

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

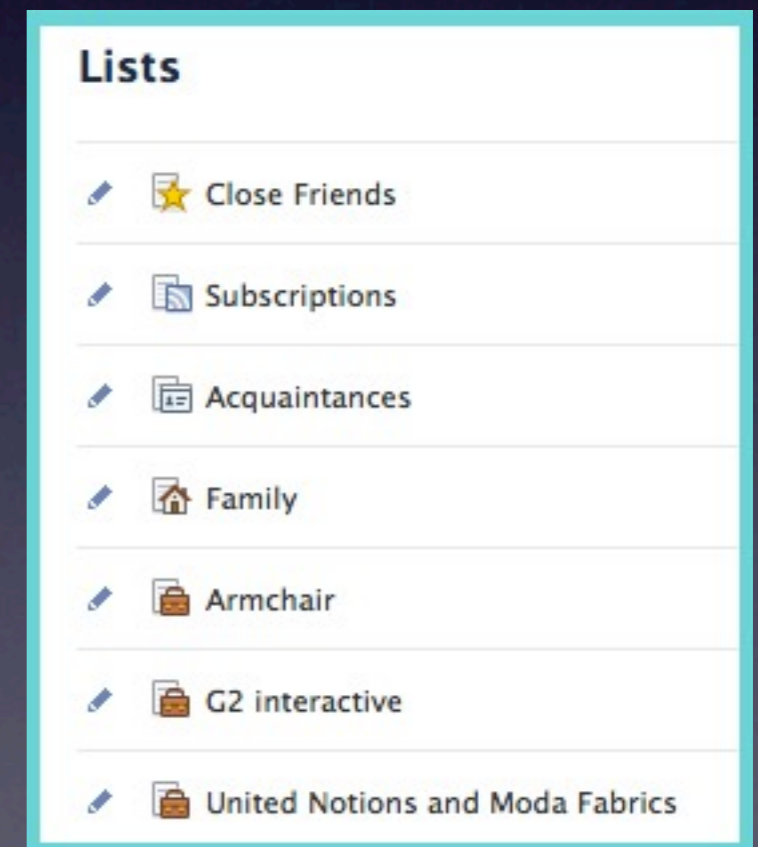


Friendlist feature

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**

Create New List

Create a list of people so you can easily share with them and see their updates in one place.

List Name: My Work Friends

Members: Bi

Bimal Viswanath
Saarbrücken

Create Cancel

Edit My Work Friends

Friends Search...

Jennifer Bethea Jennifer Brennan Jennifer Rose Gaunt Jenny Pfof Jen Xiques

Jeremy Long Jermal M Smith Jerome Bennett Jesse Lutz Jessica Gavit

Jessica Ivins Jessica Sudalnik Jessica Sutton Jessica Tillyer Jessi Jung

Anar Patel Bill Whitecell Jimmy Stone Jim Schachterle Joe Cronau

Add and remove people from this list by clicking on their names.

