Business transformations are successful when they are the result of sound strategy and deliberate sets of actions with clear goals. Sudden and uncoordinated responses to market shifts seldom result in long-term advantage. A transformative ESB frees you to plan and make strategic decisions with confidence, knowing that your software infrastructure will support the necessary changes in your organization and product roadmaps.

Now is the time to map your business needs onto product capabilities. Use this Decision Guide to narrow the list of possibilities. Take the time to gather input from other software developers. Has the ESB lived up to the vendor's claims? Has the vendor been there for them before, during, and after product rollout? Has customer service exceeded their expectations? InterSystems is the vendor of Ensemble, our ESB platform for creating integrated applications. We're confident that you'll like the answers you get when you speak with our Ensemble customers.

To Learn More

Contact us to discuss your business transformation goals and how InterSystems can help you achieve them:

- info@InterSystems.com
- 1-800-753-2571 or +1-617-621-0600.
 See InterSystems.com/contact for a link to the number of your local office.

InterSystems Corporation

World Headquarters One Memorial Drive Cambridge, MA 02142-1356 Tel: +1.617.621.0600

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