AtLongLat!

Location aggregation and developer platform

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Abstract

AtLongLat lets users share their location, from many devices, with web services via a developer platform focused on privacy and security.

Motivation

Consumers
- Aggregate location from devices
- Manage privacy and access
- Broadcast location securely

Developers
- Standard API to query location
- Abstract privacy settings
- Develop independent of device

Features

Location API
- Source / application requests via http
- OAuth authentication

Privacy settings
- Blackout range management
- User & application level options
- Proximity obfuscation

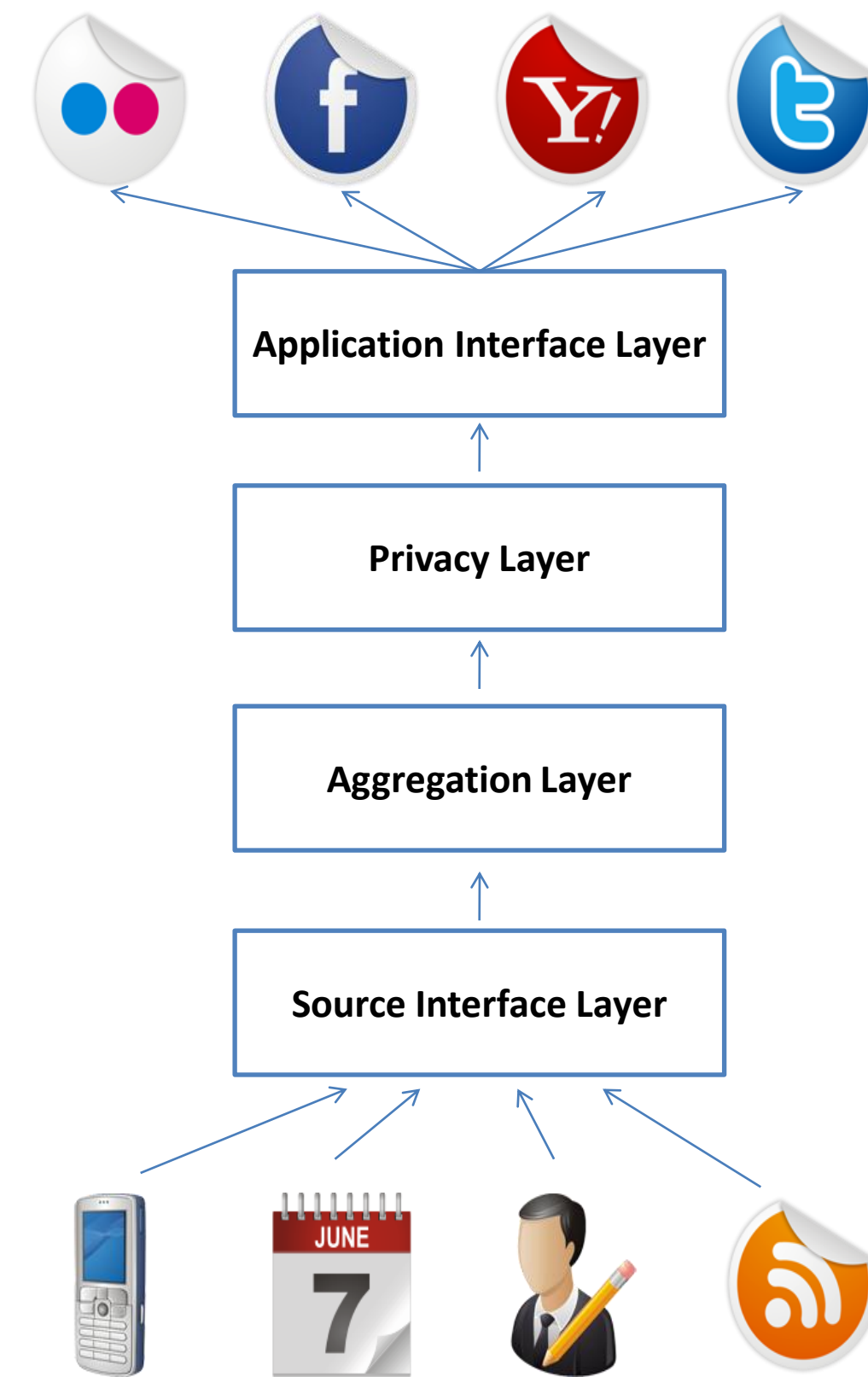**Consumer portal**
- Source, application, and privacy interfaces

