Magic Quadrant for Application Infrastructure for SOA Composite Application Projects

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This research aims at helping organizations select a comprehensive end-to-end application infrastructure to support composite application projects in the context of SOA and other initiatives. Mature products are available, but technologies are evolving, and the vendor landscape is changing.

WHAT YOU NEED TO KNOW

With the term "application infrastructure," Gartner indicates the outcome of an industry trend reflecting the convergence and overlap of many solutions available to support application development, deployment and execution. Although composite applications are not new, they have gained prominence, owing to service-oriented architecture (SOA), Web 2.0 and software as a service (SaaS), and because of their anticipated benefits in terms of rapid and flexible time to deployment and application development cost reduction.

A requirement for comprehensive, end-to-end application infrastructure that supports the implementation of composite applications often combining native SOA and pre-SOA applications is emerging from the user community. Application infrastructure megavendors and specialized players compete in a market whose boundaries are in flux, where vendors' strategies often are only partially sketched, where user requirements haven't fully crystallized and where segmentation is still vague. Offers range from broad, general-purpose suites to specialized, all-in-one composite-application-specific development and deployment platforms to lightweight presentation composition tools. Buyers seeking a comprehensive application infrastructure for composite applications will find that the products available to support this type of project are diverse and are still evolving in terms of technology, packaging and positioning.

Gartner evaluated 22 vendors for the Magic Quadrant for Application Infrastructure for SOA Composite Application Projects. Seven are rated as leaders, three as challengers, five as niche players and seven as visionaries. Of the vendors rated in the 2007 version of this Magic Quadrant, eight vendors have not been rated for the 2008 version, and seven new vendors have been added. The significant number of new entries and vendors that quit the market – as well as the number of rated vendors and their varied placement across the four quadrants – depicts a market in constant evolution, owing to competitive forces, technology innovation and volatile user requirements.

Gartner

Users should carefully analyze their specific needs, and should thoroughly evaluate whether a vendor's offering fits with their requirements, irrespective of the vendor's position in this Magic Quadrant, before committing to a particular product as their strategic application infrastructure for composite applications.

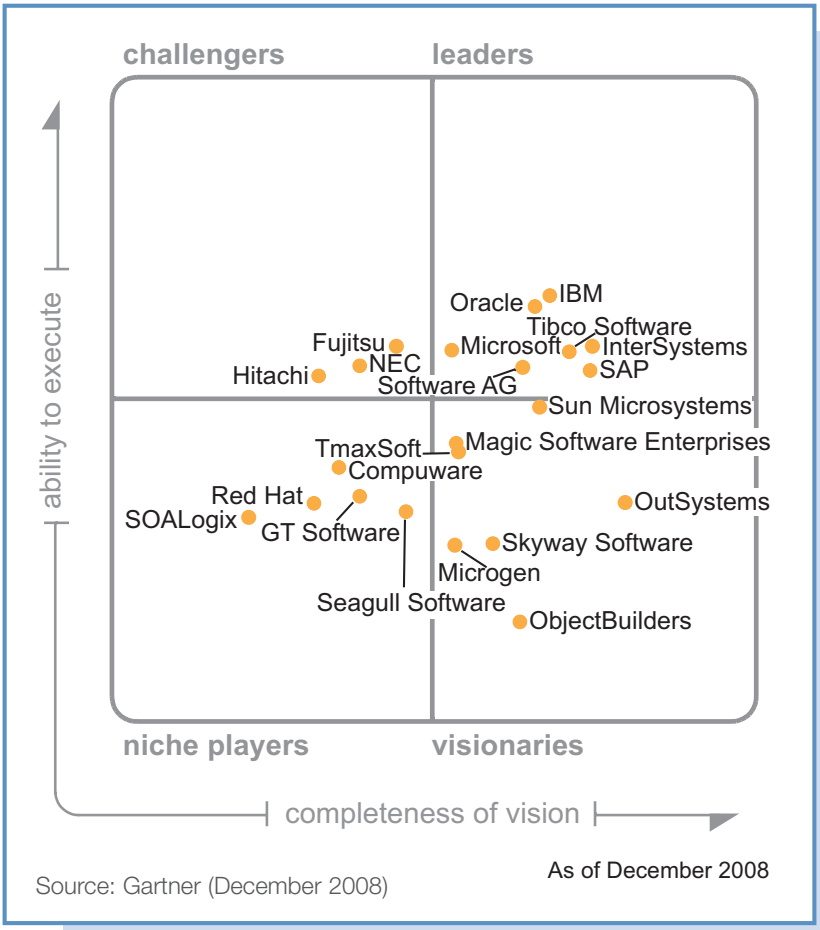
MAGIC QUADRANT
Market Overview

Gartner formally defines a composite application as "a software assembly that implements a set of independent but related functions – each meant to be perceived by users as indivisible – and where the component parts are heterogeneous in their information architecture."

A composite application is not obtained by merging the source code of the component parts into a single, executable program – the component parts are assembled together at runtime, are executed independently (often as part of broader application systems) and communicate with each other (locally or remotely) to perform the required business function. These component parts are often incorporated in large, pre-SOA application systems, but, increasingly they are also available in the form of reusable SOA services. In the most common scenario, composite application projects mix and match reusable SOA (or Web-oriented architecture [WOA]) services and pre-SOA applications, but, over time, the use of SOA/WOA assets will play an increasingly prevalent role. Hence, we qualify this Magic Quadrant as related to application infrastructure for SOA composite application projects.

Typically, these component parts have been designed at different times and by different teams. As a result, they have little agreed-on architectural coherence and consistency in their presentation layer and information architecture (data, object or process models). Often, these component parts also run on diverse technology platforms. Dealing with technical heterogeneity is the best-understood challenge of composite applications, but the reconciliation of discrepancies in presentation and information architecture is a much-harder-to-tackle obstacle.

Figure 1. Magic Quadrant for Application Infrastructure for SOA Composite Application Projects



Source: Gartner (December 2008)

Architecturally, there are two types of composite applications:

- Front-end, composite applications aggregate the presentation layer of multiple applications into single, integrated front ends by using portal, presentation integration tools, screen-scraping/Web-scraping technologies, mashup tools and other techniques.

