



# DE PERSGROEP.

ECHTE MEDIA . ECHTE MENSEN . ECHTE RESULTATEN



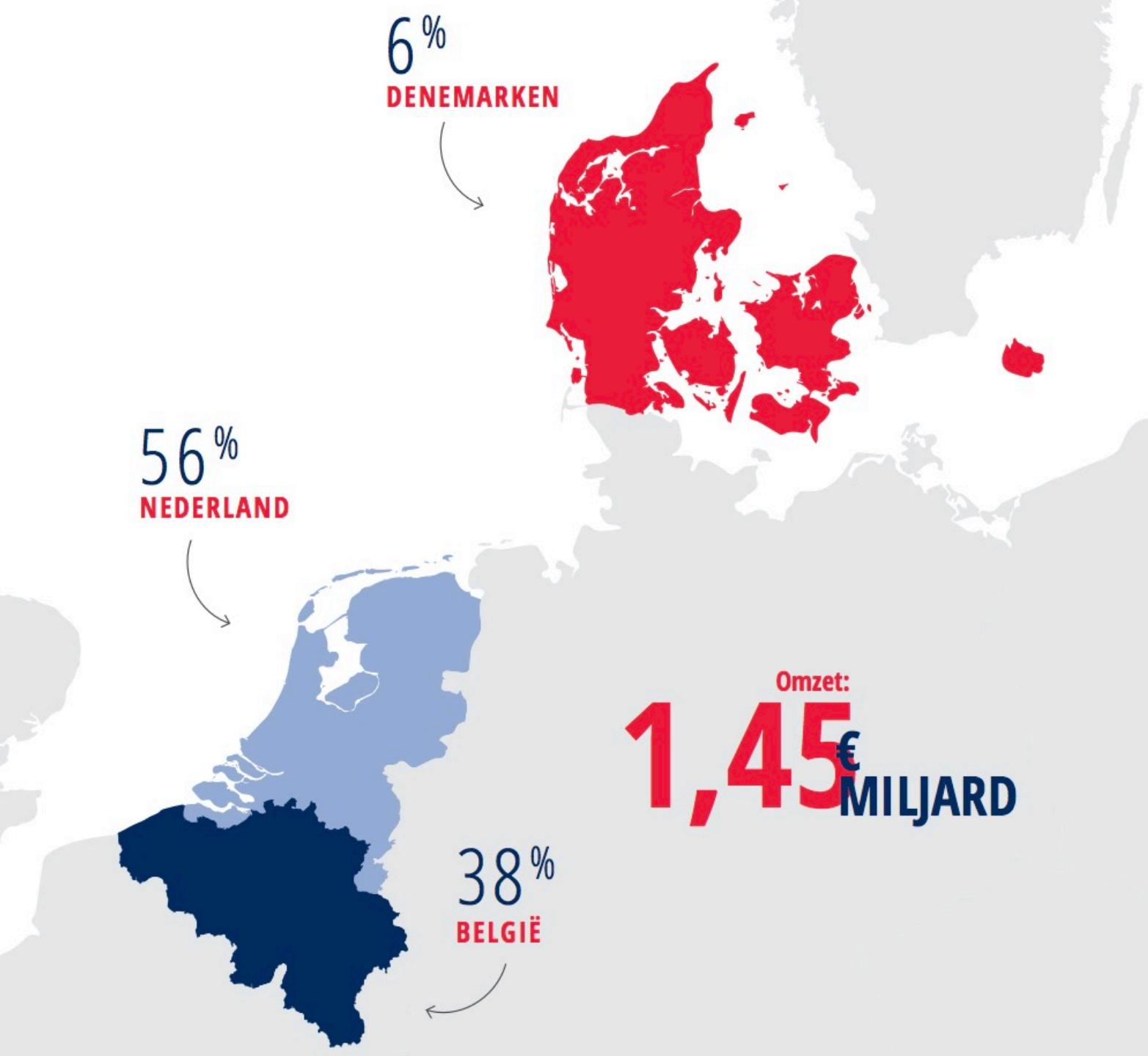
# PERSONALIZED REGIONAL PUSH NOTIFICATIONS

Anne Schuth

SEA - Algorithms and the News

October 19, 2018

# DE PERSGROEP



# OUR BRANDS

- News media
- Online services
- Video platforms





**PRINT IS BIG (STILL!)**

**DIGITAL IS GROWING**



**PRINT IS BIG (STILL!)**

**DIGITAL IS GROWING**

DE PERSGROEP.

V Nieuws, achtergronden en colo X +

← → C https://www.volkskra... ☆ ⋮

Voorpagina Nieuws & Achtergrond Columns 8

# deVolkskrant

NIEUWE EIGENAAR  
Ondernemer Marcel  
Boekhoorn gaat Hema  
overnemen

NET BINNEN

Onderzoeksraad: 'Bouwers schatten veiligheidsrisico's slecht in'

MEER >

V volkskrant.nl/.../ondernemer-marcel-boekhoorn-gaat-hema-...

AD AD.nl, het laatste nieuws uit bi X +

← → C https://www.ad.nl ☆ ⋮

☰ AD Abonneren | ⋮

Belangrijk Net Binnen



**'Privacyregels bedreigen duizenden pensioenen'**

3:00



**'Hoekstra niet naar Saudi-Arabië om vanwege journalist Khashoggi'**

10:57



**Hema: miljardair Marcel Boekhoorn neemt ons over**

10:49



**Bertens toch naar WTA Finals na afmelding Halep**

ad.nl/.../privacyregels-bedreigen-duizenden-pensioenen~a0...

P Home - PAROOL

https://www.parool.nl

# ≡ Het Parool

## Marcel Boekhoorn wil Hema overnemen



Nieuwe erfachtpachten:  
10 procent extra korting bij  
overstap

AMSTERDAM 11:00

---



Minister Hoekstra niet naar  
Saudi-Arabië om dood  
journalist

BINNENLAND 10:47

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Tim Oliehoek had in zijn  
eentje in de jury kunnen  
zitten

KUNST & MEDIA 10:42 HAN LIPS

---



Marcel Boekhoorn wil  
Hema overnemen

[parool.nl/.../marcel-boekhoorn-wil-hema-overnemen~a4606...](https://www.parool.nl/.../marcel-boekhoorn-wil-hema-overnemen~a4606...)

Home | TROUW

https://www.trouw.nl

Trouw<sup>deVerdieping</sup> INLOGGEN

SORTEER OP: UITGELICHT | NET BINNEN



Zakenman Marcel Boekhoorn koopt Hema

Voor Turkije komt de verdwijning van Khashoggi goed van pas

Opluchting voor rechters en OM: Rechters wraken wordt moeilijker

[trouw.nl/zakenman-marcel-boekhoorn-koopt-hema~ad7e...](https://www.trouw.nl/zakenman-marcel-boekhoorn-koopt-hema~ad7e...)

The screenshot shows the homepage of Tweakers.net. At the top, there's a red header bar with the Tweakers logo and a search icon. Below it, a banner for 'Tweakers Gaming Live!' is displayed, showing a night sky with a comet and a car. The main navigation menu includes links for Smartphones, Laptops, Tablets, Koptelefoons, and 'Alle producten vergelijken'. A news section titled 'Nieuws van vandaag' lists several stories with timestamps and counts of comments. The stories include:

- 10:52 Samsung noemt komst van 860 QVO- en 980 QVO-ssd's met qlc-nand (3 comments)
- 10:40 Spotify introduceert aangepaste zoek- en radiofunctie voor Premium-abo's (15 comments)
- 10:09 WSJ: spammers die geld wilden verdienen zaten achter recente aanval op Facebook (5 comments)
- 09:56 Software-update - Nessus 7.2.1 (tien andere downloads)
- 09:26 Consoleversie van demolition derby-game Wreckfest is uitgesteld tot 2019 (15 comments)

CheckCheck | AutoTrack

https://www.autotrac...

AutoTrack

Zoek in 189.346 auto's

✓ Occasions      ✓ Nieuwe auto's

Merken

Modellen

Prijs van      Prijs tot

Bouwjaar van      Bouwjaar tot

Km.stand van      Km.stand tot

Brandstof

Carrosserievorm

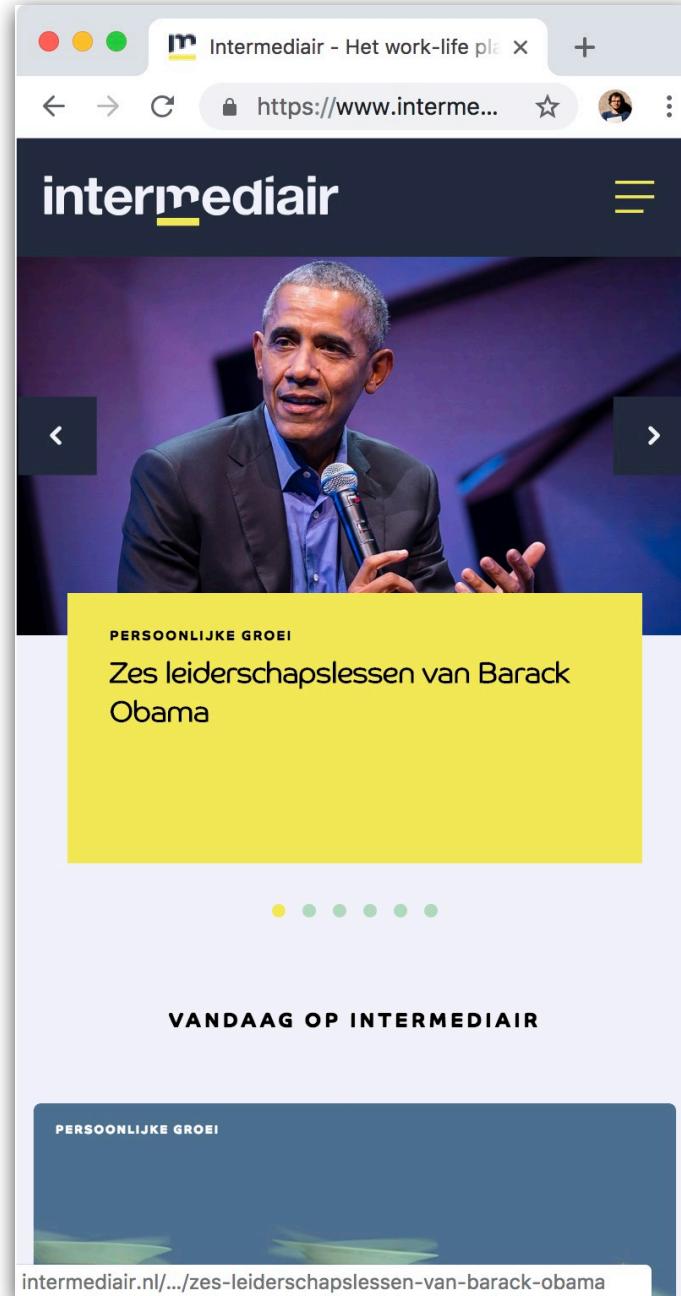
Transmissie

Toon resultaten (189.345)

Postcode      Afstand

The screenshot shows a web browser window for 'CheckCheck | AutoTrack' at the URL 'https://www.autotrac...'. The page title is 'AutoTrack'. Below it, a message says 'Zoek in 189.346 auto's'. There are two checked filter options: 'Occasions' and 'Nieuwe auto's'. The search form contains several dropdown menus for filtering: 'Merken' (brands), 'Modellen' (models), 'Prijs van' (price from), 'Prijs tot' (price to), 'Bouwjaar van' (year from), 'Bouwjaar tot' (year to), 'Km.stand van' (kilometer from), 'Km.stand tot' (kilometer to), 'Brandstof' (fuel), 'Carrosserievorm' (body type), and 'Transmissie' (transmission). A prominent blue button at the bottom center reads 'Toon resultaten (189.345)'. At the very bottom, there are additional dropdowns for 'Postcode' and 'Afstand'.

The screenshot shows the homepage of Reclamefolder.nl. At the top, there's a purple header bar with the text "Inloggen" and "Account aanmaken". Below the header is a search bar containing the placeholder "Categorie, product of winkel". Underneath the search bar, the text "3532" is displayed next to a house icon and the text "<1 km". The main content area is titled "Nieuwste folders" and includes three filter buttons: "NIEUW", "POPULAIR", and "TIPS". A link "Toon alle folders (135)→" is also present. Below these filters, there are four folder thumbnails arranged in a grid. The first thumbnail is for "eijerkamp." featuring three women and a dog, with the text "7 okt. t/m 20 okt.". The second thumbnail is for "ALDI" featuring a bottle of wine and meat, with the text "14 okt. t/m 20 okt.". The third thumbnail is partially visible, showing a person in a chair. The fourth thumbnail is for "SCELLA E-BIKE" with the text "DE GROOTSTE LEEGVERKOOP VAN NEDERLAND!".



• • • and more

# **AI / ML / ... AT THE PERSGROEP**

# CURRENTLY

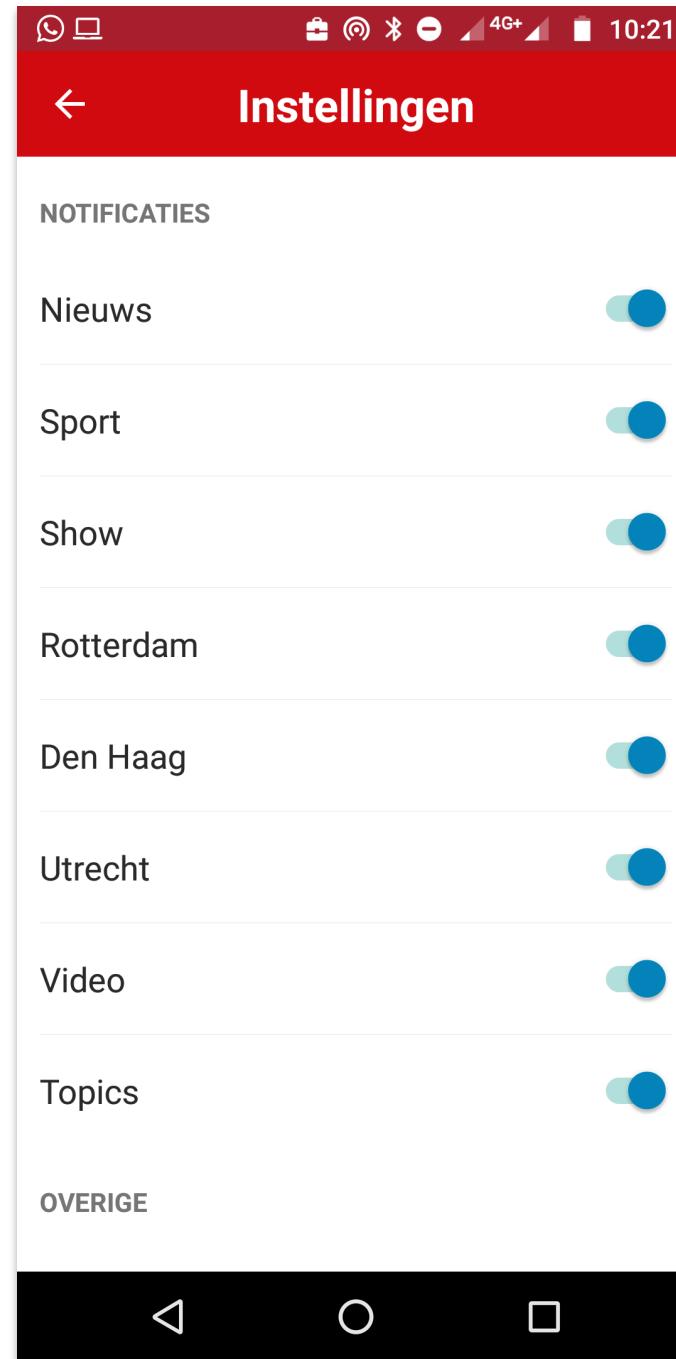
- Video recommendation
  - MyChannels
  - Stievie
- News recommendation
  - Proof of concept at vk.nl
  - Proof of concept at m.hln.be
- Subscription recommendation

# PLENTY OF OPPORTUNITIES

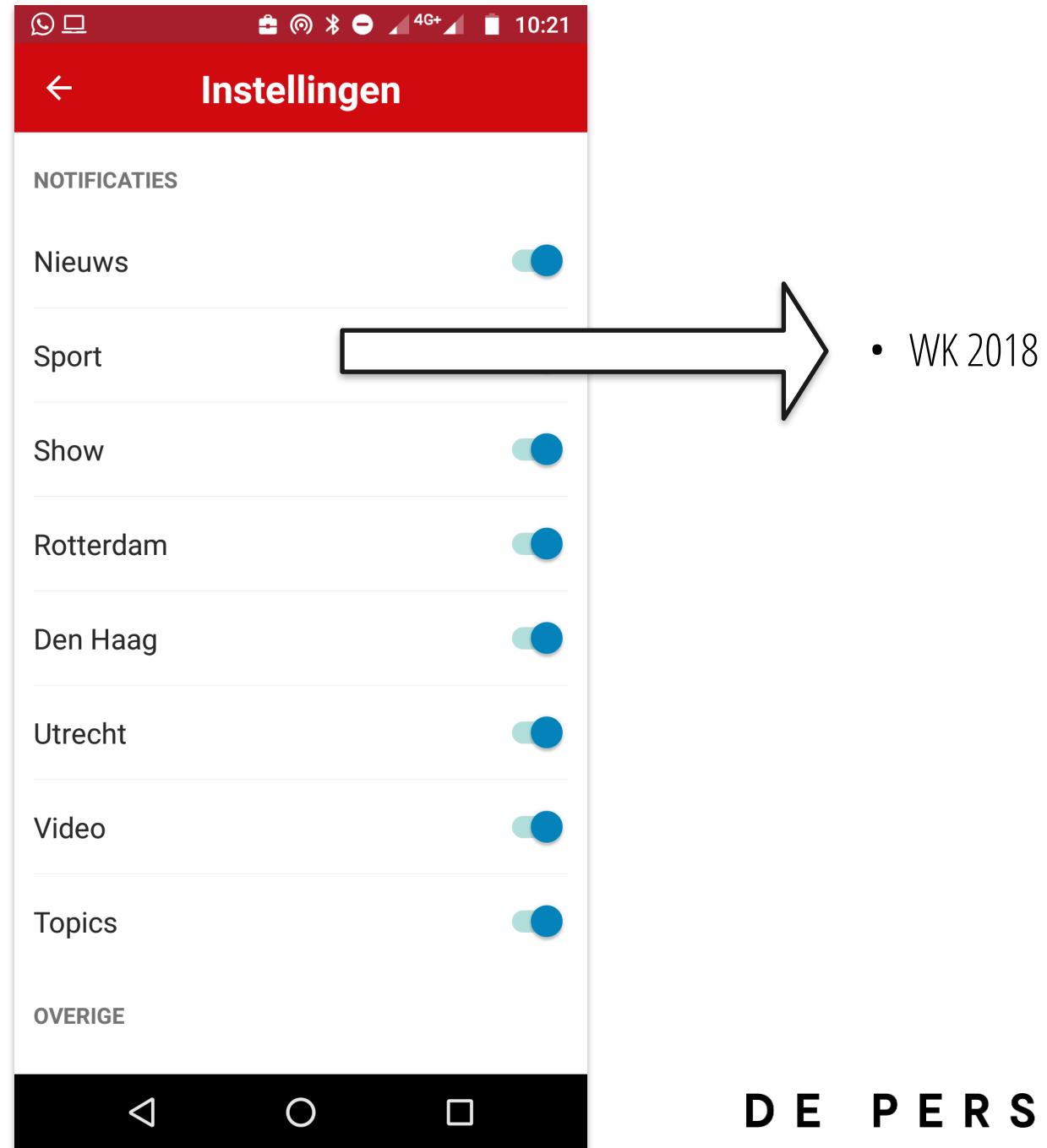
- Personalised newsletters
- "For you"
- "While you were away"
- Helping journalists
  - Finding photographs
  - Writing news that would not be written
  - Formatting newspapers
- Personalised push
- ...

# CURRENT STATE OF PUSH

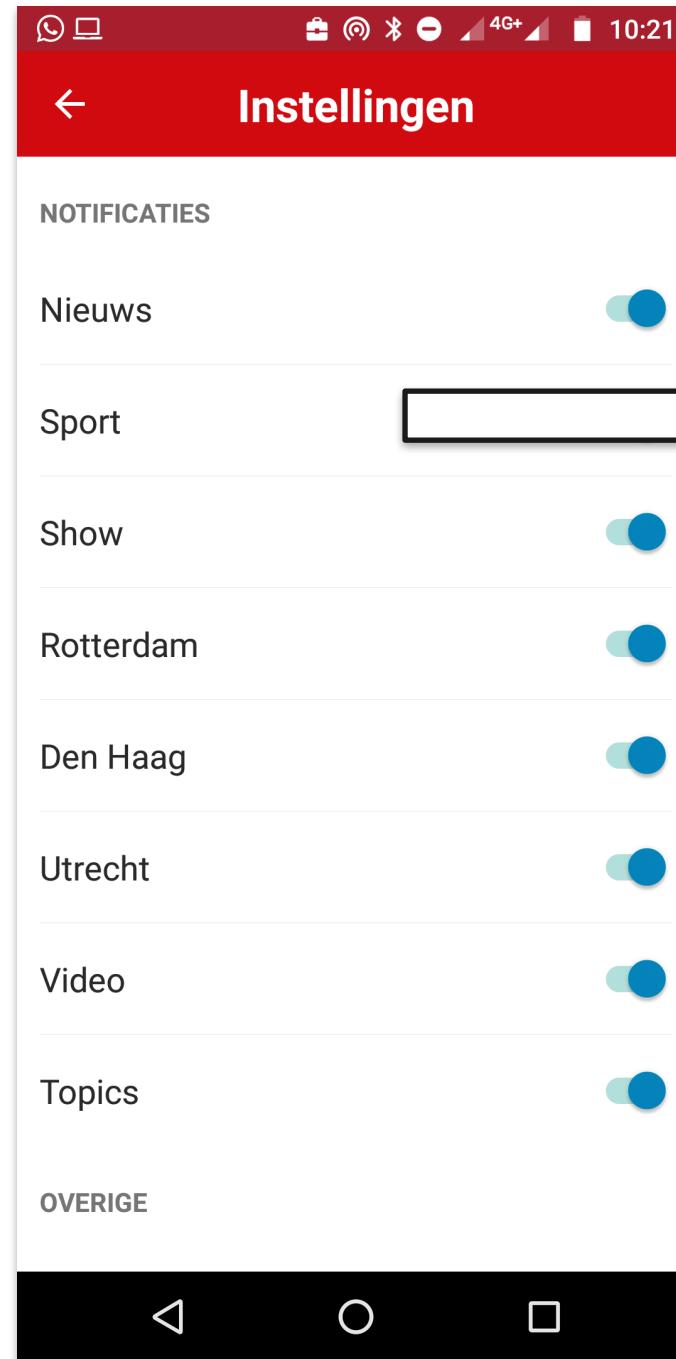
# CURRENT STATE OF PUSH



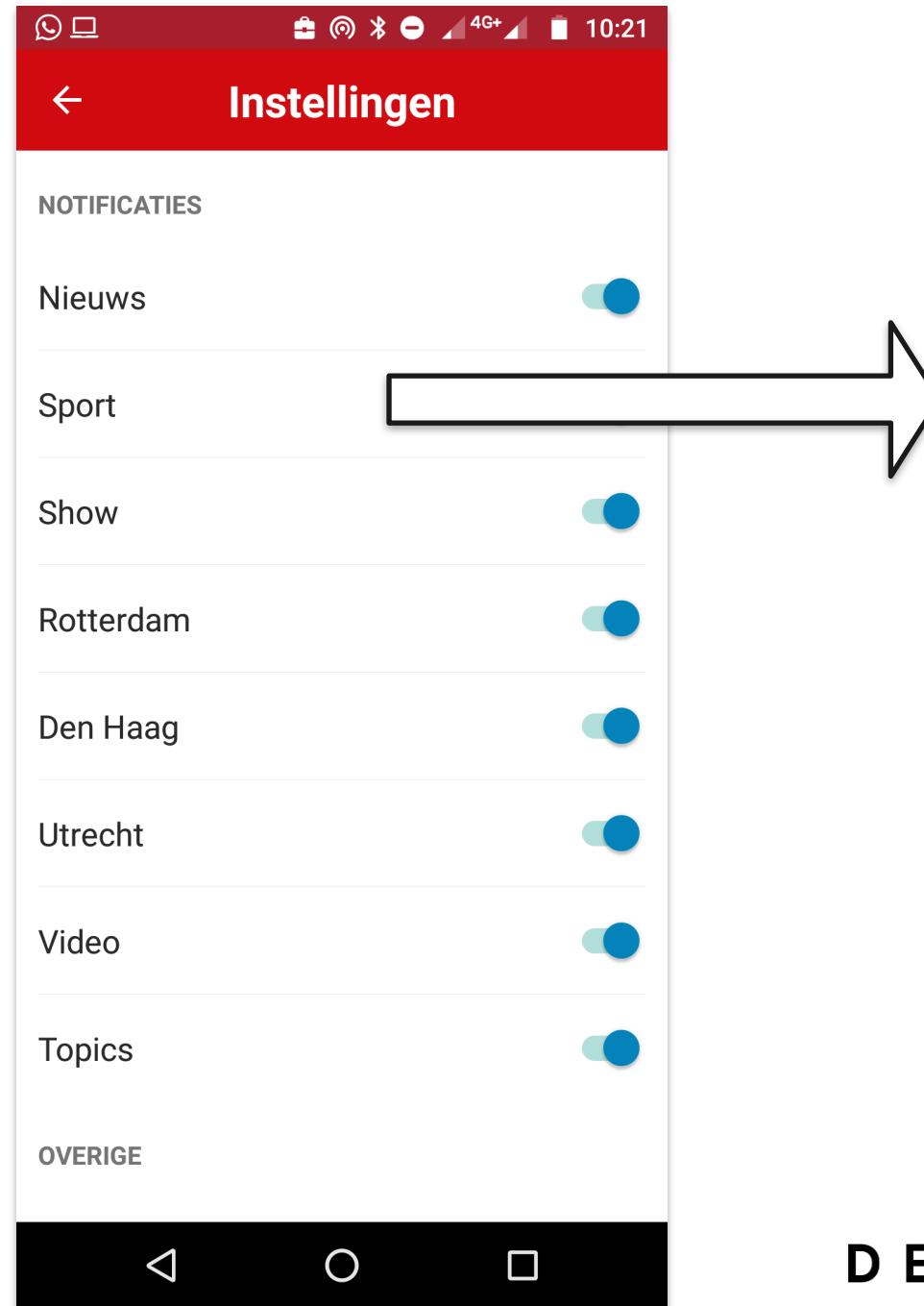
# CURRENT STATE OF PUSH



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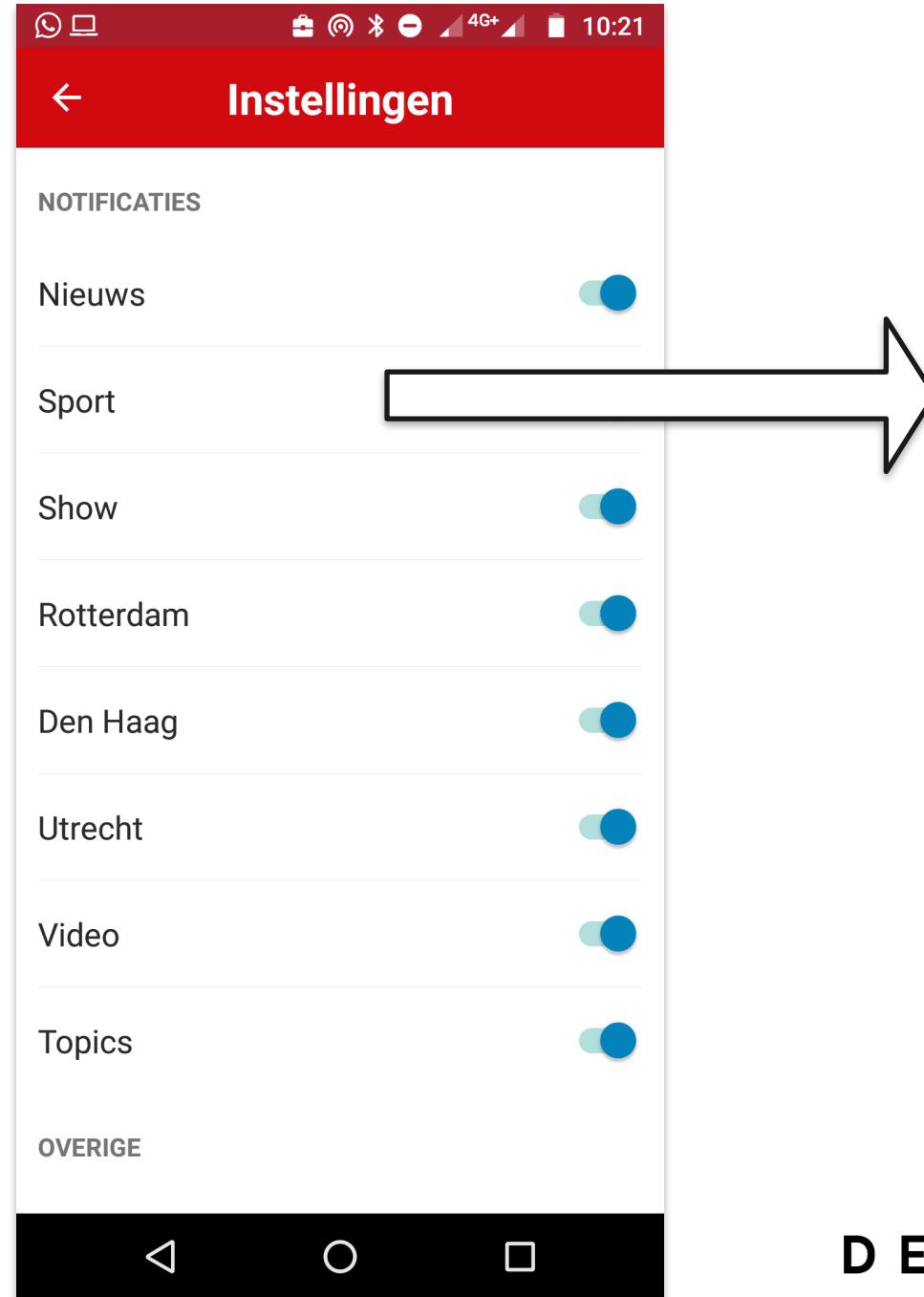


