



CONTINUOUS MOVE PLANNING

APPLICATIONS

For Logistics Efficiency

In Brief

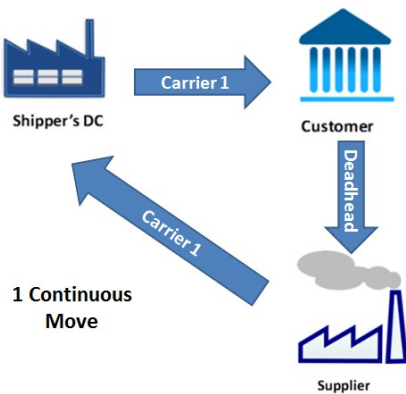
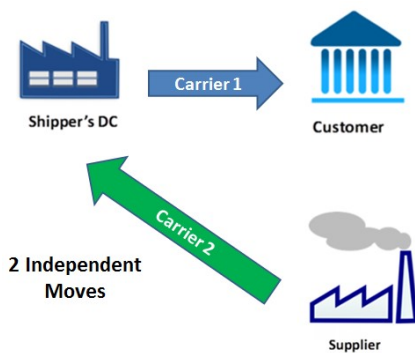
Continuous move planning plays a significant role in the success of any company's truckload operations and has a direct impact on its bottom line. But understanding of applications of the concept and use of tools that can facilitate its implementation have been limited. We created this whitepaper by drawing on our extensive experience with creating software that can enable continuous move planning and support applications from both shipper and carrier perspectives. This whitepaper maps the components of continuous move planning and dwells on its value-add to logistics operations. It also explains what to look for when selecting software tools to implement continuous move planning, either strategically or tactically or both.

Contents

What is a Continuous Move?	2
Continuous Move Planning	3
Continuous Move Planning Software	4
Use the Right Tool for Your Needs	6
Why Paradox's Continuous Move Planner (CMP)?	8

Continuous move planning plays a significant role in the success of any company's truckload operations and has a direct impact on its bottom line. As proven time and again, logistics processes play a big part in customer satisfaction, which is more important than low product costs. Logistics professionals should think of themselves as a customer-facing portion of the company and strive every day to add value for their customers. In this whitepaper we discuss how continuous move planning can be a significant avenue to add value to logistics operations of any shipper or carrier where point-to-point movements are involved.

CONTINUOUS MOVE



What is a Continuous Move?

A continuous move is a group of loads linked together to form a closed loop trip. Each load is a point-to-point move and sometimes referred to as an O-D pair (origin-destination pair). They are typically developed by stringing loads together by shippers for their carriers to execute at lower rate/mile or by carriers to better utilize their trucks. Both shipper and carrier profit from the reduction of deadhead or empty miles between drop-offs and pick-ups. For example, a carrier could offer \$1.50 per mile for a single load but if the shipper can provide a continuous move the rate could be reduced to \$1.35 per mile for all miles including the empty miles between every drop-off and its next pick-up. In this case shipper can leverage rate from low cost area into the entire trip or continuous move.

In this whitepaper, you will learn about the different applications of continuous moves and how they are benefiting those shippers and carriers. Certain operations including final assembly in automotive industry are much better suited for continuous move planning given their reliable forward visibility and predictability around loads. In this case, production plan from plants is shared with Tier-1 suppliers who send components to the Kanban facilities that feed final assembly. Routes are engineered to maximize efficient flow of components into the assembly plant and returnable containers back to the suppliers.

Supply chains with predictable reverse logistics movement also have great potential for continuous moves. For example, car battery manufacturers deliver batteries to dealerships, pickup dead batteries to return to lead smelter facilities (to melt batteries and recover lead) and then have the drivers head home. Continuous move planning involves uncovering potential round trip opportunities based on how

lanes complement each other. If the lanes are cleverly constructed in terms of their pickup and delivery time windows, more opportunities would present themselves.

And, not surprisingly, the larger a shipper's network, the more opportunities that can be uncovered. Similarly, for 3PLs, the more visibility they have to a network of customers and their moves, the more opportunities to uncover collaborative cross-customer continuous moves. Collaborative continuous moves are easier to execute if they involve the Lead Logistics Service Provider's own trucks.

Continuous Move Planning

To put simply, continuous move planning involves evaluating a given set of lanes or loads for continuous move (closed loop trip) opportunities within a set of operating constraints. These constraints could involve combination of any or all of the following:

- Required target/minimum load factor on a trip (i.e. loaded miles on a trip / total miles on a trip)
- Required target/minimum net yield on a trip (i.e. total revenue on a trip - total cost on a trip)
- Maximum/ minimum length of the trip in terms of distance and/or time
- DOT hours of service regulations and customer service requirements (dwell times and time windows for pickup and drop-off)
- Network of domiciles to be used

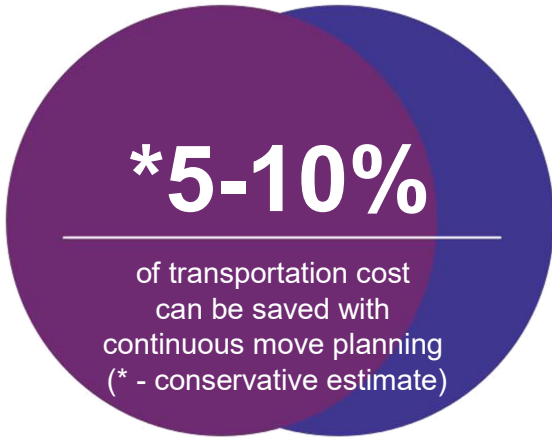
Typically, this analysis aims to answer one or more of the below questions from different perspectives.

