

Evolution and Extinction: The Application Server Market in 2003 and Beyond

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Application Servers aren't what they used to be. The plumbing for running Java based applications is evolving into something more powerful and feature rich as vendors fight to win and keep customers by offering additional functionality and stronger integration between components.

Previously distinct software categories - including application development, portals, content management, integration servers and message-oriented middleware - are being swallowed into the "app server platform." There is a major convergence at work, standardizing infrastructure pieces up and down the systems stack. BEA and IBM are leading this charge in the Java-oriented world. This is technical consolidation in action.

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Much of the industry is in financial crisis. The majority of software companies are struggling to keep their heads above water because the pendulum has swung from irrational exuberance towards total skepticism. Even if smaller vendors can convince IT buyers of the merits of their propositions, corporate purchasing departments are vetoing deals done with companies perceived as risks. Many smaller vendors are going to be acquired, or worse still, go out of business. Enterprises want to take risk out of the equation—IBM and other larger firms are strongly benefiting from this trend because they are seen as safe harbors. This is industry consolidation in action.

The App Server Stable

In this climate of consolidation, the most important buying criteria for app servers in 2003 are functionality and stability. Java 2 Enterprise Edition (J2EE) and Enterprise Java Beans (EJB) support has now been largely commoditized, and Java standards adherence is no longer the primary decision point in app server purchasing decisions. App servers *are* the middle tier, managing interactions between users and applications, and between applications and data, using standard interfaces. This means the ability to deftly handle XML is becoming just as important as support for Java standards. XML-based, loosely-coupled interoperability is taking its place alongside other enterprise approaches to integration. App server vendors have adopted the XML-handling specifications in J2EE 1.4 even where they are still only certified for J2EE 1.3.

App servers are enterprise service brokers and so will increasingly need to deal not only with Java, but also with Microsoft .NET-oriented objects and messages, and with infrastructure-independent, standards-based business process management formats. The new application server is, to put it simply, a platform for delivering services.

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The majority of end users don't want to be in the glue business—they want to buy systems that were *designed* to work well together. Users still expect and demand support for open standards, but integration increasingly comes first. BEA, IBM and Oracle are leading the charge to build end-to-end application development and deployment environments to meet these customer expectations. Meanwhile, Sun is coming at the integration problem from a slightly different perspective, leveraging the strength of its Solaris operating environment (OE) by actively pushing app server features down to the OE level. For those user and development organizations that want to get out the glue-guns and build their own service-oriented middleware platforms, open source technology from the Apache Software Foundation and JBoss offer powerful alternatives to traditional vendor-developed code. From an Independent Software Vendor (ISV) perspective, companies such as SAP and Novell both offer J2EE-compliant app servers for those customers that don't want to make a strategic commitment to another vendor's platform. But the crowd is thinning out fast.

The Stable App Server

Buyers are looking for financially stable vendors that offer platforms that will still be around in 15 years. Nobody has the stomach for risk, as everyone's jobs are on the line. In this kind of economic climate, stable vendors win market share. Nobody ever got fired for buying IBM-- the old saying is as true today as it ever was. IBM is in the driver's seat from a vendor stability perspective—no other firm in the industry, Microsoft excepted, can match IBM for sheer muscle; from a portfolio diversity standpoint Big Blue is peerless. What is more, IBM takes its platform responsibilities extremely seriously—customers that buy into IBM get investment protection; just ask any IMS/CICS/VTAM/VME shop.

