One of the early business issues to be addressed with data mining technology in the mid-1990s was Customer Relationship Management (CRM). CRM systems were built to manage how a business relates to its customers. Customer-facing systems were built to manage call centers and to inform marketing and sales efforts. In support of the marketing and sales channels, analytical modeling systems were built by pioneers in data mining technology. NCR built some of the earliest analytical CRM product suites in 1998 in the form of ChurnSentry (for customer retention modeling) and GrowthAdvisor (for cross-sell and up-sell modeling). Both of these products included a data discovery tool, a model manager, numerous canned reports (via Cognos), and a campaign management system. Soon, other CRM systems were built, notably by Siebel and Vantive, to serve sales force automation, but later extended to cover call centers and some front-end office operations.

On the analytical side of CRM, the major foci were

- Customer response modeling with predictive analytics for
  - Customer acquisition
  - Customer retention
  - Customer up-sell (selling an enhanced product or service)
  - Customer cross-sell (selling a different product or service)
- Customer Lifetime Value (LTV) modeling

The trend in marketing with analytics was to move from a broadcast marketing operation to a one-to-one marketing operation. Naturally, the key in this activity was predicting which products or services a particular customer was likely to respond to. The most common approach used to do this was to model customer actions in the past and use the model to predict actions in the future. This is a form of human behavioral modeling.

To be competitive in today’s markets, we must capture and leverage information from historical detail records describing what our customers did in the past. This information can be very useful in defining patterns in the behavior of customers leading up to the decision to leave the company. For a given customer, the decision to leave the company did not happen in a vacuum. Many factors contributed to this decision, such as dissatisfaction with service, perception of the greater value of competitive goods and services, and changes in business needs. Some of these factors, such as customer satisfaction, can be tracked through customer care programs. However, most factors that contribute directly to attrition cannot be captured and stored in corporate databases. The only way to reflect these attrition variables is to relate them to customer behavior patterns that can be tracked from data in the data warehouse. The pattern of historical information of customers who have left the company can be used to predict which present customers have a high probability of leaving in the near future. How is this possible?