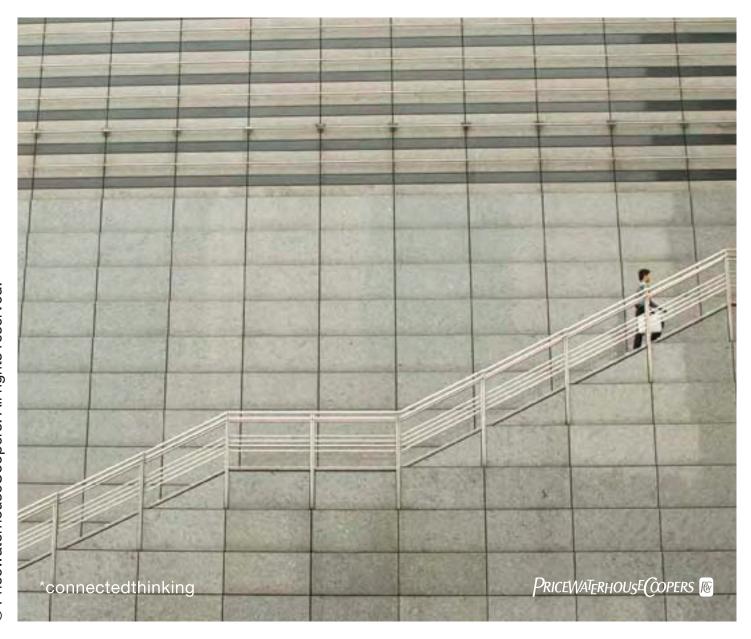
Software Pricing Trends*

How Vendors Can Capitalize on the Shift to New Revenue Models



Dear executive

To survive and thrive, software companies must adopt the new customer-centric pricing strategies that have been enabled by technological advances in software delivery, and that are critical to success. Understand the customer, develop new technologies from a customer's perspective, focus execution and service delivery on a customer's needs—and the enterprise will ride the crest of pricing trends.

To help the software industry along this technology and pricing journey, PricewaterhouseCoopers gathered the knowledge of its pricing subject matter champions around the world and developed this comprehensive trend analysis.

PricewaterhouseCoopers sees an evolving pricing equation that emphasizes the value software contributes to the customer's business and reflects the new means of delivering software functionality. What is driving this trend? Licensing fees shifting to services fees, customers operating under constrained IT budgets, competition emerging from open source models, the Internet making way for new delivery models, and evolving design architectures.

With skillful management of existing resources and investor relations, software companies can quickly adapt to the new pricing models. PricewaterhouseCoopers can be a resource to help. Companies must focus on service and support as key differentiations. They must be flexible with licensing and delivery terms while realigning their sales and organizational strategy to the new pricing models. Software revenue recognition policies need to be reviewed. Product portfolios should lean more toward differentiating intellectual property than generic software.

The shift of pricing power can be a win-win for developers and customers alike. I hope this report provides thought-provoking reading and that it positively influences pricing strategies within your company. If PwC can help you further understand and execute software-pricing-model trends, please contact me via e-mail at dean.petracca@us.pwc.com.

Sincerely,

Dean S. Petracca

Partner and Global Software Industry Leader

PricewaterhouseCoopers provides industry-focused assurance, tax, and advisory services for public and private clients. More than 130,000 people in 148 countries connect their thinking, experience, and solutions to build public trust and enhance value for clients and their stakeholders.

The depth of our industry experience, like our international perspective, is an attribute that our clients value highly. We invest significant resources in building and sharing this experience. As a result, the people of PricewaterhouseCoopers have the scope, depth, and knowledge to advise technology companies on the changes facing their business, helping them achieve success and fulfill the promise of great ideas.

The software industry has come of age. The signs are everywhere: maturing business models, gains through operational performance rather than technology innovations, and growth through mergers or acquisitions rather than organic development. Through it all, revenue recognition continues to be a major issue for this industry, and PricewaterhouseCoopers provides superior guidance on the latest accounting standards for revenue recognition as well as unequaled insight into the macro

issues facing software companies. Because of these capabilities, PricewaterhouseCoopers is a leading provider of professional services for the software industry.

For more information on how PricewaterhouseCoopers can help your company succeed, please visit us at www.pwc.com/technology, call our technology hotline at +1 617 530-5292, or contact one of our technology leaders listed on the back page of this report.

As technology companies grow, the issues they face may change—but PricewaterhouseCoopers' ability to add value is a constant.

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New pricing structures like software-as-a-service will have significant implications for software vendors, resulting in the adoption of new business models as well as changes to vendors' economic and financial, research and development, and sales practices.

Executive Summary

The power balance between software vendors and enterprise customers is profoundly changing due to a confluence of economic, market, and technological factors. Vendors can no longer solely dictate the terms of how they sell and price their products. They must take into account a new breed of customer that judges software by its ability to contribute value to the organization—measuring where, when, how much, and how well software is used.

This changing dynamic is having a significant impact on how software is priced and what customers pay for, which specify the type and duration of the license agreement, the frequency and amount of payment, and the proportion of payments for license rights and maintenance, as well as the software delivery mechanism. As is the practice in other industries, a growing number of software vendors are adopting value-based pricing models that focus on customer demand and value perception and are directly tied to the customer's insight into how the software affects its business.

More vendors are moving from the established practice of selling perpetual licenses for packaged software to newer approaches that include software-as-a-service and commercial open source. This first wave of changes is only the start of a long-term trend that more closely aligns IT expenditures by enterprises and business value created. Software pricing and delivery become based more and more on the software vendor's ability to provide differentiating value for the customer. In many cases, the endgame is the disappearance of license fees as vendors differentiate themselves solely through maintenance and support services.

On the customer side, economic and market factors contributing to this change include constrained IT budgets, increased focus on return on investment for specific technologies, and the ability to acquire software for free or nearly free through models such as open source.

The transition to value-based pricing is also attributable to a number of technology developments that change the way in which software is designed and delivered. These include the service-oriented architecture approach, component software, dynamically configurable business process execution engines, and the ability to provision enterprise software over the Internet by using a common application platform.

New pricing structures like software-as-a-service will have significant implications for software vendors, resulting in the adoption of new business models as well as changes to vendors' economic and financial, research and development, and sales practices. To succeed, software vendors of all kinds must figure out how to adapt—and even thrive—in this changing market.

Some software market segments have already seen significant change, such as the server operating system and software development tool markets. Others, such as the customer relationship management and sales force automation markets, are only now facing the challenges of the shift. A few segments, such as enterprise resource planning and back-office systems, are not undergoing much change at present, but even they must eventually adapt.

This report explores both the causes and implications of the rise of new pricing structures and provides guidance for vendors on how best to respond.

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Key Findings

This report's primary findings underscore the fluid nature of the current industry environment, the shift of power to customers, and the attendant uncertainties surrounding how to price software and services.

Customer value perceptions and IT spending patterns have changed. Software prices are under pressure from constrained IT budgets and customer perceptions that software is overpriced. Increased customer focus on business process value is reducing customers' willingness to pay large, up-front license fees for software that supports low-value processes or unused components of an integrated suite. Enterprise customers are also showing more resistance to renewals or upgrades now than they did in the past. As a result, alternative pricing and delivery models are becoming more appealing to customers.

Vendors are reevaluating their software pricing and delivery models to accommodate changing customer behavior. As enterprises gain a better understanding of their organizations' business processes, they can better evaluate the criticality and unique business advantage of each process. This insight enables them to then evaluate software value through direct price assessments and to link the value they perceive to the price they will pay. Vendors are recognizing these changing demands and the increased customer power in software negotiations and are reassessing their value propositions.

Software vendor revenues are shifting from license fees to maintenance fees. Vendors have seen license revenues decline and as a result are more dependent on maintenance revenues. One consistent trend is the transition from large, up-front perpetual license fees to alternative models that stretch payments over a period of years. Some vendors are finding success by not charging up-front license fees and by generating all revenue from maintenance and support.

Vendors are adopting multiple pricing models.

A growing number of vendors that used a single, upfront purchasing model are beginning to adapt their products and services to changing market and customer requirements. As a result, vendors are providing different models, including term licensing (use of software or other intellectual property for a fixed period), softwareas-a-service (software accessed over the Internet from a multitenant system and paid for on a per-use or subscription basis), and commercial open source (software made available without license fees for usage but that requires fees for maintenance and support).

The new pricing models necessitate changes in revenue recognition. The new models are characterized by a shift from up-front payment to periodic payments. As vendors recognize more revenue in increments, they can avoid the usual boomand-bust sales and income cycles. This will reduce the subjectivity involved in revenue recognition.

The transition to value-based pricing models for software will affect vendor cash flow and financing. With large up-front license fees eliminated, vendors will not have the same level of reserves to fund the next generation of product or carry a new company through its first years. Once they launch new products, these vendors may face a more prolonged period before break-even and positive cash flow, making it necessary to project longer term, explore alternative financing options, and manage investor expectations accordingly.