Platform stability is also crucial in making a platform decision. App servers must increasingly offer powerful Reliability, Availability and Scalability (RAS) capabilities, load balancing and caching functions. Tight integration between different constituent components of these emerging app server platforms makes them more stable and effective. Sun is pursuing this strategy aggressively, bringing its integrated systems-building expertise to the stability problem in an initiative called Project Orion, which ties middleware delivery to its Solaris operating system. Their strategy is designed to assail marketshare leaders BEA and IBM by offering a low cost integrated app server package built on Solaris to enterprises, without mandating a migration from WebLogic or WebSphere. The risks in choosing Sun are fairly clear though— the firm is coming from a long way behind its peers in app server market share. Its application server is what amounts to an entirely new product, after a total overhaul from the hybridized codebase that resulted from the meshing of Sun's Kiva and Netscape product acquisition. Another concern from a user standpoint is that unless Sun manages to drive up its share price it remains a potential acquisition target, although it must be said that the list of potential acquirers is short, and any acquirer might make radical changes to corporate strategy. Oracle's current acquisition bid for PeopleSoft, with its public statement that PeopleSoft products will no longer be sold if the deal goes through, is a frightening example of potential risks.

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Platform stability is not just important to big enterprises though; smaller organizations rarely have the skills to fix problems in-house, so they need low maintenance platforms. While large enterprise requirements have been the driving force in the development of app server platforms to date, small businesses are now helping drive the further evolution of these products towards service-driven architectures. Small and medium-sized businesses (SMBs) looking for new applications are increasingly considering online services; most firms are leery of infrastructure replacement and small businesses are no exception. IBM with its Express offerings and Oracle with its Small Business Suite are the major app server players making a big push here.

IBM's experiences in building WebSphere Express v5 for the mid-market has also led to improvements in the management and configuration framework for the enterprise version of the product, WebSphere 5.0. This improvement in manageability is a major step forward for WebSphere, which historically has suffered from a reputation as tough to deploy and manage, and will underpin IBM's success in the SMB *and* enterprise spaces going forward. Another crucial element is ISV support.

Meanwhile, IBM's strategy of not competing with business application vendors is likely to pay significant dividends in the SMB space. While Microsoft and Oracle both compete directly with potential ISV partners, IBM does not. By delivering products actually designed to be embedded in packaged applications, IBM is beginning to build momentum. JD Edwards and PeopleSoft are standardizing on WebSphere, as are thousands of other smaller ISV's—and others will follow suit given the low price points of the Express offerings, and IBM's marketing and technical support.

It's All About The Services

True to their original purpose, today's app server platforms are the foundation of applications that come in all shapes and sizes. Through a combination of market consolidation, standards development, and functional trickle-down, application servers are now strongly positioned at the heart of a modern services delivery platform.

The timing for the arrival of integrated, broadly functional platforms couldn't be better, because today's economic climate demands flexible, cost-efficient delivery of business and IT services. Application servers are increasingly evaluated on factors other than their adherence to the latest and greatest Java specifications or ECperf/SPECj benchmarks. The purchase decision is not about the EJB container anymore; far from it—it's about all of the things that come with it – integration with development and modeling environments, built-in portal functionality, the ability to support different integration models, and so on. Today's application servers need to be viewed through a different lens – what is the product's long term viability? How robust is the environment and ecosystem surrounding it, from development tools to portlet support? Can the platform survive in today's heterogeneous environments, supporting a multitude of users, in varying capaci-

ties? Vendors who've focused on turning their platforms into multi-talented, flexible solutions fitting a variety of needs are the most likely to be answering those questions happily.

