



ONLINE SOCIAL NETWORK ANALYSIS

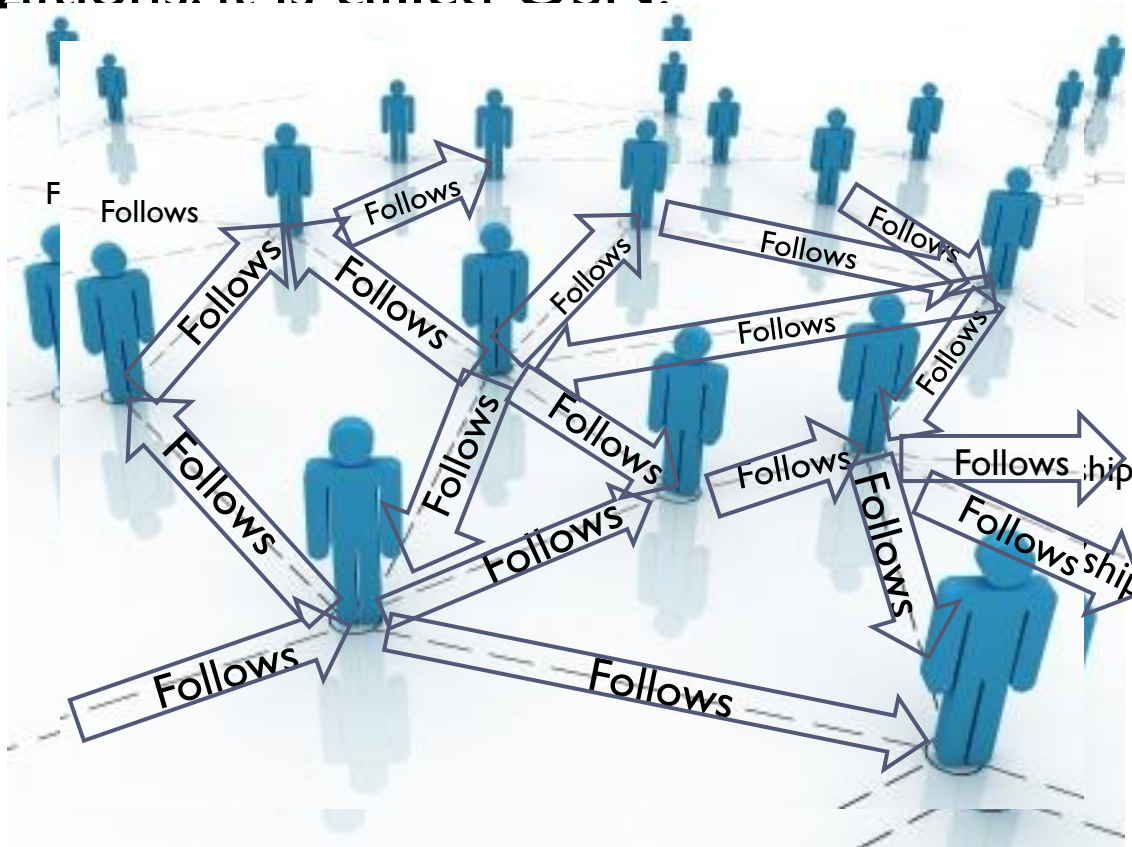
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OUTLINE

- ▶ What is an Online Social Network (OSN)?
- ▶ When did they emerge?
- ▶ Privacy issues in OSNs
- ▶ Why is it important to analyze?
- ▶ What are the challenges?
- ▶ Demo
- ▶ Take aways...

What is Online Social Network (OSN)?

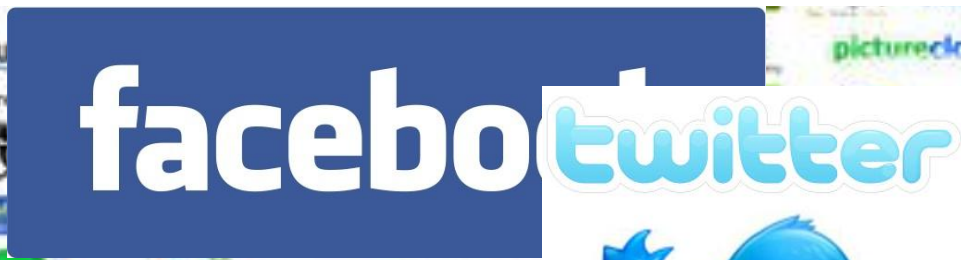
- ▶ When a computer network connects people or organizations, it is called OSN.