Research and development approaches will also need to change as a result of the new pricing models. A periodic payment model will diminish the resources available for research and development (R&D). Companies will need to establish a reserve for R&D (from previous profits or from investors), or they will need to adopt an incremental R&D approach that matches their revenue streams. Over time, R&D will move to a continuous-improvement model.

Vendors adopting new pricing models will need to reconsider their sales strategies. Pricing models that minimize up-front license fees may require significant changes to sales compensation and may disrupt sales effectiveness. At the same time, eliminating up-front licenses and recognizing the revenue incrementally may allow the fundamental restructuring of sales compensation and reduce the incentives to load up sales at the end of a fiscal quarter. Other impacts may include how often sales and customer support staff interact with customers.

Public software companies may experience a decline in market value. Switching to a pricing model that eliminates up-front licenses in favor of periodic payments may result in stock market declines until the periodic revenue streams appear to

be assured. High continuing renewal rates would be one indicator that revenue streams are stable. Once past the transition point, vendors benefit from a less volatile revenue stream, one that no longer reflects the end-of-quarter peaks created by customers seeking last-minute negotiating advantage.

Vendor adoption of new pricing models depends upon a number of factors. New vendors and private companies are more readily adopting new pricing models such as commercial open source and software-as-a-service. In many cases, they see alternative pricing models as a competitive weapon to be used against entrenched competition. Likewise, vendors with a high percentage of services revenue—for example, those who see significant demand for implementation and configuration help—will find it easier to make a transition to a model oriented less toward up-front license payments.

Different pricing models will affect some categories of software more than others. Different functions, or parts of the software stack, may dictate different pricing models. In the lower, infrastructure levels of the stack, customers are adopting commercial open source, which enables them to deploy software without paying large, up-front license fees. For Web-based application platforms, customers will favor perpetual licenses because of the fundamental, long-term nature of this kind of infrastructure. In the application layer, software-as-a-service is being adopted more widely, while more specialized categories will see a slower rate of change.

Service-oriented software architectures are fundamentally altering the software landscape.

Customers are recognizing that the desired level of enterprise agility cannot be achieved with conventional approaches to software architectures, such as proprietary integrated software suites. A service-oriented architecture (SOA) enables business process automation logic to go from being hardcoded in software packages to being declared and easily changed statements within services platforms. As the SOA trend accelerates, the integration of software components will be less problematic and the dominance of software suite providers will be challenged. The unbundling of software will affect software pricing structures substantially, adding momentum to value-based pay per use, subscription, and services models. SOA platforms are emerging as a new means of customer retention for software vendors.

Vendors must begin thinking of their application portfolios as flexible platforms that allow customers to choose among software components and pricing models.

Recommendations

Focus on service and support as key differentiators, especially for mature or maturing software technologies. As customers seek to gain more from the software they already have and avoid large up-front license payments, service and support become more crucial in attracting and retaining customers for the long term. Vendors should view product functionality within the larger context of a service they are delivering to help their customers optimize a business process.

Offer flexible licensing and delivery mechanisms.

When establishing value-based pricing, vendors should offer several options to accommodate varying customer pricing preferences and budgets. This flexibility will also help vendors succeed no matter which pricing model begins to dominate.

Adopt software-as-a-service models for commoditized functionality. The more commoditized the software functionality, the more that established vendors should begin to deliver the software as a service to preclude new entrants from seizing market share. Release the functionality to the open source community when it no longer makes sense to invest in R&D but there is still customer demand. In markets that have no competing products, a term license approach for such mature applications could extend revenue opportunities.

Resolve revenue recognition issues. Adopting new pricing models and periodic revenue streams requires consideration of the impact on revenue recognition. Vendors should evaluate existing licenses and contracts and consider the impact of changing patterns of revenue flow on other functions, such as R&D and sales.

Reevaluate sales approaches and compensation.

The transition to new pricing models may require changes to a vendor's sales strategy and organization. The absence of large up-front license fees and

the increased focus on support will change the nature of the customer relationship, and sales and support organizations will need to adjust.

Concentrate R&D on new functionality where pricing pressures are least in play. Anticipate that business processes that are common across many enterprises are more likely to be affected by open source and software-as-a-service competition. Focus R&D on areas from which enterprise customers derive their differentiating value.

Adopt a continuous-improvement R&D model.

To keep costs in line with changed revenue streams, vendors must adopt new R&D models. The software-as-a-service approach particularly lends itself to continuous-improvement R&D and has the added benefit of not requiring ongoing R&D support for different platforms and versions.

Cultivate efficient software provisioning and service delivery. To maintain operating margins as pricing for software licenses is forced lower, vendors must rely on revenue from application provisioning and service delivery. Therefore, vendors must develop provisioning and delivery technology and processes that are more efficient than customerhosted or competitor-hosted applications.

Develop a platform strategy. Vendors must begin thinking of their application portfolios as flexible platforms that allow customers to choose among software components and pricing models. Growth in the popularity of unbundled, on-demand functionality will make it necessary for vendors to adopt a service-oriented-architecture model and refine their ability to deliver, manage, and sell discrete services. Service quality, intellectual property protection, and provisioning will assume greater importance.

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The Future of Software Pricing

Several factors—independent but mutually reinforcing—threaten to make well-established software pricing models irrelevant. These models, which have been characterized by up-front payments and perpetual licensing, represent only a tenuous relationship between a software application's value and its price. Enterprise customers have been unable to influence those prices or pricing structures, short of eliminating their purchases and risking the loss of technological parity with their competitors. But that is changing.

Take a glimpse into the future and see how it has played out.

It is 2016 and there are only a few vendors of any significant size in the software market-place, a handful of major services firms, and lots of niche-oriented, small developers of software modules and integration services. A service-oriented architecture (SOA) has become the norm for both customers and vendors. Enterprise customers are using this approach to give them full control over the value they leverage from their software. Vendors, meanwhile, use the architecture to deliver their software as a utility computing service—hosting multiple applications and integrating them in real time for customers and other vendors. In this now stable service-delivery environment, customers have traded vendor subscriptions and infrastructure lock-in for true agility and customization.

The environment is drastically different from that of the golden era of the 1990s, when software vendors could charge up-front license fees followed by upgrade licenses every few years, all supplemented with required maintenance and support contracts. Businesses bought the software because it delivered value, even if only managing Y2K risk, or because they believed it was necessary to maintain competitiveness.

Yet over the next decade, established vendors found fewer and fewer takers for their application software. Enterprises were simply deciding they had the software they needed and avoided upgrades. When they required new software, enterprises often turned to free software from the open source community. Or, if they had adopted SOA, they developed the software themselves or purchased specific application components from niche vendors.

By 2006 a full-scale transition was under way. With the puzzle of how to describe business processes in a standardized way solved, enterprises could greatly simplify internal development by using tools to create supporting software components. This innovation sped development and largely eliminated the high cost of customization.

Many enterprises realized that they did not even need to manage much of their software internally, so they outsourced the software and its operations to service providers, and they focused their resources on the internal development of truly differentiating, business-critical application components. Professional services firms and local outsourcing providers capitalized on the shift away from licensed software and toward a services approach.

For a while, software vendors lowered the prices they charged for up-front perpetual licenses or used term licenses that stretched the large, up-front license over five years or more. These actions temporarily stemmed the tide, but software vendors ultimately could not compete with the emerging alternative: eliminating up-front license fees and generating revenue through a service approach that provided exactly the functionality that customers desired and that closely linked price to business value and differentiation.

Finally, when the major software vendors acknowledged that their old model was no longer generating sales, the emerging support model was essentially closed to them. A few still hold on by serving conservative customers, but they are just a shadow of their former selves. Most disappeared, as their best talent migrated to the services firms.

Market and Technology Changes

Does the preceding scenario sound far-fetched? We do not believe so, even if the pace of change is slower than our extreme forecast indicates. That is because customers are forcing vendors to reexamine their software value propositions. Up until now, software has been a product whose value could not be easily quantified. Once the software product is developed, the marginal cost of delivering a copy of it to a customer is close to zero, excluding marketing and sales expenses. At the same time, the perceived value varies wildly from customer to customer, and is largely based on impression and competitive concerns, not provable return on investment (ROI).

This combination gives vendors considerable flexibility in pricing negotiations without diminishing the value perceived (and thus paid) by customers. It also generates sizable margins for successful software companies. But several factors are causing customers to question the value of the software they buy, including constrained budgets, executive demand for more demonstrable ROI, a growing focus on business process—oriented management, and a concomitant rise in the use of externally provisioned software services.

Changes in the software industry's own business models have reinforced these trends—notably the reliance on regular maintenance revenues and more recently the emergence of the commercial open source (COS) and software-as-a-service models. Dozens of vendors already use these approaches, and major software firms such as BEA Systems, Microsoft, Oracle, and SAP are at least experimenting with service offerings that use periodic payments, software rental, subscriptions, and COS in addition to up-front, perpetual licenses.