# CURRENT STATE OF PUSH

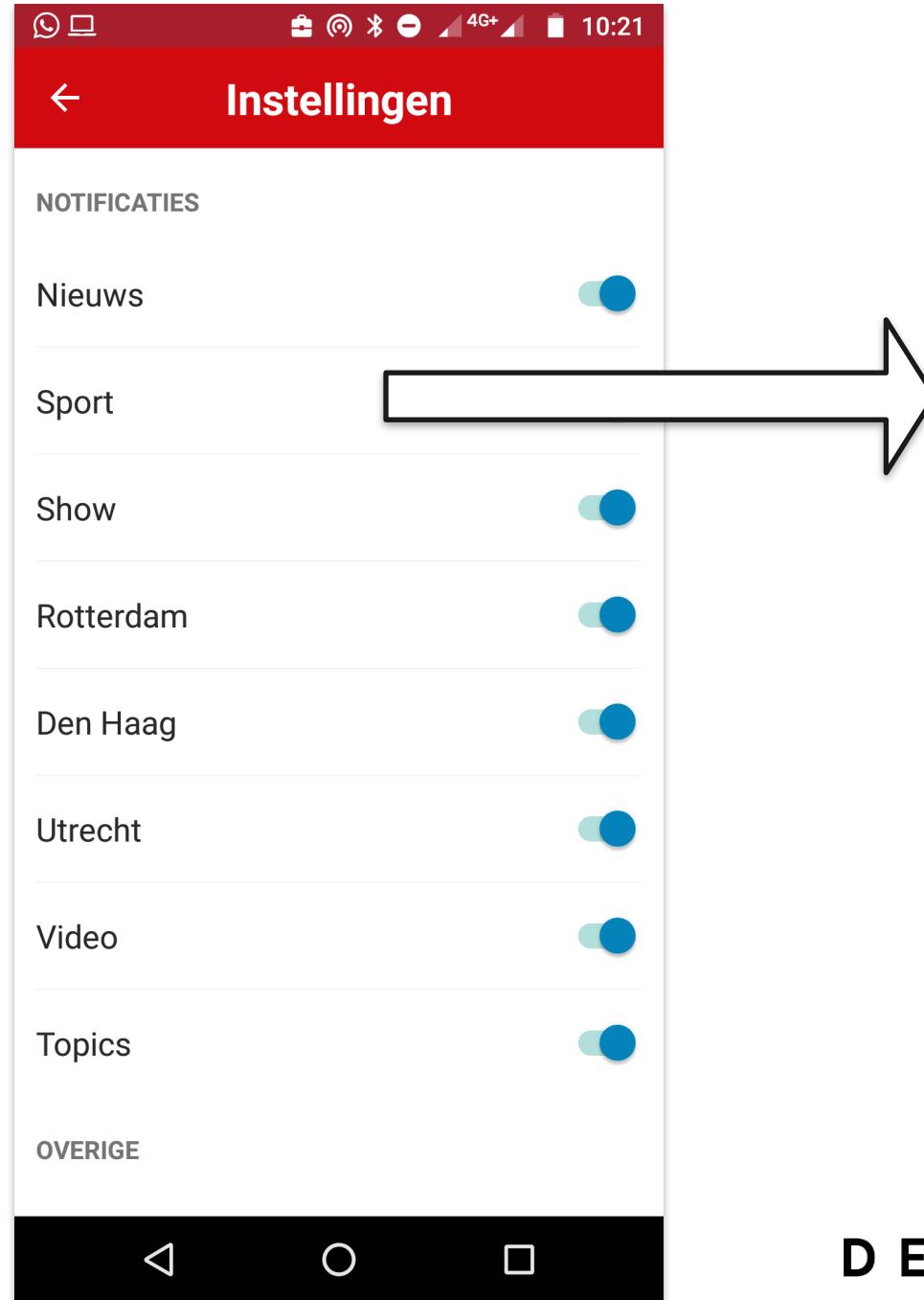


- WK 2018
- Soccer
- Ajax

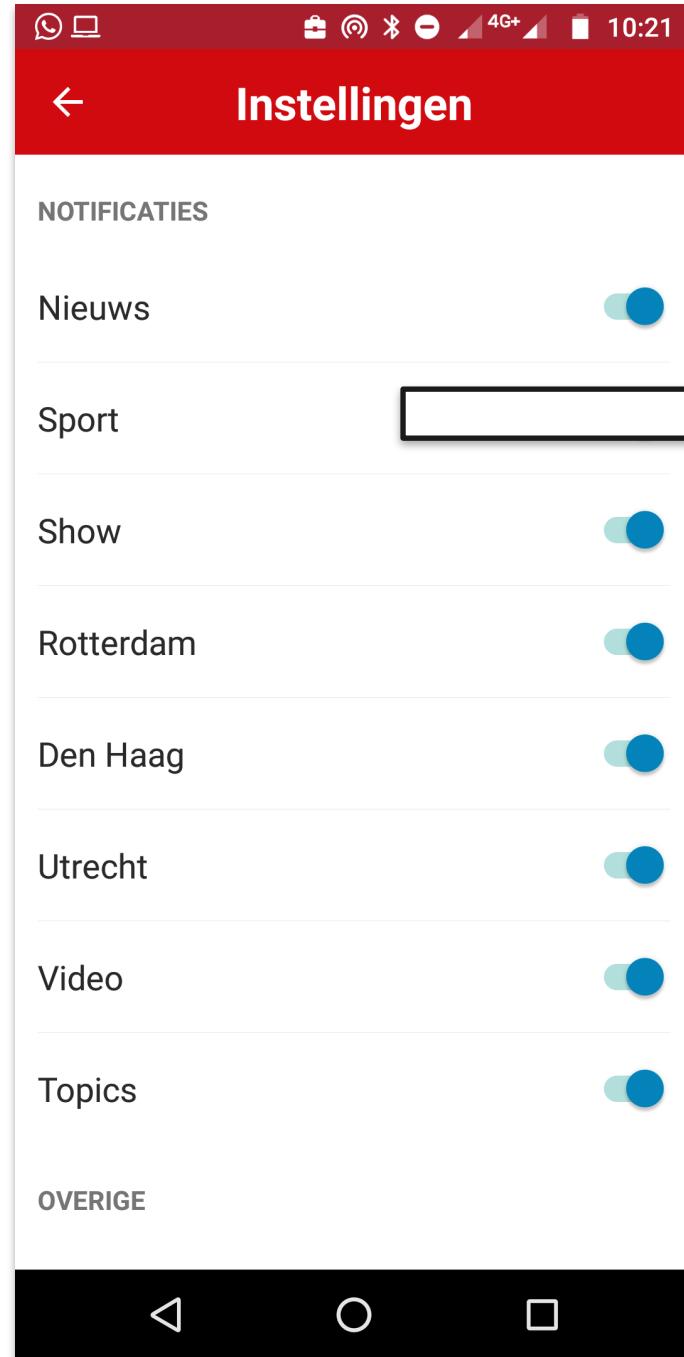
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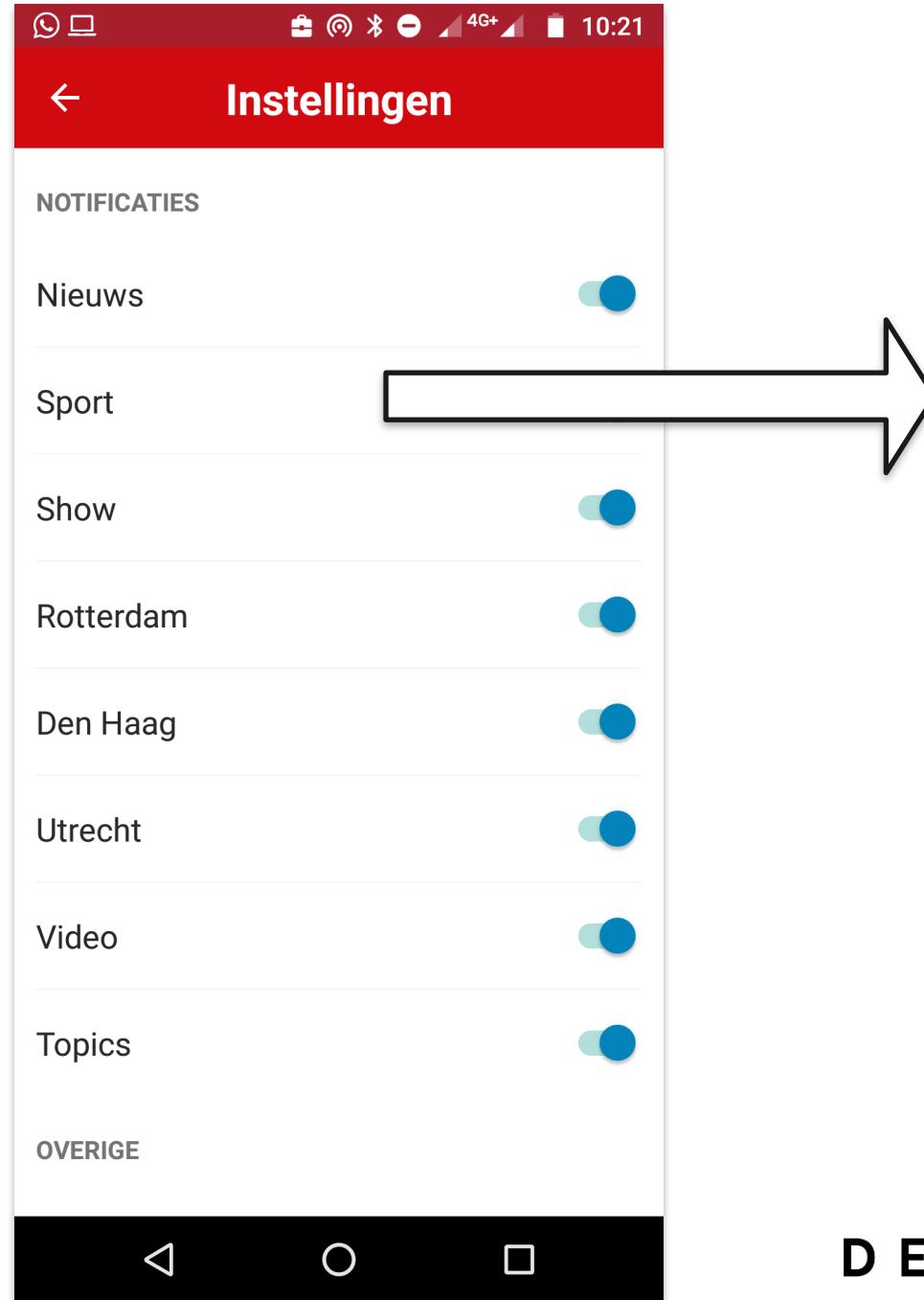


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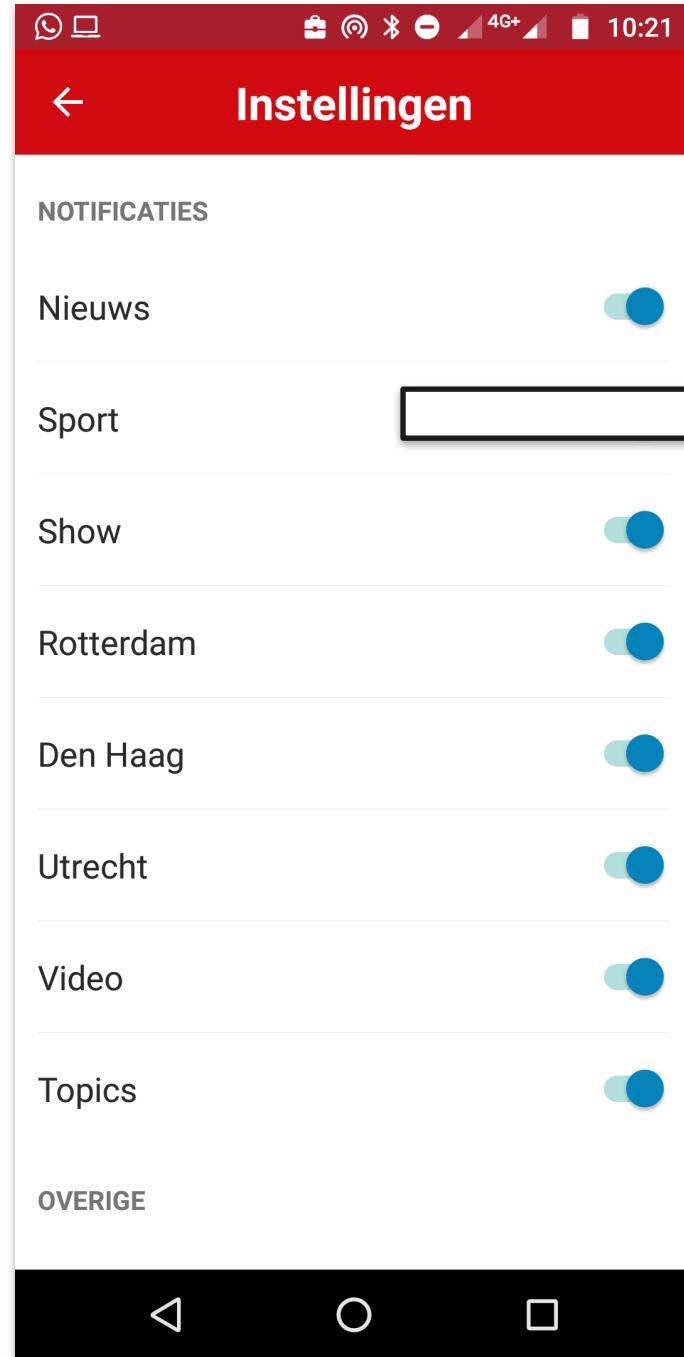


- WK 2018
- Soccer
- Ajax
- Feyenoord
- Cycling
- Formula 1

# CURRENT STATE OF PUSH



# CURRENT STATE OF PUSH



- WK 2018
- Soccer
- Ajax
- Feyenoord
- Cycling
- Formula 1
- Darts
- ...

# CURRENT STATE OF PUSH

# CURRENT STATE OF PUSH

- Fixed, small, number of categories

# CURRENT STATE OF PUSH

- Fixed, small, number of categories
- Human decisions

## CURRENT STATE OF PUSH

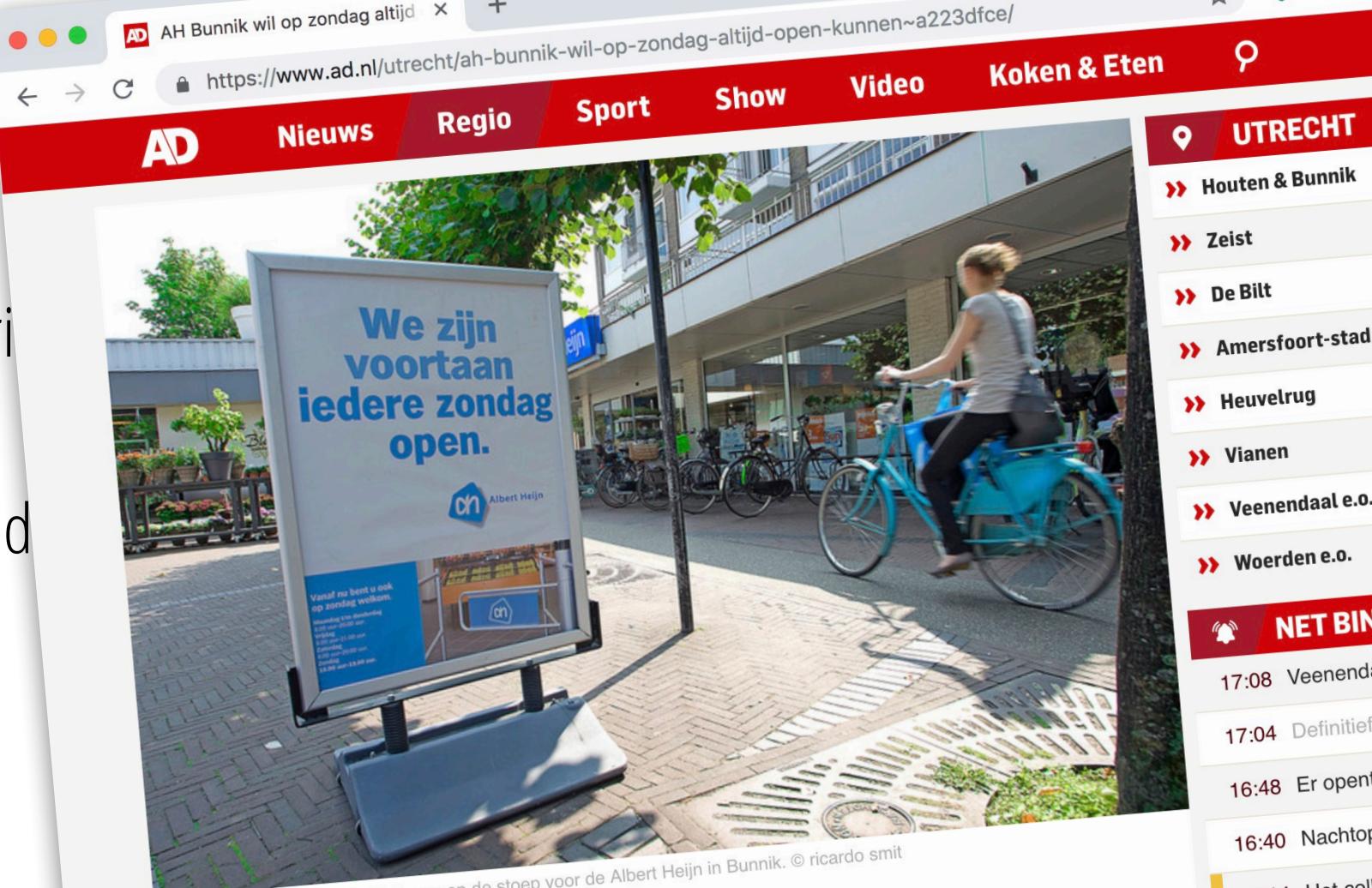
- Fixed, small, number of categories
- Human decisions
- Max ~10 push notifications per day

# CURRENT STATE OF PUSH

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publish ~500 articles per day

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A screenshot of a Dutch news website (AD.nl) titled "AH Bunnik wil op zondag altijd open kunnen". The page features a large image of a supermarket sign that reads "We zijn voortaan iedere zondag open." (We are now open every Sunday). A person is riding a blue bicycle past the sign. The website navigation bar includes links for Nieuws, Regio, Sport, Show, Video, Koken & Eten, and a search icon. On the right side, there's a sidebar for "UTRECHT" with links to various towns like Houten & Bunnik, Zeist, De Bilt, Amersfoort-stad, Heuvelrug, Vianen, Veenendaal e.o., and Woerden e.o. Below that is a "NET BINNEN" section with a list of recent news items.

17:08 Veenendaal

17:04 Definitief

16:48 Er open

16:40 Nachtop

16:14 Het col

16:04 Tiental

15:46 Apothek

15:45 Brug

15:38 Deel

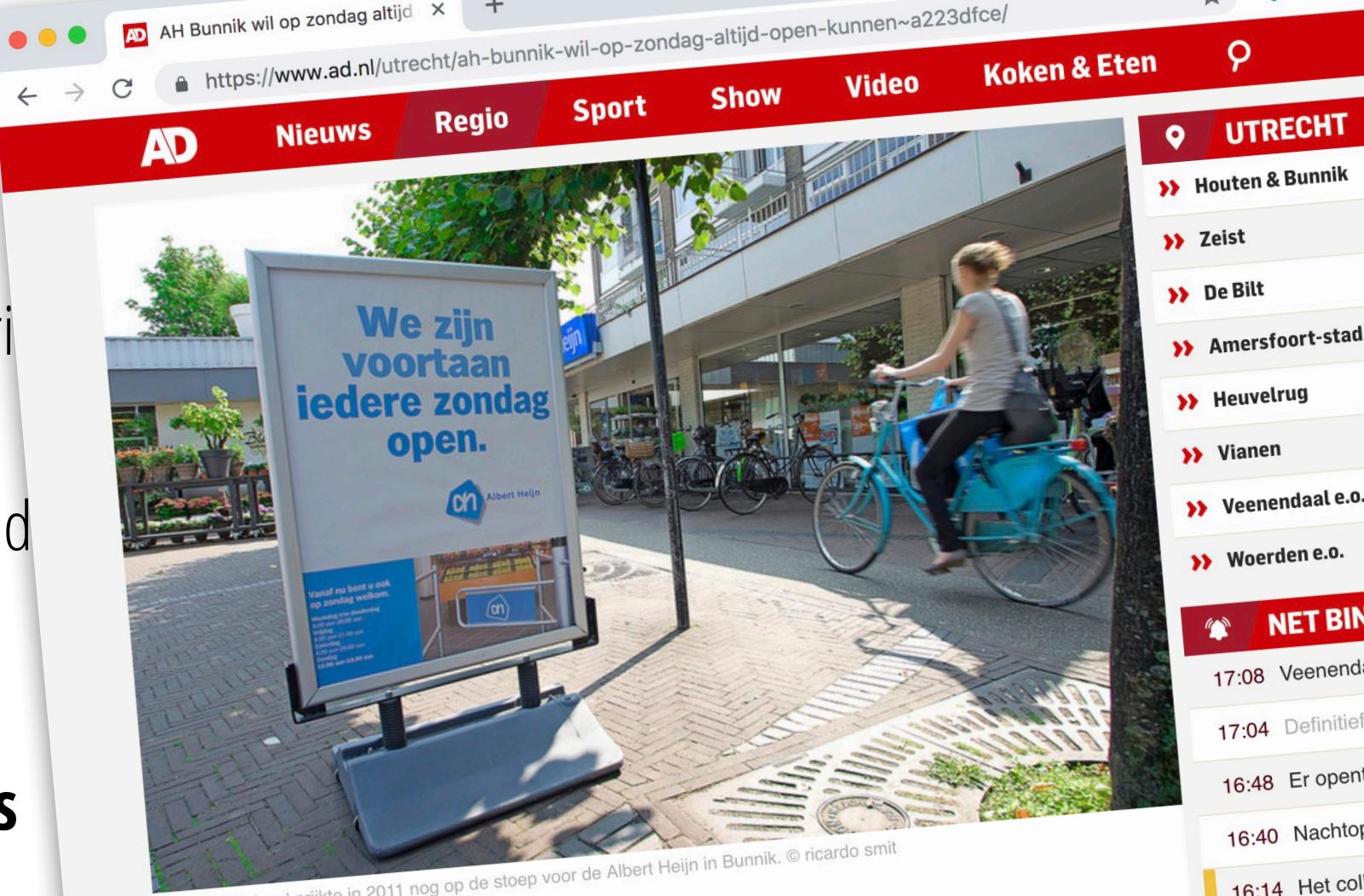
15:35 Veilig

## AH Bunnik wil op zondag altijd open kunnen

De Albert Heijn-winkel in Bunnik heeft steeds meer last van concurrentie van boodschappenbezorgers als Picnic en AH.nl. Daarom wil de supermarkt meer vrijheid om open te zijn wanneer dat uitkomt. In de praktijk wil dat zeggen: meer

# CURRENT STATE OF PUSH

- Fixed, small, number of categories
- Human decisions
- Max ~10 push notifications per day
- AD + regional newspapers publish ~500 articles per day
- **GOAL: push all 500 articles**



A screenshot of a Dutch news website (AD.nl) titled "AH Bunnik wil op zondag altijd open kunnen". The page features a large image of a supermarket sign that reads "We zijn voortaan iedere zondag open." (We are now open every Sunday). A person is riding a blue bicycle past the sign. The website navigation bar includes links for Nieuws, Regio, Sport, Show, Video, Koken & Eten, and a search icon. On the right side, there's a sidebar for "UTRECHT" with links to various towns like Houten & Bunnik, Zeist, De Bilt, Amersfoort-stad, Heuvelrug, Vianen, Veenendaal e.o., and Woerden e.o. Below that is a "NET BINNEN" section with a list of recent news items.

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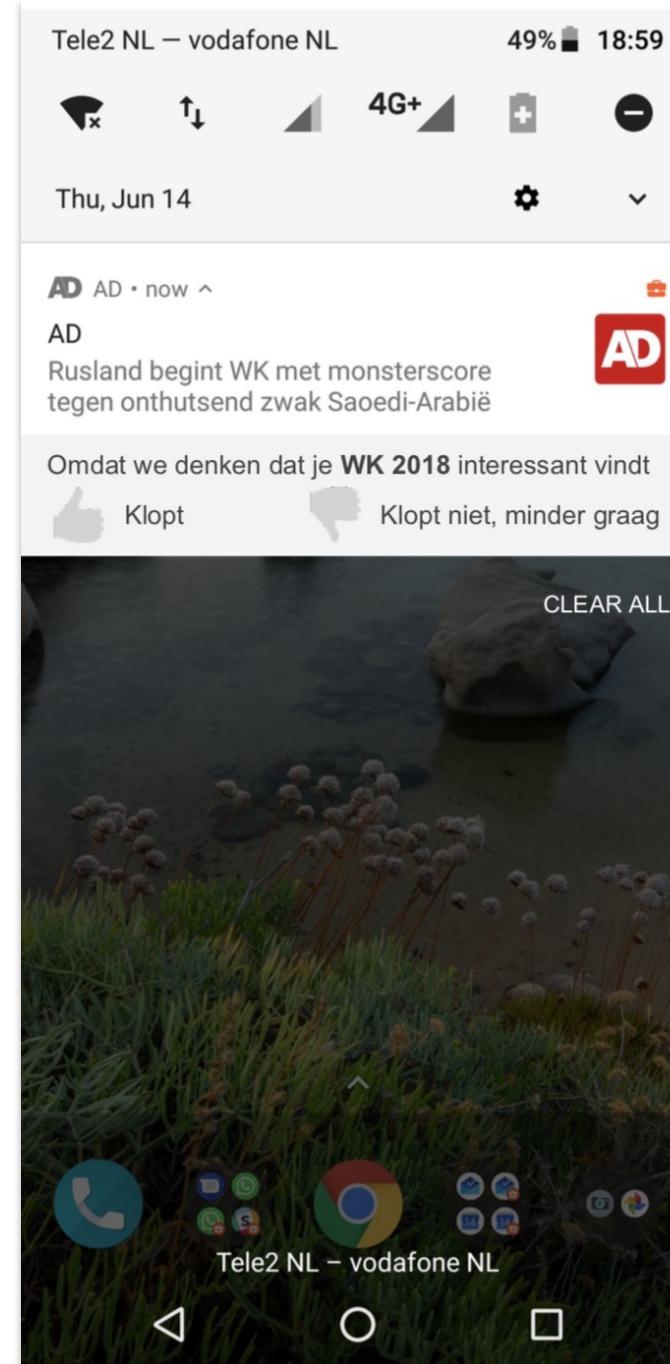
15:35 Veilig

## AH Bunnik wil op zondag altijd open kunnen

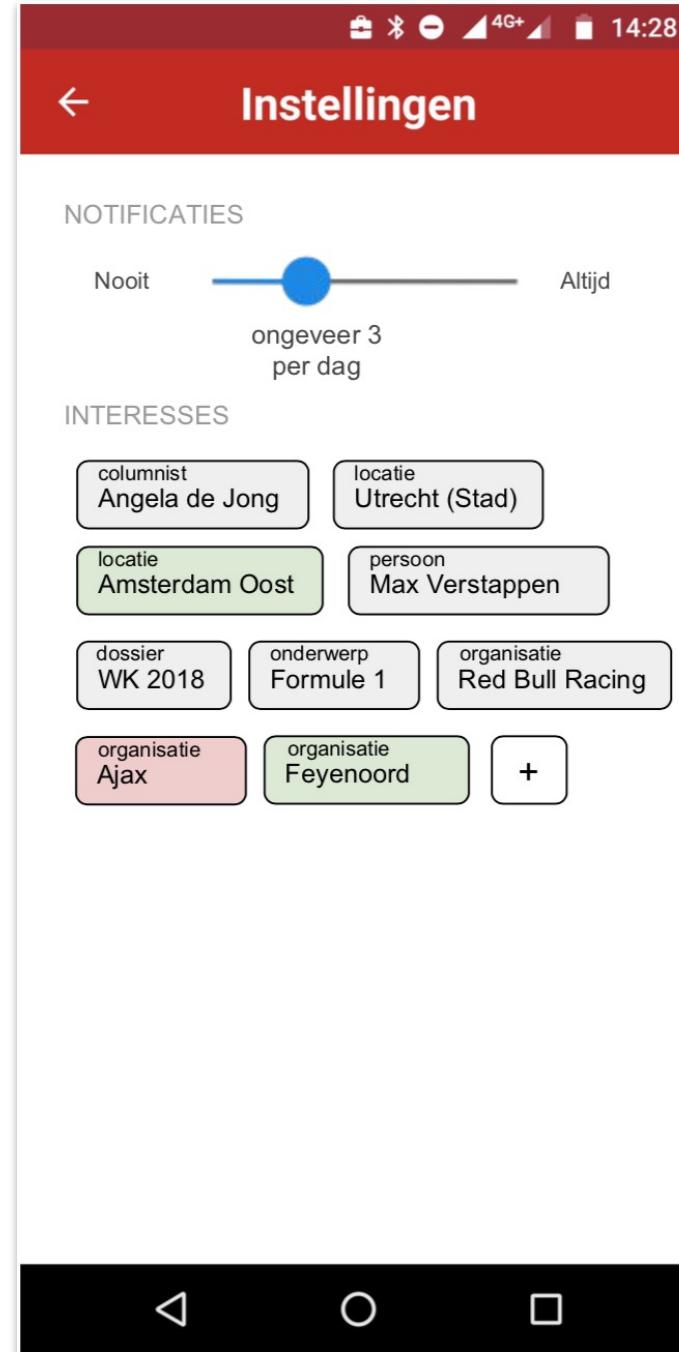
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# (NEAR) FUTURE STATE OF PUSH