Building Success

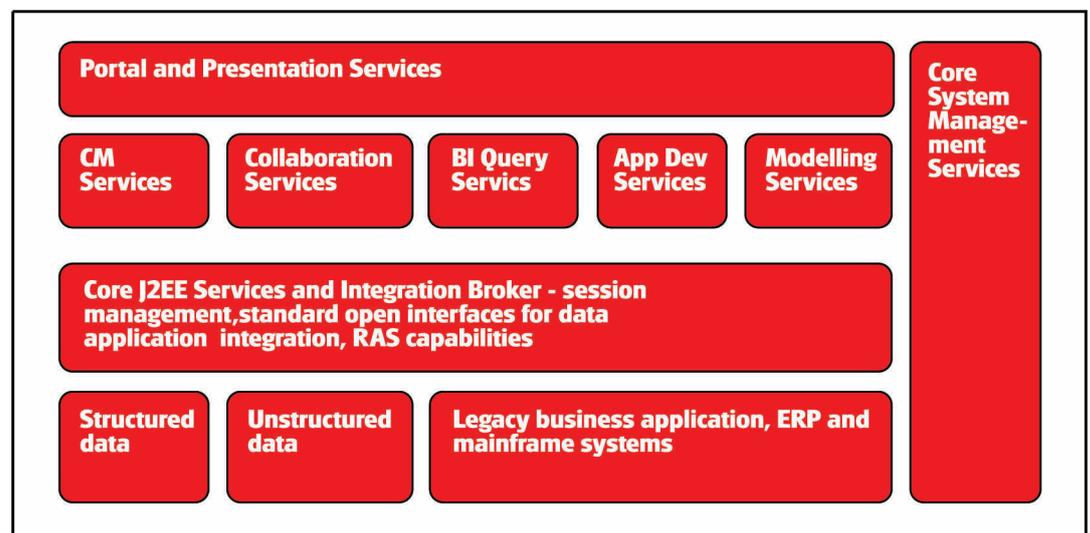
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Another key question is developer productivity. How fast can apps be developed and how well can different development roles, such as modelers, scripters and code junkies be integrated? In this area IBM has gained significant competitive advantage by open sourcing lower level functions, such as basic software change management and code editing, through the Eclipse project. Even IBM has been surprised by the momentum here—hundreds of ISVs and tens of thousands of developers have adopted Eclipse as their development environment of choice, which brings many new customers for the IBM instantiation of the code, WebSphere Studio. Sun also builds on open source foundations, through its netbeans initiative, but IBM is shaping up as the dominant player in Java-oriented development despite grumblings from Sun and others regarding non-Java standard features, in particular Eclipse's Simple Widget Toolkit (SWT) for native windowing. Borland has some really slick tools, but IBM has momentum on its side. Eclipse is a compelling competitive advantage, and the only other development framework to come close in terms of ecosystem is Microsoft's Visual Studio .NET. In developing Eclipse, IBM closed its eyes and smacked the ball out of the park. Powerful tools drive middleware sales, and this is another reason why IBM is in a strong position in the app server market. BEA has done great work with Workshop, and Oracle has also delivered compelling development functionality with recent iterations of JDeveloper, but IBM has gained a lead—by open sourcing to its own advantage.

How Did We Get Here?

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App servers are taking their place as *the* enterprise service hub, mediating all interactions between users and back end systems, and delivering a flexible package of services in a robust, manageable fashion. But what are these new, all-encompassing platforms replacing?



The App Server Evolution

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Historically there have been many different flavors of app server out there, such as the transaction engine, the integration tier, the presentation manager, and content routing and workflow platform.

The Transaction Engine

Many commentators and vendors see standards-based app servers primarily as a platform for "new" transaction-oriented applications. This is partly due to the saturation marketing of the two vendors with most to benefit from this notion—BEA and IBM. These vendors extended their Tuxedo and CICS transaction management franchises into the Java realm, fighting over notions of mainframe class performance reliability and stability. Not every organization is a Charles Schwab or an eBay, but BEA and IBM tended to compete as if that were the norm, not the exception. Both vendors are now doing a better job of meeting the needs of other customer types.

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The Integration Broker

Other app server vendors, such as SilverStream (acquired last year by Novell), had a somewhat different view of the app server. SilverStream realized that the mainstream market for app servers was not going to be found in newly-built, large scale transactional applications—but rather in surrounding and extending *existing* legacy apps and data models, using standards-based mechanisms such as Java Connector Architecture (JCA) and Java Database Connectivity (JDBC). Thus, Java application server vendors encroached, and ultimately began to displace enterprise application integration (EAI) vendors in customer accounts. EAI vendors responded by attempting to move up the stack, pitching themselves as "business process management" vendors, which could monitor and manage multi-step, asynchronous transactions that crossed organizational boundaries. webMethods, a business-to-business integration (B2Bi) specialist, meanwhile acquired Active Software, which gave it capabilities for managing cross firewall transactions, thus complementing its overall integration narrative. EAI specialists such as Vitria and TIBCO have adopted similar strategies, moving up the stack and competing for business in industries that rely on long-running transactions, such as telecoms and financial services.

