

- 52 weeks of data for each customer data
- product sales
 - purchase cycles
 - frequency of purchase
 - relative freq of purchase
 - promotions
 - customer level, product-level, customer

Subgraph:

Most of the gain comes from thinking of good features



Maybe 20 recurrent for 200,000 products

We have a lot of 0's. Mainly with absent data. Understanding is used to correct

don't want a lot of low spend prop of vops

$$H(x_{ij}) = \hat{p}_{ij} \times (price_{ij} \times case-weight)$$

conversion-weight really changes the "Have You Forgotten" list.

We are interested in top ranking products;

10 Metric: Precision-at-k = proportion of products within the top k of the predicted scores which are purchased.

11 imperfect - after

Mean is A/B

Test A	Test B
Control A	Control B

Experiment

customers are allocated to one of four categories

Look at uplift: new model brought in 3x time uplift.

12 Raw data/hr → feature → model

Alloc → various rules applied; keep 200 (e.g. remove pet food); top 500 customer

Realtime engine → serves up top 5

Adapt - requested