OpenTrip: An Open Protocol for the Interchange of Travel Information Among Rideshare Providers

(and other services…)

Carl Gorringe

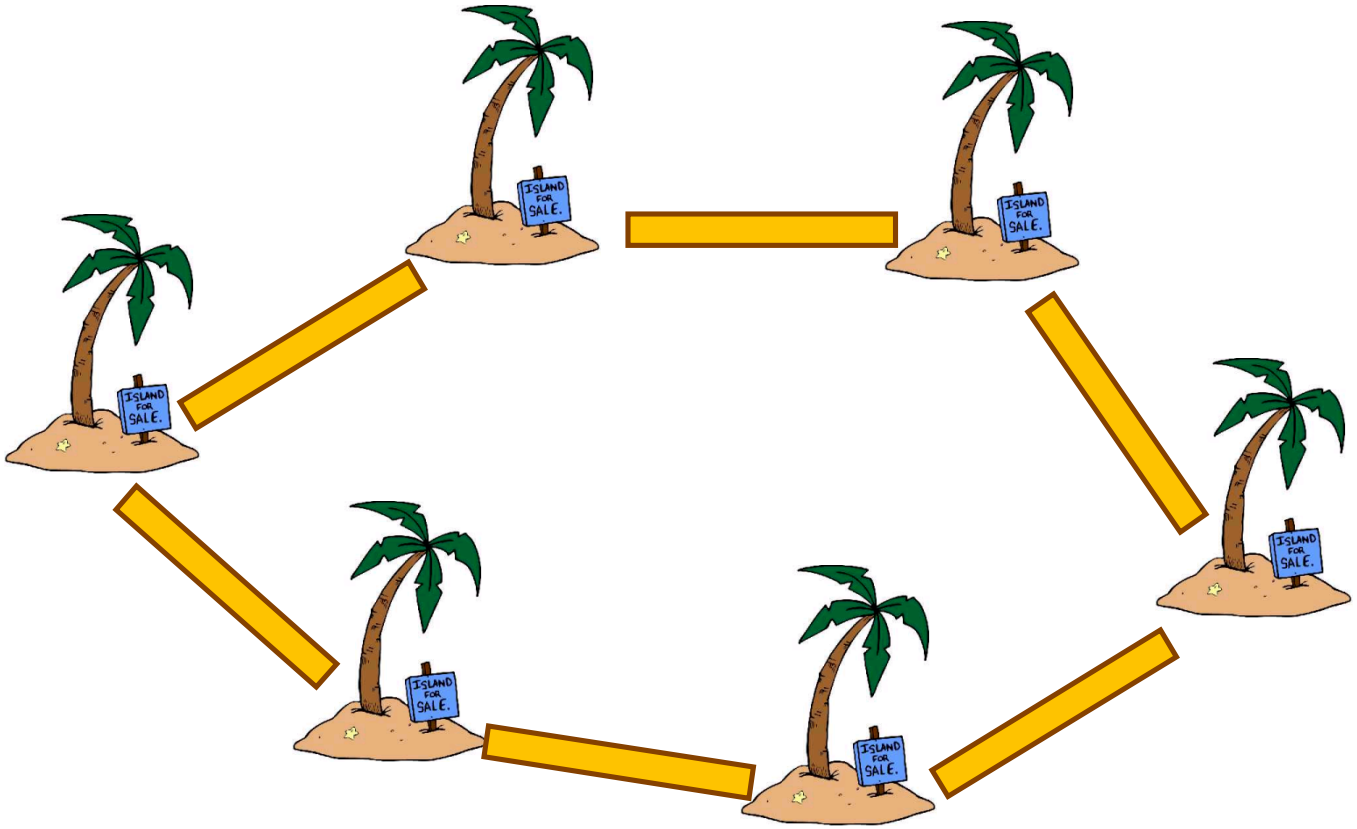
511.org Rideshare
gotalift.com

Real-Time Rides
MIT/CMU Workshop, Boston
April 16-17, 2009

Rideshare services today

A multitude of rideshare providers,
each one on their own separate island…

Rideshare services tomorrow



Let's build some bridges!

Nice in theory but…

- Why should one service share its data with its competitor?
- Is there a good business case?
- Will this help solve, or at least get us closer to solving, the “critical mass” problem?

What Data?

There are 2 basic pieces of data required for a ride match:

What Data?

There are 2 basic pieces of data required for a ride match:

1.

Location &
Time of Trip

What Data?

There are 2 basic pieces of data required for a ride match:

1. Location & Time of Trip

2. Means of Contacting Users

What Data?

