Redpaper

Rodney Martinez

IBM Sterling Solutions for Commerce

This IBM® Redpaper™ publication describes IBM Sterling Solutions for Commerce and provides a business process example to illustrate how the fully integrated solution can help companies in obtaining cross-channel excellence.

This paper contains the following sections:

- ► Executive summary
- ► IBM Sterling Solutions for Commerce
- ► Integrated scenario: Industrial products

Executive summary

As the economy improves, companies continue to look for cost containment throughout their supply chains, but they also focus on growing revenue by establishing strong relationships with existing customers and obtaining new customers. Providing a superior customer experience that differentiates these companies from their competitors is critical in this process.

Providing a superior cross-channel customer experience to retain customers is becoming more complex than it has ever been. Customers are demanding more choice in products, how they purchase those products, and how their orders are fulfilled. To complicate matters, customers now have unlimited access to information and can instantly share that information with the world. Thus, any misstep with an order or lack of access to a business can be broadcast to all potential customers and, ultimately, can affect the bottom line.

Many companies cannot provide the cross-channel services that customers expect because they are managing selling and fulfillment processes with inflexible enterprise resource planning (ERP) systems. These ERP systems are focused on optimizing internal operations and can struggle with how to expand outside the enterprise. To make up for these shortfalls, companies often implement manual processes that are error-prone and time-consuming to handle ever-increasing customer demands.

IBM Sterling Solutions for Commerce

The IBM Sterling Solutions for Commerce help companies achieve cross-channel excellence by optimizing the sales and fulfillment processes. These components in the Commerce family of solutions from IBM increase responsiveness to customers and drive new revenue through the sale and delivery of customized configured products and service offerings, such as delivery and repair. The IBM Sterling Solutions for Commerce provide a single view of demand, inventory, and supply throughout complex global supply chain networks. This single view, together with flexible process management, provides control over the entire fulfillment life cycle.

The IBM Sterling components in the Commerce family of solutions consist of the following products:

► IBM Sterling Configure, Price, Quote
► IBM Sterling Order Management
► IBM Sterling Transportation Management System
► IBM Sterling Warehouse Management System
► IBM Sterling Supply Chain Visibility

IBM Sterling Configure, Price, Quote

IBM Sterling Configure, Price, Quote presents product information throughout all channels and allows employees, customers, and partners to accurately configure, price, quote, and order products, services, and solution bundles.

To sell competitively in today's multi-channel environment, companies need a way to manage product and service configuration and pricing rules that allow prospects, customers, sales staff, call center representatives, and partners to find, configure, and order the right products and services. IBM Sterling Configure, Price, Quote transforms and automates the most complex cross-channel selling processes—the configuration of complex products, services, and bundles—and hides this complexity from users.

IBM Sterling Configure, Price, Quote allows business users to manage product and service configuration and pricing rules and guides these prospects, customers, partners, sales and call center representatives in selecting and validating products and services based on their specific needs.

IBM Sterling Configure, Price, Quote consists of the following main components:

► IBM Sterling Configurator
► IBM Sterling Pricing
► IBM Sterling Quotes
► IBM Sterling Catalog

IBM Sterling Configurator

IBM Sterling Configurator enables business users to maintain product relationships and establish configuration rules, map product data through predefined adaptors, and combine back-end product data with sales-specific product knowledge and business rules. Model and rule imports allow business users to combine back-end product data with sales-specific product knowledge and business rules to effectively sell products and services across all available touchpoints.

IBM Sterling Configurator alleviates incorrectly ordered products and services, improves customer service, and lowers costs by reducing inquiries to the call center. The result is accurate and consistent product solutions each and every time customers buy.

IBM Sterling Pricing

IBM Sterling Pricing provides centralized maintenance for the creation, change, and communication of pricing data for an entire line of products and services. It provides business users and pricing managers the capability to do the following:

► Take charge of price maintenance

► Establish pricing based on customer, customer segment, region, contract, or other criteria

► Define multiple price types per product, such as a one-time sales price, recurring charges, and cancellation fee

► Coordinate pricing changes with partners to increase sales margins

► Enforce pricing rules to list prices automatically

► Apply appropriate discounts based on coupon codes entered by users

IBM Sterling Pricing eliminates manual efforts in pricing execution, enforces price consistency, and decreases operational costs. It also enables internal users to centrally coordinate pricing and price changes across diverse product lines.

IBM Sterling Quotes

IBM Sterling Quotes enables internal sales and customer service representatives (CSRs) to generate a quote in a number of formats and templates that are tied to established pricing, discount, and quote expiration policies. It provides an easy way for sales administrators to define and manage quote approval workflows and for field sales representatives to create, collaborate, and negotiate through the quote to order process. IBM Sterling Quotes allows companies to define and manage quote approval and negotiation workflows the following ways:

- ► Creation and delivery of customer and prospect quotes
- ► Collaboration with customers throughout the entire quote negotiation and approval process
- ► Permitting partners adding products and services to the quote
- ► Tracking the status of each quote

Quotes that previously took hours or days to prepare using error-prone and labor-intensive processes can be generated automatically in minutes. This process saves valuable time and increases accuracy, which means that companies can increase customer satisfaction even as they lower their cost of sale.