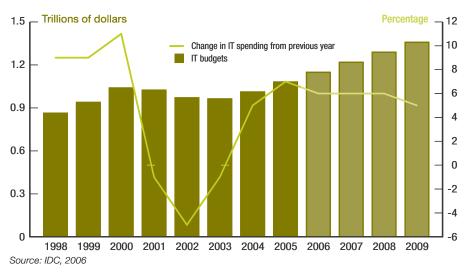
Economic Factors

In the information-driven economy of the last several decades, businesses have not been particularly critical about gauging the specific value of software—they knew they simply needed it to compete. But as IT has become part of the basic business infrastructure and the playing field has releveled, enterprises have begun questioning the specific value of their IT investments overall and software investments in particular.

Since the dot-com bubble collapse, the September 11 terrorist attacks, and many accounting and financial frauds, revenues have been drying up and enterprises have focused more on cost control and less on investment. IT budgets initially declined; recent growth has barely covered the rate of inflation. In reality, however, IT budgets have not even kept pace with inflation, because significant portions of those budgets have been diverted to corporate imperatives in compliance and security. ROI and

total cost of ownership have become far more important, and questioning software value has become a requisite business practice. (See Figure 1.)

Figure 1: Budget Growth Rates and Forecast, 1998-2009



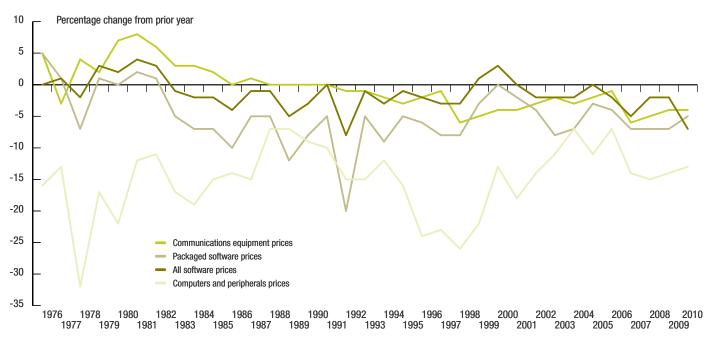
Although IT budgets have recovered somewhat from the 2000–2002 recession, they are experiencing declining growth rates each year and significant portions are being diverted to new compliance and security mandates.

Chief information officers (CIOs) and those within enterprises responsible for IT infrastructure have turned to several short-term savings strategies, including the use of commodity hardware, the adoption of less expensive open-source platforms such as Apache and Linux, the use of less expensive labor overseas for software development and coding, and the post-ponement of upgrades and new software licenses. Most of these tactics deliver only one-time savings (switching to a lower-cost platform or provider) or are merely delay tactics (halting upgrades to software packages, which at some point may lose support or interoperability with other systems as they age). While hardware makers have taken the biggest hit in lower prices, software vendors have also seen price declines and should prepare for even steeper ones, predicts Forrester Research. (See Figure 2 on page 10.)

The constrained budgets are forcing enterprises to prioritize their software dollars, which requires a better understanding of the software's intrinsic value to the enterprise. While no one disagrees that software is critical, for the first time enterprises are asking "Just how critical?" so they can see if their specific software investments are justified by the

actual business return. As enterprises play more of a role in determining that value, they will no doubt seek to eliminate functionality they do not use but pay for, pay less for software that provides a small ROI, and focus their spending on software that delivers provable, significant value.

Figure 2: IT Category Pricing Growth Rates and Forecast, 1976–2010



Source: US Commerce Department Bureau of Economic Analysis through 2004; Forrester Research, 2005, for forecasts for 2005 to 2010 and for packaged software prices prior to 2000

Unlike hardware and communications technology, software prices have stayed relatively steady—until now. Factors including constrained IT budgets, executive demand for more demonstrable ROI, a growing focus on business process—oriented management, and an increase in the use of externally provisioned software services are contributing to this decline.

Although identifying the ROI for specific software functions remains difficult in many cases, enterprises have begun to make these calculations at least at gross levels. Several years' worth of experience with various outsourcing strategies have, despite some failures, let enterprises begin to view software as a service cost paid on a periodic or on-demand basis. "It's not at all foreign to them to outsource IT things. It's not at all foreign to them to subscribe to a service to get these things rather than incur the cost and take all that stuff on themselves," notes Randy Littleson, vice president of marketing at Kinaxis, a software-as-a-service provider of supply-chain collaboration-management software. While this switch to periodic payments does not directly reveal the intrinsic value of the software, it has put software in the same value-oriented evaluation basket as

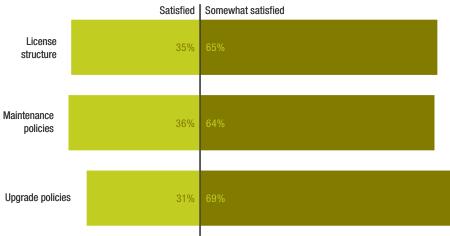
outsourced business processes such as payroll processing or travel services, where price and ROI are essential analyses in any purchase decision.

Enterprises now look at software differently, and software vendors are beginning to as well. "We think generally we are getting charged more than we need to for software. What's out there today is the perception that I'm paying for more than I should because I don't use all the components in a particular application suite," notes Richard Toole, CIO of PharMerica, a pharmacy services provider.

His comment reflects a sentiment shared among CIOs and other enterprise buyers, as Figure 3 shows. Outside of IT, the difficulty in understanding exactly what the software dollars actually contribute creates more pressure to understand its value.

"The business staff doesn't understand what they are paying for," Toole notes. Vendors sometimes concede this point but counter that customers have a responsibility to decide what they want, what they will use, and how well a product meets these requirements before they purchase.

Figure 3: Software Customer User Satisfaction Survey Results



Source: AMR Research, 2004

Enterprise buyers have some reservations about the basic software value proposition, as evidenced by low satisfaction results for software vendors' license structures, maintenance policies, and upgrade policies.

Obvious targets for cost reduction are so-called overserved applications, those products whose functionality exceeds the typical customer need. Examples of these include productivity suites, for which enterprise users

have increasingly resisted upgrades, and the various UNIX operating systems, which enterprise users have largely abandoned for Linux in all but the higher-end environments. Software categories at risk for being overserviced include customer relationship management (CRM), enterprise resource planning (ERP), business intelligence, and database software.

Technology Factors

On the technology side, two primary developments are affecting software pricing and delivery: business process modeling in the shorter term and service-oriented architecture (SOA) in the longer term.

Business process modeling can be thought of as the next-generation approach for automating, integrating, and optimizing business processes in the extended enterprise. It builds upon and synthesizes older workflow, enterprise application integration, and business-to-business integration technologies that have been around for more than a decade. Business process modeling enables an enterprise to completely describe a process by a model that clearly separates the sequence of process activities and the information flows between them from the physical resources—people and systems—that implement the activities. The model provides a visual description of the process that has meaning to business analysts and managers, while also generating executable code for automating, integrating, and monitoring the process. With this capability, organizations can focus both their IT and value determination efforts at the business process level.

Longer term, the service-oriented architecture approach is a powerful change agent for both enterprises and vendors. SOA provides the technology platform and mindset to achieve the business process flexibility, efficiency, and interoperability that are fast becoming the business imperatives for survival.

SOA encompasses both a business focus and an IT focus. The business focus has not yet evolved beyond an early theory that extends business process management software toward the services-based enterprise. The IT-oriented aspect of SOA, which started as a set of tools to facilitate application integration, is much more developed and has been aided by the broad adoption of Web services that provide many standards-based capabilities that suit SOA requirements.

By separating software into process-oriented components that can be combined as needed, the SOA approach makes it easier to add or update functionality as business requirements change—without reworking the entire code base (as traditional applications would demand). This approach shortens development time considerably, simplifies customization (enterprises and vendors create their own components that work

with those created elsewhere), and significantly reduces integration and maintenance costs that can take as much as three-quarters of the IT budget.

With SOA, enterprises gain pricing power because they can match the specific modules to specific business processes, evaluating the value of each rather than estimating the effective value of a whole suite for which they know they will use just part. They can also buy less from a single vendor, purchasing only the pieces they need. This view of IT as a service organization to enable and support business processes encourages the consumption of software as a service, paid for periodically and only for as long as it is needed. The service approach lets software be more clearly associated with business value and scaled with business performance.

Vendors also gain advantages with SOA. They can charge more for the provably high-value services, focus on their competitive advantage, and end costly development of subpar suite components. SOA ultimately enables vendors to create or participate in a flexible ecosystem that becomes the enterprise's business process management and control stack (at least for a particular area, such as supply chain management or back-office processes). In other words, enterprises will cease being dominated by a single ERP vendor and will be able to leverage the best technology from all vendors.

Customer-Supported Research and Development

Two of the periodic-payments models lend themselves to a new way to pay for at least some research and development (R&D): have customers do it.

This approach is already part of the commercial open source model, where community members, including enterprises, contribute their own code as a way of contributing to the greater good and also gaining a significant resource pool otherwise unavailable to any one company. In the commercial open source model, the commercial open source vendor manages these contributions, vetting them and packaging them to ease their deployment at customer sites.

