Technology Audit

Integration and BPM

Fiorano Software, Inc.

Fiorano SOA™ 2006 Platform

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Date: January 2006

Abstract

Fiorano SOA 2006 Platform is the new branding for Fiorano's Business Integration Suite, which has a still stronger emphasis on the development of composite applications in its latest release. Integration has proved one of the biggest management headaches of recent years as different applications need to integrate with each other in order to support business processes that cover a range of different application silos. In addition, some forward looking organisations are starting to develop so-called composite applications that combine existing and new services to deliver business value rapidly, within a Service Oriented Architecture (SOA). Tools to support this are still few and far between, and this is where Fiorano SOA 2006 Platform can be beneficial. At its core, is the Fiorano Enterprise Service Bus – a distributed Peer-to-Peer (P2P) integration platform that supports rapid integration between existing applications as well as the development of composite applications in multiple languages. The solution takes an incremental approach to integration, and its P2P approach avoids the bottlenecks of traditional hub-and-spoke architectures without losing management control of the network. Limited legacy application support makes this more suitable for organisations that have significant J2EE investments, and some .NET. The Fiorano ESB and Message Bus products (FioranoMQ) can be downloaded from the company's Web site for 45 days, enabling organisations to evaluate how these products would meet their requirements.

KEY FINDINGS

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

✓	Supports both event-driven and service-oriented integration approaches.	✓	Brokered P2P approach gives good scalability.
i	Supports JMS messaging directly, although other message transports can be used.	*i*	Limited Business Activity Monitoring capability.
✓	Supports WS-Security standards.	✗	Fiorano is still not well known and needs to develop more customer case studies.
✓	Supports standards-based management of components.	✓	On-the-fly debugging of messages without needing to stop the server.

LOOK AHEAD

The Fiorano SOA 2006 Platform already allows heterogeneous business components to be integrated together, and in the future it is likely to permit native development of those components; for example, to enable .NET components to be created as well as J2EE ones. It is also likely that still more transport types will be supported in addition to the existing JMS and TIBCO RV messages.

▶ FUNCTIONALITY

Product Analysis

Integration is undoubtedly a major problem for many organisations today, together with the need to look to the future of business applications and avoid repetition of the problems of past infrastructure decisions. The key issues around integration tend to involve complexity and cost. While point-to-point integration may solve tactical problems, it is not efficient once a number of applications need to be integrated. To date, the more complicated integration broker technologies have proved time-consuming to deploy, and practitioners need to be highly skilled in order to get the most out of such tools. In addition, many of the existing Enterprise Application Integration (EAI) solutions have commanded a hefty price tag, which has meant that many organisations have put off integration projects that cannot be justified on a project-by-project basis. Integration should always be done because of a genuine business need, for example, to ensure that a single view of a customer can be provided from multiple applications that include customer data.

In addition to the need to integrate existing applications, today there is a growing level of interest in the concept of Service Orientated Architectures (SOAs), where new, composite applications are developed that may reuse existing business applications as well as create new components, combining these together in an application that can be distributed across a network rather than being deployed solely in one place.

Fiorano's newly branded SOA Platform, which has evolved over the years from its various integration offerings, is based on a brokered, distributed Peer-to-Peer (P2P) architecture; where data flows directly between several peer servers providing performance, but a central event broker is used to monitor and control services. It allows existing applications to be included as services, via adapters provided through a third party. Tools to enable applications to be constructed from a palette of services (which can be configured as required) are also included, making the suite highly developer-friendly. The Fiorano SOA Platform is centred around the concept of the Enterprise Service Bus (ESB), but also allows standards-based process orchestration.

The benefits that Fiorano claims to bring with Fiorano's SOA Platform is that it can reduce the time to deliver integration projects by up to 80%, in particular by using what is called Business Component Architecture (BCA); enabling existing business logic and processes to be assembled to produce flexible applications, regardless of where the current business logic is on the enterprise network. Fiorano's offering supports both service-oriented and event-driven models, and provides tools to develop and deploy complex business applications, together with common tools for security and administration, an area that is often outside of the more basic ESB offerings.

