

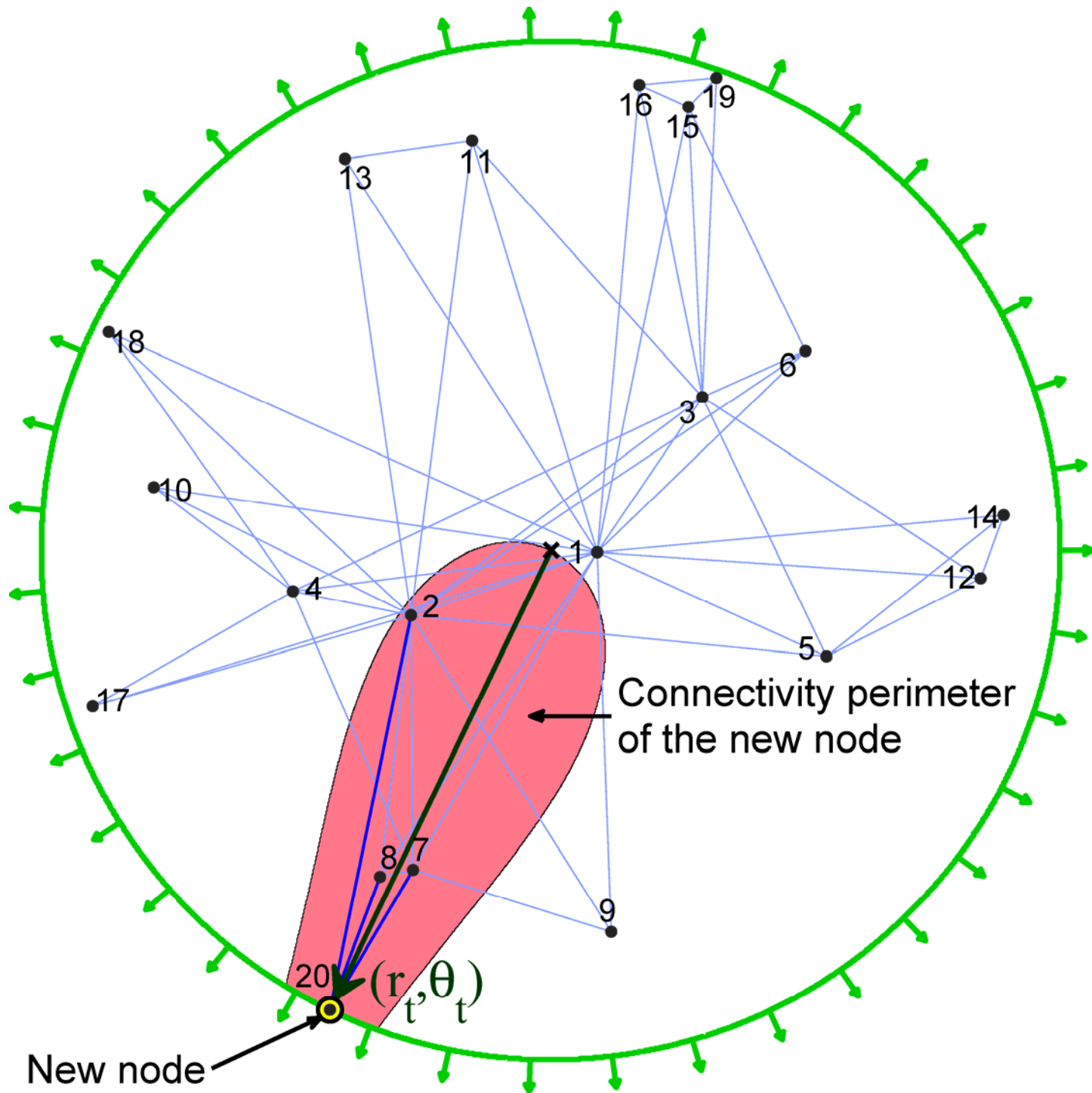
Hyperbolic routing in NDN

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NDN Retreat, UCSD, October 2012