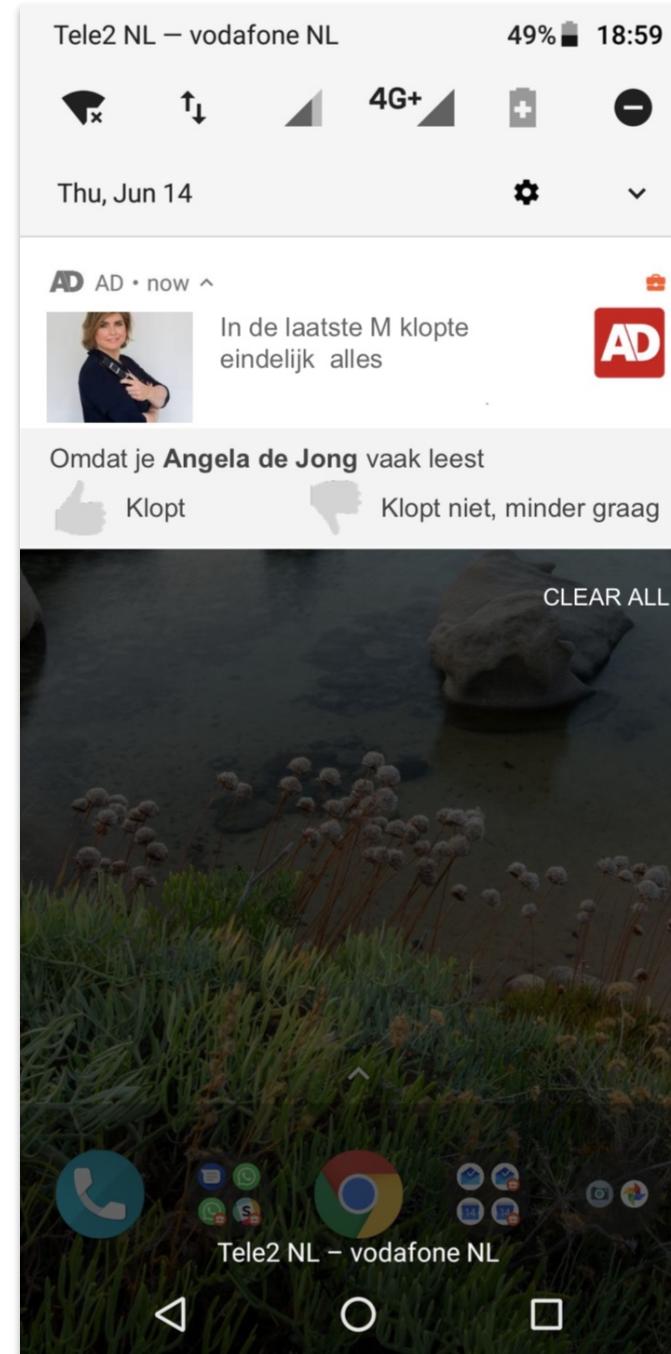
# PERSONALISED PUSH



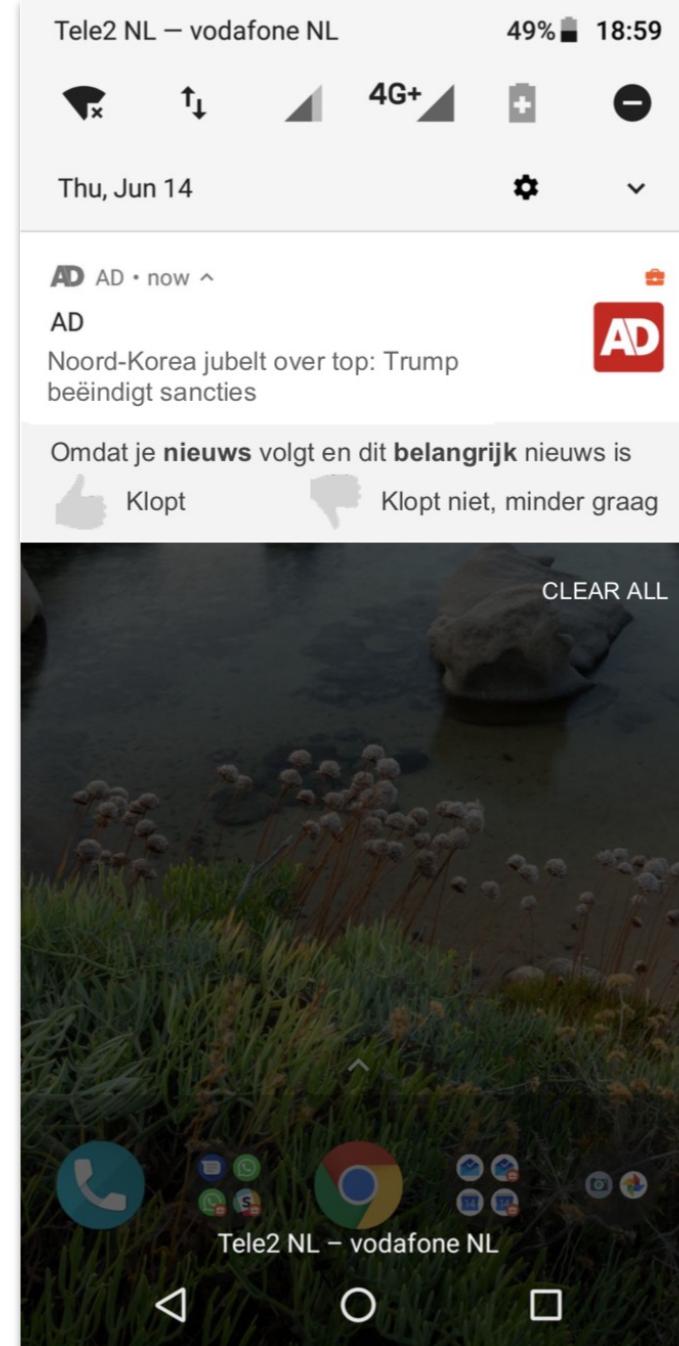
# USER PROFILES



# EXPLAINING RECOMMENDATIONS



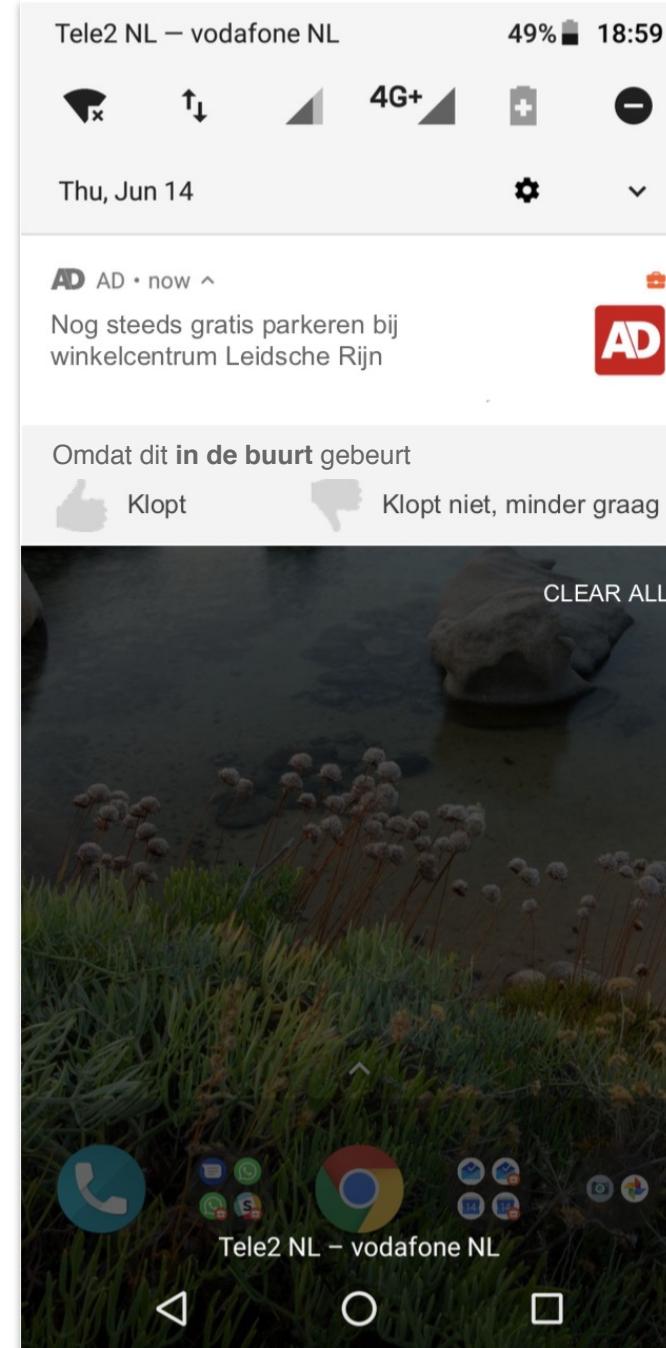
# MUST READS



# OPPOSING OPINIONS



# LOCAL NEWS



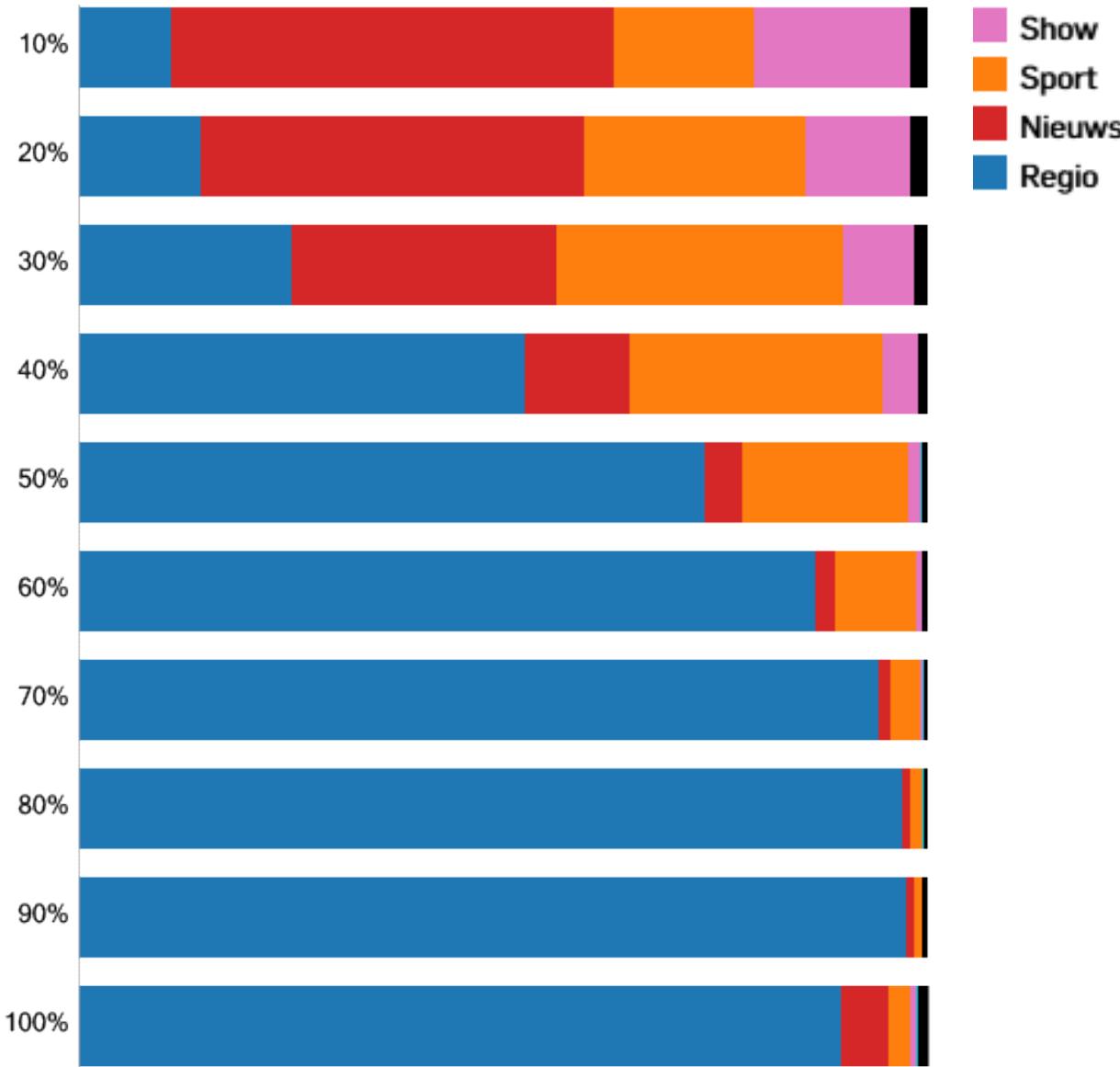
Most read

10%



- Show
- Sport
- Nieuws
- Regio

Most read



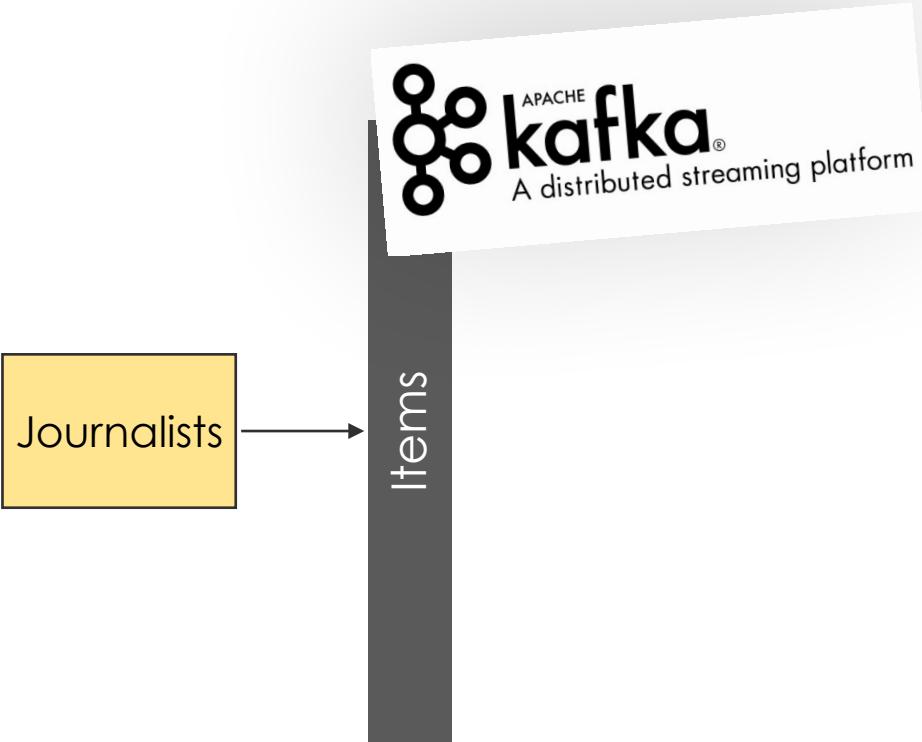
Least read

# HOW WE PERSONALISE PUSH

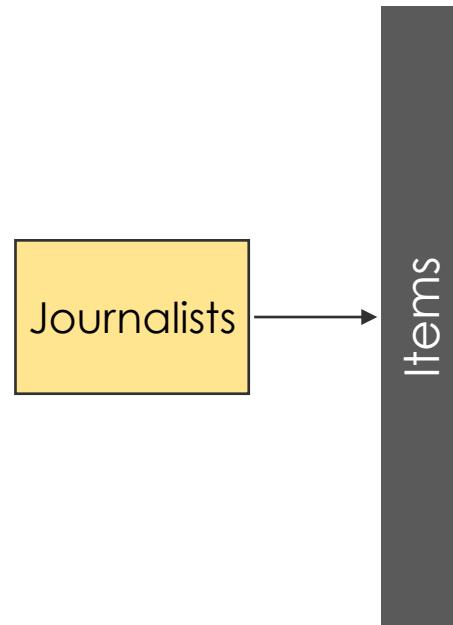
# OUR ARCHITECTURE

Journalists

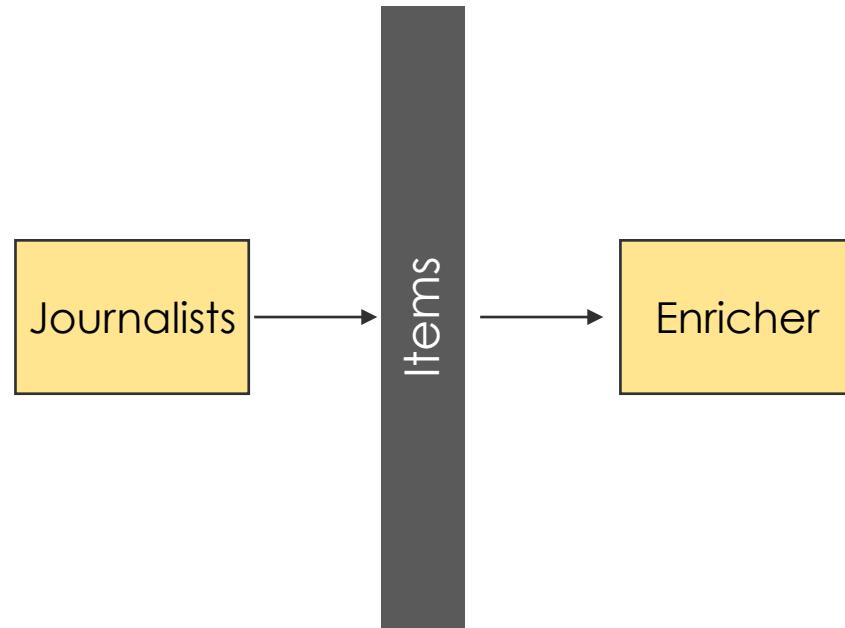
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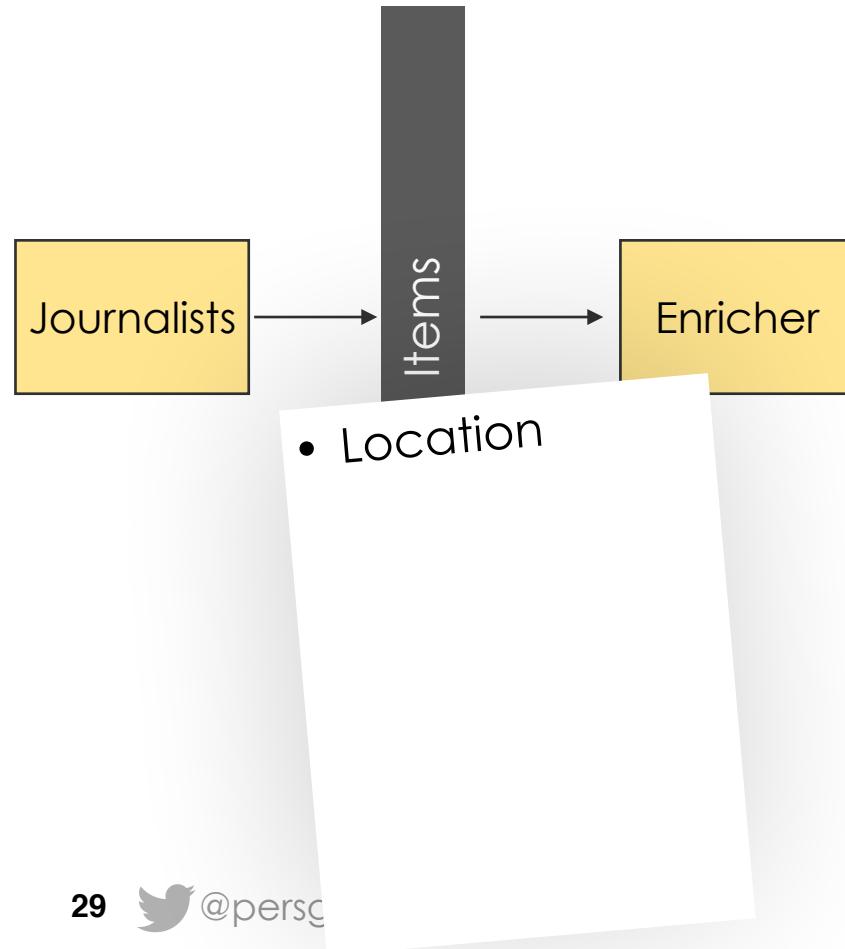
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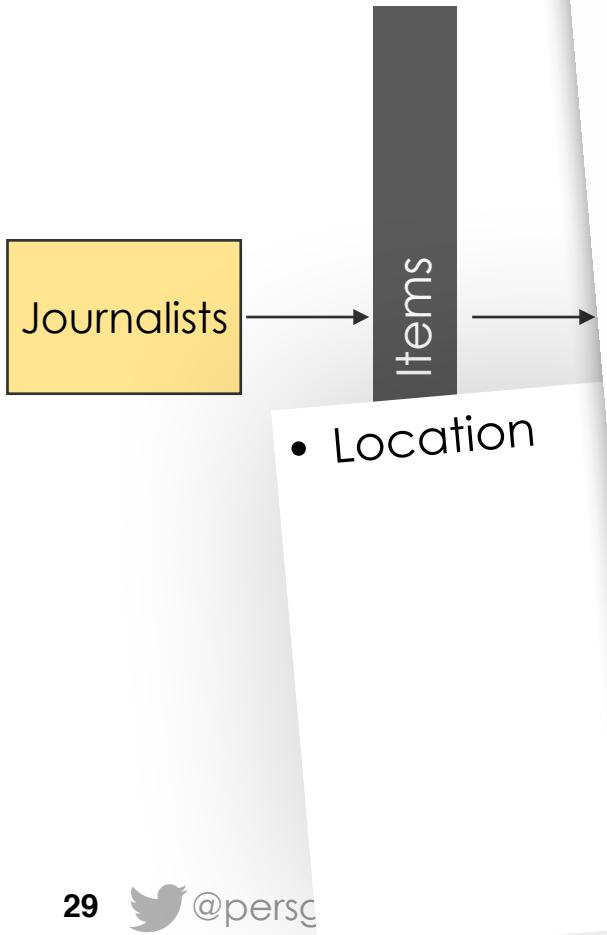
# OUR ARCHITECTURE



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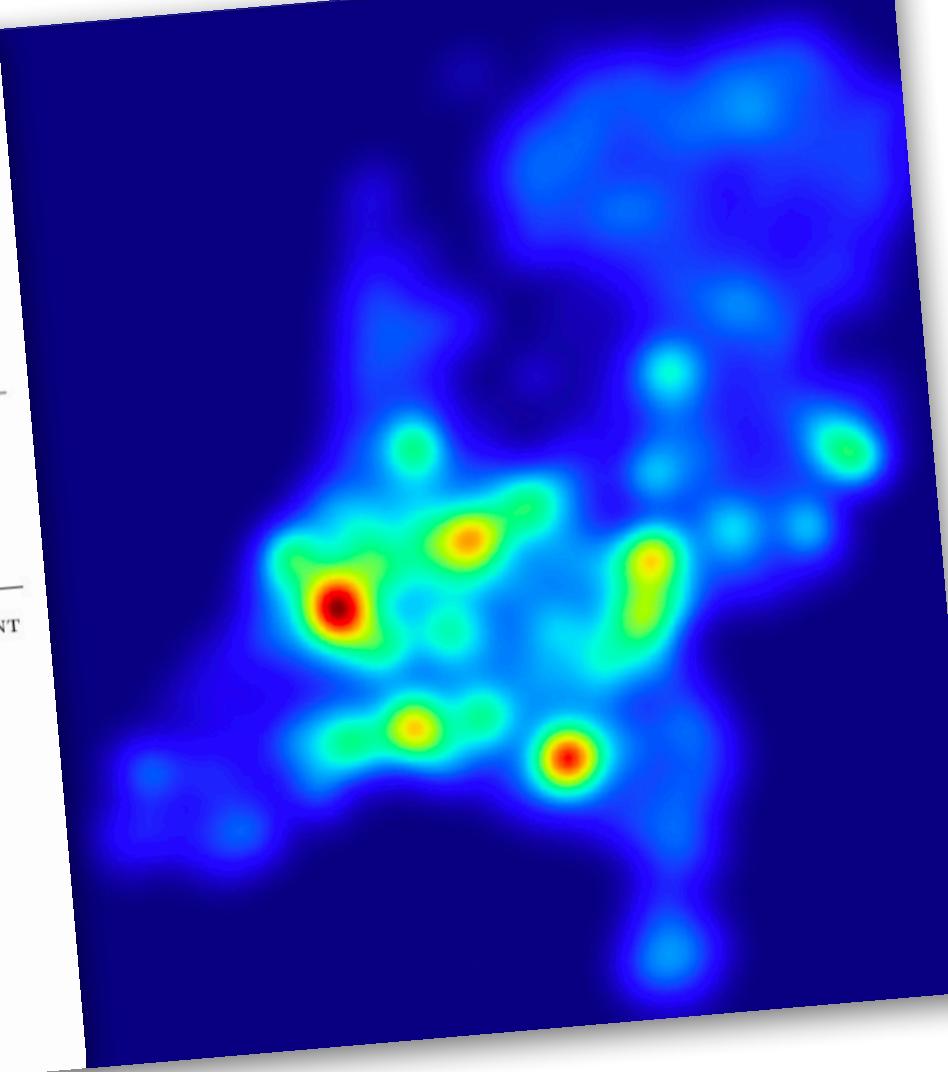


## Analysis of Regional Bias in Newspaper Articles using Numerical Statistics

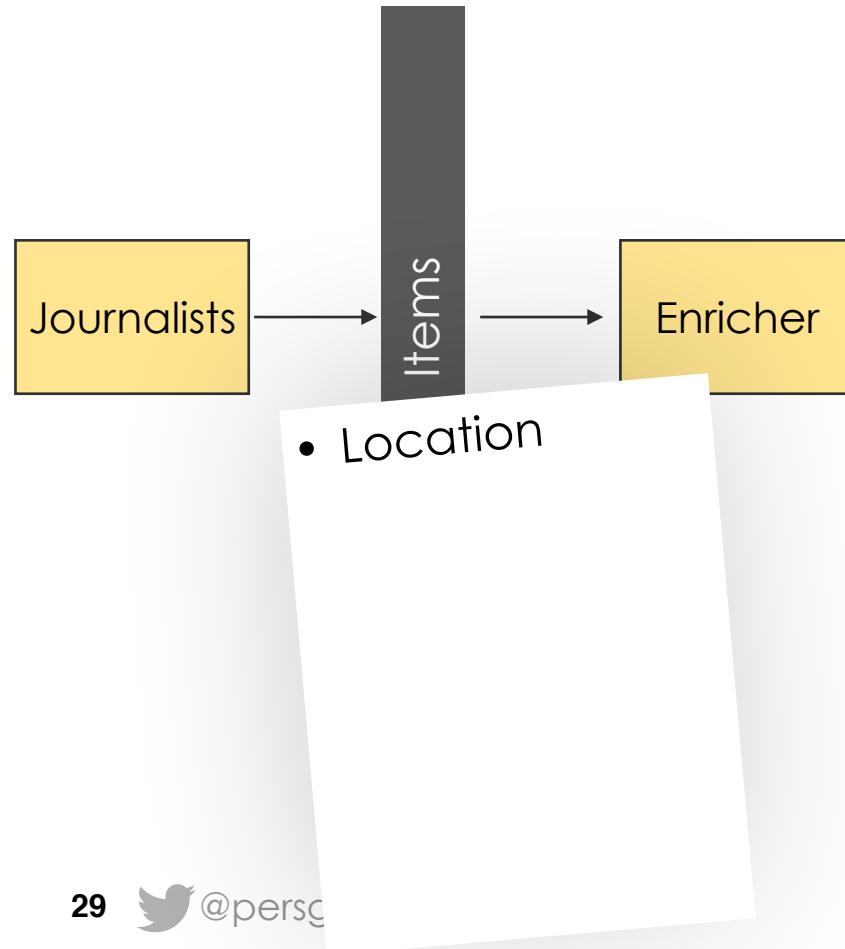
*A research project conducted as part of THE SECOND YEAR PROJECT for DE VOLSKRANT*

Joris Bakker,  
Rico Bakker,  
Thomas Bellucci,  
Hidde Lekanne Deprez,  
Mitchell Verhaar,  
Jorrit Ypenga

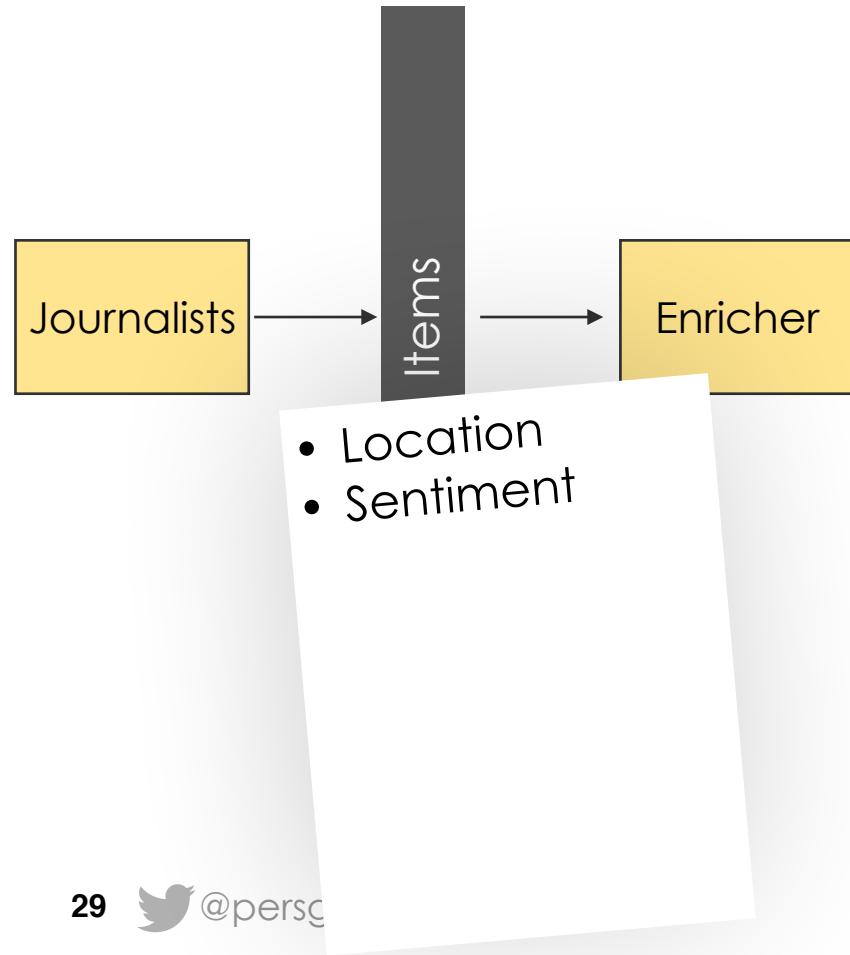
Date of Submission:  
July 1, 2018



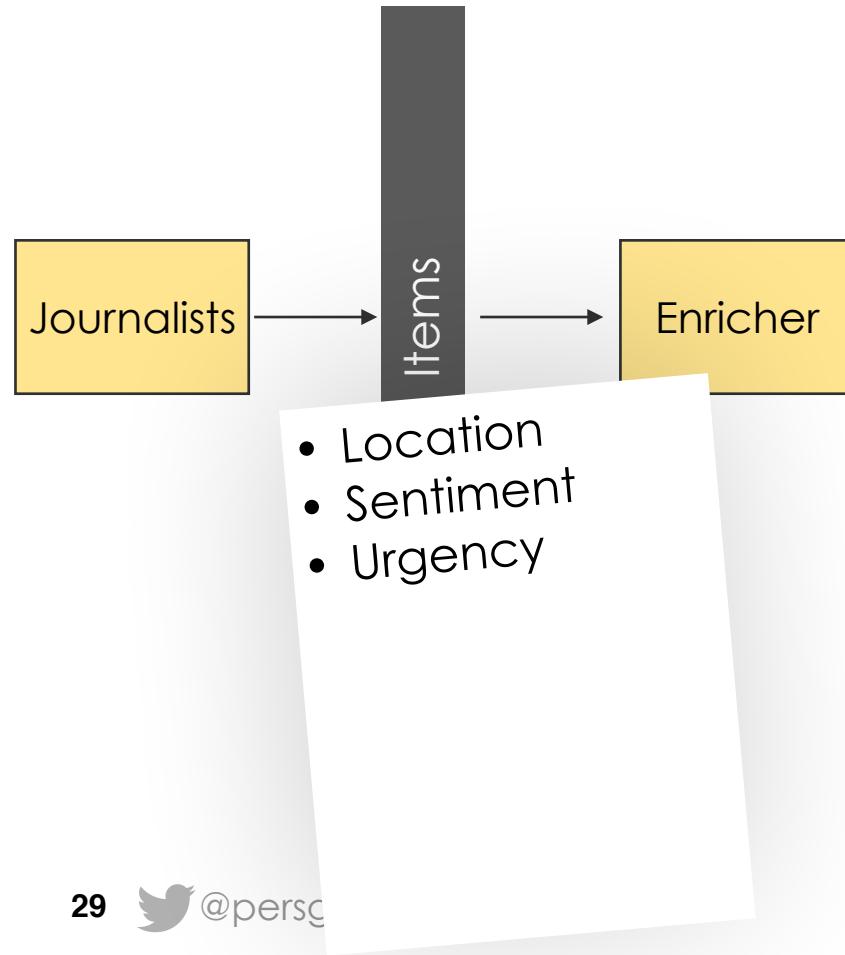
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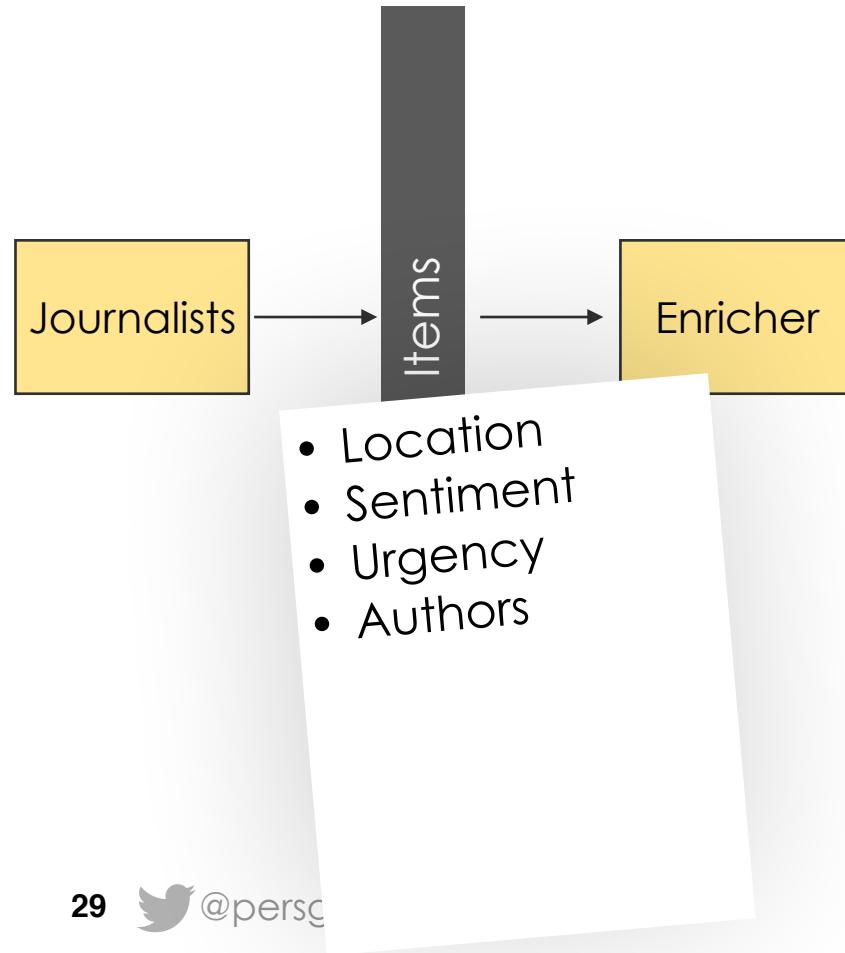
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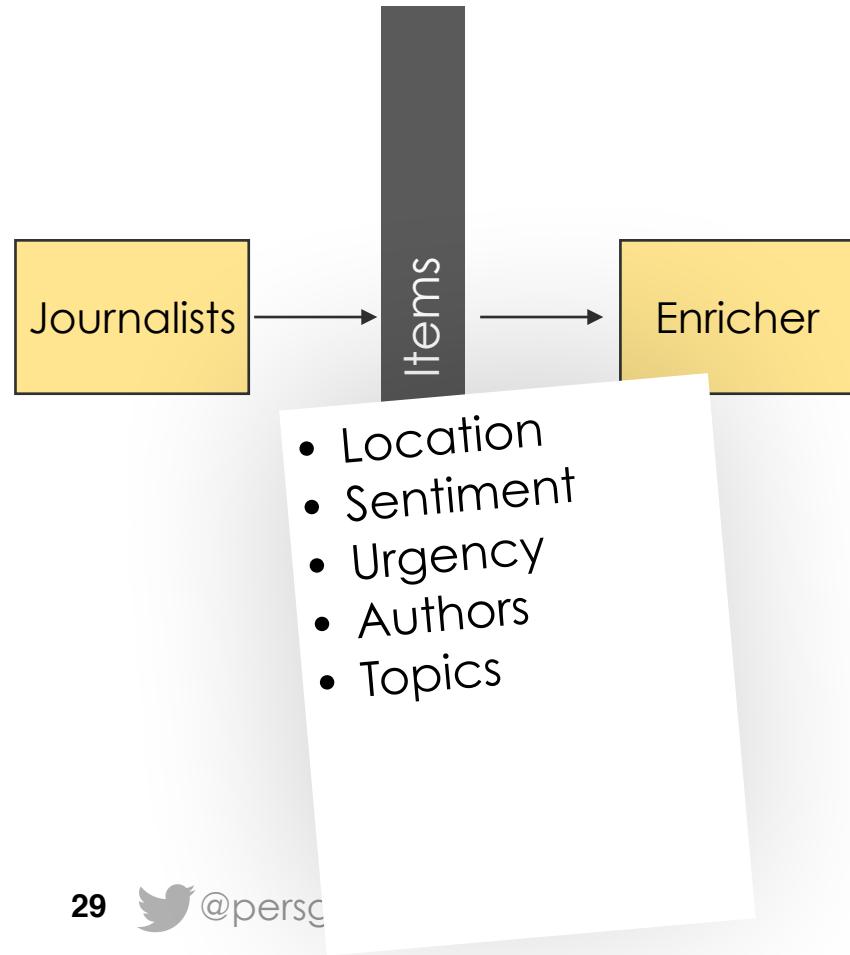
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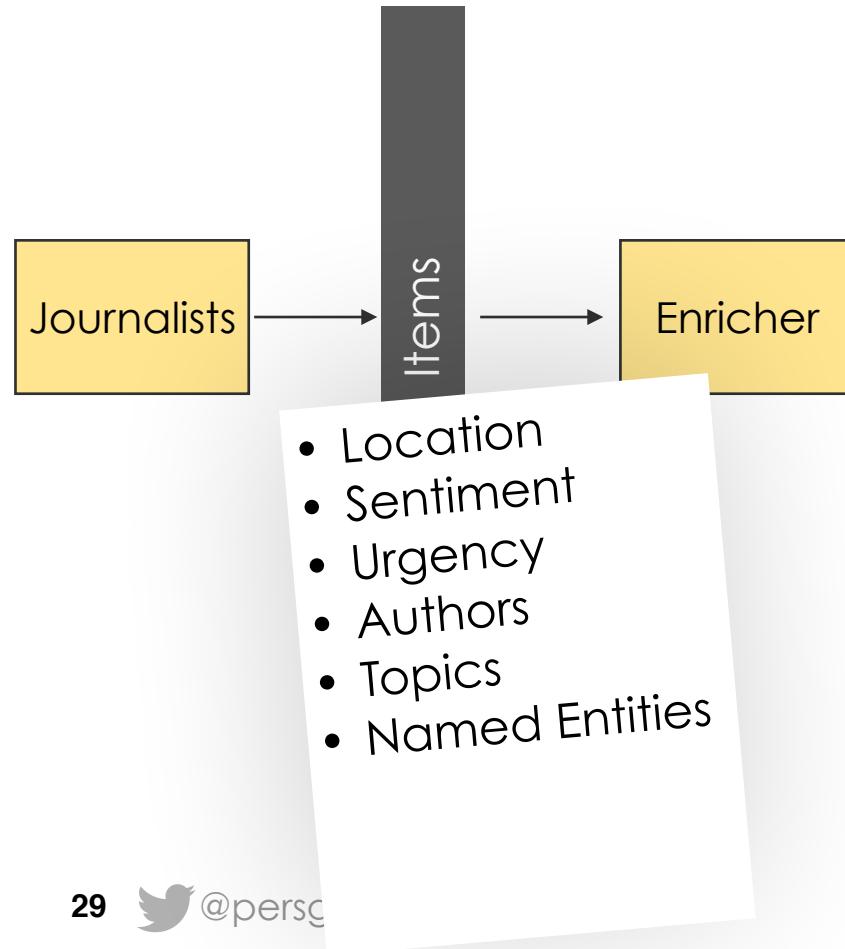
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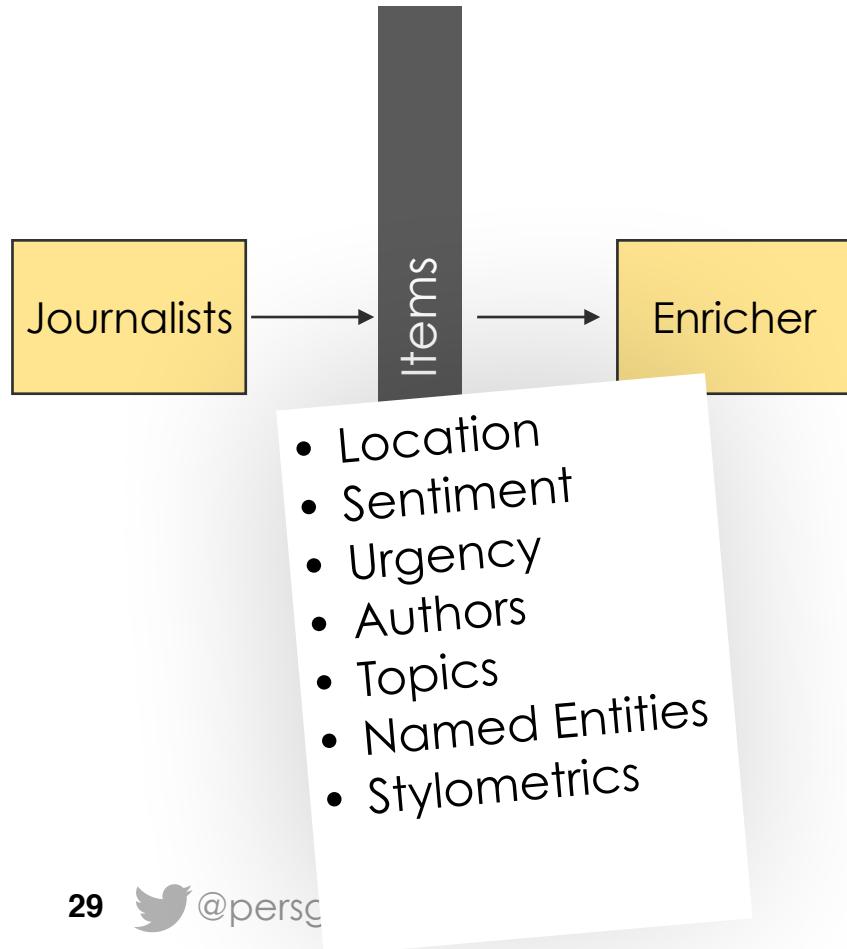
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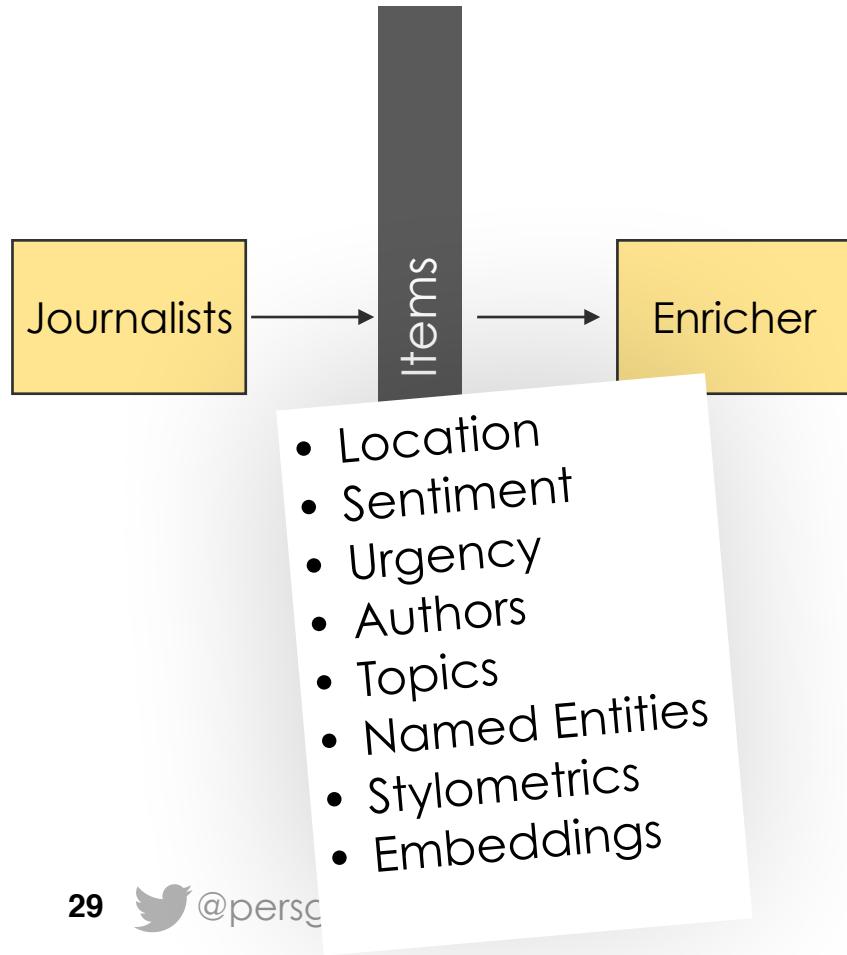
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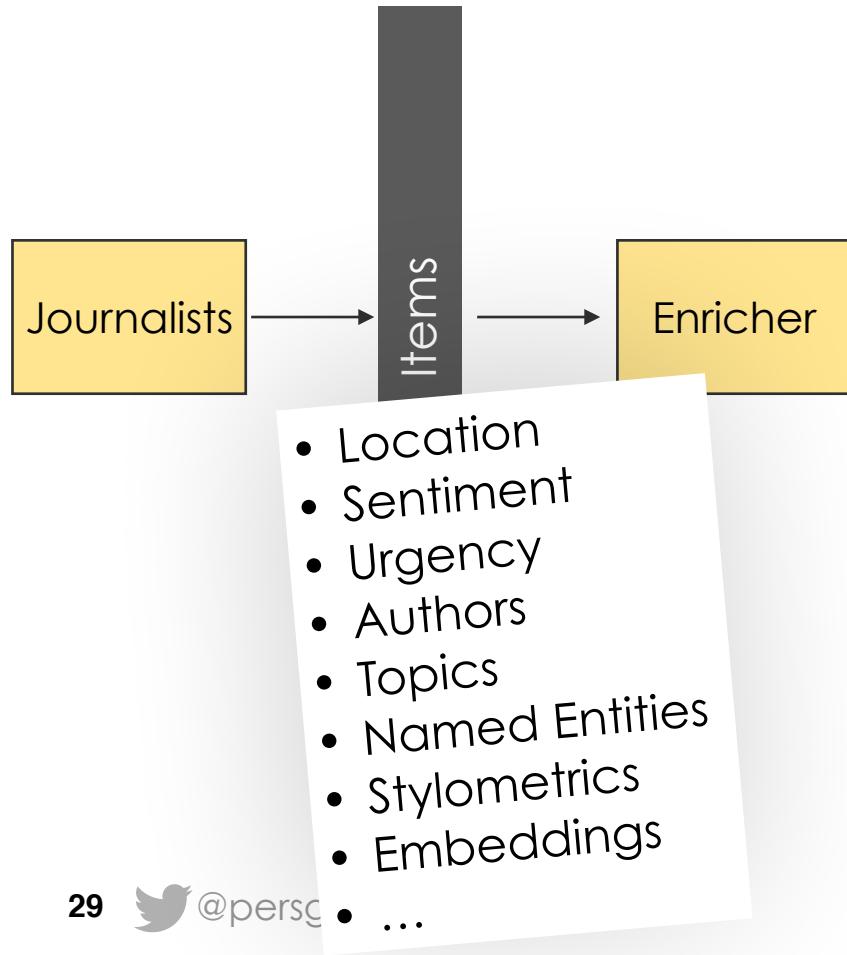
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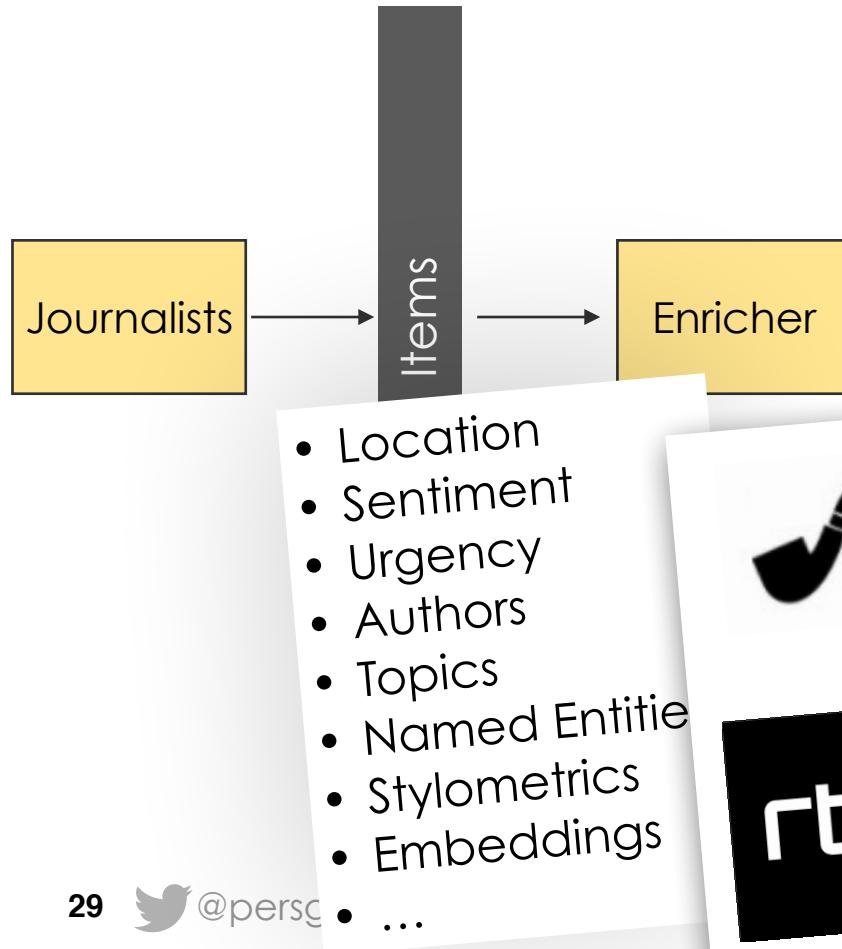
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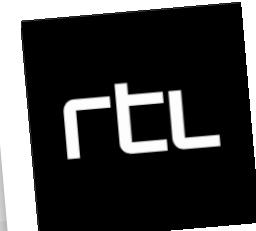
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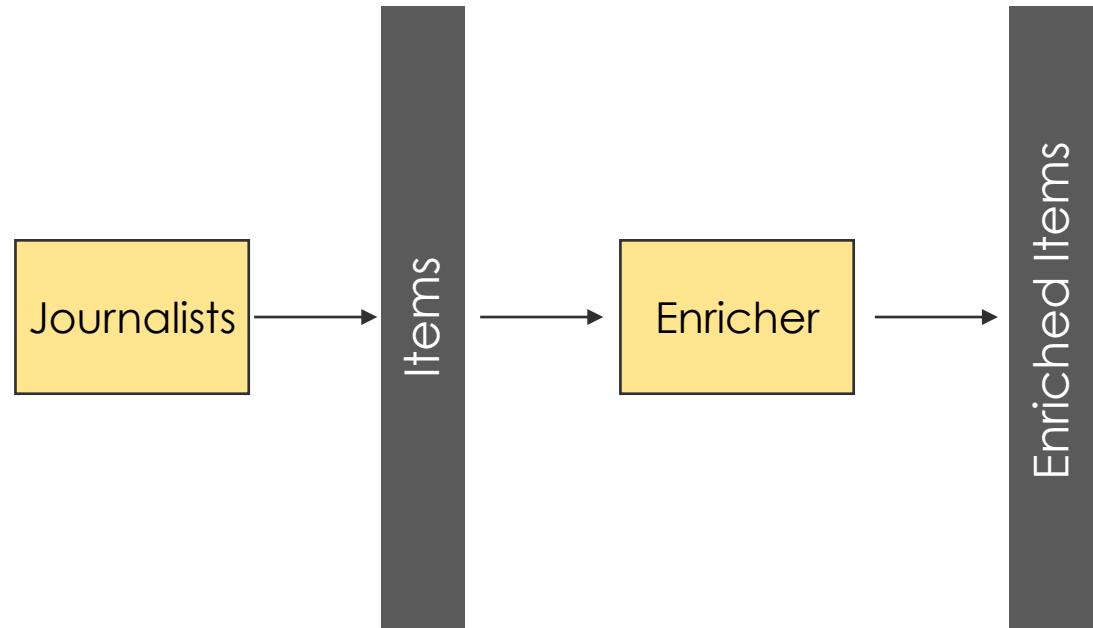
<https://github.com/textpipe>