- Back-end, composite applications implement an application (or a new SOA service) that assembles and invokes presentation, business and data access logic of established applications and services using a variety of communication protocols.

Although many composite applications blend these two architectural styles, the key difference between front end and back end occurs where the composition is carried out. Front-end, composite applications are built by composing the presentation layer of the pre-existing applications (they are often referred to as "integration at the glass"); whereas back-end, composite applications are developed by invoking available services, or the business or data access logic of established applications. Some new services (in the SOA sense of the word) may be implemented specifically for the purpose of that individual project; however, for the most part, composite applications leverage pre-existing and independently developed services or applications.

In the context of this Magic Quadrant, we cover only scenarios where "most" (70% or more) business logic is pre-existent and independently developed. Composite application scenarios where the business logic is new, and where only a minor portion of the application is pre-existing and independently designed, are better addressed in the "Magic Quadrant for Application Infrastructure for New Systematic SOA Application Projects."

Front-end, composite applications just assemble the presentation layer of multiple applications into a single, integrated front end. Therefore, they can be implemented by using a portal product, a presentation integration tool or mashup technologies. Front-end, composite applications tend to be opportunistically oriented and tactical in nature. Therefore, developers' productivity and rich user interface features are more-relevant for application infrastructure selection than enterprise-class scalability, availability or manageability. Developing and deploying back-end, composite applications instead requires a large set of middleware technologies to support user experience management, composition, flow management, application integration and adapters, interoperability and messaging protocols, container technology, development tools, and other features. Back-end, composite applications can be opportunistically and systematically oriented (depending on the specific project), but, in any case, significant attention usually is paid to issues such as reliability, scalability, manageability and security when selecting the relevant enabling technology.

Historically, large organizations have implemented business-critical, composite applications on top of best-of-breed, custom-assembled platforms combining multiple middleware components in a piecemeal fashion. But composite applications are now being adopted increasingly also by risk-averse and result-focused mainstream enterprises to grab value in terms of reduction in development costs and shorter time to deployment, increasingly in the wake of SOA initiatives. Therefore, the emerging approach is to purchase all (or, at least, key) needed middleware components from a single vendor offering an integrated suite of application infrastructure products. In this way, users try to reduce the time and costs associated with selecting individual products, and find a simpler way to manage and maintain infrastructure than a collection of best-of-breed products. This approach is typical of organizations having a systematic attitude toward composite-application-style projects.

But many composite application projects – typically supporting departmental or line-of-business needs – have stringent time-to-deployment requirements, are budget constrained, and must support only a well-defined and relatively narrow set of technical requirements. For these kinds of projects, a general-purpose application infrastructure suite can be overkill in cost and complexity, and the return on investment is almost impossible to justify. For one-project (or multiple projects with almost identical requirements) efforts, a composite-application-oriented platform that is narrower in functionality, but also more deeply integrated and less-expensive than general-purpose suites, is usually a better fit.

Recent advancements in Web-technology-based mashup tools and personal portals are making it increasingly possible for computer-literate end users to build their "personal" composite applications by easily combining various kinds of application resources from within and outside the enterprise (such SaaS applications, Web platforms, Really Simple Syndication [RSS]/Atom feeds and widgets). The availability of well-managed and publicly accessible enterprise service registries and repositories is favoring this phenomenon by offering end users access to a clear and well-documented set of interfaces into corporate application assets they can leverage to safely assemble their own personal composite applications without perturbing the orderly execution of the core business systems.

However, adoption of the "personal" style of composite applications is still in its infancy, and the market for the related application infrastructure is still forming. Therefore, in this Magic Quadrant, we focus exclusively on vendors that provide technology to support "enterprise" or "departmental" composite application projects. In the future, as the market for personal composite

application tools comes out of the current early stages, we may consider vendors also primarily offering application infrastructure for personal-style composite application projects. Some mashup tool vendors focus on providing "enterprise mashup" technology, but they typically support only limited composite application scenarios. As these vendors evolve and expand the reach of their platforms, they are likely to be included in future versions of the application infrastructure for SOA composite application projects Magic Quadrant.

Users' demands for application infrastructure to support composite application projects will rise during the next few years, because of the growing adoption of SOA/WOA, SaaS, cloud computing and Web 2.0, and because of users' sensitivity to reducing the cost of delivering applications to support business operations. Application infrastructure vendors are reacting to this emerging opportunity by adding more composite-application-enabling technology to their product portfolios. However, not all vendors have equal commitments to composite application projects. Therefore, new, focused players are challenging the established application infrastructure leaders with highly specialized products differentiated by greater ease of development (often based on model-driven approaches), simpler deployment and management, focus on specific vertical sectors or project types, and lower costs.

Often, these specialized platforms focus on specific technology environments with which they integrate best (for example, legacy systems), or on specific classes of applications. Therefore, they typically are applicable only for certain types of projects, and must be complemented with other specific composite-application-oriented platforms, or with general-purpose suites to cover the whole spectrum of requirements of a large organization. But this distinction between general-purpose and specialized platforms for composite applications still is not well-understood by vendors and users; thus, products in these two classes frequently compete, although they could potentially complement each other.

Market Definition/Description

Gartner defines "application infrastructure" as platforms for the delivery of applications, including development and runtime enablers. This Magic Quadrant considers the perspective of buyers whose primary interest is in application infrastructure for SOA composite application projects. It, therefore, emphasizes the supplier capabilities that are most relevant to projects that have as their primary objective the design, development and deployment of composite applications that implement new transactions, processes and user experiences by assembling and orchestrating the resources of multiple, independently designed services and applications (old and new, internal and external to the enterprise).

Composite applications were identified by Gartner as an application integration style several years ago. Until recently, this style was adopted only by the most technically knowledgeable, leading-edge users, given the inherent complexity of mixing and matching diverse generations of technologies, for example, integrating new Java or .NET-based front ends with custom or packaged applications not designed to expose programmatic access.