Finish

Goal: Simplify Friendlist Management

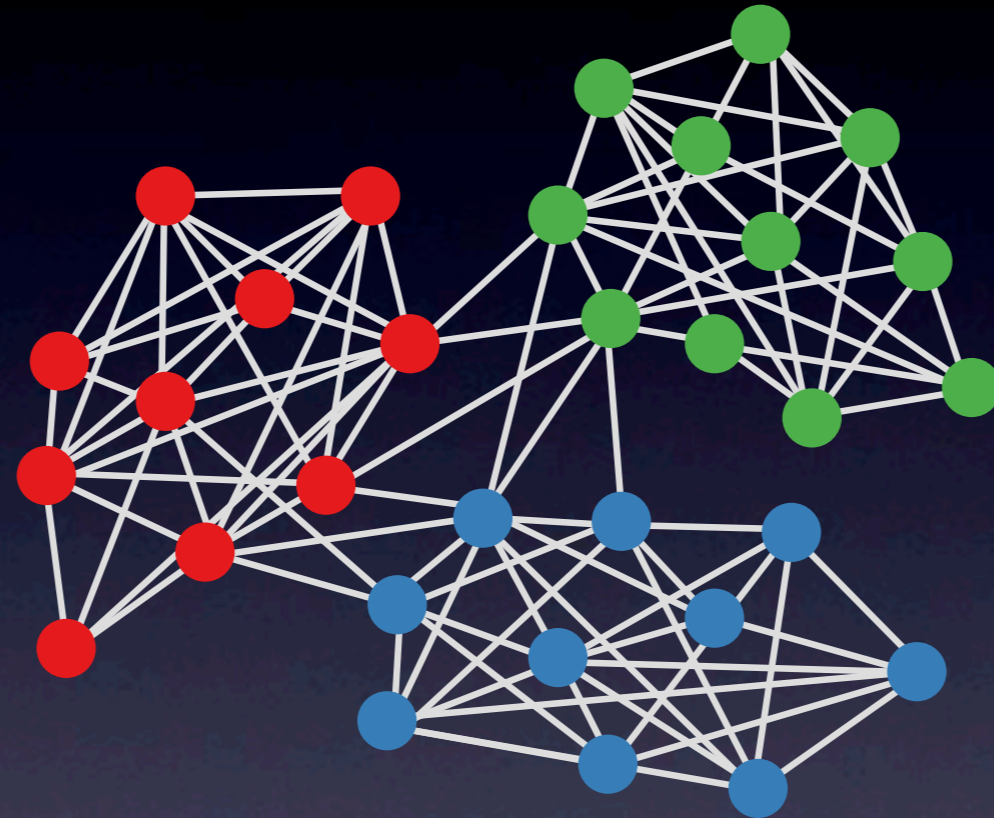
Goal: Simplify Friendlist Management



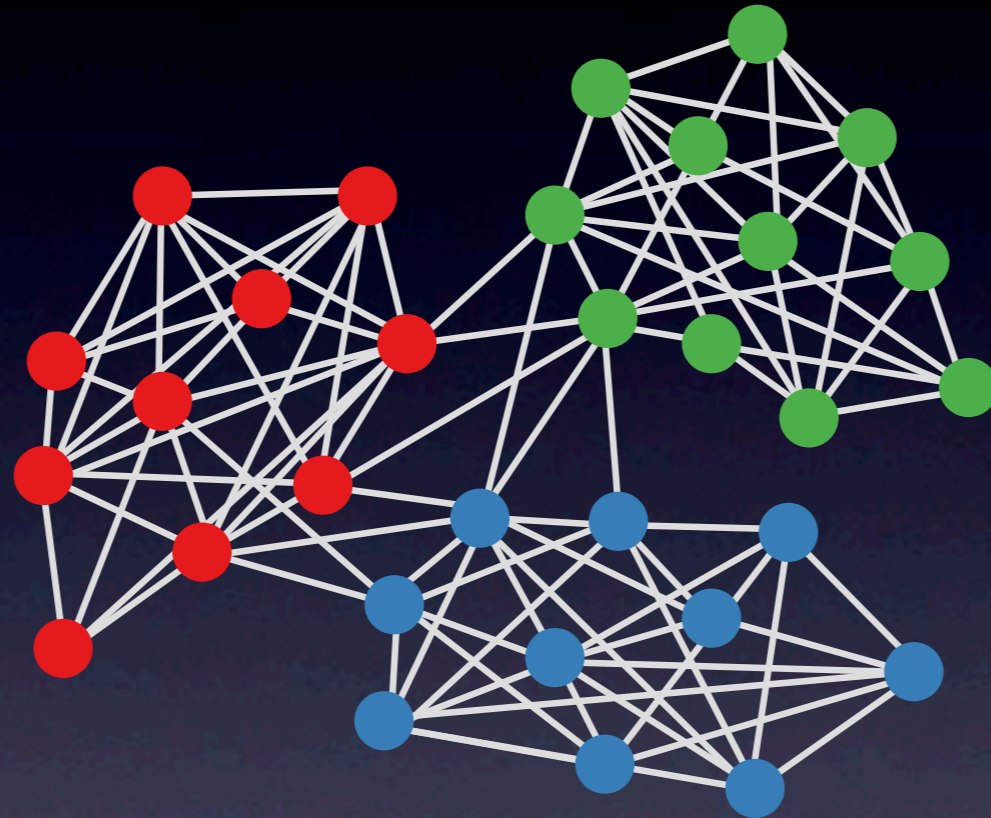
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Can we leverage **social network communities** as a basis for creating and maintaining friendlists?

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]

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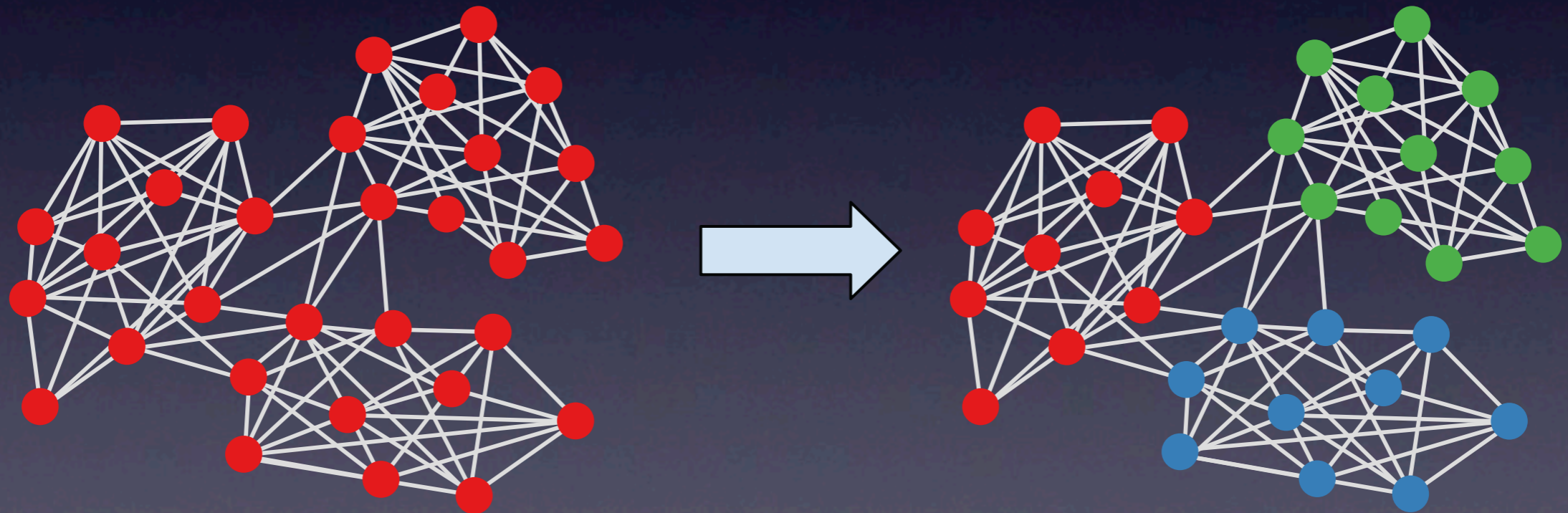


