

## Empowering on-trend, on-time innovation

A new design innovation model for apparel, footwear and accessories

[www.siemens.com/plm](http://www.siemens.com/plm)

white paper



- ▶ To address the apparel and retail industry's need to accelerate product development, reduce cost and deliver more "on-trend" styles, apparel manufacturers and vertically integrated retailers require a global, virtual environment for collaborative design and product development. This white paper discusses how product lifecycle management (PLM) enables apparel manufacturers and retailers to bring the right styles and products to market, at the right time, and identifies the PLM software components that are required to ensure successful global product development.

# PLM Software

Answers for industry.

**SIEMENS**

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## ▶ Executive summary

*Apparel, footwear and accessories retailers and manufacturers around the globe are driven by the need to maintain customer and brand loyalty. They address this imperative by designing innovative products at the right time, successfully managing an increasingly complex product design and development process across their supply chain – and by establishing sustainable, cost effective growth in the face of a challenging global economy.*

*Innovative design requires companies to acquire ideas from a wide range of resources, both internal and external to their operations, and then to select the best-of-the-best to develop the right products for targeted markets. Sustainable growth requires companies to build best practices into their product lifecycles to facilitate time-critical product delivery and squeeze every last cost savings out of their operations while delivering quality products demanded by today's consumers.*

*And perhaps most importantly, effective product design and development requires companies to manage today's extended supply chains and enable all of their global participants to work together collaboratively as they turn these ideas into successful products.*

*To rise to these challenges, today's apparel, footwear and accessories retailers and manufacturers need a new infrastructure model for design innovation – a virtual enterprise, working off a single, global data model that facilitates collaborative design and product development.*

*This infrastructure must be able to engage all of your internal designers and product developers, as well as your vendors and partners, in a co-design/co-development process. Equally important, the technology for this enterprise must enable all of these participants to collaborate early on in a product lifecycle that extends from storyboard to shelf. An infrastructure that facilitates product lifecycle management (PLM) is especially well suited for meeting these challenges.*

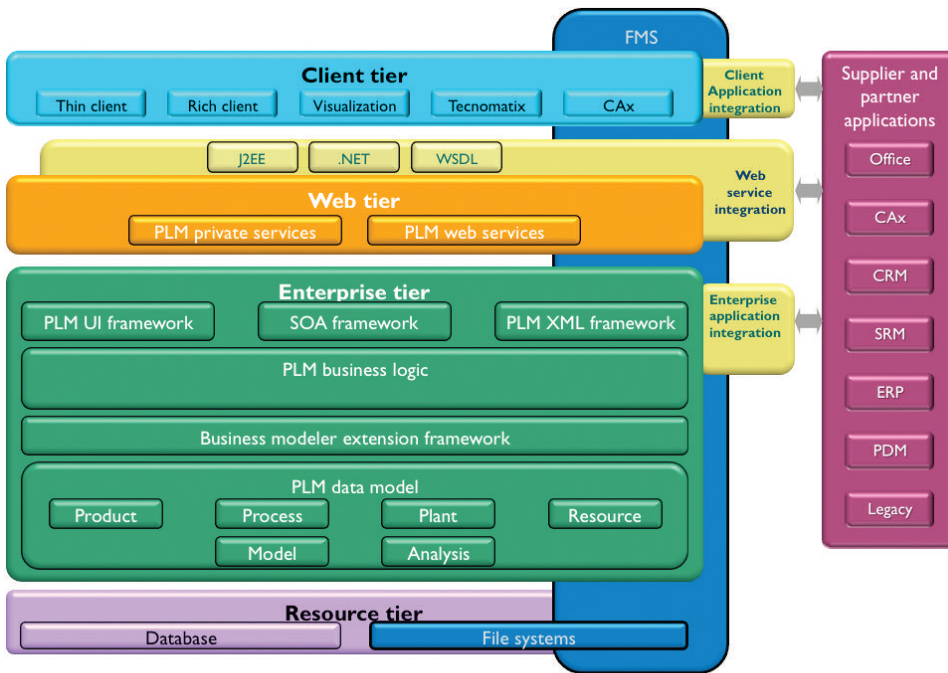
*As apparel, footwear and accessories companies build unified, virtual PLM infrastructures for design innovation and efficient product development, it is essential to answer the following questions:*