Since Butler Group first reviewed Fiorano's integration offerings, the company has continued to add functionality, and now provides a comprehensive approach to integration, including a number of differentiating elements. For example, the brokered P2P nature of the solution is itself unusual in the market, and the addition of BPEL-compliant process orchestration is timely. Support for the latest security standards, such as WS-Security, is also included in the newest version. The solution allows both event and service oriented applications to be created, by allowing messages to be reacted to (events) as well as services to be combined together.

As already mentioned, the solution does rely on third-party adapters for integration with existing packaged applications.

The Fiorano SOA 2006 Platform certainly meets many of the integration requirements of a range of organisations, but will increasingly be of interest to those that wish to develop new applications based on the SOA concept.

Product Operation

The overall architecture of the Fiorano SOA 2006 Platform is a brokered, P2P system architecture, which the company also refers to as a 'hybrid P2P' architecture. This combines the management benefits of centralised control and management together with the performance benefits of fully distributed P2P systems, but avoids most of their disadvantages.

The diagram below illustrates this architectural approach:

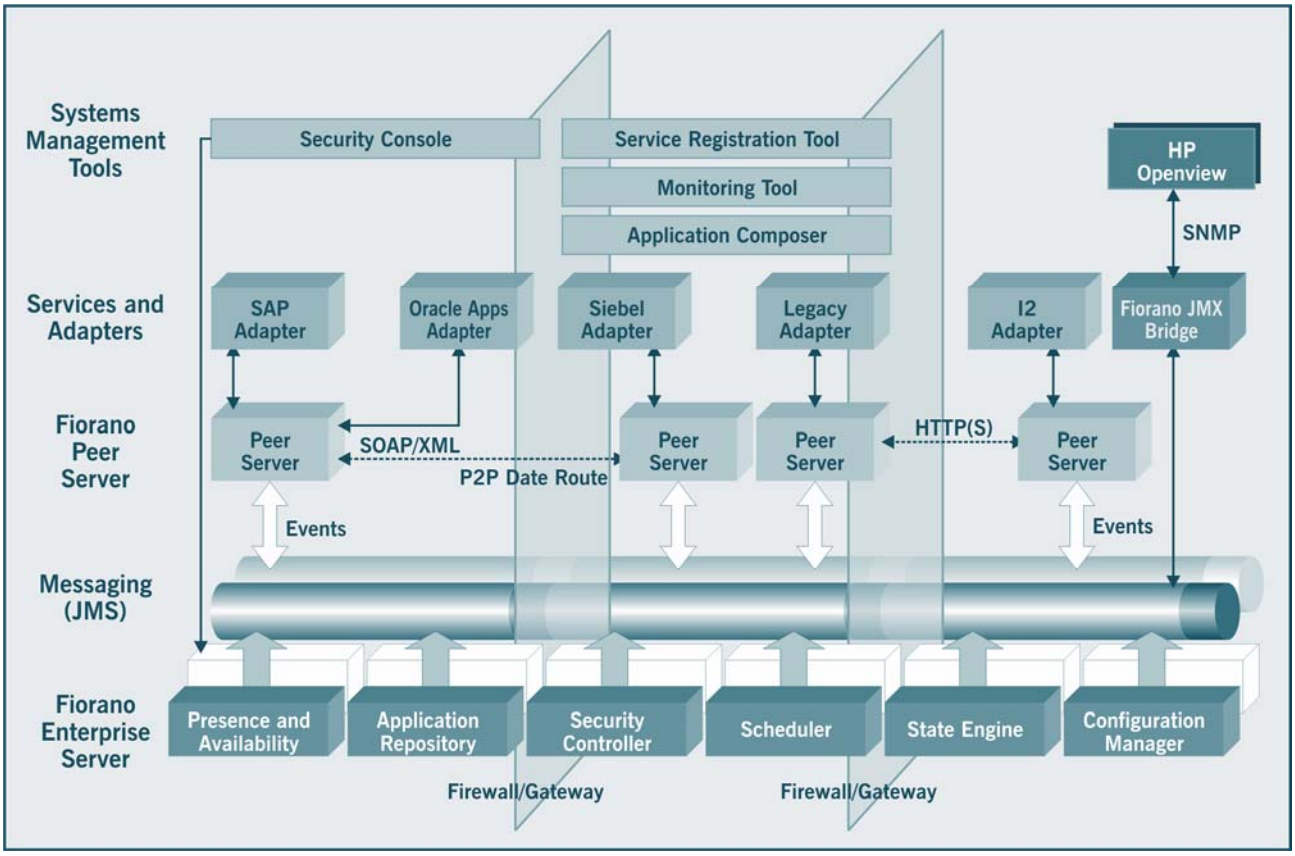

Figure 1 – Fiorano SOA 2006 Platform

As illustrated, the platform is made up of a number of elements that come bundled as part of the SOA Platform, although some are available individually if required. Additionally, it is also possible to use alternatives – for example, if a JMS-compliant messaging system is already in use, this can then be used instead of Fiorano's own messaging option, FioranoMQ. The main individual elements are detailed below.

Fiorano ESB™ 2006

Central to the SOA Platform is the Fiorano ESB. This can be regarded as a middleware platform that enables loosely coupled Business Components to communicate with one another, based around many of the more recent standards. New features within the ESB are that these business components can now be developed using J2EE Connector Architecture (JCA) or Java Message Service (JMS) APIs, integrations can be configured and managed at runtime using Java Management Extensions (JMX). A key enhancement in the latest release is that business components can be combined together into a larger, composite component, which runs in a single operating system process, and therefore has no messaging transport between the 'internal' components, improving performance. A graphical development environment to support the creation, configuration, and testing of composite components is included.