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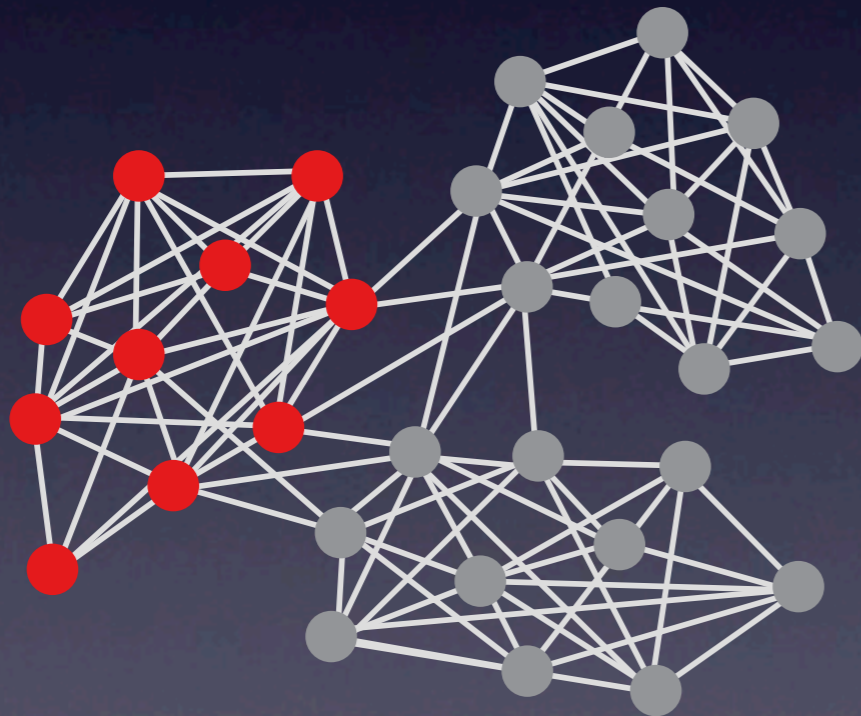


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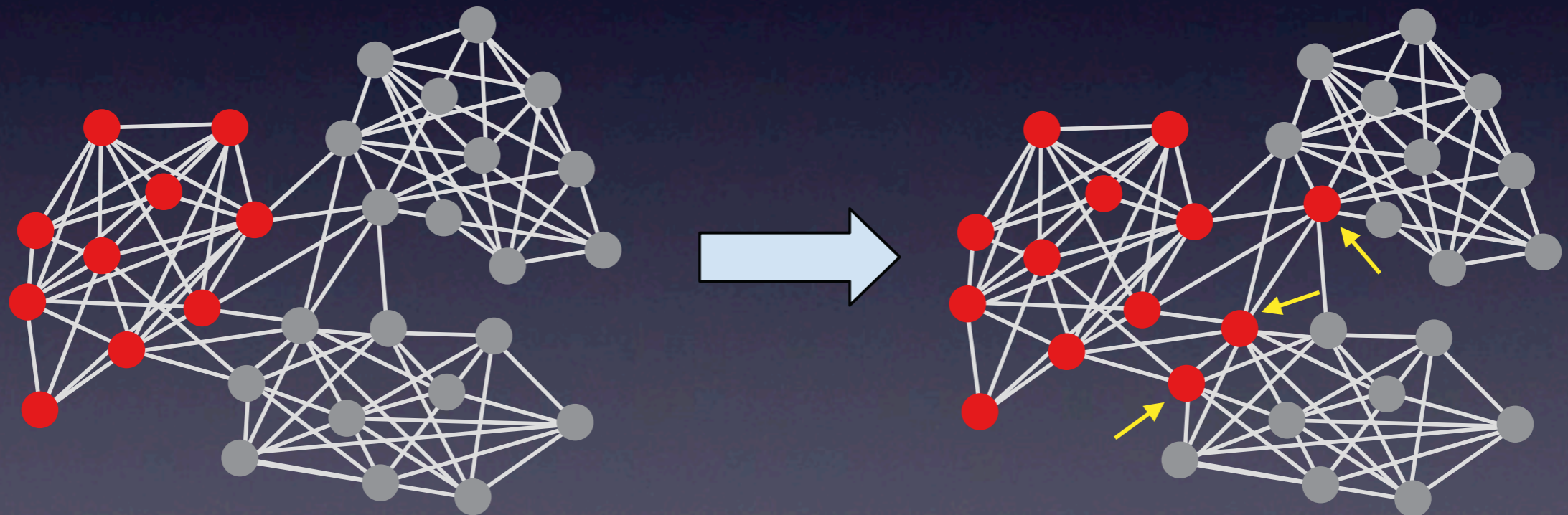