But Java-oriented application servers are becoming more and more powerful, and are increasingly ready to do the kind of work required by an old school integration broker such as Vitria BusinessWare or TIBCO's TIB/Rendezvous. Commoditization is coming: BEA, IBM and Oracle all now claim their app servers offer standards-based integration functionality equivalent to traditional EAI and B2Bi software.

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In scalability terms, this is not quite true. One of IBM WebSphere's key advantages, for example, is its tight integration with IBM's messaging warhorse, WebSphere MQ, which offers bulletproof reliability and very high performance. Java isn't quite there yet, and there will always be room for tightly coupled integration capabilities. Standards are important, but, forced to choose, many enterprises will still choose guaranteed performance and quality of service, which explains, for example, why BEA and HP have established an alliance to drive WebLogic into the HP NonStop (Tandem) installed base, and also why BEA plans to connect its Workshop development platform to Tuxedo via a component that's currently in beta.

The Presentation Manager

Another type of app server, geared towards presentation services, also gained traction in the web-fueled late 90's. Focused on delivering content dynamically, personalization engines like ATG and BroadVision were designed to shield users from the complexity of designing dynamic websites. These vendors initially had grand ambitions (and valuations) and attempted to build or buy platforms in order to compete directly with BEA and IBM in transaction management functionality. They failed. Instead, they now sell their solutions on top of platforms from the big guys.

Other organizations simply wanted to smarten up their intranets, and make them more feature-rich for users. Step forward portal frameworks from Epicentric (since acquired by Vignette) and Plumtree.

Meanwhile, scripting engines such as ColdFusion and Microsoft IISplayed in the presentation space, allowing web-oriented designers to act more like developers by tying scripts to middle-tier business logic. Macromedia led the way in this regard, through its acquisition of Allaire and the subsequent tight integration between its different types of app server. But again, Macromedia has been forced to work alongside WebSphere because its own app server wasn't gaining sufficient market traction in its own right.

The major platform providers responded to "front end" challenges with incremental and steady product evolution. Today, Plumtree stands alone as the only major pure play portal vendor. Portal features are becoming commoditized as base application servers become more functionally capable.

In fact app server based portals have become the key growth engine for app server middleware. WebSphere Portal is now a market leader, and integration with collaboration functionality from Lotus Sametime and Quickplace will drive further growth in customer shops. Portal and col-

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laboration are two key enterprise services, as enterprises look to squeeze more productivity out of their employees.

Content Routing and Workflow

Traditional early 90's-style content management was all about the repository, and was therefore a specialized database and repository play. But the explosive growth, and subsequent decline, of Web Content Management (WCM) in the late 90's caused the industry to think again about the CM problem. Vendors like Documentum, Interwoven and Vignette settled on the concept of Enterprise Content Management (ECM), a single solution set capable of addressing needs in the traditional categories of Document Management (DM), Digital Asset Management (DAM), and Web Content Management (WCM). ECM offers greater extensibility than earlier CM products, handling a wider range of file formats. Many long-running transactions rely on content (physical invoices or checks, for example)—many SAP transactions, for example, included content elements—and this is where transactional app servers and content management meet.

