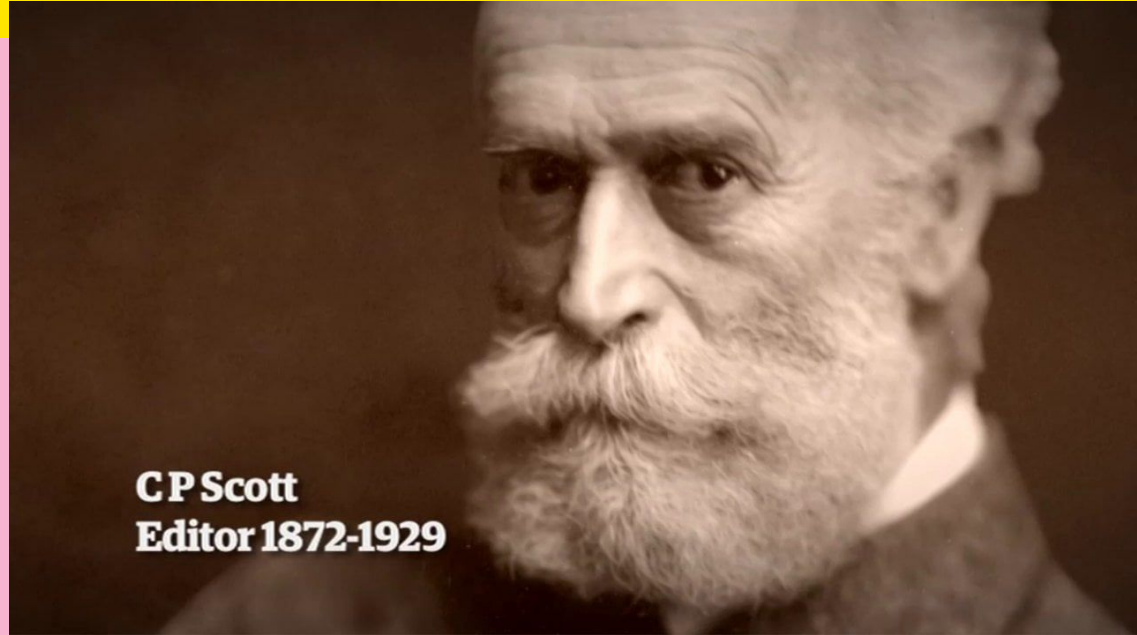


The set-up of a data architecture to support the transformation of the newsroom

Mariot Chauvin

The Scott Trust

“To secure the financial and editorial independence of the Guardian in perpetuity and to safeguard the journalistic freedom and liberal values of the Guardian free from commercial or political interference.”



Our print portfolio



Our support model

... we have a small favour to ask. Tens of millions have placed their trust in the Guardian's fearless journalism since we started publishing 200 years ago, turning to us in moments of crisis, uncertainty, solidarity and hope. More than 1.5 million supporters, from 180 countries, now power us financially - keeping us open to all, and fiercely independent. **Will you support us too?**

Unlike many others, the Guardian has no shareholders and no billionaire owner. Just the determination and passion to deliver high-impact global reporting, always free from commercial or political influence. Reporting like this is vital for democracy, for fairness and to demand better from the powerful.

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If there were ever a time to join us, it is now. Every contribution, however big or small, powers our journalism and sustains our future. **Support the Guardian from as little as £1 - it only takes a minute. If you can, please consider supporting us with a regular amount each month. Thank you.**

| | | |
|--------------|---------------|--------|
| Single | Monthly | Annual |
| £6 per month | £12 per month | Other |

Continue →

Remind me in November

VISA

Mastercard

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PayPal

United Kingdom (£) ▾

| | | |
|--------|---------|--------|
| Single | Monthly | Annual |
| £3 | £7 | £12 |
| | Other | |

Contributing £7 works out as £1.62 each week

Email address

✉ example@domain.com

First name



Last name



The Guardian

Support our journalism with a contribution of any size

Your support helps protect the Guardian's independence and it means we can keep delivering quality journalism that's open for everyone around the world. Every contribution, however big or small, is so valuable for our future.

