



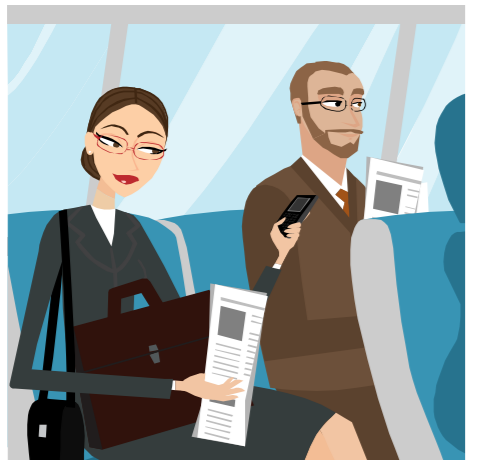
Proximity social interactions

WHY?

Often we want to know answers to questions like:



Who can I share my ride with?



Can I connect to Internet via someone's phone WiFi hotspot?



Do I know anyone here?

WHAT?

Ways to find **social path lengths** to people nearby can help. But any solution must ensure:

SECURITY AND PRIVACY

- **Authenticity:** no false claims possible
- **Privacy:** no leakage of additional information

PERFORMANCE AND USABILITY

- Time and energy-efficient operations
- Applicable in mobile scenarios

DEPLOYABILITY

- Easy integration with existing social networks

HOW?

BOOTSTRAPPING FROM SOCIAL NETWORKS

Take advantage of existing online social networks:

- Single Sign-On and OAuth
- Social graph of a person
- **Specify access policies using social relationships**

But don't cede them any more personal information!

PEERSHARE

Distribution of sensitive data among social contacts:

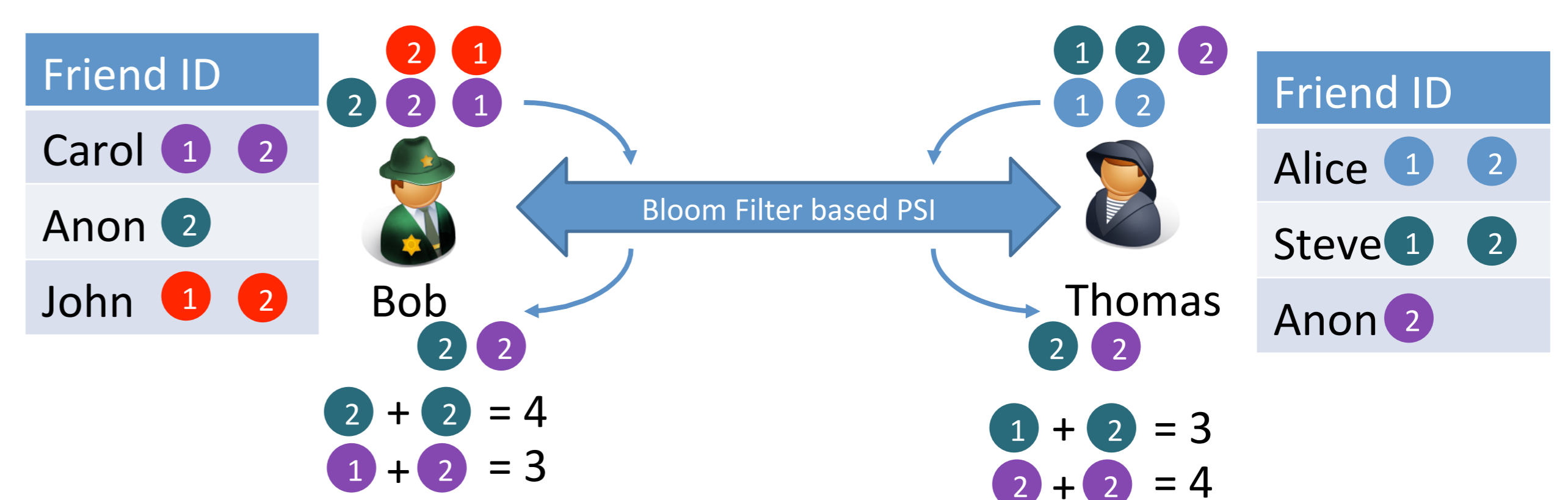
- User can specify authorized recipients intuitively
- Different types of protection supported
- User and application access control enforced
- **Android implementation with simple to use API***