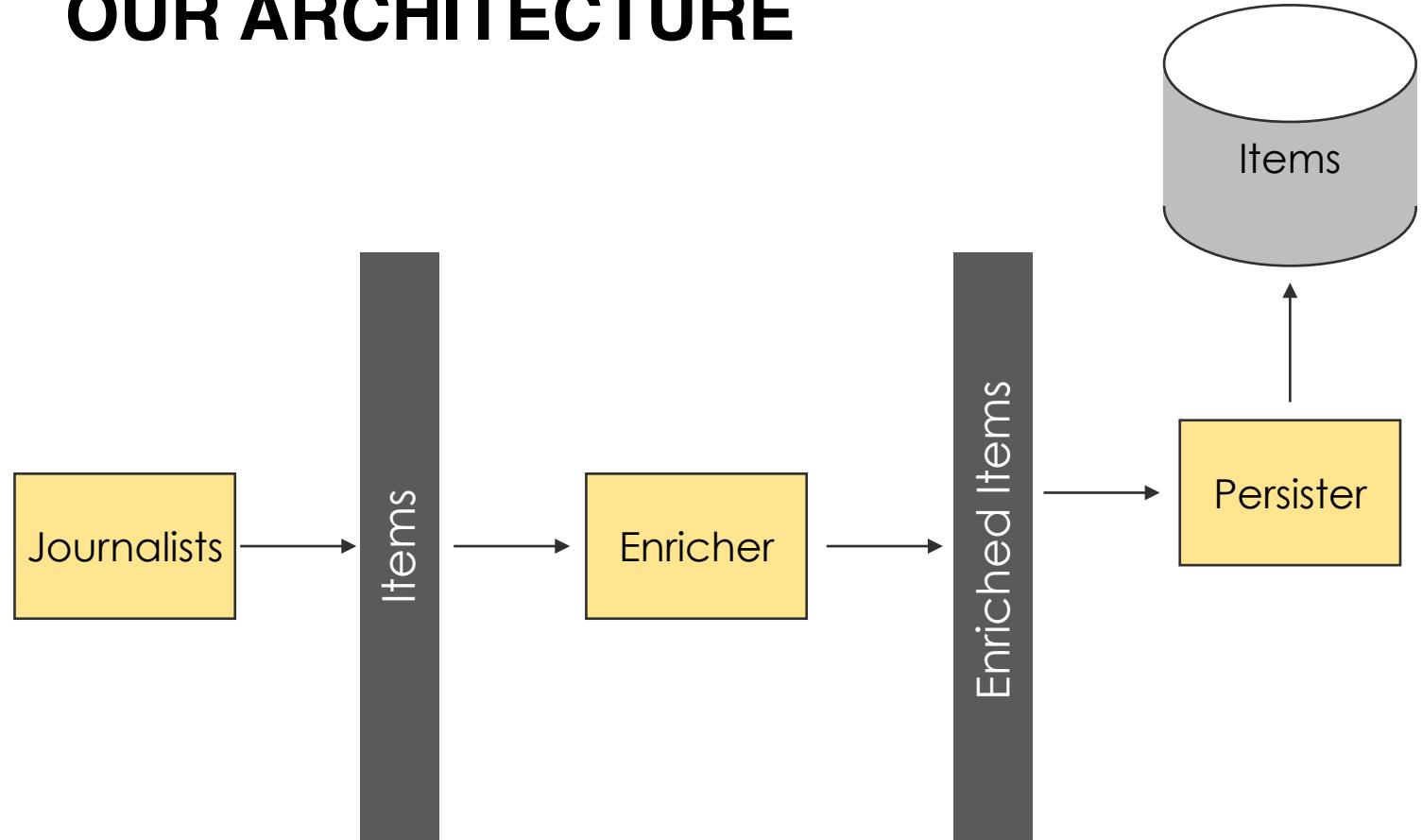
D E P E R S G R O E P .

D E P E R S G R O E P .