- How do I ensure that my infrastructure is able to scale as my business grows?*
- Are key product and process capabilities available to meet my business needs, including global calendar management, line planning, materials management, integrated specification management and integrated workflow?*
- How easy is it to incorporate my best practices into infrastructure-driven workflows?*

## ► The value of a unified PLM architecture

The PLM infrastructure that provides the virtual enterprise for new product design and launch must be able to support the business processes, product information, user communities and network technology that characterize product development in the apparel, footwear and accessories industry.

In practical terms, this means the PLM architecture must be capable of unifying information from design authoring tools, supporting 2D and 3D visualization, and automating workflow processes that enable your internal designers and external vendors/partners to seamlessly collaborate in tasks that run the gamut from concept to lab dip to sample approval to testing through to design finalization.



Although each apparel manufacturer and vertically integrated retailer has its own unique infrastructure needs – whether that is to support PLM applications or enable PLM processes to span the global value chain – the following fundamental capabilities are needed to ensure effective new product development and launch:

- **A state-of-the-art, unified PLM architecture** that consists of platform building blocks, including a database, file system and user interface. The architecture needs to reflect the latest software best practices, provide separate logical tiers, and support iterative and secure product innovation through a robust set of lifecycle management applications. An application programming interface (API) should be available to facilitate extended capabilities and integration with other enterprise and supply chain applications. In addition, a state-of-the-art architecture needs to support multiple operating systems, database engines and file storage devices, as well as facilitate internationalization. Of course this architecture must be smoothly scalable in cost and capacity to meet the needs of small, medium, large or mixed deployments.
- **Unified foundation for addressing multiple user experiences**, including access through popular authoring tools (such as Adobe Illustrator, Microsoft Office, and other authoring tools), support for all major web browsers in the enterprise and task-based/role-based portals for organizing information in the context of your user communities' business and assignment needs. A unified foundation also ensures greater effectiveness in global calendar management, line planning, materials management and vendor communication by ensuring that each of these critical capabilities is accessing a single source of product and production knowledge at all times.
- **Scalability and performance profiles** that support dynamic workloads, high latencies, frequent transport of large-sized files and global deployment across a heterogeneous architecture.
- **Secure and controlled access across your value chain** to a single source of product and process data, including the ability to enable external vendors and partners to participate in your product development processes while protecting the intellectual properties of all participants. A rules-based engine is especially valuable since it can be leveraged to establish multiple levels of access control to assigned and owned data.
- **Deployment flexibility** to address infrastructure and bandwidth realities. The infrastructure should be able to deploy a centralized, federated or even a mixed architectural model without compromising data management best practices or low-cost-of-ownership objectives.

### **Jones Apparel Group achieves success through a unified architecture**

“At Jones Apparel Group, this unified approach has been realized in the form of a highly available, load balanced environment across all tiers with the following distinct concerns:

- File vault storage
- Database services
- Image translation
- Business logic processing
- Web presentation services
- Reporting Services

It was important for our PLM solution to provide us with failover capability from two perspectives; one being hardware and the other software. Hardware “events” are largely mechanical processes where intelligent devices can recognize issues and divert application processing, data storage and traffic around a problem. While significant, this is only half of the problem. The technical implementation of the software solution needs similar “intelligence”; it needs to be able to respond to hardware failure of some kind gracefully. We feel that we have achieved this and have successfully dealt with hardware issues that have not impacted our user community to any significant extent.”