A similar approach to community-directed R&D can also apply to the software-as-a-service model, as

manufacturing enterprise resource planning software-as-a-service provider Plexus Systems has discovered. The mindset of Plexus's customers made community-directed R&D a natural step. Manufacturers are accustomed to paying time and materials for software customization and feature additions, so when a customer wants a new feature that cannot be delivered from the existing software, Plexus charges a time-and-materials fee for that work.

But because the code base in a software-as-a-service environment is shared among all customers, every customer gets the new capability automatically. That replicates the network effect of the commercial open source model and lets Plexus focus on basic research and development rather than on narrower additions.

"Instead of this one big thing you are delivering, you have smaller things that get absorbed and integrated and used in different ways.

Fundamentally your value is still your value, but it's several years out and I think it's just at a formative stage," says Kinaxis's Littleson.

SOA is just gaining mindshare in larger enterprises and among vendors, so its ability to affect pricing structures is essentially conceptual at this point. Over time, SOA will be giving enterprises better insight as they begin to re-architect their organizational design to focus on end-to-end processes and the specific software functions that support them.

Value-Based Software Pricing

"If we have a value derivation from the software, we don't mind paying for it. That's kind of the model: You provide value, we pay you. But don't ask me to pay you \$2 million for my CRM application if at the end of the day only 10 percent of my sales force is going to use it. Value-based licensing is being driven very, very heavily by the CIO community and we see, in turn, a response and acceptance from the software vendors," says Gurtej Sodhi, CIO and senior vice president of information technology of Crye-Leike, a real estate services firm in the southeastern United States.

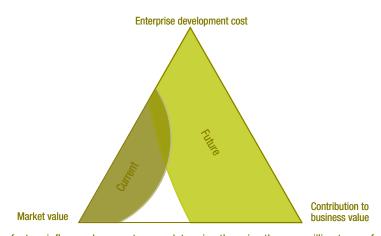
The willingness to begin negotiations on value-based pricing underlies the fundamental shift in power that is beginning to occur between vendors and customers, and is now moving toward the customer's favor. We call this dynamic the pricing triangle, in which software value and price can be thought of as the triangulation of contribution to business value, market value, and enterprise development cost.

- Contribution to business value—Takes into account how the software contributes to the enterprise's direct cash generation (through enabled products and services). Can the enterprise quantify that value? Today, most functions cannot be directly mapped to their business benefit, although emerging business process management techniques and supporting technologies are making the link more explicit.
- Market value—If the proposed software's function is too far removed from cash generation to quantify a value for it, what is the market view of its value based on the price of commercial options? Does that market value serve as a legitimate substitute for value estimation? Today, customers have little choice other than to pay what others pay, but the rise of new pricing and delivery models allows a more individual view of software value.
- Enterprise development cost—Considers what it would cost the
 enterprise to develop and maintain the software code itself, comparing the total cost of internal development with the cost of
 sourcing it. Today, internal software development usually focuses

on integration and customization, but the adoption of open source and SOA make internal development for strategic functions more plausible in the future.

Figure 4 depicts the pricing triangle. Today, vendors set prices according to market value, with little consideration of contribution to business value. But the pricing triangle is shrinking as enterprises calculate business value and can more cost-effectively develop software themselves through new technologies—both factors promote the shift to value-based pricing. At the extreme, the triangle becomes a single point of value for any given software function for each customer.

Figure 4: The Pricing Triangle



Three factors influence how customers determine the price they are willing to pay for software: contribution to business value, market value, and enterprise development cost. Today, it is difficult to associate software value to specific business benefit, so market price is used as a poor approximation. That analysis is changing, leading enterprises to more direct pricing assessments, which could have strong repercussions on software pricing.

In the new relationship whereby vendor and customer share responsibility for the effective use of software, vendors must account for new power on the buyer's side while assessing the value they think they uniquely bring, what the market will bear, and what the costs are to deliver the software. In a world of value-based pricing, customers can negotiate with vendors to encourage them to share more of the risk involved in how extensively the software is used, stressing, for instance, that the vendor adjust the per-seat price upward or downward depending on that level of use.

The shift to a value-based model does not influence only prices; it also will affect how and when customers pay for software. Enterprises are already seeing a significant move away from up-front license purchases and toward periodic payments. This trend meets enterprise demands for

more-predictable, more-consistent expenses during periods of tighter controls on IT spend. Lowering the barrier to purchase by minimizing up-front license costs has some ancillary benefits. For example, it expands the size of the potential buyer pool and may even increase the number of subscribers to newly launched products and services.

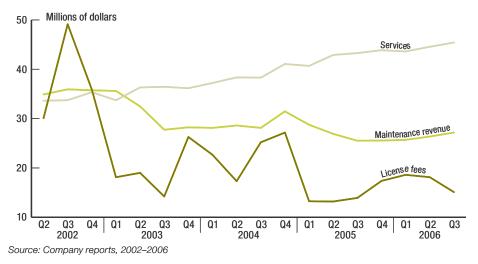
Business Implications

The transition to new pricing models will have a significant effect on all facets of a software vendor's business model, including financial and accounting practices, research and development, sales strategy, and market valuation.

Revenue Recognition

As vendors transition from up-front payment to periodic payment—whether delivered via software-as-a-service, COS, or term licensing—how they recognize that revenue will almost certainly need to change.

Figure 5: Reported Quarterly Revenue of a Representative Software Vendor Using Perpetual Licenses



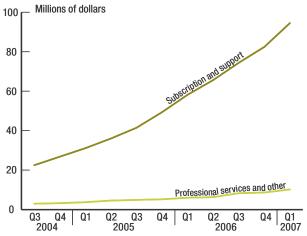
As this plot of a traditional software company's revenue illustrates, up-front license fees result in substantial volatility.

Any software delivered as a service—wherein the customer does not acquire the software as a license to run on its own systems but instead, accesses the software from the systems of a vendor or a third party—is

considered a service, not a product delivery, by Generally Accepted Accounting Principles. The revenue usually is recognized ratably over the service period. This accounting approach applies to both software-as-aservice and COS providers.

Because the revenue is recognized over the service period, revenue reported by software-as-a-service and COS providers is usually much less volatile quarter to quarter than the license fee revenue of vendors that use a perpetual model. Figures 5 and 6 contrast the recognized revenue of a well-established perpetual-license vendor and the reported revenue of an established software-as-a-service provider.

Figure 6: Reported Quarterly Revenue of a Representative Vendor of Software-as-a-Service



Source: Company reports, 2004-2006

Software-as-a-service company revenues, based as they typically are on subscription, have the potential for steady revenue growth and low volatility.

The third option—term licenses—can be treated in two ways. One, vendors can recognize the revenue all at once if the initial software delivered is complete and the related maintenance is priced separately and committed over a shorter term. Two, the vendor may provide the software and agree to deliver any new product that the vendor might offer during the next two years. In that case, the vendor would need to recognize the revenue ratably over the two-year period.

"Some of the bookings fall to revenue; some fall to deferred. It doesn't really matter. After you have done that for a while, it starts catching up with itself," says Chris Kenworthy, senior vice president of worldwide marketing at threat-prevention software provider McAfee.

McAfee shifted more of its revenue to subscription sales a few years ago. Says Kenworthy, "I would imagine the folks running the company then saying, 'We're doing all this great new business with the new subscription initiative, but we've got to take it all over a year.' Now they are saying, 'We're glad we had to do that, because now we have all those deferred revenues.' For someone who is worried about revenue, in theory, more than half the quarter is in the bag at the beginning of every quarter, thanks to subscription pricing."

As more revenue is recognized in increments, vendors can move away from the boom-and-bust sales and income cycles that have characterized the software industry. Likewise, expenses become more predictable for customers, and customers also have less need to juggle the deployment of application upgrades across multiyear budget cycles to keep year-to-year expenses roughly even.

When software has frequent technology changes that are perceived as valuable to customers, a periodic-payment approach evens out the cash flow and business predictability for both parties. Similarly, software that is fairly standard, such as sales-force automation applications, is a good candidate for periodic payments. In this case, the enterprise can scale its costs according to staffing and keep costs predictable, while a vendor can ensure a steady revenue stream and eliminate the costly upgrade-license sales cycle. Enterprises will continue to treat software they expect to own for the long term, such as operating systems and ERP applications, as capital expenses; thus, vendors may find little change to the payment approach of the perpetual license with up-front licensing.

Cash Flow and Financing

In a transition to value-based pricing models, any switch to a periodic-payment approach is likely to change a vendor's cash flow. The established enterprise software model has two components: an up-front licensing fee and an ongoing support contract (maintenance). While the exact ratio differs from provider to provider, it is fair to say the typical revenues are split roughly 50-50 over the lifetime of the customer relationship.

That up-front 50 percent has allowed the large capital investments and sales-force investments used to pay for the next generation of product and to push broad customer adoption. Without the large up-front licenses, vendors will not have the same level of reserves to fund the next generation of product or carry a new company through its first years. Once they do launch new products, vendors may face a more prolonged period before break-even and positive cash flow, making it necessary to project longer term and to manage investor expectations accordingly.

Transactional Pricing's Narrow Opportunity

Transactional pricing—payment for individual transactions or results—is often proposed as a pricing model for software-as-a-service delivery. But in most cases, the transactional approach introduces an undue risk for customers: the inability to plan spending. Vendors also face a risk: underutilization and thus unexpectedly low revenues.