Digital innovation history

1995 - 1999



2004



2015



2017



Content

Politics



Suella Braverman says she has 'concerns about the direction of this government' as she is replaced by Grant Shapps - live [↗](#)

2,914

views/min

6.2%
of traffic



Politics

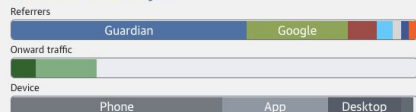


Suella Braverman forced to resign as UK home secretary [↗](#)

1,883

views/min

4.0%
of traffic



World news

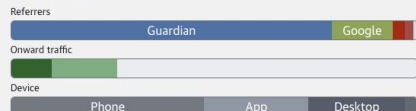


Russia-Ukraine war live: hundreds of thousands without water or power; Russia warns of battle for Kherson in 'very near future' [↗](#)

870

views/min

1.9%
of traffic



Sport

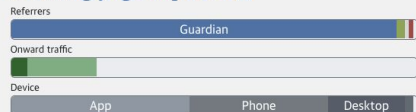


Slimmed down Boris Becker reportedly teaching yoga in prison [↗](#)

833

views/min

1.8%
of traffic



Fronts

[/uk](#) [↗](#)

11,350

views/min

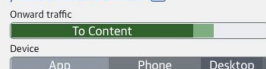


24.2%
of traffic

[/international](#) [↗](#)

3,461

views/min

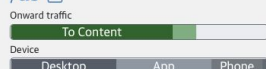


7.4%
of traffic

[/us](#) [↗](#)

1,064

views/min

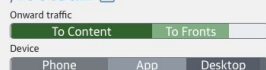


2.3%
of traffic

[/football](#) [↗](#)

457

views/min

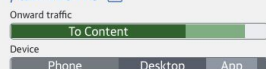


1.0%
of traffic

[/uk-news](#) [↗](#)

331

views/min

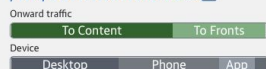


0.7%
of traffic

[/uk/commentsfree](#) [↗](#)

309

views/min



0.7%
of traffic

[/uk/sport](#) [↗](#)

206

Content

US news



US election 2016: Clinton waits to concede as Trump poised for win - live

43,436

views/min

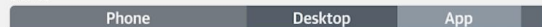
Referrers



Onward traffic



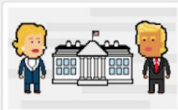
Device



22.7%
of traffic



US news

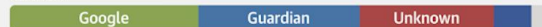


US elections 2016 live results: track who is winning, county by county

36,544

views/min

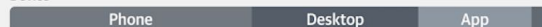
Referrers



Onward traffic



Device



19.1%
of traffic

US news



Donald Trump wins presidential election, plunging US into uncertain future

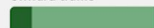
33,829

views/min

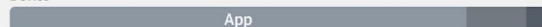
Referrers



Onward traffic



Device



17.7%
of traffic

Business



Presidential election sees markets and dollar plunge as Trump nears victory - live

5,681

views/min

Fronts

/uk

Onward traffic



Device



27,433

views/min

14.3%
of traffic

/international

Onward traffic



Device



11,979

views/min

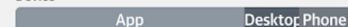
6.3%
of traffic

/us

Onward traffic



Device



4,055

views/min

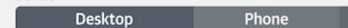
2.1%
of traffic

/us-news/us-elections-2016

Onward traffic



Device



3,193

views/min

1.7%
of traffic

/au

Onward traffic



Device



2,865

views/min

1.5%
of traffic

Opinion



Liz Truss hasn't saved her own skin by making a sacrifice of Kwasi Kwarteng | Andrew Rawnsley

 1,264

Her premiership is finished. Tory MPs now have to decide how to finish her off

First published (Sunday 16 October 2022 08.30 BST) 1 day ago 

Last updated Sunday 16 October 2022 10.52 BST

 This article was printed on page 41 in The Observer “Main section” on Sunday 16 October 2022.