IBM Sterling Catalog

IBM Sterling Catalog allows business owners to maintain all product and service information within the sales process from a central repository so that it can quickly and easily publish product and service information online. IBM Sterling Catalog allows companies to do the following:

- ► Manage product attributes through centralized product administration
- ► Construct and manage product and service catalogs
- ► Entitle customers and partners to view only their specific catalog content
- ► Access and publish catalogs for online viewing and shopping
- ► Collaborate with partners to integrate their products and services into the catalog
- ► Offer products and parts search and allow product comparison

Benefits include receipt of products and services to allow faster time-to-market, reduction of operational costs, and gain of more control over product data.

IBM Sterling Order Management

IBM Sterling Order Management provides cross-channel order orchestration capabilities that enable the intelligent brokering of orders across many disparate systems, provide a global view of all inventory across the supply chain, and allow changes to order processes dynamically.

Customers are demanding a unified cross-channel experience, creating a much more complex supply chain. Delivering innovative services, such as buying online and picking up in-store or using drop-ship capabilities, has forced companies to incorporate new processes that support cross-channel visibility and customer order orchestration.

The problem is that existing back-end systems struggle to support these outward facing business process. As orders are fulfilled across multiple internal entities and external partners, it becomes difficult to efficiently manage all of the processes that are needed to provide a uniform customer experience. Many companies rely on inefficient manual processes to complete transactions that cross channels. Simultaneously, a lack of inventory visibility throughout all locations can result in exceptionally high stock-outs and inefficient inventory utilization.

Through the use of an intelligent sourcing engine, a central order repository, and the aggregation of global inventory, IBM Sterling Order Management helps companies grow revenue and become best in class by orchestrating global order and service fulfillment throughout a dynamic business network of customers, suppliers, and partners.

IBM Sterling Order Management includes the following main components:

- ► IBM Sterling Distributed Order Management
- ► IBM Sterling Global Inventory Visibility
- ► IBM Sterling Reverse Logistics
- ► IBM Sterling Delivery and Service Scheduling

Table 1 describes the IBM Sterling Order Management products.

Table 1   IBM Sterling Order Management products

Product	Description
Sterling Distributed Order Management	► Aggregates, manages, and monitors orders from all channels ► Includes an intelligent sourcing engine that orchestrates fulfillment throughout the extended enterprise ► Provides a single order repository to modify, cancel, track, and monitor the order in real time
Sterling Global Inventory Visibility	► Consolidates inventory information from multiple systems, generating a single view of all supply and demand ► Provides users with role-specific views of inventory ► Provides more accurate promise dates when entering an order
Sterling Reverse Logistics	► Links multiple return and repair requests to original sales orders to enable repair life cycle tracking ► Tracks reverse inventory back to the appropriate location, including partner locations, based upon flexible business rules
Sterling Delivery and Service Scheduling	► Facilitates rules-based commitments, provider selection, and crew allocation ► Includes activity sequencing for complex, multi-step fulfillment ► Provides the ability to schedule all services at time of order transaction

IBM Sterling Distributed Order Management

IBM Sterling Distributed Order Management aggregates orders from multiple order capture channels and provides a single source of information across these channels. This solution enables companies to present a single face to the customer by allowing information about any order from any channel or division to be made available when and where a customer needs it.

IBM Sterling Distributed Order Management also simplifies administration and maintenance of customer orders, allowing a single record to be accessed, modified, or cancelled through simplified integration between any order capture system and the IBM Sterling Distributed Order Management application. All information and activity related to that order are contained in a single repository, presenting a single version of the record.

IBM Sterling Distributed Order Management also provides an intelligent sourcing engine that looks across all locations, including those of external partners, to determine the best location to fulfill each line on an order, based on a wide set of parameters that are defined by the organization. For example, you can use IBM Sterling Distributed Order Management when doing cost-based sourcing. The rules engine can look for the item to be fulfilled that has the least cost and select that item before anyone else. This process optimizes profits and ensures that the item is delivered to the customer on time.

IBM Sterling Distributed Order Management identifies the applicable fulfillment process for each order and seamlessly splits or consolidates order lines and sequence activities. It brokers documents and requests to the appropriate internal or external fulfillment participants and incorporates user-defined events to effectively track fulfillment activity based upon the unique conditions of each order line.

IBM Sterling Global Inventory Visibility

IBM Sterling Global Inventory Visibility provides a single comprehensive view of all inventory by aggregating inventory information from all locations and providing a view of what is available internally and at all partner locations, what is being supplied, what is in transit, and what the current demand is. This extensive visibility ensures that customers are receiving an accurate promise date for all orders and that inventory is used efficiently.

IBM Sterling Global Inventory Visibility handles the tactical process of determining what is currently available throughout both internally-owned and externally-owned inventory and also includes a forward-looking, time-phased inventory view that is accessible through a comprehensive inventory console. Use of this inventory visibility solution presents a central inventory repository which can collect real-time data from other systems and then serve as a single source that can be accessed by multiple users.

Inventory in multiple locations can be monitored to ensure the most efficient utilization and the prevention of obsolete inventory. On-hand inventory monitors can also be time-triggered to ensure that items do not spoil or become obsolete. Event-based monitors can trigger replenishment to reduce the likelihood of stock-outs without having to rely on large safety stocks.

