

# Internet Tracking



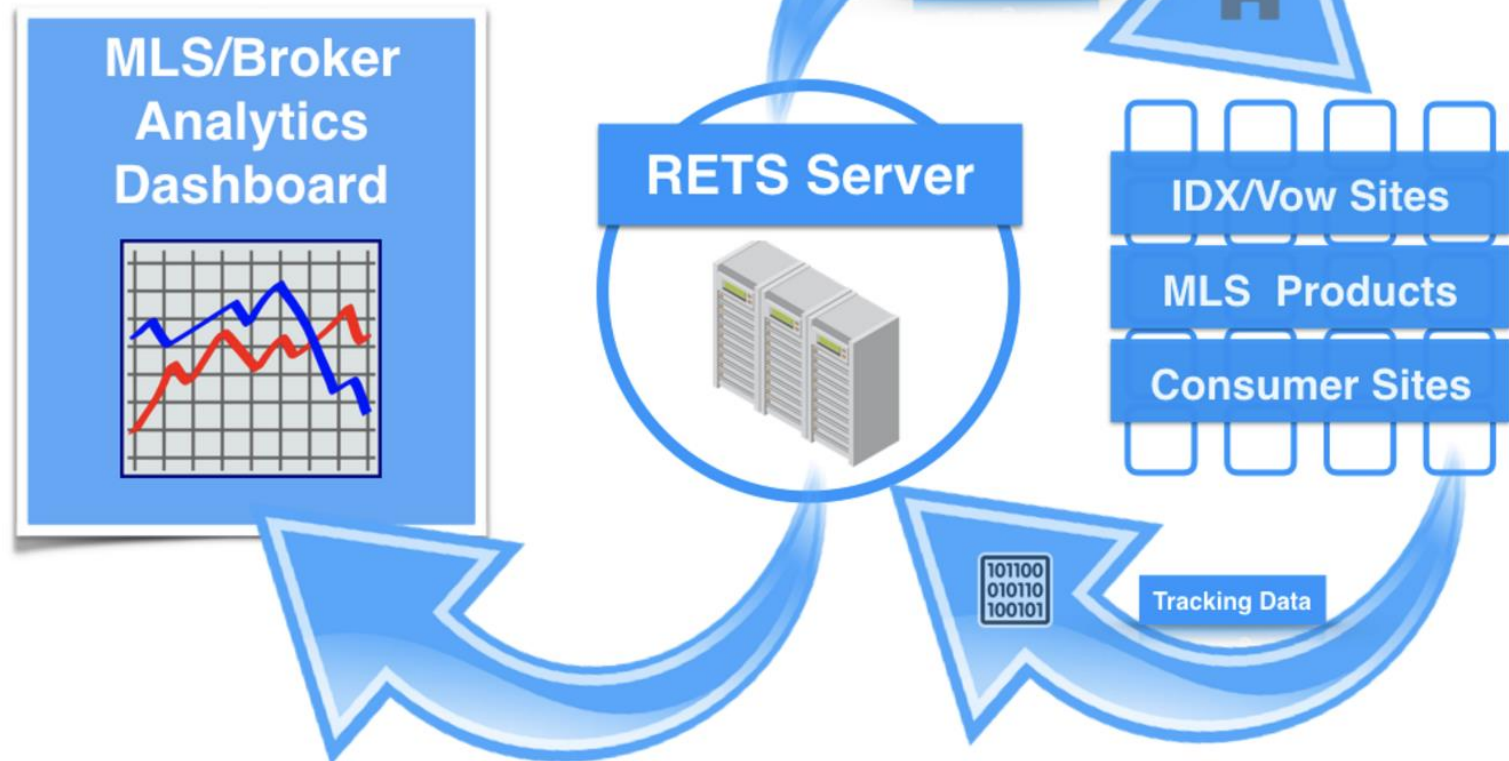
*Chris Lambrou*

Chair

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@TechBrou

# The Goal



# The Goal



# Current Trends



Google Analytics



OBJECT  
ORIENTED  