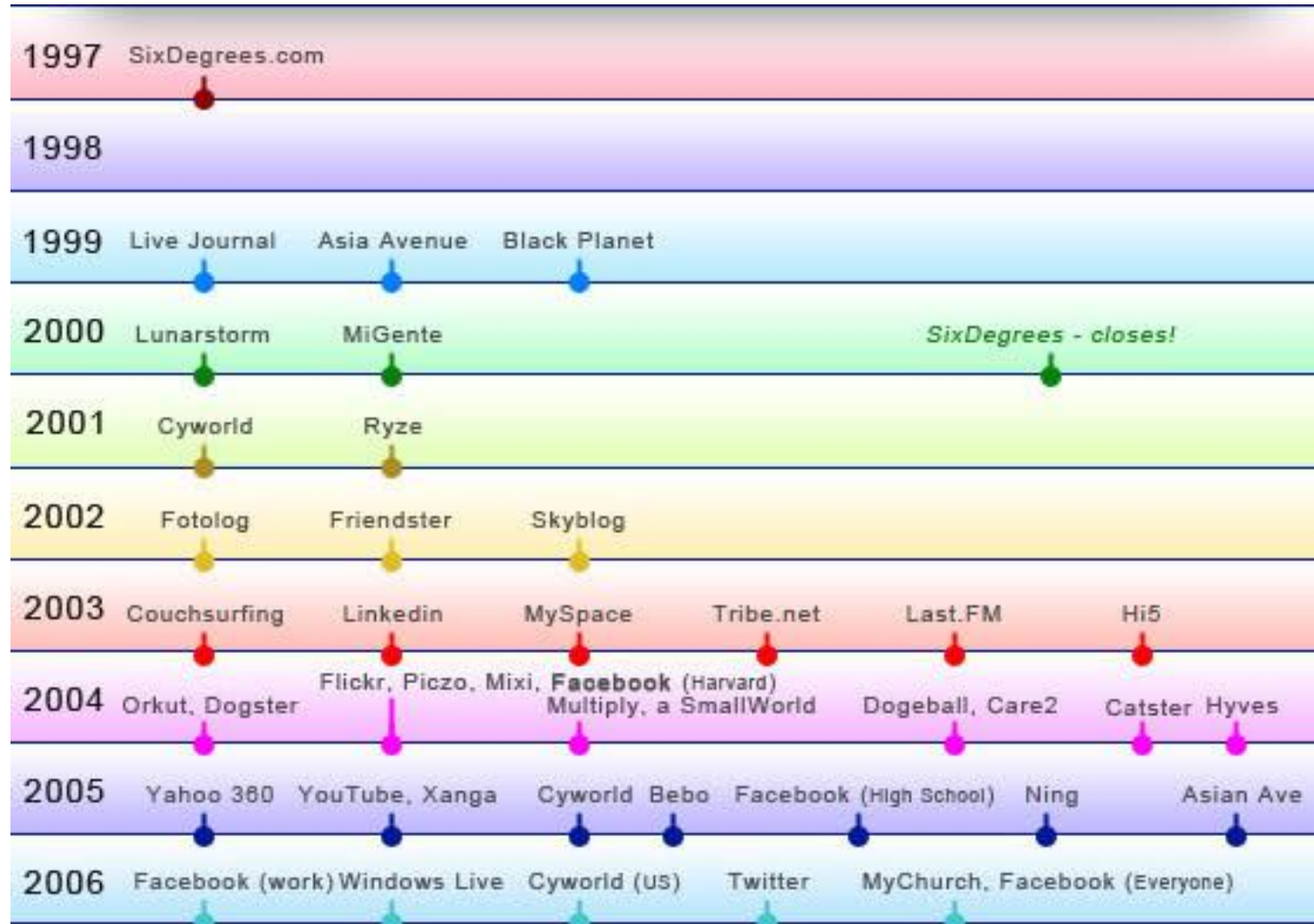
LinkedIn Statistics (<http://press.linkedin.com/about>)

Number of active users	~190 million
New members per second	2
Number of searches in 2012	5 billion
New visitors everyday	300.000
Number of tweets per second	750
Number of daily mobile users	6.9 million
New Editors Per Month for All Wikimedia Projects	16,170



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When did it emerge?



