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 intrinsic 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