Workforce Management Administrator's Guide

Overlays Primer

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Overlays can be used to indicate abnormalities in historical data or anticipate ones in the future.

Related documentation:

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In Workforce Management, overlays can be used to indicate abnormalities in historical data or anticipate ones in the future. Abnormalities are things like fluctuations in interaction volumes, AHT (other than the usual, seasonal fluctuations), or intra-week and intra-day trends. If events occur that highlight an abnormality, of the type that happens multiple times or can happen in again in the future, you can arrange these overlay events (or *Overlays*) into overlay groups. Some examples are billing, promotion, or catalog drops.

Impact on prediction data

Overlays impact prediction data directly when a specific overlay event occurs over a prediction interval.

Two types of overlays exist, based on how the impact on prediction data is calculated:

- **Multiplicative**—Increase (or decrease) every step of predicted data by a percentage. The percentage is defined by overlay impact distribution, multiplied by the *strength* of the event. The duration of the interval is affected by event changes.
- **Overriding**—Re-distribute (but dos not change) the volume of an event's interval. The total volume does not change, but it might be moved from one event-step to another.

Multiplicative overlays

This type of overlay factor has existed in WFM since early versions and was called Factor. Each step (daily or hourly) of prediction data covered by the event is adjusted by a certain percentage, which is also multiplied by event strength.

Overriding overlays

This type of overlay is designed to keep the predicted total of the affected period and adjust the distribution of the volumes within that period. WFM applies the events of this overlay type as the last step of the prediction. It applies the seasonal components (intra-day, daily, or yearly) and multiplicative overlays before the overriding overlays are calculated.

The overriding overlay distributes the volumes according to the weight (or the percentage) of each

event-step (daily or hourly). It adjusts the volume of each event-step, so the event-step receives its portion of the total of the entire event period, according to its weight.

For example, an overriding overlay has 3 event-steps with the following weights: 20, 30, 50. If the predicted total of the entire interval is 1000, then the first event step receives 200, the second 300, and the last one 500.

> **Tip**
>
> The initially predicted total of the event-step is not considered when the impact of this overlay type is calculated. The weight of the event-step is determined by the overlay itself, and the predicted total of the entire interval that is affected by the event, is considered.

When the event-step (daily or hourly) is calculated, its total is distributed proportionally to 15-minute timesteps to a volume of each timestep before the event was applied. So, the intra-day or intra-hour pattern is preserved.

The overriding overlay event type cannot be calculated when it overlaps with other events of the same type, even if both events belong to different overlays. However, it can overlap with events of multiplicative overlays.

Event impact distribution

There are three ways to determine the impact of each event-step:

1. By using start-end.
2. By keeping the entire detailed distribution.
3. By performing the calculation for each event-step during the prediction.

These three methods of determining impact distribution are applicable to both multiplicative and overriding overlay type. WFM specifies how each overlay's impact distribution will be determined and applies it to all of the overlay's events.

Start-end

WFM determines the overlay's impact distribution by specifying the start and end impact values. It gradually changes the impact by the same amount every event-step from the start value to end value. For example, if the start value is 100 and the end value is 200 and it is a daily overlay with a length of 6 days, then the impact on the first day is 100, on the second day it is 120, then 140, 160, 180 and 200 on the last day.

Distribution

The overlay saves the impact of each event-step separately. You can either determine the impact by precalculating it, by entering it manually, or by using a combination of both methods.

Always calculating

The overlay impact is always calculated during the prediction. To ensure the calculation is successful, the historical period must have one or more events for the same overlay. The impact of the overlay is determined by the prediction algorithm according to the historical data, and it is then used in the prediction.

Impact on historical data

Events within an overlay type can have a *ignore historical data* flag. If this flag is set for an event, the historical data interval data covered by the event is not used in the calculation of either volume prediction or impact of overlays (see Calculating an overlay's impact).

If an event does not have the ignore historical data flag set, the data covered by the event is considered for prediction.

Calculating an overlay's impact

You can determine the impact of overlay by analyzing the historical data and using a prediction algorithm. The algorithm analyzes the period of historical data, which contains one or more overlay events to be calculated.

You can pre-calculated Overlays before starting volume forecasting or during volume forecasting (see, Event impact distribution). If the historical data and method used are the same, the results will be identical.

Impact of multiplicative overlays

WFM calculates Multiplicative overlays by separating seasonal component (yearly, daily, intra-day) from the event impact for each event of the overlay in the given historical data. The impact is divided by the *strength* of the event and then averaged.

When the impact of an event is applied to the prediction interval, it is multiplied by the *strength* of that event.

Impact of overriding overlays

The percentage of each event-step in the total of the whole event period is calculated for each event and then averaged. For example, a historical period has two daily overlay events that are 3 days long. The 3 days of the first event are: 150, 200, 150 (that is 30%. 40%, 30% of the total respectively) and the 3 days of the second event are: 150, 150, 200. In this example, the overlay is calculated as 30%, 35%, 35%.