

Dynamic Routing and the Impact of Implementation on Trading Partners

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With a struggling global economy and shrinking company margins, a strong focus is being placed on trimming costs related to controllable functions in the supply chain. One recent area of focus has been transportation and handling costs. Retailers have invested significant amounts of capital to implement transportation planning solutions with the goal of making freight movement more efficient and ultimately cheaper. In turn, retail suppliers are being forced to invest in technology and implement process and system changes so that they can remain compliant with changing customer requirements.

One way in which retailers are working to trim transportation costs is through dynamic routing. This strategic initiative enables retailers to achieve significant transportation savings as well as reduce replenishment times. There are several ways that suppliers can alter systems and operations processes to become compliant with these requirements. This paper will touch on three common implementation scenarios, addressing the benefits and challenges of each. Dynamic routing requirements from a retailer perspective will also be covered.

Supplier Implementation

As suppliers are forced to adhere to the requirements of dynamic routing, it is critical that their systems and operations are flexible enough to meet these standards. Systematic changes such as updating electronic data interchange (EDI) software to support dynamic routing transactions and/or alteration of a current/ implementation of a new order processing or warehouse management system (WMS) may be necessary. Operationally, suppliers need to identify the most optimal solution based on their current processes and constraints as well as the requirements of the retailers it ships to. Following are three common scenarios for integration of dynamic routing procedures into a supplier's operations.

Option 1: Integrate with Planning

One option available to suppliers is to request and receive routing instructions prior to orders being released to the distribution center (DC) floor for processing. The supplier provides expected shipment information for dynamic routing to the customer as part of the planning process, based on estimated totals for cartons, weight, volume and units. The retailer in turn responds with dynamic routing instructions, which the supplier updates into its systems and orders. Based on this information, the supplier updates its own systems and orders with the appropriate ship-to location, carrier and service level routing and customer defined load number. This allows the supplier to then move forward with order processing and shipment preparations.

Option 1



Supplier benefits for using this method include:

- **Actual ship-to location is known prior to printing any shipping labels or documentation.** Eliminates the possibility of having to reprint documents or reapply labels on cartons because of incorrect ship-to address information that might have changed as a result of dynamic routing.
- **Proper carrier routing is known up front.** Allows for normal operating procedures for handling orders routed via small package, less than truckload (LTL), or truckload carrier. This is especially beneficial in terms of carton label generation, where a unique label is required for small package carrier routed cartons.
- **Ability to process and stage retailer-defined loads together.** Provides clear instructions on which cartons must be loaded together onto a particular trailer. Also allows any material handling equipment for shipping sortation to divert cartons based on the load to which they are assigned.

Despite the benefits stated above, there are certain challenges that may prevent suppliers from performing dynamic routing in this fashion, including the following:

- **Must be able provide total carton and volume estimates up front.** Product lines that are not conducive to cube estimates or WMS limitations may not allow for an accurate determination of this information prior to actually packing the order.
- **Routing request based on estimates not actuals.** Significant variances between estimates communicated in the routing request and actual cartons, weight, volume, and units shipped will result in problems for the supplier in terms of physically loading cartons along with chargebacks for shipping inaccuracies.
- **Limited time to process orders and prepare cartons for shipping.** If a supplier usually requires several days to complete the processing of orders for a dynamic routing customer, it will most likely not have time to wait for a routing response prior to releasing the order to DC operations.

- **Requires planning and discipline.** Suppliers need to accurately plan several days in advance what needs to ship, communicate this information to customers, and execute its operations based on the established plan to ensure on-time and accurate shipments to customers. This is a challenge for many suppliers who currently do not plan in advance or do not have systems to support such planning.

Option 2: Implement Around Picking and Value Added Services (VAS)

Another way for suppliers to incorporate dynamic routing into everyday processes is to wrap the tasks around current order preparation procedures prior to packing cartons. Similar to the above scenario, the supplier may submit the routing request as part of the planning process or at any point prior to packing and labeling the cartons. Once routing is requested, the supplier has time to complete the necessary steps to prepare for packing orders, including picking merchandise, any VAS based on trading partner requirements and locating the merchandise at or near the packing areas. After the routing response is received, the supplier updates internal systems and can then pack and label cartons knowing that the information contained on the shipping label follows retailer routing instructions.

Option 2



The benefits and challenges to this scenario are similar to those found with implementing dynamic routing around the planning process. The main difference between the two is that tying dynamic routing to picking or VAS processes allows the supplier to complete a greater percentage of the necessary order processing work prior to receiving the routing instructions. In turn, this reduces the time needed to prepare the order for shipping once the routing response is received. The drawback to this option, however, is that it forces extra discipline on the DC personnel to ensure that they properly integrate dynamic routing at the appropriate point in the operational process and do not generate labels too early on.

Option 3: Executing Against Orders in Pack and Hold

For suppliers who find that the challenges listed above warrant an alternative to completing dynamic routing before packing/labeling, the most common option is to wait until the orders are packed complete and weighed before submitting a routing request to the retailer. Suppliers may choose this option for a variety of reasons including operational processes or order sizes that limit the ability to prepare orders for shipping in a narrow time frame, or the inability to provide accurate carton, weight and volume estimates up front. Regardless of the reason, suppliers that fall into this category have an alternative but must be willing to wait until late in the order fulfillment process to obtain routing instructions, and understand there may be additional labor required to prepare for shipping to the retailer.