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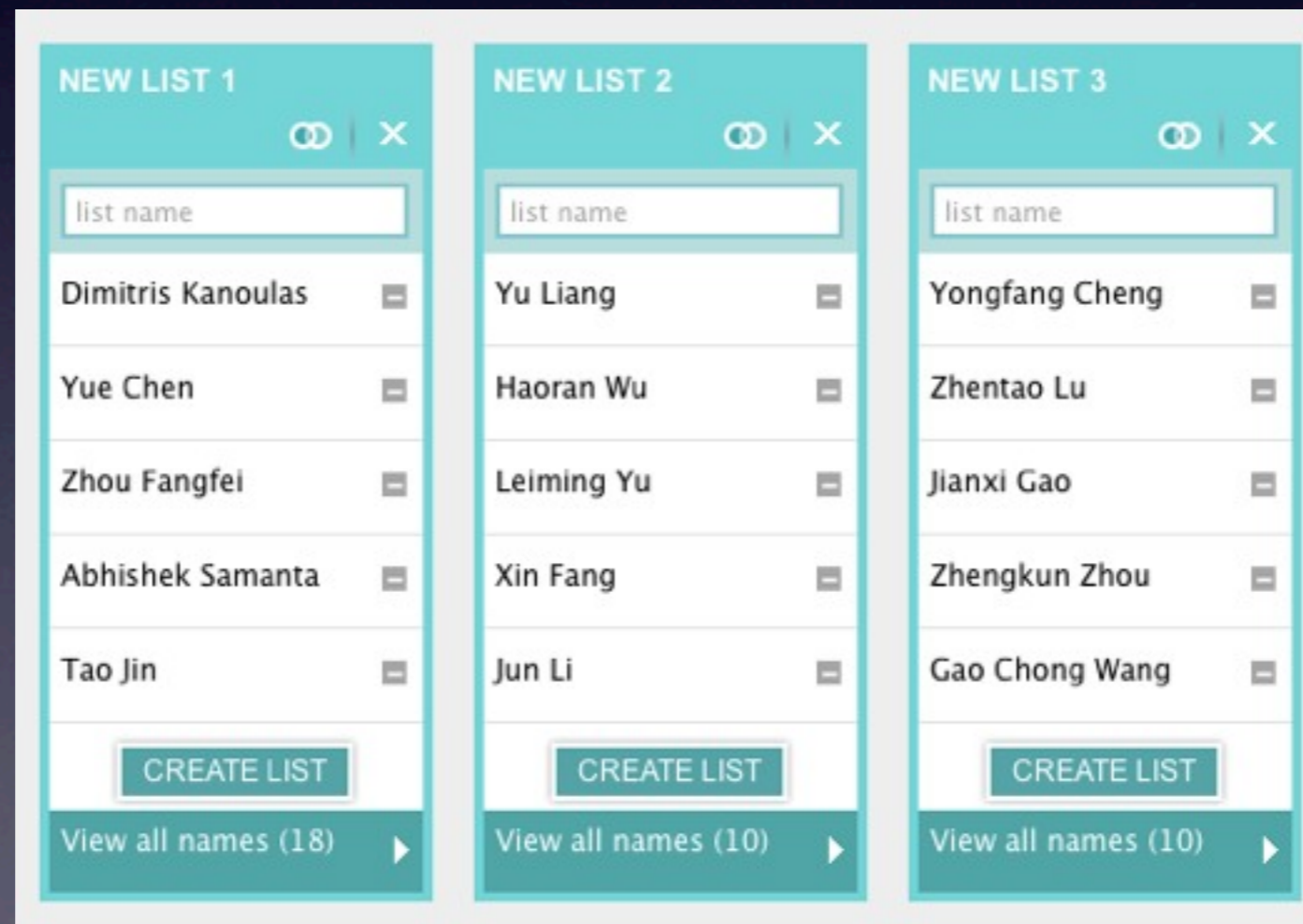