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<http://blog.afridesign.com/2010/09/social-networking-time-line-lets-start-at-1997/>

Why do “we” generally use OSNs?

- ▶ To keep in touch with our friends
- ▶ To make new contacts
- ▶ To find people with similar interests and ideas

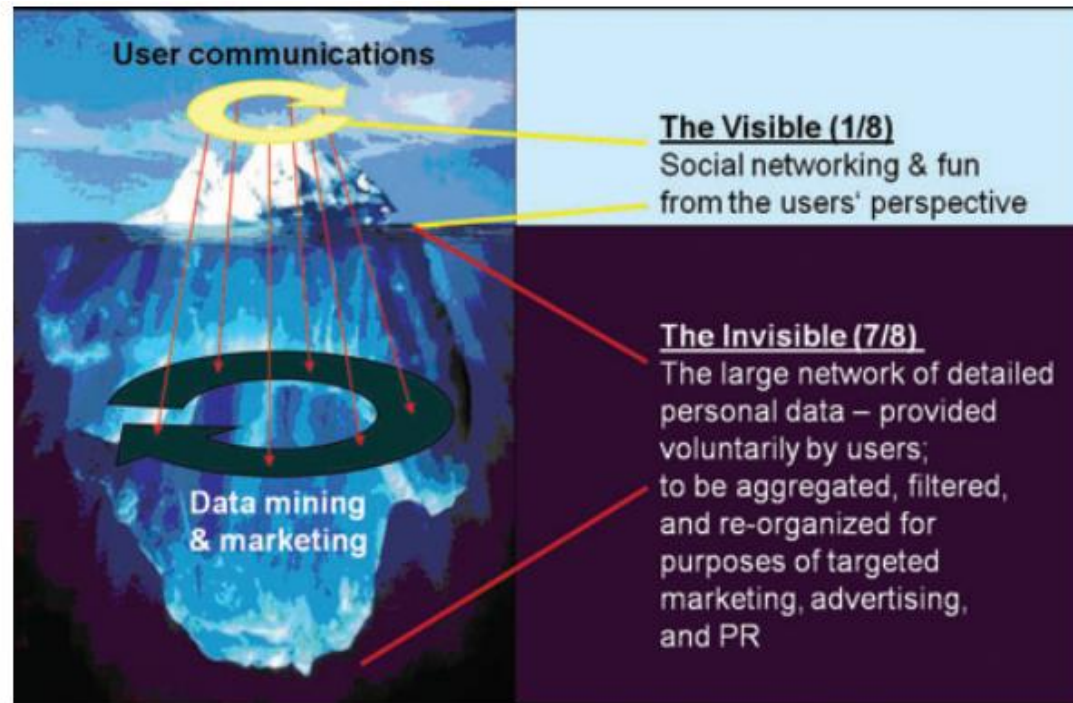


Figure 1 The Facebook Iceberg Model (Iceberg image © Ralph A. Clevenger/CORBIS)

Privacy Issues in OSNs

- ▶ Is the personal data only used for marketing and advertising ? **No!**
- ▶ Identity theft (e.g., via social engineering)
- ▶ Use of personal data by third-parties
 - ▶ Have you ever seen advertisements of products you have searched on Amazon before while browsing another web page?
- ▶ Even stalking (if you share location information)

Is OSNs harmful at all?

- ▶ You can find a job (e.g., LinkedIn)
- ▶ You can talk to friends using VoIP cheaply (e.g., Skype)
- ▶ You can find your old friends (e.g., Facebook)
- ▶ Government can find out criminals through OSNs
 - ▶ A criminal, accused of bank fraud, started posting on Facebook. Although his profile was private, his list of friends was not, and through this vector, they eventually caught him.