Business components can perform a range of things, such as file transfers, interact with packaged applications via adapters, carry out transformations (needed when data needs to be altered in some way before it can be integrated), or consume a Web service. Components can be managed and have attributes such as security and versioning, and can be administered, monitored, and orchestrated. Simple and distributed ACID transactions are also supported (as well as compensating transactions for distributed business processes). These components are automatically deployed to the distributed set of nodes when a business integration application is deployed. All components can be managed by JMX; all configuration parameters are JMX attributes. A JMX explorer is also provided, allowing connection to any JMX server. Business components are all stored in a central registry and anyone who is authorised can access them.

With the latest release, resources can be shared for efficiency improvements, and for example, database connection resources can be shared when the services are running from within a single JVM on a single server.

Essentially, the ESB takes care of message routing regardless of what messaging mechanism is actually being used. Both P2P and Pub/Sub routing may be used for JMS messages over a distributed network of MQ servers. There are pluggable transport adapters for other messaging products such as JMS or TIBCO RV.

Within Fiorano ESB, scalability is provided by supporting parallel data flows between distributed services, with built-in service categorisation and message prioritisation on the data flow routes. Applications can be modified and extended at run time, providing control over individual service instances, and supporting different classes of service and prioritisation as needed. Resources can be dynamically and incrementally added at infrastructure and application/service level, even at runtime, without disrupting existing services.

Fiorano ESB includes its own Event Manager console that provides logging and monitoring of messages, which are persisted to a repository. If a third-party Business Activity Monitoring tool was already in place this could then interrogate this repository if desired.

Only minimal programming is needed to join together a series of components – many of the elements in the palette of available services can be 'plugged' together with only minor configuration (for example, to tell an e-mail service what e-mail server and address to use).

Fiorano ESB has a number of usability and productivity tools available as part of the package, including an administration tool, a services and security manager, and a deployment manager that allows individual services to be configured, managed, updated, and then redeployed without affecting other services, from a centralised location.

Fiorano Services Development Studio – This is an Eclipse plug-in that is used for custom adapter development. It supports Java natively, and APIs, or runtime libraries are also available for developing custom adapters for packages or legacy applications in C, C++, C#, and Visual Basic. It supports Ant and version control systems.

Fiorano Mapper – A graphical data transformation tool which supports complex data manipulation. XSLT and Xquery are supported out-of-the-box, and the transformation engine does not preclude the use of other transformation options, such as IBM MQSI, TIBCO, or webMethods, if so desired; existing mapping engines can be wrapped within the overall solution, and treated as services.