PROGRAMMING



# The Model

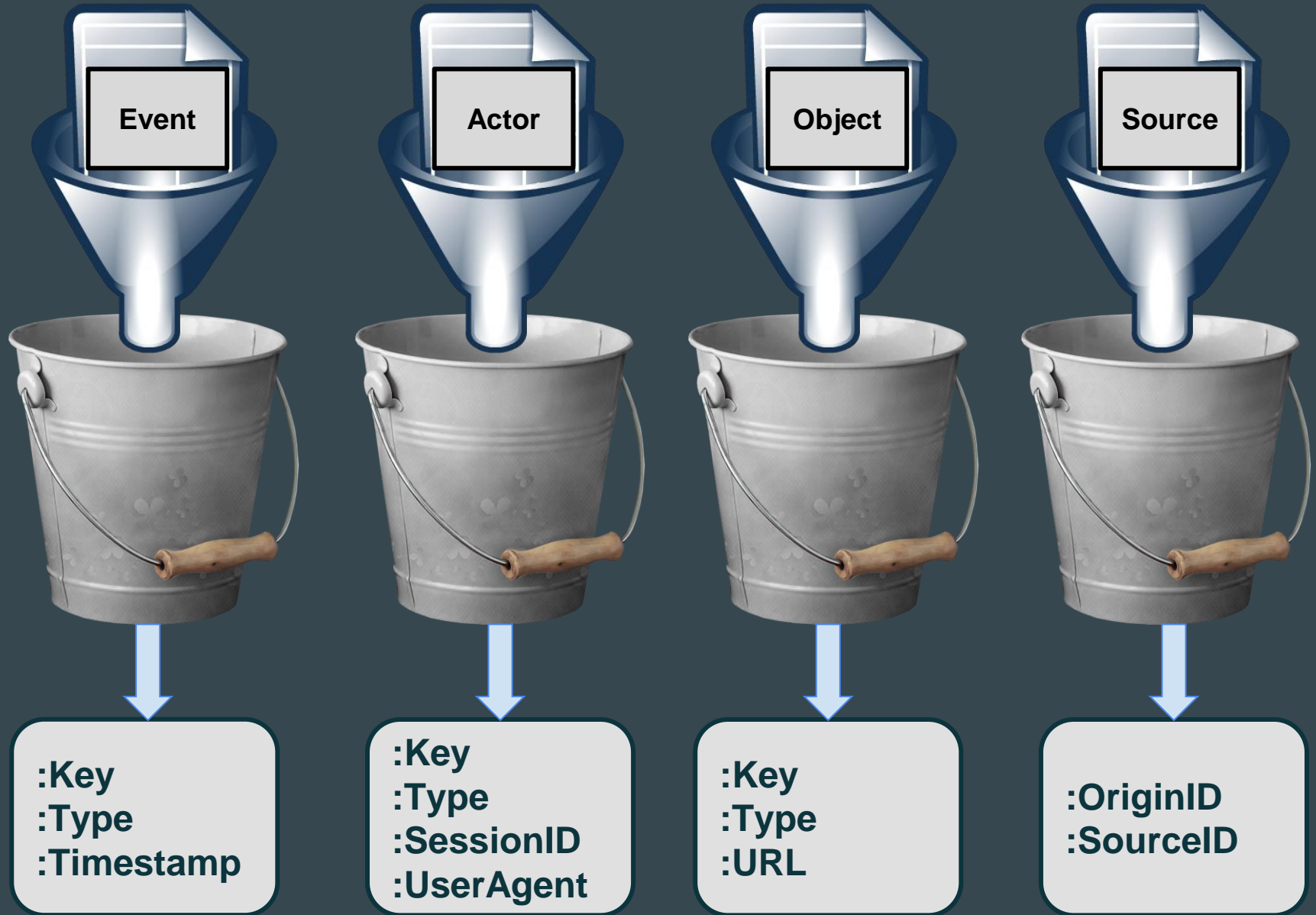
...

# Tracking Data Buckets





# Tracking Data Buckets



# Use of Tracking Data

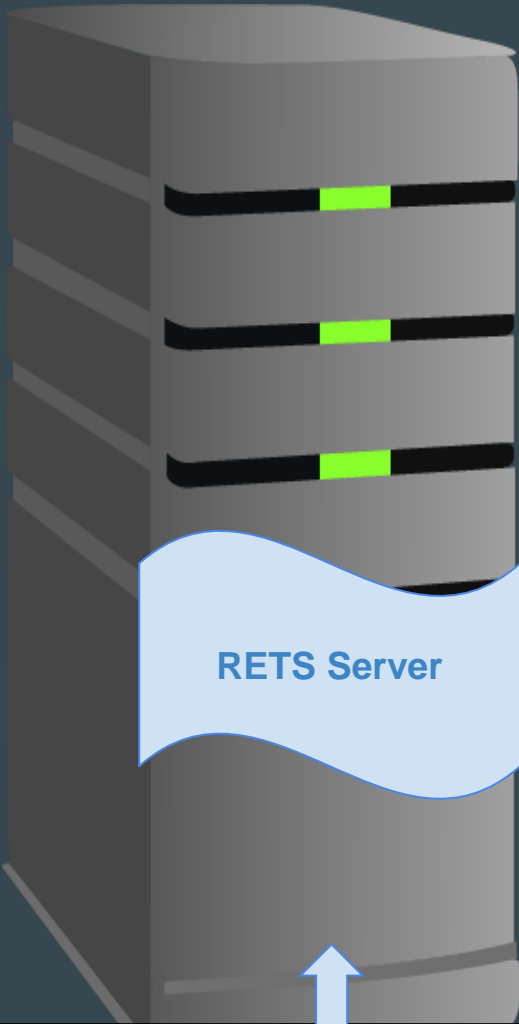
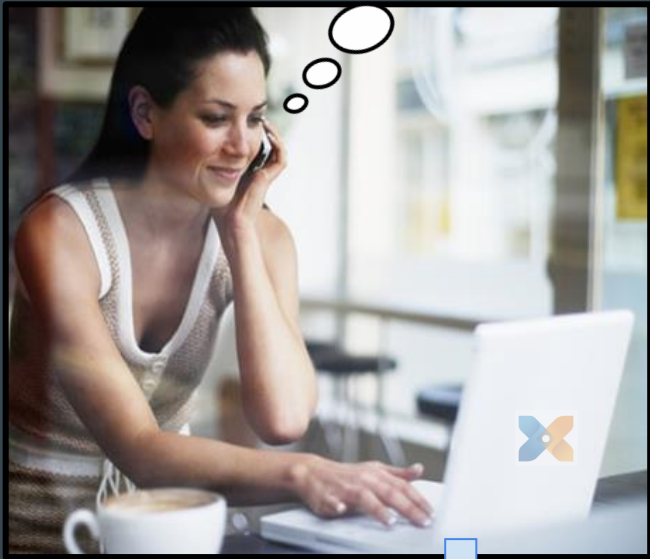




