RESO | Internet Tracking

Chair

Chris Lambrou
CIO | Metro MLS
Okay, here's an abandoned storage locker with some random data that may or may not be useful. We'll start the bidding at $50...
Internet Tracking data is a key component for any modern day data set.

No longer is having the data secure and readily available enough.

True statistics and analytics that show overall activity and underlying value are now expected and commonplace in the software industry.
Recording End-User Events
- Object Oriented Fields
- Activity Streams & RESO Community
- CopyCat
- Live in Data Dictionary 1.6

Privacy Concerns
- MUST Be Aware of Privacy Issues in the Decision Making Process
- MUST Be Informed on Current Events Related to End-User Privacy
- SHALL Advocate Best Practices to the RESO Community In Regards to End-User Privacy

Data Transfer
- RESO Web API
- Must Be Flexible For All Parties

Summary Reports
- Required Reporting
- Lo-fi / Affective Data Merge
An Object Oriented Solution

- 49 Fields
- 68 Enumerations
- 21 Events
- 7 Objects
Internet Tracking

An Object Oriented Solution
Internet Tracking
RESO Web API/OData Examples

Detailed Views in the current year
RESO/OData/InternetTracking/?$filter=(EventType eq 'Detailed View' and Year(EventTimestamp) = 2017)

Detailed Views in the current year for one specific listing
RESO/OData/InternetTracking/?$filter=(EventType eq 'Detailed View' and Year(EventTimestamp) = 2017 and ObjectID='08123456')

Lead form submissions in the current year
RESO/OData/InternetTracking/?$filter=EventType/any(a: a eq 'Submission of Lead Form') and Year(EventTimestamp) = 2017
Privacy
As a Liability

29,000+ Data Points on Each User
Privacy

Government Regulations

GDPR

- Data Protection Officer (DPO)
- Compliance
- 25 May 2018
- Data Breaches
- Personal Data

CALIFORNIA CONSUMER PRIVACY ACT OF 2018
Privacy
Disrupting The Industry

- End-User Controlled Data Transfers
- Uses Existing Open Source Tech
- A Non-Blockchain Solution
Dev Privacy policies **must** include:

- **clear** information about what data are collected
- **how** the data are **collected**
- **how** the data is **stored**
- **what is done** with the data and how users can **revoke** their consent and **demand** that their data be **deleted**
Roomba's Next Big Step Is Selling Maps of Your Home to the Highest Bidder

Rhett Jones
7/24/17 2:05pm • Filed to: INTERNET OF THINGS

369.7K 203 7
Summary
Reports
Leading By Example

Nutrition Facts
Serving Size 2/3 cup (55g)
Servings Per Container About 8

Amount Per Serving
Calories  230  Calories from Fat 72
% Daily Value*
Total Fat 8g  12%
  Saturated Fat 1g  5%
  Trans Fat 0g
Cholesterol 0mg  0%
Sodium 160mg  7%
Total Carbohydrate 37g  12%
  Dietary Fiber 4g  16%
  Sugars 1g
Protein 3g

Vitamin A  10%
Vitamin C  8%
Calcium  20%
Iron  45%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily value may be higher or lower depending on your calorie needs.

Nutrition Facts
8 servings per container
Serving size 2/3 cup (55g)

Amount per serving
Calories 230
% Daily Value*
Total Fat 8g 10%
  Saturated Fat 1g 5%
  Trans Fat 0g
Cholesterol 0mg 0%
Sodium 160mg 7%
Total Carbohydrate 37g 13%
  Dietary Fiber 4g 14%
  Total Sugars 12g
    Includes 10g Added Sugars 20%
Protein 3g

Vitamin D 2mcg 10%
Calcium 280mg 20%
Iron 8mg 45%
Potassium 235mg 6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.
# Summary Reports

Meet The Buckets

<table>
<thead>
<tr>
<th>Internet Tracking</th>
<th>Internet Tracking</th>
<th>Internet Tracking</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Listings</strong></td>
<td><strong>CMA/Reports</strong></td>
<td><strong>Showing Tech</strong></td>
</tr>
<tr>
<td>Total views 1,803</td>
<td>Total CMA/Reports Created 1,803</td>
<td>Total Showings Requested 1,803</td>
</tr>
<tr>
<td>Total favorited 802</td>
<td>Total CMA/Reports Ran 802</td>
<td>Total Showings Completed 802</td>
</tr>
<tr>
<td>Total shared 233</td>
<td>Total CMA/Reports Shared 233</td>
<td></td>
</tr>
<tr>
<td>Total emailed 421</td>
<td>Total CMA/Reports Email 421</td>
<td></td>
</tr>
<tr>
<td><strong>System</strong></td>
<td><strong>System</strong></td>
<td><strong>System</strong></td>
</tr>
<tr>
<td>Total logins 10,221</td>
<td>Total logins 10,221</td>
<td>Total logins 10,221</td>
</tr>
<tr>
<td>Total mobile 3,222</td>
<td>Total mobile 3,222</td>
<td>Total mobile 3,222</td>
</tr>
</tbody>
</table>
What Have You Done For Me Lately....

