Client Issues for Application Platform Choices

Enterprises face platform decisions every day: What application server should we choose? What vendor can we trust? Is it time for an application platform suite? Gartner’s research agenda explores the choices.

Application platforms (also known as platform middleware) act as software infrastructure containers for purchased or custom-built application software. Business applications are written to an application platform, not to its underlying operating system. The choice of an application platform for an application project can directly influence the quality and longevity of the application and the success of the entire project. Staying informed of the risks, opportunities and trade-offs in the choice of application platforms and their use is imperative to making competent decisions relative to enterprise application software, infrastructure and architecture.

Enterprises face difficult decisions in selecting the appropriate form of a platform, a dependable platform vendor and appropriate application architecture. To insulate application software from the surrounding technical components, platform middleware provides a programming model to the application developers, which abstracts the features of the external resources and imposes a model of a software architecture on the resulting application — such as Java 2 Platform, Enterprise Edition (J2EE), Customer Information Control System (CICS) command level or .NET. Over time, the prevailing application models have evolved from monolithic online transaction processing (OLTP), to distributed OLTP, to object-based and Web-based service-oriented and composite styles of applications. For each of these software architectures, there are multiple application platform implementations best reflecting its requirements. Thus, over time, the shape and the form of platform middleware have changed, and so have the best practices for the use of application platform technologies.
Most currently deployed or currently in-development business applications use an application platform:

- Java application servers — J2EE, IBM WebSphere Application Server, BEA WebLogic Server
- Microsoft application platform — .NET Framework/Windows Enterprise Services
- Programmable portal products — platforms for user-facing business applications, such as Plumtree Software’s Portal Platform and Vignette’s Application Portal
- Application platform suites (APSs) — an assembly of an application server, a portal product and an integration broker; a platform for complex composite and multichannel applications, such as BEA Systems’ WebLogic Platform and SAP’s NetWeaver
- Transaction processing (TP) monitors — IBM’s CICS, BEA’s Tuxedo
- Database management systems’ stored procedures platforms (Oracle PL/SQL)
- Programmable Web servers — Microsoft’s Internet Information Server, Sun ONE Web Server
- Various embedded and other platforms — SAP’s BASIS, PeopleSoft’s PeopleTools, ATG Dynamo

**Platform Suites Replace Point Products**

Technology suites are becoming the prevailing way of packaging and selling software infrastructure solutions. Application servers are included in most such suites — development frameworks, portal products, APSs and smart enterprise suites — as fundamental enabling technology. Although demanding systematic projects continue to deploy stand-alone, high-end application servers, by 2007, more application server technology will be deployed as an embedded part of another product than as a stand-alone product (0.7 probability). Thus, now and in the future — whether the enterprise explicitly chooses an application server or not — an application server will be deployed and used in the majority of enterprise business application projects, directly affecting their ultimate power and quality. Enterprise IT planners are well-advised to understand the trade-offs, risks and opportunities in selecting their application platforms.

The following are the Client Issues Gartner will examine during the next 12 months to help clients understand and make the best use of this complex and rapidly changing technology field.
How will enterprise users choose application platform products and vendors?

Some previously popular platform technology has disappeared into the legacy domain — for example, CICS, Tuxedo and Common Object Request Broker Architecture (CORBA). The basic J2EE application servers are rapidly becoming barely differentiated commodities. Advanced J2EE application servers are becoming less standard and more expensive. Meanwhile, new platform technology is emerging (APSs) that is only minimally standardized, has a limited production record, but promises next-generation agility for enterprise IT. In these circumstances, choosing a platform product for a project can be a daunting task. We look at vendor strategies and product evolution trends to help clients make safe decisions that do not endanger their strategic interests.

How will enterprises best use the coexisting commercial J2EE, .NET, open-source J2EE and proprietary application platforms?

Microsoft and the J2EE platform vendors (BEA, IBM, Oracle, Sun Microsystems and SAP) claim superiority in their technology and their long-term vision. In reality, both architectures are useful in some circumstances, and most enterprises use both in their application infrastructure. In addition, proprietary application platforms remain in use, mostly as enabling technology for packaged applications or embedded in development tools and fourth-generation language. Finally, open-source J2EE renditions are growing in popularity as low-cost alternatives for less demanding requirements, challenging Microsoft's and the J2EE vendors' strategies. We look at the best-practice strategies of managing this diversity of platform offerings.

How will open-source initiatives affect the users and vendors of application platforms?

Open-source platform technology (Jboss, JOnAS, project Geronimo) is gaining popularity. Users increasingly face the dilemma of acquiring the high-priced commercial product or a nearly free, but largely compatible and seemingly dependable, open-source platform. Over time, the commercial vendors of J2EE will have to establish a balance in their positioning vis-a-vis open-source alternative technology. This will evolve to be an issue for all commercial software vendors, not only for Microsoft, as many see it today. We guide users through the complex and changing landscape of open-source platform offerings.
Which technical innovations in application servers, transaction-processing monitors and APSs will have a real impact on enterprise IT?

Products and vendors compete on features, prices and visions. In the end, however, the market is moved forward by technical and business innovation. We will monitor new developments in the research labs of the large software vendors as well as the new products from innovative startups to guide clients to strategic news and away from tactical hype in platform middleware markets.