In order to be flexible and extensible without requiring a skillset in its own right, ECM should use the same application development, management and workflow mechanisms as other parts of the development organization. Initially, that means tighter integration with application servers, but going forward it means rebuilding ECM functionality on top of a de facto standard app server. Documentum is therefore working more closely than ever with BEA. IBM is building out ECM infrastructure and sales and marketing capabilities to better compete with Documentum. For now, IBM is also working closely with Vignette and Interwoven, letting them play in the front-end sandbox. As products like IBM's WebSphere Portal Content Publishing or Plumtree's Content Server deliver "good enough" content management functionality however, traditional CM functions increasingly become app server or portal functions. Highly specialized CM functionality like record retention or video storyboarding will remain the province of specialist tools, but core CM functions like publishing, versioning and workflow will be commoditized into app server functions.

The Evolutionary Bottleneck

Over time distinct and separate categories have merged, forcing smaller firms to merge as well in order to compete against the major platform players.

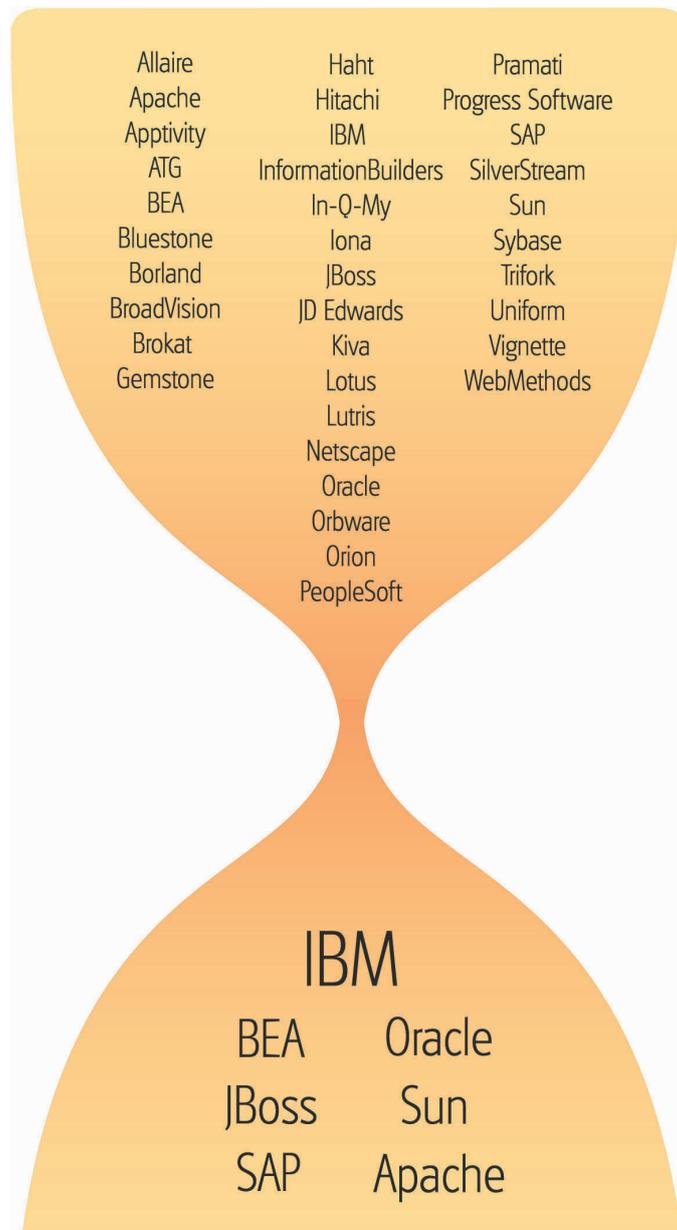
For most IT vendors, 2002 was no better than 2001 in economic terms, and 2003 is turning out to be just as bad. Development and marketing budgets have been slashed to the bone, revenues are down, and sales cycles are lengthening.

Technical and economic consolidation processes have major implications for users, ISVs and service providers. The boom times of buying are gone for CIOs,

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architects, lines-of-business and so on. Accountability is back. What's the plan? What's the ROI? How will this app fit into a standards-based enterprise architecture? There is far less room for prejudice-buying in this new environment. Religious wars are for bull markets. Bear markets, on the other hand, are more secular and pragmatic.