Default privacy settings in Facebook



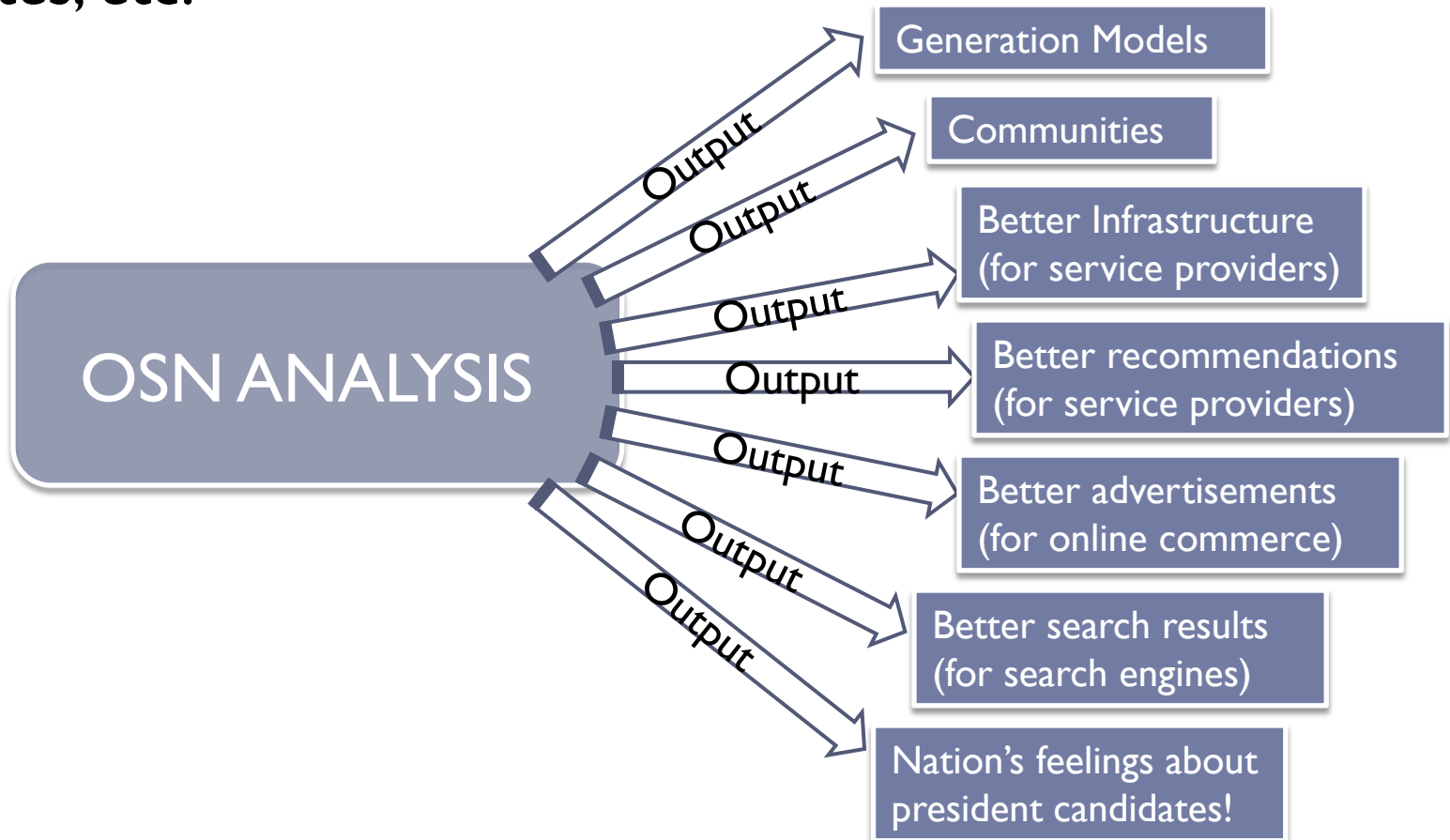
YOU NEED TO TAKE SOME ACTIONS FOR PRIVACY

Is private really “private”?