197,517

page views

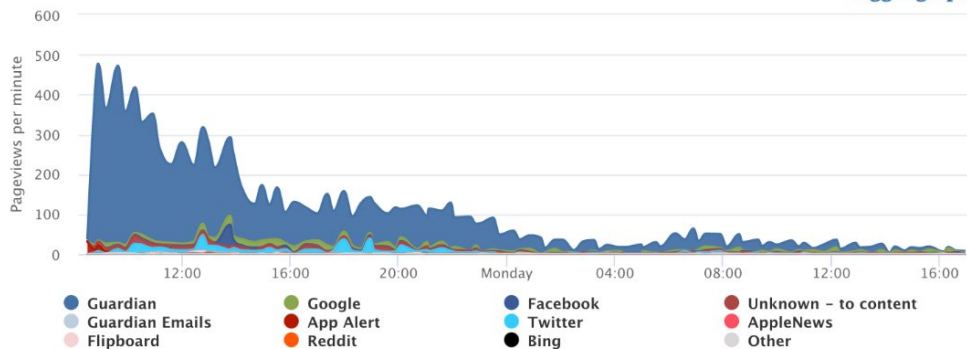
162,567

by regulars

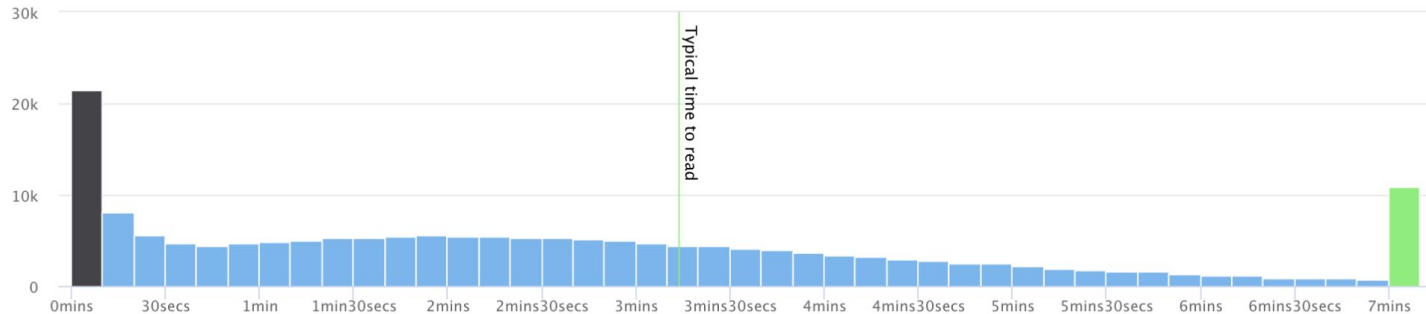
2m19s

median attention time

1,454 words

[bigger graph »](#)

How long did people pay attention to this article?



This article can be read in about **3 minutes**.

Of **181,439** page views with attention time recorded, **63,265** spent at least this much time active on the page. **21,467** left within 10 seconds.

Ophan calculates active attention time following [Upworthy's methodology](#).

How good is the reading time?

Our benchmark looks at historical data to estimate expected % read according to the wordcount. We compare this to the actual median % read and give you a score out of 100 which we also show as a mark out of five.