Buyers are choosing integrated platforms over point products, and choosing larger vendors over smaller ones. IBM and SAP in particular are benefiting from this trend. To maintain credibility, smaller vendors must work in conjunc-



tion with larger ones, building solutions on top of their underlying infrastructure in order to reduce buyers' perceived risk. The IT industry is subject to occasional extinction events, which thins out the gene pool and reduces the "biodiversity" of the IT ecosystem—remember Burroughs, Univac and Sperry? The current downturn is just such an event.

The IT industry, like others such as auto manufacturing or healthcare, was already subject to massive consolidation forces in the 1999 to 2000 timeframe—companies like Dell, IBM and HP drove this trend in hardware. Now these forces are increasingly defining the software market as well.

What does this mean in app server market share terms? For one thing, according to Gartner Dataquest, IBM is gaining market share at BEA's expense. The latest numbers show IBM in 2002 made strong gains against its main competitor—IBM now holds 37% of the market to BEA's 29%. Last year BEA still held 34% of the market.

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Gartner is also now tracking what it calls "application platform suites", a package that includes app servers, portals and integration middleware. In this space IBM owns 20% of the market, with BEA on 11% and Oracle trailing in with 5% of the market.

We are witnessing an evolutionary bottleneck. The gene pool will initially be less diverse at the other end, which has significant implications for platform choices. Risks are somewhat mitigated because app server platforms are largely standards-based. Thus, for example, the migration HP has taken its customers through, from Netaction Bluestone to BEA, as it canned its own middleware business, has been reasonably painless.

One wrinkle to this argument is that open source is not necessarily any riskier than buying from a proprietary software vendor. After all, the user has complete access to source code, and in many cases a ready-made community of support and development professionals skilled in using the platform. JBoss Group, LLC, whose business is supporting JBoss, for example, could go out of business tomorrow, but the platform and the skills base would still exist. The size of the Apache community has reached critical mass---there is little or no systemic risk associated with deploying applications to Apache and its Tomcat app server. Open source software has a resilience that most small vendors can't match. It is more diverse and more distributed, without a single point of failure.

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From the perspective that "nobody ever got fired for buying IBM" there are really only four surefire bets for independence---IBM, Microsoft, Oracle and SAP. BEA, for example, looks like a risky proposition financially, in *comparison* with IBM. BEA has a strong architecture and loyal customer base. On the other hand, WebLogic is not cheap, is losing ground in the crucial battle for portal mindshare, and, with margins under pressure, ISV partners are examining cheaper alternatives. The recent decision by webMethods to bundle the JBoss app server with its integration server could be the shape of things to come, and will ratchet up pressure on BEA. Oracle is already working hard to drive BEA out of accounts which Larry Ellison considers to be "our backyard". If that doesn't work Oracle might try to buy BEA outright in order to better compete against IBM.

RedMonk is certainly not advocating that buyers consider only IBM, Microsoft, Oracle and SAP when buying app servers. Instead, we recommend that they look at the nature of their requirements and select accordingly; Tomcat is a viable option for many enterprises, provided these shops have good Java skills in-house. Will WebLogic be around in ten years? Absolutely. BEA, on the other hand, may have been absorbed by another corporate entity, similar to the way Tandem and NCR continue to make customers happy even though platform ownership has changed repeatedly.

The Multipurpose Service Platform

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End-to-end app server platforms are designed to be multi-purpose infrastructure for delivering a tailored mix of solutions. The platforms available from BEA, IBM, and Oracle increasingly resemble Microsoft-style product suites; they're becoming extremely feature rich.

Users should ask tough questions about current capabilities and future plans. Where users mandate a particular best-of-breed product such as Interwoven for front end content management, how will that product fit into IBM, BEA or Oracle's wider services framework. Users should look to those small firms that have strong relationships with major vendors, such as the excellent relationship Macromedia enjoys with both IBM and Sun.