During the past five years, SOA composite application projects have become more widely adopted because of the availability of better development tools, and because the maturation of middleware technology has made it easier than integration with legacy applications and packages. But composite applications now are being endorsed by mainstream organizations, as they and their packaged-application and SaaS application providers move toward SOA, which favors the rapid creation of new applications by assembling and orchestrating pre-SOA assets with applications exposed through well-defined service-oriented interfaces. In fact, the potential for reuse of established applications (which, in turn, leads to lower development costs and shorter time to deployment) is one of the main drivers for (and benefits of) SOA.

Vendors competing in this market are software vendors providing rich suites of general-purpose, application infrastructure products that can support composite application projects (and, possibly, other project styles, such as new, systematic SOA applications or back-end integration), application integration specialists, and players offering specific composite-application-oriented development and deployment platforms.

This is a turbulent market, with numerous new players frequently entering and quitting the market. Therefore, other vendors not considered in this Magic Quadrant may be suitable for projects in particular geographies or vertical markets, or for projects with very specific requirements. Over time, some of these off-the-radar-screen vendors will possibly emerge as credible players. Leadership positions will change, as large vendors focus more on the composite applications opportunity by completing (possibly through acquisitions) and packaging their offerings to address the requirements of this market. Some small, pure-play vendors will be acquired by larger vendors or will go out of business, but others will grow to become sizable companies.

Inclusion and Exclusion Criteria

To be admitted in the Magic Quadrant for Application Infrastructure for SOA Composite Application Projects, vendors must provide – either in the form of multiple products (whether or not framed in a suite) or as a single integrated product – the following key capabilities:

- Front-end container(s) with support of modern user-interaction models, multichannel, variety of devices and access to established applications via SOA-style (including RPC, EDA, WOA and other models of SOA) or other styles of integration.
- Integrated, repository-based development, assembly, composition, orchestration and deployment tools enabling users to manage the composite application life cycle (including all the metadata and artifacts associated with a given composite application) in a coherent and consistent fashion.
- A set of application integration features – including support for interoperability and messaging protocols (Web services, Java Messaging Service (JMS), Internet Inter-ORB Protocol (IIOP), .NET Remoting, AMQP and others), message routing and transformation and a variety of adapters for legacy platforms and packaged applications – meant to enable access to pre-existing SOA or non-SOA-based applications by wrapping those applications into components or services that can be orchestrated through the composition tools.
- Support for at least a light application container, for example, based on Plain Old Java Object (POJO) or scripting languages like JSP or ASP .NET, aimed at supporting the design and execution of composite application-specific business logic. Providing their own full enterprise application container (for example, Java EE-based) is a plus but is not indispensable for admission; vendors providing the above-listed capabilities on top of one or more third-party containers – Tomcat, Java EE, .NET or others – also can qualify.
- A runtime environment to support the execution of all the artifacts (portlets, widgets, forms, software components, composition and orchestration models, routing and transformation rules, adapters configurations and others) involved in the execution of a composite application user interaction, business logic, data access and composition/integration logic.

Inclusion in the Magic Quadrant for Application Infrastructure for SOA Composite Application Projects is based on an assessment of the fit of a vendor's complete portfolio of application infrastructure offerings to the requirements listed above. We make this selection based on the real-world use patterns, and on the technology content of the vendors' offerings. The vendor must have a strongly competitive offering in the key capabilities, but also must offer useful capabilities in the following technical areas:

- Governance and operations support
- Internal coherence of the suite
- Standards compliance
- Openness and extensibility

Added

Hitachi

Hitachi offers an enterprise service bus (ESB; uCosminexus Service Platform), process modeling tools (uCosminexus Service Architect) and related technologies that provide the capabilities required to support SOA composite application projects.

ObjectBuilders

This organization offers a model-driven environment (LiveApp Player suite) that is designed to create composite applications with diverse user interface requirements.

OutSystems

OutSystems has a track record for delivering composite applications on its All-in-One Agile Platform.

Microgen

The company offers model-driven, process-oriented development and integration platform capabilities that can support SOA composite application projects.

NEC

NEC offers an ESB (WebOTX Enterprise Service Bus), process design tools (WebOTX Process Conductor) and other technologies that provide capabilities required to support SOA composite application projects.

Red Hat

Red Hat introduced the Enterprise SOA Platform, which is primarily oriented toward new and composite SOA applications, and now has a sufficient set of technologies for some SOA composite application projects.

SOALogix

Originally focused on a narrow problem space, SOALogix decided to compete in the broader application infrastructure market in late 2007. The vendor has a comprehensive platform that supplies most of the features required for composite applications.

Dropped

BEA Systems

The company was acquired by Oracle in April 2008. Most BEA Systems' products are now framed in the Oracle Fusion Middleware stack.

Cordys

This company has focused its efforts on the business process management (BPM) project styles, and away from SOA composite applications projects.

Digital Harbor

The company was acquired in July 2007 by Norkom Technologies, an Irish company providing enterprise financial crime and compliance applications. Digital Harbor's composite application technology (PiiE) is not sold anymore as a stand-alone product.

Lombardi

Lombardi's primary market focus is BPM-style initiatives, and its product development road map reflects the priorities of BPM buyers, although at times it may inadvertently find users looking for technology to enable SOA composite application projects.

Metastorm

Metastorm's primary market focus is BPM-style initiatives, and its product development road map reflects the priorities of BPM buyers, although it may inadvertently find users looking for technology to enable SOA composite application projects.

Pegasystems

Pegasystems' primary market focus is BPM-style initiatives, and its product development road map reflects the priorities of BPM buyers, although it, too, may inadvertently gain users looking for technology to enable SOA composite application projects.

Vignette

Vignette did not qualify for this Magic Quadrant because the vendor doesn't provide certain critical application integration capabilities that are required to support a back-end class of composite application.

webMethods

This company was acquired in June 2007 by Software AG. Most of webMethods' products have been integrated into Software AG's offerings and retain the webMethods brand.

