Problems addressed

• Public content should not be censored by ambient powers

• Publishers and readers of public content need anonymity

• Users need full, easy, uniform access control over their private data regardless of application (Flickr, Facebook, etc.)

• Users must be able to exchange private data in privacy
The twist

• And yet, third-parties should be able to write applications (akin to Flickr, Facebook, etc.) to help you leverage your private data
Tonika is a platform

Links exist only between friends. Communication is authenticated and encrypted.

Bob
http://xyz123.5ttt.org

Alice
http://abc678.5ttt.org

Third-party App

Tonika
Networking/API stack

- **Applications**
  - Social DB API
  - Social Web API
  - Web server, cache, smart fetching
  - User DB with access control

- **Transport API**
  - Reliable and secure transport
  - Point-to-point, multi-case, etc.
Transport API — Security

(i) End-to-end authentication
(ii) Secure against eavesdropping
(iii) Endpoint anonymity

Anonymity = Assured connection between xyz123 and abc567, but real identities unrevealed.
Transport API — Load balance

Utilize all network links evenly, for maximum network throughput

Multiple paths for speed and resilience

Achieving load-balance in real-time is our IP edge. Scales to billions!
Web API — Serving, caching, fetching

Automatic caching

Steve Caching

Ricky Serving

Karl Browsing

Alice Browsing

Background fetching of large files (in chunks, from multiple locations), similar to BitTorrent
Db API — Access control, decoupling

**Flickr App Metadata**

- UserID= xyz123
- UserID= abc567
- UserID= tuv789
- UserID= fgh543

**PictureIDs**

- ewe31
- de323
- 434sw
- ...

**Flickr App Data**

- ewe31
- de323
- 434sw

- Data never leaves the system
- Decouple meta from data
- Access control, user decides:
  - Which data can leave node or app
  - How far it can travel
Cloud-style hosting

Cloud provider runs your Tonika node and safeguards your data. You pick who you trust.

.. or run your node from home.

Access your node from your home machine, ..
Lift-off application

Long-range connections are powerful, but ..
.. they come to play when the network matures.

In the mean-time, users need an adoption incentive.

Imagine a Twitter-like app, where:

• Can embed files in tweets = file-sharing with a comment,
• Re-tweeting = file-sharing with links,
• Keep your identity anonymous (if you want)
• Sets up the stage for a PageRank search engine
• Creates incentives for making long-range connections!
Some businessy stuff

• The Transport API (and some Web API) is operational and tested. Alpha usable. Everything in Google Go.

• For the rest, we need angel-scale investment

Todo:
• Web API, Mac/Win UI and installer, NAT/Firewall punch, lift-off app

• Kickstarter.com does not want us. Why?