# Tracking Examples

...

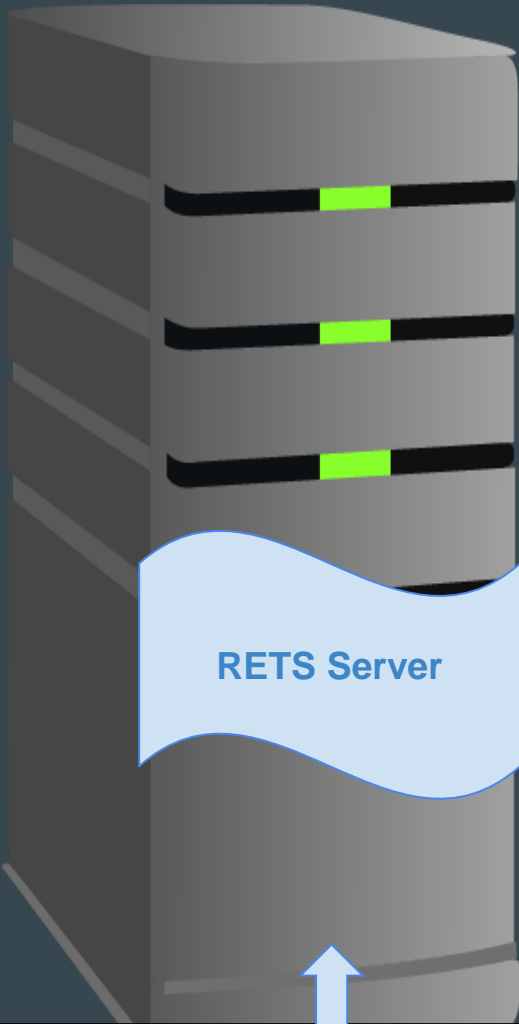
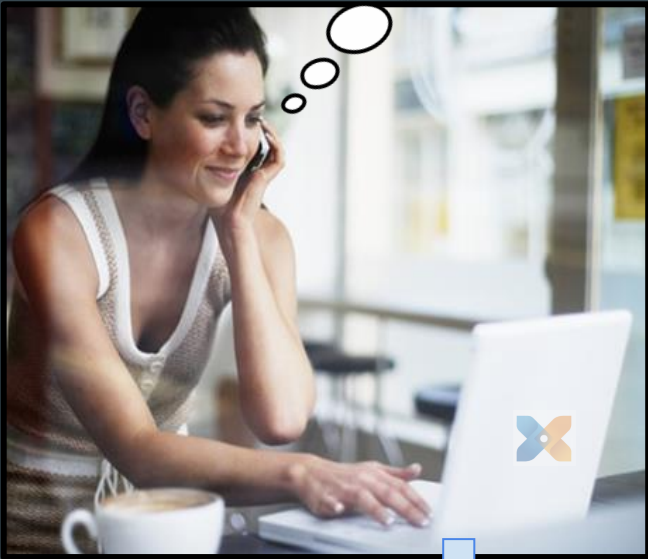
# Event = Listing View



## Listing View Tracking Data

| EventTimestamp | EventType | ActorType | ObjectType | ObjectID | ObjectIDType |
|----------------|-----------|-----------|------------|----------|--------------|
|                |           |           |            |          |              |