Evaluation Criteria

Ability to Execute

Implementing composite applications is a technically complex effort; therefore, the ability to execute in the application infrastructure for composite application projects market primarily reflects maturity and completeness of product offering, reasonably affordable costs, and a sizable customer base reporting good experience with using a particular vendor's technology for end-to-end support for composite applications. Vendors' responsiveness in reacting to market trends, and effectiveness in supporting customers with a proper organization also are important factors, although not more than for other markets. Vendor and product viability is less-relevant, given that this is a still-nascent, largely undefined market, where products often are used by customers for implementing highly differentiating, quick return-on-investment applications. Product innovation and quality, developers' productivity, vendors' commitment to client success and low costs are still more relevant than a well-oiled marketing machine and products' or vendors' long-term survival outlook.

Therefore, the following Ability to Execute criteria and weightings determine the vendors' ratings in this Magic Quadrant (see Table 1).

Table 1. Ability to Execute Evaluation Criteria

Evaluation Criteria	Weighting
Product/Service	high
Overall Viability (Business Unit, Financial, Strategy, Organization)	low
Sales Execution/Pricing	high
Market Responsiveness and Track Record	standard
Marketing Execution	low
Customer Experience	high
Operations	standard
Source: Gartner	

Completeness of Vision

In a turbulent growth market such as application infrastructure for SOA composite application projects, the ability to anticipate market trends and to react with an offering road map that supports

differentiating technical innovation, as well as aggressive and specific sales tactics and strategies are critical success factors. Focus on selected vertical market requirements and a clear and crisp message to educate the market and to establish brand awareness are also important factors. In this phase of market evolution, where offering qualities and differentiation are all-important, users are less interested in understanding whether the vendors they are considering have devised a sound business model. Also, worldwide availability and support of an offering are less important than they are in other markets, because these technologies are often used in departmental or line-of-business composite application projects that don't need to be deployed in remote geographies.

Therefore, the following Completeness of Vision criteria and weightings determine the vendors' ratings in this Magic Quadrant (see Table 2).

Table 2. Completeness of Vision Evaluation Criteria

Evaluation Criteria	Weighting
Market Understanding	high
Marketing Strategy	standard
Sales Strategy	high
Offering (Product) Strategy	high
Business Model	low
Vertical/Industry Strategy	standard
Innovation	high
Geographic Strategy	low
Source: Gartner	

Leaders

Leaders in this market are vendors with a proven and comprehensive composite-application-oriented product set, a sizable installed base of reasonably happy clients that are using the vendors' products to support front-end and back-end composite applications from top to bottom (for example, from user experience management to integration with established back-ends), an ample installed base of applications or platform middleware to which they can cross-sell their composite-application-oriented products, and a demonstrated ability to anticipate technology and market trends by extending their offerings with composite-application-enabling technology.

Leaders also manifest their understanding and commitment to the market by providing specific packaging of their product suites for supporting SOA composite application projects, by offering specialized products or packaged composite applications, or by proactively pursuing the application infrastructure for SOA composite application projects opportunity through focused marketing messages and value propositions, and through specific sales strategies.

Challengers

Challengers are vendors that have demonstrated that their technology can support the implementation of numerous, large, business-critical SOA composite application projects, and that have built platforms capable of effectively competing and often winning against the leaders.

However, the vision of challengers in this market has not yet been fully articulated, or is restricted to specific scenarios or geographies, or is not manifested through focused marketing messages and value propositions. Typically, these vendors don't have specific composite application products or packaging of their suites, and they consider composite applications as an opportunity ancillary to other markets – such as portal, SOA, BPM, back-end integration or user productivity. Most challengers have the opportunity to become leaders through a greater product, marketing and sales focus on this market.

Visionaries

Visionaries in this market are usually vendors with a strong focus on composite applications, from a sales and marketing perspective, and have products or packaging of their general-purpose suites specifically targeting this opportunity. For some of these vendors, application infrastructure for SOA composite application projects is their primary or sole market. They have invested primarily in the development of innovative, composite application technology, and their prospects for survival and growth critically depend on their ability to establish a strong presence in this market.

However, the products of some larger visionaries have relatively small installed bases for end-to-end support for composite applications (although some components of their suites – for example, portals, orchestration, application integration tools or adapters – frequently can be used in SOA composite application projects to complement other vendors' products), or their

production readiness is not fully proved, because they are still in the initial stages of their life cycles. Through diligent and focused execution, some of these players have the opportunity to become leaders. Other vendors are small; have limited sales, marketing and support capabilities; and have little or no support from large partners – thus, their ability to pursue their ambitions is slowed. Many visionary vendors are likely to merge or be acquired by larger companies, but some offer excellent and highly innovative products that outperform large vendors' offerings.

Niche Players

Niche players' offerings usually are good, in some cases, excellent in composite application technology, but some lack focus on this market, which for them is a marginal business. In some cases, vendors' offerings are functionally limited, because they provide only basic capabilities in critical areas (for example, user interface management, composition and integration). Some vendors also have limited sales, marketing and support resources; others are committed to only one geography or installed base. Nevertheless, the composite-application-enabling technology these vendors offer can represent an optimal choice for specific classes of users, such as those procuring application infrastructure technologies for other kinds of projects from the same vendor, or for those in the same geography where the vendor operates. Some vendors in this quadrant potentially can emerge as visionaries through a greater commitment to innovation and focus on this market.

Vendor Strengths and Cautions

Compuware

Strengths

- Compuware's Uniface development platform has a large and loyal customer base (approximately 2,600 worldwide) and partner network (approximately 400 worldwide) in North America, Asia/Pacific and Europe, the Middle East and Africa (EMEA). The latter is Uniface's stronger region.
- The vendor also offers an integrated, Uniface-based application platform suite (Uniface APS), including development tools, runtime container, user experience management (including portal, Ajax and mobile support), basic application integration and BPM capabilities.
- Uniface technology has been in the market for almost 25 years, and frequently is used to support composite application projects.
- Uniface has a reputation for being a high-productivity development platform.