The range of systems platform support is another crucial question. Service-oriented app server frameworks should offer platform flexibility. Many large enterprises are choosing WebSphere for this reason—its range of platform support is outstanding—whether bare metal zOS, or bare metal Linux, or Linux partitions in a zVM environment, or p-series, i-series or x-Series (Windows or Linux), IBM offers a peerless range of platform flexibility.

Although other vendors have criticized IBM for supporting so many platforms, RedMonk has yet to speak to a WebSphere customer though that didn't appreciate IBM's approach. BEA's decision to support Tandem and the IBM mainframe as well is a pretty clear indication that users are looking for flexibility in this regard. In fact, supporting a wide range of platforms offers an additional kind of stability. By writing to the middleware, rather than the operating environment, backwards compatibility and stability can be guaranteed. IBM customers that built CICS apps 30 years ago can run them damn near unchanged on IBM's latest mainframe hardware. THAT is stability.

Pricing

The component-orientation of these app server platforms should allow users to turn functions on and off as required, so new approaches to software licensing will be required going forward. Charging a user full per CPU pricing for an app server platform when they only want to use a select number of features is unlikely to prove a very popular move. This is particularly true since some vendors – Sun and Microsoft among them – are dedicated to embedding traditional application server-like functionality into the operating system itself. The pricing model supporting next-generation app server platforms can't be monolithic; it will need to support On Demand delivery models and utility notions of computing.

Pricing is perhaps the most challenging element of the new app server platforms. All of this functionality comes at a price. But what should that price be? We will see new pricing models from all of the major players going forward. Sun in particular is looking to be the most aggressive here; while it has yet to release specifics, a number of alternative pricing structures are being considered for its upcoming Orion release. To minimize risk, users would be well advised to pull in experts

to help them with pricing issues before signing any contracts.

RedMonk Take

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It's not enough to lead the pack technically. One-time market darlings that flew to stratospheric heights on the basis of strengths in niche areas have since crashed to Earth; the real players today deal from positions of broad-based strength. Is speed still important? Absolutely. A commitment to open standards? Unquestionably. But the bake-offs these days are no longer based on the latest benchmarks or support for cutting edge J2EE functionality. Instead, executives are asking about value for the dollar – how can the platform be cross-utilized? How will it integrate into tomorrow's heterogeneous .NET and Java environments?

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Either through their own product families or through tight partnerships, remaining vendors drive toward delivering ever more capable and functionally rich products drawing on the strengths of a variety of individual components. Over time, those components cease to be add-ons and make the transition to standard functions.

The current extinction event seems to be nearing a close as the last vendors standing tout highly capable platforms and brace themselves for renewed hostilities. The shake out has benefited IBM most strongly—the two key industry ecosystems are now IBM and Microsoft. BEA is an app server platform player for sure, as is Oracle, but economics is a ruthless foundation for natural selection.

From presentation to integration, the job of an application server has evolved. As the platforms have grown up, so have the ways in which they are used. But the biggest shift yet – the transition from a siloed application-based framework to a service request and delivery architecture – has only just begun. The notion of the application server as just a container is as antiquated as the idea of multi-year, multi-million dollar implementations. It's a new era, with new tools and new needs. Gone are the days when flush budgets could absorb the overruns associated with large scale enterprise deployments. Today's projects must prove themselves, and prove themselves quickly. The products to support this will come from stable vendors who can guarantee long term viability for their function-rich platforms.

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About RedMonk

RedMonk is a research and advisory services firm that assists enterprises, vendors, systems integrators and corporate finance analysts in the decision making process around today's enterprise software stacks. We cover the industry by looking at integrated software stacks, focusing on business and operational context rather than speeds and feeds and feature tick-lists.

Founded by James Governor and Stephen O'Grady, and headquartered in Bath, Maine, RedMonk is on the web at www.redmonk.com. If you would like to discuss this report email jgovernor@redmonk.com.