- Both pieces are required or else a ride match won't work.

What Data?

- Both pieces are required or else a ride match won't work.
- A ridesharing service could share just one of the two pieces of data: The location and time of the trip.

What Data?

- Both pieces are required or else a ride match won't work.
- A ridesharing service could share just one of the two pieces of data: The location and time of the trip.
- A competing service could then match riders with drivers, but would have to direct the user to the originating service to obtain the contact information.

A

20,000 trips

B

10,000 trips

C

5,000 trips

D

1,000 trips

A

20,000 trips

B

10,000 trips

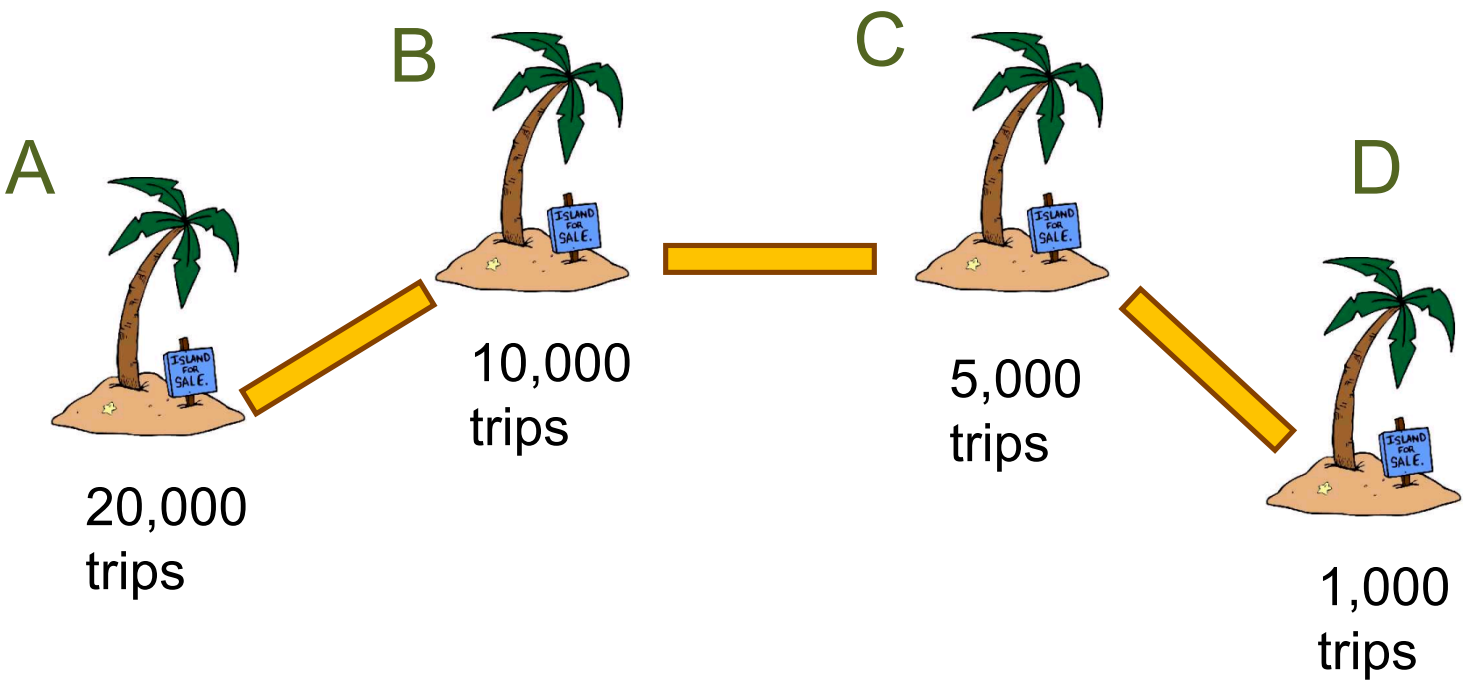
C

5,000 trips

D

1,000 trips

If a user visits C, they'll have only 5,000 trips to search against. If they don't find a match, they aren't as likely to return. Thus the "Critical Mass" problem.



But if everyone shares a data feed with everyone else, then anywhere a user searches will have 36,000 trips to search against, thus increasing the odds of finding a match and the user returning to the website.