FINDING SOCIAL PATH LENGTHS

1. Friendship relation represented by a random **token**
2. Use PeerShare to distribute friendship token:



3. **Higher order tokens** represent longer social paths
 - Cryptographic hashing to derive higher order tokens
4. Use Private Set Intersection (PSI) on token sets to find social path lengths:



$$D(\text{Bob}, \text{Thomas})=3$$

- PSI using Bloom filters improves efficiency
- **SW framework to abstract crypto complexity away***

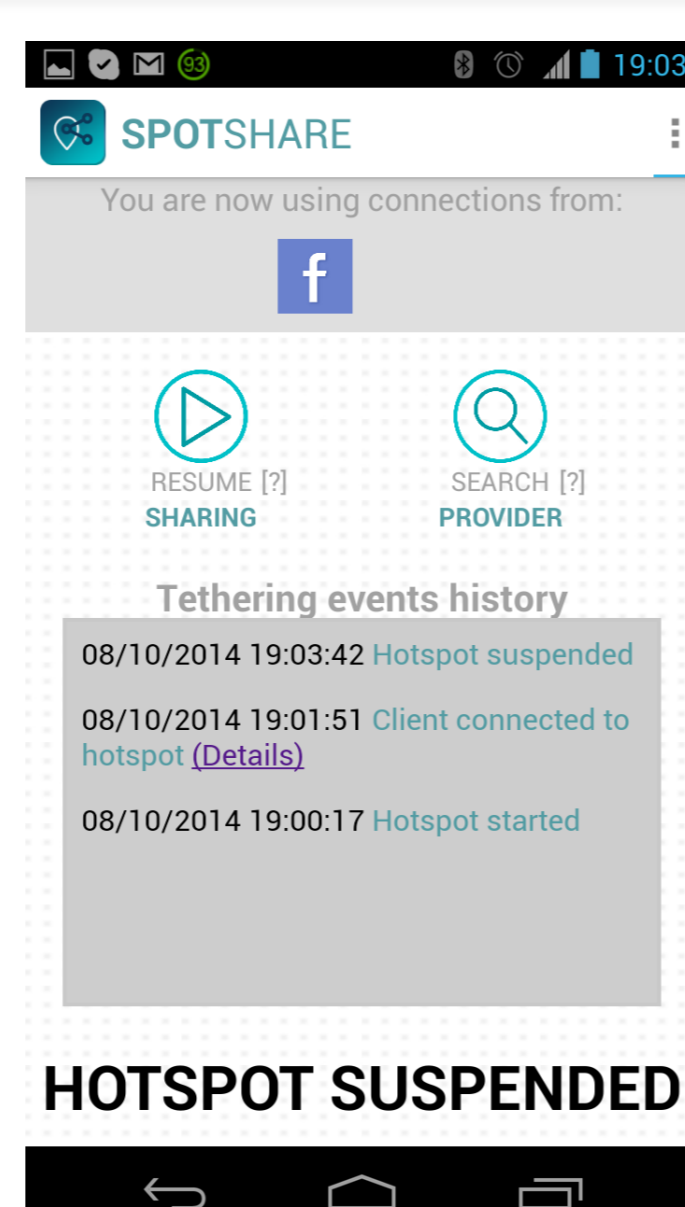
APPS

SpotShare



Share Internet connectivity with your friends and their friends.

SpotShare: share the spot on the spot



nearbyPeople

Discover and chat with people around you

