Faced with an increasingly competitive business climate, rising fuel costs and the growing emphasis on environmental sustainability, it’s a given that companies across all industries must strive to optimize the process of moving goods from one place to another – whether from factory to distribution center, distribution center to store, or any combination in between – locally, regionally or internationally.
Today’s leading companies are reexamining their current business processes, looking to new strategies and applying innovative uses of technology to improve performance and enhance efficiencies. Web services and service-oriented architecture have made it easy to deploy individual component capabilities as a flexible alternative to all-or-nothing comprehensive systems, and this strategy offers immense opportunity to drive results. By deploying component capabilities as callable functions and finding additional ways in which to leverage these capabilities, companies can realize rapid, pinpointed advancements that make a big business impact.

Containerization: Downstream and Upstream Benefits

Containerization is one of these areas of opportunity. Deployed as a callable capability, containerization can be leveraged in downstream transportation and logistics functions but also in more unexpected upstream supply chain planning functions.

How does it work? In its simplest application, containerization provides the ability to maximize the loading efficiency of objects into a shipping container – such as a trailer on a truck, an ocean container or a pallet – to optimally build out a three-dimensional space while respecting constraints such as orientation, crush factors, dimensionality and stacking rules. Containerization is especially useful for companies in the business of moving many disparate product types in varying weight categories. Both heavy and light freight can be intelligently co-loaded and shipped together to utilize all available container capacity, with heavy freight on the bottom and more delicate freight on top. The result is increased resource utilization and reduced number of containers required to move the same amount of goods.

In addition to its basic load configuration function, the containerization concept can also be leveraged in other applications. Fundamentally, the solution operates as a callable engine that can work alone or in cooperation with other optimization capabilities to solve a number of problems. Consider the following expanded methods in which containerization can be used to drive performance and achieve improved utilization rates, better distribution center throughput, reduced miles driven and more intelligent ordering:

- **Take transportation management systems to the next level.** Incorporate containerization capabilities into the end-to-end transportation and logistics management process to get better results from corporate transportation management systems. Containerization can be used as a part of the dynamic routing solution validating that complex, multi-stop routes are built to maximize asset utilization.

  Containerization enables a company to confidently build loads that utilize 100 percent of available container capacity instead of estimating and leaving a safety buffer that results in shipping space underutilization. The ability to ship more merchandise in a single container facilitates the routing process and enables inclusion of an extra stop that was previously not possible.
• **Intelligently split distribution orders as an extension to the fulfillment plan.** The containerization concept can also be applied to an order-splitting paradigm upstream in supply chain planning. This entails splitting distribution orders into intelligent, executable shipments that take into account both date constraints as well as inventory policies. For example, a company can leverage containerization in its distribution plan by intelligently segmenting an aggregate group of distribution orders. It does this by pushing orders forward or pulling orders back based on date parameters to build optimal truckloads before sending them out into the network for fulfillment.

• **Banish high-level capacity assumptions in the order management process.** Another way that containerization can be used in the upstream supply chain planning process is as a callable service to help determine when an order has reached an actual full truckload instead of estimated full truckload quantity, qualifying it for discounted pricing. Companies fulfilling customer orders frequently offer advantageous pricing for “full truckload” purchases, but determining when an order meets a legitimate full truckload is difficult without visibility into actual data. The common remedy is to establish an assumptive truckload threshold based on a designated order amount. This imprecise method means that companies often end up leaving money on the table by offering discounts on less-than-truckload orders. Containerization provides a probe-and-response capability to keep order takers apprised regarding when a legitimate full truckload threshold is reached during the order-taking process.

• **Optimize ocean container utilization in international transportation.** Containerization can be used as a loading optimizer for the intelligent stuffing of ocean containers. A common scenario in ports today is a mismatch between the incentives of freight forwarders and the incentives of shippers – while freight forwarders simply charge by the container, it is in the interest of shippers to ensure that the container is full. Infusing containerization capabilities into the process provides the opportunity to ensure maximum capacity utilization.

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**The Bottom Line**

Bringing transportation functions like containerization into the greater supply chain planning process offers tremendous strategic and performance potential. By leveraging containerization as a callable capability and incorporating it into downstream transportation and upstream supply chain workflows, companies can improve asset utilization, use fewer trucks, drive fewer miles, reduce fuel costs and enhance distribution center operations.

**About JDA Software Group, Inc.**

JDA® Software Group, Inc. (NASDAQ: JDAS), The Supply Chain Company®, is a leading global provider of innovative supply chain management, merchandising and pricing excellence solutions. JDA empowers more than 6,000 companies of all sizes to make optimal decisions that improve profitability and achieve real results in the discrete and process manufacturing, wholesale distribution, transportation, retail and services industries. With an integrated solutions offering that spans the entire supply chain from materials to the consumer, JDA leverages the powerful heritage and knowledge capital of acquired market leaders including i2 Technologies®, Manugistics®, E3®, Intactix® and Arthur®. JDA's multiple service options, delivered via the JDA® Private Cloud, provide customers with flexible configurations, rapid time-to-value, lower total cost of ownership and 24/7 functional and technical support and expertise.