*Bob Stevens  
Jones Apparel*

## ▶ Three key requirements for a PLM infrastructure

While the general requirements discussed in the preceding section are helpful in conceptualizing the capabilities of a state-of-the-art PLM infrastructure, the following three key requirements are especially important for meeting the design innovation needs of apparel, footwear and accessories manufacturers and vertically integrated-retailers:

- Scalability, performance and capacity flexibility
- High infrastructure availability
- Remote global access

Requirement	Business value
<b>Scalability, performance and capacity</b>	<p><b>Scalability.</b> Your PLM infrastructure must be easily scalable to accommodate organic growth, including the acquisition of additional business units and your procurement of new vendors. In practical terms, it must be relatively simple for you to purchase more servers and add them to your infrastructure's server farm.</p> <p><b>Capacity.</b> Your initial infrastructure should be able to support your current user community plus 50 percent. This additional 50 percent enables you to quickly roll out services to other areas as the need arises.</p> <p><b>Performance.</b> Your infrastructure must be able to meet your company's high performance design, editing and collaboration needs for global product development.</p> <p>Taking all three factors into account, the architecture for your PLM solution must be able to optimize performance to support larger user workloads as well as the use of larger design files. A services oriented architecture (SOA) enables you to meet these requirements.</p>
<b>High infrastructure availability</b>	<p>Fast fashion requires a dependable network, with dependable applications. The PLM infrastructure must be able to prevent production outages and bottlenecks that might otherwise impact user productivity. Today's PLM architectures have multiple points of potential failure, including the application tier, logic tier and database tier.</p> <p>To address these issues, the PLM system must provide intelligent routing and load balancing functionality. Intelligent routing enables the infrastructure to automatically direct users to open paths to resolve any point of failure. Load balancing enables the infrastructure to prevent slowdowns caused by workload bottlenecks.</p>

Requirement	Business value
<b>Remote global access</b>	<p>Apparel, footwear and accessories design communities are increasingly global in nature, with multiple remote offices and vendors dispersed across the supply chain. As a result, today's companies require a high performing infrastructure.</p> <p>While a service oriented PLM architecture enables brand owners to manage the whole product centrally through their metadata-driven PLM repository, high latency and other performance issues can arise as data/image files need to be accessed rapidly and edited by remote designers.</p> <p>These problems can be addressed, in part, through sophisticated data replication and file sharing capabilities. Multi-site data replication enables the initial author of a design to publish a design to the central PLM database. The author can then establish business rules and workflows to transfer the design to the local database of other sites that want to share the design.</p> <p>By "replicating" the shared design on multiple sites close to your remote user communities, you can maximize your network's data access and refresh performance.</p>

**File management issues**

Apparel, footwear and accessories design communities are using increasingly large (40 to 50 MByte) image/data files as part of their design innovation process. In addition, more files are being produced than ever before. This trend puts significant access and performance pressures on today's infrastructures. While multi-site data replication is a solution for many companies, it is a costly approach that requires companies to carefully examine their file management needs three to five years into the future. Best-in-class PLM infrastructures provide out-of-the box replication functionality that translates into significant cost savings over time.

**A powerful architecture to enable "on-trend, on-time" innovation**

The full benefit of Teamcenter® 8's unified architecture is very apparent in the apparel and retail market. In order to meet the challenges of speed, quality and trend, apparel, footwear and accessories manufacturers need to work in a PLM environment that provides a single data model, intuitive user interface and configurable workflow capabilities. Siemens PLM Software delivers this foundation, enabling better line planning and calendar management, more effective sourcing and rapid collaboration across your entire value chain. Ultimately, a unified PLM foundation enables apparel manufacturers and retailers to secure a lasting advantage in the battle to be on-trend, on-time, every time.

For more apparel solutions from Siemens PLM Software go to: [www.siemens.com/plm/apparel](http://www.siemens.com/plm/apparel)

*"Empowering on-trend, on-time innovation" was co-authored by Bob Stevens of Jones Apparel Group. At Jones, Bob is focused on the pre-production aspect of the business, leveraging PLM to deliver streamlined, collaborative, workflow-themed solutions to best meet the needs of the demanding fast-fashion user community.*

## About Siemens PLM Software

Siemens PLM Software, a business unit of the Siemens Industry Automation Division, is a leading global provider of product lifecycle management (PLM) software and services with nearly six million licensed seats and 56,000 customers worldwide. Headquartered in Plano, Texas, Siemens PLM Software works collaboratively with companies to deliver open solutions that help them turn more ideas into successful products. For more information on Siemens PLM Software products and services, visit [www.siemens.com/plm](http://www.siemens.com/plm).

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