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Optimize and Execute: SCM Applications are Converging

As companies move toward virtual, real-time organizational structures, a new set of SCM capabilities will emerge that allow these companies to quickly react to events as they occur.

The evolution of supply chain management (SCM) application suites is bringing together optimization capabilities with analysis and execution functionality. Traditionally, SCM applications have been made up of modules that operated independently, and although we have seen convergence in some of the major functionality areas (e.g., supply chain planning suites being formed and supply chain execution modules becoming e-fulfillment suites), many components have been treated separately, with little process integration among them.

SCM applications are usually divided into SCP (planning modules that addressed decision support within different time horizons operated in isolation), SCE (separate transaction execution) and supply chain analytics (which traditionally sat on top of the others and provided historical analysis). For example, SCP modules have generally operated independently of an enterprise suite's execution components, extracting data feeds from transactional applications on a nightly or weekly basis and fed into optimization engines for point-in-time optimization. Likewise, analytical applications have been built on transaction and SCP applications to provide a static view.

The Need for Speed

Supply chain management vendors have promised to enable dynamic supply chains, but traditional supply chain management systems were built for relatively static environments. The imperfect or impractical communication channels amongst trading partners exacerbated volatility in the supply chain. Historically, decision support was executed within stand-alone MRP, DRP and SCP applications. These applications were run weekly or nightly and gathered point-in-time data through interfaces with the transactional systems. Although they worked well for analyzing longer time horizons, their analysis had little relevance to near-real-time events. Likewise, SCE applications tended to be myopically focused on one or two processes and contained limited ability to understand relative discrepancies and propose a solution.

Supply systems are evolving toward the use of nonlinear supply chains, in which build-to-order (BTO) and dynamic distribution become more prevalent. Collaborative commerce, or "c-commerce," enables granular access and control over supply chain processes until the last possible moment of execution, as lead times compress and business relationships become more dynamic. Companies must react to events as they occur and make intelligent decisions given current circumstances. This means the new breed of SCM applications will need to optimize and execute operations based on real-time data and must be able to change to meet trading partners' new demands. By 2003, four-wall SCM applications will develop a convergence of analytical, transactional and decision support capabilities containing a layer of collaboration and context.

SCEM: New Application Stack, or Continuation of the Old One?

Although we believe that recent best-of-breed SCEM applications are the foundation of the new SCM structure, the market will continue to undergo significant changes before the new architecture emerges and a robust set of capabilities becomes available. During the past 18 months, SCEM vendors have introduced new execution architectures that usually contain a thin layer of decision support. At the same time, existing SCM vendors have begun to layer real-time architectures on top of decision-making applications. These capabilities will continue to evolve – and competition will continue to thrive – as SCE and SCP players offer their own versions of these applications (Note 2) and best-of-breed startups continue to acquire and build additional functionality.

Although established SCM vendors have greater "mind share" than these startup vendors, they will need to change existing architectures to remain competitive. Companies should look for SCP vendors that offer repair-based functionality, as well as interactive planning scenarios. The applications will include algorithms that solve problems in near-real time, rather than replanning or net change applications, which take too long to run. Companies should demand that, instead of the current myopic offerings, SCE

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applications have the ability to gather data from multiple sources. Current users may face steep upgrade paths, given the architectural changes needed to meet new requirements. Successful vendors will add intelligence to current infrastructures to enable thoughtful decision making, rather than merely highlighting problems.

What Happens Next?

As functionality from vendors begins to overlap, companies that use products from competing vendors may have to commit to one vendor for converged SCM functionality. Many industry observers would assume that SCE vendors would have an early competitive edge, because the execution information native to these vendors' products is more valuable than the ability to tightly link execution information to planning and replanning functionality. However, today's SCP vendors have larger R&D budgets and a better understanding of decision support than SCE vendors.

New SCEM vendors are also possible leaders, although they start with a small footprint and a small base of installed customers. They will need to quickly expand functionality and process support to remain viable as the market evolves. Companies may choose to begin migrating to a unified vendor before that vendor has a mature application if they believe it represents a strategic partnering.

Because of the immaturity of c-commerce applications, companies should negotiate short-term contracts until technologies mature and winners appear. However, industry leaders that see strategic value in the emergence of a particular application may want to consider longer-term contracts in order to signal the viability of the vendor.

Enterprise Suite Titans

Enterprise suite players are assembling portfolios to address SCM functionality integration that combine transaction, decision support, notification, and analytical processing. As user requirements increase and more end-to-end applications are constructed for c-commerce, the field of packaged applications will narrow because fewer application vendors will be able to compete. However, these suites will take a couple of years to mature, and companies must remain wary of the integration and architecture challenges to existing SCM applications.

Key Attributes of Converged Four-Wall SCM Applications

The next two years will see breakneck competitive feature development by vendors, and this will require an agile technology architecture for both clients and vendors to stay on the leading edge of SCEM. By 2003, vendors that do not provide agile architectures enabled by business activity monitoring (BAM) or agent-based technology will be unable to compete in the SCM market. This will happen because the rate of process and requirement change will remain accelerated as the market matures. Although many of the uses of SCEM suites have been envisioned, these visions have yet to be realized in software, and new visions for SCEM technology will become clearer as the market matures. The following technical attributes are emerging as components of successful converged SCM applications:

Flexible Data Interfaces: The cornerstone of converged SCM applications is their ability to coordinate and report information from disparate systems and business processes. This makes the ability to easily integrate a variety of legacy and emerging formats critical to the viability of these applications. Many vendors obtain this feature by partnering with leading EAI vendors, such as WebMethods or Vitria Technology, or by adopting new Web architectures from such vendors as Skyva International or iSpheres.