- Actor Fields for Fingerprint
- Collections Data for Multiple Results in One Record
- New EventTypes including Search, Modify and Exit
- PUID Support
<table>
<thead>
<tr>
<th>Tracking Class</th>
<th>Field Name</th>
<th>Description</th>
<th>Simple Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actor</td>
<td>ScreenWidth</td>
<td>The screenwidth, in pixels, of the Actor's device</td>
<td>Number</td>
</tr>
<tr>
<td>Actor</td>
<td>ScreenHeight</td>
<td>The screenheight, in pixels, of the Actor's device</td>
<td>Number</td>
</tr>
<tr>
<td>Actor</td>
<td>ColorDepth</td>
<td>The colordepth of the Actor's device display</td>
<td>Number</td>
</tr>
<tr>
<td>Actor</td>
<td>TimeZoneOffset</td>
<td>The timezone offset is the difference, in minutes, between UTC and local time.</td>
<td>Number</td>
</tr>
<tr>
<td>Actor</td>
<td>PluginList</td>
<td>A list of plugins listed in the Actor's browser</td>
<td>Collection</td>
</tr>
</tbody>
</table>

Object

<p>| ObjectCollection | A dataset that includes more than one identifiable object. For example - all the listing ID's that were the result of a search. | Collection       |</p>
<table>
<thead>
<tr>
<th>Lookup</th>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EventType</td>
<td>Exit Detailed View</td>
<td>The actor left the detailed view</td>
</tr>
<tr>
<td>EventType</td>
<td>Object Modified</td>
<td>The tracking Object was modified in some way.</td>
</tr>
<tr>
<td>Event Type</td>
<td>Search</td>
<td>The tracking Object is data is part of a search and will contain more than one result. Normally, the search result data will be presented in the ObjectCollection field and include ALL the listings that were part of the search.</td>
</tr>
<tr>
<td>ObjectType</td>
<td>Photo</td>
<td>The Object of the tracking event is a Photo.</td>
</tr>
<tr>
<td>ObjectType</td>
<td>Document</td>
<td>The Object of the tracking event is a Document.</td>
</tr>
<tr>
<td>ObjectType</td>
<td>Virtual Tour</td>
<td>The Object of the tracking event is considered a Virtual Tour.</td>
</tr>
</tbody>
</table>
### RESO | Internet Tracking

<table>
<thead>
<tr>
<th>ObjectIDType</th>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PUID</td>
<td>When no listing exists and the tracking property centric, the RESO PUID is being used.</td>
</tr>
<tr>
<td>ObjectIDType</td>
<td>ListingKey</td>
<td>The ObjectID is a key field from an MLS system.</td>
</tr>
<tr>
<td>ObjectIDType</td>
<td>ListingKeyNumeric</td>
<td>The ObjectID is a numeric key field from an MLS system.</td>
</tr>
<tr>
<td>ObjectIDType</td>
<td>OpenHouseKey</td>
<td>The ObjectID is the key of an Open House record.</td>
</tr>
<tr>
<td>ObjectIDType</td>
<td>OpenHouseKeyNumeric</td>
<td>The ObjectID is the numeric only key of an Open House record.</td>
</tr>
<tr>
<td>ObjectIDType</td>
<td>OpenHouseKey</td>
<td>When the event is the execution of a saved search, the ObjectID will be the SavedSearchKey or SavedSearchKeyNumeric from the system that executed the search. Individual listings from the result set or being viewed would be separate events for each record.</td>
</tr>
</tbody>
</table>
Fingerprint
# Collections

<table>
<thead>
<tr>
<th>Listing #</th>
<th>Grouped #</th>
<th>DOM</th>
<th>ListPrice</th>
<th>SoldPrice</th>
</tr>
</thead>
<tbody>
<tr>
<td>0U812</td>
<td>-</td>
<td>100</td>
<td>$330,500</td>
<td>$320,000</td>
</tr>
<tr>
<td>AC046</td>
<td>1,433</td>
<td>30</td>
<td>$350,000</td>
<td>$340,000</td>
</tr>
<tr>
<td>5Y692</td>
<td>1,233</td>
<td>53</td>
<td>$375,000</td>
<td>$350,000</td>
</tr>
</tbody>
</table>

```json
{
    "EventType": "Search", "EventDescription": "Search for RE Listings", "EventTimestamp": "2018-02-14T17:38:38+00:00",
    "ActorType": "Consumer", "ObjectType": "Listing", "ObjectID": "",
    "ObjectCollection": [
        {
            "listingID": "56786" }, { "listingID": "54465" }, { "listingID": "58876" },
        { "listingID": "57789" }, { "listingID": "50598" }, { "listingID": "51512" },
        { "listingID": "52525" }, { "listingID": "56565" }, { "listingID": "54321" },
        { "listingID": "57890" }, { "listingID": "57589" }, { "listingID": "52521" }
    ]
}
```
Agenda 10/17/2018