"The CFO—both the vendor's and the customer's—will be really resistant to the idea of software-as-a-service being based on number of transactions," says John Alberg, cofounder and chief technology officer of Employease, which provides software-as-a-service-delivered human resources software and was acquired by Automatic Data Processing in October 2006. "For the customer, if pricing is based on a number of transactions, the CFO has no control over how much the bill is going to be because it depends on the usage of the system by the employees. On the vendor side, we don't want the customer's CFO limiting the amount of use at the company, because we want them to get the most value out of it as possible."

Plexus Systems saw the difficulty customers can have with transactional pricing when it made part of its enterprise resource planning (ERP) system available on a per-transaction basis, charging for each customer product shipped through the ERP system's shipping subsystem. CEO Robert Beatty acknowledges that few customers have adopted this direct-value payment model. One customer that processes rebate coupons tried the per-transaction offering but quickly backed away as its costs varied dramatically. "When things got really good, that customer began to resent the fact that we were making so much money, and he wanted to go back to the flat fee," Beatty says. "Now of course his feelings would have been reversed if his volume had halved that year."

These cost-control concerns will encourage customers to seek either tiered pricing or unlimited subscription pricing to curtail swings in expenditures as usage patterns change. That is why vendors are likely to offer discounts in return for regular income, pricing software-as-a-service on the number of users or in buckets of transactions, rather than on a per-transaction basis. This practice is well entrenched in telecommunications and other information services, so it would be easy for software vendors to model. As in those industries, a per-transaction option—at a higher nominal cost per unit, the same way per-minute pricing for cell phones is higher for pay-as-you-go service than it is for a monthly subscription—might be available if the market has irregular usage or hard-to-predict results. This is the approach taken by Render Rocket, which charges movie studios a per-frame rate to render animations. Another is Amadeus, which charges airlines (mainly in Europe) per seat booked, as if it were a travel agent receiving a commission.

A third company—Fair Isaac, which provides operational analytic applications systems for banks and other institutions—has long charged on a transactional basis, whether its software was provisioned as software-as-a-service, hosted for the customer, or installed at the customer site. Fair Isaac's software is by its nature transactional, evaluating credit scores or analyzing customer transactions for fraud, so it is natural for customers to pay for—and value—the service on a transactional basis, notes Michael Chiappetta, vice president, enterprise decision management technology and custom solutions.

These examples show a clear correlation between the transaction and the value—frames rendered, seats booked, delinquencies reduced, and so on. In such situations, the value is more transparent to both parties, so customer concerns about uncontrollable expenses or vendor concerns about inadequate use can be overcome. Transactional pricing fails when it is difficult to correlate the use of a service to the resulting business value, such as pricing e-mail management by the number of times a customer's employees access their e-mail accounts.

Income and expenses must be carefully matched across the board, affecting R&D pace and depth, as well as requiring steadier marketing and sales campaigns that flex with revenues.

Newer companies can compensate for reduced reserves by using investor financing such as venture capital or stock offerings, but established companies generally have already used those possibilities. They may need to consider some other financing options, such as codevelopment opportunities that allow vendors to partially fund product refinements or new products. Another approach, often used by small- and medium-size businesses, is to factor accounts receivable to meet short-term obligations. This approach is tax-deductible but usually carries higher interest than some other short-term financing options. Additional revenue stream possibilities that may bear further exploration are often tied to changes occurring in specific niches.

Over time, gross margins should return to normal when the periodic payments add up to as much as the lost up-front revenues. The transition period creates the most risk, suggesting that any organization transitioning from a perpetual model to a periodic one have sufficient reserves to carry it through that transition.

Research and Development

Adopting a periodic-payment model—perhaps compounded by lowered revenues encouraged by a move to value-based pricing—will change the resources available for R&D. Companies will need either a reservoir for R&D or the ability to succeed for several years with just incremental R&D that matches their revenue streams.

The effects of a transition to a periodic-payment model will be most acute for vendors who support both the traditional license and software-as-a-service models. These vendors must continue to develop major upgrades every few years for their traditional customer base while also delivering continuous improvements for the software-as-a-service version. By shifting to a continuous-improvement model for both the traditional code base and the service code base, these vendors can cut the cost of maintaining two parallel developments. Ideally, the applications use the same code base except for the interface and delivery aspects, an approach that vendors who have moved into software-as-a-service from traditional models are adopting.

For example, Littleson of Kinaxis recalls, "We had already adopted an iterative development model that focused on smaller, more timely releases. This move was independent of on-demand but certainly in hind-sight brilliant. If the fixes for smaller, related issues don't have a dramatic impact on process or training, you just make those updates available to on-demand customers. For bigger issues, we are now starting to build

features that by default are turned off. That gives the customer the option to get comfortable with it and then turn it on, so it becomes configurable in that regard. That's one technique you didn't do much in the premises world, because people planned out an upgrade."

Currently, Kinaxis releases upgrades to both traditional on-premises and on-demand customers simultaneously, but Littleson foresees skipping some upgrades for the on-premises customer in the future if there is not enough value to justify the disruption.

Spend management software vendor Ariba is also transitioning its R&D to a continuous-improvement model. "In the foreseeable future, we're still going to deliver releases periodically," notes Bob Shecterle, vice president, solutions marketing. "However, the cycle time is shrinking dramatically to a virtually 120-day cycle as opposed to a one- or two-year cycle. The enhancements and functionality developed during these short cycles—which are geared toward the on-demand solution—would be

Analysis of How Software-As-a-Service Reduces Total Cost of Ownership

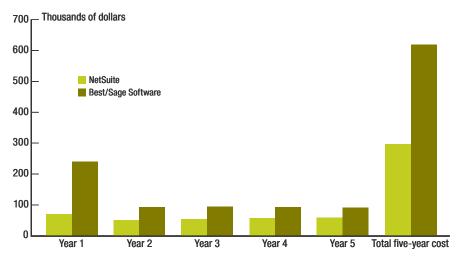
The focus to reduce IT costs is one factor influencing the adoption of software-as-a-service. For small and midsize businesses, software-as-a-service has lower infrastructure and support costs than on-premises licensed software does, according to Yankee Group.

In 2005, the research firm compared NetSuite's enterprise software-as-a-service offering with Best Software's MAS 90 and Sage Software's SalesLogix Advanced, which together constitute a traditional, on-premises CRM and ERP equivalent to the NetSuite service.

In its benchmarking example, Yankee Group noted that a small company with 20 users would experience the most significant total cost of ownership savings when using software-as-aservice rather than a traditional on-premises, licensed equivalent. (See Figure.) The software-as-aservice offering's IT implementation, hardware, data center, and

labor costs were 81 percent below those of the traditional equivalent over a five-year period, according to the analyst firm. A similar cost comparison for a 100-person company revealed infrastructure and support costs that were 22 percent lower.

Software TCO Comparison Example for Sofware-as-a-Service and On-Premises for 20 Users over Five Years



Source: Yankee Group, 2005

aggregated and made available on a one- or two-year cycle to the customers who still want to buy and implement on a more traditional behind-the-firewall environment," he adds.

Moving to a Subscription Model: An EDA Example

Companies adopting new pricing models, such as software-as-a-service, must be prepared for the transition as a decrease in up-front license payments affects revenues. The example of Synopsys, an electronic design automation (EDA) company, illustrates this point. The company began to use term licenses beginning July 31, 2000, in response to reduced

demand for perpetual licenses and because of the negative influence of up-front revenue bookings on end-of-quarter sales negotiations and profit margins.

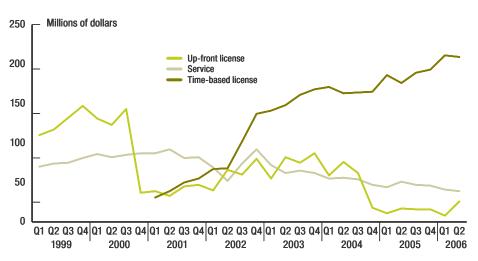
Synopsys had followed EDA companies Cadence Design Systems and Avanti (which was later acquired by Synopsis in June 2002) in transitioning to subscription pricing. During 1999 and 2000, a number of software companies had missed revenue targets because of perpetual license sales fluctuations. Some of these companies, including Computer Associates, decided to adopt a subscription model. Synopsys's own share price had suffered in the first half of 2000 because at least one analyst

noted the effects of end-of-quarter discounting on the company's overall prices.

After the move to software-as-a-service, the company experienced a drop of \$104 million in total reported revenues from the third quarter of 2000 to the fourth quarter. (See Figure.) Synopsys's stock price declined further after the company adopted a subscription model and had to reduce earnings expectations from

\$3.39 to \$0.90 per share. Synopsys took advantage of the low share price during the transition period by continuing stock buybacks it began in February 2000. The company did not report term license revenues until the first quarter of 2001. Its reported revenues did not return to previous levels for two full years, but its stock price recovered within a year.