FioranoMQ™ 2006

A grid-enabled and standards-based, JMS-based messaging server supporting both P2P and Pub/Sub, this includes dynamic routing capability together with distributed debugging of message flows (without needing to stop the server). It also supports JMX-based management, and has been benchmarked at over 50,000 messages per second. Recent enhancements include better support for in-process routing, and tools for the visual composition of JMS routes between distributed JMS clients.

FioranoMQ supports multiple transport types such as TCP, HTTP, and SSL (Phaso and JSSE), and can integrate with a range of different application servers including BEA WebLogic, IBM WebSphere, and JBoss. Messages can be encrypted and compressed.

Proprietary logging APIs for management of components are no longer used in this latest release, they have been replaced by JDK 1.4 logs, but the resultant logs can still be managed remotely. It also allows existing JMS applications to be ported to become reusable ESB components.

Fiorano BPEL Server 2006

A new introduction to the company's integration offering, the Fiorano BPEL Server allows rapid modelling and deployment of processes that are built up of the various process components. It is integrated with the ESB and allows distributed BPEL processing.

Fiorano Business Components and Adapters

These can be regarded as ready-to-use components that perform common tasks, and include connectors for all the common databases, as well as to e-mail servers, other messaging systems, and so on. When used in conjunction with the main development studio, Fiorano Visual JMS Tools, they can be used to rapidly assemble loosely coupled business processes.

Fiorano Process Orchestration Tools

The Fiorano Process Orchestrator is a design and development environment for business processes, which uses a graphical interface to allow components to be assembled. Event flows between different distributed services can be dynamically set up, mapping the logical design to the physical services, regardless of where they reside. Events can be intercepted at runtime, allowing the content of messages to be inspected, for example, if they are being rejected, and then reformatted on-the-fly. The platform also now supports BPEL (version 1.1) for process composition (and can therefore deploy existing BPEL-based process definitions), but also includes process configuration – to define how each business component or process element is invoked (using JCA and Web services) as well as how it is to be configured and managed (using JMX). This allows a JMX-compliant management solution to be used, and processes can be scheduled, for example on a daily or monthly basis, which is part of the process configuration. The full process lifecycle is supported (development, testing, staging, and deployment). A standalone BPEL editor allows visual creation of processes, as well as providing the ability to edit the native mark-up language. Existing event processes can be invoked as Web services, by employing a Web service gateway that is hosted within a third-party Web server such as Apache, BEA WebLogic, or JBoss.

Integration with a wide range of applications is possible either via the adapters included (or from third parties), or via Web services – for example, this could allow integration with a hosted application providing that a Web services API was available.

Services can be configured for multi-level failover, where if the peer server fails, these services automatically failover to the next available server depending on how the environment has been configured.

Product Emphasis

Fiorano SOA Platform is a maturing solution set aimed squarely at organisations that not only want to integrate existing applications but also need to create composite applications that can be assembled from separate services and then modified over time without needing to resort to code. This differentiates it from a number of other integration tools and technologies on the market, that focus much more specifically on individual integration problems.

▶ DEPLOYMENT

The Fiorano SOA 2006 Platform elements can be deployed on a range of platforms including Microsoft Windows NT, 2000, XP, and 2003 Server; Sun Solaris, Linux, IBM iSeries and OS390 mainframes, and Macintosh. A variety of databases can be accessed including Microsoft SQL Server 7.0 and onwards, Oracle 7.0 onwards, My-SQL, Btrieve, Microsoft Access, Sybase, and DB2, as well as ODBC-compliant databases. Application servers such as IBM WebSphere, BEA WebLogic, and Sun are also supported.

Application protocols supported include XML, CSV, and EDI (Edifact and X12 are currently supported).

Fiorano SOA 2006 Platform has been designed to be user-friendly, so that it can be used by business managers and solution architects in conjunction with more technical developers in order to design and deploy processes. Deployment of Fiorano SOA 2006 Platform thus requires both developer and business management participants, and potentially third-party systems integrator support – the need for this will depend on the technical expertise available at the client site.

Following deployment, management of the solution is minimal, and requires basic administration and monitoring, although this is likely to require at least one technical resource. Remote administration is available for physically distributed organisations.