Cautions

- There is low market awareness and visibility for Uniface outside the Netherlands, France, Germany, North America, the U.K. and Japan.
- There are limited marketing investments in Uniface – primarily focused on preserving Uniface's partners and installed base, rather than on gaining new adoption.
- There has been a conservative product evolution and restrained incorporation of new technologies due to Compuware's primary focus on supporting existing customers.
- The recently released Web 2.0/Rich Internet Client extensions still have a small number of production deployments.

Fujitsu

Strengths

- Interstage Studio offers a one-stop shopping, integrated-SOA-development environment providing a consistent notation across business process definitions (Interstage Business Process Manager), orchestration definition (Interstage Service Integrator, ESB), front-end development (Interstage Interaction Manager, portal), business logic definition (Interstage Application Server) and batch job definition (Interstage Job Workload Server), which makes service composition more effective and broader.
- The Interstage suite offers a strong capability in incorporating legacy applications into services, along with legacy integration (including between batch-based processing and real-time processing).
- The offerings provide a high-quality-of-service application platform technology, along with service development tool (Interstage Studio).
- Strong composition, process management and service governance capabilities are availability with Interstage Business Process Manager, Interstage Service Integrator and CentraSite (service registry and repository).

Cautions

- The Interstage offerings need more-aggressive scenarios and support for the user experience side of composite applications.
- There has been a slow increase of composite application reference customers, although the increase is occurring steadily.
- There has been insufficiently aggressive support for service component architecture (SCA) and OSGi.

- There is room for improvement in the size and degree of leveraging of the partner network outside Japan.

GT Software

Strengths

- The company is profitable and stable, and has been in business for almost 25 years, with a singular focus, deep market understanding and proven track record in mainframe integration and composition technology.
- There is a strong SOA integrated development environment (IDE) for mainframe services.
- There are a variety of deployment options on/off the mainframe.
- GT Software offers a good, data-centric solution for providing SOA for nonrelational data stores on the mainframe.

Cautions

- This is a small, private firm needing greater geographic reach.
- The company competes with much larger vendors that have greater market reach.
- There is a small direct sales force, and it is focused in the U.S.

Hitachi

Strengths

- Hitachi has a strong track record on service enablement and integration for back-end applications (via uCosminexus Service Platform).
- Powerful flow management capabilities are available via the uCosminexus Service Platform and uCosminexus Service Architect.
- A robust service execution platform is provided on uCosminexus Application Server, running on rock-solid Java Virtual Machine (JVM) (this has full garbage collection avoidance).
- A proven knowledge-based user interface navigation development tool is provided via uCosminexus Navigation Platform for enhanced ease of development.

Cautions

- The products offer limited vision on integrating environments for development, runtime and related technologies, such as business rule management (BRM) for flow-based service composition across the user-facing layer and the back-end layer.
- There is weak support for SCA, OSGi and Web 2-0-related technologies.
- There also is weak coordination, in terms of life cycle management and governance.
- The uCosminexus product family has a relatively limited presence and a small partner network outside Japan.

IBM

Strengths

- IBM has brand recognition, global reach and “mind share,” as well as a large and loyal installed base of “composable” enterprise applications based on veteran Customer Information Control System (CICS) and Information Management System (IMS) transaction-processing monitors and System i midrange servers.
- There is a huge installed base and a widely recognized brand for the WebSphere suite of application infrastructure technologies, which frequently are used for SOA composite application projects, especially front-ends for mainframe-based applications.
- IBM has a comprehensive offerings for composite applications, including systematically oriented (WebSphere Business Services Fabric) and opportunistically oriented (IBM Mashup Center and WebSphere sMash) composition platforms, multichannel user experience support, portal, enterprise application server, ESB, service composition and workflow (WebSphere Process Server), legacy modernization (WebSphere Host Access Transformation Services), registry/repository, development tools, security, management and composite application templates (IBM Industry Content Packs).
- The company has a closely aligned software and professional-services go-to-market strategy that is strongly focused on composite applications in the context of SOA-centric value propositions.

Cautions

- The WebSphere product set is wide, still complex to deal with (although recently it was improved in usability) and expensive to deploy, operate and build skills for, especially when multiple components must be used. Therefore, it is primarily suitable for the most demanding composite application projects.
- IBM’s middleware suite includes multiple, overlapping products in many areas (for example, ESB) that, coupled with

interproduct dependencies (for example, between BPM and ESB), make it difficult for users to select WebSphere products that fit best with their composite application requirements.

- There are few production deployments for WebSphere Business Service Fabric (fewer than 10) and for IBM's new and still relatively unproven mashup-oriented composition platforms (IBM Mashup Center and WebSphere sMash).
- Some critical products for composite application projects, such as WebSphere Process Server and WebSphere ESB, still experience technical and adoption challenges.

InterSystems

Strengths

- InterSystems offers an advanced, well-integrated technology suite for composite applications, including a dual-mode (object-oriented and relational) database (Caché), rich support of event processing internal to the platform (Ensemble), high-productivity programming model, portal builder, rich collection of application and protocol adapters, rich Internet application (RIA) developer and multilayer business process orchestration tools.
- The company has a strong profitable business, with no debt and with a worldwide presence.
- InterSystems has a leading position as an application infrastructure provider in the healthcare industry – including high popularity with independent software vendors (ISVs). There is increasing adoption in new vertical industries (including financial services, telecommunications and government), beyond traditional healthcare.
- InterSystems recently entered into the electronic health record exchange market, with HealthShare and TrakCare, thus maintaining company's leadership as the healthcare industry changes.

Cautions

- The lack of investment in XTP capabilities (tera-architecture and distributed caching) can deter new high-end mission-critical projects.
- The absence of cloud-computing options can open the company to new competitive challenges.
- Company mind share outside of the healthcare vertical industry remains limited despite some progress.
- InterSytems is a privately held business and, as such, is more prone to surprises than transparent, publicly owned businesses (although this particular company has had a steady business record).

