

CS4344 Networked and Mobile Games Quiz 3

Answer ALL questions in the space provided. **Please state your assumptions (if any) clearly.**

1. (5 points) Consider the scheme proposed by Knutsson et. al in "Peer-to-Peer Support for Massively Multiplayer Games." A player that is close to the boundary of two regions might want to send an update to the coordinator of both regions. One way to do this is to send the same copy of the update twice, once to each coordinator (Recall that Knutsson's scheme uses Pastry to route messages to the region coordinator by setting the region ID as the message destination).

By slightly modifying Pastry, we can have a more efficient way of routing messages to two (or more) regions, by avoiding sending the same copy twice unless necessary. Suppose we allow each message to have multiple regions IDs as its destinations. Explain how the routing process of Pastry can be changed to support multiple destinations efficiently.

2. (5 points) Can Mercury support the following query? Explain. "Find all entities that are within 2 meter of the current player".

3. (10 points) Here is another possible hybrid architecture for networked games: Players communicate directly with each others (like in fully connected peer-to-peer games) to reduce latency. At the same time, players also send their updates to a centralized trusted server. Explain how such server can help us address some of the challenges in peer-to-peer games.

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