

# Social Network Analysis

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# What is Social Network Analysis (SNA)?

- Mapping/measuring of relationships between people, groups, etc.
- Depicts people or things as nodes in a network
- Links between nodes are the relationships or flows
- Provides visual and/or mathematical analysis of relationships
- Based primarily in graph theory

# Commonly Analyzed Networks

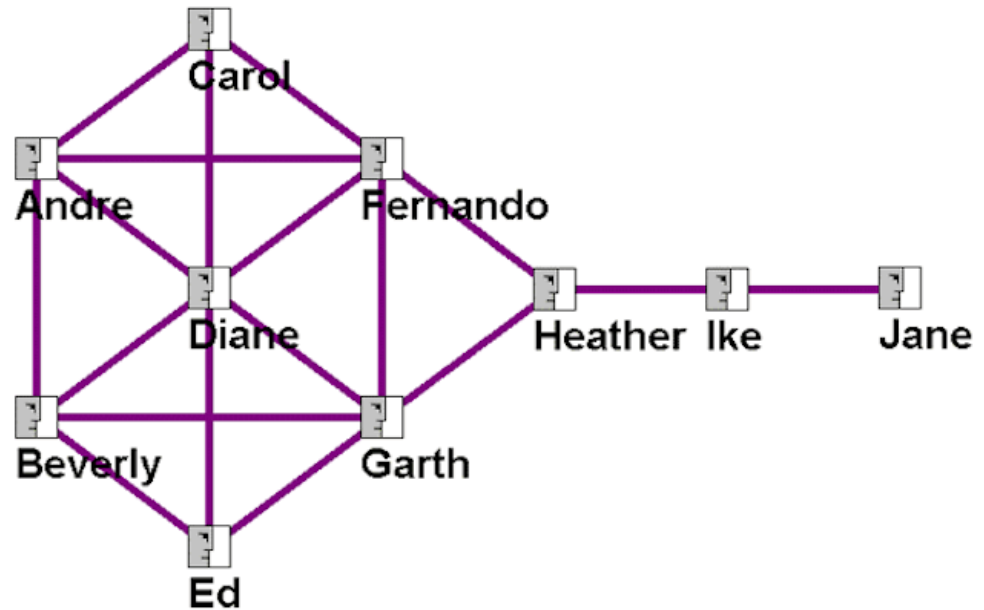
- Social media
  - User behavior
  - Spam bot filters
  - Current events research
  - Meme popularity
- Family trees
- Disease transmission
- Friendship/collaboration graphs

# Who Uses SNA and Why?

- Business Entities
  - Advertising purposes
  - Market research
- Researchers
  - History
  - Economics
  - Political Science
- Governments
  - Terror Prevention
  - Profiling