Carrier or Shipper:

- If dedicated or private fleet makes sense for a network, where should the equipment be domiciled and how many units of each type should be at each location?
- What are the best lanes for one-way freight?
- Which lanes in my network could be efficiently run using dedicated resources?
- How many trucks and drivers do I need to cover given set of loads?

CONTINUOUS MOVE PLANNING – A LOGISTICS STRATEGY

must be evaluated regularly to
find new opportunities



- Which markets should I service or get out of to better utilize my equipment?
- What is the size and cost of a dedicated fleet capable of supporting the operation in future?
- Do I have power lanes, based on density and profitability, in my network? If not, where should I build power lanes?
- Where are the gaps in my network that, if filled, can lower operating cost?
- Which are the underperforming accounts and areas in my network?
- What are the ideal team routes based on existing team network business?

Shipper:

- Would a private or dedicated fleet benefit my operation?
- Can I “right size” (reduce or eliminate) my private fleet? If so, should it be replaced or supplemented with dedicated fleet?
- Are there continuous move opportunities in my network to bid out to carriers?
- Which outbound routes on my private fleet can be matched with backhauls?
- How do I execute my loads for the next day or week?

Carrier:

- How would a shipper’s lanes fit my network?
- How would my terminals support domicile requirements for a shipper’s network?
- What fleet size do I need to cover a shipper’s network and how much would it cost me?
- Can I build continuous moves across lanes for multiple shippers?

Continuous Move Planning Software

Today’s logistics planning software that support continuous move planning can answer most or all of the above questions. The best of the breed products have a dedicated module built ground up to solve this specific problem.

Modeling results from these products typically consist of one or more of the following outputs based on the target scenario:

TODAY'S CONTINUOUS MOVE PLANNING SOFTWARE

can be applied to several logistics problems faced by carriers, private fleet operators, and 3PLs offering dedicated contract carriage

- Manifests of continuous moves including stop level detail for their lanes/loads
- Movements (lanes or loads) in the network that could be matched to continuous moves
- Candidate lanes for private and/or dedicated fleet
- Equipment and driver requirements to execute continuous moves
- Candidate origins as domiciles for continuous moves
- Equipment requirements at each candidate origin
- Service areas for each domicile based on the highest utilization and lowest cost of operation
- Solo vs. Team trips and driver requirements
- Truck and driver schedule/Gantt charts
- Estimated operating costs to serve required markets based on forecasted loaded miles
- Matches (outbound-inbound) for backhauls or vendor pickups with outbound trips
- Loads to tender to common carriers
- Estimate of minimum acceptable truck utilization in terms of load factor (loaded miles / total miles)
- Continuous moves that would fit customer's shipping pattern
- Lanes for one-way freight (i.e. lanes that do not fit on any continuous moves)
- Lanes to seek loads to improve overall load factor and equipment utilization
- Heat maps to identify density for lanes that are matched into continuous moves
- Heat maps to determine relative significance of candidate domicile locations for a network

8

of the top *20 truckload carriers use Paradox's Continuous Move Planner (* - per 2015 revenue)

As you can see from the above outputs of continuous move planning analysis, there are several planning goals that this analysis could fulfil. Today, logistics planning software available in the market can support most or all of the above analysis needs. We, at Paradox Software Consulting, developed our Continuous Move Planner (CMP) ® as a tool dedicated to answering all the typical TL planning needs and more. Its origins were rooted in evaluating networks for leading truckload carriers, including Hub Group, more than 15 years back. Today, it's used by many of the top 20 truckload carriers in the country.



\$200

per truck per week in transportation cost by using CMP (*based on a customer operation)



10%

improvement in operations implementing continuous move planning using CMP

Use the Right Tool for Your Needs

When purchasing a product with continuous move planning functionality, the first thing to consider is your specific needs. Consider how the product would be used, what benefits it should provide and how it should grow with the company. There are many options to choose from, and choosing the wrong software will lead to unnecessary costs and limited value.