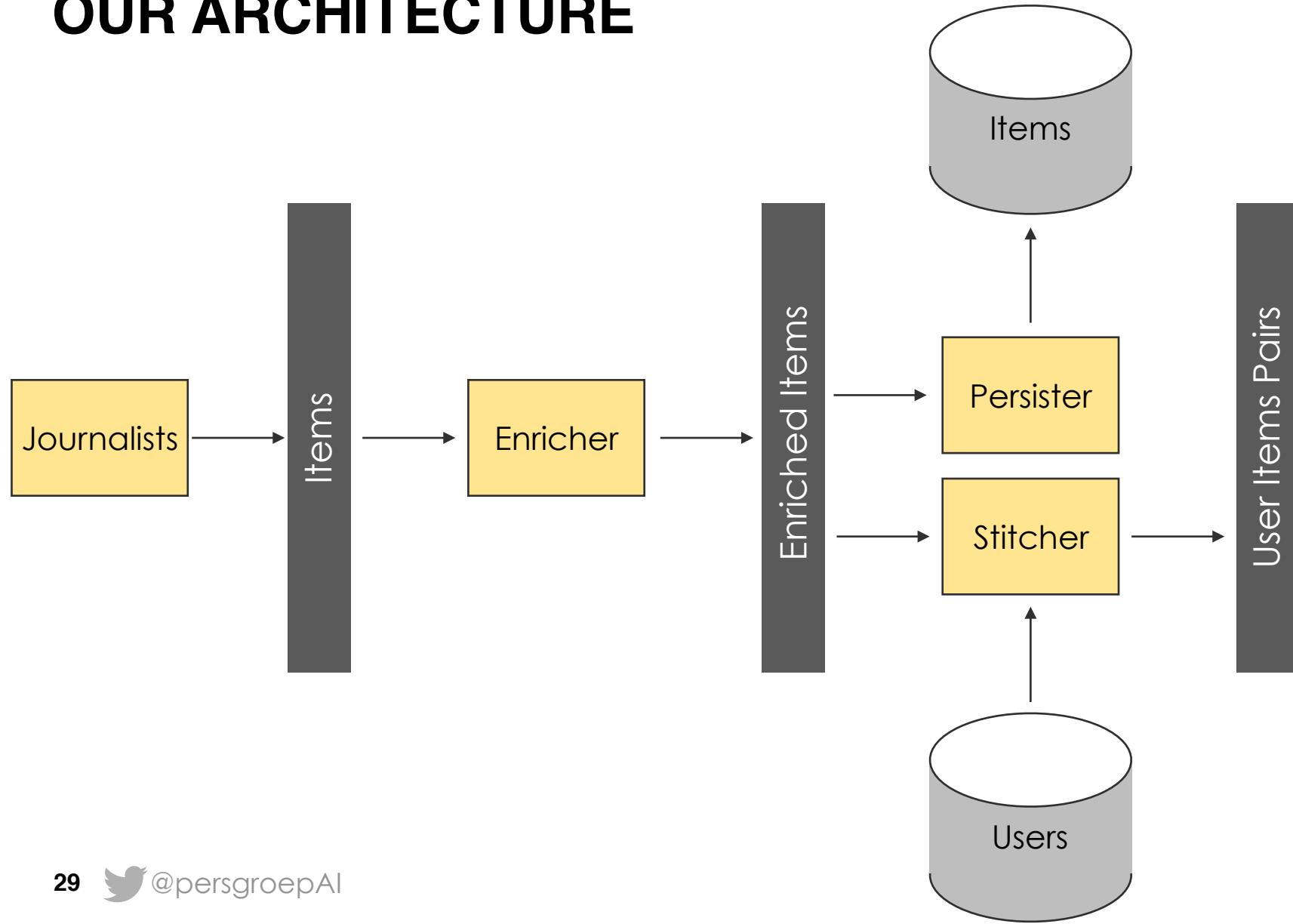
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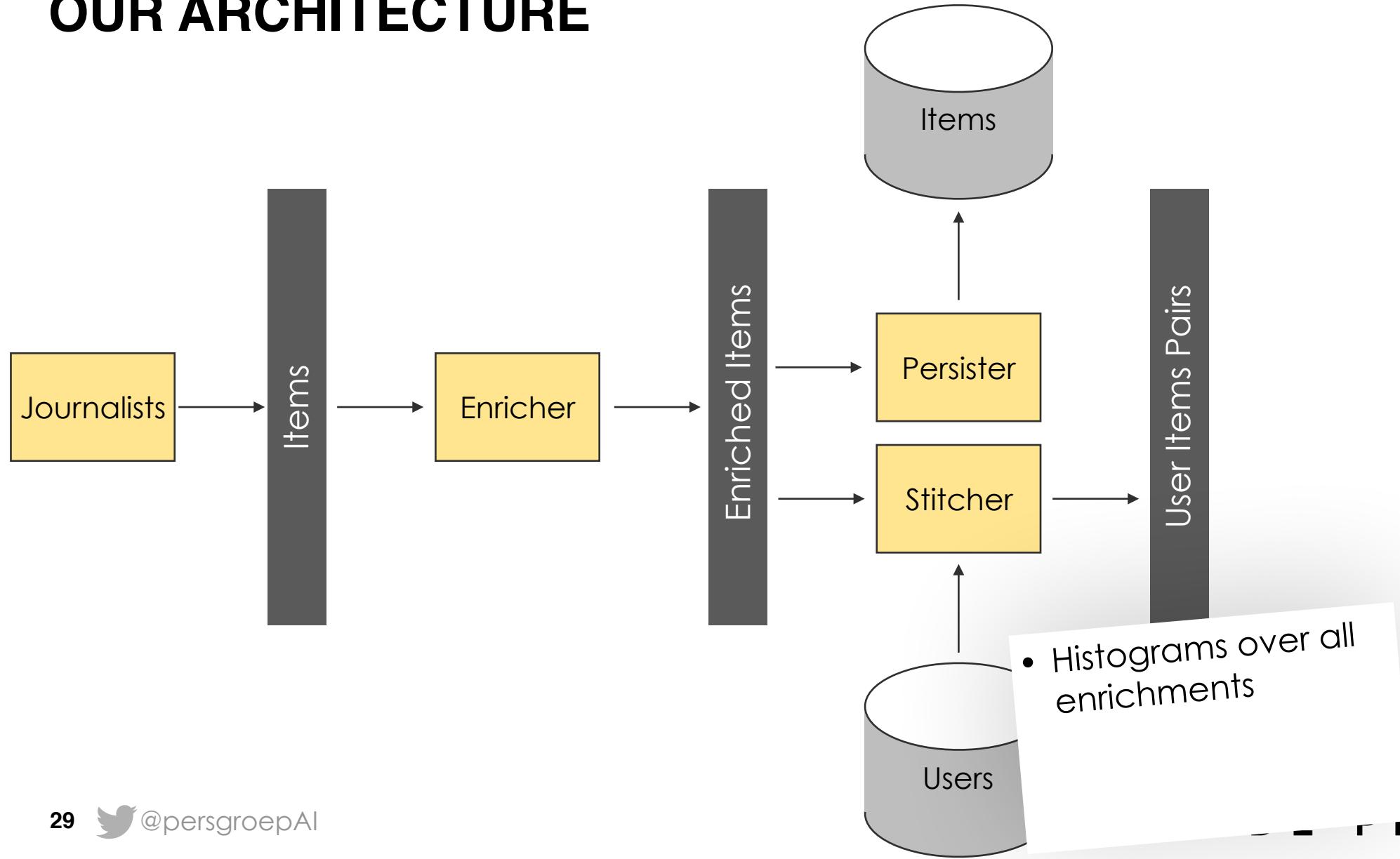
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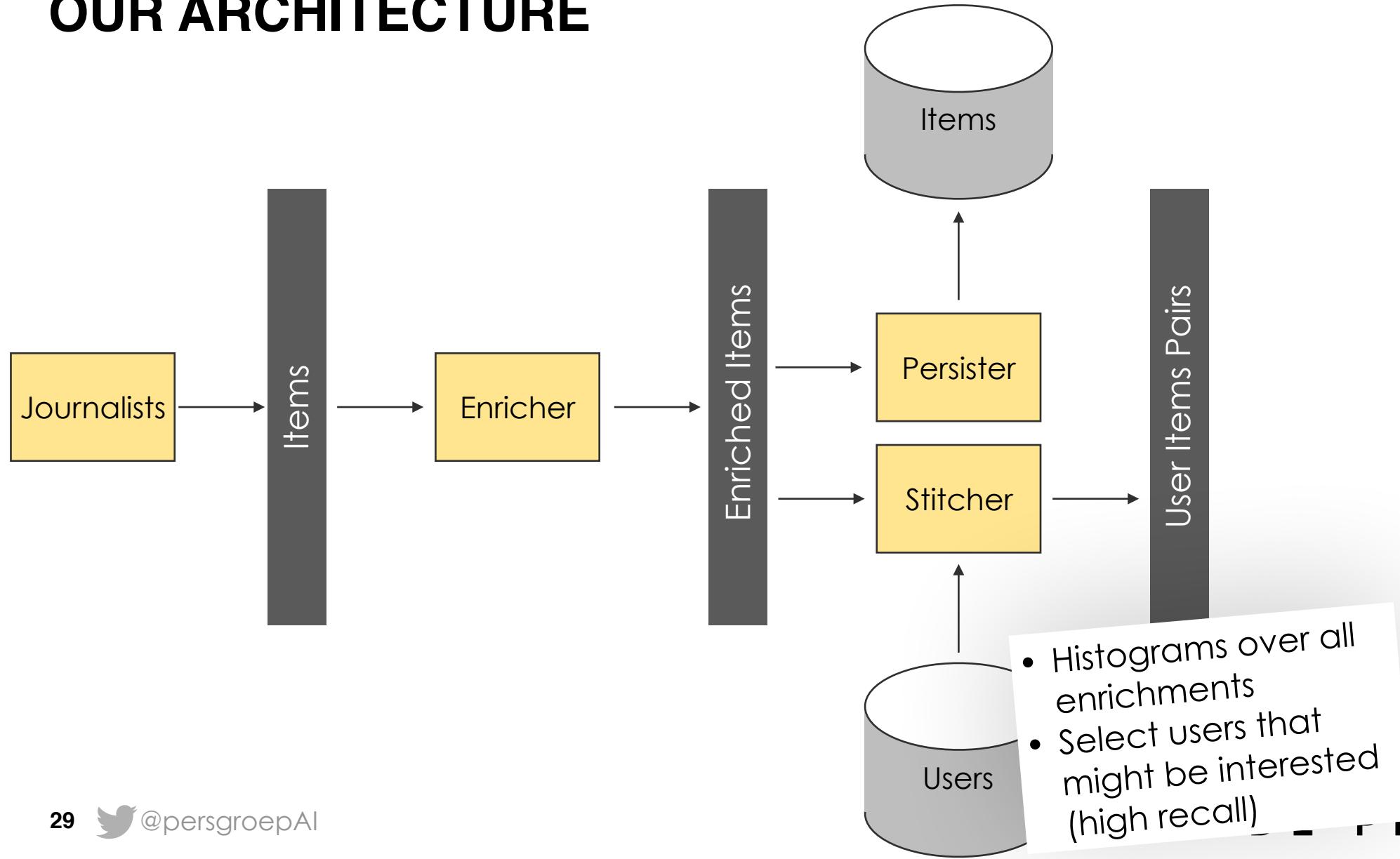
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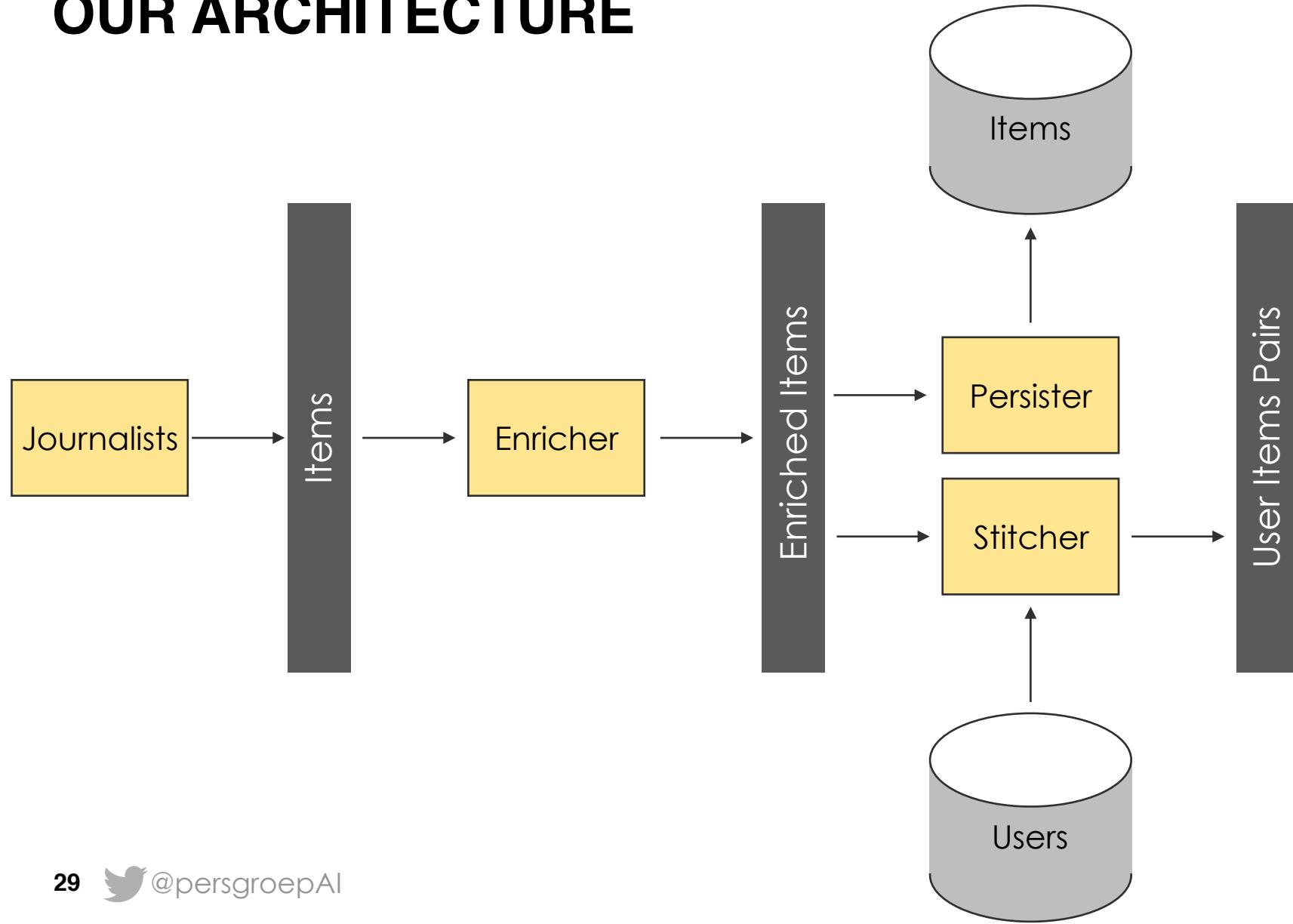
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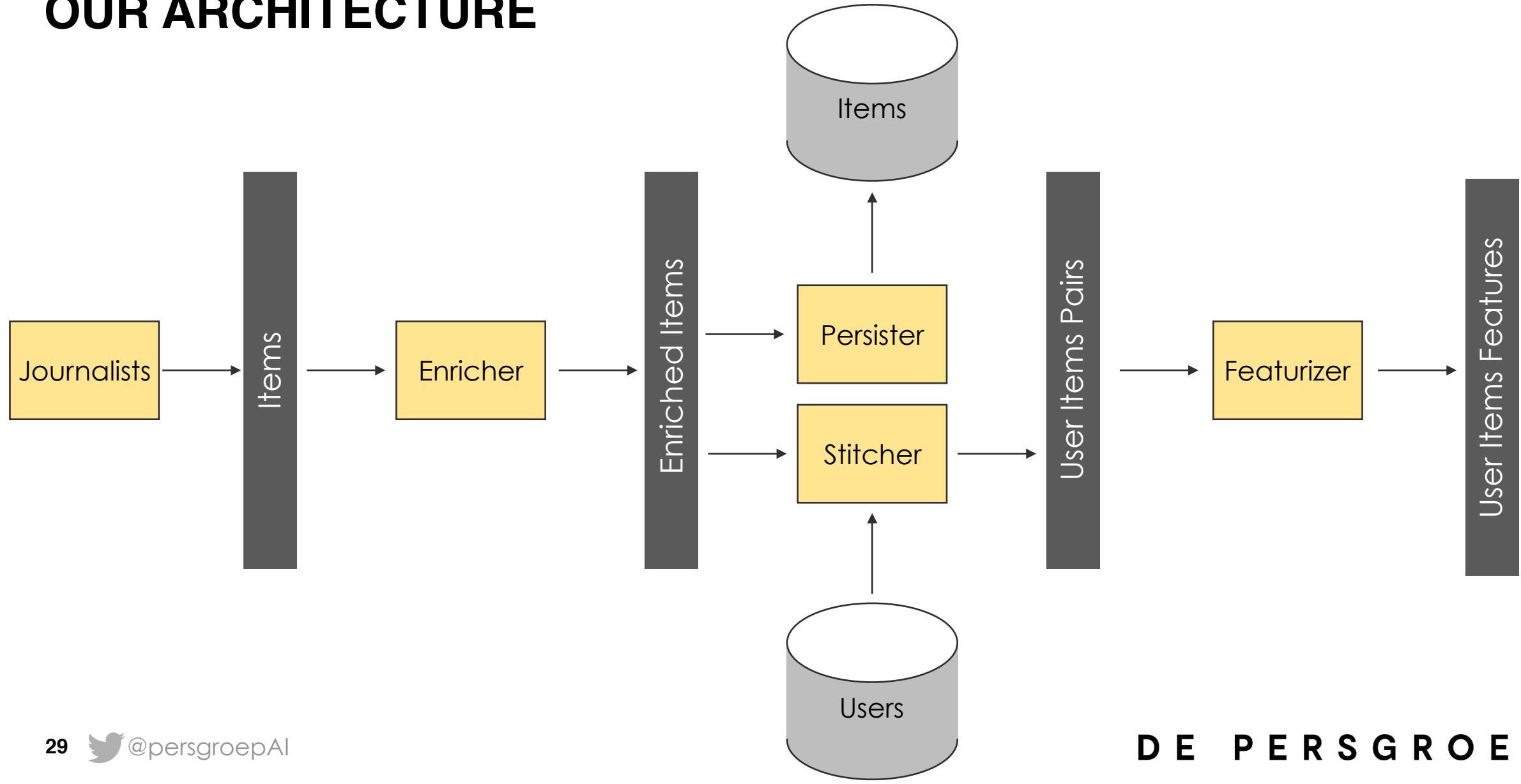
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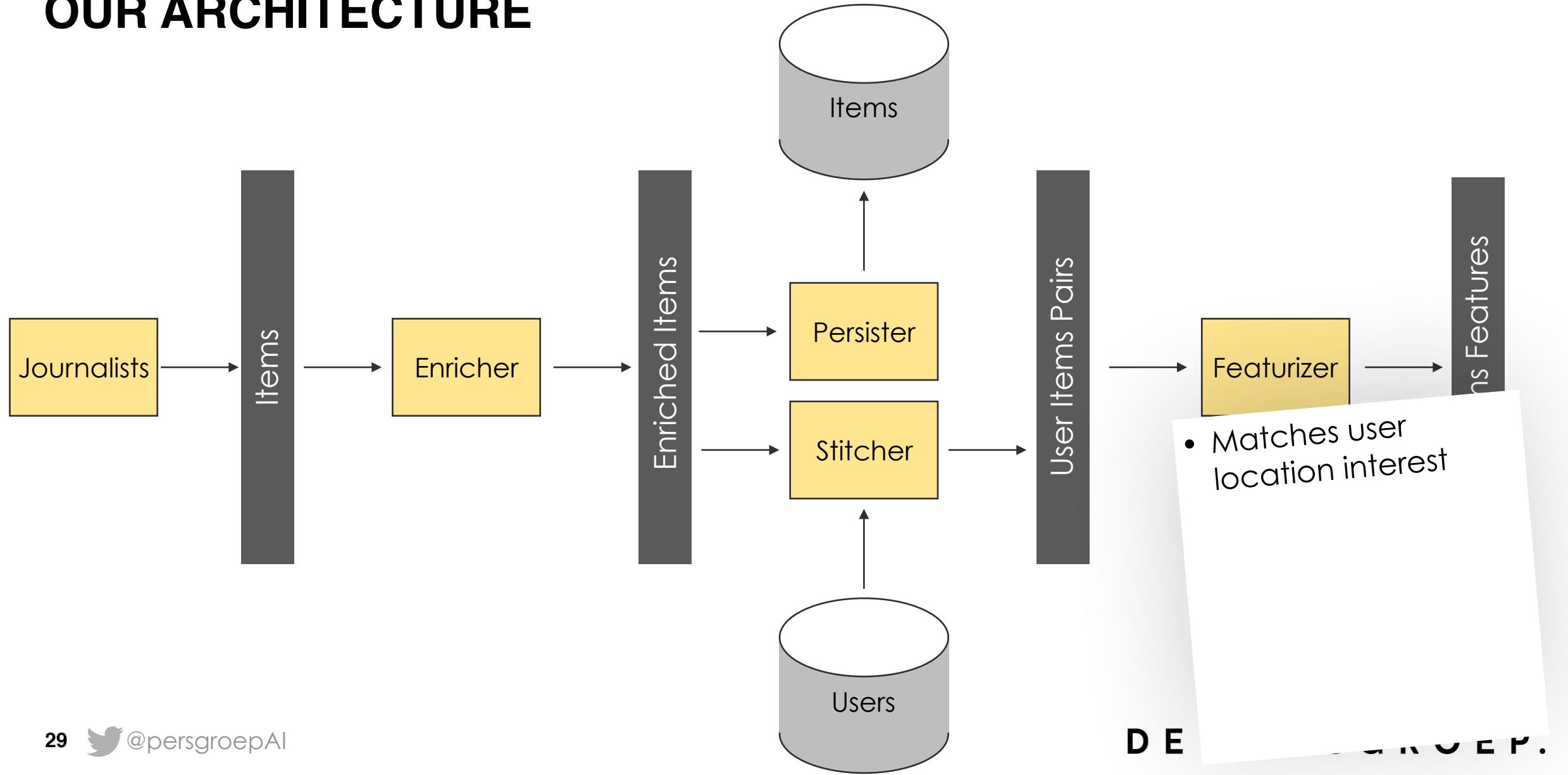
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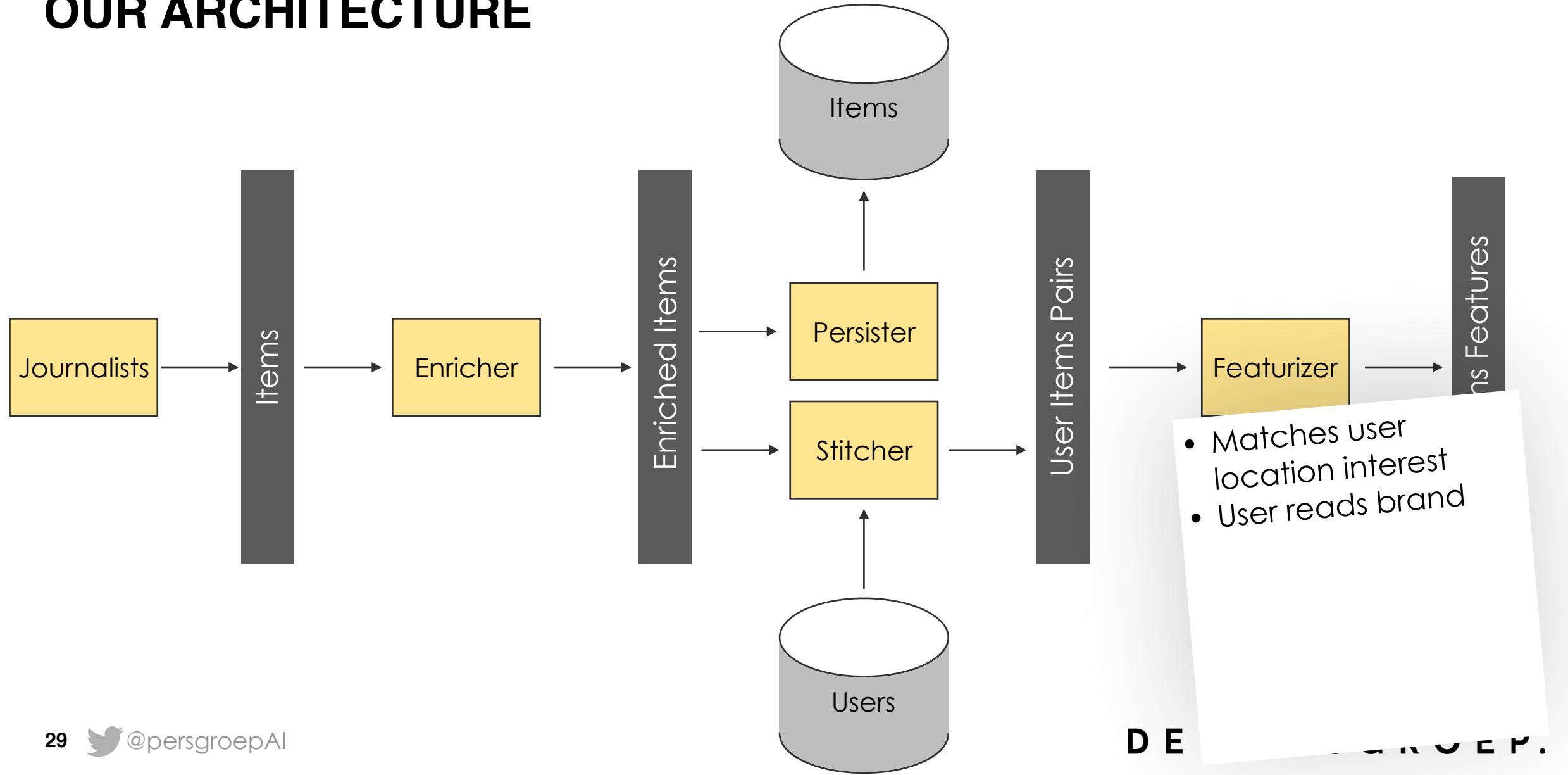
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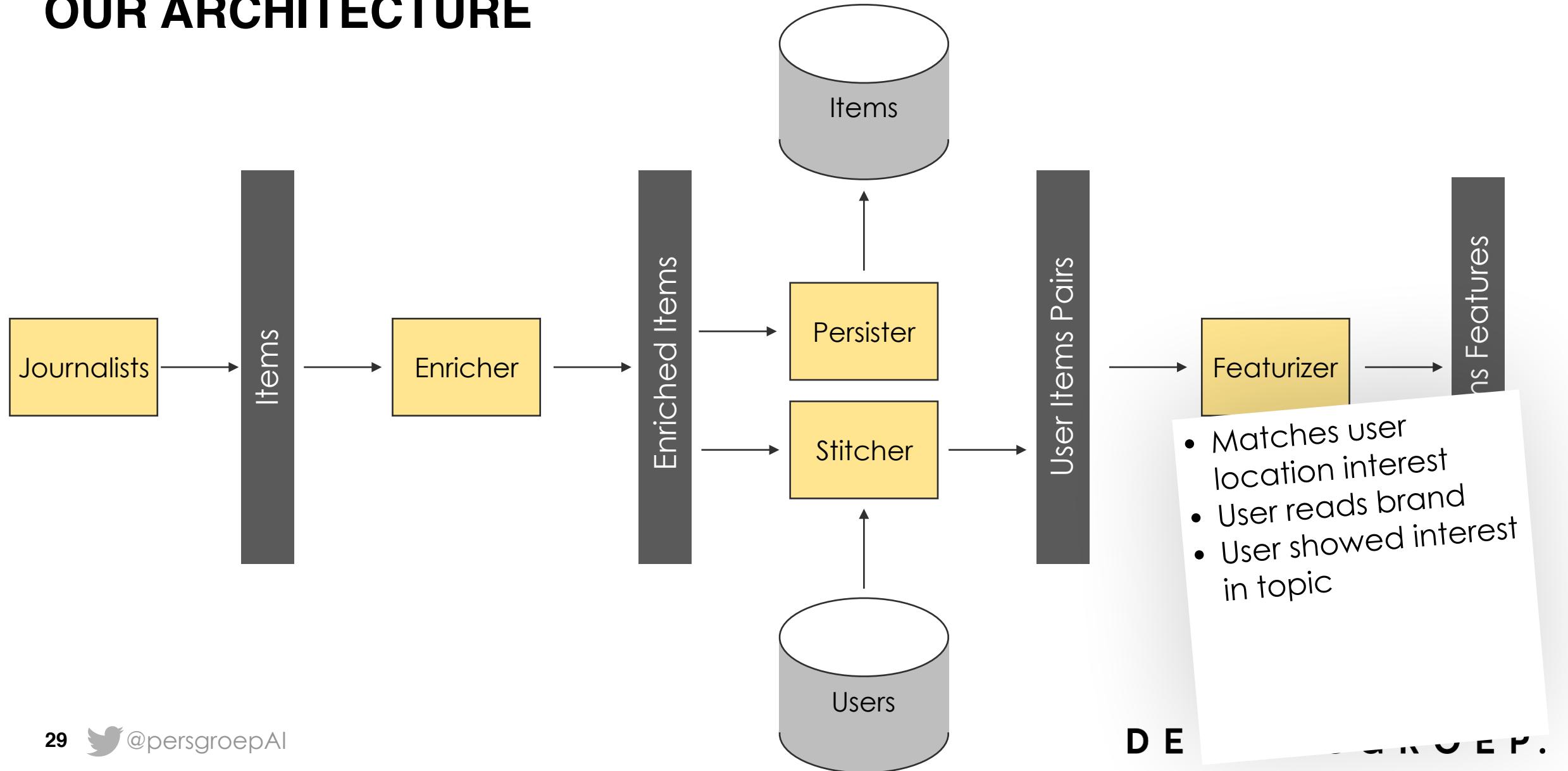
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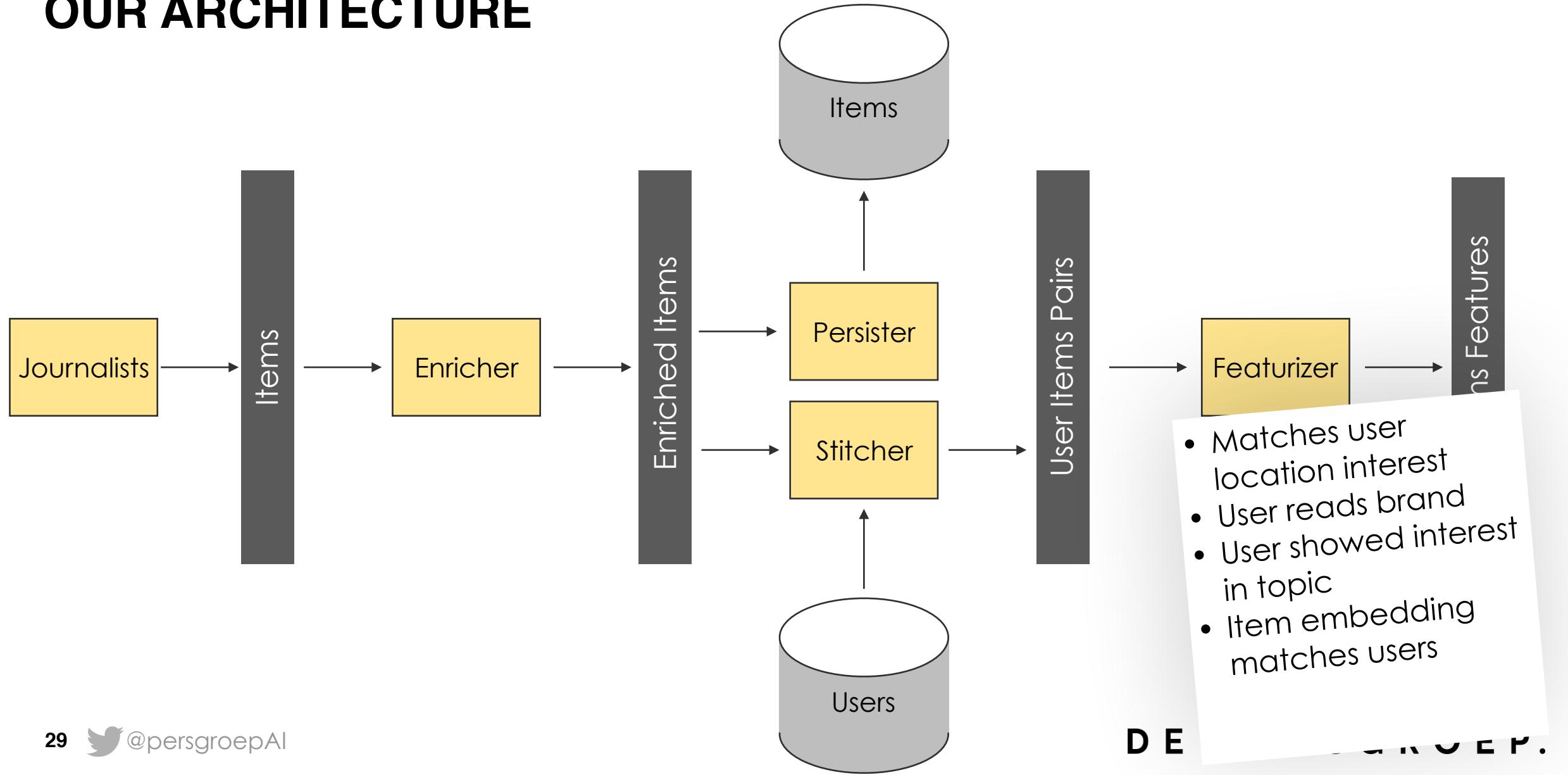
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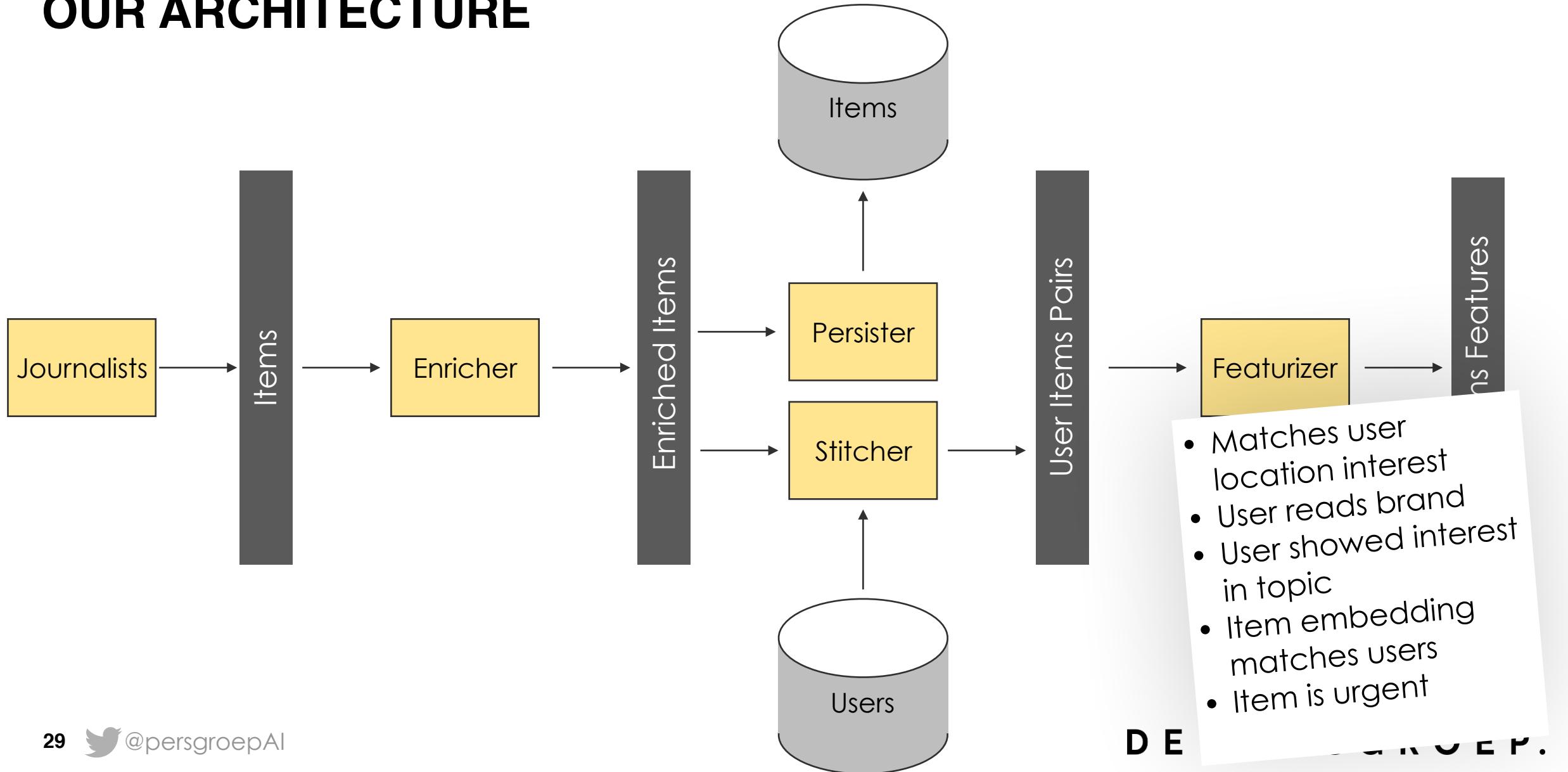
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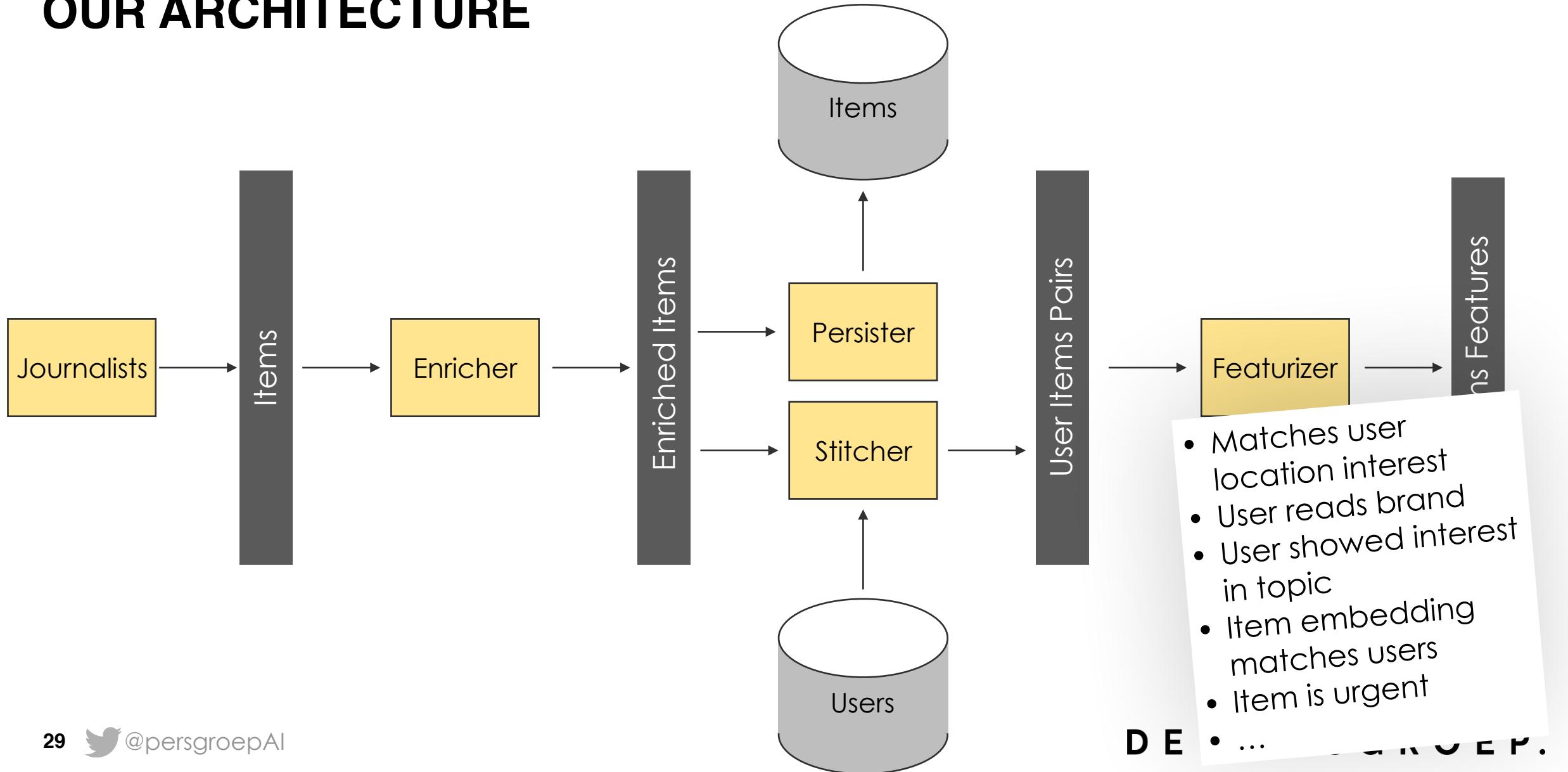
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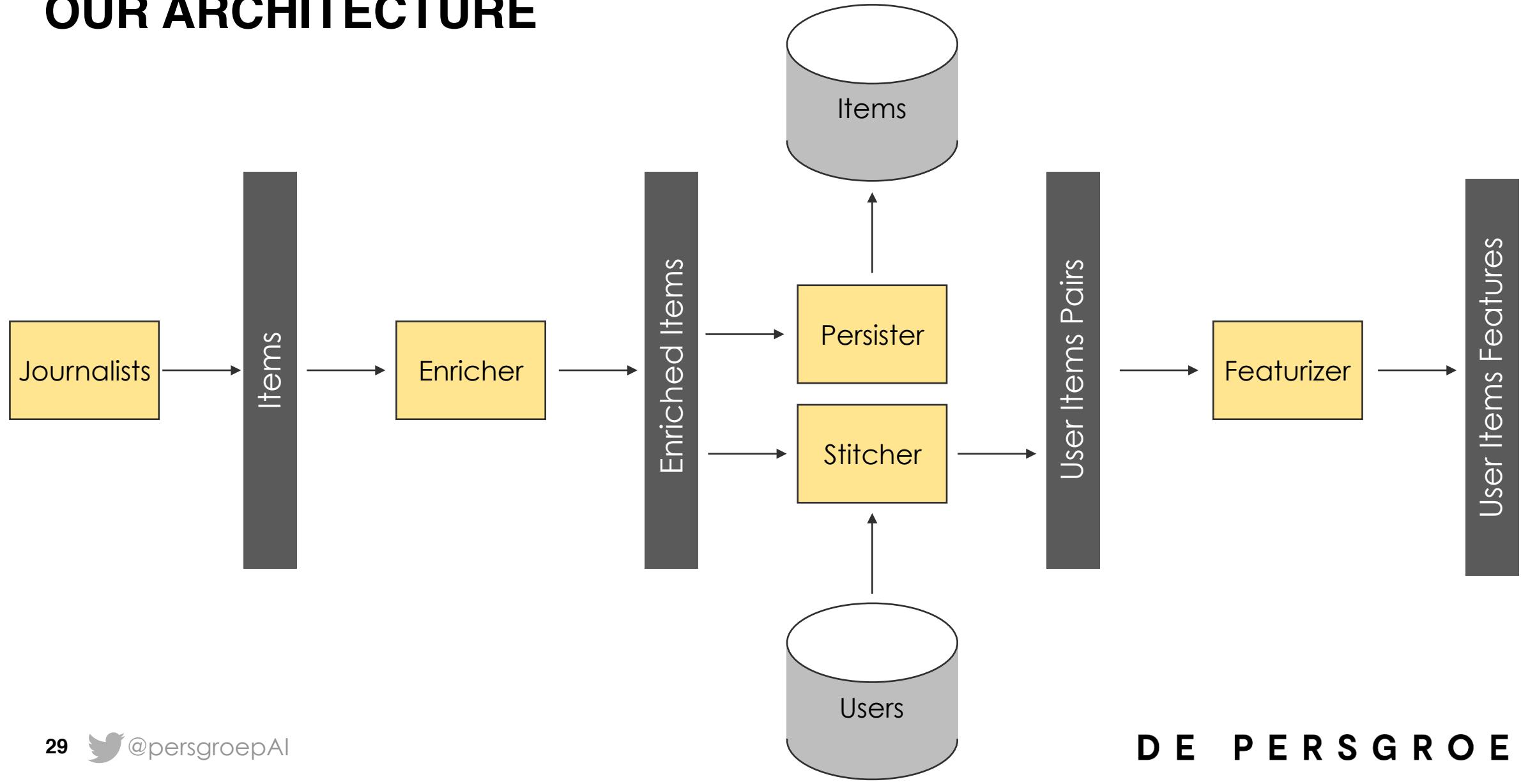
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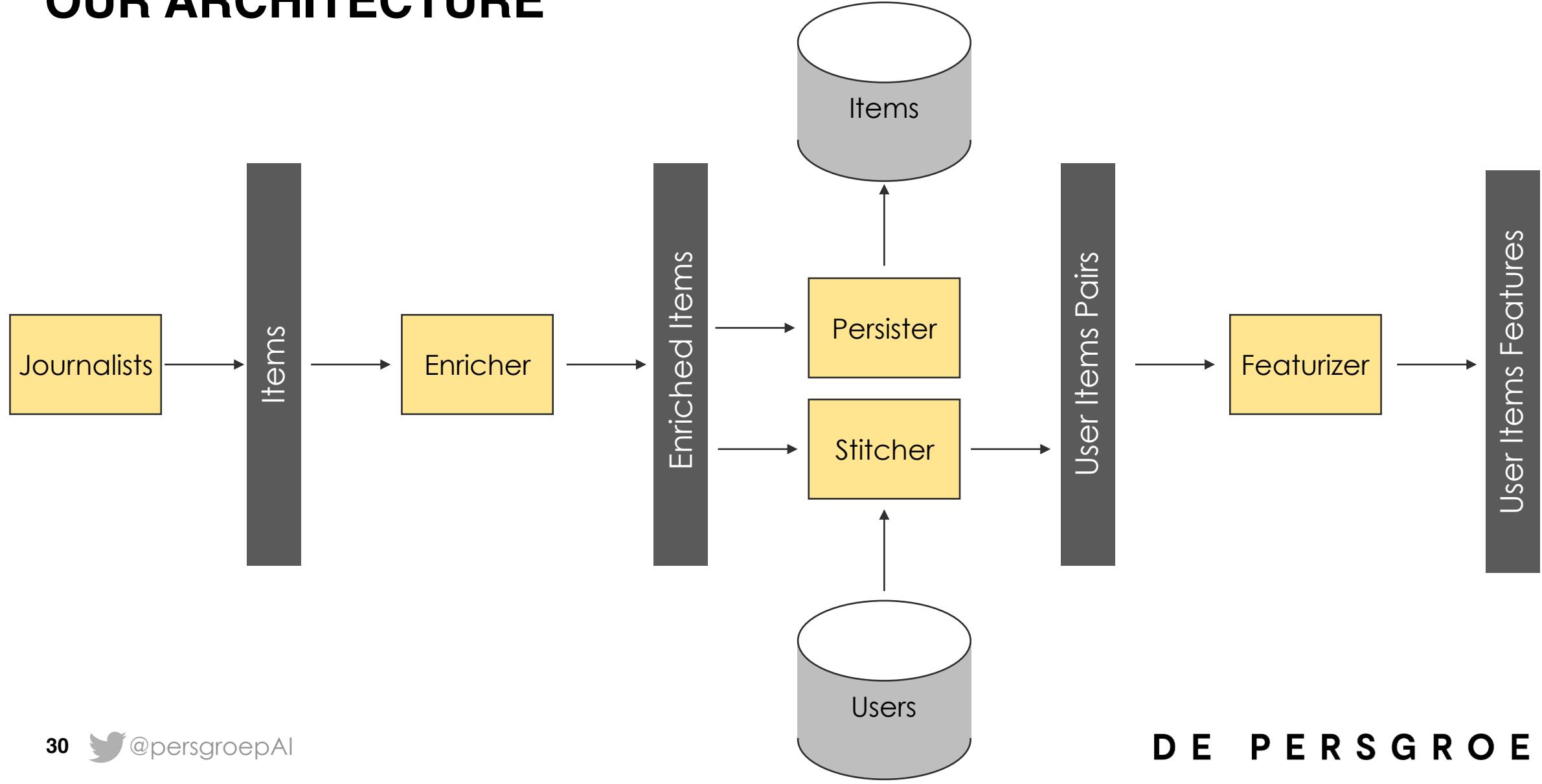
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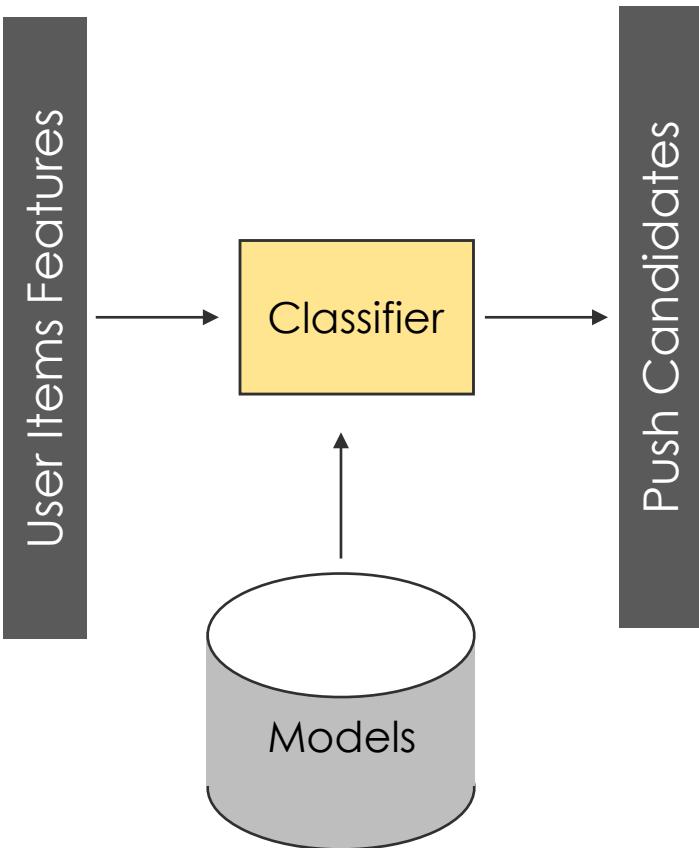
# OUR ARCHITECTURE