Magic Software Enterprises

Strengths

- Magic Software has an RIA environment based on a proven, metadata-driven, application development and (soon to be SaaS-enabled) runtime (uniPaaS), plus iBOLT integration platform, providing transformation, routing, human workflow, modeling, composition, portal and business activity monitoring, and BPM.
- The vendor offers an easy-to-use, flexible and productive product set designed specifically to support composite application development and deployment.
- Magic Software has a large and global network of partners, including ISVs, value-added resellers (VARs) and system integrators (SIs).
- The offerings have a singular focus on small or midsize businesses (SMBs), and on SAP, Oracle's JD Edwards World, salesforce.com's and IBM's System i ecosystems via indirect channels.

Cautions

- The company's management changes and reorganization appear to be complete and successful, but the RIA-focused and SaaS-enabled application platform (SEAP)-focused approaches are new and will need time to settle.
- There is limited brand recognition in the composite applications market space, especially in large enterprises.

Microgen

Strengths

- Microgen offers an original, metadata-driven application infrastructure platform (Microgen Aptitude), combining in a single, integrated product: flow management, business rules, business activity monitoring, application integration and transaction-processing capabilities to support composite applications and other project styles.
- Microgen Aptitude provides a single, cohesive data-flow-driven modeling environment covering all aspects of composite application development (user experience, composition, business rules and integration) and execution.
- Microgen Aptitude has proved effective in highly demanding scenarios supporting large ("extreme") transaction volumes.
- There is a strong company focus on selected vertical sectors (financial services, telecom, energy, transportation and media).

Cautions

- Aptitude's value proposition, primarily focused on the product's technical merits, is of limited appeal for less-technology-savvy, mainstream organizations.

- The recently established partnerships with large SIs (Accenture, BearingPoint and Logica) require Microgen's continuing efforts and focus to actually generate the anticipated benefits in terms of Aptitude user adoption and third-party skills availability.
- Microgen's continued low brand awareness limits the company's chances to be invited to open bids and RFPs.
- Having a primary geographic focus on the U.K. and in some continental European countries (operations in North America only recently started, and there is no activity in Asia/Pacific) may make Microgen technology's unappealing for large, multinational companies.

Microsoft

Strengths

- Microsoft has a massive presence and proven reputation in the application development markets, with SMBs, ISVs and, increasingly, enterprise software developers; Microsoft development languages and tools are used broadly across industries and geographies.
- Windows Communication Foundation (WCF) and Windows Workflow Foundation (WF) provide a critical infrastructure for composite applications and are free as part of the .NET Framework or as part of the future Azure Services Platform – in the cloud
- BizTalk Server and SharePoint Server products (also key components of Microsoft's approach to composite applications) continue a strong growth in adoption.
- The company's visionary investments in business application modeling ("Oslo") and cloud computing (Windows Azure) expand future possibilities for application compositions.

Cautions

- Despite availability of interoperability adapters, BizTalk Server is incompatible with WF (both key parts of Microsoft's composite application support) since the former uses the XML-based extension of Web Services Description Language WSDL (XLANG) and the latter uses the Extensible Application Markup Language ([XAML) to define and drive process. This opens the possibility of new discontinuities for current Microsoft-based composite applications when the two are finally unified.
- The lack of a shared registry/repository for SOA (beyond UDDI) reduces the effectiveness of development for composite applications and partnerships.
- The absence of a specialized integrated platform for the production of composite applications makes the Microsoft offering less attractive than some specialist-vendor alternatives, especially for opportunistic projects (a majority in this market). The general-purpose Visual Studio Team System 2008 Team Foundation Server targets life cycle management for systematic projects, and does not specialize in support of rapid delivery of composite applications.
- Microsoft products are available for deployment on the Windows operating-system family only (although interoperability options are available with BizTalk Server and elsewhere).

NEC

Strengths

- Powerful and well-integrated capabilities are available for process and service orchestration modeling and implementation via WebOTX Process Conductor.
- There is a high-quality and high-performance (large-volume data traffic/transaction) platform and service integration capability (WebOTX Application Server and ESB).
- There is a service-reuse and governance-focused repository via WebOTX Service Repository, with systematic service development methodology via System Director Enterprise.
- WebOTX ESB supports a strong multiprotocol combination with high performance and support for large messages.

Cautions

- There is limited support for Web 2.0-style compositions while supporting multiple styles of user interface (rich and thin) development and ESB-based service composition.
- There are multiple BPM engine technologies.
- There is a lack of architectural coherence.
- The company has a relatively limited presence and a small partner network outside Japan.

ObjectBuilders

Strengths

- The product has a metadata-driven system, with a unique approach, broad capabilities and easily reusable component packaging.
- The offering includes a development methodology and service offerings.
- Specific solutions aimed at particular markets and problems simplify the use and consumption of the technology.

Cautions

- System design is based on end-user-oriented flows, and may not be suitable for some back-end (non-user-facing) development.
- ObjectBuilders is a small company, albeit with a history of work in composite applications.
- The product's approach focuses on the creation of business objects to ease application deployment. Generalizing the business objects for use over multiple applications requires substantial discipline.

Oracle

Strengths

- Oracle has a large installed-base of composable packaged and on-demand applications (including E-Business Suite, G-Log, i-flex, JD Edwards, MetaSolv, PeopleSoft, Portal Software, Retek, Siebel and several others) suitable for cross-selling of composite application technology.
- The widely adopted Oracle Fusion Middleware (including products coming from the BEA Systems' acquisition) has a set of application infrastructure technology that is frequently used for SOA composite application projects.
- Oracle offers a rich set of composite-application-oriented Oracle Fusion Middleware products (development tools, metadata management, SOA governance, user experience management, orchestration, ESB, adapters, business rules, integrated business intelligence and enterprise application server).
- Oracle provides a growing set of packaged composite applications (Oracle Process Integration Pack) framed into Oracle's Application Integration Architecture (AIA), targeting multiple Oracle applications, also available "on demand" and open to integration of third-party packages by partners and users via specific toolkits (Foundation Pack).

