GeoFeed: A Location-Aware News Feed System

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Location-Aware News Feed

Motivation

Traditional News Feed
1. Based on message issuing time
2. The same news feed from different log on locations

However
1. Travelling user is interested in the news close to her current location
2. Stationary users are NOT interested in the news that far from their locations

If the news feed functionality is aware of the inherent locations of users and messages, more relevant news feed will be delivered

Spatial Pull approach
- Do nothing when the user is offline
- Once log on, retrieve spatial relevant messages

Spatial Push approach
- Maintain a materialized view to pre-compute messages
- Once the user logs on, the answer is ready

Shared Push approach
- Share one views among queries for the same friend
- Once the user logs on, the answer is ready

Advantages: No overhead during offline period.
Disadvantages: Bad response time, inefficient for frequently users.

Advantages: Good response time
Disadvantages: Significant overhead to maintain the view

Advantages: Good response time, reduced overhead
Disadvantages: Need to check if views can be shared

Decision Model
- Per-Query decision model with consideration of the wide diversity in user activities in social networking system
- System-wide decision
- Per-User decision
- Per-Query decision

To favor user response time
- More spatial push approach will be adapted
- System is overkilled to maintain materialized views

To favor system overhead
- More spatial pull approach may be adapted
- User suffers a significant delay to get her news feed

Make smart decisions for each query
- Guarantee the users get news feed within time constrain
- Minimize overall system overhead

System Demonstrations

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