

# Demand Side Platforms and Real Time Bidding

SMADEX  
Data-driven  
Mobile Advertising



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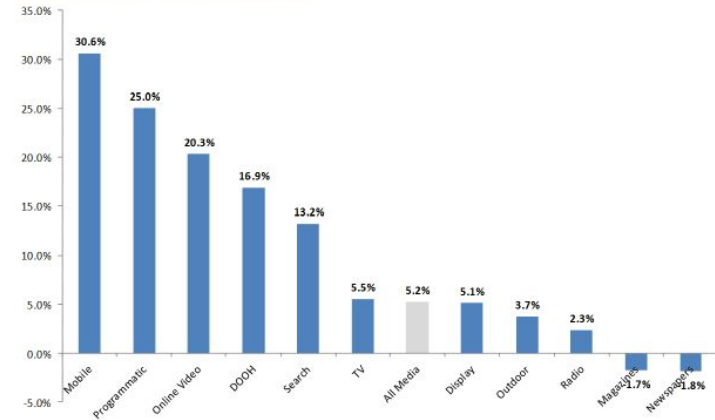




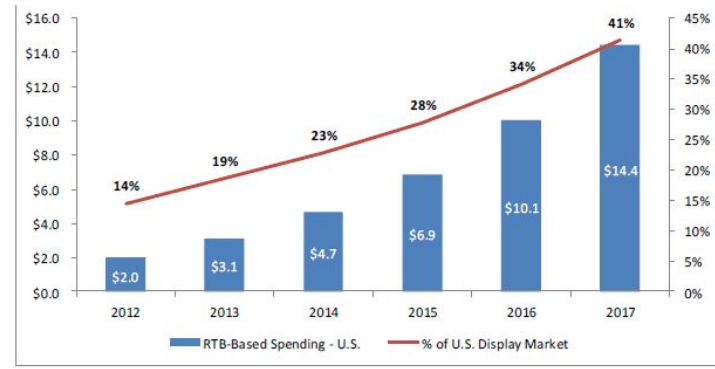
**YOUR  
AD  
HERE**

# THE MARKET

## U.S. 2012-2017 AVERAGE ANNUAL GROWTH BY MEDIUM



Source: MAGNA Global



Source: IDC, October 2013



| Category        | 2014   | 2015  | 2016  | 2017  | 2018  | 2019  |
|-----------------|--------|-------|-------|-------|-------|-------|
| <b>Desktop*</b> | 23.5%  | 26.5% | 17.5% | 13.2% | 13.5% | 12.4% |
| <b>Mobile**</b> | 113.0% | 80.6% | 47.0% | 27.2% | 15.1% | 14.1% |
| <b>Total</b>    | 40.8%  | 42.4% | 28.5% | 19.2% | 14.2% | 13.1% |

Note: includes advertising that appears before, during or after digital video content in a video player; \*includes advertising that appears on desktop and laptop computers and other internet-connected devices; \*\*includes mobile phones and tablets  
Source: eMarketer, Sep 2015

195372

www.eMarketer.com

## U.S. DIGITAL VIDEO AD SPENDING BY DEVICE, 2014-2019

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BILLIONS AND  
% CHANGE

## U.S. RTB – BRAND DISPLAY AD SALES & RTB AS % OF DISPLAY MARKET

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# EVOLUTION OF THE MOBILE ADVERTISING VALUE CHAIN



ADVERTISER  
& AGENCIES  
(DEMAND)

PUBLISHERS  
(SUPPLY)