User Items Features

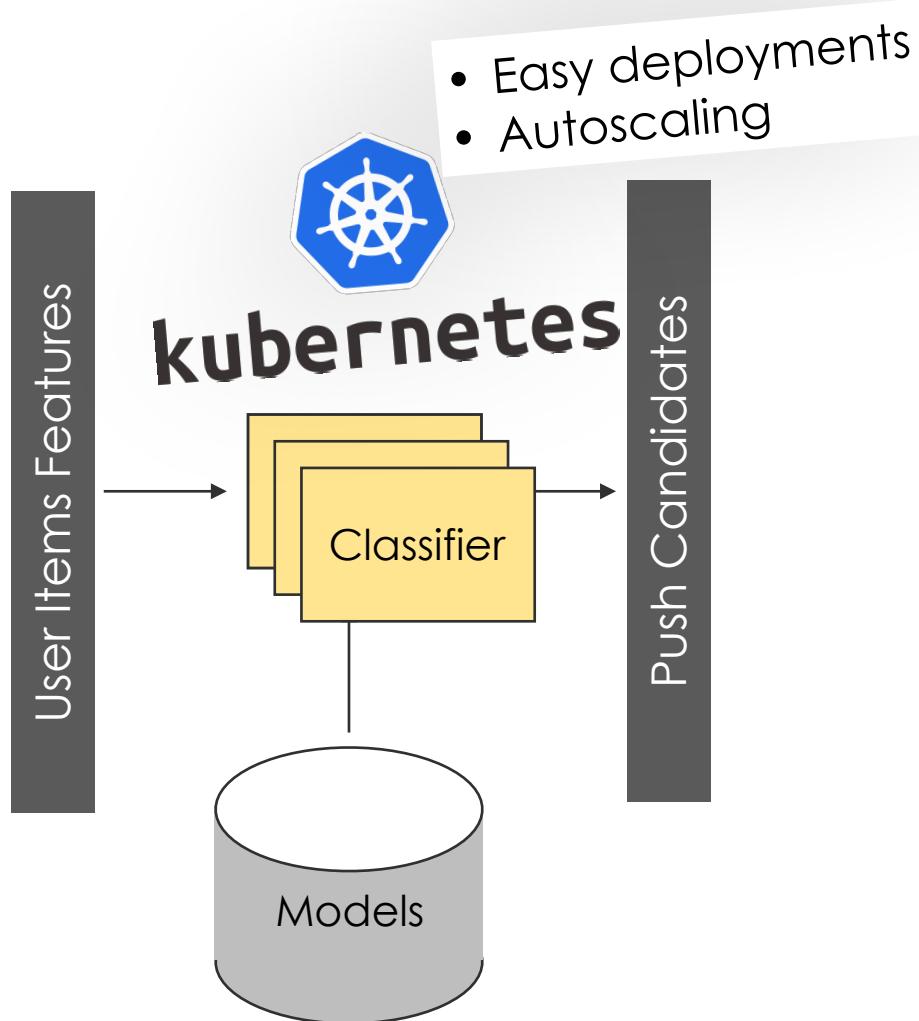
# OUR ARCHITECTURE

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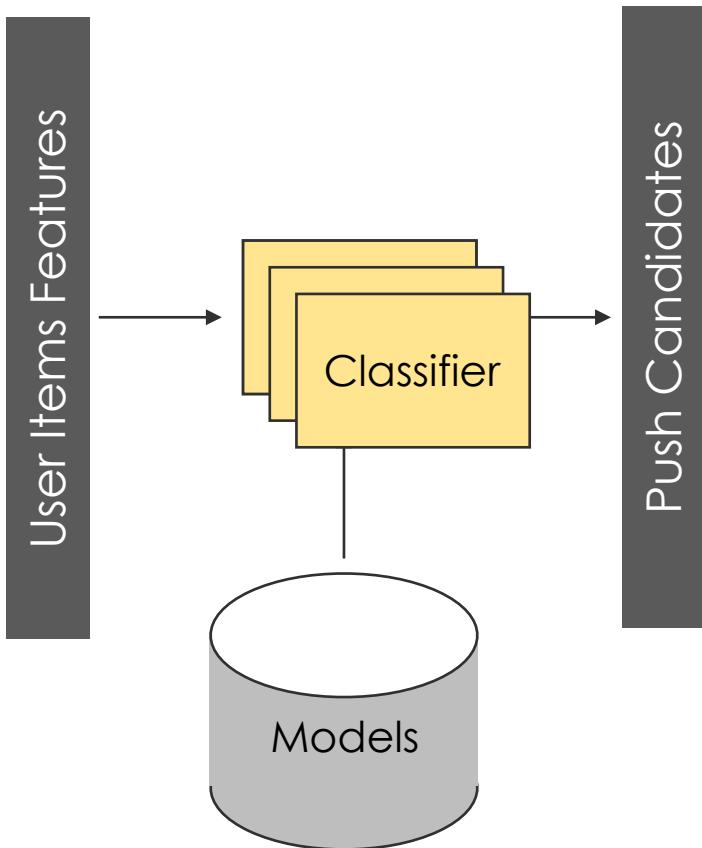
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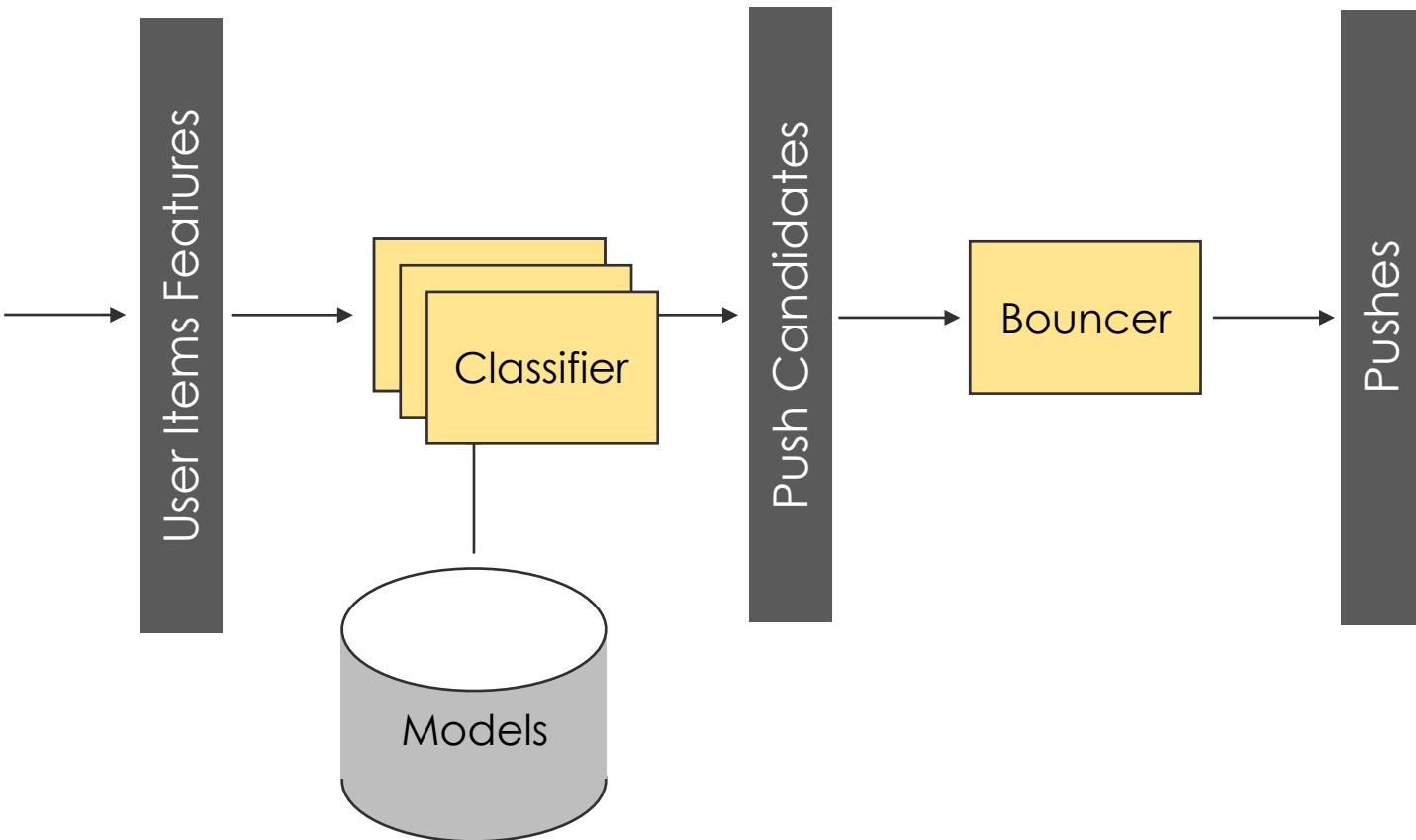
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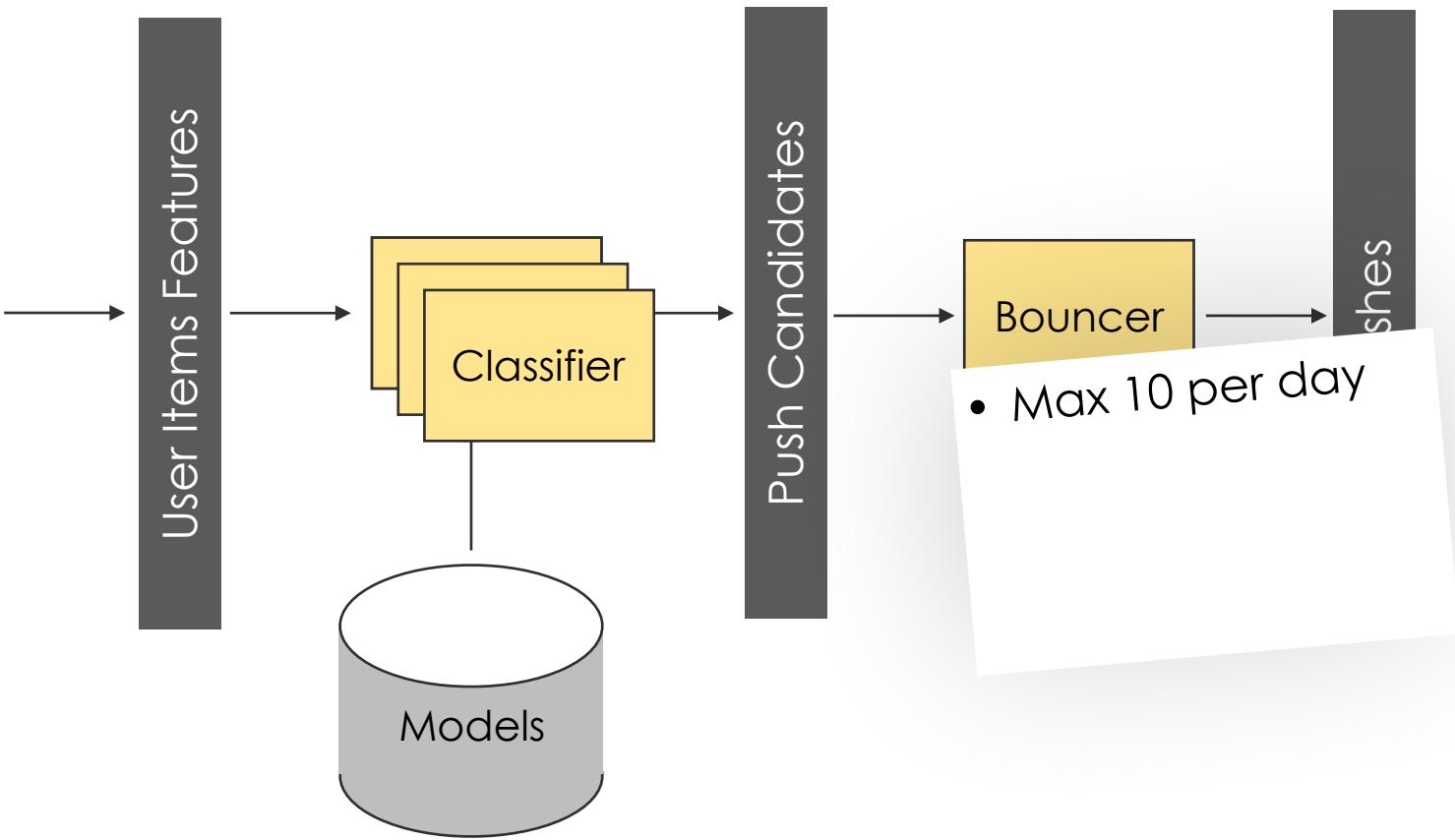
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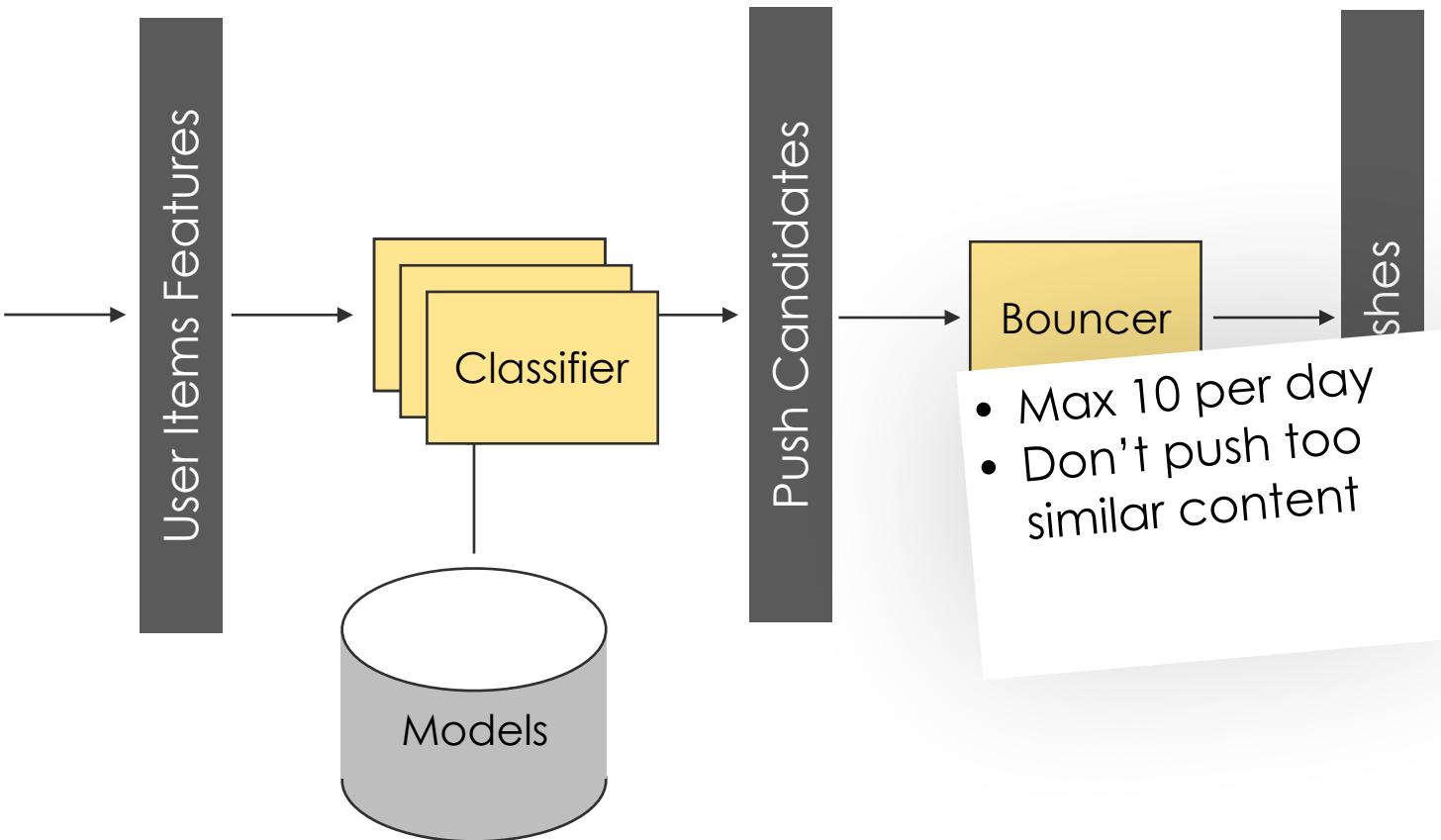
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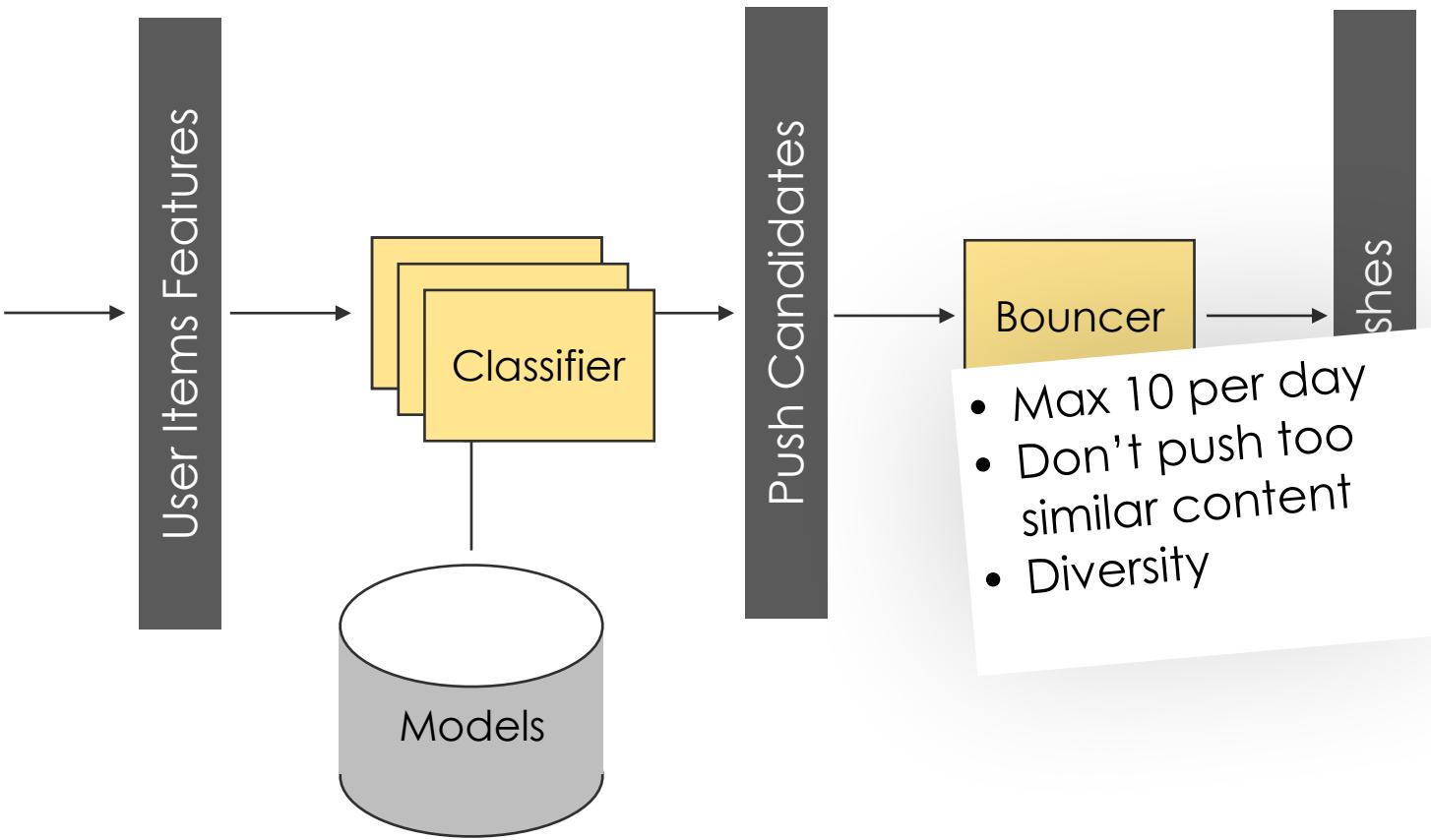
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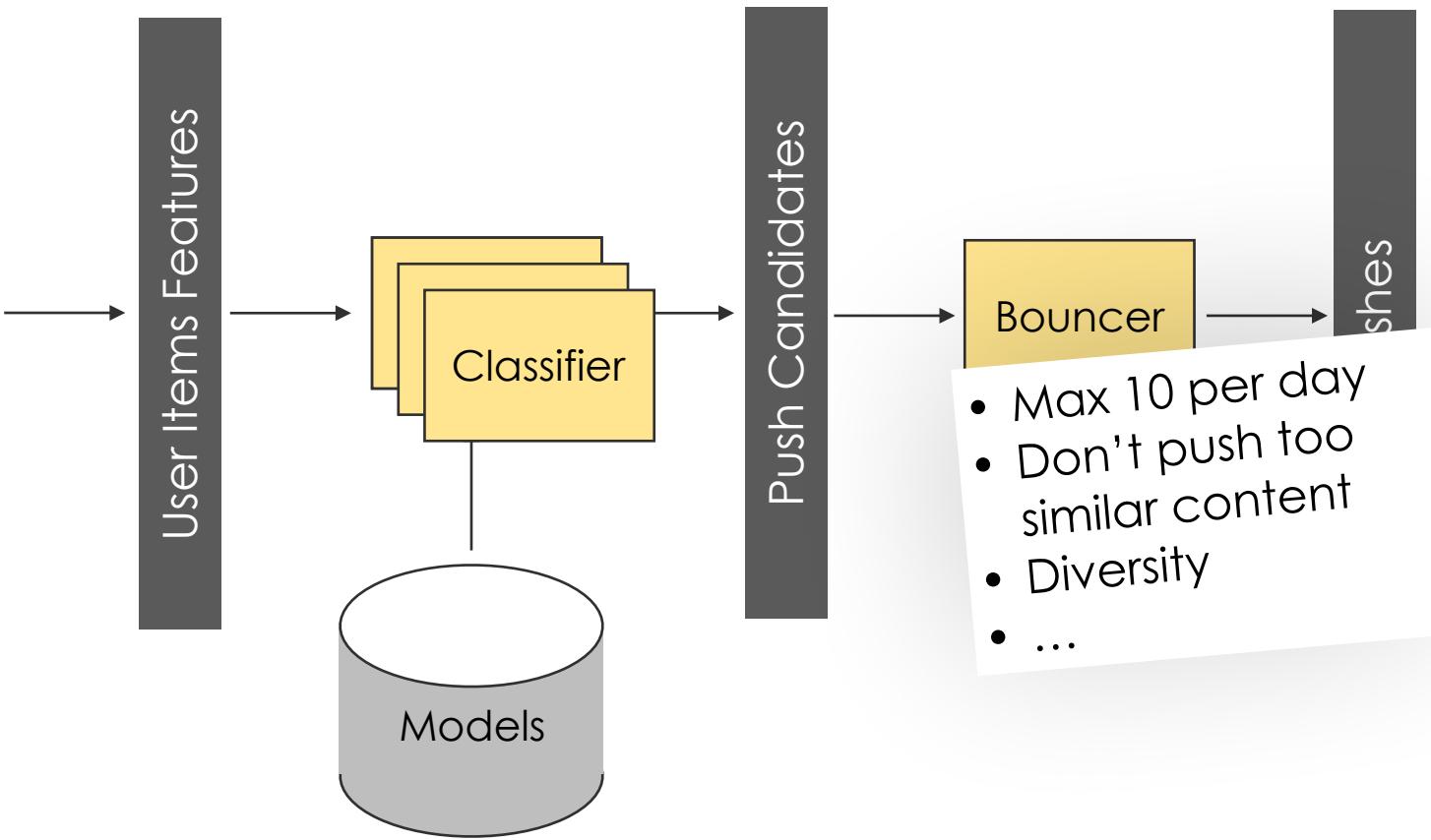
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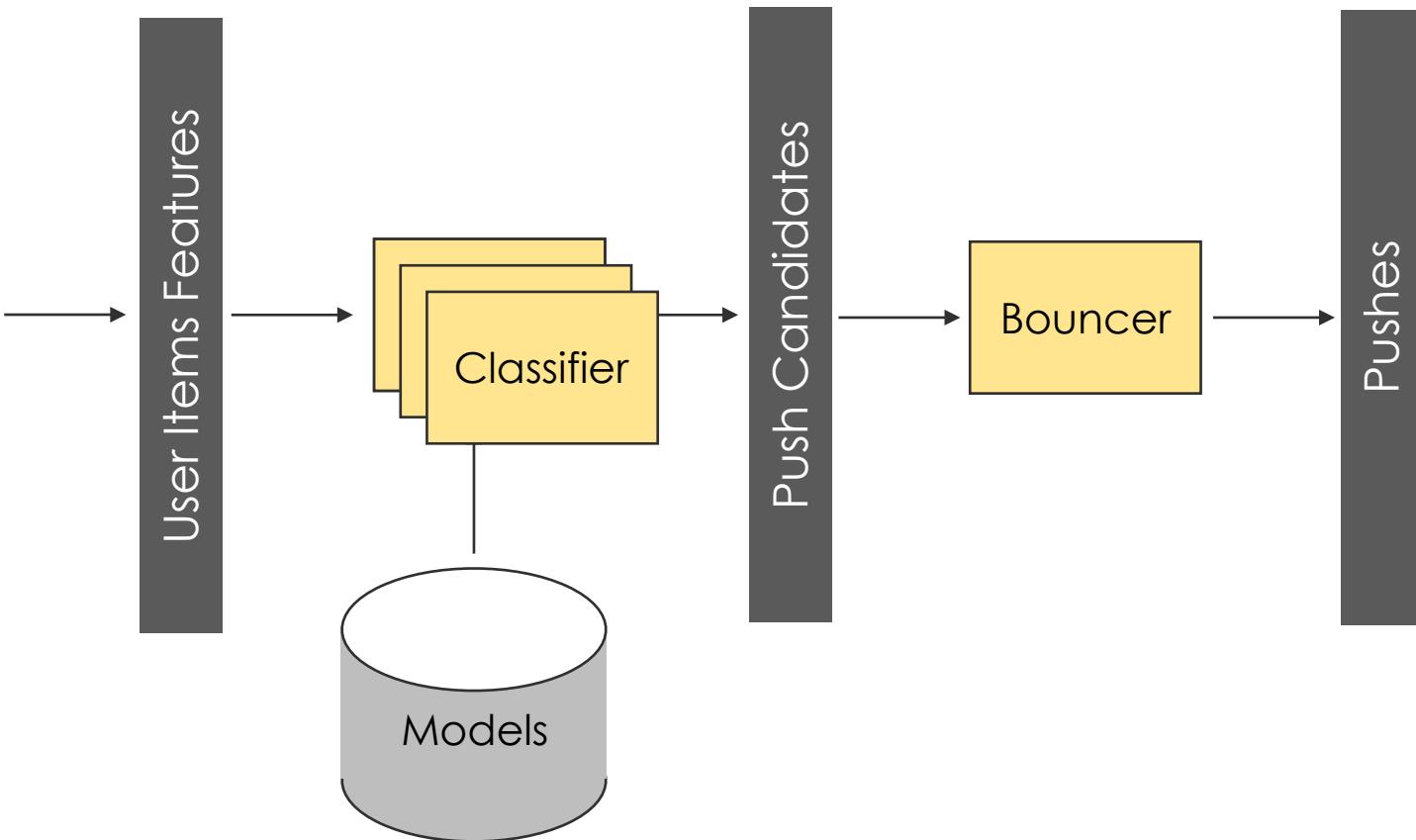
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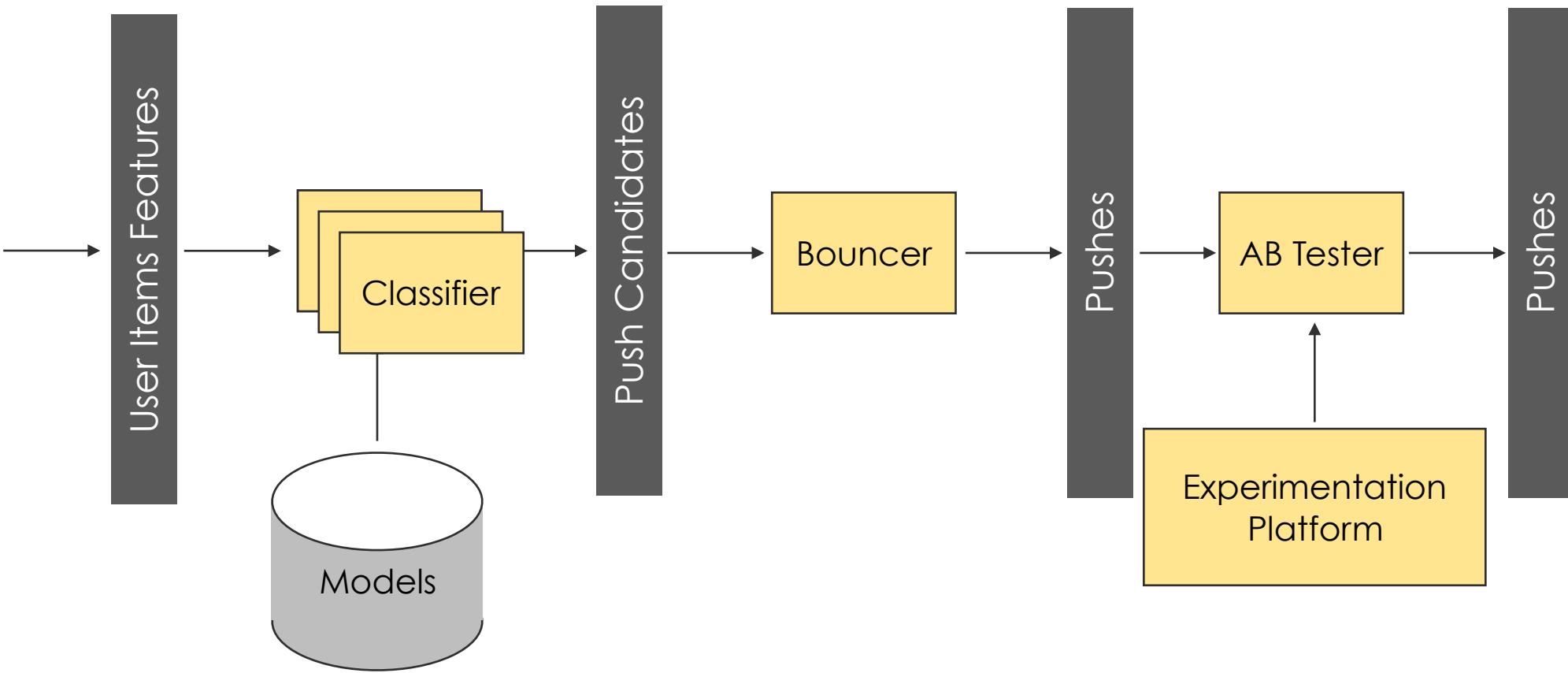
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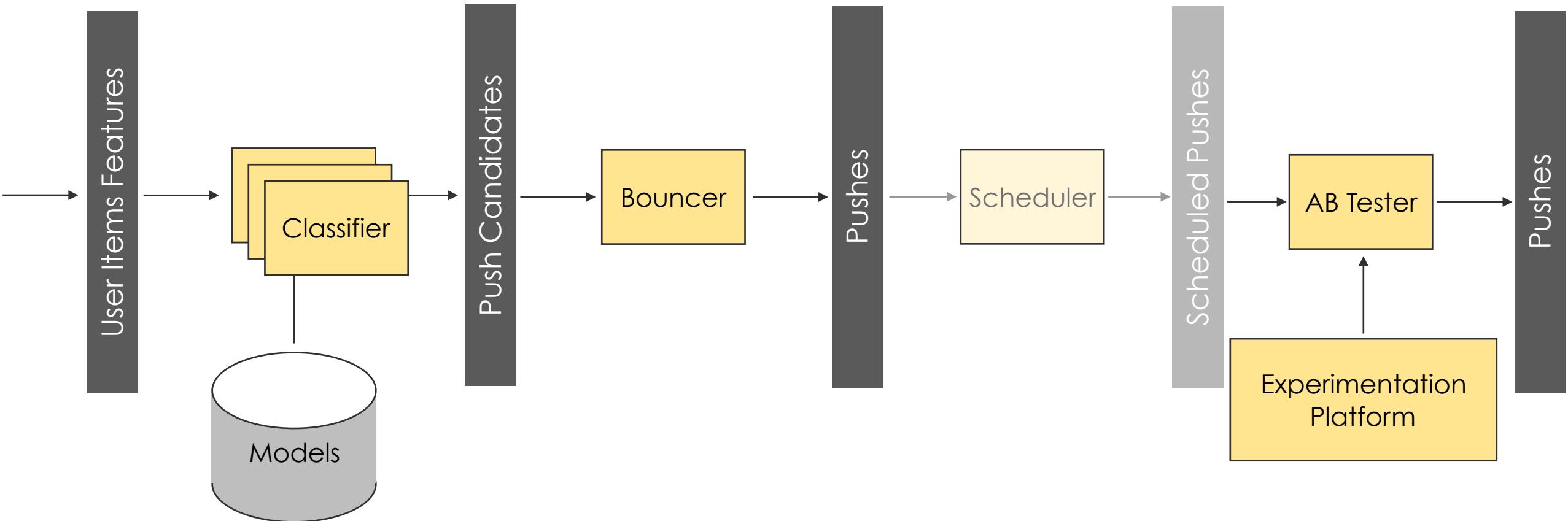
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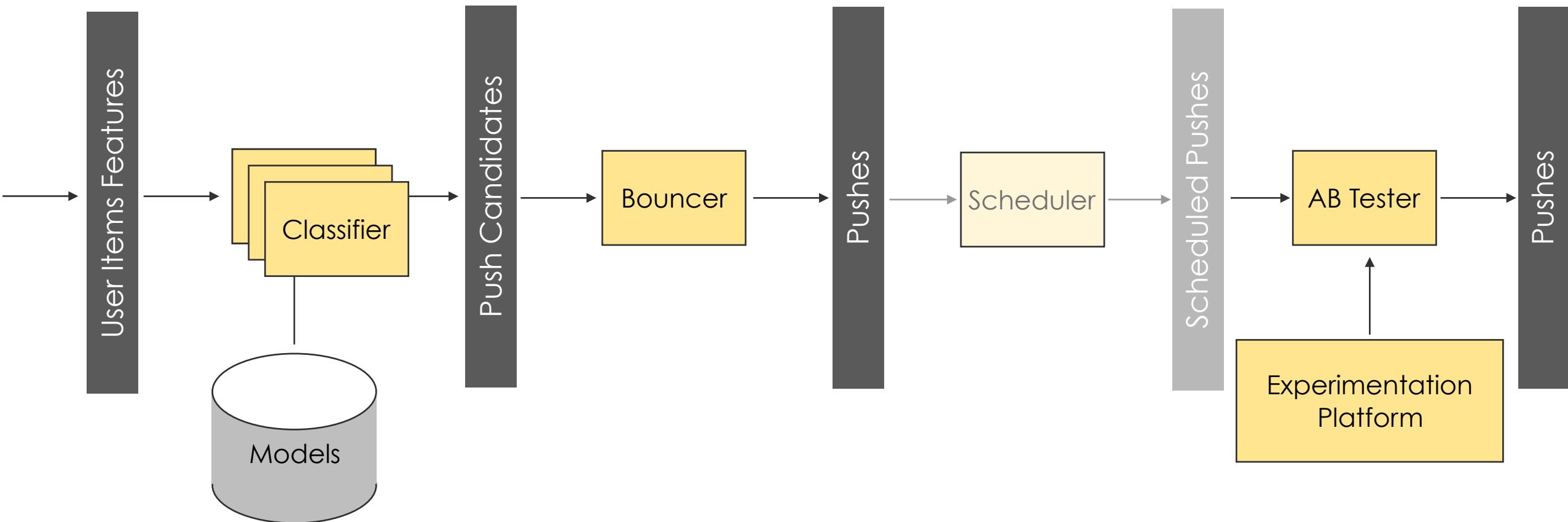
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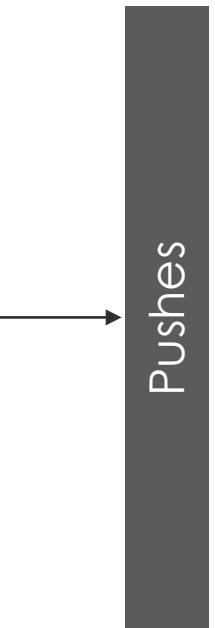
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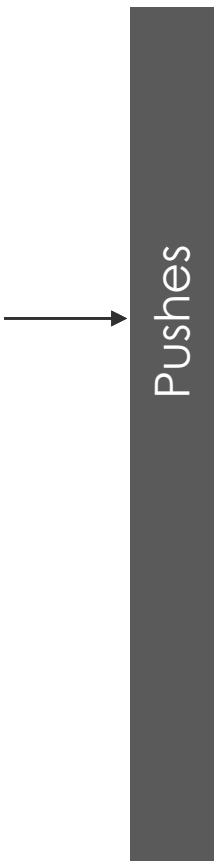
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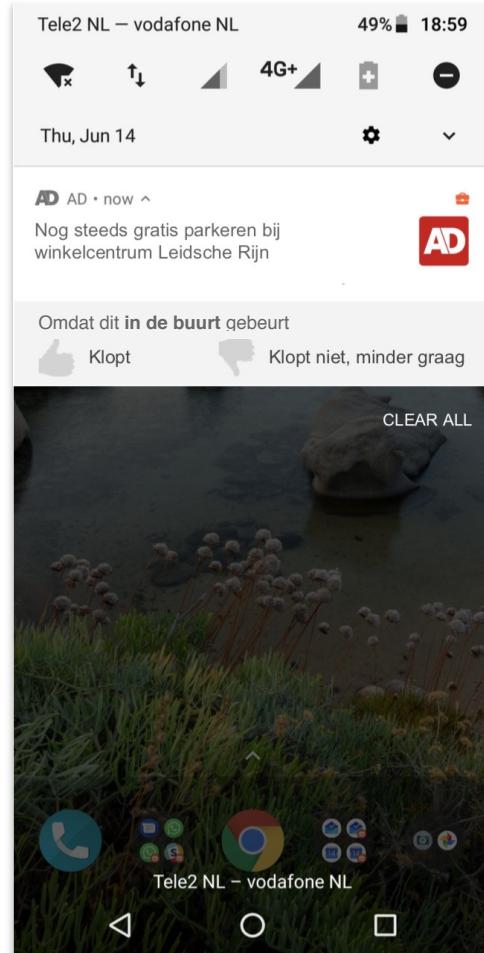
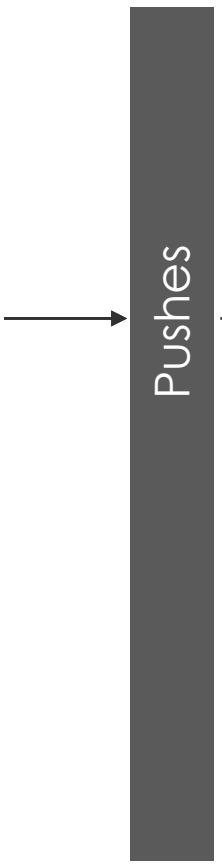
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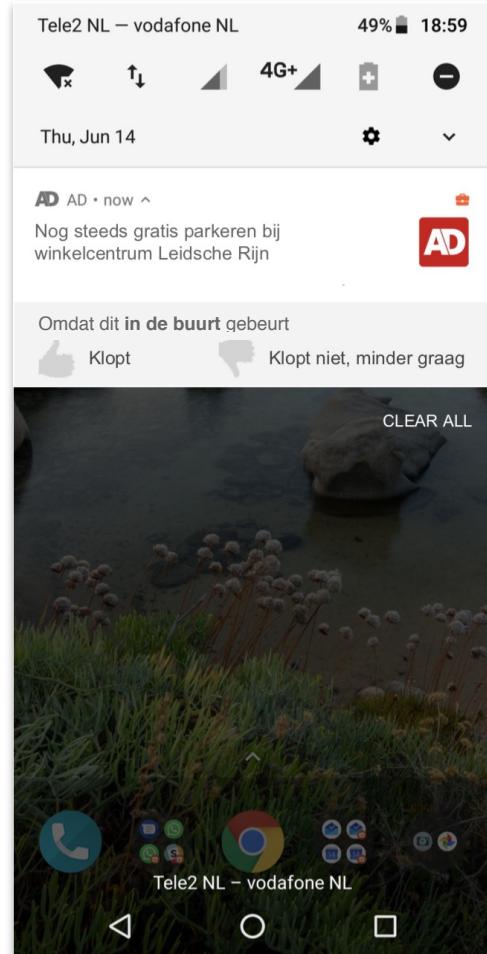
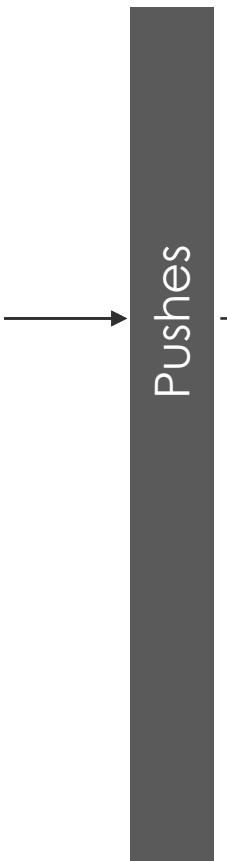
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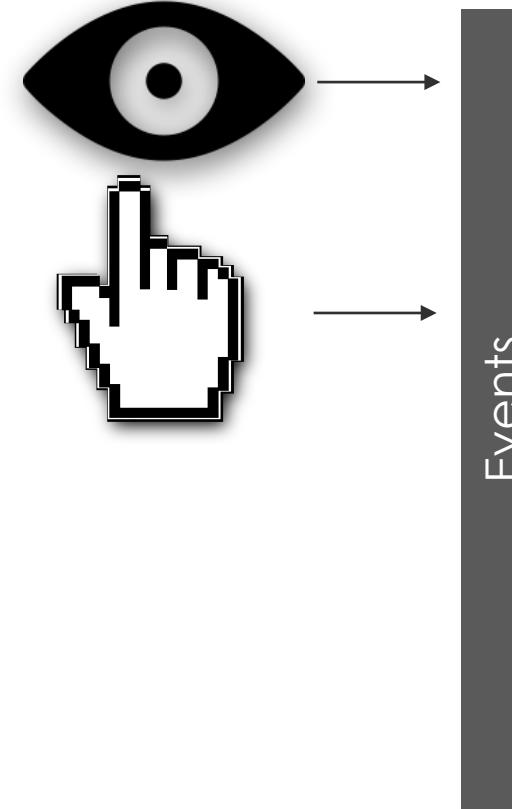
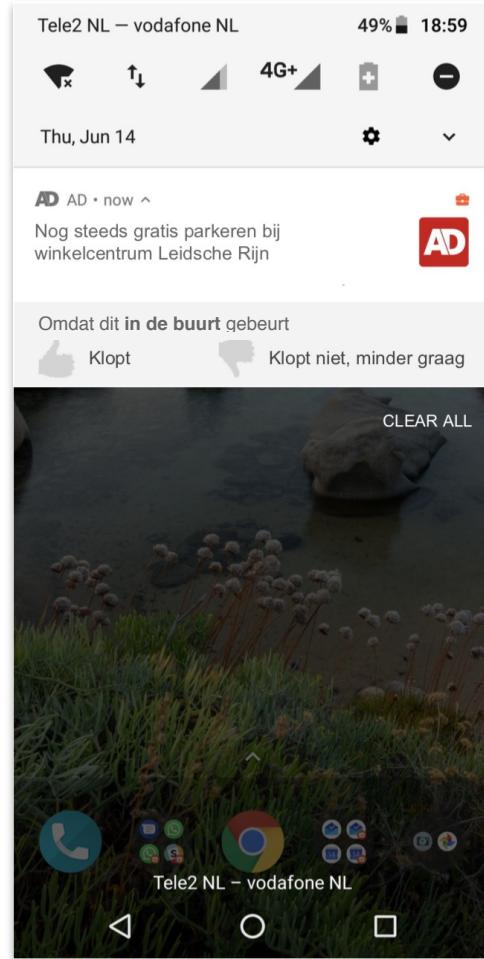
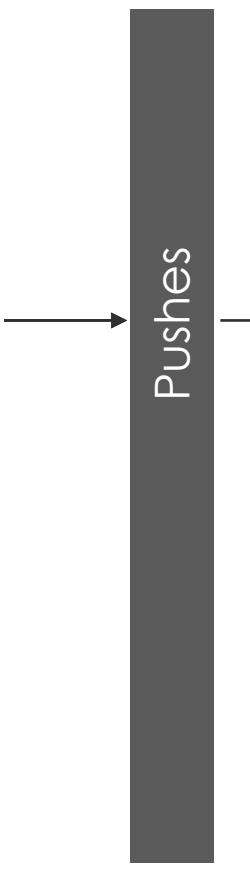
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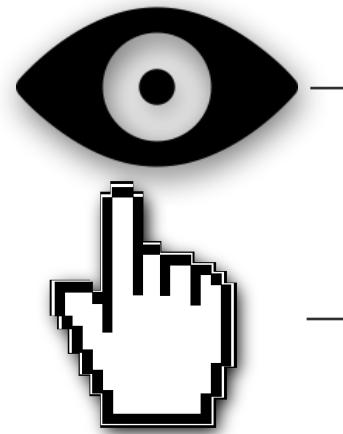
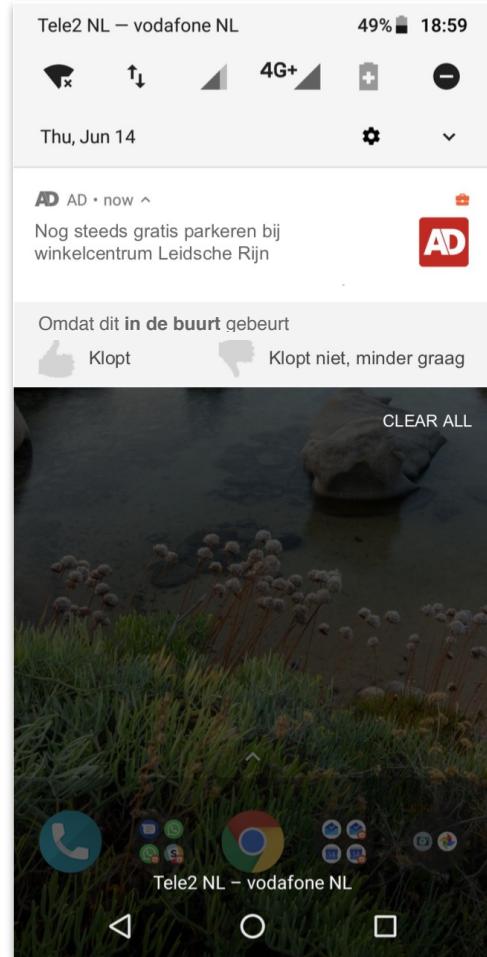


