

1163-60-1146

Gopinath Panda* (gopinath.panda@gmail.com). *Decision making under uncertainty in G-queues with server vacations*. Preliminary report.

We consider a Markovian queueing system with heterogeneous customers and server vacations. There are two classes of customers, namely, positive customers and negative customers. Positive customers are ordinary customers that require service whereas negative customers do not. Upon arrival negative customers destabilize the system by breaking the server and killing the positive customer currently under service. Once the server is broken, it is sent to repair immediately and resumes service after repaired. The server operates under two different service rates: faster service (busy period) and slower service (working vacation period). The positive customers are uncertain about the number of customers in the system and the state of server. They are charged a fee for their waiting and are rewarded after service completion. Each positive customer decides whether to join the queue or balk based on the above reward-cost structure. The decision of a customer is affected by the decision made by other customers and each one tries to maximize his/her benefit out of the system. We analyze the system under steady-state and obtained the Nash equilibrium joining/balking strategy of customers. We also solved the selfish optimization problem and social optimization problem. (Received September 14, 2020)