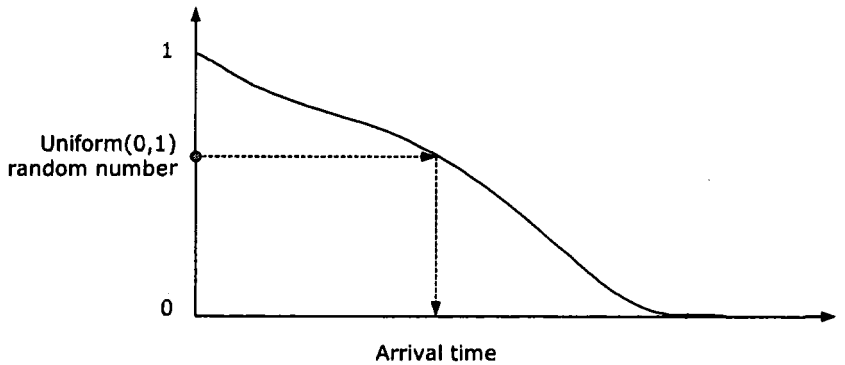

Figure 11.10. Generating arrivals over time.

represent phenomena that the analyst programs into it. Thus, the level of detail it provides can give a false sense of precision. Such caveats aside, simulation remains by far the most common method in practice for evaluating RM systems.

11.4.1 Generating Aggregate Number of Customers

Pseudo-random number generators are used for generating arrivals according to a specified distribution. While there are many subtleties involved in the algorithms used to generate pseudo-random numbers, a suite of well tested, fast, and stable algorithms have emerged over time that have good statistical properties. The basic pseudo-random number generators generate a random number uniformly distributed between 0 and 1. Prom this uniform random variable, a number of general techniques (such as transformation methods or rejection methods [429]) can be used to generate random numbers from a wide variety of distributions.

11.4.2 Generating the Customer-Arrival Pattern

In RM, the timing and order of customer arrivals has an impact on revenue gains. For instance, whether customers with a high willingness to pay arrive before those with low willingness to pay has an important effect on revenue as well as the effectiveness of the forecasting or optimization methods. For this reason, the RM simulation should be able to generate customer arrivals following the observed patterns for the various segments.

Mathematically, for each simulation run, we would like to generate a random number from a target probability distribution (such as a left-truncated normal distribution) representing the total number of cus-