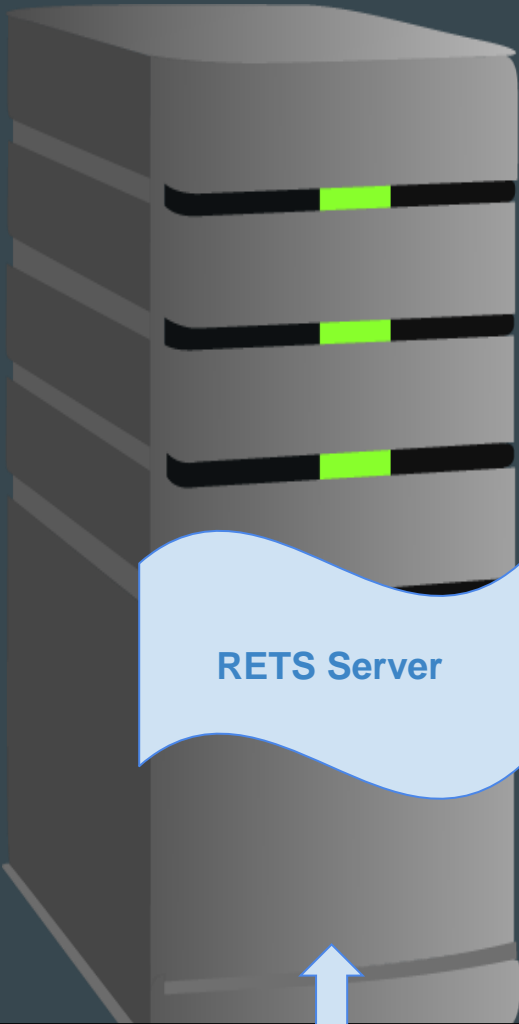
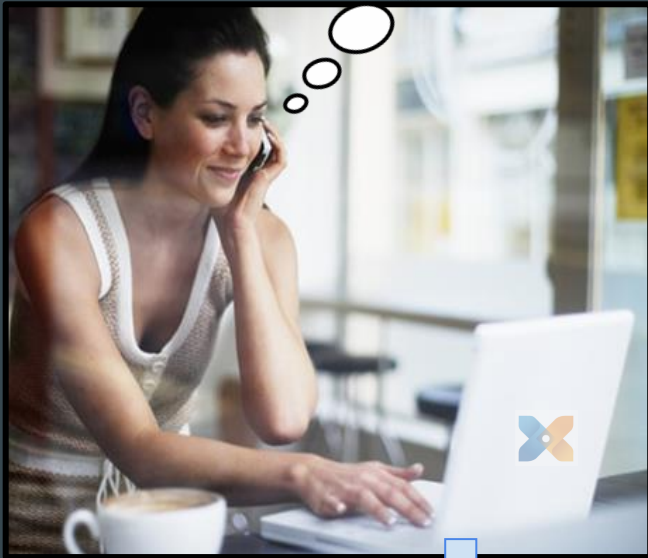
# Event = Open House View



| Open House View Tracking Data |           |           |            |                        |               |
|-------------------------------|-----------|-----------|------------|------------------------|---------------|
| EventTimestamp                | EventType | ActorType | ObjectType | ObjectID               | ObjectIDType  |
| 2017-02-05T13:15:30Z          |           |           | Open House | 67FH434FG<br>11GUID123 | Open House ID |