IBM Sterling Reverse Logistics

IBM Sterling Reverse Logistics is a condition-based returns processing solution that enables efficient handling of returns processes, such as individual customer returns, complex bulk returns, return dispositions, and a repair-and-return process. It helps reduce costs by enabling more efficient returns processing with a simultaneous increase in inventory visibility that can increase sales volume and profit totals.

IBM Sterling Reverse Logistics enables the effective tracking of items throughout the return-and-repair process and automates the procedure that returns items to stock. Moreover, real-time status updates from service-and-repair personnel allow companies to use the reverse logistics cycle to their best advantage as a record of the ongoing supply source.

By providing integrated control over all orders that are related to the return (for example, the original sales order, the replacement order, or the repair order), IBM Sterling Reverse Logistics uses real-time information to improve the quality of customer service and eliminate inventory buffer stocks and costly manual processes.

IBM Sterling Delivery and Service Scheduling

To maintain a competitive advantage and increase revenues, many businesses are pursuing service-oriented, revenue-generating strategies that require complex fulfillment processes for final delivery to the customer. These strategies include offering either one-time or ongoing additional services such as delivery, installation, and setup, along with the sale of a product.

IBM Sterling Delivery and Service Scheduling gives companies the tools to maintain a wide network of service specialists across various locations and provides a centralized, consolidated view of their calendars and schedules. These service specialists can be internal employees, external resources, or a combination of both, depending on the geography. The availability of these resources can be viewed and scheduled when entering an order for an item or as a separate order transaction.

IBM Sterling Delivery and Service Scheduling facilitates rules-based promises to select the best individual service provider or to allocate an entire crew at each individual step of the project. IBM Sterling Delivery and Service Scheduling also allows for the management of all customer service-related questions to be addressed and updates to be performed from a central point.This function enables the user to not only set up rules that help determine the best service provider for the job based on item being sold, but also service scheduling and any special training needed to deliver or install the item. Based on the availability of this person or group, you can promise a date

Tracking, executing, and managing the relationships between product fulfillment and service appointments as part of "the perfect order" are no longer a disjointed set of operations. Even when outsourcing service to a third-party company using IBM Sterling Delivery and Service Scheduling, a seller can execute and manage fulfillment throughout its service network to ensure that all customer expectations are met and that any scheduling issues are managed proactively.

IBM Sterling Transportation Management System

IBM Sterling Transportation Management System enables companies to optimize and transform their supply chain network by automating the planning and execution of inbound and outbound transportation processes. It gives companies web-based access to a collaborative logistics network of carriers, shippers, and customers, along with tools to automate the entire transportation management process. These capabilities are delivered through *software as a service (SaaS)*, meaning fewer IT resource requirements, no upgrade costs, configuration rather than installation, fast and easy connectivity, and low total cost of ownership. With IBM Sterling Transportation Management System, companies gain all the convenience of a SaaS model without sacrificing power, control, or capability.

IBM Sterling Transportation Management System is a comprehensive solution that includes the main components shown in Table 2.

Table 2   Sterling Transportation Management System

Solution Components	Capabilities
Shipment planning workbench	Display of current shipment plans. Drag-and-drop loads to easily modify plans in response to operational changes at time of dispatch.
Contract management workbench	Maintenance of collaborative contracts and view of expected shipment costs and routing guides. Planning real shipments or comparing carries by running "what if" scenarios.

Solution Components	Capabilities
Shipment optimization	Creatlon of highly efficient shipment plans across all modes of transportation with optimal routing and load consolidation. Powered by the ILOG® Optimization engine.
Inbound transportation planning	Collaboration with suppliers in the planning and execution of inbound shipments and providing supply chain personnel with enhanced visibility into inbound planning activities.
Dedicated fleet management	Incorporation of dedicated/private fleets into shipment planning and execution processes and evaluate delivery costs for this option against common carriers.
Vendor and carrier portals	Collaboration with key partner throughout the fulfillment and transportation process.
Freight audit and payment	Management of invoices against shipment, rate, and carrier contracts stored online and initiating payment from the accounts payable system.
Capacity center	Tapped-in view of network data to improve forward planning of capacity to match supply and demand between shipper and carriers.

Load planning and optimization

No matter how complex a company's shipping operations might be, IBM Sterling Transportation Management System can help build efficient transportation plans that drive down costs and improve on time performance. Powerful, yet easy to use, IBM Sterling Transportation Management System facilitates both inbound and outbound planning, from single mode point-to-point shipments to complex multi-mode shipments that require routes with multiple stops and pickups.

Using an optimization engine that is designed specifically for complex transportation requirements, IBM Sterling Transportation Management System enables companies to consolidate orders into loads. To plan shipments, users can drag orders into loads using the Load Builder Workbench and then use the optimizer (powered by ILOG Optimization engine) to assign the best mode of transportation and the best carrier selection. This process optimizes transportation throughout all modes, including truckload (TL), less-than-truckload (LTL), intermodal, rail, ocean, parcel and air freight, and dedicated or private fleets. After the load is optimized, users can tender shipments to carriers automatically, based on defining routing guides, lanes, carrier contracts and tendering strategies.

Companies with multiple shipping locations can use IBM Sterling Transportation Management System to adopt leading practices, such as centralized planning. This capability ensures that shippers, carriers, and customers work from the same plan. At the same time, each location can respond independently to order changes. Local dispatchers can make modifications, update shipment status, and ensure that all shippers, carriers, and customers are aware of the changes. In fact, with IBM Sterling Transportation Management System, companies can manage all transportation operations centrally, locally, or a hybrid of the two methods.