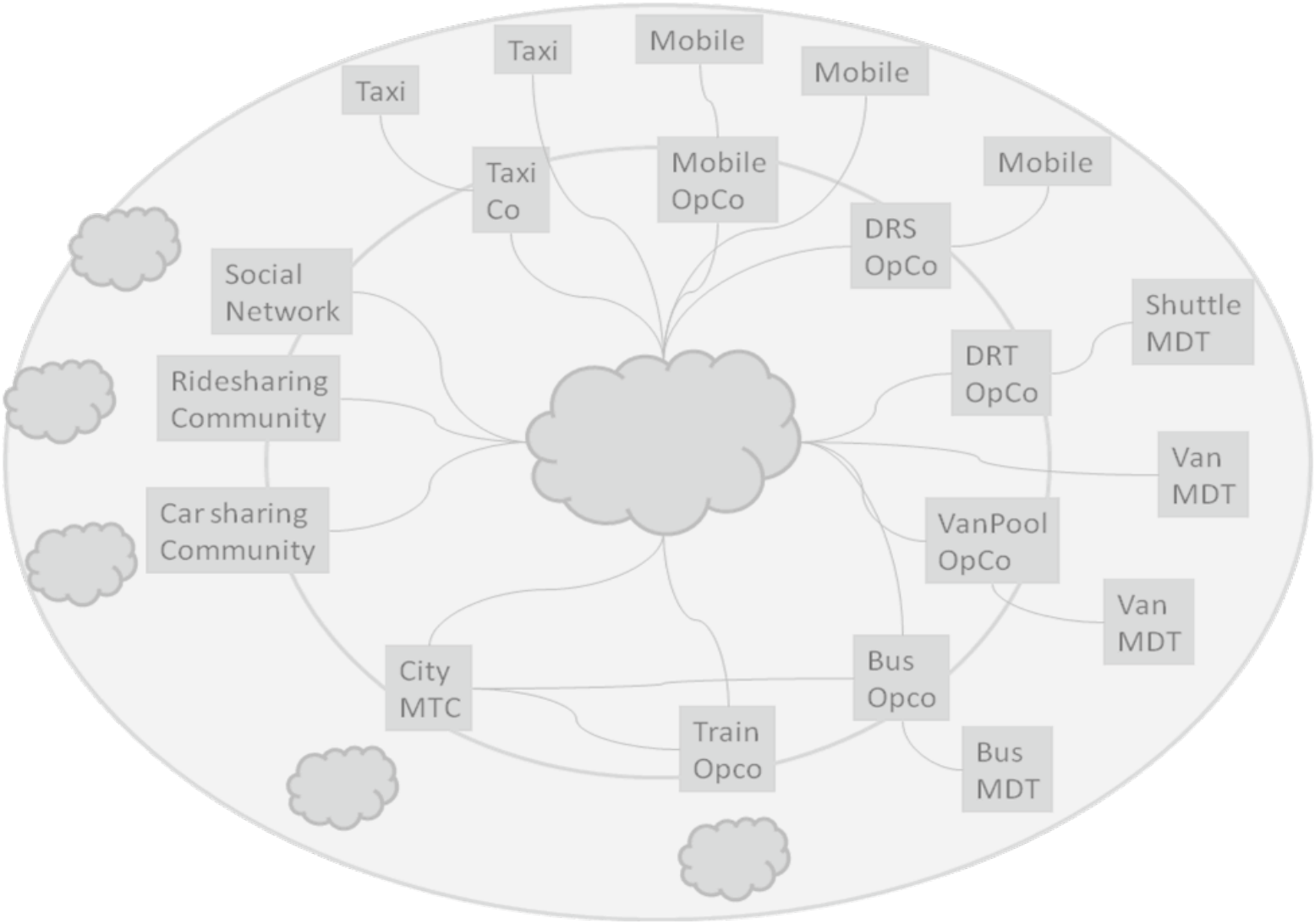
OpenTrip

- First discussed at TransitCamp Bay Area in Palo Alto, California, Feb 23-24, 2008. (we called it “TripML”.)
- A Google Group was created to continue the discussion.
- Further discussion at TransitCamp 2 in September.
- I began inviting more people to the list last Dec – Jan.

How has the collaboration worked so far?

- Well… It's been a little slow moving.
- What can we do to get more participation from the major service providers?
- Is there something wrong with the medium being used?
- Are people just too busy?
- Are there other factors keeping people from participating online? (Lawyers, for example)
- *Please help me with this!*

The Big Picture



Potential Generators and Consumers of OpenTrip

- Social ridesharing services
- Car sharing
- Travel sites
- Taxi companies
- Air Taxi operators and brokers
- Travel planning kiosks
- Calendar software
- Event sites
- Any sort of trip planner
- Any sort of research project into travel patterns
- Travel sites
- Location and Visitor Bureau sites
- Transit Agencies
- FAA, DOT, State and County Transportation Agencies

Basic Principles

- Open Standards, anyone may use.
- Openly Published.
- Distributed Architecture.
  - Avoid centralized databases and points of failure!
- Extensible for future needs.