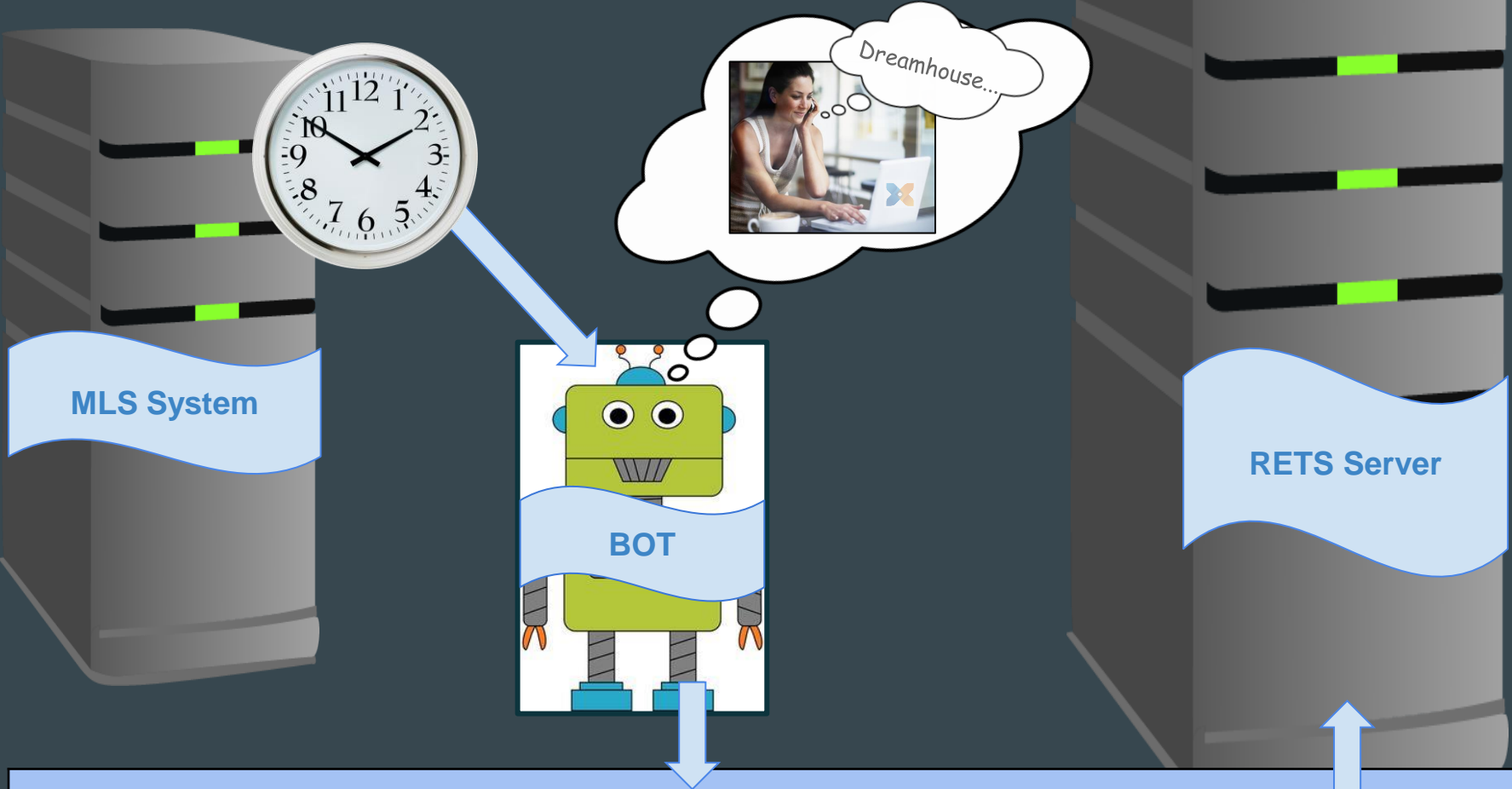
# Event = Saved Search Ran

Dreamhouse=4 beds  
above ground+school  
district=20+subdiv=fancy



| Saved Search Ran Tracking Data |            |           |              |                        |                  |
|--------------------------------|------------|-----------|--------------|------------------------|------------------|
| EventTimestamp                 | EventType  | ActorType | ObjectType   | ObjectID               | ObjectIDType     |
| 2017-02-05T13:15:30Z           | Object Ran |           | Saved Search | 89CD434FG<br>11GUID123 | Saved Search Key |

# Event = Saved Search Ran (BOT Remix)



## Saved Search Ran Tracking Data

| EventTimestamp       | EventType | ActorType | ObjectType | ObjectID | ObjectIDType |
|----------------------|-----------|-----------|------------|----------|--------------|
| 2017-02-06T04:15:30Z |           | BOT       |            |          |              |

# 2017 Challenges

...



# 2017 Challenges | Transporting The Data



# 2017 Challenges | Informing RESO Community

Event

Actor

Object

Source

Attention, Attention...  
Tracking fields are  
super cool!

**NATIONAL**

| ST. LOUIS  | N | G |
|------------|---|---|
| MILWAUKEE  | 0 | A |
| PITTSBURGH |   | M |
| COLORADO   |   | E |
| HOUSTON    | N | I |
| SAN DIEGO  |   | G |
| ARIZONA    |   | 6 |
| CINCINNATI |   | 7 |
| NEW YORK   |   | 9 |
| WASHINGTON |   | 5 |
| MIAMI      |   | 2 |
| 28 CUBS    |   | 4 |

UMPIRES

PLATE 46 1ST 64 2ND 28 3RD 13

**BATTER**

BALL STRIKE

OUT

**AMERICAN**

| NEW YORK    | N | I | T | E | GAME |
|-------------|---|---|---|---|------|
| OAKLAND     |   |   |   |   | 4    |
| BALTIMORE   |   |   |   |   | 3    |
| MINNESOTA   |   |   |   |   | 0    |
| CLEVELAND   |   |   |   |   | 6    |
| TAMPA BAY   |   |   |   |   | 1    |
| LOS ANGELES |   |   |   |   | 5    |
| DETROIT     |   |   |   |   |      |
| SEATTLE     |   |   |   |   |      |
| KANSAS CITY |   |   |   |   |      |
| CHICAGO     | N | I | T | E |      |
| BOSTON      |   |   |   |   |      |

SP RP INNING 1 2 3 4 5 6 7 8 9 10

VIS HITS CUBS

RESO Tracking Fields to First 10,000 Attendees

# 2017 Challenges | Implementation



2017 Challenges | Transporting The Data

# The Tracking API

...





How do we tackle this beast?

## Use Case | *Nothing But The Facts...*





# Use Case | *Nothing But The Facts...*



RETS Server

API

Listing

Open House

Showings

Saved Search

Dashboards  
(MLS, Brokerage Firms...)