Execution

IBM Sterling Transportation Management System execution capabilities provide shippers with complete visibility into operations as the transportation plan is executed. Companies can secure preferred carriers at favorable costs, honor carrier commitments, improve customer service levels, and avoid the expense of expedited shipments. Available as a SaaS solution, IBM Sterling Transportation Management System connects customers to a collaborative network of over 10,000 carriers and 29,000 suppliers, enabling automation for load tendering, either through electronic communications such as electronic data interchange (EDI) or through the web-based carrier portal.

For inbound or outbound shipments, all tender responses are recorded so that shippers can track acceptance rates and carrier performance. If a carrier rejects a tender or fails to respond within the allotted time, IBM Sterling Transportation Management System withdraws the tender and continues with the next carrier in the routing guide.

Carrier selection can be based on preferred carrier, volume commitments, carrier ranking, service capabilities, or cost. Companies can also share shipment status online with all parties, allowing shippers to subscribe and configure alerts for specific customers or for shipments to be managed properly if key events or exceptions occur.

Freight, audit, and payment

IBM Sterling Transportation Management System freight, audit, and payment streamline the freight settlement process. By connecting electronically with carriers, IBM Sterling Transportation Management System manages invoice approvals against contracted rates and initiates payment from the accounts payable system. By automating this process, companies can build better relationships with carriers and ensure payment only for services that were actually delivered.

Both planned and unplanned accessory charges can be reconciled online, and invoices are checked automatically against shipment, rate, and carrier contracts online. Alerts can also be set up to notify users of unplanned charges, establish authorized tolerances, or choose to review each charge manually.

Companies also have several freight payment options, including direct payment and match pay. For example, users can refuse to pay freight invoices until a carrier provides delivery status or until confirmation is received using Proof of Delivery (POD). Whether the goal is to automate and manage the process internally or continue to use a third-party freight audit or payment company for final auditing and payment, companies can configure IBM Sterling Transportation Management System to manage freight settlement for all transportation modes and payment processes.

Analytics and reporting

IBM Sterling Transportation Management System analytics and reporting capability provide companies insight into shipping operations by compiling and analyzing value-added data throughout the life of contracts, orders, shipment, transactions, and freight payment activities. Dashboards provide real-time views into operational data using graphical displays and tables to solve the issue of timely and actionable data. Users can drill down to the appropriate operational panels to investigate issues and take immediate action.

Reports are designed by users to collect and compare data against key performance indicators (KPIs) over common time periods and help identify trends and manage performance by enabling continuous improvement programs. Ad hoc reporting is also available to modify standard reports or to create custom reports by accessing key data fields from the database. This capability provides the flexibility to organize the information in a way that meets the requirements of the business.

Inbound transportation planning

IBM Sterling Transportation Management System inbound transportation planning enables shippers and suppliers to collaborate during execution of inbound transportation processes, enabling customers to plan and manage inbound and outbound freight activities holistically from one seamless application.

IBM Sterling Transportation Management System inbound planning combines all EDI documents and milestones from the entire inbound supply chain process to provide one source of accurate information. Companies can track any milestone, from purchase order to delivery.

To extend business-to-business capabilities, IBM Sterling Transportation Management System inbound planning allows companies to create and exchange business documents electronically with large and small suppliers, regardless of their technical expertise, creating one standard process. Small vendors can process an order through a web-based portal, using business rules to ensure that they meet vendor compliance guidelines for electronic document transmissions, labeling, and shipment routing. Most importantly, companies can interact and collaborate with all shippers, carriers, customers, and suppliers, regardless of their technical expertise.

IBM Sterling Warehouse Management System

IBM Sterling Warehouse Management System enables warehouse operations to optimize business processes throughout complex distribution networks and facilitates and provides internal and external collaboration throughout the supply chain, resulting in lower operational costs, improved customer service, and a lower total cost of ownership (TCO).

Warehouse operations today must be flexible to accommodate changes driven by market requirements, customer mandates, or supply chain disruptions. Companies have the ability to respond to change and can manage inventory and productivity throughout a network of locations. As a result, companies are reducing inventory levels and achieving increased productivity in their supply chain.

IBM Sterling Warehouse Management System is a complete solution for managing warehouse operations. It can manage a single warehouse or provide a central point of control that spans multiple facilities of varying types. With its service-oriented architecture (SOA) and strong integration capabilities, IBM Sterling Warehouse Management System integrates easily with an existing infrastructure and material handling equipment and support technologies such as radio frequency identification (RFID). IBM Sterling Warehouse Management System brings operational discipline to complex warehouse operations by providing a planning layer, a real-time execution layer, and an operational monitoring tool to ensure optimal utilization of resources.

IBM Sterling Warehouse Management System allows you to create work orders to help manage the quantity of work that is performed, the inventory that is required, and the tasks that are associated with each work order. It provides operational staff with the ability to respond rapidly to customer-specific, value-added services requests using the process that is driven by work orders.

IBM Sterling Warehouse Management System consists of the following main components:

► Inbound Management
► Outbound Management
► Inventory Management

Table 3 describes the IBM Sterling Warehouse Management System products.