To deliver great value a continuous move planning tool should support the below list of most desirable features:

- **Lane Analysis:** High level network analysis of historic lane data across several weeks or months helps carriers and shippers identify opportunities for continuous moves. Such an analysis should be constrained by basic requirements such as load factor and distance.
- **Load Matching:** This is the meat of continuous move planning functionality. Loads should be evaluated for matching into continuous moves while meeting all operating constraints including service requirements, DOT regulations, and other user defined operational parameters.
- **Fleet Sizing:** Operational load matching should be complemented by fleet sizing functionality to determine truck and driver requirements to execute continuous moves. Such resource scheduling logic should support DOT rules and corresponding duty cycles. Schedules should be presented via Gantt charts and reports.
- **Multiple Objectives:** Continuous moves are not always built around load factor. From a carrier standpoint the overall trip should be profitable to allow committing to the loads on the trip. This requires building continuous moves with profit maximization as the objective.
- **Domiciles:** The tool should allow for user specified domiciles and/or suggest candidate domiciles for private or dedicated fleet modeling.
- **Mileage Database:** The tool should use industry standard mileage databases (e.g., PC*MILER) but also support user specified database. Some companies build internal mileage databases specific to their operations.
- **Scalability:** The tool should be able to process several hundreds to few thousands of records in a modeling iteration. When performing lane analysis data, volume is usually in the order of few thousands.

- **Ease of Use:** The tool should be user friendly enough for logistics engineers to start using it with minimal training. It should not require extensive configuration or lengthy deployment cycle.

Since continuous move planning is delivered in different flavors – pure play tools, modules in TMS, feature of routing and scheduling tools, etc. – it is important to assess the particular needs of your company and the capabilities and scope of the technology to choose from. Do you focus on overall transportation optimization of which continuous move planning is a piece of the puzzle or focus on tools which have it as their core functionality? Do you want the functionality to be interactive to support planners' requirements or as a black box to be integrated into a homegrown TMS or other execution system? Selecting a tool for continuous move planning can be a critical point in a logistics operation and a best practice that will provide continued benefits.



Quickest Return on Investment (ROI)

Unless you are looking for a system to help manage entire transportation of which continuous move planning is a piece, ROI is achieved quickest with pure play tools that focus solely on solving for continuous moves.

With pure play continuous move planning tools, ROI is achieved in multiple modes. Here are three ways you can realize savings from a continuous move planning tool:

- Bid preparation cost savings – users can easily cut bid preparation time by half
- Developing cost competitive bids – project more optimal and accurate operating costs to support competitive bids
- Better asset utilization – generate 5-10% additional utilization of trucks and drivers

Though the above opportunities are more carrier-centric, shippers can also benefit in procurement exercises by bidding out continuous moves rather than individual lanes/loads to reduce overall procurement cost. Most of our customers using continuous move planning started with applying the tool in pricing and network planning before exploring other opportunities for operational efficiency.



Why Paradox's Continuous Move Planner (CMP)?

Paradox's CMP was built from ground up focusing solely on solving the problem of continuous moves. While its ideation has roots in analyzing Hub group's lane network, its evolution has contributions from all the leading truckload carriers in the nation. Today, it is the only pure-play continuous move planning tool in the market. It is no surprise then that most of the leading players in the truckload market are active users of the tool.

Conclusion

Everything in logistics management is done in the name of customer service. It's a fast moving world with high demands and you need to keep up and provide respectable service to avoid falling behind competition. You'll need to add value to logistics processes, develop beneficial collaborations, and strive to offer better customer service. Implementing the best logistics management practices will help you gain competitive advantage through better customer experiences. After all, the end goal is to provide as much value to the customer as possible while creating optimized business operations.

Execution of freight movement has a noteworthy impact on the bottom line and customer service of any logistics operation. Optimizing your transportation management processes helps you realize improvements in your operations. Continuous move planning is one of the options that every shipper and carrier should consider as part of their overall transportation optimization. Best way to plan continuous moves is with the help of pure-play tools that are built exclusively to support the modeling complexity involved in this planning.

Paradox's CMP fits this tag perfectly and has been the tool of choice for several of the leading truckload carriers in the country. For more information on the tool or request for a demo, send your queries to info@paradoxsci.com or call 855-472-7236.

About the Author

Bhushan Veerapaneni is the VP of Operations at Paradox Software Consulting, a logistics planning software company. He has over two decades of experience developing logistics planning systems and consulting in transportation and distribution functions of supply chain management. His expertise also includes executing system integration efforts for Tier 1 and Tier 2 retailers in North America. At Paradox he oversees development and implementation of planning tools including building optimization engines to solve logistics problems spanning continuous move planning, routing and scheduling, fleet sizing, facility location, and demand fulfillment.



Sources:

<https://logisticsviewpoints.com/2013/08/19/continuous-moves-part-1/>
<https://logisticsviewpoints.com/2013/08/26/continuous-moves-part-2/>
<http://www.supplychaindigital.com/supplychainmanagement/3694/8-musthave-transportation-management-system-40TMS41-features>
<http://gtatechnologygroup.com/tms-features/>
<http://www.arcweb.com/brochures/return-on-investment-for-transportation-management-systems.pdf>
<http://www.inboundlogistics.com/cms/article/managing-a-customer-driven-supply-chain/>
<https://www.zendesk.com/resources/customer-service-and-lifetime-customer-value/>