Synopsys Quarterly Revenue by Type, 1999-2006



Source: Company reports, 2004-2006

Synopsys managed a successful transition to a subscription model by studying the earlier examples of Avanti and Cadence. Source: Company reports, 2000–2006.

By the second quarter of 2006, Synopsys had derived 92 percent of its reported revenues from what the company called Time Subscription Licenses (TSLs). Reported service revenues declined because Synopsys offered a bundled service with its TSLs. Overall, the company managed a difficult transition to a much less volatile model by anticipating the short-term effects of the change on the share price and limiting their duration.

Rather than delivering major upgrades followed by a series of maintenance and bug patches for each supported platform, Ariba can now focus its efforts on a single platform—the software-as-a-service offering's multitenant platform—and deliver better code every 120 days. "Each instance when it's released is production quality, but the production system is evolving every 120 days," notes Rick Collison, director of spend management marketing for Ariba.

Over time, R&D will shift primarily to a continuous-improvement model, matching the streamed-revenue model. But the interim period holds significant risk if available capital does not meet R&D needs.

Sales and Support

Similar to R&D, sales and support models will shift as vendors move to a periodic-payments approach.

No matter which pricing model companies adopt—software-as-a-service, COS, or term license—their sales organizations likely will shift from a push model to a pull model. The lack of a large up-front payment per incremental customer makes it difficult to justify a highly compensated sales force focused on landing big accounts. Also, the initial hurdle to bring in new customers is smaller because they can more easily try out these services or components that are less complex. In other words, the "S" component of SG&A (selling, general, and administrative) expenses should decrease over time. "If you can make the cost to sale almost negligible, then you can make revenue with support," says lan Howells, chief marketing officer for Alfresco, a COS provider of content management software. However, for many applications, cost of goods sold (COGS) is likely to increase as more resources are needed for delivery.

In the short term—especially for vendors of niche applications—the sales cycle and cost of sale are not likely to change significantly. "We're not to the point that we can realize a significant difference in our sales model," says Littleson of Kinaxis. "One of our board members sits on a company that's used an on-demand model for a while, so we've tapped them quite a bit to compare notes and best practices and what they have learned. What they have indicated to us—and we're starting to see this as well—is that your sales cycle will not dramatically change. If your sales cycle is six or seven months, it will not drop to three months. That's because the customer's organization is still going to go through the same due diligence. What the other company did say is that you will see more of the sales contacts go through to completion. That's where you will see the most dramatic impact."

However, as a particular market segment completes migration from upfront to periodic payments, the greater number of completed deals that early adopters experience will end as the sales playing field is leveled again. Over time, customer service will be a main sales channel, and the focus will be on retention and enlargement of the relationship. That will likely cause a shift both in sales costs (lower) and support costs (higher), eliminating the benefits of lower SG&A.

The adoption of periodic payments may have implications for how a sales staff is paid. For example, software-as-a-service provider Employease (acquired by business process outsourcer Automatic Data Processing in October 2006) calculates the expected length of the customer relationship (as with most software-as-a-service providers, the subscription has a defined term—two years in this case—rather than truly pay-as-you-go) to determine the sale's long-term value, and then compensates the sales staff on that value upfront. Arena Solutions pays its salespeople a commission based on just the first year's revenue. Salespeople are not compensated for renewals because the lower service price lets them gain more customers, resulting in equivalent or even higher gross revenues. "Because of that, I can build a sales organization that can be comped on a first-year software-as-a-service model," says Michael Topolovac, CEO of Arena Solutions.

At McAfee, where income is from products sold as subscriptions, from royalties for products resold by others, and from up-front perpetual or term-license payments, salespeople are paid based on booked sales, regardless of whether they come in upfront or are spread out over time. "It's important that they not be treated differently," says McAfee's Kenworthy. "Anytime you modify a comp plan for a salesman, you have modified his behavior"—and you may not get the results you expected.

The COS business model is a good early indicator of the effect on sales and support as software vendors shift to periodic models. Many enterprises have proved that they will pay for support for products that are free or nearly free, even if the products do not come with all the bells and whistles of proprietary/closed-source software. COS vendors were the first segment to deal with this changed sales dynamic, and traditional providers should closely watch their failures and successes, as well as those of software-as-a-service providers.

Valuation

PricewaterhouseCoopers holds that valuations of public software companies transitioning from perpetual license schemes will experience depressed market capitalization by the transition to periodic payments, particularly early adopters. If the market understands the reasons for the shift and sees those reasons as worthy of the short-term pain, perhaps vendors will not be penalized. However, the market likely will be slow to understand this complex dynamic, and vendors should anticipate a

decline. When the market better understands the shift, the penalty will decline, ultimately inverting so that companies that are late to switch to newer pricing models will be penalized for not having transitioned earlier.

The vast majority of software-as-a-service and COS providers are privately held, and most are startups that began with these models. As a result, there is no statistically meaningful data to assess the effect of the transition from up-front licensing to one of the periodic models. However, interviews with executives at several of these companies demonstrated a common belief: public companies transitioning to a periodic model—which would result in a major drop in up-front, new-license revenue that is only slowly replaced by periodic payments—will suffer in the stock market until the periodic revenue streams appear assured through high renewal rates.

Although the transition might be the right thing to do for long-term success, it will require a strong commitment to bear the short-term valuation hit. By contrast, "private companies have less of a worry about the marketplace, so they can take more of a longer-term view," says PharMerica's Toole, whose parent company, AmerisourceBergen, is public. "But that said, they've still got to abide by the right type of accounting rules. It is just a little more flexible, because they don't have to talk to Wall Street about that and the nuances of their numbers." Taking a public company private could be attractive to public software companies considering a pricing-model switch. Alternatively, companies can choose to transition slowly to a new pricing model, reducing the propensity of revenue changes to affect the stock price.

Vendor Adoption

The changes discussed in the previous sections will affect all software vendors either because they move to a new software pricing model or because they become increasingly exposed to competitors who have. The question becomes to what extent, and the answer depends upon which pricing model the vendor chooses. Although the models—COS, software-as-a-service, and term licensing—are immature, the experiences of early adopters and our analysis of the underlying financial relationships reveal several implications and considerations for each model.

Common to all of these models is the long-term potential for decreased volatility as revenues become regularized—assuming that expenses also become regularized. For many companies, decreased volatility has its own value (even at the expense of lower revenues) because cash flow is more consistent, profitability improves, and the need to discount is reduced.

The basic revenue streams for each of these pricing models differ, as do the costs of developing and provisioning the software, and the value that customers perceive from each model. (See Figure 7.) But from a customer viewpoint, the differences are few. COS, term licenses, and free licenses for which customers buy support all offer essentially the same value proposition.

Perpetual license

Term license

Commercial open source

Year 1 Year 2 Year 3 Year 4 Year 5 Year 6 Year 7 Year 8

Figure 7: Comparison of Payment-Model Revenue Streams

Although the basic approach is the same—forgoing up-front license revenues for a regular stream of income—the three pricing models have differences in where those revenues come from.

Table 1 summarizes the key differences that vendors must consider among the pricing models. However, most vendors will find that they cannot just switch wholesale to one of the newer models. They must manage multiple models, because customers will adapt to the new models at different paces.

For example, Plexus Systems CEO Robert Beatty now realizes that most of the company's customers do not know how to value a software-as-a-service offering, since they cannot compare its cost with other, traditional providers. "We have separated our technological business model from the way we price it," he says. "We let customers choose how they want to do it."

Factor Commercial open source Software-as-a-service Term Core business Support and professional services Subscription delivery of Software leasing proposition technology Customer benefit No up-front license · No operational management; no No up-front license up-front license Control over the code Cheaper for software intended Makes software accessible to only for short-term use · Ability to choose any support smaller companies that otherwise provider Ability to manage deployment could not afford the IT effort internally Vendor risks Customers need not have a Operational and uptime costs · Customers may not renew at the continuing relationship with the for delivery platform may be rates expected vendor, because multiple support prohibitive options exist · Actual usage may not match Model attracts customers expectations unwilling or unable to buy much technology Vendor benefits Lower up-front R&D costs; lower High renewal rates; steady Steadier cash flow sales costs revenues Potential for higher income per Focus on support revenues should Simplified sales, support, and R&D customer if renewal rates stay help maintain larger margins than hiah license sales for fairly generic technologies **R&D** implications · Significant costs are borne by · Potential for single code base None others, but product direction is reduces ongoing costs and allows likewise shaped externally more focus on functionality development Sales implications Pull model relies on High initial sales costs relative to High initial sales costs relative to income received word of mouth, lowering income received sales costs, but this requires Lack of customization simplifies enthusiastic community adoption sales request-for-proposal efforts Cash flow Uneven income unless business · Regular income stream Regular income stream implications model is focused on ongoing

Plexus even lets enterprises pay for a perpetual license and then a subscription fee for provisioning and maintenance, so Plexus customers can continue to treat the software as a capital expense, which many of its

support contracts

manufacturing customers prefer to do.