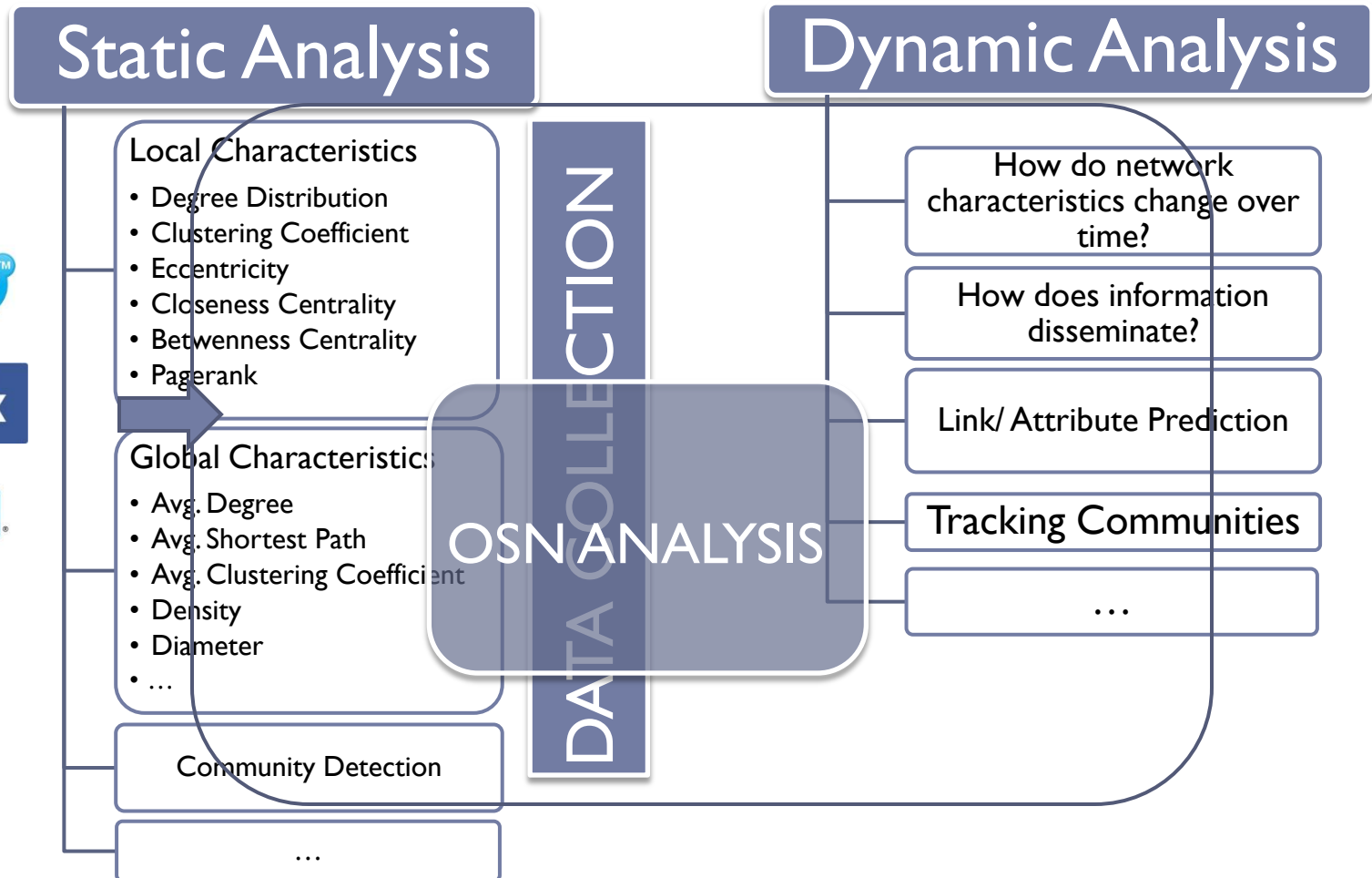
- ▶ Sometimes private information can be inferred using partially available data, so actually it may not always be the case that what you set as private is actually private.
- ▶ OSN analysis techniques can be used to figure out some private information.

What does OSN analysis focus on?