# Use Case | *Nothing But The Facts...*



# Use Case | *Nothing But The Facts...*



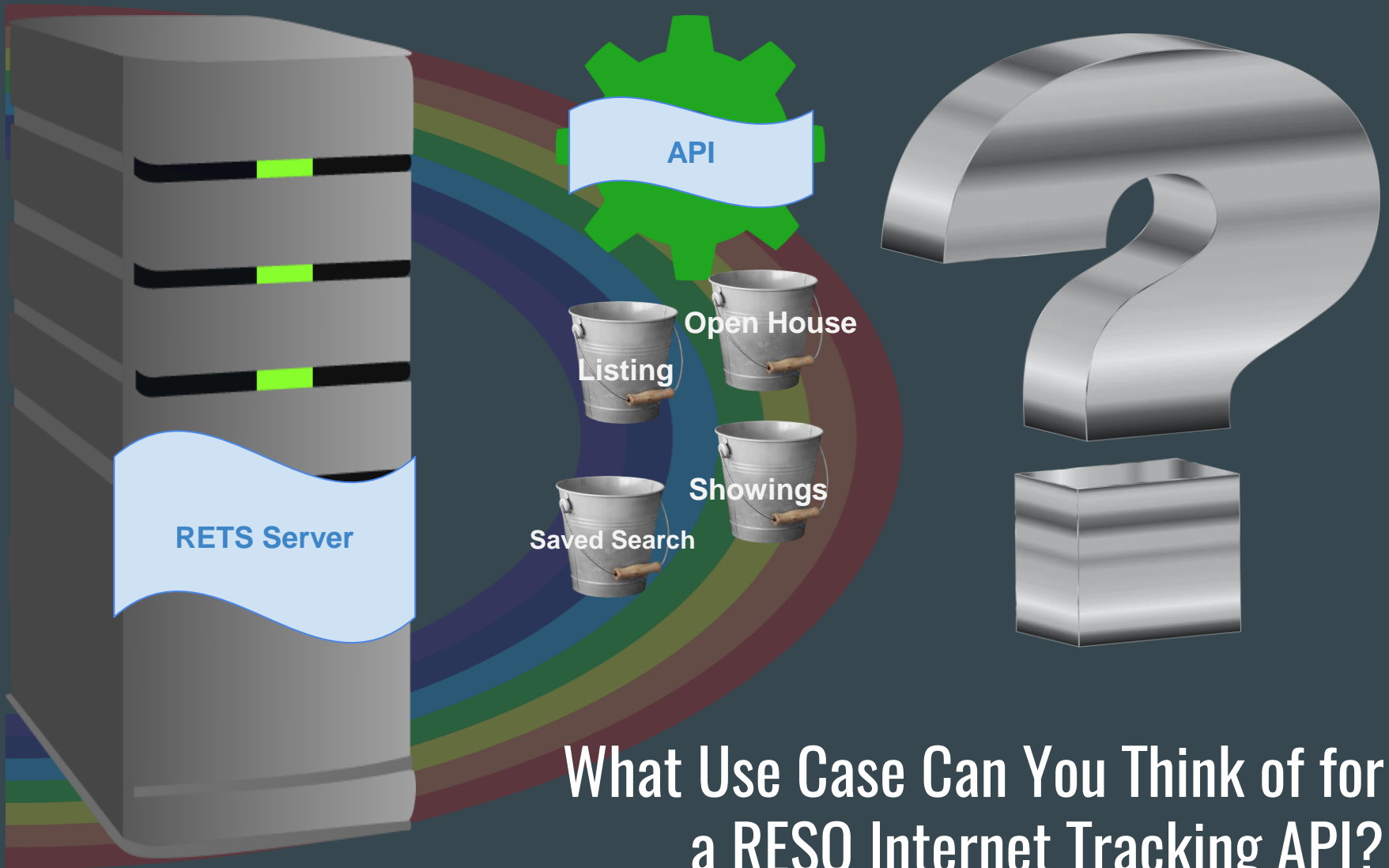




# BrainStorm

...