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# EVOLUTION OF THE MOBILE ADVERTISING VALUE CHAIN



**ADVERTISER  
& AGENCIES  
(DEMAND)**

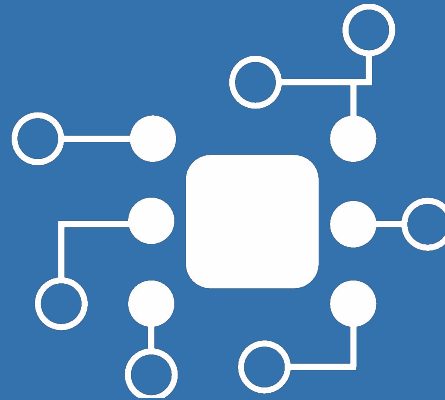


**AD NETWORK**



**PUBLISHERS  
(SUPPLY)**

# EVOLUTION OF THE MOBILE ADVERTISING VALUE CHAIN



**ADVERTISER  
& AGENCIES  
(DEMAND)**

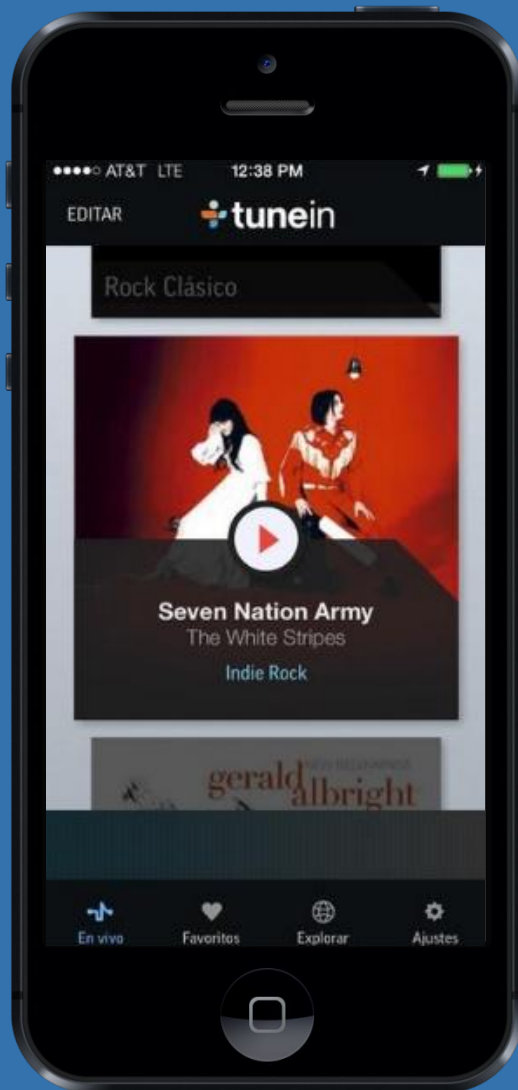


**PUBLISHERS  
(SUPPLY)**