The company maintains a professional services team to provide support during implementation, and can then offer post-implementation support if necessary, although it is more common for standard support and maintenance contracts to come into play following deployment.

It is hard to indicate average implementation times because this is likely to depend on a range of factors, such as the number of applications involved, and how similar or different those applications are, as well as the hardware infrastructure in place. Fiorano states that times can vary between two days and two months typically.

Fiorano SOA 2006 Platform can be deployed in a modular manner, both in infrastructure and application terms. The infrastructure can be extended by adding more peer servers at the end points of the network (this allows parallel event flows to ensure that there are no bottlenecks). As new business components are created, existing applications can be extended.

Fiorano provides support and training either directly where it has offices or through its partners. Training is available for application developers, architects, process managers, and senior management personnel, and covers concepts as well as technical details. Level 1 training is a five-day on-site course including detailed product training, and pre-requisite is a technical understanding of Java, XML, Web services, and JMS, although programming experience is not mandatory. Level 2 is a five-day on-site course covering custom adapters and the development of services, and is more geared to programmers with suitable XML and middleware experience. Customised courses are available on request.

Support is available on a 24x7 basis, via the company's offices in the US, UK, Italy, China, Japan, and India, enabling full 'follow the sun' support; supplemented by phone, e-mail, fax, and Web-based support. Web conference and on-site visits are also available if necessary. Premium support includes access to engineers on a 24x7 basis, complete with mobile phone/pager contact details.

Fiorano states that the solution is not dependent on any third-party offerings, although it supports a range of application servers and databases.

As with any integration solution, there is likely to be an impact on existing business procedures as applications start to more fully support business processes. Because Fiorano supports a loosely coupled style of connectivity between applications, it is unlikely that there will be a negative impact on processes unless tight integration is already in place that might force this.

The only potential area of risk that Butler Group can foresee with the use of a tool such as Fiorano SOA 2006 Platform is that the organisation may have difficulty in understanding and designing services at the right level to take full advantage of the capability of the toolset. The architecture of the solution itself is unlikely to put a project at risk because of its sophisticated scaling and failover capability.

▶ PRODUCT STRATEGY

Fiorano's strategy has been changing subtly over the years, from being a provider of message bus technology that supports elementary integration to its position today as more of a platform vendor, although one that supports many open standards. Its objective now is to support the development of composite applications that can allow its customers to move forward in a flexible manner.

Fiorano's aim is to provide the infrastructure tooling for organisations to build composite applications based on existing business logic, deployed on an ESB architecture. As such the solution is aimed at both vertical and horizontal markets. For example, it can provide a framework for integrating existing applications within a particular sector, such as manufacturing, where separate best-of-breed applications can then be integrated together. Horizontally, Fiorano ESB provides an infrastructure layer to enable a wide range of organisations to integrate in a layered approach enabling better Business Intelligence or Business Activity Monitoring, by enabling a common interface with heterogeneous applications and databases, and supporting the cleansing and transformation of such data sources in real time.

The company targets both smaller and larger organisations, with an emphasis on organisations with sales of US$100 million to US$1 billion, which it sees as a key market. At present the company does not specifically target any particular vertical market, unlike some other integration vendors. Whilst this may enable it to support a wide range of customers it may mean that it lacks vertical expertise, but Butler Group would expect its partners to make up for this.

Fiorano has offices around the world and sells directly into markets in the US, the UK, and Asia-Pacific regions; via resellers and business partners in Japan, EMEA, Australia, Africa, and Latin America; and via System Integrators, OEMs, ISVs, and VARs worldwide. A number of ISVs are starting to use Fiorano's platform to construct composite applications. There are a number of business partnerships worldwide, including Edenbrook, EDS, Obligate, and BT Syntegra (UK); Vivat Consulting, xWebServices, Tier1Innovations, Partners Consulting Services, and Visual Integrator Consulting (US); JVL (France); Silnet (Italy); Tokyo Business Solution, Toshiba IT Solutions (Japan); Coexl Technologies (Australia); Hamisoft (Korea); Sobha Renaissance Information Technology (SRIT) and Convergent Technologies (India); and BuzzNet Labs (Malaysia).