- Summary Reports
  - BLANK vs 0 vs N/A? OR Self-regulation?
- Implementation
  - What's the bottleneck? Too Complicated? Transport? Cost?
  - White paper solution, Webinar, 101 Discussions
- Standard Tracking Pixel
  - Can we define a standard tracking method?
- Blockchain Ledger
  - Can we define the playground for this future tech in tracking? Transparent, Secure = Privacy
- Direction From the Floor…
### Summary Reports

**BLANK vs 0 vs N/A? OR Self-regulation?**

<table>
<thead>
<tr>
<th>-Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>The workgroup has approved to break down Real Estate products into <strong>category buckets</strong> by type of service and the first set of analytics for each.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>-Vision</th>
</tr>
</thead>
<tbody>
<tr>
<td>The <strong>Summary Report</strong> would serve to solve the following needs:</td>
</tr>
<tr>
<td>- A consistent way for organizations to compare tracking in RE products by category</td>
</tr>
<tr>
<td>- A best practice for insight on tracking data</td>
</tr>
<tr>
<td>- A way to promote RESO and the value of industry standards</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>-Playground</th>
</tr>
</thead>
<tbody>
<tr>
<td>The <strong>Summary Report</strong> would need to follow these playground rules:</td>
</tr>
<tr>
<td>- Be flexible enough to cover various Real Estate products and platforms</td>
</tr>
<tr>
<td>- Be concise and not bloated with overwhelming information</td>
</tr>
<tr>
<td>- Allow for products to provide analytics in more than one category</td>
</tr>
</tbody>
</table>

### Internet Tracking

#### Listings
- Total views: 1,803
- Total favorited: 602
- Total shared: 233
- Total emailed: 421

#### System
- Total logins: 10,221
- Total mobile: 3,222

#### CMA/Reports
- Total CMA/Reports Created: 1,803
- Total CMA/Reports Ran: 802
- Total CMA/Reports Shared: 233
- Total CMA/Reports Email: 421

#### Showing Tech
- Total Showings Requested: 1,803
- Total Showings Completed: 802

#### System
- Total logins: 10,221
- Total mobile: 3,222
Implementation of the Internet Tracking solution has not been linear. Why? What’s the bottleneck?

Too Complicated?

Transport?

Cost?

There isn’t a high demand for the transfer of this information?

????
The group has decided to conduct a group effort in the creation of white papers that better define the Internet Tracking solution and the ROI of analytics in the real estate industry.

Call for White Paper topics.

ROI of Analytics in the REal world?

Deep-dive in Internet Tracking?

????
Tracking Pixel

Can we define a standard tracking method?

Can/should we define a RESO standard method for tracking end user activity?

Can/should we create the RESO pixel?

What about a tracking cookie standard?

Anyone want to lead the charge - conduct research and report back to the group? Sub-committee?

For reference: https://en.ryte.com/wiki/Tracking_Pixel
Important Facebook Pixel Update

Hi Chris,

On October 24, Facebook will begin offering businesses a first-party cookie option with the Facebook pixel. This change is in line with updates made by other online platforms, as use of first-party cookies for ads and site analytics is becoming the preferred approach by some browsers.

Businesses have long relied on cookies to serve ads to relevant audiences and understand visits to their sites. Up until now, Facebook has used its pixel — powered by third-party cookies — for website analytics, ad targeting, and ad measurement. This new option will also help advertisers, publishers, and developers continue to get accurate analytics about traffic to their websites.

Businesses can opt out of first-party cookies by updating their pixel settings in Events Manager.

The controls people have over ads on Facebook in Ads Preferences will not change. Our Business Tools Terms also still require businesses to clearly disclose how they use cookies and share data collected on their sites with third parties, so we recommend businesses review their cookie-related disclosures. To learn more about this update, visit the Help Center.
Blockchain Ledger

Can we define the playground for this future tech in tracking? Transparent, Secure = Privacy

Blockchains are essentially databases with some inbuilt pre-agreed technical and business logic criteria, kept in sync via peer-to-peer mechanisms and pre-agreed rules about what new data can be added.

Transparent data is good for privacy.

Secure data is good for privacy.

Immutable solution may hinder privacy trends (transfer and removal of records)

With respect to immutability, there are two key ideas that help to make tampering easy to detect: hashes and blocks.
Agenda
10/17/2018

 Direction From the Floor…
Thank You Workgroup Members!!!

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