Table 3   IBM Sterling Warehouse Management System products

Product	Description
Inbound Management	► Tracks received inventory against a purchase order (PO), an advanced shipment notice (ASN), or blind receipts ► Offers complete visibility into inbound shipments ► Provides users with the ability to establish and measure labor standards and performance ► Provides condition-based processing for returns management
Outbound Management	► Provides users with the ability to plan shipments to meet user-defined and economic shipping parameters ► Offers configurable wave planning and release schedule processes ► Supports batch, order, and item pick processes ► Performs order pick tasks with integrated voice technology ► Provides an integrated parcel shipping solution with full delivery service and option support for all major carriers
Inventory Management	► Centrally manages inventory throughout a network of facilities ► Tracks inventory against a PO, ASN, or blind receipts ► Provides rule-based intelligence to source and fulfill the order at a line level ► Maintains inventory accuracy with cycle and physical count
Value Added Services	► Provides the user with the ability to create and manage work orders across facilities ► Captures labor and costs associated with work orders ► Manages light manufacturing operations ► Manages cross-facility and multi-step processes

Inbound Management

IBM Sterling Warehouse Management System provides organizations with the flexibility to support all types of inbound receiving processes. These processes include receiving scheduled and blind receipts, pre-receiving and put-away, and using cross-docking opportunities to improve labor planning, help lower inventory carrying costs, and maximize operational efficiency. The business process framework of this solution enables warehouse staff to tailor receiving processes using a graphical process modeler without IT involvement. The Resource Manager module allows you to plan and balance the labor resources that are required for your inbound plan.

Outbound Management

IBM Sterling Warehouse Management System coordinates and optimizes the complete order fulfillment process from order release and shipment routing through the grouping of shipments and wave planning. This process improves order fulfillment rates, allowing your company to respond rapidly to customer specific shipping requirements and plan and balance labor against actual and forecast demand.

You can deploy IBM Sterling Warehouse Management System for many types of warehouse operations. From full pallet or loose case to high volume piece, pick, pack, or automated material handling, IBM Sterling Warehouse Management System allows you to configure outbound fulfillment processes to satisfy your specific operational requirements.

Inventory Management

IBM Sterling Warehouse Management System allows you to manage and allocate inventory ownership based on numerous criteria including client, customer, lot, serial number, shelf life, and customer-defined attributes to reduce inventory costs, to optimize order line fulfillment, to reduce safety stock, to improve customer service, and to perfect order fulfillment rates. By presenting a view of available inventory and giving you the ability to manage it throughout multiple locations in multiple types of facilities, you can reduce inventory levels without compromising customer service commitments.

IBM Sterling Supply Chain Visibility

A multitude of forces drive today's need for greater visibility into the supply chain. Global supply networks introduce distance, cultural, and time-zone challenges. These challenges, in turn, create increasing complexity and difficulty in effectively communicating with supply chain partners and customers. In many companies, supply chain information exists in disparate systems, and the data that is received from suppliers is often inaccurate or difficult to access.

Manually intensive processes to collect supply chain data from internal systems and external trading partners result in poor decision making and an increase in supply chain risk exposure and inefficiency. Such complexity makes it difficult to see what is happening in the supply chain from moment to moment. It can jeopardize effectiveness in the management of critical activities with suppliers and undermine the ability to meet customer demands and compete in the marketplace.

To make intelligent decisions and take the right actions, you must know what is presently happening in your supply chain. IBM Sterling Supply Chain Visibility solution enables you to monitor performance across Purchase Order (PO) and Sales Order (SO) life cycle processes, products, customers, and suppliers. He or she can then drill down to the precise transaction details when required to proactively manage supply chain processes.

IBM Sterling Supply Chain Visibility enables you to optimize inbound supply and outbound shipment processes. It does so with complete end-to-end visibility throughout global trading partner networks, minimizing disruptions and improving business performance.

IBM Sterling Supply Chain Visibility consists of the following main components:

► IBM Sterling Supplier Portal
► IBM Sterling Supply Chain Visibility Inbound
► IBM Sterling Supply Chain Visibility Outbound
► IBM Sterling Supply Chain Visibility Vendor Compliance

Table 4 describes the IBM Sterling Supply Chain Visibility products.

Table 4   IBM Sterling Supply Chain Visibility products

Product	Description
IBM Sterling Supplier Portal	► Provide users with the ability to create, configure, and manage web communities through a single solution ► Enables non-EDI suppliers to create and exchange electronic business documents ► Provides real-time visibility into the performance of trading partner community ► Ensures compliance against established business processes
IBM Sterling Supply Chain Visibility Inbound	► Tracks purchase orders from creation through to payment ► Provides a complete view of your procure-to-pay supply chain processes ► Displays global inventory locations and balances across the supply chain ► Facilitates supplier performance reporting by tracking established metrics and scorecards ► Enables users to graphically configure unique inbound receiving processes
IBM Sterling Supply Chain Visibility Outbound	► Tracks sales orders from creation through payment ► Provides a complete view of the order-to-cash life cycle through a graphical dashboard ► Tracks carrier and supplier delivery performance against Service Level Agreements ► Provides users with the ability to define pre-built and custom alerts to notify you or order delays
IBM Sterling Supply Chain Visibility Vendor Compliance	► Provides users with the ability to manage compliance across different departments through a single common repository ► Offers real-time compliance detection, chargeback calculation, and immediate supplier notification ► Enables suppliers to resolve noncompliance issues as they occur ► Automates the manual performance reporting process

IBM Sterling Supplier Portal

Participation in business-to-business programs still remains out of reach for many organizations. They can be limited by a lack of technical skills, outdated technology, or budgetary restrictions. It can be both expensive and inefficient to deal with non-compliant organizations. IBM Sterling Supplier Portal is a secure website that allows trading partners to create and exchange business documents electronically over the Internet, extending business-to-business capabilities to business partners, regardless of their size or technical expertise.