Technology partners include Chordiant Software, Anite Public Sector (UK), Triant Software, Hit Software, Octanewave, Infokall, Clarity Integration, and 37degrees.

Fiorano unusually offers different licence periods for development (annual licence) and for production (a three-year ESB licence, renewable at a percentage of the original licence fee). Licences are per CPU for the Enterprise and Peer Server(s), and most adapters are separately priced, again per CPU. The SOA Platform starts at US$40,000 (includes FioranoMQ Server Enterprise Edition, Fiorano ESB Server, and the BPEL Server). One copy of the associated tools and the BPEL editor is included in the SOA platform licence although additional copies of the tools can be licensed separately per user or per seat. Most adapters are extra and these range from US$4,000 to US$10,000 per CPU. Project values will depend on the configuration of the solution, but for a medium-sized integration project the total cost varies between US$100K and US$250K, and for a large project the implementation costs are likely to be in the vicinity of US$1 million. On average, the licence cost is 75% of an overall project, with services taking around 25%.

Maintenance and support is available at 20% of the licence cost for standard office hours support (where maintenance includes all minor releases and bug fixes). Premium support (24x7) is available at a charge of U$2,500 per day.

Fiorano has a roadmap for future developments of the product, and in general there are one major and two minor releases per year. Future developments are likely to include a native .NET runtime capability.

Fiorano tends to compete with vendors such as TIBCO, webMethods, SeeBeyond, Sonic, Vitria, and PolarLake, as well as companies such as IBM and Microsoft which offer architectural approaches that offer similar functionality. With the SOA Platform it could be competing more with some of the newer vendors that offer SOA development tools as well. Although Fiorano is larger than some of its competitors it is still a relatively small player in an integration market that has seen much consolidation over recent years and less stellar growth than in the late 1990s.

The company is starting to get greater recognition, and is winning more high-profile customers, but this needs to continue into the future if the company is to grow beyond being regarded as a niche player.

▶ COMPANY PROFILE

Fiorano Software Inc. is a privately held company based in Los Gatos, in California's Silicon Valley, and has offices in the UK, China, Japan, and India, and partners/resellers in France, Germany, Italy, Singapore, Australia, Korea, and others. Founded in 1995 by Atul Saini, who is still the Chief Executive Officer and Chief Technology Officer, the company provides middleware integration solutions.

It claims a number of leading companies amongst its clients, including HireRight (US), Norwegian Cruise Lines (US), North California Power Agency (US), The Sports Authority (US), HireRight (US), Forex Capital Markets (US), Quicken Loans (US), Business Travel International (Canada), Anite (UK), Misys (UK), and the Korean steel company, POSCO. The company has over 400 customers in all, with around 50 using Fiorano ESB.

Fiorano has a development centre in India, and business partners in over 20 countries in the major world regions. With around 100 employees, Fiorano is becoming an established player in the integration market. Over half of the employees are involved in Engineering and R&D, which shows strong commitment to product development, with 20% in sales, 15% in support and services, and 10% in administration. Around 70% of the staff is based in the Asia-Pacific region, 20% in the US, and 10% in Europe.

As a privately held company, financial figures are not available, although Butler Group has been assured that revenues are in double digits (millions of US$), and that the company is profitable. Around 25% of the company's revenue comes from the UK, although the majority is from the US.

Fiorano is a founding member of the EAI Industry Consortium, now known as the Integration Consortium; an independent body that represents both developers and users of integration tools. It is also a member of the Business Process Management Initiative, BPMI.org, which has recently merged with the Object Management Group (OMG).

▶ SUMMARY

It is still early days for the component model, and many organisations are still struggling with legacy infrastructures whilst looking for ways to move them forward. With the adapters available, Fiorano SOA 2006 Platform is suited to a wide range of integration problems, but is perhaps better aimed more at those organisations actively seeking to develop new applications that reuse some existing elements, but not in large amounts.

Where Fiorano seems to be delivering well is in providing tools that can help its customers to build composite applications much more rapidly than using some of the older tools and techniques for integration. It needs to demonstrate this with more up-to-date customer case studies if this is to continue into the future.

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