Simplifying Friendlist Management

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WWW 2012 Demo Session
Content sharing on Facebook

Sharing content on Facebook

Three sharing options: Public, Friends, Custom
Custom settings can be reused via Friendlists

Friendlist feature

User-created subsets of friends
Share content with the members of the friendlist
Aggregate and view the content from the friendlist
Friendlist limitations

User required to

Create friendlists and enumerate members
Maintain friendlists as relationships change
Maintain friendlists as new relationships form
Goal: Simplify Friendlist Management
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Can we leverage social network communities as a basis for creating and maintaining friendlists?

Communities: Users more densely connected than overall graph
Friendlist Manager

Built as a Facebook application
Can access user’s 1-hop network, modify friendlists

Key idea:
Leverage structure of user’s 1-hop social network

Problems:
Creating new friendlists of user’s friends
Updating the existing friendlists over time
How to create new friendlists?

Idea: Use community detection to suggest friendlists

Create "seed" friendlists via a global algorithm [JSTAT'08]

Expand "seeds" via a local algorithm [WSDM'10]
How to create new friendlists?

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How to expand existing friendlists?

Idea: Locate missing members using a local algorithm [WSDM'10]
Update each list using the new local social network
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Simulating Friendlist Manager

Evaluation: Can community detection find friendlists?
  What are the sizes of the friendlists?
  How “tightly knit” are the friendlists?

Methodology:
  Simulate FLM app and evaluate on three Facebook networks
  Randomly select 1,000 users from each network
How big are the proposed friendlists?

More than 90% of the time, Friendlist Manager proposes friendlists with fewer than 20 members.
Are the friendlists “tightly knit”?

More than 40% of the time, Friendlist Manager proposes friendlists with normalized conductance > 0.2
Friendlist Manager deployment so far

Usage statistics up to February, 2012

- 374 users installed Friendlist Manager
- On average, 4 existing friendlists suggested
- On average, 6 new friendlists suggested
- 148 users updated at least one existing friendlist
- 36 users created at least one new friendlist
Questions?

Friendlist Manager Application:
https://apps.facebook.com/friendlist_manager

More information:
http://friendlist-manager.mpi-sws.org
Backup slides
How strong is a particular community $A$?

Conductance previously proposed
But, biased towards large communities

Metric: Normalized conductance $C$
Fraction of $A$’s links within $A$
Relative to a random graph

Range is $[-1,1]$
0 represents no stronger than random

$$C = \frac{e_{AA}}{e_{AA} + e_{AB}}$$

$$= \frac{e_{AeA}}{e_{AeA} + e_{AeB}}$$
How to tweak existing friendlists?

Existing Lists
Drag-and-drop friend
Delete friend
Collapsible tab lists
Update friendlist
How to tweak new friendlists?

New Lists
Drag-and-drop friend
Delete friend
Merge friendlists
Delete friendlist
Name friendlist
Create friendlist
Three Facebook datasets

Some statistics about the networks

<table>
<thead>
<tr>
<th>Network</th>
<th>Nodes</th>
<th>Edges</th>
<th>Avg. deg.</th>
</tr>
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<td>3.0M</td>
<td>46M</td>
<td>15.2</td>
</tr>
<tr>
<td>Facebook City B</td>
<td>2.9M</td>
<td>40M</td>
<td>14.2</td>
</tr>
<tr>
<td>Facebook New Orleans</td>
<td>63K</td>
<td>1.6M</td>
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