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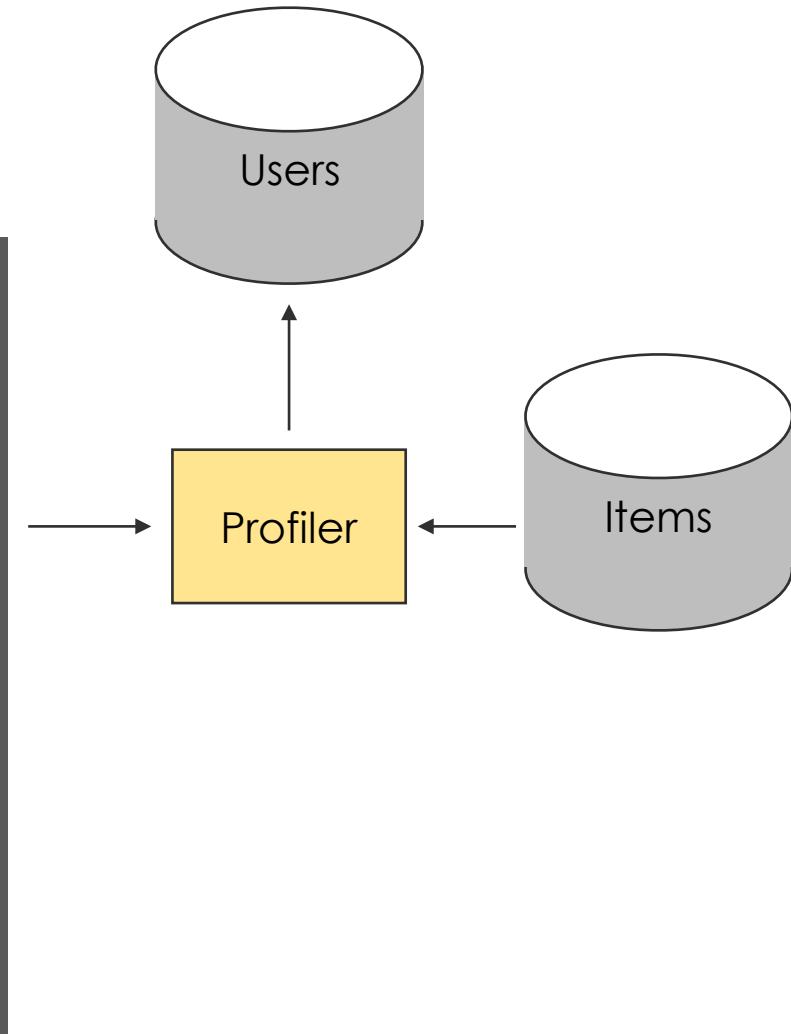
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Pushes

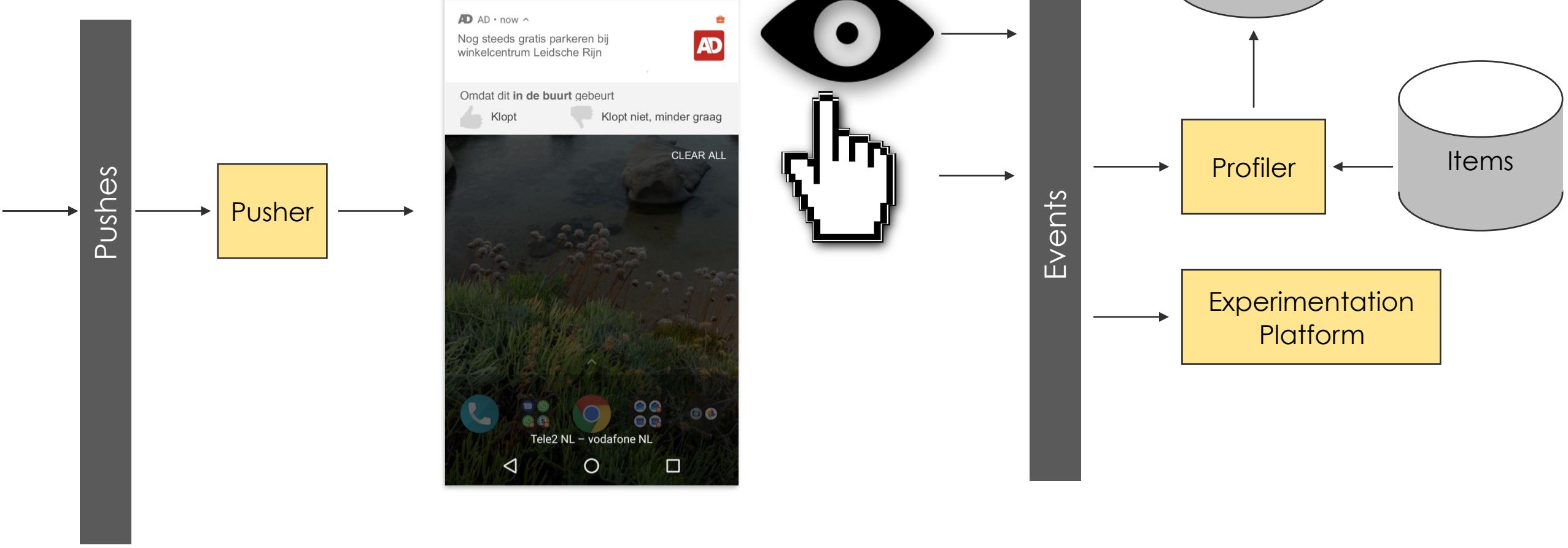
Pusher



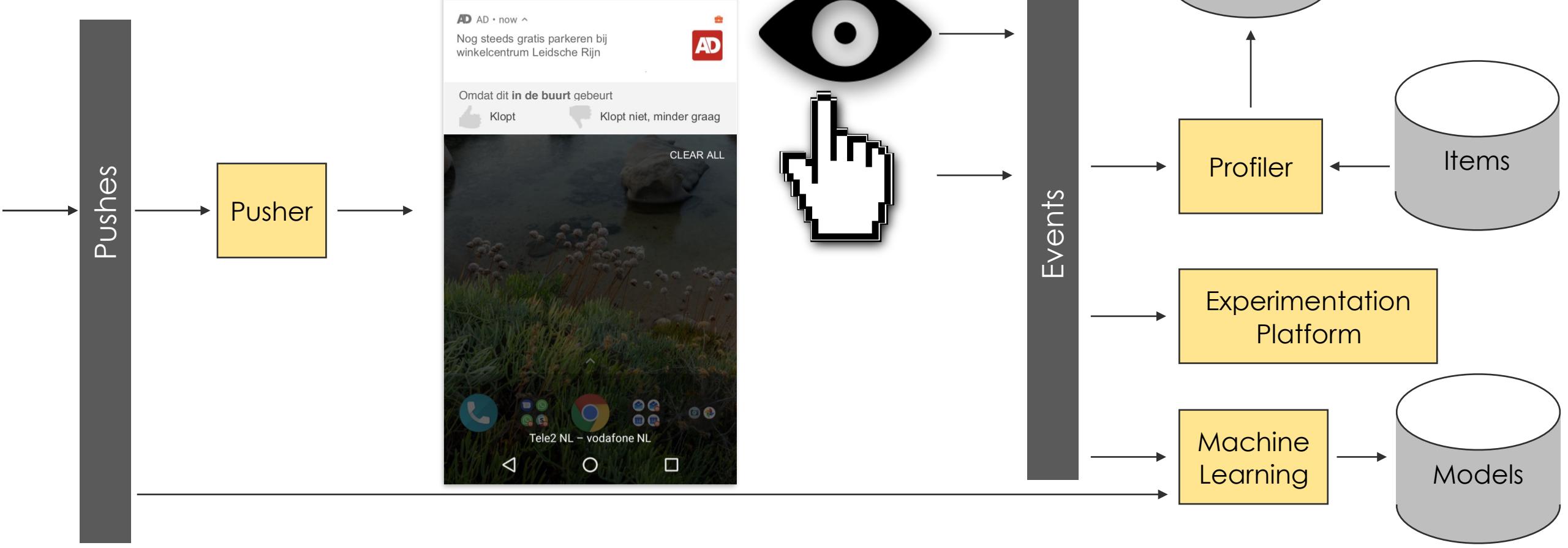
Events



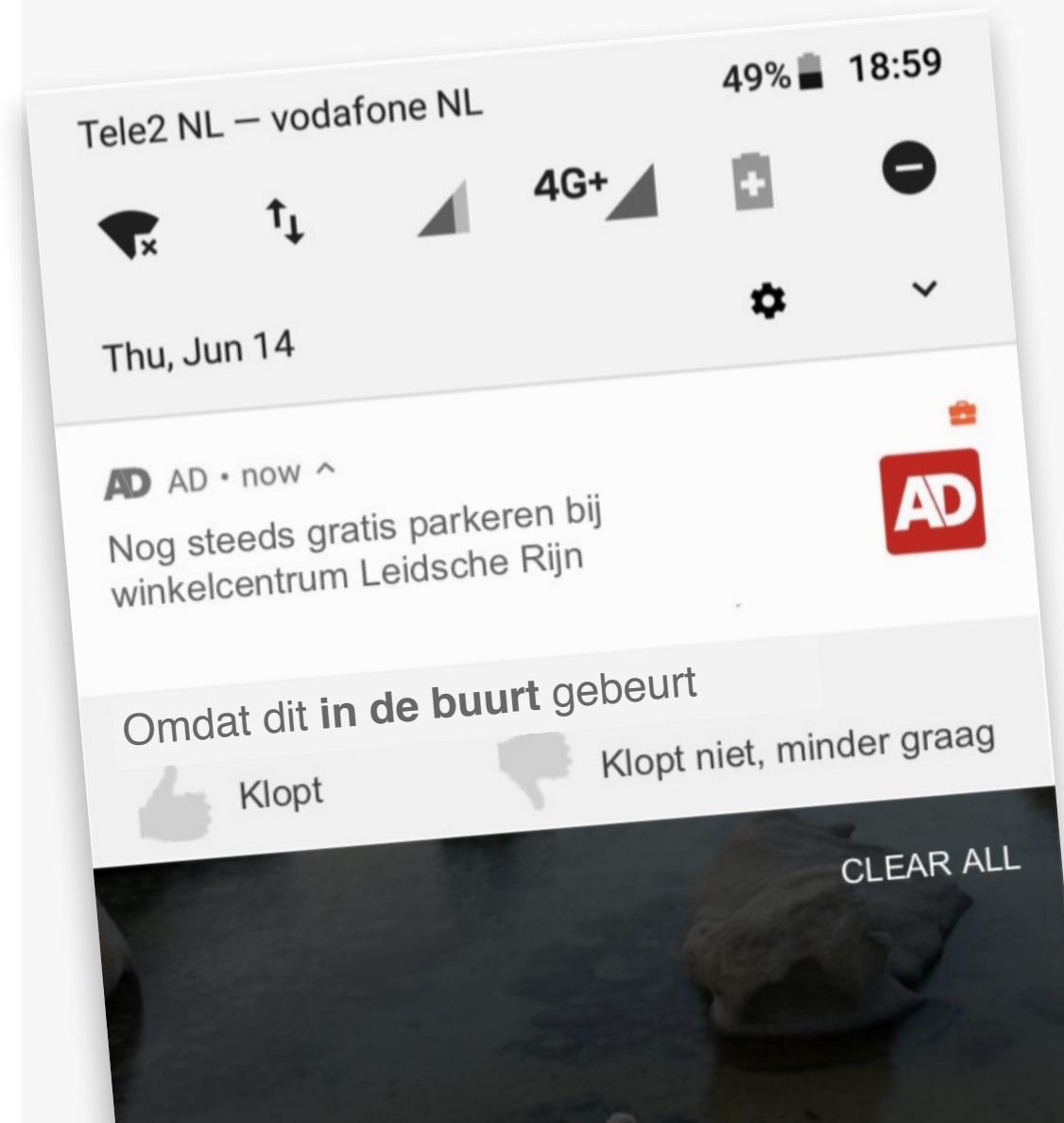
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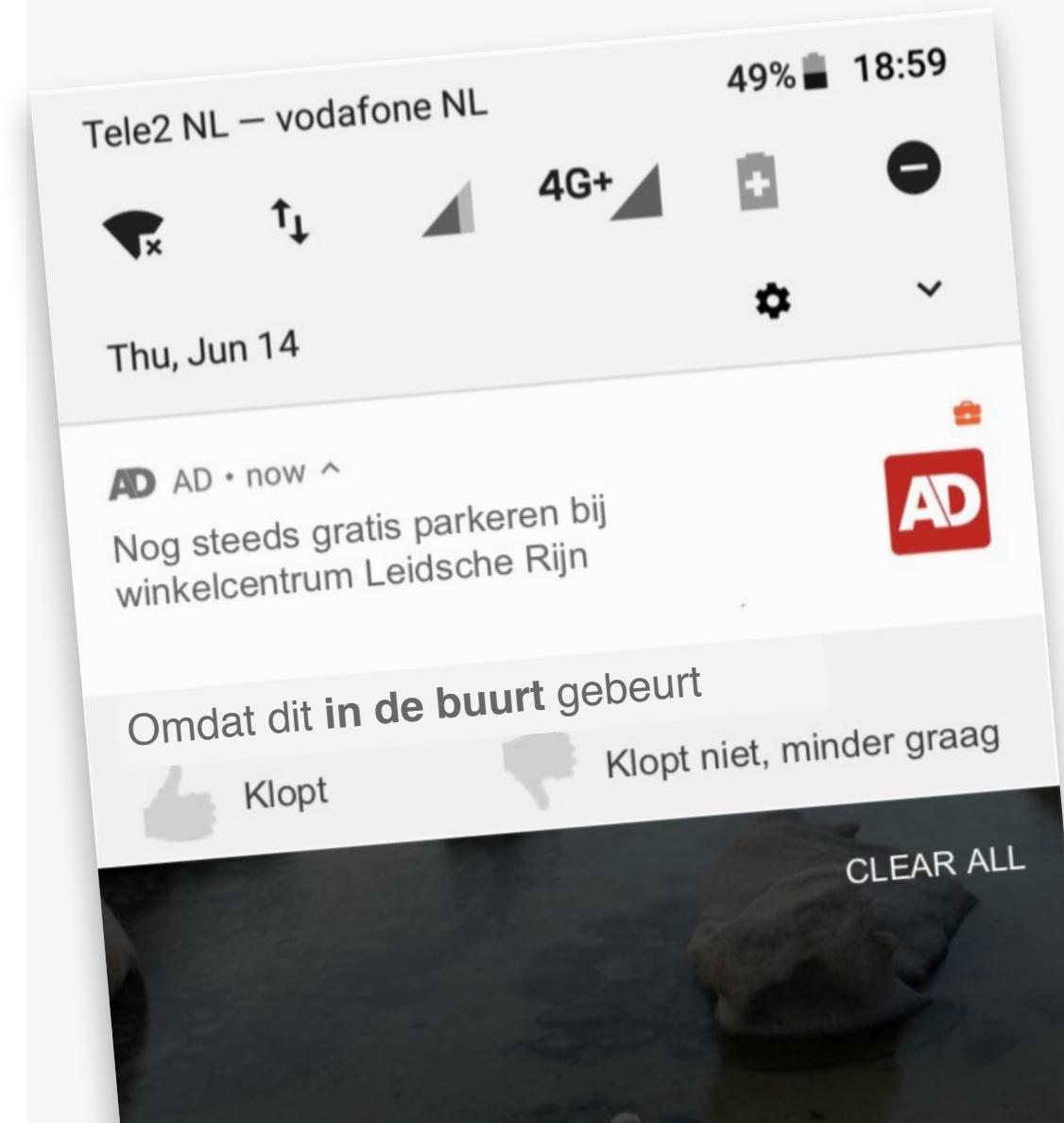