With IBM Sterling Supplier Portal, you are in control of your supplier community. Your sponsor site allows you to create and configure a web community where you can invite and onboard suppliers through the web interface. When your suppliers are a part of your web community, they have access to a task-based, event-driven interface with clear visibility into the supply chain. Through a secure web service, your trading partners enter data in forms to create electronic business documents such as invoices, purchase orders, acknowledgements, and advance ship notices. When they submit a form, we convert it into the electronic format your systems require.

IBM Sterling Supply Chain Visibility Inbound

IBM Sterling Supply Chain Visibility Inbound order tracking combines data from your procurement, transportation, and warehouse applications with data already flowing through the IBM Sterling B2B Collaboration Network from your trading partners. This combination gives you visibility into the entire procure-to-pay process. Many systems and logistics partners can track aspects of the inbound supply process, but not the entire procure-to-pay process, resulting in potential blind spots.

IBM Sterling Supply Chain Visibility reduces blind spots by providing a view of the entire inbound order life cycle, which allows you to track and control all aspects of inbound ordering and alert you about potential exceptions. Buyers can view the order from creation to shipment, transportation personnel can view the order in transit from the supplier to receipt, and warehouse personnel can view when the order has arrived at the yard to ensure that the product is received and put away on time.

IBM Sterling Supply Chain Visibility Outbound

IBM Sterling Supply Chain Visibility Outbound combines data from multiple ERP applications with customer and carrier data to give you visibility into the entire order-to-cash life cycle. Sellers often rely on manually intensive processes to collect order information and track the order through the shipping and invoice process, resulting in untimely decision making and an increase in supply chain risk.

IBM Sterling Supply Chain Visibility Outbound improves on-time delivery performance by providing a single view of shipment progress to identify potential order variances before they become disputed issues. You can configure alerts to detect delayed or inaccurate shipments by tracking compliance against date, quantity, and pricing requirements to ensure that the right product is delivered to the right place at the right time.

IBM Sterling Supply Chain Visibility Vendor Compliance

IBM Sterling Supply Chain Visibility Vendor Compliance provides real-time visibility into supplier performance, enabling both the buyer and seller to quickly detect and react to compliance violations. For example, consider what might happen if a supplier ignores the shipping window and ships too early or too late. Vendor Compliance immediately detects the error and issues a pending chargeback notice to the supplier that might carry a $200 fine. The supplier can promptly investigate why the shipping window was violated and implement corrective measures to eliminate a reoccurrence. The buyer has improved supplier performance and reduced non-compliance risks with an automated, scalable, collaborative solution.

Consolidating real-time supplier performance event data from different departments into a single common repository and providing a shared view of performance across the supply chain will improve compliance and reduce costs for buyer and seller alike. Using Vendor Compliance, buyers and merchandisers can share supplier performance results with their partners immediately. Buyers can track suppliers' non-compliance and provide them with real-time feedback on the infractions.

This process means that suppliers can correct non-compliant behavior as it happens, delivering continuous improvement to the inbound supply chain process, in turn resulting in improved efficiency and reduced costs.

Integrated scenario: Industrial products

Customers want to know where, when, and how a product will be delivered before they commit to buy. Build-to-order and configure-to-order products have become the norm. In addition, everyone from the online consumer to the multinational distributor expects synchronized product and service scheduling.

Even as they converge, selling and fulfillment processes grow more complex, with multiple customer touch points, complex products and pricing, multiple market segments, direct and indirect sales channels, and global suppliers. The exchange of accurate, real-time information with prospects, customers, and partners is essential, yet it is increasingly more difficult to orchestrate. The cost of all this complexity plays out in fewer perfect orders, inaccurate forecasts, stockpiled inventory, and lost sales.

The scenario that we describe in this section explains how a company can orchestrate an order using the components of the IBM Sterling solution that we have described.

> **Scenario note:** This example does not incorporate all of the functionality of the IBM Sterling solution but tries to represent an overall flow for an industrial manufacturer. For a complete listing of the capabilities of each solution component, refer to the respective solution components descriptions in the previous sections or the capability briefs for each solution.

Company profile

The fictional company in this scenario has the following profile:

► Manufacturer produces agricultural equipment such as tractors.

► Manufacturer produces in-house the bulk of the finished tractor products but relies on contract manufacturers for certain subassemblies and attachments.

► Manufacturer sells primarily through a dealer network, though certain spare parts can be ordered direct from the manufacturer.

► Replacement parts are purchased from the dealer network.

Summary process

A customer looking for a tractor to be used on the customer's farm visits a local agricultural equipment dealer that usually sells a particular brand of equipment. This dealer sells products from the manufacturer and add-on products, such as accessories from other suppliers or services that are provided directly by the dealer. The dealer configures the product to the customer's specifications and sends the customer order to the manufacturer to have the equipment built.

