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Placing marketing orders to optimize transportation rate tiers

Jeffrey Cuartero

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ABSTRACT

Techniques described herein can be utilized by online and offline retailers, and other organizations that use third party carriers, e.g., for package delivery. It is determined whether placing marketing or promotional orders during a particular period is likely to result in cost savings in a subsequent period. The savings are due to achieving a minimum order volume in a current period that results in qualifying for a rate discount from the carrier in the subsequent period. To ensure that marketing orders are successfully completed, marketing orders are opportunistically placed for specific items and designated stores are stocked with those items. In addition to the costs savings, other benefits such as increased customer loyalty and brand awareness are also realized.

KEYWORDS

- transportation rate tier
- same-day
- next-day
- order fulfillment
- package delivery

BACKGROUND

Carrier service providers, e.g., that deliver packages, provide different rates for different volumes carried. For example, a carrier provides a lower per package price when a higher number of packages are carried over a certain period. For example, a carrier may charge based on the average daily orders over a period (e.g., a month) for each service level (e.g., same day delivery, next day delivery). The rates may also be geography specific.

For example, if a customer for the carrier averaged 500 or higher same-day orders daily in a particular city in the prior month, the carrier may charge same-day orders in the particular city this month a lower rate than if the average daily order volume is below 500. Thus, for a customer to get the lower rate on all same-day orders for the current month, the average daily order volume for the prior month needs to be at least 500. Different carriers offer different rate tiers for different service levels.

DESCRIPTION

Organizations may buy more of a particular item than immediately needed if a volume rebate or discount offsets the additional expense. Similarly, customers that utilize carrier services (e.g., e-commerce vendors) can leverage volumes in a prior period to achieve transportation rate discounts similar to volume discounts on products, e.g., shipping an additional 100 more orders in a current month to access a lower per order shipping rate in the next month.

This disclosure implements a mechanism to optimize order volume corresponding to each carrier for a given service level (e.g., same-day, next-day, etc.) to obtain as many transportation rate price breaks as possible. Specifically, when the order volume for a particular service level reaches a threshold that is close enough to access a rate discount, internal marketing orders are automatically generated. Enough marketing orders are placed to push the order volume into the next transportation rate tier that offers the rate discount.

A marketing order is treated similar to a regular customer order. To ensure that a marketing order is fulfilled, specific stores in each market are designated to fulfill marketing orders. Items such as marketing flyers, coupons or other promotional items (e.g., candy) are kept in stock at these designated stores. The order fulfillment system can select recipients of the marketing orders randomly or based on predetermined selection criteria.

Below is an example of logic that triggers an order fulfillment system to generate internal marketing orders (e.g., on the last day of each month or period) to ensure that the average daily order volume reaches a tier minimum. Specifically, the logic calculates on the last day of each month the number of internal marketing orders to be generated in order to receive a price break in the next month.

```
If j < x, then
       If z*k*(a-b) > y*(rate for current month)*(x-j), then
              place (x-j)*y marketing orders
where
       j = current average daily orders in the month, e.g., same-day or next-day
       k = next month's forecast average daily orders, e.g., same-day or next-
              day)
       a = First rate tier, e.g., 0-500 orders per day
       b = Second rate tier (lower price than first rate tier), e.g., 501-1000
              orders per day
       x = Second tier average daily order minimum
       y = days in the current month
       z = days in the next month
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Fig. 1: Calculation of marketing order volume

As illustrated in Fig. 1, the order fulfillment system places marketing orders if the current order volume is less than the lower rate tier minimum and projected cost savings from all orders that qualify for the lower transportation rate are more than the cost of the marketing orders. Further, this can result in benefits accruing from increased brand awareness and customer loyalty resulting from recipients of marketing orders, e.g., when they receive free items.

The disclosure can also be applied when order volume rate tiers are based on time periods such as a week, a quarter, etc. as specified by carriers. Any organization, e.g., an e-commerce vendor, a retailer, etc. that utilizes third party transportation carriers to fulfill end-customer orders can benefit by using these techniques.

Another way to achieve transportation rate tier price breaks is to distribute order volume across different transportation carriers, e.g., to achieve rate discounts from as many carriers as possible with the condition that transportation cost across carriers is minimized.

CONCLUSION

Techniques described herein can be utilized by online and offline retailers, and other organizations that use third party carriers, e.g., for package delivery. It is determined whether placing marketing or promotional orders during a particular period is likely to result in cost savings in a subsequent period. The savings are due to achieving a minimum order volume in a current period that results in qualifying for a rate discount from the carrier in the subsequent period. To ensure that marketing orders are successfully completed, marketing orders are opportunistically placed for specific items and designated stores are stocked with those items. In addition to the costs savings, other benefits such as increased customer loyalty and brand awareness are also realized.