Option 3



Benefits for a supplier to pack, label and weigh cartons prior to requesting routing instructions include:

- **Routing request based on actual totals not estimates.** By ensuring that the routing request is in line with what will actually be shipped on a given trailer, the supplier eliminates opportunities for potential chargebacks of inaccurate total cartons, weight, or volume that may be imprecise when estimated up front.
- **No time constraints on processing orders.** Because the supplier completes a majority of the order processing steps prior to requesting necessary routing instructions, there is less likelihood the supplier will be unable to finish the shipping process on time.

As briefly mentioned earlier, there are potential challenges that could result from this option. They include the following:

- **Actual ship-to location not known prior to printing labels.** Retailers can and may change the ship-to location based on the characteristics of a supplier's set of orders for which routing is being requested. If the ship-to instruction is altered from the initial purchase order, the supplier is faced with the possibility of having

to re-label each carton to ensure they all contain the appropriate address information--a time consuming and labor-intensive process.

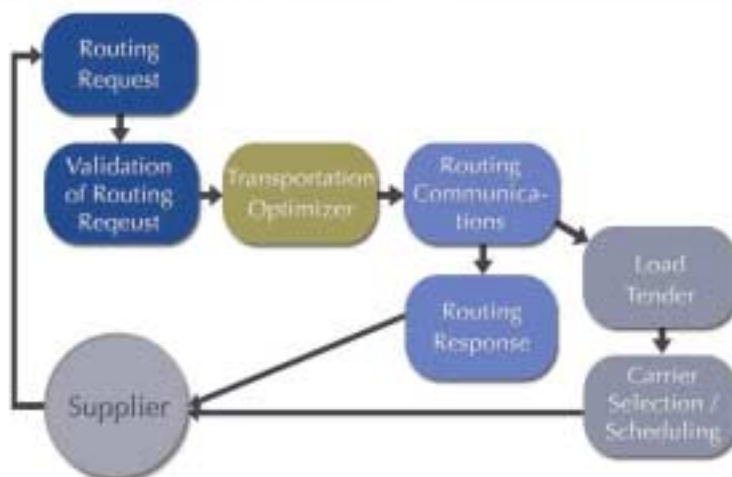
- **Carrier routing is not known up front.** Carton label requirements, manifesting and overall shipping processes differ if an order is routed via a parcel carrier versus LTL or truckload carrier. If the routing is not known until the back end, additional handling and steps may be required depending on the carrier selection.
- **Properly diverting or staging cartons for retailer assigned loads is not known.** This is often the greatest headache for suppliers because they do not know what is going to ship together up front. As a result, shipping sortation equipment and staging locations are less efficient because a supplier is forced to guess what will ship together.

As evidenced by the above scenarios, there is no one method or process that eliminates all potential challenges for suppliers when complying with dynamic routing requirements. Each company must evaluate its current operations and systems and assess which option would work best.

Retailer Implementation

Suppliers are not the only ones facing changes as a result of dynamic routing. Retailers who implement a full dynamic routing program must invest a significant amount of time and money to integrate a transportation optimization product with their own internal systems. The optimization software will take in the expected shipment details from suppliers as communicated through the routing requests, run a series of complex algorithms to develop the optimal load plan, and output the planned loads that are communicated back to suppliers as routing instructions.

Retailer Implementation



In addition to the optimization piece, there are other components necessary for retailers to be able to complete the full cycle of dynamic routing with their suppliers. These include:

- **Front-end Web entry screen or EDI interfaces.** A process must be available for suppliers to input routing requests and for retailers to provide routing

instructions. The most common options are to either utilize the EDI standards for dynamic routing (EDI 753 – routing request, EDI – 754 routing response) or to provide a Web site where a supplier can key in expected shipment information. In either case, the retailer must take this information and interface it into its own systems as well as its transportation optimizer.

- **Validation of inbound routing requests.** Retailers do not just want to take the information provided by suppliers and directly input it into the optimizer. Rather, the retailer will first want to validate the routing request against a series of checks to ensure that the information is accurate and free of errors. Because every company has its own sets of rules and guidelines around orders and shipping, retailers will usually develop internal processes specific their company and its suppliers.
- **Carrier selection and scheduling.** Once optimized loads are built, the retailers must go through a carrier selection process to determine which carrier is going to physically move each of the planned supplier loads. Often times, this process is outsourced to a third party that has the capabilities to track and prioritize carriers based on predetermined criteria assigned by the retailer. Communications between the retailer and the organization performing carrier selection can be completed through an EDI 204 – load tender transmission. Once the appropriate carrier is selected, the outside party may also be involved in scheduling the carrier for a time slot and a pick-up time at each respective supplier’s shipping dock.
- **Handling exceptions that have resulted from inaccurate routing requests.** Because supplier shipments are based on estimates, there will be situations where what the retailer planned for does not match with what the supplier actually tries to ship on a trailer. In cases where the supplier underestimated the volume it would occupy on a trailer, the retailer must get involved on short notice to ensure that a truck is available to pick-up any excess freight in a timely fashion. Ultimately, there will be a chargeback assessed against any such supplier, however, the retailer still wants to make sure it receives the product on time.

Much of the burden of dynamic routing compliance resides with the supplier; however, as the driver of dynamic routing retailers must also make substantial changes. Systematic and processes alterations or additions will help retailers implement dynamic routing and realize its benefits.

Conclusion

For suppliers and retailers alike, implementing dynamic routing has a significant impact on a company’s business processes and systems. While initial challenges exist, the potential benefits are even greater in a global economy where the bottom line is scrutinized more closely than ever, and any opportunity to make the supply chain more efficient and remove costs is seen as a win-win situation for all trading partners.

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