Developer portal
- Application registration
- Application gallery

Aggregator
- Plug-in architecture
- Automatic recalculation

Architecture

Design Goals

Modularity
- Plug-in architecture for aggregation
- Rapid development on independent layers
- Extensible privacy framework

Abstraction
- Abstract implementation details from other layers and 3rd parties
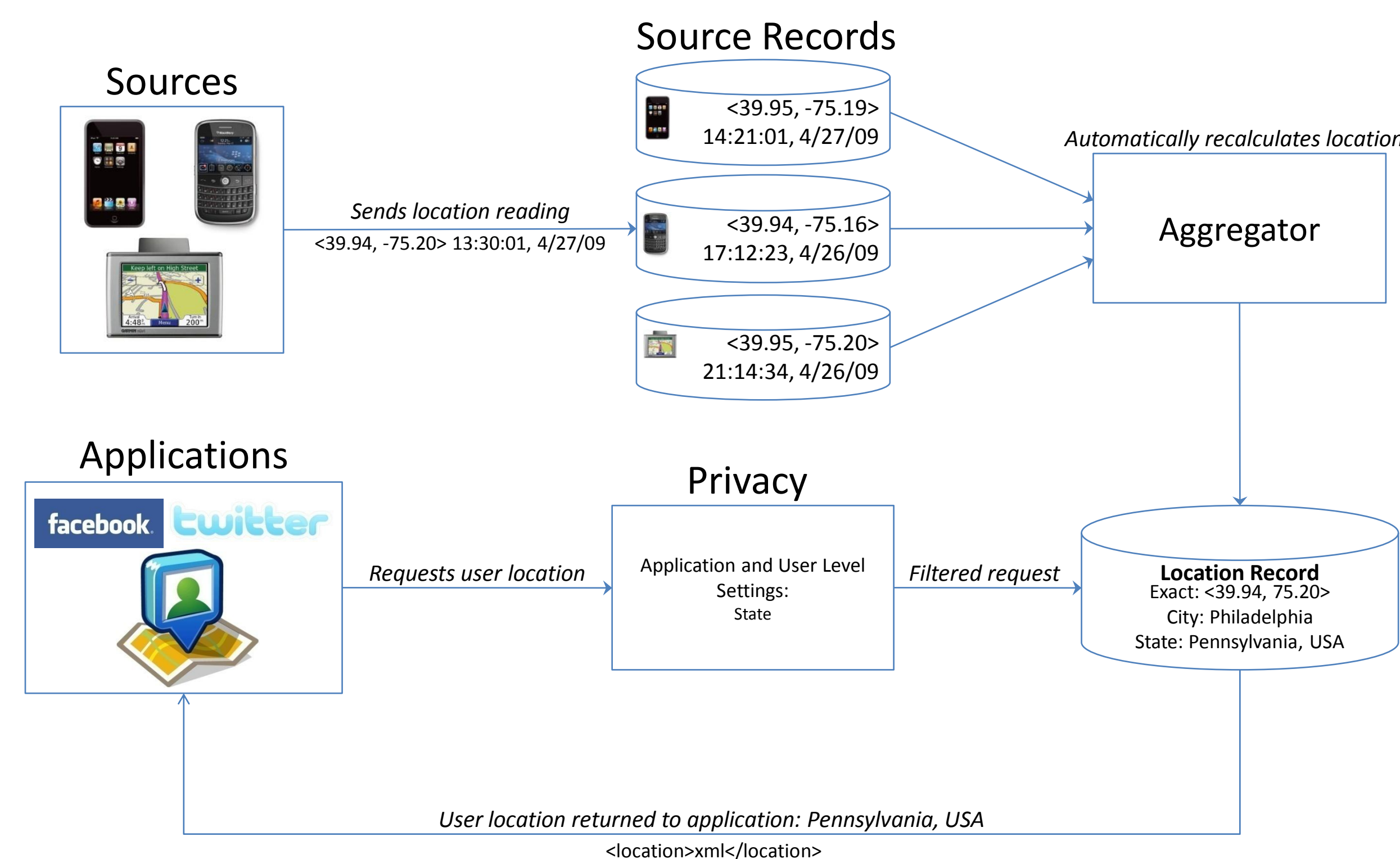- Mapping database models to Python classes