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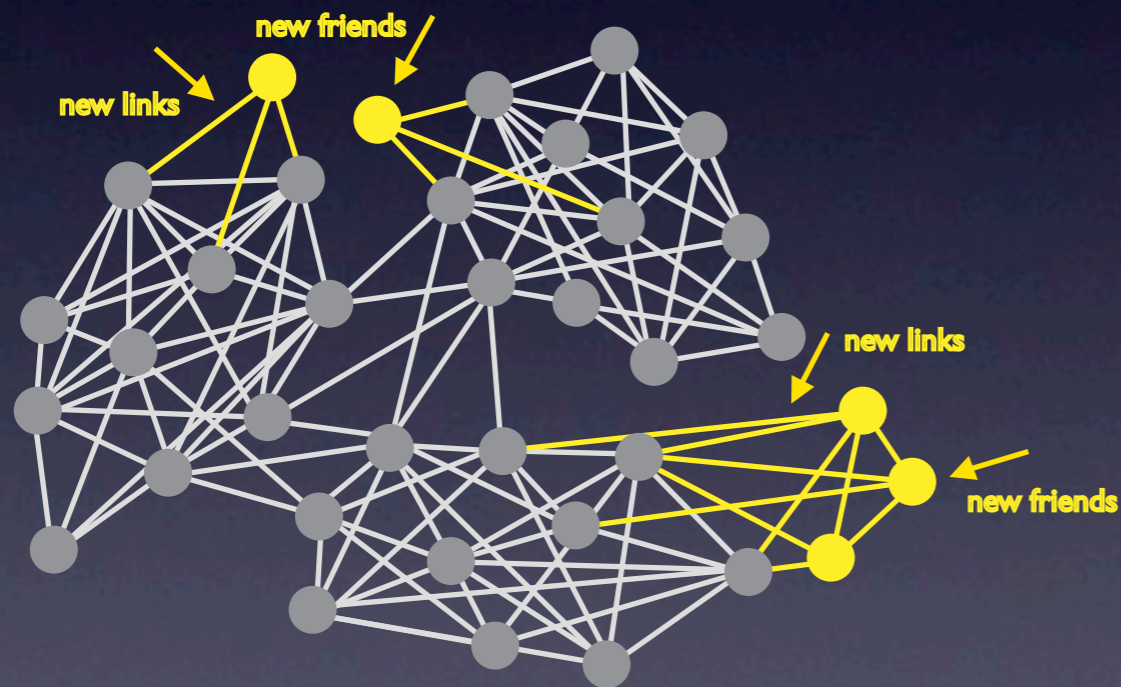
Expand "seeds" via a local algorithm [WSDM'10]



How to expand existing friendlists?

Idea: **Locate missing members** using a local algorithm [WSDM'10]

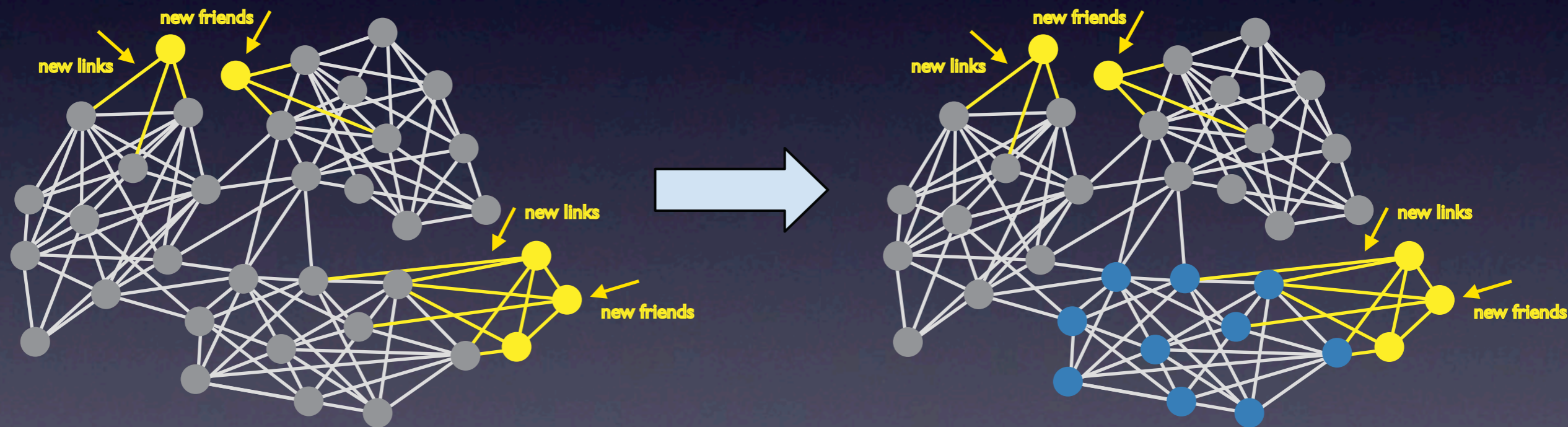
Update each list using the new local social network