The manufacturer builds the equipment to specification in the configured order. Some of the components or subassemblies are outsourced to third-party manufacturers, and the final assembly is done by the manufacturer before shipping it to the dealer. When the dealer receives the shipment, the dealer adds any accessories that were purchased at time of the order before the tractor is delivered to or picked up by the customer.

These tractors (and most farm machinery) have a relatively long life span. Generally, spare parts are required over the life of the tractor, in certain cases for routine maintenance and in other cases for emergency repairs. In the case of emergency repairs, such as when the tractor is not working and delays will impact planting or harvesting, quick availability of spare parts and services is critical. The dealer is the focal point for such spare parts and service purchases.

Typical issues

Selling and fulfillment companies often encounter the following typical issues:

► Complex products require training for Customer Service Representatives (CSRs) and sales representatives.

► There is a 20% error rate on configured products.

► A customer receives an invoice from each division if the customer buys across divisions.

► Changing an order requires calls to several call centers across divisions.

► Getting the best shipping quotes is a manual process.

► There is a lack of visibility of inbound shipments and orders, which causes unexpected supply disruptions that occur too late for the company to respond cost-effectively.

Complex product and services configuration, pricing, and quoting

The configuration software is provided by the manufacturer of the equipment, who establishes the configuration rules of the equipment, allowing the dealer to add additional accessories and services to be sold as part of the configuration. The configuration software helps indicate which components of the tractor can go together (such as the size of engine, type of tires, and so forth).

The configuration software provides the dealer with the ability to configure and sell a highly complex product with the assurance that after the configuration is complete, the manufacturer will be able to build the equipment as specified. This capability prevents the long process of going back and forth between the manufacturer and the dealer in trying to figure out what the customer wants and what can actually be built by the manufacturer.

The process of purchasing the agricultural equipment from the dealer begins with the customer completing a guided selling questionnaire on the use of the equipment, the type of work it will be performing, and the geographical region in which it will located. Based on the answers, the dealer offers the customer a choice of possible configuration options and prices.

Configuration will depend on several factors:

► The size of the engine
► What type of loader is needed on the front
► Specific hydraulics, depending on the workload
► The type of hitch that is needed, depending on what will be hauled with the tractor

There can be nested configurations within the main configuration which establish how the equipment is built, such as a special three-point hitch to haul special equipment.

There can also be preconfigurations that are part of the catalog if the customer is looking for a standard piece of equipment. These preconfigured tractors usually are offered at a discounted price because they are prebuilt by the manufacturer to use excess manufacturing capacity or inventory.

When the tractor configuration is complete and accepted by the customer, the dealer can add additional products from the catalog to the order, such as a GPS unit, stereo equipment, or a maintenance agreement. The completed quote order can be submitted to receive a promise date based on the entire configuration and a total price. Promotions or special pricing can be added to the quote, and any adjustments to the quote can be made before it is converted to a final order. When the dealer and customer agree on a configuration, the quote is submitted to the manufacturer, and the tractor is built to the specifications of the configuration.

After the tractor is manufactured, it is assembled at one of the manufacturing sites and shipped to the dealer to be delivered to the customer. When the tractor arrives at the dealership, certain additional components that the dealer sold to the customer might be added, and the final product is delivered to the customer.

Sourcing and fulfillment

The farmer returns to the dealer where the tractor was purchased when parts are needed for maintenance or repair of the tractor. Many times, the customer needs these parts urgently if the equipment is out of service. In this example, the farmer is looking for a new axle to replace a broken axle in the field.

The dealer searches the inventory system by category to get a listing of the different axles that are in stock. The dealer then selects the appropriate item and determines that the dealership does not have that particular item in stock nor any such part in transit from the manufacturer. The dealer completes a part order for the new axle, and based on predefined business rules, the system searches automatically for the optimal location to fulfill the order.

The system consults the fulfillment rules that were pre-configured by the dealer and rechecks current inventory at the dealer site. If the system does not locate the item there, it looks at other locations, which are any other dealers within the dealer network within a 75 mile radius. If no other dealers within that radius have the item, the system then looks for any manufacturer warehouses within that same radius.

If the system still cannot locate the item, the business rules determine the fulfillment location that has the shortest available promise date to ensure that the item arrives at the earliest possible time. If this item was outsourced, business rules can be set to check the third-party vendor locations for available inventory and create a purchase order automatically for the item that is tied to the sales order.

After the item is located and promised in the order, the system looks at the business calendar of the fulfillment location, any transfers that need to be made, and any lead times to determine the promise date for the axle. Various order processes can be defined for the type of order and the items that are being purchased.

In this example, the order can be marked as urgent by the dealer, and based on that distinction, the fulfillment rules of the system can source automatically from the closest location and have the item shipped overnight. The flexibility to set up multiple fulfillment rules allows the dealer to fulfill orders based on the quickest, most cost effective, most reliable, or any combination of methods that works for the business and the customers.

As part of the order, the customer might want to schedule a service technician to go out to the farm and install the new axle when it arrives. This service can be added as a line item to the order. The dealer enters an add-on service to the order and selects a calendar for the availability of the service technicians. These technicians can be internal employees or a third-party service provider.

The system checks the availability calendar, taking into account the promise date of the axle, and looks for the time that corresponds with the delivery of the item. The dealer and the customer select the best time for the installation and schedule the service. This service is part of the order. Thus, any special promotions or pricing are applied to the service if appropriate. Also, if there are delays in the shipping of the item, the scheduled service is pushed out accordingly so that the technician will not make a unnecessary trip to the customer location.