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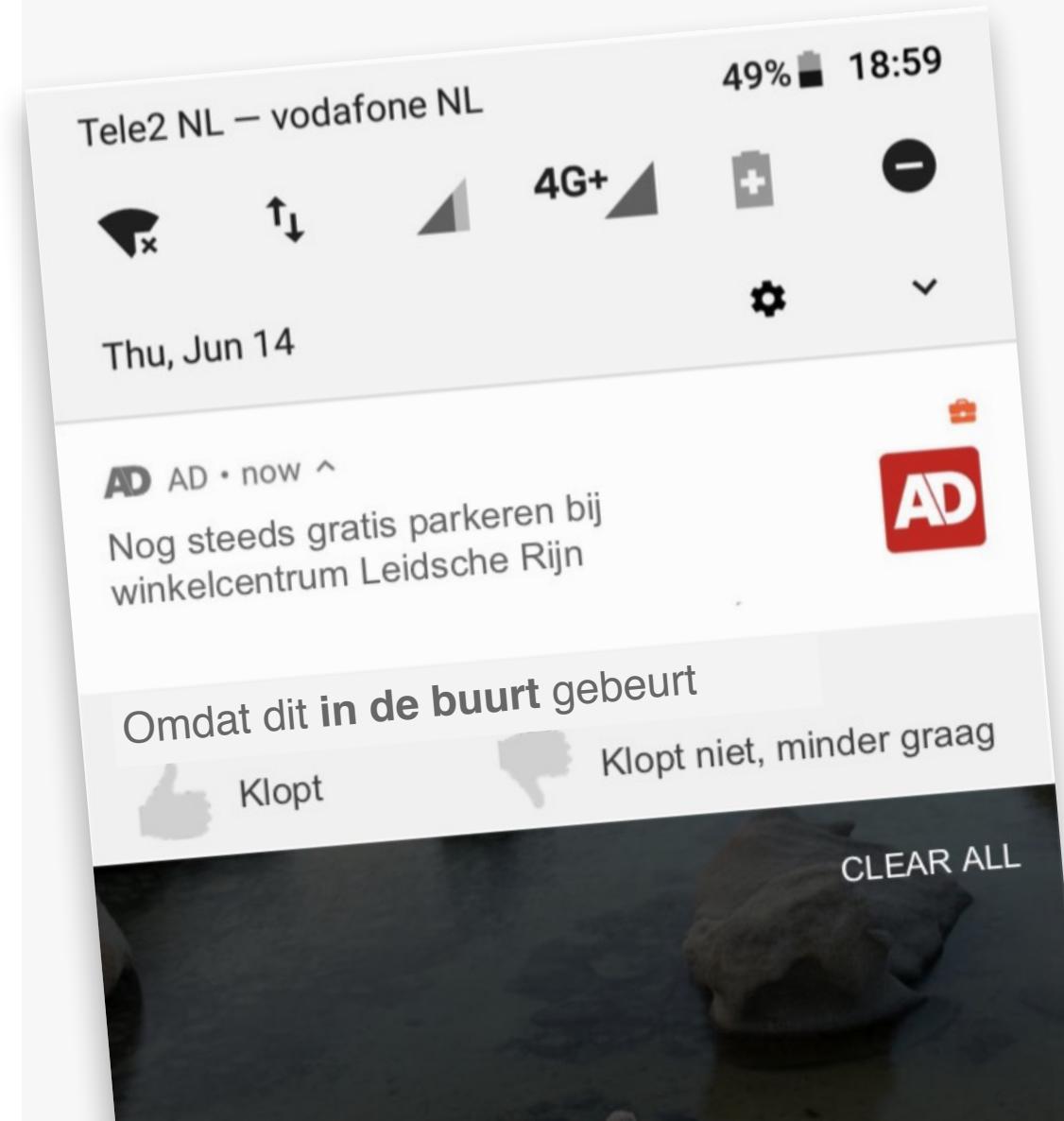
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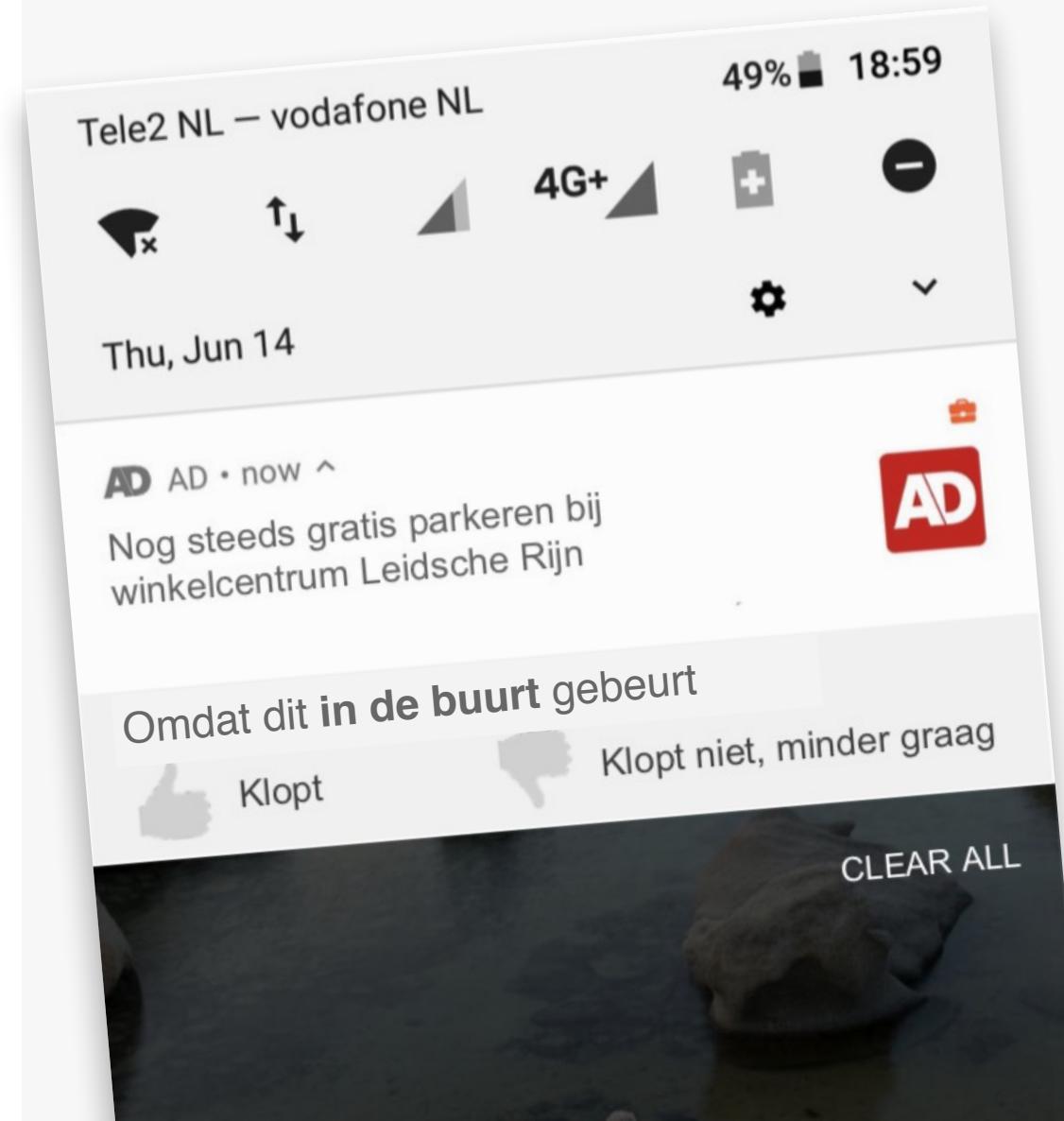
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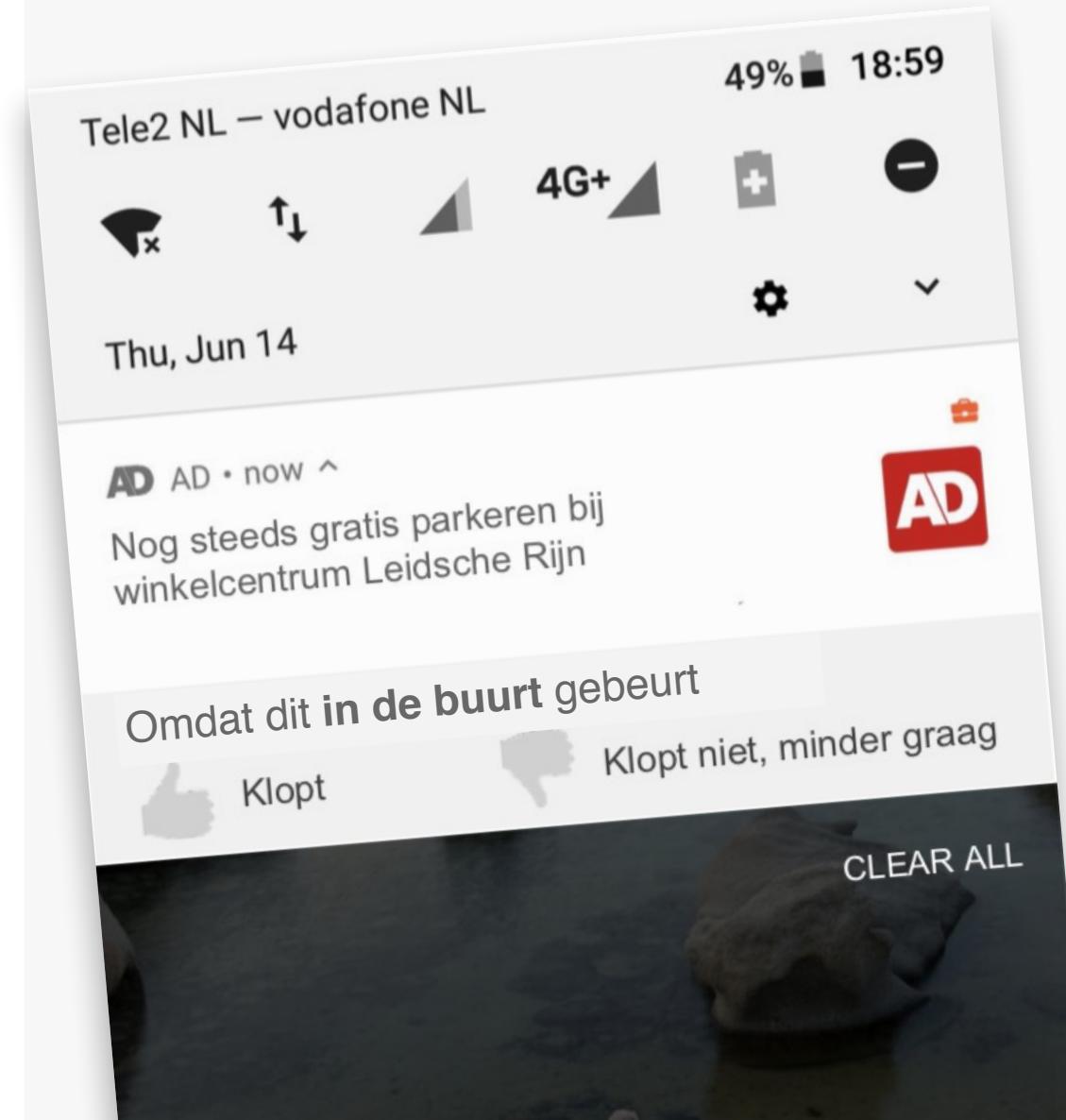
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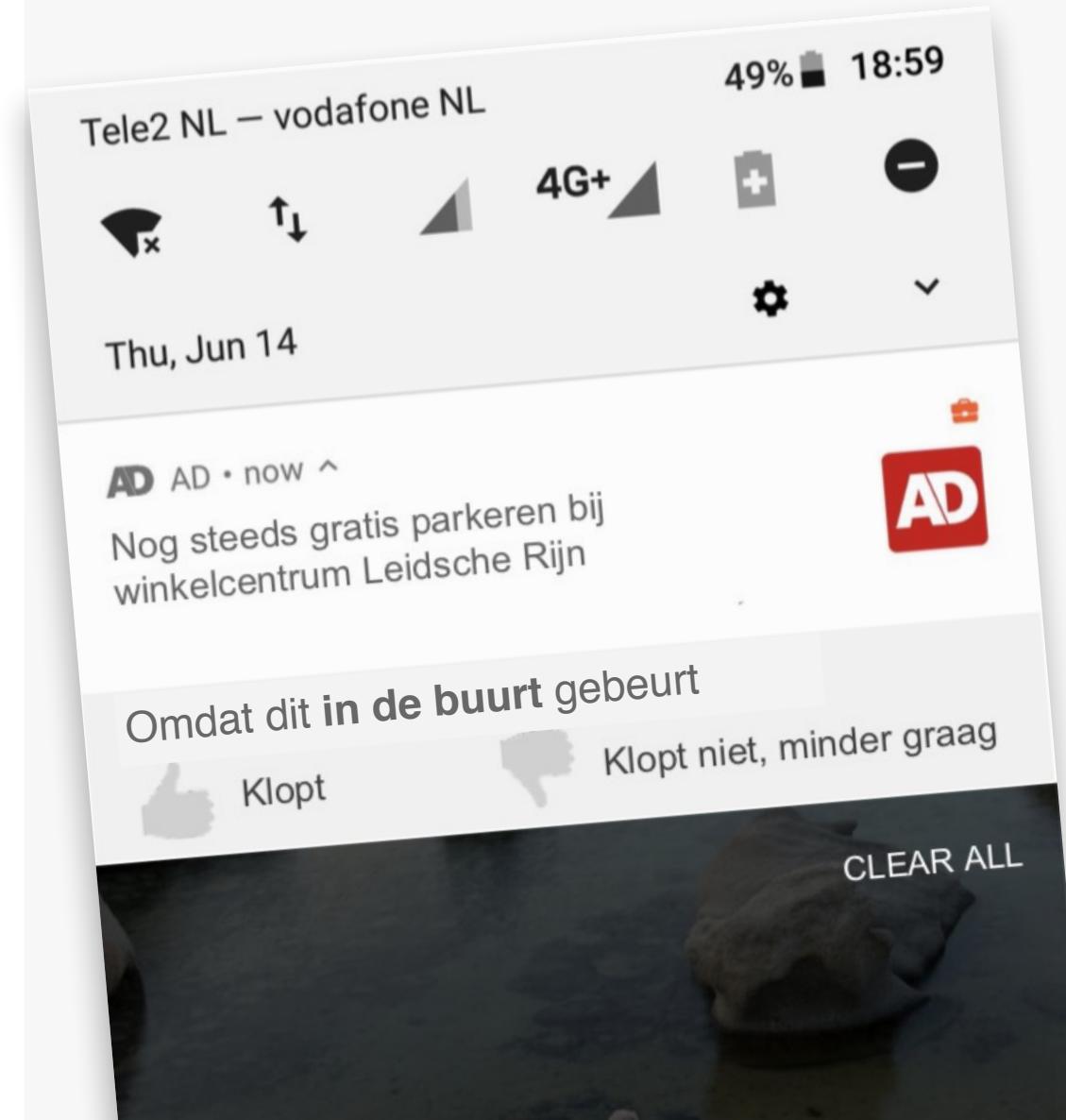
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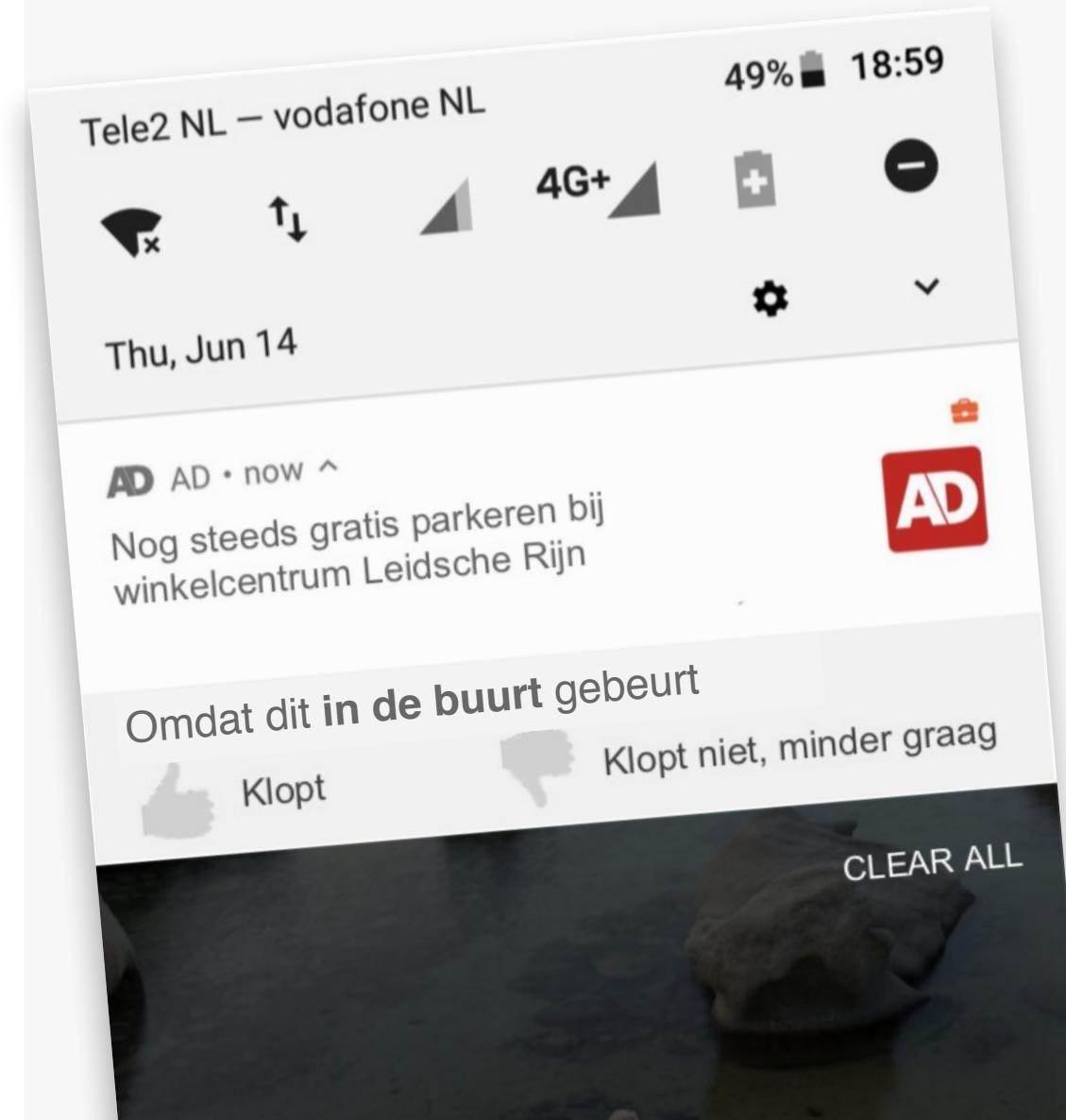
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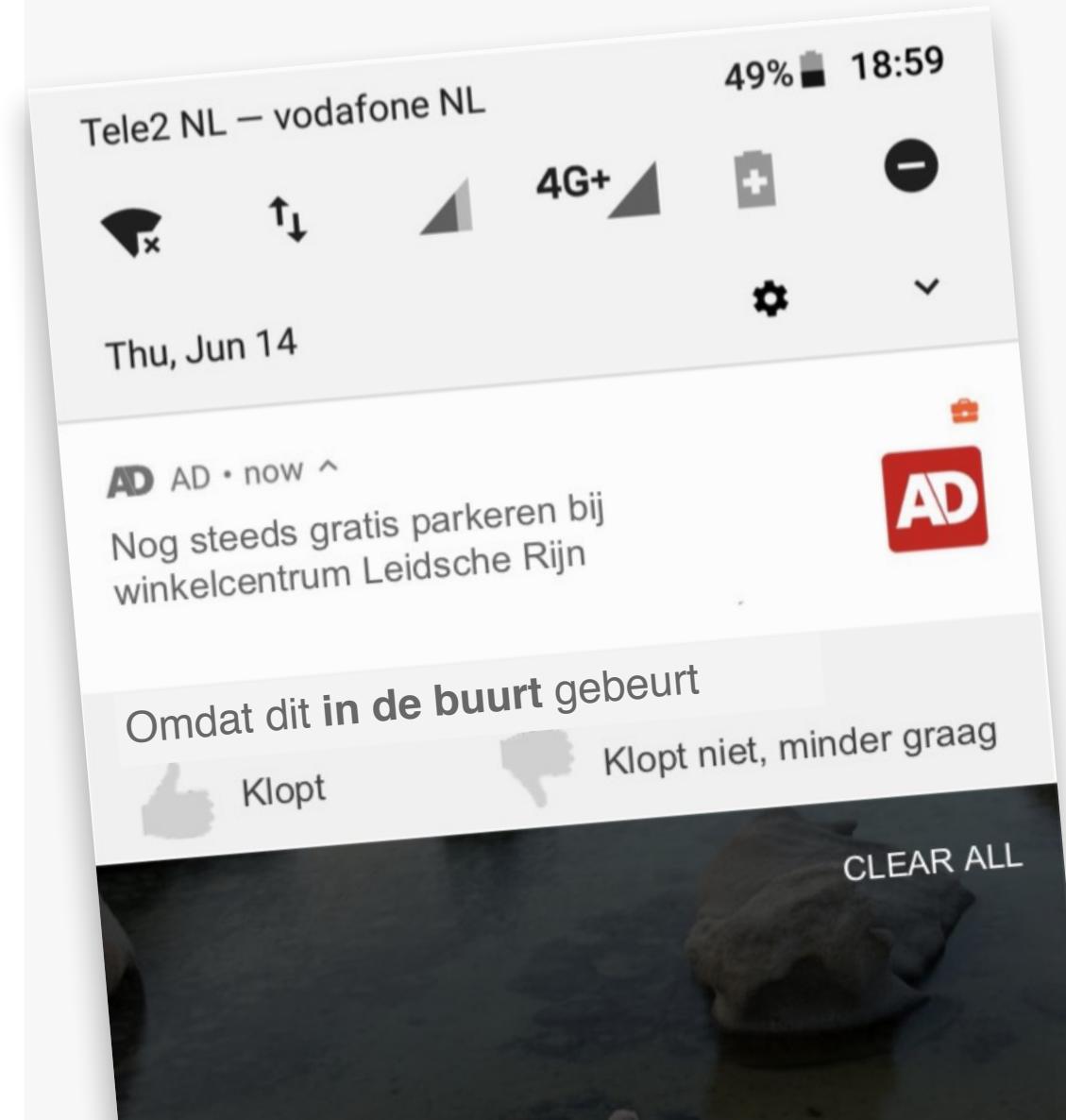
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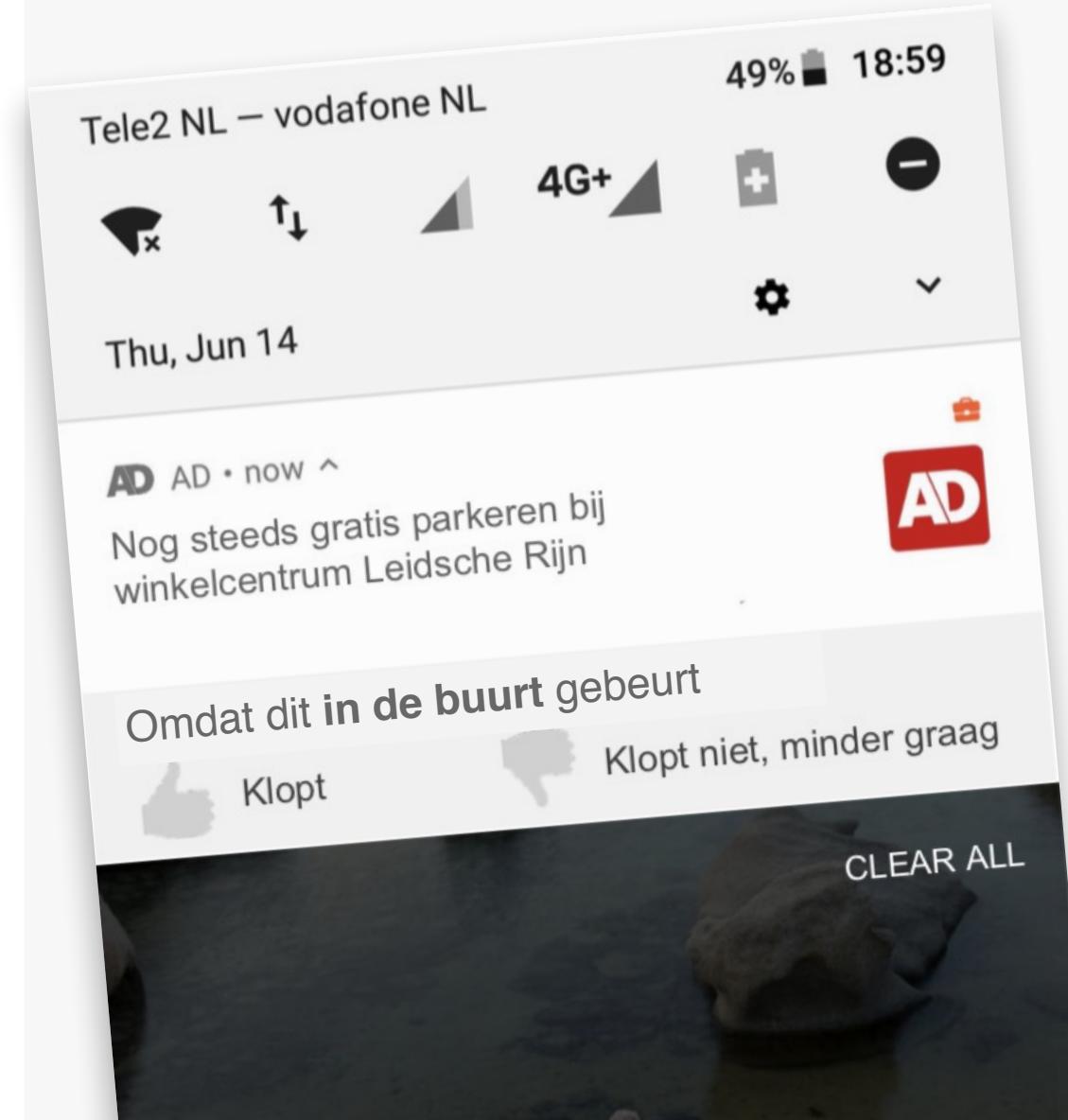
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  - Our system does not compete and will run *alongside* editorial push





DIGITAL  
NEWS  
INITIATIVE

# DE VOLKSKRANT GUIDE TO LIFE

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The screenshot shows a web browser displaying the Volkskrant website at <https://www.volkskrant.nl/de-gids>. The page is titled "deVolkskrant DE GIDS". The main article, titled "Wat is beter voor het milieu: broodtrommel of plastic zakje?", features a photograph of a sandwich in a blue plastic container next to an empty blue plastic container. The text "DE GIDS DUURZAME MEENEMLUNCH" is visible above the headline. To the right, there's a sidebar with a red shopping basket icon and text about a sustainable supermarket guide. A yellow sticky note on the right contains a mini challenge about plastic containers. The bottom right corner of the page has the Persgroep logo.

Nieuws, achtergronden en colu V

https://www.volkskrant.nl/de-gids

deVolkskrant

DE GIDS

Wat is beter voor het milieu:  
broodtrommel of plastic  
zakje?

DE GIDS DUURZAAM ETEN

Milieubewuste  
boodschappen doe je  
met de **duurzame  
supermarktgids**

MINI CHALLENGE

Zoektocht! Welke plastic bewaarbakjes heb je allermoe? Sorteer de bakjes en deksels. Mis je onderdelen? Weg ermee.

Ik heb het gedaan

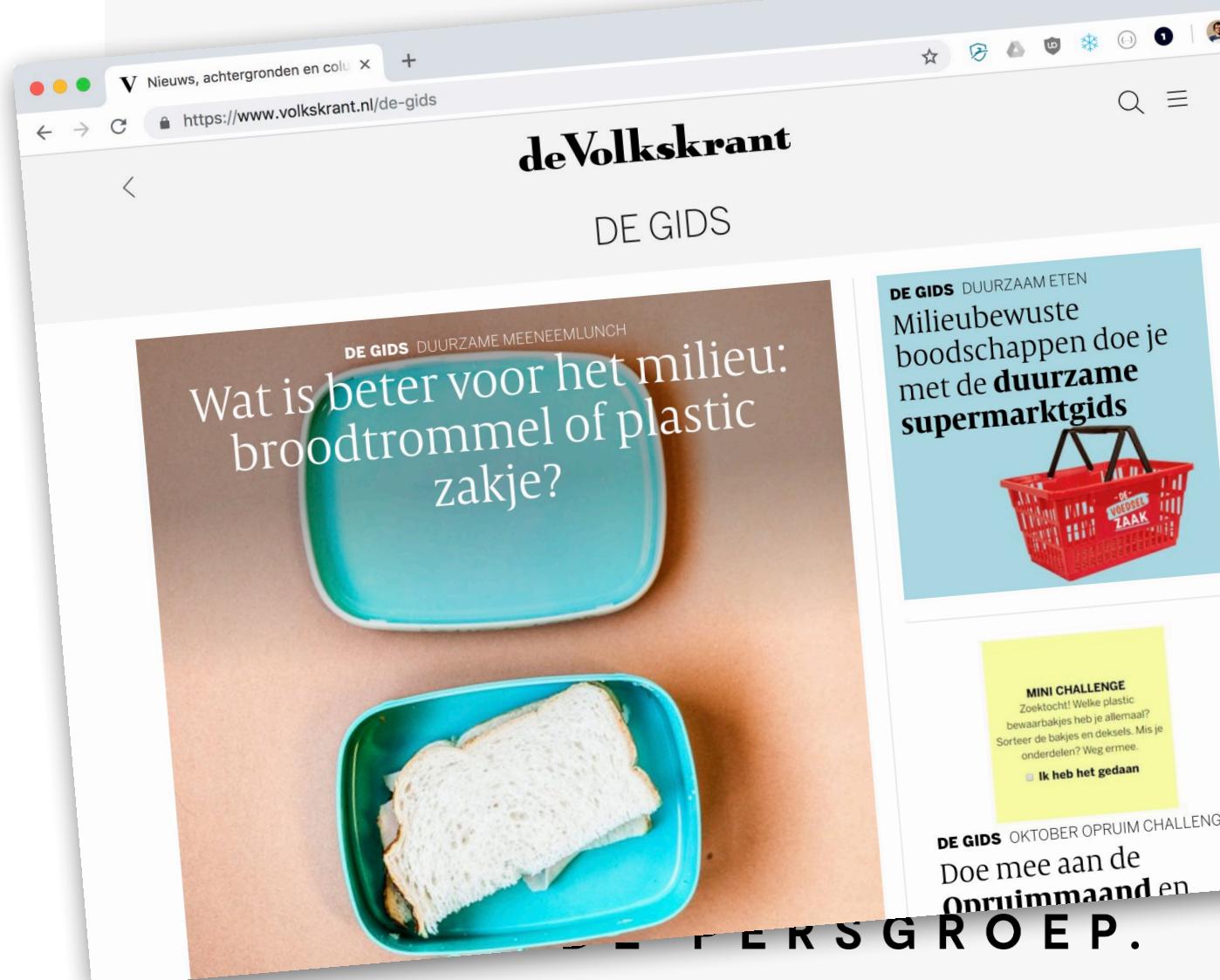
DE GIDS OKTOBER OPRUIM CHALLENGE

Doe mee aan de  
Opruimmaand en

PERSGROEP.

# DE VOLKSKRANT GUIDE TO LIFE

- Large Google DNI funding (500K)



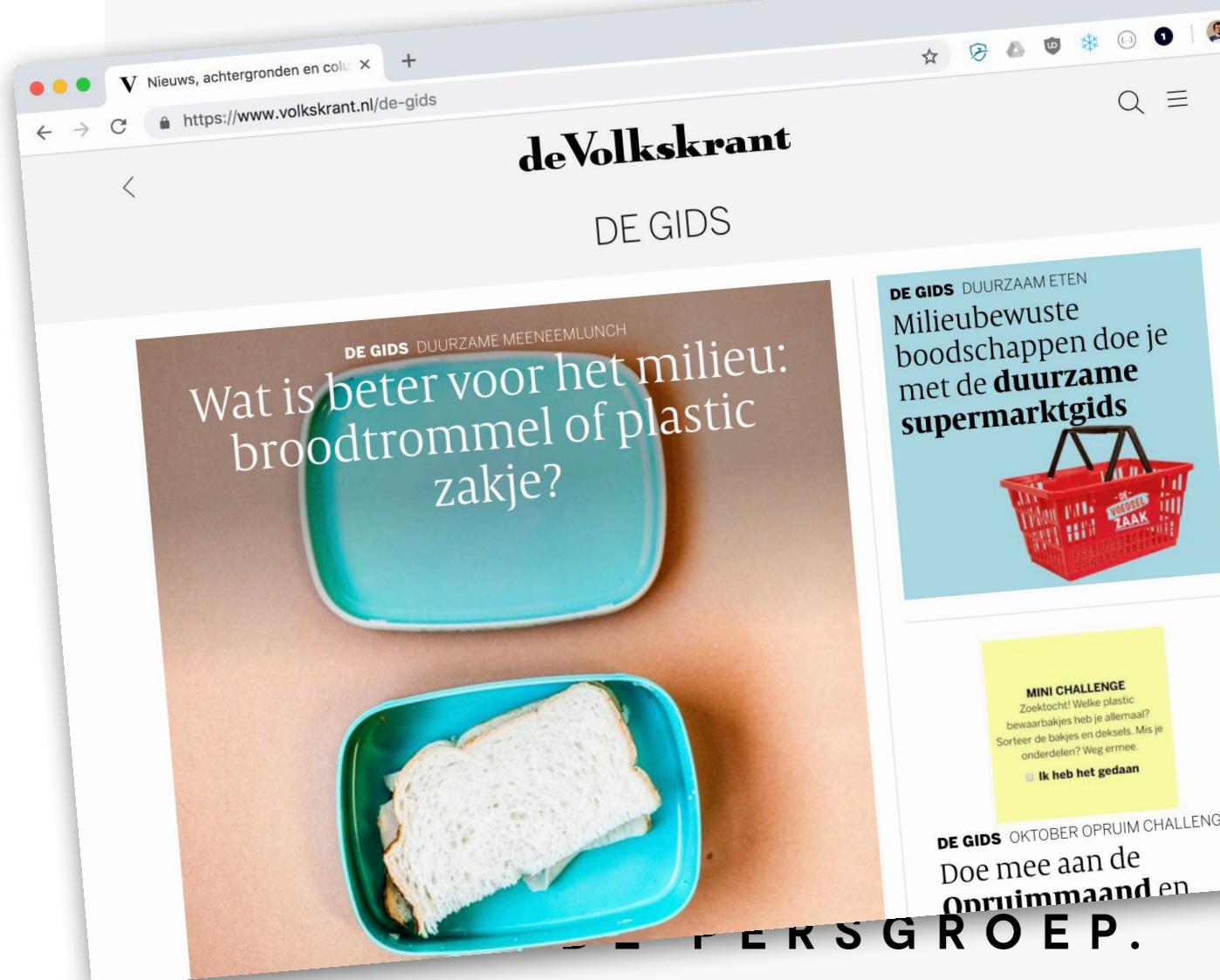
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- Large Google DNI funding (500K)
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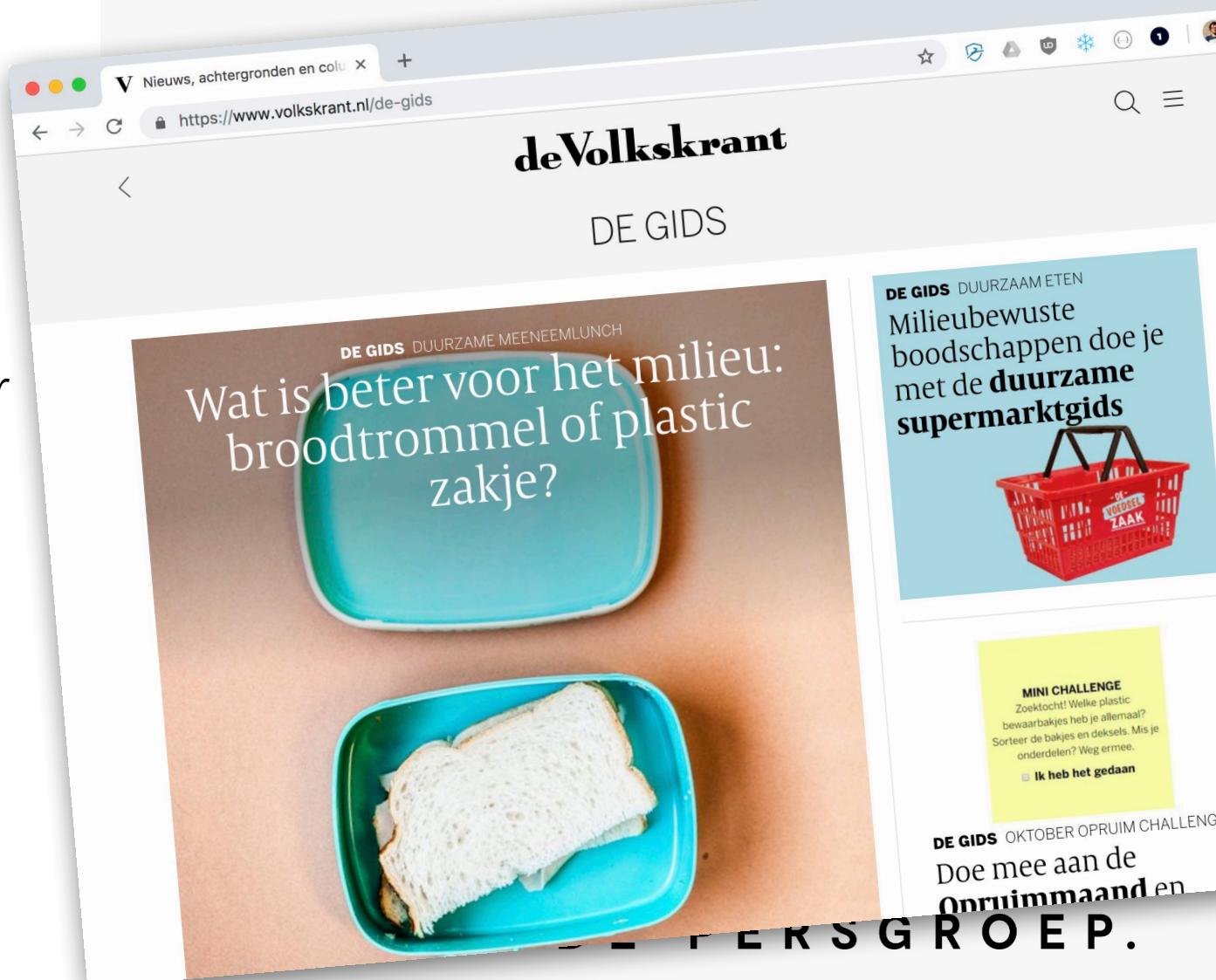
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- Large Google DNI funding (500K)
- Close collaboration with journalists
- Unlocking our archives



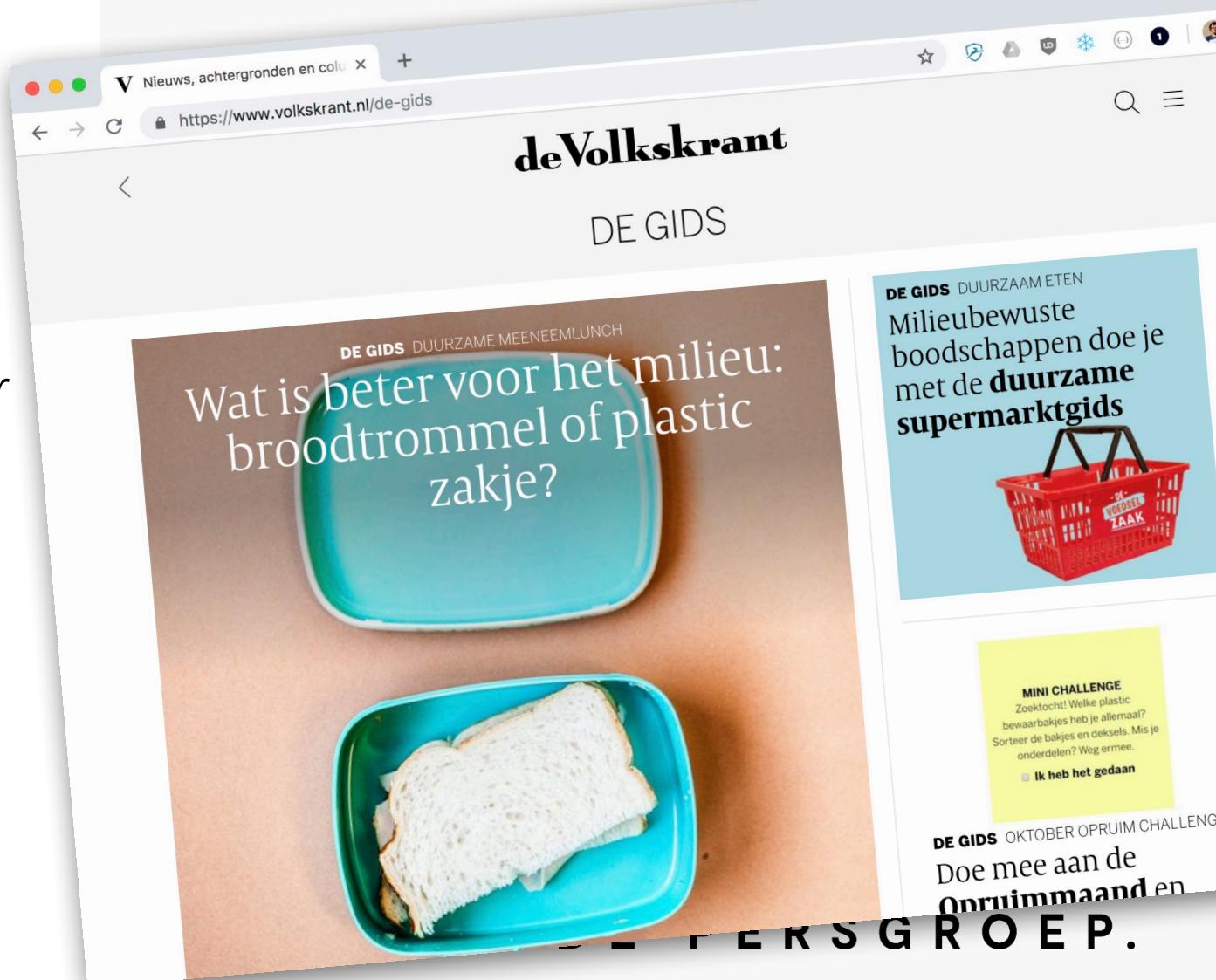
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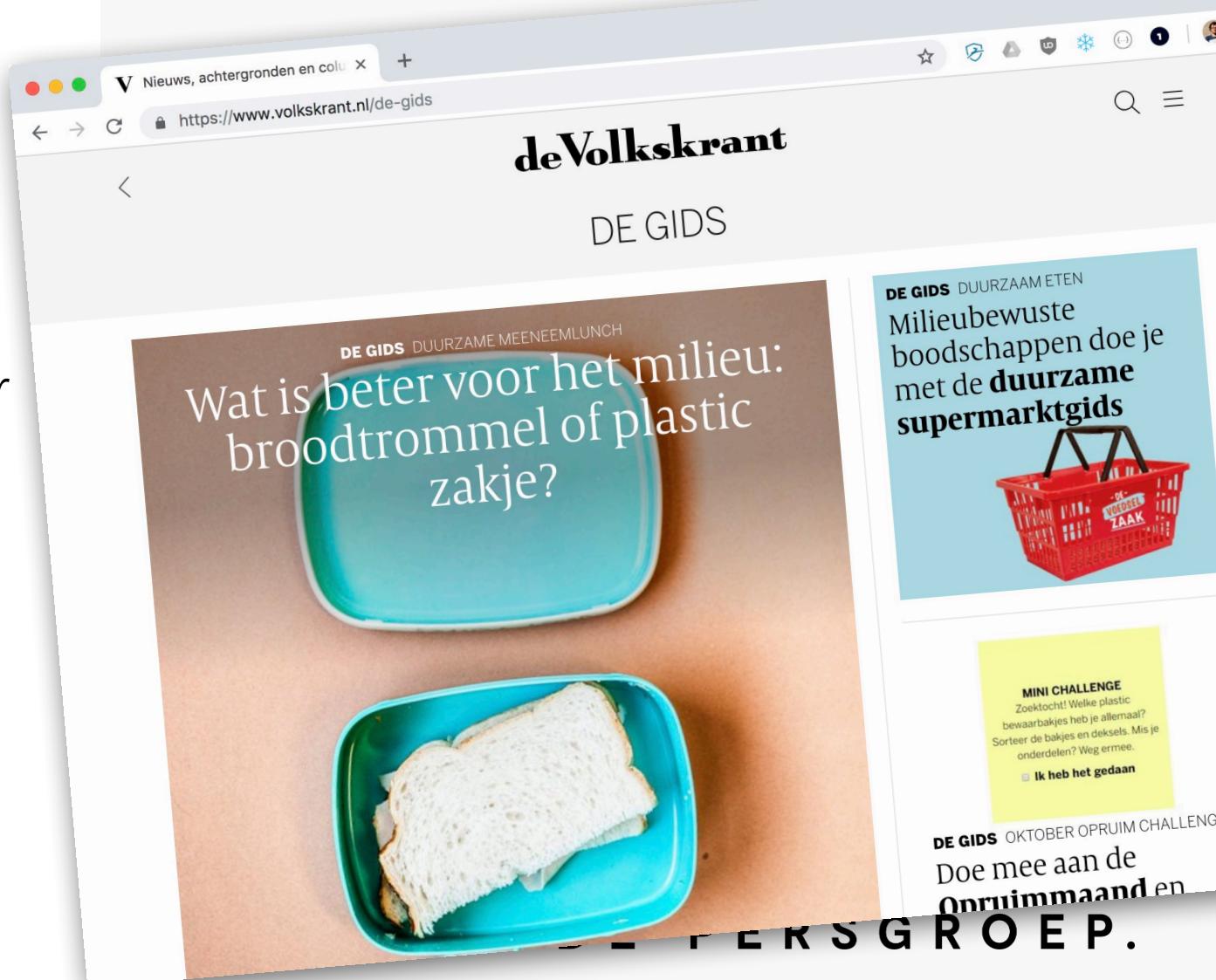
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- Unlocking our archives
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- Starting December 1st



# OUR TEAM



**Lucas de Haas**  
ML Engineer



**TBA**  
ML Engineer - De Volkskrant Guide to Life



**Jeroen Jansze**  
ML Engineer



**Chia-Lun Yeh**  
Intern - Delft University of Technology



**Vasco Visser**  
ML Engineer



***Two Vacancies***  
Interns



**Babak Loni**  
ML Engineer



**Anne Schuth**  
ML Engineer, Team Lead

# INTERNSHIP PROJECTS

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# THANK YOU