Articles of

1,454

words

Typically get

31%

read

This piece got

72%

read

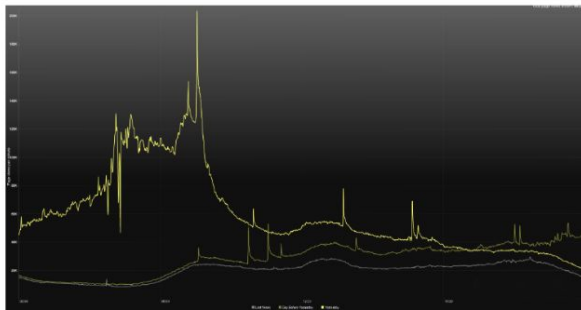
Giving a score of



(100/100)

The top line: a shocking end to a disturbing US election brought us our biggest ever audience by quite a margin

This wasn't Brexit times ten, but it was bigger. 23.4m uniques and 85.2m page views blows our previous Brexit record of 17.2m and 77m out of the water. But it's telling that the rise in uniques was proportionately so much greater than page views. Brexit saw 4.47 page views per unique, Trump's victory saw 3.64. This was absolutely a reflection of a more global story driven by huge success in search. 4m page views from Google is a good total on an average day. If we were to produce a Google top 20 for this email it would include [22m page views](#), 12m uniques and some staggering story totals. That search success drove us past Brexit's record uniques by 5pm and page views just before 8pm. The graph of the day is telling:



At its height, Brexit reached 100k page views per minute. At 7:34am yesterday President-elect Trump emerged and we peaked at more than 200k page views per minute. The Ophan team's smart work in the buildup to the election and throughout the night meant that Ophan weathered very choppy waters beautifully (the three sharp downward spikes in the graph amount to around 350k page views that we're working on pumping back into Ophan - so just over a 100 seconds worth of the the day at its peak is lost for now). This stability under massive pressure was just one of many back-end triumphs on a night that saw all the tools we rely upon perform fantastically. And all in the service of one goal: putting our journalism in front of the biggest possible audience of engaged readers. And in that regard, the twin engines of yesterday's success were the liveblog and results interactive, which hit respective highs of 60k and 45k page views per minute. To put that in perspective, Monday, which was a strong day, didn't get anywhere near either of those numbers across all content combined.

5.6m page views of search came to that 12m page views liveblog, primarily from the UK, US and Canada. We held the coveted top spot in Google's News onebox for almost all the major search terms throughout the early hours on desktop. Mobile search proved much tougher with incredible variety among the sources gaining prominence. But the liveblog wasn't simply a reach success. More than a quarter of the over all audience were regulars. And if you cut to [regulars](#), they read for twice as long as [non-regulars](#).

The results interactive saw an astonishing 20.6m page views in total, double its Brexit equivalent. So great is the scale that I nearly didn't spot the small sliver of Spotlight on the graph that amounts to [228k page views](#). Facebook saw [a slice that amounted to more than 2m](#). It was a thing of beauty, a model of clarity and a phenomenal success. But one small link pointing to the liveblog isn't enough of a signal to readers to read more. Results interactives are massive landing pages and should - without compromising clarity - be routes into more of our journalism. But that niggle aside, a triumph.

We saw five other pieces over 1m page views, with the Business liveblog just shy of 2m, helped along by the mobile live carousel on the search term 'Trump'. The next day liveblog got off to a fantastic start and the news splash saw emphatic search as well as onsite success. The key opinion piece of the day was Jonathan Freedland's distillation of what many were feeling. It was [a huge hit on Facebook](#) as was [Thomas Frank's equally powerful line](#) on how we got here and who's to blame. We also saw our editorial pull in more than 600k page views, with 40% non-regulars finding out exactly what it is we stand for. Pieces offering answers were strong as always, with [Mona Chalabi on why the polls were wrong](#), [Dan Roberts on why Hillary lost](#) and [Alan Yuhas's annotated analysis of Trump's speech](#) also doing brilliantly (also see our longest read in the list below). There were other takes on [what now, wherefore](#) and [why plus even deeper despondency](#), all of which benefitted from Facebook exposure. There was even room for some [amusing colour amid the anguish](#). The range and quality of stories was fantastic and the expertise across all offices in optimising and promoting on and offsite helped deliver some stunning results. Facebook saw 6m page views on the day, which is three to four times its usual total, while Twitter doubled its usual impact to 800k.