What will be the best practices for use of APSs, application servers, TP monitors and other application platform technologies during the next five years?

The success of a software project depends on the creativity and skills of the engineers far more than on the technical merits of the underlying technology. The best products do not guarantee success when the products are misused. Even less powerful products may enable powerful applications when they are used with in-depth understanding of their features. We will monitor and share with clients the best practices in using platform technologies.

How will event-based computing and messaging middleware affect the features, the usage patterns and the internal architecture of application platform products?

Events are emerging as the next-generation foundational architecture for platform middleware itself and the applications that are built on top of the platforms. Events complement service-oriented architecture in the modern enterprise information system environment. Together, the two architectures form the foundation for an agile real-time enterprise. We will monitor closely the evolution of application platform products toward the messaging and event model.

Which vendors will prove to be long-term safe choices for mainstream users of application platform products?

For many projects, vendor and product viability is a fundamental technology selection criterion. Although no product has a 100 percent guarantee of continuing success for an unlimited time, some products are likely to fare better than others. Another issue affecting the safety of the product is often the degree of innovative risk that the vendor will take in evolving its products further. We look at vendors’ business and technical strategies to advise clients on the long-term prospects of vendors and products in application platform markets.
Which vendors will lead the innovation in application platforms for enterprise IT?

For many projects, technology selection is driven by the degree to which the product allows the project to differentiate and excel beyond established practices. Breakthrough innovations can come from the largest software vendors, but often they originate with the less known, smaller, more agile startup companies. We will monitor the new ideas from the market newcomers and the strategic investments of the largest software vendors in the application platform arena to guide clients toward the most-promising technology news.

How will users and vendors respond to the growing tendency to package multiple platform products into integrated suites?

Software infrastructure generalists (IBM, Oracle, SAP, Microsoft, BEA) and specialists (SeeBeyond Technology, WebMethods, Plumtree, JBoss) alike are expanding their offerings in the application platform arena. Application servers and portal products are now complemented by integration brokers, business process management tools, integration and development frameworks and other — formerly stand-alone — technologies. We will monitor the evolving vendor strategies between generalizing and specializing their offerings. We will also watch users’ practices in acquiring and deploying these technology suites to point clients toward the most effective approach, so that they can gain the greatest benefit from this stage of technology consolidation without overburdening their IT with unneeded and redundant technologies.

What will be the evolution of application server products?

Application servers (J2EE and Microsoft styles) have been the core application platform technology for the past five years. Vendors are pushing these products toward consolidated and extended suites, while users are experimenting with the base-level, near-commodity variations of products in the same category. High-end application servers will push toward mainframe levels of quality of service. Low-end application servers will be embedded and become ubiquitous and nearly invisible. We will monitor the vendor and user strategies in selecting and applying application server products to guide clients toward industry best practices in this area. We will monitor the evolution of application server and alternative technologies and guide users to viable application platform choices.
What will be the evolution of APS products?

APSs are emerging as the new form of application platform technology. Whether specialized or general-purpose, most platform products are adopting the fundamental features of an APS: support of component and service development, integration, and portal user interactions, wrapped with integration development and systems management. The tension between the generalists and the specialists is likely to transform both markets. We will guide clients in dependable directions and away from dead-end products in selecting and applying APSs as their application platform solutions.

What will be the evolution of mainframe and other OLTP platform technologies?

Despite their relatively low-key presence, the mainframe and distributed OLTP monitors (CICS, IMS, Tuxedo) remain the most-deployed enterprise-class application platform environments. IBM and BEA are modernizing these products, while also developing the next-generation Java-based mainframe platform products. We will advise users on what to expect from IBM's mainframe initiatives, what other vendors are planning to do in the mainframe context, and when it is the right time to adopt anew or to abandon for good the traditional OLTP application platform products.

How will application platform vendors and users respond to the growing requirement for comprehensive systems management and administration across enterprise business applications?

The long-term success of an application platform depends on its ability to offer effective system management capabilities (monitoring, deployment, tuning, optimization, configuration and version control) for the administration of business applications. As the applications become more complex and more heterogeneous and as the platform products themselves become more complex, the job of systems management remains as difficult and as critical as ever. We will monitor activities of the application platform and independent vendors in offering solutions for the management of the modern application platform infrastructure.

How will application platform vendors and users respond to the growing requirement for comprehensive security across enterprise business applications?

Enterprise applications must be secure. The advanced features of modern applications increase their agility, but also make
enterprises more vulnerable to fraud, negligence and privacy crimes. Application platform vendors and specialists in security software all work to address this growing challenge. Best practices in system design will play an equally important role in ensuring the security of enterprises’ information assets. We will guide users toward establishing the safety and privacy of their applications without undue loss of productivity, performance or other qualities of service.

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<tr>
<th>Acronym Key</th>
<th>Description</th>
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<tbody>
<tr>
<td>APS</td>
<td>application platform suite</td>
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<tr>
<td>CICS</td>
<td>Customer Information Control System</td>
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<td>CORBA</td>
<td>Common Object Request Broker Architecture</td>
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<td>J2EE</td>
<td>Java 2 Platform, Enterprise Edition</td>
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