Layers of OpenTrip

- OpenTrip Core
  - Defines the data structures for our trip data.
  - Simple mechanism of publishing as an Atom/RSS feed, useful for traditional rideshare websites.
- OpenTrip Dynamic API
  - Suited for dynamic ridesharing.
  - Real time updates, resource allocation, and messaging.

Layers of OpenTrip (cont.)

- OpenTrip Ping
  - Simple mechanism to inform a feed consumer that there is an update to the feed.
- OpenTrip Search
  - Uses OpenSearch to return a feed of ride matches from participating websites.
- Resource Discovery Process
  - How to find out what services are offered on individual servers, and a registry of all servers.

OpenTrip Core:
Minimum requirements in a data feed

1. Origin & Destination Locations, preferably as Lat / Lon coordinates.
2. Date & Time of ride, one-time or recurring.
3. User Preference: Drive, Ride, or Both.
4. A unique *Trip ID* or *Event ID.*
5. Expiration date.

OpenTrip Core:
Minimum requirements in a data feed (cont.)

6. One of either of these:
    i. For websites, a URL pointing to detailed information on source website, which would include a means to contact carpooler.

OpenTrip Core:
Minimum requirements in a data feed (cont.)

6. One of either of these:
   i. For websites, a URL pointing to detailed information on source website, which would include a means to contact carpooler.
   ii. For dynamic rides, a *Contact ID* or *User ID*, which may be used to contact the carpooler in real-time through the use of an API on the source's server.

What has been done so far…

- 1st Draft of OpenTrip Core posted at:
  http://www.opentrip.info
- Feed Consumer & Search Engine will be up and running soon at 511.org
- We're ready and willing to accept others data feeds!

An Example Feed: (looks better on the website, trust me)

```
<?xml version="1.0" encoding="utf-8"?>
<feed xmlns="http://www.w3.org/2005/Atom" xmlns:g="http://www.georss.org/georss" xmlns:t="http://opentrip.info/-/opentrip/0.1/">
  <title>Example Feed</title>
  <link rel="self" href="http://example.com/feeds/foobar.xml"/>
  <id>urn:guid:example.com:ABCDEFG</id>
  <updated>2009-01-01T01:23:45Z</updated>
  <author><name></name></author>
  <entry>
    <title>I need a ride</title>
    <link href="http://example.com/postings/123456789.html"/>
    <id>urn:guid:example.com:123456789</id>
    <published>2009-01-01T01:23:45Z</published>
    <updated>2009-01-01T01:23:45Z</updated>
    <t:expires>2009-09-01T01:23:45Z</t:expires>
    <content>I'm looking for a ride to work and back home during the week.</content>
    <t:location label="Home">
      <t:town>Oakland</t:town>
      <t:region>CA</t:region>
      <t:country>US</t:country>
      <g:point>37.774311 -122.214746</g:point>
      <t:leaves recurs="weekly" days="MTWHF" offset="30">2009-04-01T08:00:00Z</t:leaves>
      <t:returns recurs="weekly" days="MTWHF" offset="30">2009-04-01T18:00:00Z</t:returns>
    </t:location>
    <t:location label="Work">
      <t:town>San Francisco</t:town>
      <t:region>CA</t:region>
      <t:country>US</t:country>
      <g:point>37.779806 -122.419925</g:point>
    </t:location>
    <author>
      <name>John Doe</name>
      <email>john@example.com</email>
      <uri>http://example.com/profile123.html</uri>
      <t:phone label="mobile">510-555-1234</t:phone>
      <t:age>25</t:age><t:gender>male</t:gender>
    </author>
    <t:prefs>
      <t:drive/><t:nonsmoking/>
    </t:prefs>
    <t:mode kind="auto">
      <t:cost kind="USD">2.00</t:cost>
      <t:capacity>2</t:capacity>
      <t:vacancy>1</t:vacancy>
      <t:make>Tesla</t:make>
      <t:model>Roadster</t:model>
      <t:year>2009</t:year>
      <t:color>Red</t:color>
      <t:lic>ABCD123</t:lic>
```

Next Steps

Let's:

- Commit to continuing the discussion online, in whatever form we agree on.
- Make whatever changes necessary, then finalize a stable OpenTrip Core version 1.0
- Create some data feeds!
- Continue working on the Dynamic Ridesharing API.

Thank You

Carl Gorringe
511.org Rideshare
carl@gotalift.com