The dealer monitors the progress of the order, and the customer can log on to the dealer website and check the status of the order as well. After the item arrives at the customer's farm, the service technician goes there to replace the broken axle.

Real-time supply chain visibility

To ensure that the order is delivered on time and in full, the dealer has complete visibility of the order as it is fulfilled using system alerts on the status of the order and any delays that have occurred in the fulfillment process. For example, If the manufacturer receives and acknowledges an order, committing to meet the fulfillment requirements, but then cannot fulfill an order according to promise, the dealer can find another source of supply and fulfill the order from safety stock, or production managers can adjust their schedules according to when raw materials will be on hand. Instead of blind spots, fire fighting, and phone calls asking about delivery status, the dealer can pinpoint the source of every delay to manage the supply chain more efficiently.

This process enables the dealer to notify the customer of order delays as soon as they occur. As indicated, the customer can log on to the dealer website and check the status of the order. As soon as the item arrives at the customer's farm, the service technician replaces the broken axle.

Optimized supply chain network and inventory

Spare parts, especially for emergency repairs, are critical in the farming business. Most farmers have a fairly narrow window for when to plant and to harvest. Using the IBM Global Inventory Visibility solution, the tractor manufacturer can establish the optimal inventory levels and positioning of those inventories (at the manufacturer's distribution centers, at the dealership, or, for certain parts, at the suppliers). This solution can help the manufacturer with strategic decisions about inventory levels but also re-optimizes and fine-tunes those levels based on near-term activity in the overall network. For example, flooding in a particular region can lead to a higher than normal usage of spare parts. The inventory optimizer might suggest reallocation of inventories to account for such factors.

Optimized logistics

To balance production, tractors are shipped continuously throughout the year to dealers and distributors in the network in anticipation of high seasonal demands. Most of the domestic transport is done using small specialty carriers using flat bed trucks. Using our large carrier base and the cloud-based Transportation Management System, the manufacturer has ready access to thousands of carriers. These carriers get tenders from the manufacturer through email and, increasingly, using mobile smartphones. Carriers can immediately accept the tender using the web or their smartphone.

The carrier then self-schedules appointments using the carrier portal. Due to the specialized nature of these tractors, dock doors at the manufacturer are profiled for specific carrier types and product types, and the carriers are notified automatically of where to pick up parts. The manufacturer then has complete visibility from dock to stock for what are often long-haul movements. When the product is recorded as delivered by the carrier, the system will self-invoice the manufacturer on behalf of the carrier. Based on pre-negotiated freight rates, the system approves the freight invoice and sends a notice to the manufacturer's Accounts Payable department to pay the carrier.

Warehousing spare tractor parts for service over the life of the products to minimize equipment downtime is a key to success for both the manufacturer and dealer. The business must optimize inventory levels of these parts across all locations (plant, warehouse, third-party operation, and dealer) where inventory "comes to rest" across the enterprise to provide first in, first out (FIFO) efficiency. The Warehouse Management System is critical in optimizing the inventory levels, space utilization, and business processes within any of these four walls.

Inventory receipt and automated put-away and slotting maximizes space to avoid over-investment in brick and mortar space and gaining product visibility for Available-To-Promise (ATP). These storage locations include the manufacturer plant, warehouse, third-party locations, or even "up front" at a dealership. Using the intelligent sourcing engine, dealers can search for inventory across the enterprise and determine the best location in a Warehouse Management System single instance, much like order placement in Operations Manager.

A single-instance Warehouse Management System allows inventory visibility for all authorized locations, providing the user (manufacturer or dealer) system visibility. By gaining system visibility as soon as possible, Warehouse Management System might even bypass a put-away instead creating a pick to cross dock the order and avoid extra processing steps to expedite the fulfillment of the order. It also provides efficient inventory usage, lowering carrying costs throughout the farm machinery supply chain while meeting the customer demand for minimal downtime in the field.

The next step in using Warehouse Management System is planning warehouse labor resources based on actual and forecast demand to ensure productivity. Work orders can be created to manage cross-facility, multi-step fulfillment processes and to match labor to outbound spare part picking tasks. With Warehouse Management System, planning consolidated orders for pick-and-pack maximizes warehouse spare parts productivity to allow for prompt loading and carrier dispatch to meet the customer receipt date.

Conclusion

IBM Sterling Solutions for Commerce offers a complete solution that helps you provide a superior customer experience and improves the efficiency of your supply chain. Offering greater availability of items using third-party suppliers and other dealer network locations, this suite differentiates your business from the competition, reduces the cost of inventory, and increases revenues. Each of the specific IBM Sterling Solutions for Commerce creates customer value and integrates with other solutions to provide an overall suite of applications that can help you achieve cross-channel excellence.

The author who wrote this paper

This paper was produced by a technical specialist working at the International Technical Support Organization (ITSO), Raleigh Center.

Rodney Martinez is a Senior Product Marketing Manager for IBM Sterling Order Management Solutions. He has spent over 18 years in various sales support and product and industry marketing roles with multiple software organizations. During his tenure with these software companies, his focus has been on Customer Relationship Management (CSR), order management, and customer support strategies.

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Richard Douglas, Director of Industry Marketing, Manufacturing and Logistics

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