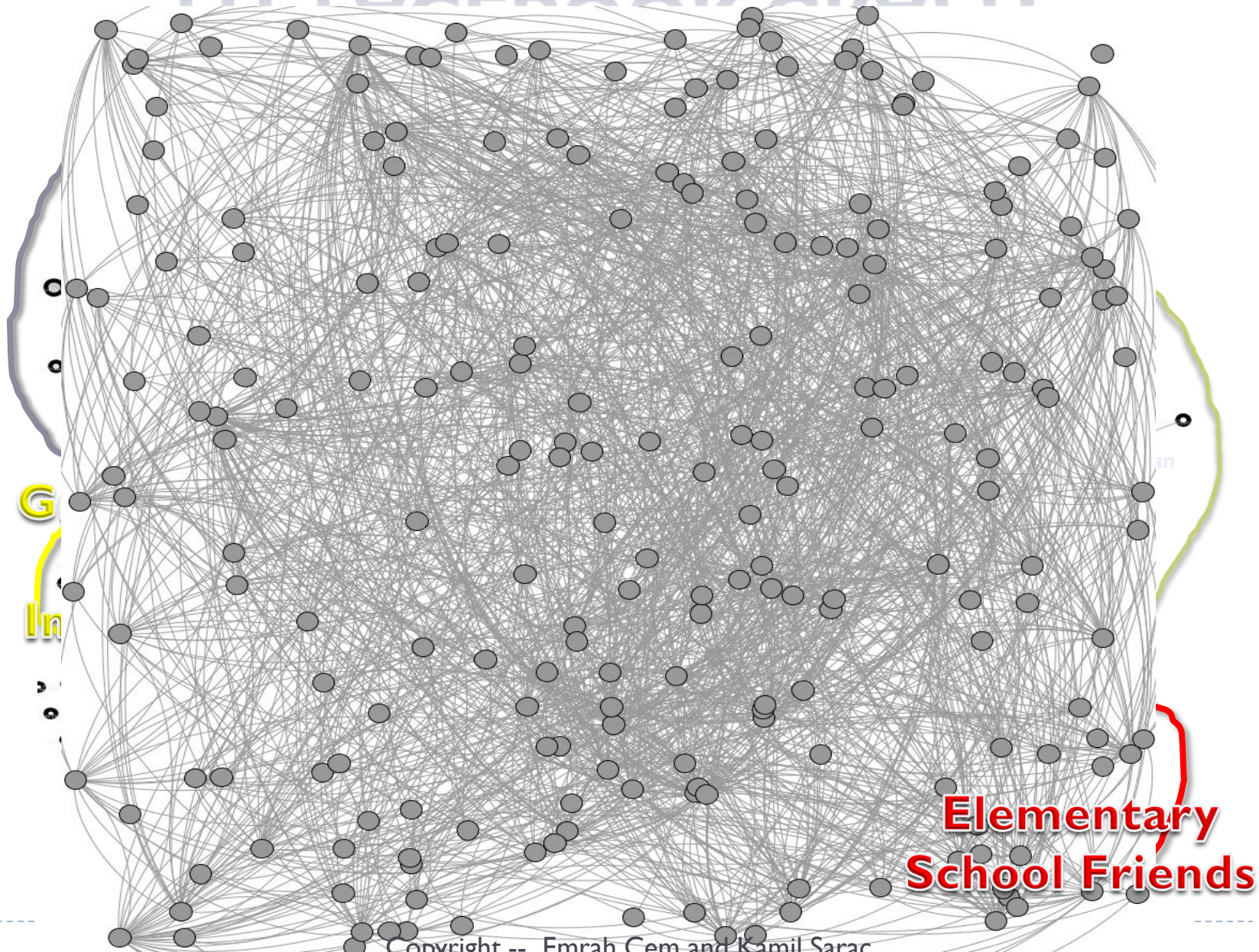
- ▶ Finding patterns of relations among people, organizations, states, etc.



What is inside OSN Analysis?



MY FACEBOOK GRAPH



Take aways

- ▶ Take some actions for your privacy
 - ▶ <http://blog.eset.com/2012/05/15/millions-have-not-reviewed-facebook-privacy-settings-heres-how>
- ▶ OSNs are useful if you worry about your privacy, otherwise it is risky.
- ▶ You can do OSN analysis to find out patterns that are not easy to see.

References

- ▶ [Berkowitz, S. D. \(1982\).](#) *An introduction to structural analysis: The network approach to social research*. Toronto: Butterworth.
- ▶ [Wellman, B. \(1988b\).](#) Structural analysis: From method and metaphor to theory and substance. In B. Wellman & S. D. Berkowitz (Ed.), *Social structures: A network approach* (pp. 19-61). Cambridge: Cambridge University Press.
- ▶ <http://blog.eset.com/2012/05/15/millions-have-not-reviewed-facebook-privacy-settings-heres-how>