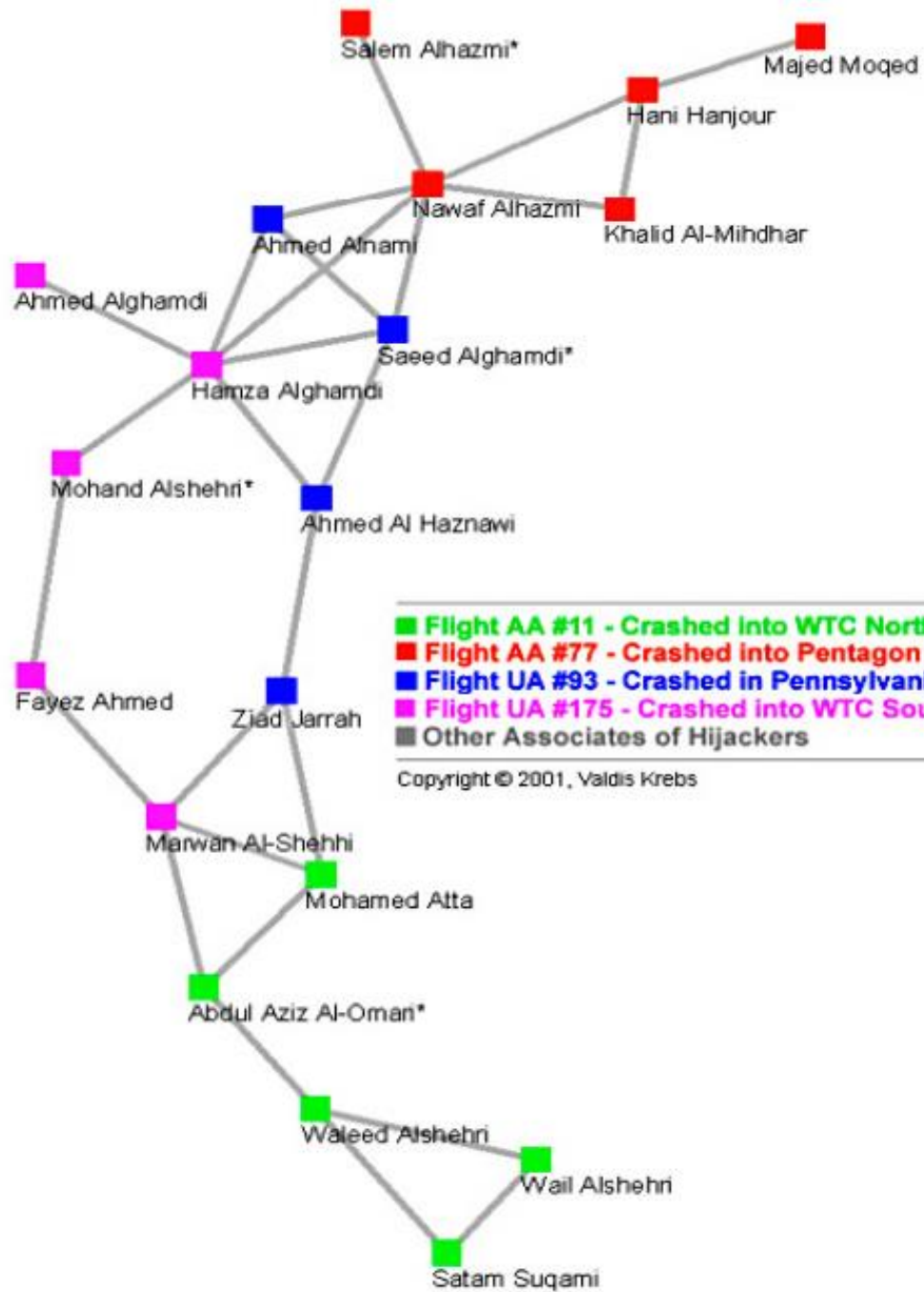
# How It Works

- Degree Centrality
- Betweenness Centrality
- Closeness Centrality
- Network Centralization
- Network Reach
- Network Integration
- Geodesics



# Case Study: Mapping Network of Terrorist Cells

- 2002 study done by Valdis E. Krebs
- SNA of 9/11 hijackers' known contacts
- Sought to use publicly verified information
- Revealed information about organizational patterns of terrorist cells
- “I was amazed at how sparse the network was and how distant many of the hijackers on the same team were from each other” (Krebs).



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Mohamed Atta

Abdul Aziz Al-Omani\*

Waleed Alshehri

Wail Alshehri

Satam Suqami

# Programs and Toolkits

- <http://www.onasurveys.com/>
- Netdraw
- Proximity
- InFlow
- Pajeck
- More found at: [kstoolkit.org/Social+Network+Analysis](http://kstoolkit.org/Social+Network+Analysis)



# Works Cited

- Krebs, V. (n.d.). Social Network Analysis: An Introduction. Retrieved October 25, 2017, from <http://orgnet.com/sna.html>
- Social Network Analysis. (n.d.). Retrieved October 27, 2017, from [http://www.kstoolkit.org/Social Network Analysis](http://www.kstoolkit.org/Social%20Network%20Analysis)
- Kerbs, V. (2002). Mapping Networks of Terrorist Cells. Retrieved October 28, 2017, from [http://insna.org/PDF/Connections/v24/2001\\_I-3-7.pdf](http://insna.org/PDF/Connections/v24/2001_I-3-7.pdf)