# Use Case | *Nothing But The Facts...*



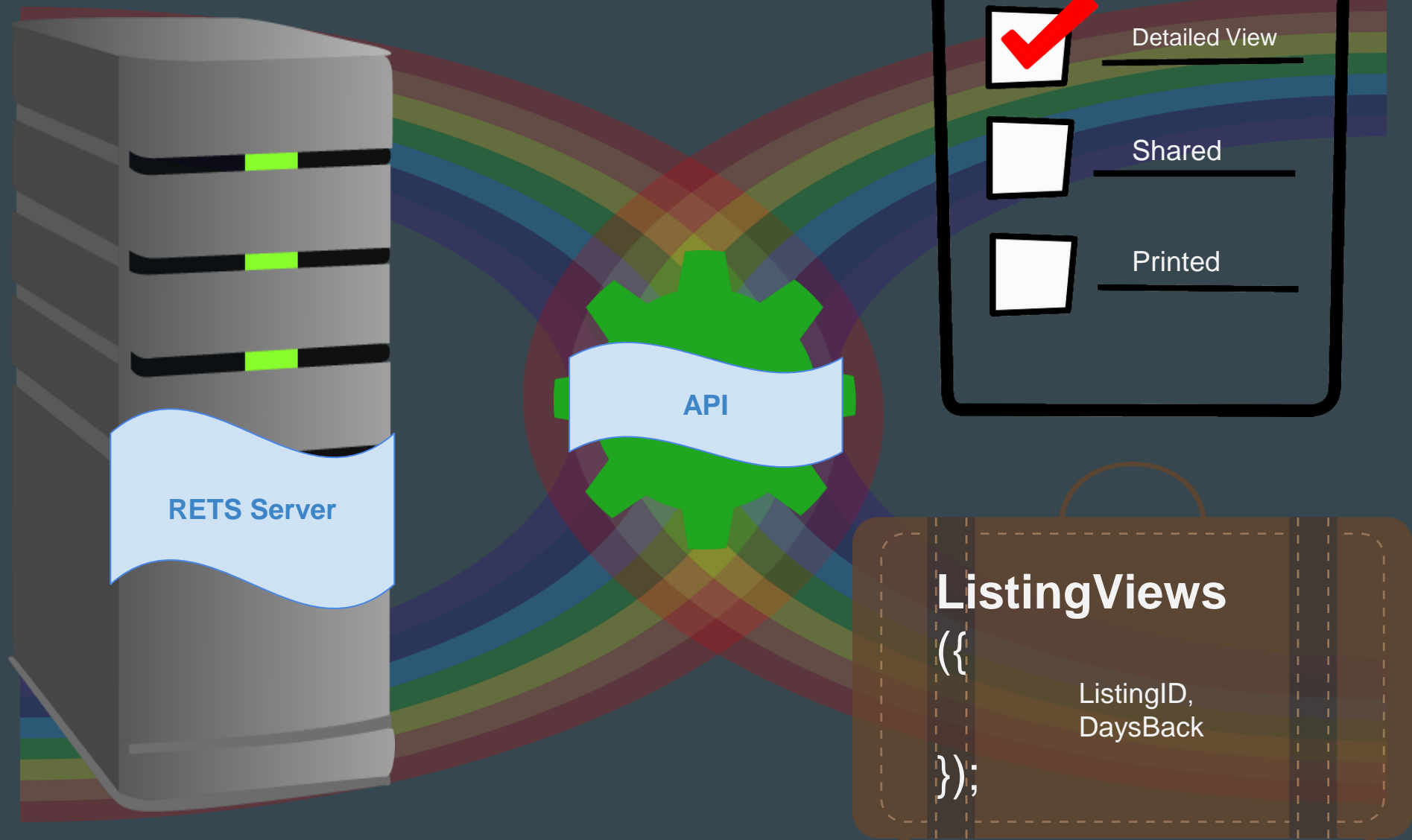
2017 Challenges | Transporting The Data

# The Tracking API

...



# Custom Query v Functions



# BrainStorm

...

# Possible Functions?

## ListingViews({

Provides daily viewing totals for supplied listing in chronological order from dates requested

});

## MLSReport

({ Provides daily usage totals for all vendor products that source data from this RETS server

});

?????

## OfficeReport

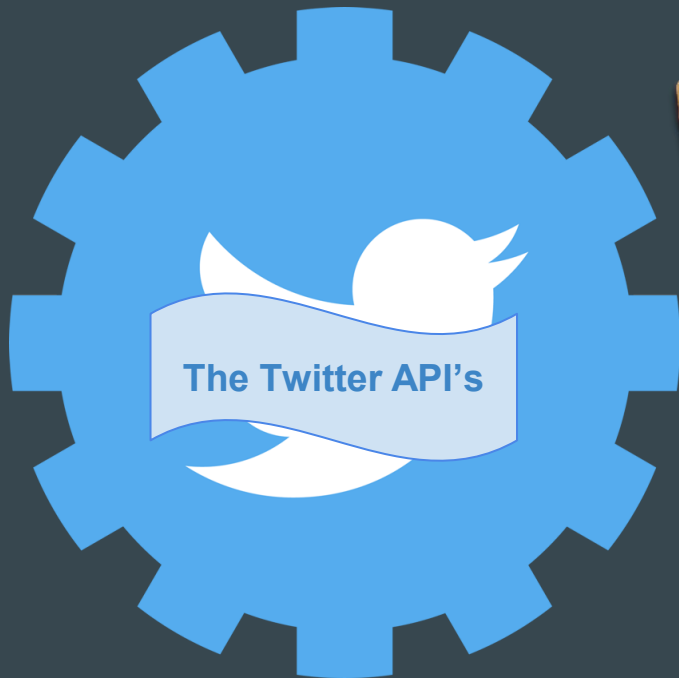
({ Provides daily viewing totals for all listings provided by the supplied officeID in chronological order from dates requested

});

API

RETS  
Server

# API Showcase



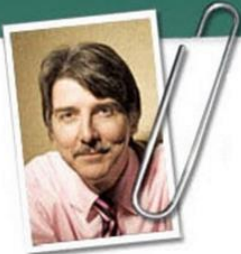
- Most popular **API** in the wild
- Stapled part of **Academia**
- **Rate Limiting** To Control Resources
- **oAuth** Authentication (custom)
- **JSON** data format
- **RESTful & Streaming** (polling v push)

2017 Challenges | Informing RESO Community

# White Papers







I help B2B firms tell their stories with white papers based on facts, not hype.  
Work with me to generate more leads, more buzz, and more sales.

## FUNNY-AND-CRAZY-MAN

BY GORDON GRAHAM

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#### About Gordon Graham

Author of close to 250 white papers on everything from choosing enterprise software to designing virtual worlds for kids, for clients everywhere from Silicon Valley to

Switzerland, for everyone from tiny startups to 3M, Google and Verizon.

