

## Rewiring for global integration

*Connecting the electronics value chain with SOA*

*Forces in the electronics industry, marked by heavy global competition and extremely short product lifecycles, are driving more electronics companies to be more globally integrated. Global integration enables electronics companies to position themselves as highly efficient and unified enterprises, and true global integration impacts the full spectrum of their value chain. We believe technology-enabled collaboration, facilitated by the adoption of service-oriented architecture (SOA), is a key to allow for increased collaboration within the enterprise and business ecosystem.*

Globalization, deregulation, commoditization and the impact of the Internet have dramatically affected the electronics industry, which creates products both for end users (such as consumer electronics) and other manufacturers (such as office equipment and network equipment providers). With so many manufactured products now incorporating electronic components and the pace of global commerce so rapid, the industry has not only grown quickly – it has also become far more competitive.

Technology advancements have placed increasing pressure on electronics OEMs to produce highly innovative products as a matter of course – on a tight schedule, at ever-lower prices. Yet parent companies with multiple global subsidiaries often lack the seamless integration they require to take advantage of specific needs in local markets and operate as single, globally integrated operations.

We believe that service-oriented architecture (SOA) can help electronics enterprises simplify the integration of information, processes and technology, and respond to the primary imperatives facing their industry: enhancing the customer experience, increasing customer loyalty, speeding time to market, lowering costs and improving efficiency.

The following three scenarios, which are detailed in the full version of this paper, describe how SOA may assist electronics companies in improving the online shopping experience, enabling collaborative product development and facilitating demand-driven collaboration.

- *Improving the online shopping experience.* Using an e-commerce example, we explain how SOA can integrate data across OEM and retail channels, all while maintaining the appropriate levels of security and control. By introducing a standardized, unified layer of services between front-

end portals and back-end systems, SOA can help improve the accuracy, consistency and timeliness of product and order information – in the OEM store, in an outlet, and in retail locations – to enhance online shopping.

- *Enabling collaborative product development.* In the electronics industry, going to market with innovative products is critical. Yet despite applications for product lifecycle management (PLM), the product-development process can be slow and inconsistent, with information scattered among PLM systems, other processes, business divisions, partners and infrastructures. In our example, we illustrate how SOA can help improve this function by integrating cost-estimating systems and providing information in realtime, on demand, through the SOA services “layer.”
- *Facilitating demand-driven collaboration.* Electronics is more globalized than many other industries – magnifying the effect of supply and demand shocks. Nevertheless, many electronics OEMs and retailers still rely on manual processes that can inhibit collaboration and hinder decision making concerning forecasting, planning, pricing, allocation and replenishment, for example. Using an SOA framework, OEMs and retailers can automate and integrate information, coordinate business decisions and eliminate costly, error-prone processes – all within a secure, standardized, collaborative environment.



In each of these scenarios, we describe the business problem and how the process works today. We then illustrate how the problem could be addressed with an SOA-based approach to technology integration. We show how the systems could interact using SOA, with terms and diagrams aimed at business executives. We conclude each scenario by discussing the business value of the solution and, in some cases, the value brought directly from using SOA techniques.

We believe SOA is potentially as transformative as the Internet. But precisely because of its range and power, it should be employed responsibly – with a sense of vision, purpose and strategy. It requires strong leadership – the ability to overcome internal resistance and effectively manage change, adequate up-front investments and an understanding of true enterprise integration. Through our own use of SOA, and in thousands of SOA engagements

across the world, we have gained a good sense of how to proceed with SOA:

- Focus on a business problem and use SOA to solve it. SOA is a means to an end – not an end in itself.
- If possible, start with revenue-generating capabilities.
- Start small. Use your first SOA project to “learn the ropes.”
- Begin to build new human capabilities. SOA requires some specialized skills that entail a learning curve.
- Think long term. The hardest, most prolonged and most expensive part of SOA is building the initial architecture.

Through the carefully managed execution of powerful solutions, SOA can become a key enabler of the globally integrated enterprise – helping electronics OEMs to meet the increasingly stringent challenges of the worldwide marketplace.

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## How can IBM help?

- **IBM Solutions: Each scenario in this paper relates to one or more different solutions.**
  1. Improving the online shopping experience
    - Electronics Sales and Service
  2. Enabling collaborative product development
    - Electronics Product Lifecycle Management
  3. Facilitating demand-driven collaboration
    - Supply Chain ERP Management
    - Supply Chain Operations
- **Application Services Offerings:**
  - Application Development
  - Business Application Modernization
  - Complex Systems Integration
  - E-commerce Applications
  - Enterprise Architecture & Technology
  - SOA Strategy & Transformation
  - SOA Design, Development and Integration Services

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