Table 1: Vendor Pricing-Model Comparison

"We thought one of the major advantages [of software-as-a-service] would be that people could run the software as opposed to buy the software—a purely subscription model where they don't have to pay anything upfront," says Beatty. "But in almost all cases, they wanted us to quote prices that looked very similar to traditional software companies. Also, manufacturing owners like to own something rather than rent or lease it. They

actually wanted to pay for an up-front perpetual license, then pay no monthly ongoing fee. That was unacceptable to us because we needed some sort of monthly ongoing fee."

The result: Plexus delivers its software as a service and customers pay for an up-front perpetual license and an annual maintenance fee that is paid monthly. Plexus recognizes the revenue as it comes in, no matter how the customer characterizes it.

Vendor pricing-model decisions will also be influenced by the granularity of offerings. For example, Ariba offers several options as it transitions from being an electronic marketplace system to a provider of spend-management software. "Over the past several months, we have introduced a set of on-demand solutions and packaged solutions that provide various combinations of domain expertise, services, technology components, and network assets that would allow us to deliver these solutions either in smaller chunks or in the right combination of different elements that would support the specific requirements of different sizes of companies," says Lou Unkeless, chief marketing officer at Ariba.

Ariba now offers self-hosted applications with perpetual and term licenses, hosted provisioning for individual customers, and software-as-a-service delivery. Kinaxis also offers more than one option. The company continues to offer its four-year term licenses in addition to its new software-as-a-service delivery (which also requires a four-year commitment).

Informatica began offering software-as-a-service delivery of its business-intelligence software in 2006, as an add-on service to the Salesforce.com suite. But it began thinking about value-based pricing a few years before, when it was gearing up to reach into the midmarket.

"We interviewed customers and partners to help us figure out what was wrong with software pricing, and we heard that it is simply too rigid in many cases," recalls Andrew Larson, senior director of pricing at Informatica. So Informatica has focused on making the perpetual license work better for a broader range of customers. A common approach at the time for large enterprise-oriented software vendors trying to expand in the midmarket was to offer light versions that had less functionality and lower prices. But Informatica chose a different route. It provided all customers of its PowerCenter 7 product the same functional foundation, but offered additional options and price levels to better match an individual customer's scale and usage. The idea was to expose the full functionality up+front, let the customer expand its usage, and then reap the rewards of increased revenue as usage increased—all without maintaining multiple versions of the software or forcing customers to switch from one package to another.

SugarCRM uses three pricing models. The COS provider offers a no-cost open-source license with paid support services, a software-as-a-service delivery option, and a licensed appliance that has the software embedded. The latter offers an interesting solution to enterprises hesitant to use software-as-a-service because of data security concerns, while providing similar ease of deployment and integration.

Even vendors whose customers are not interested in software-as-a-service can benefit from flexible licensing and pricing options. Mentor Graphics, which produces electronic design software, found that customers wanted to choose—and change—the mix of the specific design tools they use. "We originally sold perpetual licenses with maintenance, which included technology updates," notes Jacqi Tull, director of pricing and packaging. "But customers wanted to change the product mix periodically, so we expanded our offerings to include time-based models for many tools."

Today, Mentor Graphics offers a mix of licenses: a few customers want perpetual licenses, while most others want term licenses. Some competitors offer short-term subscriptions rather than licenses of specific products, but the end result is the same: tools are typically valuable for specific periods of time, based on the customers' current design needs and the state of the technology. Recognizing that customers value

Closed Open Source

Sun Microsystems is an example of a company that looked at the open source pricing model used by competitors and adopted a variation of it so the company could more effectively compete. Sun's Solaris server operating system has struggled against the rise of the open source Linux. In response, Sun recently tried a variation of commercial open source (COS) that some call closed open source. As with any open source software, the code is available for review and changes, and it is licensed under one of the standard open source license contracts. But Sun intends to maintain tight control over the code in its official version—that is the closed part of closed open source. Because Solaris is a mature, well-engineered product, it could be cheaper to offer support for it than it would be for something like Linux, which many people contribute to, increasing the management and support complexity for support companies such as Novell and Red Hat. That ability to offer lower support costs for a more mature product may tip the value basis back to Sun.

In theory, Sun's strategy makes sense. After all, the real change is not the adoption of the open source model but a decision to stop charging for the license—there is no up front perpetual license or an ongoing term license. The open source label is more of a marketing move to tap into the acceptance of open source among commercial customers. But what Sun is doing is fundamentally no different from offering free services à la Google and many Web vendors, hoping to make revenues on the back end (via support in this case, rather than ads).

If Sun were truly to adopt the COS model for Solaris, the code base would become more complex to manage, making Sun's business proposition no different from that of Linux COS vendors. Still, even that scenario would put Sun on equal footing, rather than at the disadvantage it experienced when Solaris was a traditional licensed product facing COS competition.

flexible tool deployment, Mentor began offering the option to pick from a list of products every six months; as long as the total, agreed-upon value of the product remains under the amount negotiated, users are free to pick whatever tools they need for that period. The move to both term licenses (or leases) and to mix-and-match licenses delivers the same value. "It gives customers more flexibility to change out the installed base," Tull says. And vendors such as Mentor Graphics get a steadier revenue stream.

Adoption by Software Market Segment

The industry segment that a software vendor serves will also influence the adoption of pricing models. Back-office and infrastructure vendors, for example, will be less likely to adopt newer models initially. However, in segments where application functionality is easily separated from other application domains (as in CRM or reporting tools), vendors will most likely adopt the software-as-a-service model. In other segments, term licenses of individual applications and even SOA components will be the most appropriate delivery models, as is COS for industry segments in which customers are willing to invest in the internal expertise to gain the desired level of control over their software. Table 2 summarizes the impacts we anticipate on specific industry segments.

Where Perpetual Licenses Offer the Most Value

There is a conceit among software vendors that the newest versions of their wares address critical customer needs. But that is not necessarily true. Enterprises have long complained of new versions that do not offer useful additions, but simply increase cost and complexity.

In order to realize more value from their software investments, enterprise customers are evaluating other options. Some are foregoing software upgrades if an existing version of an application adequately meets their needs. Other customers may consider choosing software-as-a-service to reduce costs and enhance value. Yet, software-as-a-service delivery could actually increase the total cost for the customers, because they lose the ability to throttle back their investments in it. Smaller businesses might buy office productivity software through software-as-a-service because of the lower out-of-pocket cost per year —that is an assumption in Microsoft's Office Live,

Salesforce.com, and SAP's NetWeaver platforms, for example—but, with this approach, they would be trading off short-term cash-flow advantage for long-term excess payment.

Larger enterprises are more likely to make this assessment, picking software-as-a-service and service-oriented architecture (SOA) functionality when the net cost is lower than buying a perpetual license or a complete suite. That tendency will likely color which applications are made available in software-as-a-service or SOA-component versions. Software-as-a-service provides vendors an opportunity to derive more revenues from the smaller customers, and SOA provides a way to either reduce development costs for a higher net or enter a complex, well-established market such as enterprise resource planning by offering a no-baggage, specialized component. And it is likely vendors would offer several approaches, each targeting to a specific market segment.

Open-source and perpetual

models favored

Middleware and

infrastructure

Software category Definition Characteristics Example application types Susceptibility to model change/exceptions Point products Office productivity, e-mail, Function-specific, Distinct from other Software-as-a-service single-instance applications aggregated enterprise threat detection and inroads likely except to automate discrete functions, sometimes for some design- and prevention business processes document-oriented generic software where revisions are frequent and online use is problematic: COS least likely Cover multiple business Front-office suites Multifunction. CRM, sales force Large enterprises likely single-instance applications processes automation to continue to self-host for customer-facing core functions, but purposes software-as-a-service making inroads in non-core and specialist usage **Back-office suites** Multifunction. Highly integrated, ERP. business intelligence. Large enterprises likely single-instance accounting to continue to self-host proprietary de facto HR, reporting analysis and applications standard core functions, but software-as-a-service making inroads in non-core and specialist usage **Ecosystems** Multi-instance, Hub-and-spoke, externally Supply chain, purchasing, Established hubs could multiparticipant, prove resistant to change, oriented inventory management function-specific or but outdated systems multifunction applications could be vulnerable to software-as-a-service

Proprietary, de facto

standard or open

standards-based

Operating systems.

databases, and

interconnection

In several software sectors, customers are overserved with functionality they do not need—such as less-essential features in analysis and reporting tools, office productivity applications, CRM suites, and ERP suites—leaving an opportunity for new entrants to provide less-expensive, less-complicated alternatives that offer more value by doing less. This is especially true for the large swatch of small and midsize businesses that cannot afford standard enterprise-level offerings in the first place. Not surprisingly, these segments are the ones most enthusiastically adopting the software-as-a-service model and that first took advantage of the open source phenomenon.