# REAL-TIME BIDDING



# HOW DOES RTB WORK?

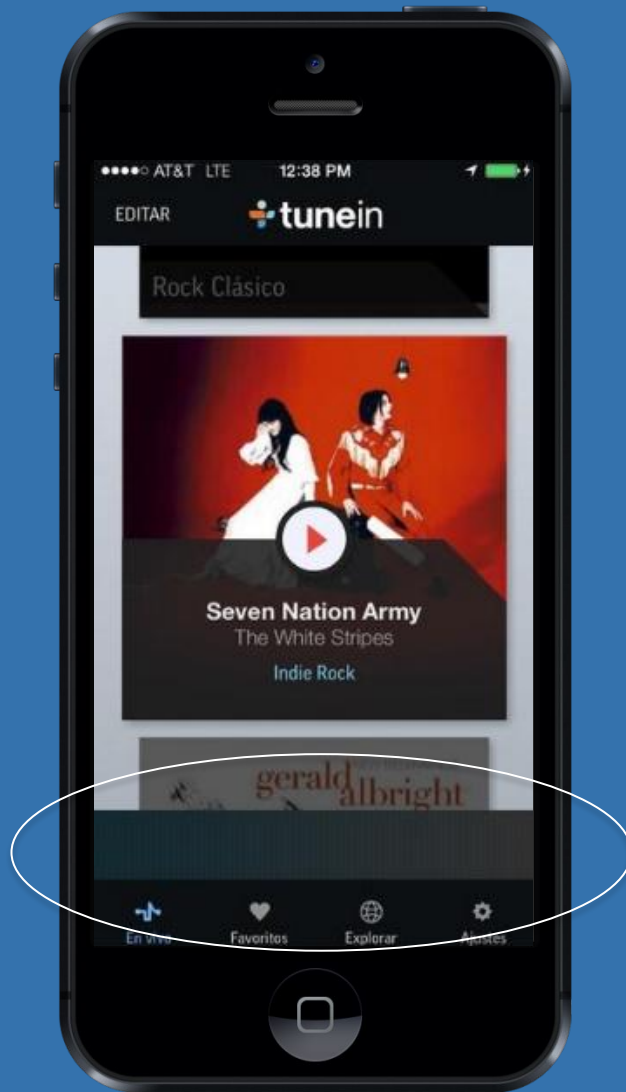


1

A PERSON  
OPENS  
AN APP



# HOW DOES RTB WORK?



2

THE APP  
REQUESTS  
AN AD

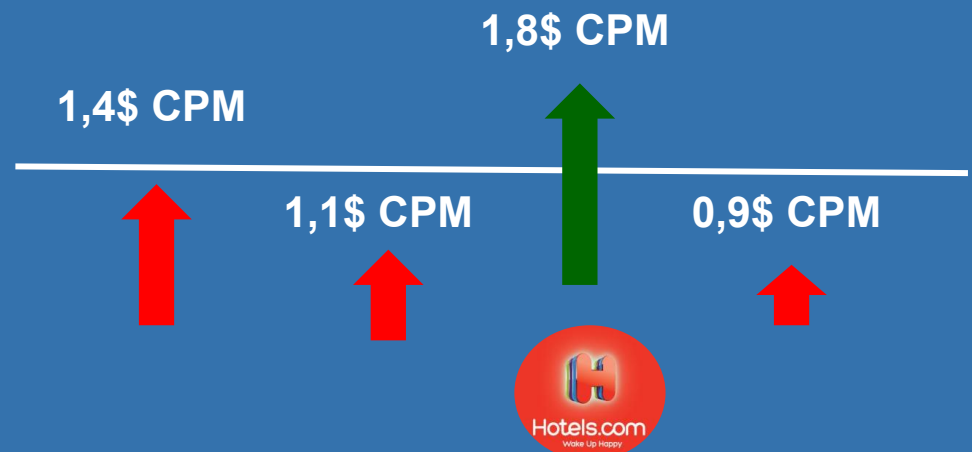
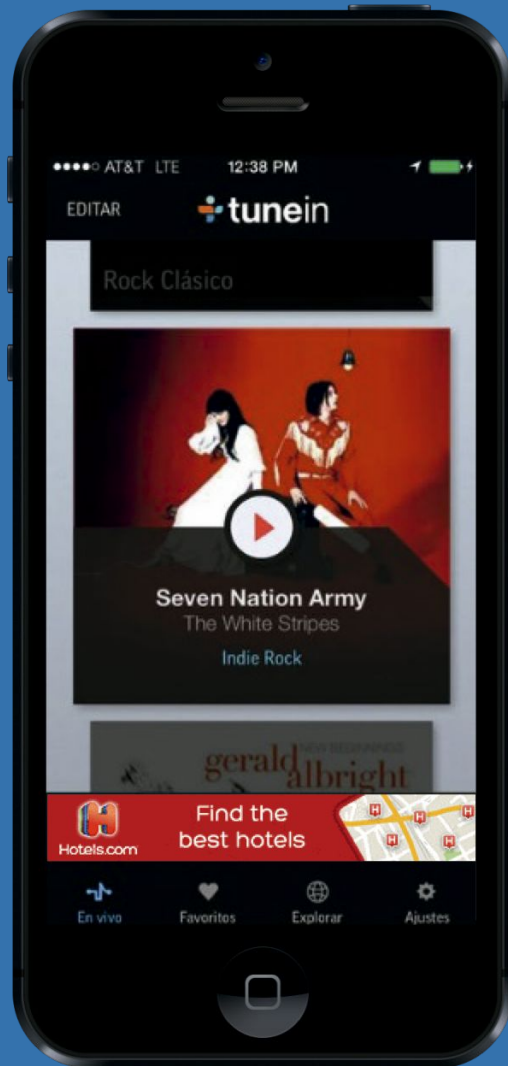
- From this phone
- In this location
- In this App

# HOW DOES RTB WORK?

3

IN < 100 MSEC, AN AUCTION IS PERFORMED AMONG SEVERAL DSPS.

THE WINNER PLACES THE BANNER IN THE AD SPACE, AND PAYS SECOND PRICE: 1,41\$ CPM.