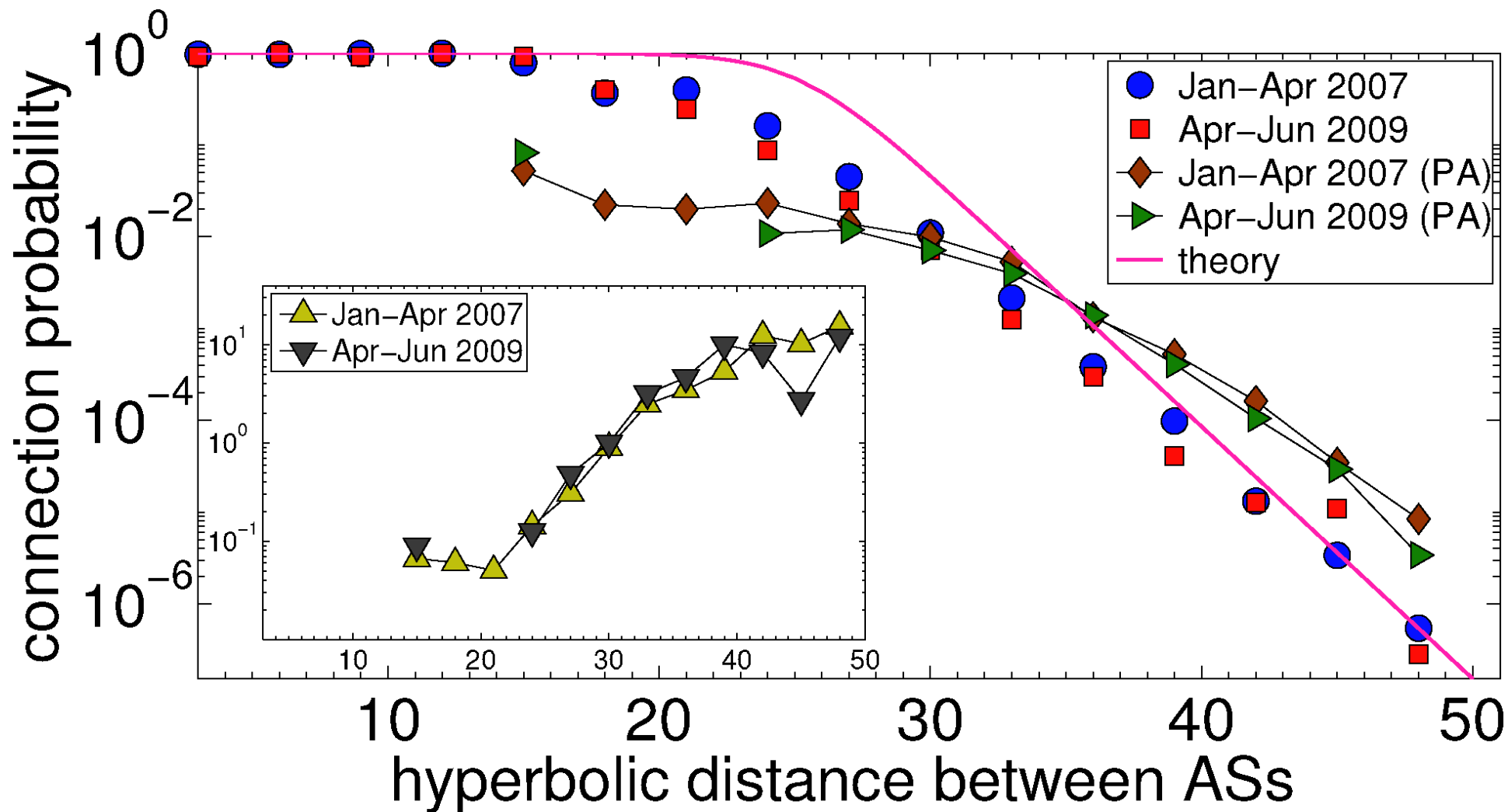
Outline

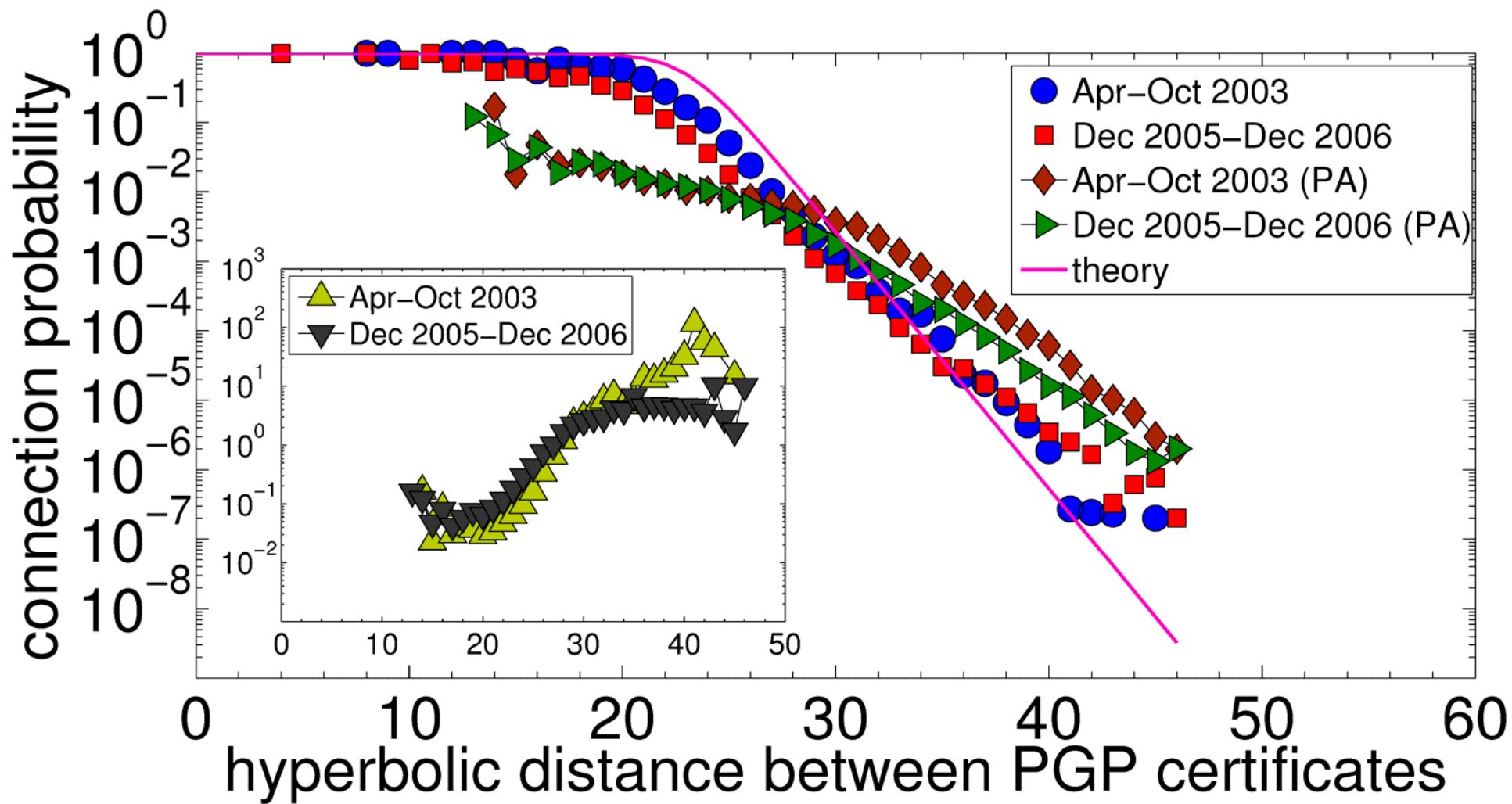
- Popularity versus similarity
- Hyperbolic experiments with the testbed
- Conclusions