Also wrote [White Papers for Dummies](#) which reviewers call "a must-read... fantastic... outstanding... terrific... phenomenal... the best book of its kind."

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Last Name

E-Mail Address

In my role, I

- ☐ write
- ☐ hire writers
- ☐ do everything
- ☐ am learning

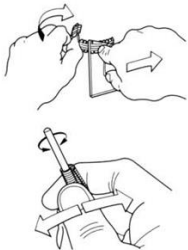
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# White Papers Can Help Define What We Created

## ① アールのつけ方

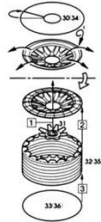
ゆるやかなアールをつけるときは、パーツを手でもちあながら、もう一方の手で定規をおさえつけるように滑らせてます。小さなアールは、円柱状のものをなにして、図のようにパーツを指ではさみ、親指を左右の端から滑らせます。  
こうすれば、きれいなアールがつけられます。↓



これから出てくるイラストのピンク色の線は全てアールをつけるところです。  
必ず接着前にアールをつけましょう。

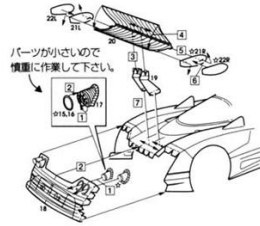
## ② タイヤの組み立て、

パーツNo.30, 34 (各×2) をすり鉢状に接着し、完全に乾いてから、指でやさしいにタイヤサイドにふくらみをつけます。  
( ) 内の番号はリヤタイヤです。  
図の □ のところは、紙の裏側です。



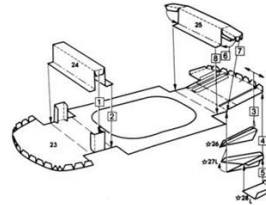
## ④ テールの組み立て、

パーツNo.19は、中心から2ツ折に接着してから、取りつめます。  
ウイングはバナナ形状にアールをつけてから接着します。



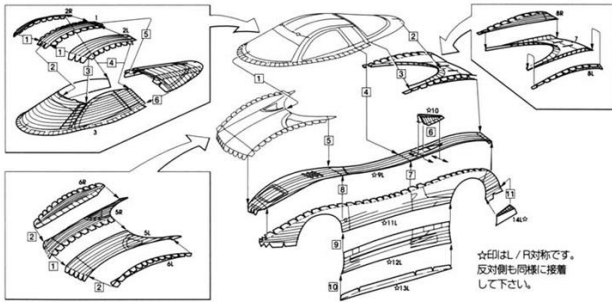
テールランプは、パーツNo.15が外側です。

## ⑤ ティフューザーの組み立て、



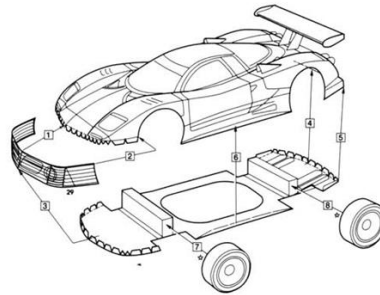
パーツNo.26, 27は中心から2ツ折に接着してから取り付けます。

## ③ メインボディの組み立て、



☆印は、L/R対称です。  
反対側も同様に接着して下さい。

## ⑥ フィニッシュ



全体のフィルムを整え、タイヤは、車高を決めながら、最後に接着します。





# BrainStorm

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# What Subject Matter Should our White Papers Focus on?



2017 Challenges | Implementation

# Making I.T. Happen

...

# 2017 Challenges | Implementation



# 2017 Challenges | Implementation

An Analytics competition?



## BHI-2017 International Conference on Biomedical and Health Informatics

*"Integrative informatics for precision and preventive medicine"*



16 -19 February 2017

Orlando, Florida



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## Data Competition

### IEEE BHI 2017 Big Data Analytics and Visualization Competition

#### Call for Participants

Data Science is all about the processes and methods to access and analyze data to gain insights for informed decision making. To promote the awareness and analytic technology of Big Data, IEEE EMBS and the IEEE Big Data Initiative are organizing a Data Analytics Competition. The competition will be held during [IEEE BHI2017](#) and is open to all participants of the conference.

#### Data

Data is all around us and everywhere. In particular, biomedical data is relevant to the themes of the 4<sup>th</sup> International Conference on Biomedical and Health Informatics (BHI2017). The challenge is to analyze a curated dataset, and determine what can be learned from the data?

# BrainStorm

...



**How Do We Promote  
Implementation of the Internet  
Tracking Fields?**



# A Data Competition?



## BHI-2017 International Conference on Biomedical and Health Informatics “Integrative informatics for precision and preventive medicine”



16 -19 February 2017

Orlando, Florida

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Check out the following data repository site, <https://ieee-dataport.org/competitions/bhi-2017-big-data-analytics-competition>, which contains a curated dataset of US patent [1] information based upon BHI keywords. Your challenge is to determine the value from the data and find something interesting to conduct your analytics.

Questions



*Chris Lambrou*  
Chair

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