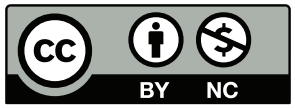
Social Networks



What's a Social Network?

- You all know what they are. . .

What's a Social Network?

- Personal presence
- Personal data
- Links to/from other people
- Messaging

Personal Presence

- Individuals, not corporations (originally. . .)
- Many-to-many, rather than few-to-many
- ☞ Not just “content” versus “eyeballs”
- Persistent and findable state

Personal Data

- What *individuals* want to post
- A personal statement to the world
- What does someone's page say about them?
- How accurate are some of these portrayals?

Links

- Who has an association with whom
- The really unique feature of social networks—hyperlinks now point to *people*, not web sites
- The source of the power—and the danger—of social network sites

Messaging

- Tied to underlying structure
- Closed environment—can be well-integrated
- Avoid spam?

Communication Sites and Apps

- Snapchat, WhatsApp, etc.
- Closely related to social networks, but links are implicit
- Sites tend to have different gimmicks: location, “Yo”, vanishing images

How Novel Is All This?

- Personal web pages have existed for a long time
- Personal data has long been posted on Usenet
- We've had hyperlinks for a long time
- Email is positively ancient
- Why are social networks suddenly so popular?

A Historical Look

- Before ~1975, it wasn't possible to conceive of personal use of computers—computers were too expensive
- Universities receiving Federal money were *required* to charge for CPU time
- Minicomputers started to become reasonably common by the mid-1970s, but access was still limited to a very few people, typically scientists and a few students

ARPANET

- A government-run network
- To connect, you needed to be a government agency or have a research contract from DARPA
- Mostly CS departments and a few industrial research labs
- Not accessible to most people (Al Gore helped change that)
- There were two major people-oriented mailing lists, SF-LOVERS and HUMAN-NETS.

Usenet

- Usenet: Unix-based; open to any site with a modem
- There were a few hand-built autodialers; later, Bell Labs and DEC handled the long-haul traffic
- In modern terms, a peer-to-peer network—but it connected *sites*, not people
- But who had access to Unix timesharing systems? Again, rather limited. That said, Usenet was explicitly intended for personal as well as professional use
- Postings were transient; no permanent presence
- Gateway to ARPANET mailing lists set up around 1982 at Berkeley

BBSs

- Hobbyist-run “bulletin board systems”—(early) PCs with a few modems
- Many different, specialized ones
- The first dedicated personal systems

All the Pieces

- By 1995, we had many Internet-connected Windows PCs
- The Web and GUI browsers existed
- Many people had access through work; an increasing number had access via personal machines
- What was the crucial innovation?

Linking to People

- The crucial innovation
- Mirrored real-world behavior: “a friend of a friend”
- Encouraged use within groups

The Network Effect

- Metcalfe's Law: the utility of a network grows as the square of the number of nodes
- People join a social network because their friends are on it
- The intrinisic merit matters less

Communities of Interest

- Facebook is, of course the biggest player
- But—it was originally restricted to college campuses—but those are very natural affinity groups
- Fastest growing group now: women in their 50s
- Why? To stay in touch with their grandchildren

Different Communities Elsewhere

- Yik Yak focuses on geographic proximity—again, a natural fit for college campuses
- LinkedIn is “professional”—use it for work contacts
- Again—what matters is where your friends are

Social Network Applications

- One of the (other) early reasons for Facebook's success
- Build applications on data that is *existing* and *structured*
- The former cuts the startup overhead
- The latter is crucial to many different Internet apps—*much* better than screen-scraping

Piling On

- Sites like Facebook now have groups (sub-networks?), applications, messaging, and more
- There are commercial presences
- Why not just do this on the Web?

Mission Drift

- Facebook today is far more than the original vision
- Twitter has drifted even further
- This is actually a good sign—it shows that the underlying technology is flexible

Ease of Use

- Easy for users—simple interface for doing common things (supported by complex—but closed—back end)
- Build on the strengths of the underlying system
- Structured data, network effect, and closed nature make social networking sites “sticky”

Could the Party End?

- Sure—AOL didn't last as the dominant player, either
- What happened to Friendster and MySpace?
- Can a meta-site pull the structured data from different social networks, aggregate it, and present it via a single interface?
- Certainly—those already exist
- The hard part: making it easy to "friend"—and be friended by—people with just web pages

Paying for It

- Most social networks rely on ads today, but for many it's unclear if those provide enough revenue
- There is a lot of user data available to advertisers, but exploiting it creates major threats to privacy
  - Demographic data
  - Interests
  - The social graph

The Social Graph

- Whom you associate with
- Can be explicit (whom you friend or follow) or implicit (whom you interact with)
- The big advantage over other forms of online advertising

The Social Graph and Advertising

- Friends tend to have similar interests
- The trick is monetizing it—without breaking laws and without acting creepy
- Example: Facebook Beacon: tell your friends what you've just purchased

Transparency

- What do sites know about you? How do they use this information?
- Most say nothing; Twitter is a notable exception
- An activist in Europe requested his Facebook records—under EU law, that was his right
- Yes, they collected and retained a lot