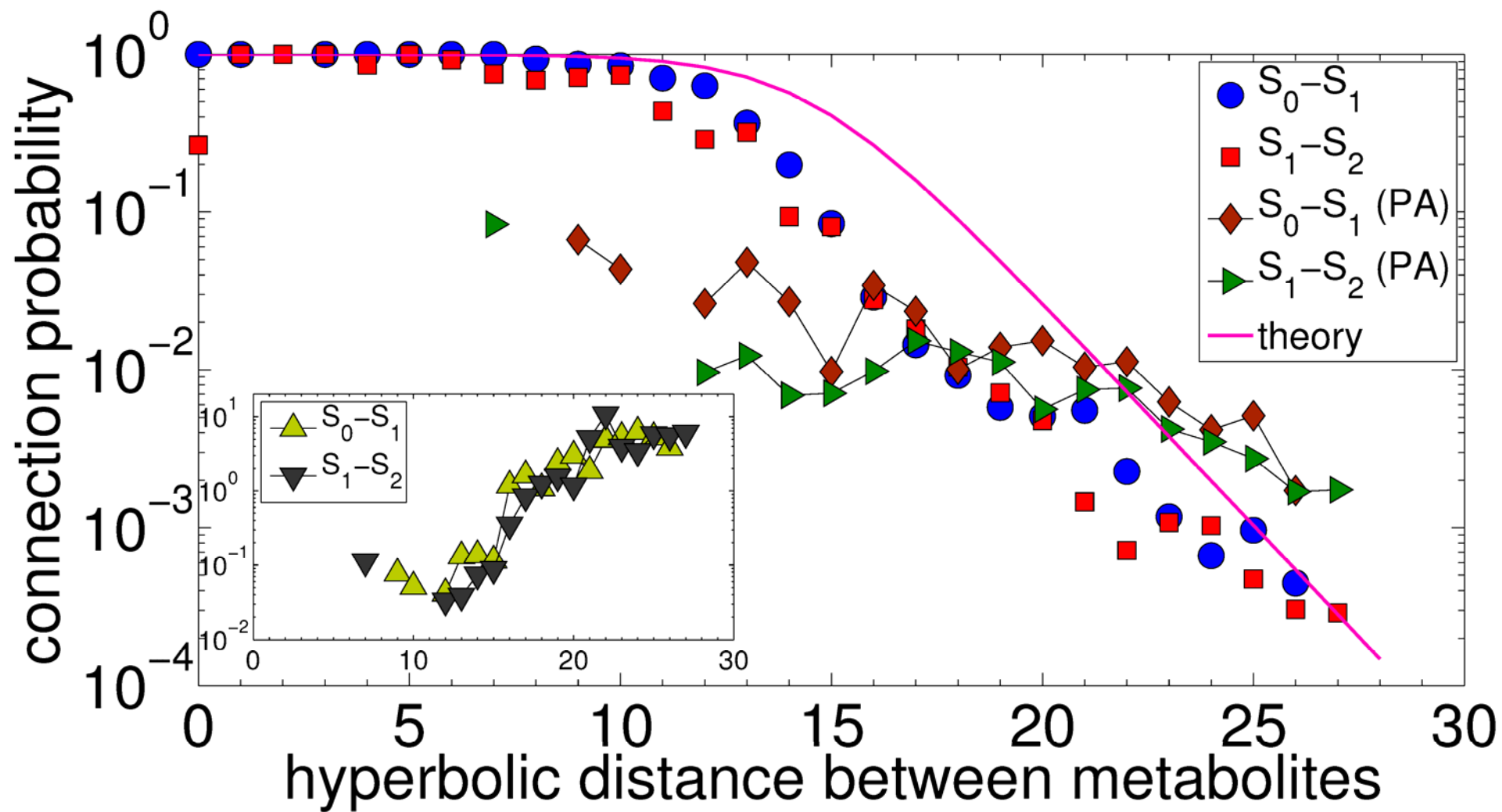


Validation

- Take a series of historical snapshots of a real network
- Infer angular/similarity coordinates for each node
- Test if the probability of new connections follows the model theoretical prediction







Why relevant

- Hyperbolicity emerges in very different networks with very different “addressing”
 - Addressing does not really matter
 - Hyperbolicity = popularity \times similarity
 - NDN namespace will likely be hyperbolic
- We can use the model for greedy routing in the testbed (Van’s suggestion #2)
 - http://www.caida.org/research/routing/greedy_forwarding_ndn/

Take-home message

- Prepending names with the AS numbers or organization IDs (OIDs) of the corresponding content producers, and then applying hyperbolic greedy routing in the AS/OID graph (Map-Encap), will work efficiently
- Any workable ideas about routing directly on names are still welcome 😊

To do or not to do?

- Is the WWW hyperbolic and navigable?
 - The Web is closest to a “future NDN content space”
- Showing that it is hyperbolic will further support our claims that the NDN name space will likely be hyperbolic
- This is necessary but not sufficient condition!
 - What are the relationships between this namespace and “routerspace” (router topology)???
 - How can routers compute their coordinates in the namespace using only local information???
 - Should we do simulations or some “content flow” modeling to relate the two spaces???

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