Cautions

- The massive effort to integrate BEA Systems' technologies into Oracle's original products will absorb significant Oracle R&D resources, may risk slowing down the pace of innovation and may expose the installed base to inconsistencies in the migration path.
- The worldwide process of integrating BEA Systems' sales and support organization is still in progress in several countries, and may slow down Oracle's momentum in the middleware business.
- There is a lack of a focused, composite application value proposition for Oracle Fusion Middleware outside Oracle's AIA initiative.
- Still in the making, the consolidation of user experience technologies in the strategic Oracle WebCenter (requiring the integration and rationalization of multiple portal and Web 2.0 products deriving from BEA Systems and Oracle developments) may make users consider alternatives from competitors, especially if they are looking for a platform to support front-end composite application projects.

OutSystems

Strengths

- OutSystems offers straightforward technology with a broad range of capabilities, including traditional workflow, integration, and Web technologies.
- The company is visionary in that its platform and approach support agile development and continuous change, as well as the ability to scale up for large enterprise systems.
- Application deployment, monitoring and control are built into the platform.

Cautions

- Based in Europe, the company is relatively small.
- Agile development assumptions may be radical for some customers.
- The global service partner network is still limited.

Red Hat

Strengths

- The combination of a leading open-source operating system (RHEL) and a dominating open-source application server technology (JBoss) positions the company as a leader in the open-source enterprise computing markets.
- The growing adoption of open source in the mainstream user base, especially in the current difficult economic climate, benefits Red Hat as a leading open-source provider.
- The recent introduction of the ESB/BPM-centric JBoss Enterprise SOA Platform creates opportunities for building systematic composite applications (although relatively advanced technical skills would be required in most scenarios).
- The large pool of technologies in the JBoss.org family and in the open-source communities at large enable potentially rapid expansion of the company's offerings, taking advantage of the nature of the open-source software development process.

Cautions

- The current lack of integrated development and modeling tools dedicated to composite applications reduces the attractiveness

of Red Hat offerings with opportunistic projects (a majority case in this market). There is no central repository for metadata, a further missing element. Although there are plans to fill these gaps, the current technology remains suitable mostly to Type A, technically advanced, SOA composite application projects.

- Despite an improving vision (the addition of dashboarding to the portal product offering) there is limited capability for the design of user-facing front ends for composite applications. The portal technology lacks ease of use for mainstream project types and is suitable mostly for ISVs; there is no platform for mobile client devices.
- There is no plan yet in place to offer an integrated platform dedicated to the quick production of compositions, a requirement for the opportunistic composite application projects that dominate this market.
- Most technologies that support composite application projects (JBoss ESB, JBoss BPM, Java Universal Description, Discovery and Integration [jUDDI] and JBoss Rules) are improving adoption, but still require larger numbers of production mainstream deployments to be proven.

SAP

Strengths

- The company's composite-application-centric strategy supports extensions of SAP packages, with application add-ons from SAP and partners.
- SAP has a strong, application-centric SOA vision (SAP SOA) that supports composite applications strategy.
- Rich SAP NetWeaver APS incorporates portal, composition and development tools, as well as orchestration, application integration and enterprise application server technologies.
- SAP NetWeaver provides a variety of composite-application-oriented development tools (BPM, BRM, Composite Application Framework, Guided Procedures and Visual Composer) integrated in the Eclipse-based, Java Platform, Enterprise Edition (Java EE) 5 and service data objects (SDO)-enabled SAP NetWeaver Composition Environment.

Cautions

- SAP NetWeaver has scant appeal for non-SAP customers looking for application infrastructures for composite applications, given the strong ties with SAP's packaged applications. Most SAP NetWeaver customers are already SAP application customers.
- SAP SOA, albeit rapidly maturing, is still in its early stages, and is not yet widely adopted in production SAP NetWeaver Composition Environment-based SOA composite application projects.
- The new SAP NetWeaver Composition Environment still has a limited number of production references and real-life deployments (approximately 50).
- SAP NetWeaver BPM and SAP NetWeaver BRM are still in ramp-up phase, with general availability coming in mid-2009.

Seagull Software

Strengths

- Seagull has a complete suite of products for legacy integration (LegaSuite).
- The company offers good service support.
- There is a plan for a new Java-based version of the product that will include support for OSGi, SCA and Java Business Integration (JBI).

Cautions

- The company's low-key marketing strategy after its acquisition by Rocket Software risks reducing market awareness about Seagull Software as a company and the LegaSuite product line.
- There has been flat new-client growth pending post-acquisition restructuring.
- The continued evolution of core LegaSuite technology capabilities into Java poses some risks of migration to the installed base.

Skyway Software

Strengths

- The offering has a simple, yet comprehensive, service manipulation, creation and orchestration toolset.
- The product has a strong graphical environment that is easy to learn and use.
- The offering has a front end for business service repository interaction.
- Skyway offers a nicely integrated product set.

Cautions

- The company has relatively weak market visibility, as compared with larger players.
- As a small company with a small client base, Skyway will find it difficult to grow rapidly.
- The company's comparatively small geographic reach increases risks for customers outside the U.S.

Software AG

Strengths

- Software AG is an ambitious, growing and profitable company willing to expand through acquisitions.
- The webMethods middleware business is growing fast (34% in the first three quarters of 2008 vs. 2007).
- The company has a large and loyal installed base for Natural fourth-generation programming language, and the Adabas database management system (DBMS) that represents an upsell opportunity for the webMethods composite application technology.
- The combination of Software AG and webMethods product portfolios results in an extensive and coherent composite application offering – including user experience support tools, BPM technologies, legacy integration, ESB, business activity monitoring, data integration, master data management and metadata management (CentraSite) – frequently used for SOA composite application projects.

Cautions

- There is a lack of focused value proposition and go-to-market strategy for composite application projects.
- The development and deployment of composite applications needing service composition may require purchase and deployment of multiple products (for example, webMethods Composite Application Framework and webMethods Integration Server).
- The decommissioning of Software AG's Crossvision Application Composer poses migration challenges toward combined webMethods Composite Application Framework and Integration Server.
- The lack of available integration between the webMethods Composite Application Framework and the CentraSite registry/repository may make large-scale composite application projects cumbersome to manage.