Security
- Standard secure protocols to 3rd parties via API
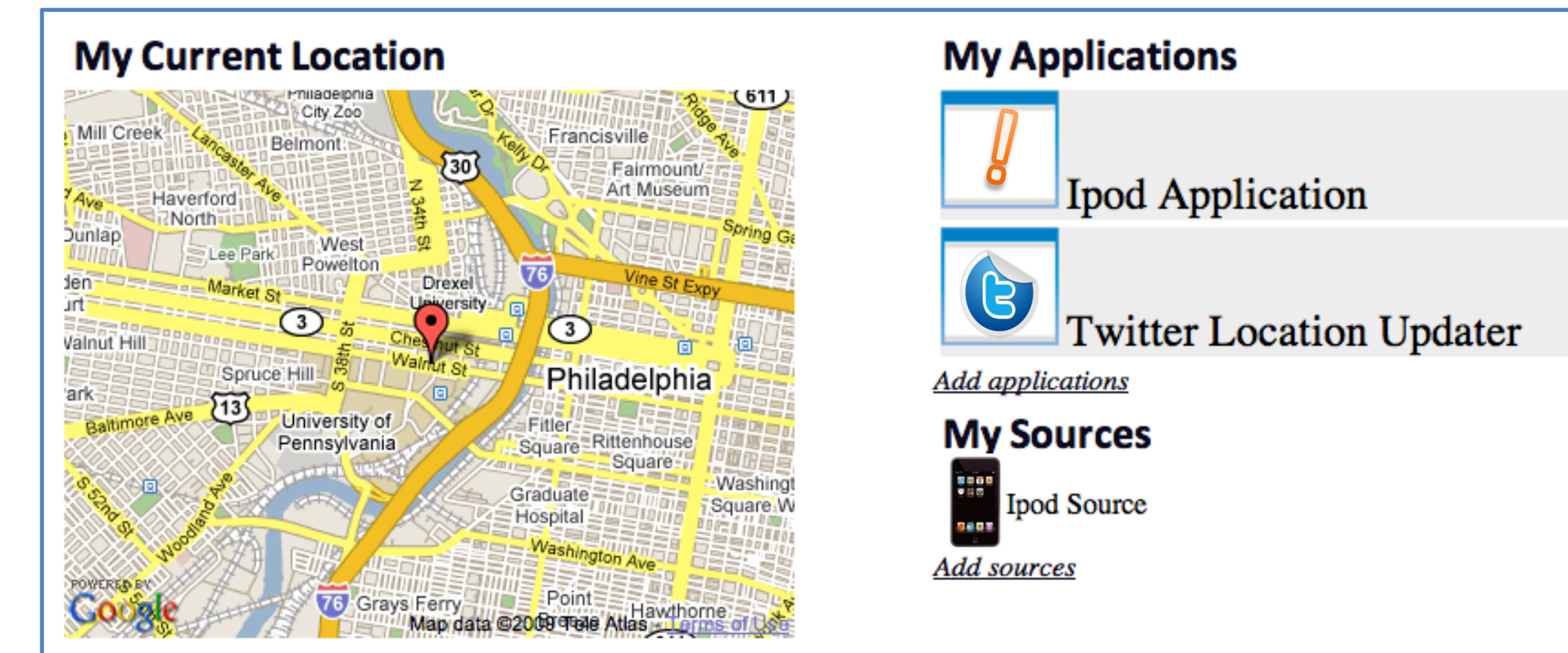- Handshake mechanism for authentication

Testing
- Test implementations given standard interfaces
- Generate data simulating device readings

System Design

Screenshot

AtLongLat! home page for a logged in user with 2 applications and 1 source.

3rd Party API Examples

1. AtLongLat iPhone application sends and receives a user's location to and from the server
2. AtLongLat Updater authenticates and updates a user's location to the Twitter service

Conclusion

Designed and implemented a location brokering service to solve:
- location aggregation needs
- device independent location queries
- privacy issues of broadcasting