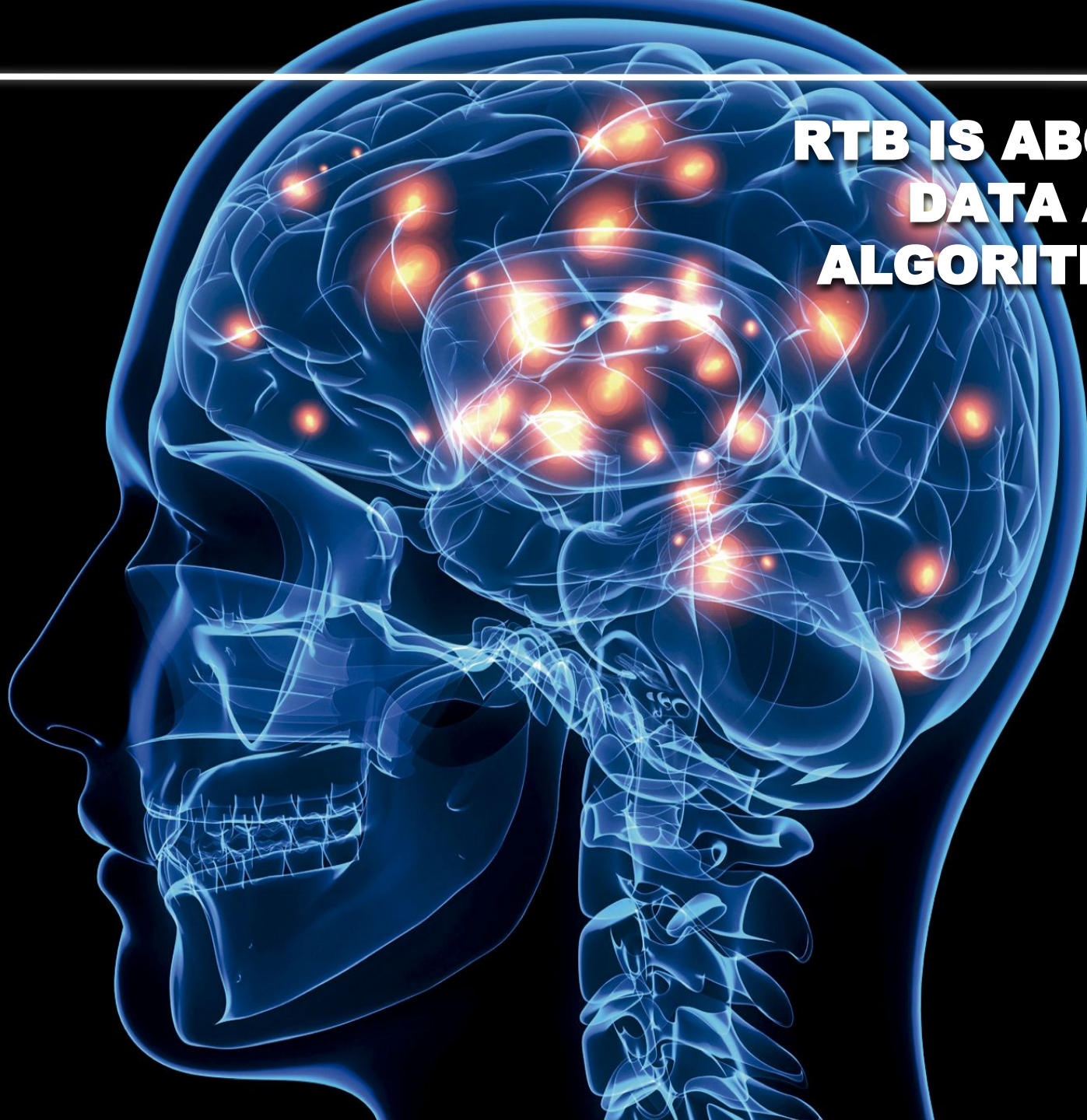
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**RTB IS ABOUT  
TRANSPARENCY**

**RTB IS ABOUT  
CONTROL**

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**RTB IS ABOUT  
DATA AND  
ALGORITHMS**



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# RTB IS ABOUT TARGETING





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**RTB IS ABOUT  
RETARGETING  
AND LOOK ALIKE  
TARGETING**

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**RTB IS ABOUT  
SMART DECISIONS**



$$2(12+12)$$

$$0$$

$$1+3=2$$



$$12 + 111 - 100 + 9 - 8 + 7$$

$$= 1235$$

$$\frac{4 \times 8}{2}$$

$$-8 + 7$$

$$y \text{ then } y = x$$

$$9 + 3y^2$$



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**MEANWHILE...  
AT SMADEX**