Lower and intermediate

the application layer

software layers that serve

Table 2: Business Model Impact by Software Segment

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Table 3: Commercial Open Source Providers by Application Category

Provider	Database	Networking and Web platforms	Development tools	Middleware, IT tools	CRM, ERP, HRIS, and sales force automation	Business intelligence and content management
COS or COS-focused	EnterpriseDB Greenplum Ingres MySQL	Asterisk Metadot Red Hat Software VA Software Vyatta XenSource	Eclipse Foundation**	GroundWork Open Source Solutions JBoss* LogicBlaze Mergere SpikeSource	Compiere SugarCRM Workday	Alfresco JasperSoft Pentaho
Traditional provider with COS component (typically support services)	Sleepycat Software***	IBM Novell Sun Microsystems Tenable Network Security	BEA Systems Laszlo Systems	BEA Systems Sourcefire		

*Acquired by Red Hat **Not-for-profit corporation

***Acquired by Oracle

One case in point is CRM software, a fairly mature segment long dominated by established vendors such as SAP, Sage Software, and Siebel Systems (now part of Oracle). What do customers talk about when they discuss CRM? It is no longer new features, but new ways of provisioning and paying. Looking ahead, IDC estimates that 76 percent of growth in the CRM market between now and 2008 will come from the on-demand market and that vendor revenues in this sector will grow from \$700 million to \$3.6 billon during the same period—even though the overall CRM market will grow just a little. The reason: a shift in CRM spending from on-premise implementation to software-as-a-service provisioning.

Tables 3 and 4 show the industry landscape as of late 2006, identifying software vendors that have adopted COS and software-as-a-service.

Provider	CRM/sales force automation	Supply chain/order management	HR/benefits/ governance	Insurance and finance	Messaging, Web, and IT services	Content management
Software-as-a-service or software-as-a- service-focused	CoreBlox Kintera NetSuite RightNow Technologies Salesforce.com SalesNet Smart Online Xactly	Arena Solutions Ariba Click Commerce Instill Ketera Technologies Kinaxis Plexus Systems Procuri Venda VerticalNet Wilke Thornton	Axentis CaseCentral Employease Journyx PeopleClick Smart Online Success Factors Taleo Workstream	Aria Systems Concur Technologies Fair Isaac Intacct	@Road BlueTie CollabNet Everdream MessageLabs NSite Omniture Postini Qualys Service-Now Zantaz	Image Fortress WebEx
Traditional provider with software-as-a-service component	Microsoft Oracle Siebel division Sage Software SAP SugarCRM		Janeeva Ultimate Software	Transaction System Architects	Critical Path McAfee Primal Solutions Symantec	Adobe Systems Optio Software

Developing a Platform Strategy

Table 4: Software-as-a-Service Providers by Application Category

The next step for vendors offering multiple pricing models is to treat a portfolio of applications as a flexible platform, where customers can mix and match both components and pricing models. This approach supports the customer desire for more value-based pricing by letting customers assess the value of specific components. But it also introduces a convenience factor that favors the vendor, without causing the resistance that an explicit lock-in strategy typically does. This flexible platform approach is exactly what SAP is doing with its NetWeaver platform, providing a core, self-hosted ERP system to which software-as-a-service and self-hosted modules can be added. (Oracle hints it will do something similar once its Oracle Fusion effort to integrate the acquired J.D. Edwards, PeopleSoft, and Siebel Systems applications with its own applications is complete.)

When a vendor adopts a platform strategy, customers will need to consider the issue of lock-in. A platform controlled by the vendor creates even stronger lock-in than traditional self-hosting, because the vendor owns the software and can directly affect the ease of customer customization and the addition of third-party applications. Although this has defined the competitive strategy of many software vendors to date, such a heavy-handed strategy may keep future customers away. However, even though vendors are promising more open and flexible platforms they inevitably offer proprietary (and valuable) extensions; customers may become locked in before they realize what is happening.

This could be an effective vendor strategy for the short to medium term, but customers do have a way out: the adoption of SOA, which will let them connect any application or service to the services of their own choosing. A heavy-handed platform provider will find its customers wriggling out of its grasp, relegating the platform to legacy status—much like many legacy terminal/host applications that remain in use today after decades but that garner no further customer investment. An approach that allows customers to add on desired functions they buy or create is a better long-term strategy, because it keeps the platform vendor a preferred partner for the long term and offers the vendor greater revenue opportunities going forward.

A vendor that develops its own portfolio of add-on components and makes them available essentially as configuration options is more likely to succeed than one who relies solely on external vendors that provide plug-in add-on modules. The mechanism is a familiar one: COGS rises as a percentage of total revenues for low-price products.

For example, consider the AppExchange platform, in which partners offer add-on modules to the core Salesforce.com services, all at a per-user monthly cost. Most modules average \$50 per user, so an enterprise could quickly commit to hundreds or even thousands of dollars a month per user for a departmental application suite such as CRM. That will restrict adoption to significant add-on functionality or pressure the core software-as-a-service provider to incorporate those functions in its solutions.

The software industry has seen this dynamic play out repeatedly in various attempts to offer software extensions and plug-ins. Generally, few are significant moneymakers, and the truly useful ones often become integrated in a future version of the software. There is no reason to believe that the software-as-a-service experience will differ.

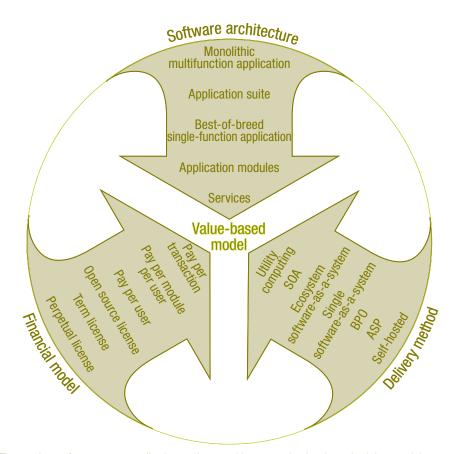
Those familiar with Clayton M. Christensen's seminal book *The Innovator's Dilemma* will understand the way that disruptive technology and market changes can bring down even the most successful company. The software industry is at the cusp of such disruptive technology and market shifts.

Savvy vendors will adjust their pricing models to create a win-win scenario, where customers can see the value of software more closely reflected in their business processes and vendors can reduce their internal costs and realize more of their revenue from recurring payments.

Conclusion

Multiple disruptions—economic, business management, and technological—are changing how customers buy and deploy their software, as well as how much they are willing to pay for it and what they perceive as most valuable. Figure 8 shows how various software architectures, payment and license models, and delivery methods—the factors visible in how software is delivered—affect this change.

Figure 8: Factors Influencing the Shift to a Value-Based Pricing Model



Three primary factors are contributing to the transition toward value-based pricing models: software architectures, delivery methods, and financial models.

PricewaterhouseCoopers does not believe that a move to value-based pricing means that software vendors must necessarily lower their margins. The same technologies that help make value more visible can also lower the costs of creating and delivering software, letting vendors who appropriately serve their markets retain their net earnings.

Technologies such as software-as-a-service and SOA will let software vendors simplify their own technology development costs, so they can spend less on their software and thus in most cases retain their high margins—even for software considered less valuable. Software-as-a-service in particular reduces much of the biggest software cost—its installation, customization, and management at the customer site—by truly distributing that cost among multiple customers. As a result, customers can spend more on additional services. The software-as-a-service approach also holds real potential to let software vendors expand into new markets that could not afford traditional solutions.

In some cases, the shift to value-based pricing could help a vendor increase revenues, while in others it could decrease them. In many cases, vendors will need to rethink their product portfolio and offer more targeted software that has stronger value. Less valuable, generic software will be encapsulated in other technologies, becoming essentially free or the province of one or two vendors whose business depends on scale of distribution of lower-value but fundamental software (the plumbing).

Savvy vendors will adjust their pricing models to create a win-win scenario, where customers can see the value of software more closely reflected in their business processes and vendors can reduce their internal costs and realize more of their revenue from recurring payments. For example, vendors will need to be more flexible in their licensing and provisioning, since value is not just a dollar figure but also related to convenience and customer internal focus. Early experiments with such flexibility show a positive reaction from customers, which helps keep up both retention and satisfaction.

But even if done right, the shift to a value-based model has real costs. Transitioning cash flow from up-front revenue to recurring revenue will require skillful management of existing resources and investor expectations. Investing at the same time in multitenant architecture and SOA

software architectures will make that task even more challenging. Accounting may become difficult because the current capital/service dichotomy does not fully describe the transitional realities. Because customers and market segments are so varied, approaches that work in one area will not work in another, so vendors and their customers will need to tolerate a period of experimentation.

If customers rapidly transition to a focus on individual software component value, vendors will face a switch in revenue streams at the same time customers demand to pay less—or not at all—for significant parts of the software they license or use. Software-as-a-service providers will face a similar switch, as they pay the up front costs to convert their software to the multitenant model and to pay for the delivery infrastructure, while having fewer up front revenues because of the subscription payment model.

As in any shift, the vendors most at risk are those that fail to adapt to the new environment. We strongly believe that the software industry is moving to a model based on actual value to the customer, requiring vendors to rethink their pricing, licensing, and delivery approaches to better align with the values that customers place on the specific business processes they identify and rely on. Value will not mean what I think I can charge but what my customer is willing to pay based on actual benefit.

Some vendors will fail as they attempt all this. But we believe that software vendors will fail if they do not adapt, so inaction is not an option.

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