PROBABILISTIC MATCHING NETWORKS

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With the advent of the Internet technology, the use of web portals which serve as a meet-up point for its users, e.g. employment and rental portals, dating and matrimonial sites, is becoming increasingly popular. In these systems there are two classes of users arriving at the system at random times, and the users wait in the system until they find a suitable match from the other class. As the matching process is random, Büke and Chen (2015) refer to these systems as “Probabilistic Matching Systems”, present a continuous time Markov chain model and suggest control mechanisms to ensure stability. In this presentation, we will generalize this idea to a network case where each class might have multiple subclasses with different behavior. We will present heavy traffic approximations to study the properties of these systems.