**450M**

REQUESTS  
PROCESSED

**12M**

BIDS  
PLACED

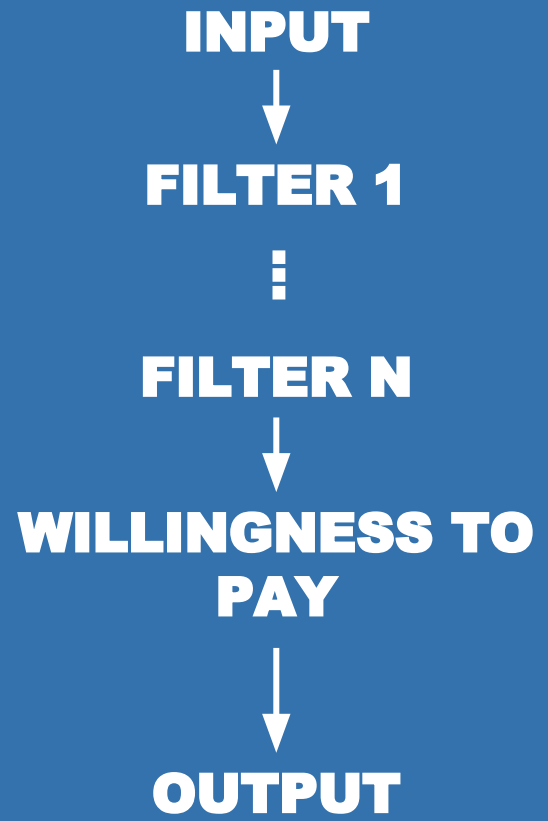
**2M**

ADS  
SHOWN

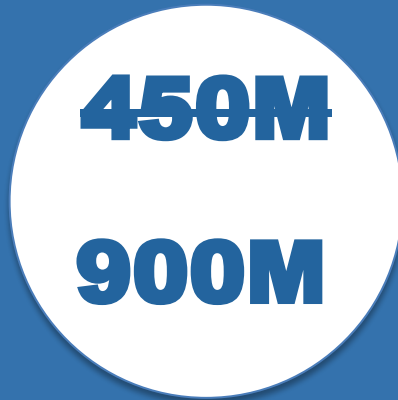
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In the last 30 minutes!

# WHAT HAPPENS UNDER THE HOOD?



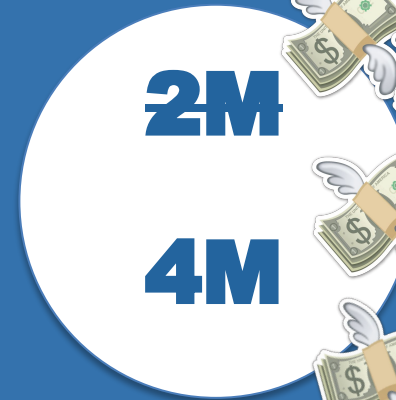
# SO... WHAT'S THE CHALLENGE ABOUT?



REQUESTS  
PROCESSED



BIDS  
PLACED



ADS  
SHOWN

WHAT IF WE FILTER SOONER BASED ON BID  
PROBABILITY...

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**TIME TO IMPROVE  
THE FILTERS...**



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## **TECH CHALLENGE**

- **PROCESS A MASSIVE AMOUNT OF REQUESTS PER SECOND**
- **HIGH PERFORMANCE CONSTRAINTS**
- **DESIGN, IMPLEMENT, TRAIN, EVALUATE AND OPTIMIZE NOVEL PREDICTIVE ALGORITHMS BASED ON STATE-OF-THE-ART MACHINE LEARNING TECHNIQUES**
- **COST EFFECTIVE ARCHITECTURE AND DATA STORAGE**

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## **FUTURE WORK**

- **REQUEST FORECASTING TO PREDICT SCALABILITY**
- **APPLY DEEP LEARNING TO EXTRACT FEATURES FROM IMAGES AND VIDEOS**
- **PLATFORM ANOMALIES DETECTION**
- **EXPLORE USER BEHAVIOUR AND RECOMMENDATION TECHNIQUES**

# THANK YOU VERY MUCH FOR YOUR ATTENTION



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