Scalability: Because of the massive scope of business processes that converged SCM products oversee, they must be able to process hundreds of thousands or even millions of transactions per day. Immature product architectures have often proved to be inadequate to meet this requirement. Some vendors have a distributed processing strategy, placing agents inside business process partners' applications to filter out irrelevant status updates and transmit only selected events.

Context-Based Role Assignment: Users need to be able to assume multiple roles in a collaboration application, depending on the context of the tasks they are performing.

BAM: This is critical in complex collaboration environments in order to clearly define and track responsibility for and resolution of anomalous events throughout the supply chain.

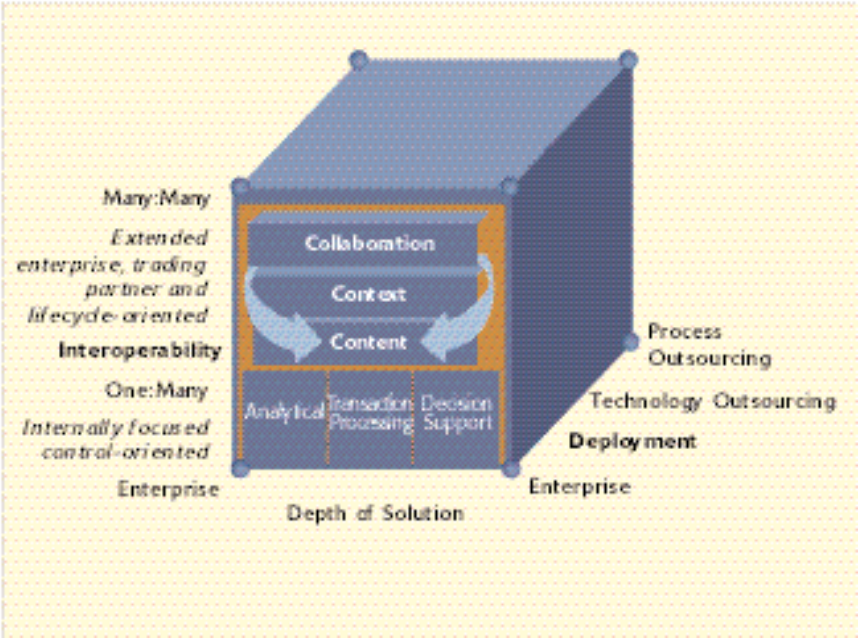

Figure 1 | SCM model for the enterprise.

Narrowing the Field

In the crowded SCM market, the characteristics that will differentiate vendors include:

- *Viability* – The field of application providers has ballooned, and users should be prepared for an imminent market shakeout. However, this will not parallel the dot-com bust, because tightened capital markets have inspired software vendors to operate more prudently and have ensured that relatively mature companies are the ones receiving capital.
- *Deployment Options* – An increasing set of deployment options are available: licensed, licensed and hosted, outsourced through a technology provider (e.g., an ASP) or business process outsourcing (BSP). By taking advantage of application capabilities with the ASP or BSP deployment options, users can improve time to market, based on lower resource requirements, packaged application integration, business process templates and business expertise.
- *Fit for Specific Industry Value Chain* – SCM applications tend to be built to solve a specific company's problems and then are generalized over additional industries. Most of these systems are still immature, so many vendors' products remain focused on specific organizational structures.
- *System Deployment Within the Value Chain* – Companies should assess each vendor's share of the trading partner community. In the absence of established standards and protocols, software from the same vendor will be easier to integrate. As standards become more established, and interoperability becomes a product requirement, this will become less of an issue.
- *ROI* – Companies should assess the cost and time to completion of each product, because these can vary based on industry focus, scalability experience and the deployment options offered by the vendor.
- *Long-Term Strategic Direction* – Most converged SCM offerings are relatively immature and do not yet represent the full capability of c-commerce. Therefore, companies should evaluate the vendor's vision for c-commerce and how they use this vision to act. Although companies are encouraged to engage in short-term contracts to avoid lock-in, only prescience can ensure that companies are able to avoid the costs of switching among products.
- *Rapid Feature Release* – Companies that are leading c-commerce adoption in their industries should assess how quickly vendors will release new leading-edge functionality. Priorities and scenarios will evolve as companies learn which components of c-commerce yield the most value. Companies need to be able to trust that their vendors' products will continue to evolve rapidly in line with their clients' learning.

Bottom Line

Within the enterprise, the lines between SCE and SCP software can be expected to blur, as each vendor stakes its claim to providing integrated functionality. Companies should establish a vision for c-commerce and determine which vendors best meet their short- and long-term needs. Companies should enter into short-term contracts to ensure the flexibility to switch as they discover the suites that will provide the best functionality for their evolving requirements. ■

Note 1

Offerings From Best-of-Breed Vendors

eConnections
Eventra
PipeChain
Qiva
River One
Saltare
Savi Technology
SeeCommerce
SupplySolution
Tilion
Valdero
Viewlocity
Vigilance
Vizional Technologies
WorldChain

Note 2

Vendors With Converging Products (Released or in Beta Testing)

Adexa
Descartes
i2 Technologies
Manugistics
McHugh Software International
Manhattan
Optum
Oracle
SAP
V3 Systems