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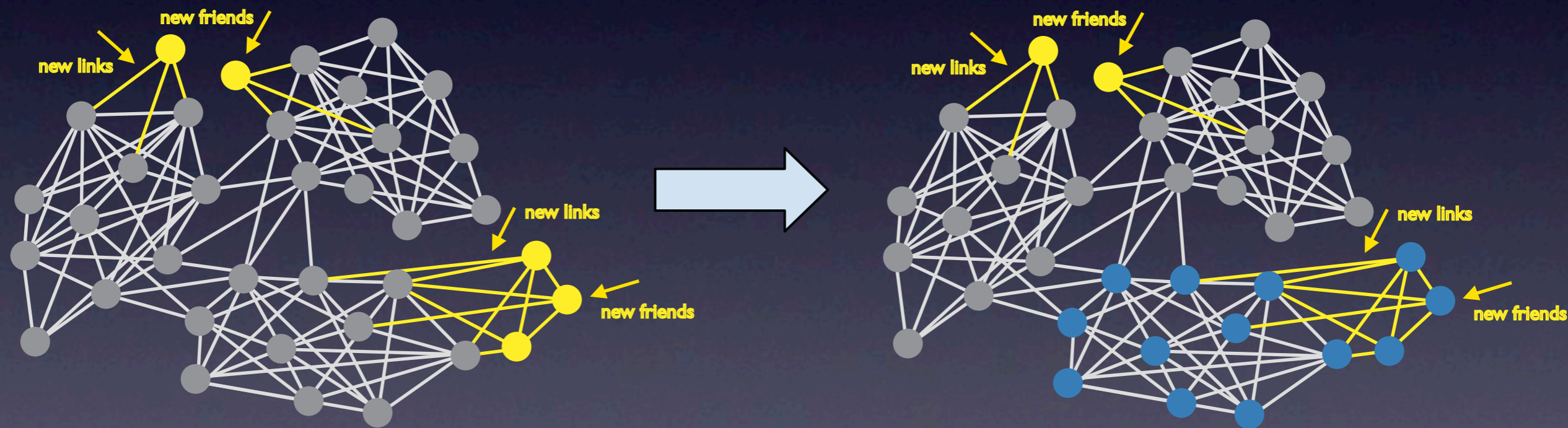
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Update each list using the new local social network

The screenshot shows three panels of a social network interface, each with a title, a 'Your Current List' section, and a 'Proposed Additions' section. Each name in the lists has a checkbox to its right. At the bottom of each panel is an 'UPDATE LIST' button.

lab266	Brookline Area	My Work Friends
Your Current List (6)	Your Current List (1)	Your Current List (4)
Eric Miles	Forrest Bice	Forrest Bice
Liang Zhang	Proposed Additions (5)	Bimal Viswanath
Saber Shokatfadaee	Gabor Lippner	Mainack Mondal
Tim Smith	Saber Shokatfadaee	Alan Mislove
Zahra Jafargholi	Hamidreza Jahanjou	Proposed Additions (2)
Hamidreza Jahanjou	Tim Smith	Yong-Yeol Ahn
Proposed Additions (1)	Zahra Jafargholi	Gabor Lippner
Gabor Lippner		
UPDATE LIST	UPDATE LIST	UPDATE LIST

Simulating Friendlist Manager

Evaluation: Can community detection find friendlists?

What are the **sizes** of the friendlists?

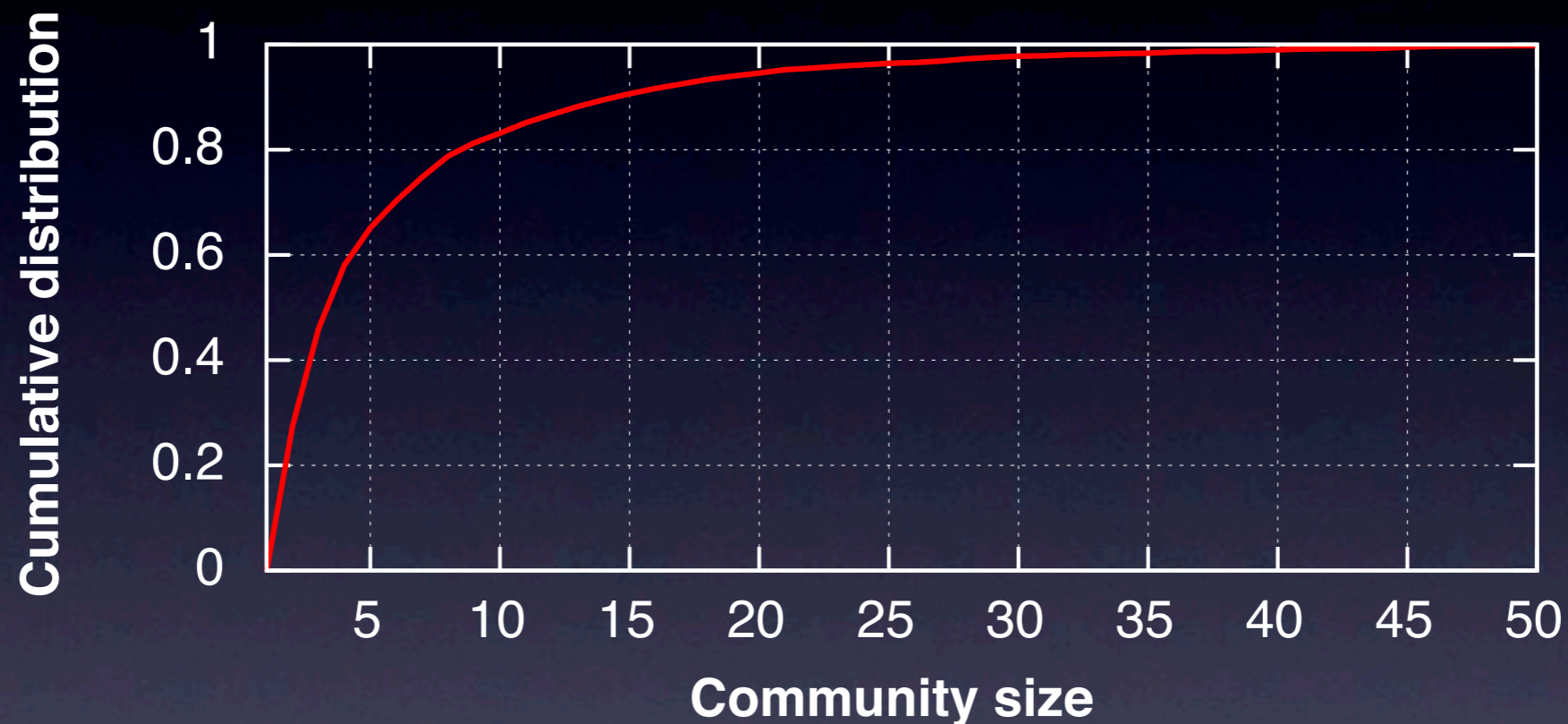
How “**tightly knit**” are the friendlists?