SOALogix

Strengths

- The SOALogix Confero product has an innovative technology driven by a Semantic Information Model, which will simplify the implementation of composite applications.
- The offering has a standards-conformant platform that provides a broad set of features for composition, including orchestration, rule management, policy and life cycle management, and data integration.
- The product has a subscription-based sales strategy with competitive pricing.

Cautions

- Although products are innovative and comprehensive, SOALogix is a small vendor that, only in 2007, entered a highly competitive market dominated by megavendors; the current installed base for composite applications is approximately a dozen clients.
- Confero is sufficiently general and complete for composite applications. Although SOALogix offers customers training on Confero, which includes composite application development, the training curriculum currently has no courses specific to the use of Confero for composite applications.
- The current composition design surface supports users by creating a directed graph. While usable, it lacks features and ease of use provided by tooling developed specifically for composite applications.
- Although a cloud-computing message is emerging from SOALogix, the company faces stiff competition from megavendors, including IBM, Oracle and Microsoft, and from open-source offerings. It will be challenging to attract ISVs to SOALogix's technology for application-platform-as-a-service (APaaS) and SaaS offerings.

Sun Microsystems

Strengths

- Sun Microsystems was one of the first vendors to recognize the role of integration technology in implementing composite applications, and was among the first to brand its product accordingly.
- Sun offerings have a wide, normalized, well-integrated, well-architected set of functionality designed to work with any Java EE-compliant application server.
- The company's products are JBI-compliant, and the microkernel architecture enables right-size deployment.
- Sun has multiple large customers with enterprisewide commitment to Java Composite Application Platform Suite (JCAPS) products.

Cautions

- Sun's sales force is maturing in its ability to sell application infrastructure; however, Sun still has work to do to regain the momentum previously enjoyed by SeeBeyond in a market where growth is flattening.

- JCAPS' mind share still lags behind that of products from IBM, Oracle, Tibco Software, Software AG and SAP, resulting in these vendors being considered ahead of Sun.
- Sun offers a broad set of open-source technologies for composite applications, including middleware, tools, databases, virtualization and operating systems. However, Sun's marketing for its JCAPS open-source components lags behind what is provided for its other open-source offerings, including Solaris, MySQL and the GlassFish application server.
- There is a lack of a sophisticated metadata management, such as that of a registry/repository, and associated features, such as policy and life cycle management.

Tibco Software

Strengths

- The company has a new product packaging strategy that offers a "bare bones" ESB (SOA Starter Bundle) at a price that's affordable for projects, and a clear technology growth path adds ActiveMatrix BusinessWorks (Integration Bundle) and composite application features (Composite Application Bundle) in layers.
- The platform is designed to permit a spectrum of application servers to play the role of a runtime container.
- Tibco has a comprehensive product line with strong functionality. The products address integration and SOA, and has the innovative ActiveMatrix Service Grid technology.
- Robust messaging features can be used for composite applications with event-driven architecture (EDA).

Cautions

- ActiveMatrix is new (as compared with Java EE application servers), and does not have the track record of competing infrastructure products.
- The development environment, while containing a design surface for composite applications, lacks the popularity and widespread use (thus, the ensuring refinement) of products like Visual Studio or JDeveloper.
- The breadth and sophistication of ActiveMatrix BusinessWorks results in it being overkill for a small number of simple, composite application projects. There is little interest in selling infrastructure at a price affordable for such a situation. Tibco sometimes negotiates but holds the line in most cases.
- Although Tibco's ActiveMatrix technology is frequently used in composite applications, the number of customers that have deployed all the bundles applicable to composite applications (SOA Starter, Integration, Composite Application and SOA Management) is limited.

TmaxSoft

Strengths

- TmaxSoft offers an intuitive visual-service composition environment, with easy operation for mashup, back-end service integration and various flow management capabilities via ProWeb, ProWave, ProBus and ProFrame tools, along with support for multichannel style access via an AnyLink environment.
- The offering has a proven composite packaged application for the banking and telecom industries to address change flexibility and enjoys strong, leverageable references and enterprise-scale implementations, particularly in the financial services and banking industries.
- The product has strong, proven technology, particularly the runtime, back-end container, for mainstream and high-end, transaction-processing requirements, and solid back-end integration capabilities.
- The company is very aggressive when it comes to implementing industry standards, such as Java EE, OSGi, SCA and SDO.

Cautions

- Although TmaxSoft offers a powerful user experience composition capability, native support for REST has room to improve.
- Despite investments in multiple regions (the U.S. and China, which has the company's second-largest location outside Korea and is nearly the same size as the location in the U.S., Japan and Southeast Asia) to enhance direct sales and support, TmaxSoft's presence outside the Korean home market is still small.
- The company still has a limited number of reference customers for composite application projects.
- More aggressive sales and marketing activities are needed.

Vendors Added or Dropped

We review and adjust our inclusion criteria for Magic Quadrants and MarketScopes as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant or MarketScope may change over time. A vendor appearing in a Magic Quadrant or MarketScope one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. This may be a reflection of a change in the market and, therefore, changed evaluation criteria, or a change of focus by a vendor.

Evaluation Criteria Definitions

Ability to Execute

Product/Service: Core goods and services offered by the vendor that compete in/serve the defined market. This includes current product/service capabilities, quality, feature sets and skills, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

Overall Viability (Business Unit, Financial, Strategy, Organization): Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

Sales Execution/Pricing: The vendor's capabilities in all pre-sales activities and the structure that supports them. This includes deal management, pricing and negotiation, pre-sales support and the overall effectiveness of the sales channel.

Market Responsiveness and Track Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional initiatives, thought leadership, word-of-mouth and sales activities.

Customer Experience: Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

Operations: The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Completeness of Vision

Market Understanding: Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those with their added vision.

Marketing Strategy: A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the Web site, advertising, customer programs and positioning statements.

Sales Strategy: The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

Business Model: The soundness and logic of the vendor's underlying business proposition.

Vertical/Industry Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.