Scalable Web Page Entanglement

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Outline:

• Problems with existing web

• Web page entanglement via proxies

• Making it scalable
Problems with existing web

- One-way links:
  Page $A$ links to page $B$, but $B$ does not link to $A$

- Static links:
  Owner of Page $A$ must explicitly add/remove link to page $B$
  $\Rightarrow A$’s owner must know about $B$ and decide $B$ is relevant

- Ignores web usage patterns

- Broken links?
  —Fragile links are the key to the web’s scalability
  —We are not trying to fix this “problem”
Web page entanglement via proxies

- Web-based proxy filters pages (like Google Translation)
- Wraps links to point back to proxy
- Tracks popular entry and exit links
- Tracks association links
  — What pages do users associate with this page?
  — Links between pages that do not link each other at all
  — Search to exit or URL to exit
Making it scalable

- Goal: Add and remove proxies dynamically
- Each page delegated to an expert proxy
- Hash page URL, hash proxy name, find closest proxy
- Wrap links so that closest proxy handles them
- Proxies learn about each other over time
Advantages

• Simple

• Works with existing browsers and servers

• Other approaches for web augmentation used modified browsers and servers

• Link maintenance automatic