Methodology:

Simulate FLM app and evaluate on **three Facebook networks**

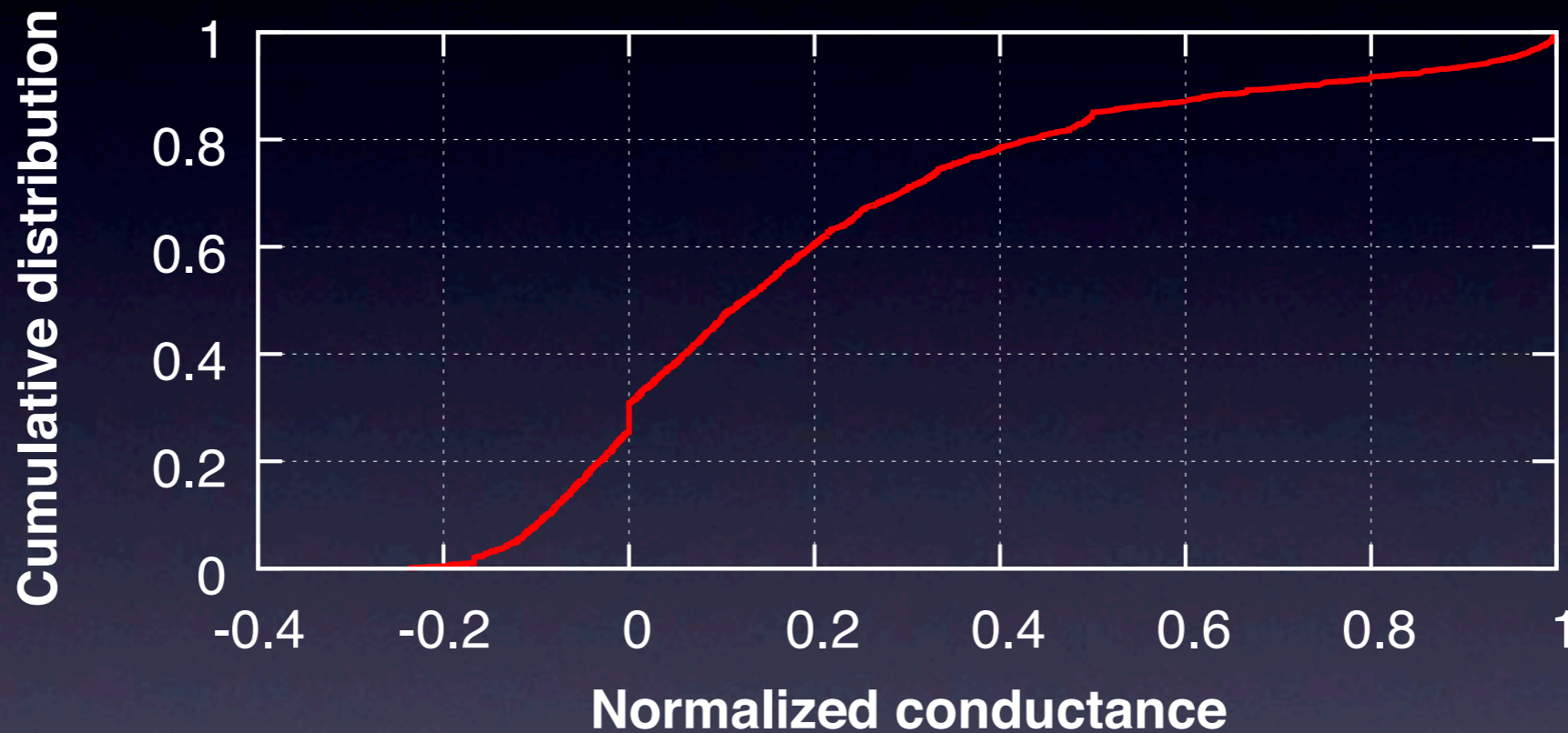
Randomly select **1,000** users from each network

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:

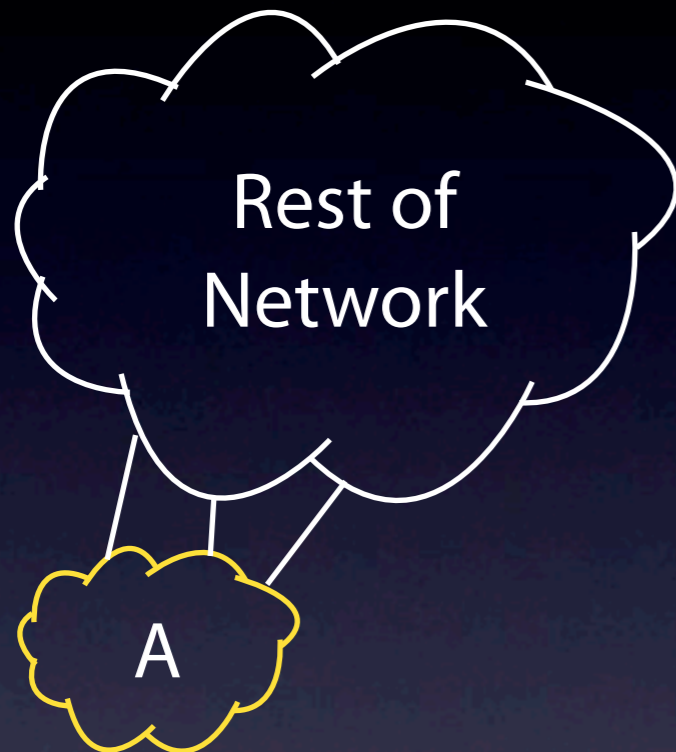
`https://apps.facebook.com/friendlist_manager`

More information:

`http://friendlist-manager.mpi-sws.org`

Backup slides

Normalized Conductance



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

$$C = \frac{e_{AA}}{e_{AA} + e_{AB}} - \frac{e_A e_A}{e_A e_A + e_A e_B}$$

How to tweak existing friendlists?

Existing Lists

Drag-and-drop friend

Delete friend

Collapsible tab lists

Update friendlist

Friendlist Manager

STEP 1 | Edit Your EXISTING Lists
(These are lists you've already created.)

Names in **Red** are people we think you might want to add to your current list. Click "UPDATE LIST" to add them.

Acquaintances	lab266	Brookline Area	My Work Friends
Your Current List (4)	Your Current List (6)	Your Current List (1)	Your Current List (4)
Galen Wilkerson	Eric Miles	Forrest Bice	Forrest Bice
Yu Liang	Liang Zhang	Proposed Additions (5)	Bimal Viswanath
Jun Li	Saber Shokatfadaee	Gabor Lippner	Mainack Mondal
Leiming Yu	Tim Smith	Saber Shokatfadaee	Alan Mislove
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Xiang Gong	Hamidreza Jahanjou	Tim Smith	Yong-Yeol Ahn
Xiang Tang	Proposed Additions (1)	Zahra Jafargholi	Gabor Lippner
Xin Fang	Gabor Lippner	UPDATE LIST	UPDATE LIST
Haoran Wu	UPDATE LIST		
UPDATE LIST			

When you finish updating your lists... [Continue to STEP 2](#)

By [Max Planck Institute for Software Systems](#) and [Northeastern University](#)

How to tweak new friendlists?

New Lists

Drag-and-drop friend

Delete friend

Merge friendlists

Delete friendlist

Name friendlist

Create friendlist

Friendlist Manager

STEP 2 | Create NEW Lists
(These are suggested lists for you.)

First, type a name for each list. When you are finished editing a list, click "Create List".

NEW LIST 1	NEW LIST 2	NEW LIST 3	NEW LIST 4	NEW LIST 5
<input type="text" value="list name"/>	<input type="text" value="list name"/>	<input type="text" value="list name"/>	<input type="text" value="list name"/>	<input type="text" value="list name"/>
Dimitris Kanoulas	Yu Liang	Yongfang Cheng	Harris Hao Wang	Jiahai Zhang
Yue Chen	Haoran Wu	Zhentao Lu	Gao Chong Wang	Eva Zhang
Zhou Fangfei	Leiming Yu	Jianxi Gao	Chenda Liao	德平 张
Abhishek Samanta	Xin Fang	Zhengkun Zhou	Ye Tao	Qinqin Wu
Tao Jin	Jun Li	Gao Chong Wang	Gang Liu	
<input type="button" value="CREATE LIST"/>	<input type="button" value="CREATE LIST"/>	<input type="button" value="CREATE LIST"/>	<input type="button" value="CREATE LIST"/>	<input type="button" value="CREATE LIST"/>
<input type="button" value="View all names (25)"/>	<input type="button" value="View all names (10)"/>	<input type="button" value="View all names (10)"/>	<input type="button" value="View all names (7)"/>	<input type="button" value="View all names (4)"/>

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Three Facebook datasets

Some statistics about the networks

Network	Nodes	Edges	Avg. deg.
Facebook City A	3.0M	46M	15.2
Facebook City B	2.9M	40M	14.2
Facebook New Orleans	63K	1.6M	25.6