Video had a strong day, though you might argue not explosively so given the scale we saw over all. But we do have a sizeable Facebook hit in our Dab on the demographic breakdown of Trump voters. It's currently on 1.65m video starts and it's a perfect example of the form: to the point, with great visuals and brimming with compelling reasons to share. But if you'll indulge me, I'll jump from a hip new story format to an unsexy and well established mainstay of the CMS. Our top 20 filters out tag pages, but I thought it might be worth taking a quick peek at the traffic to the US elections 2016 page. It saw 1.3m page views yesterday, more than half of which came from search, and it delivered 39% through to content. But most remarkable of all, [more than 700k spent 30s or more on the page](#). Have I said yay tags before? I have? Sorry.

All these astonishing numbers are a tribute to countless people across the Guardian, but a special thank you to the US because of their remarkable work throughout an arduous and terrifying election. The results were amazing. The result less so. And that result might make this all feel like cold comfort. But it's also a reminder that it's more important than ever that we project our liberal voice out into the world. And in those terms, yesterday was a triumph.

Filter by

Time

Published

Section

Office

Tag

Device

Browser

Country

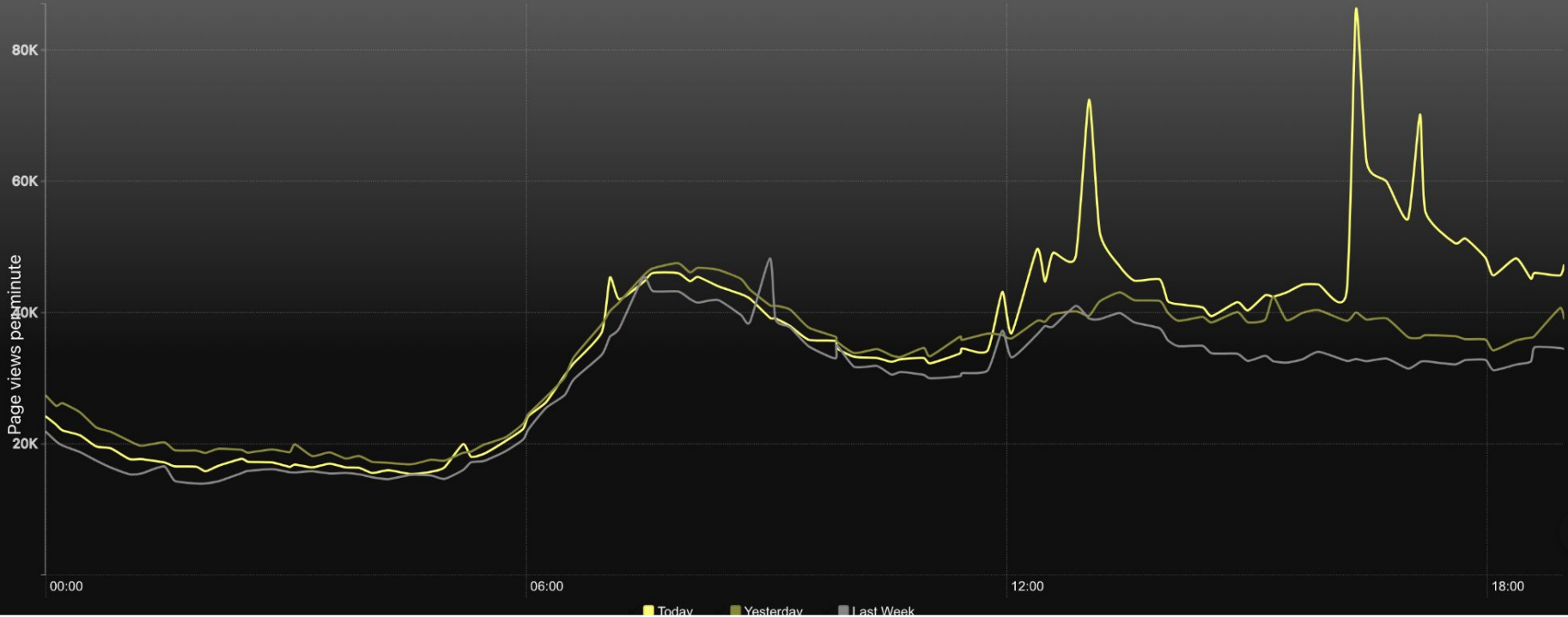
Referrer

Loyalty

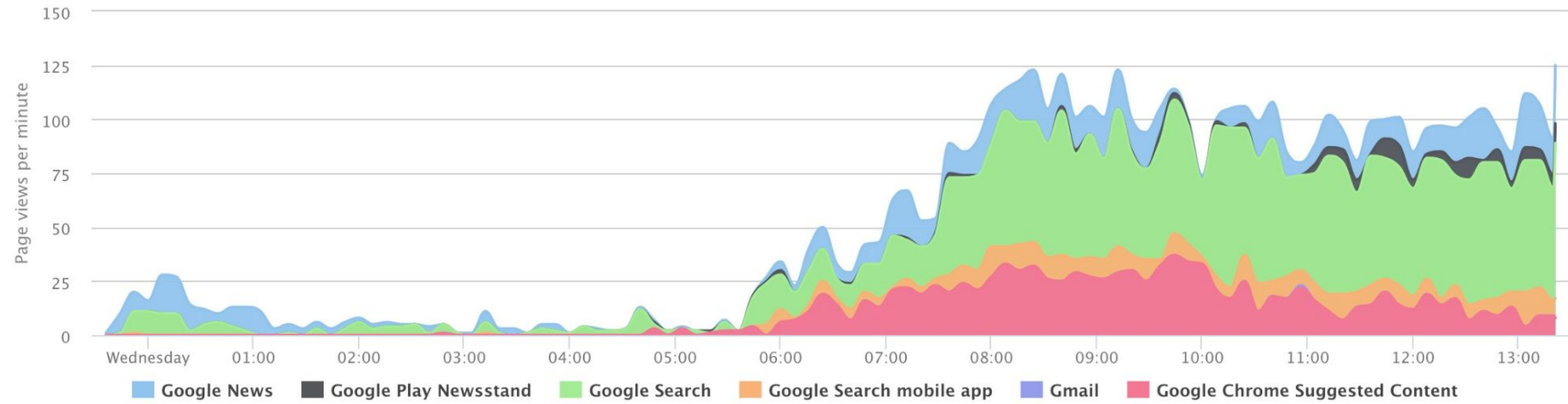
Attention time

Breakdown by

Total page views shown: 39,582,637



How did people find this on google?



Pakistan church bomb: Christians mourn 85 killed in Peshawar suicide attack

Pakistan's worst-ever attack on beleaguered Christians prompts warning by bishop for future of minority in Muslim countries

US

This article was printed on page 21 in The Guardian "Main section" on Tuesday 24 September 2013.

51,258

page views

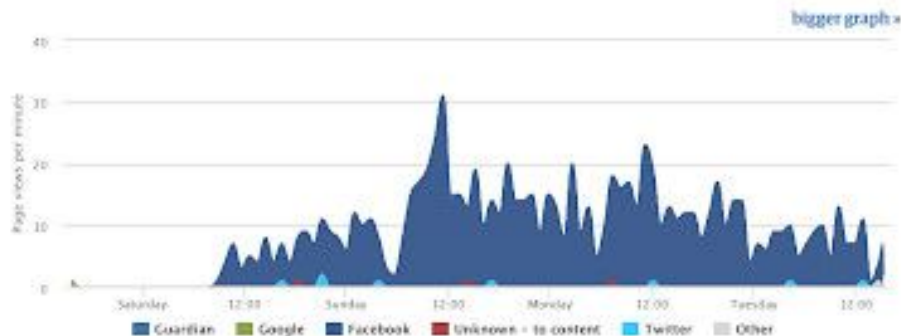
2,051

by regulars

12s

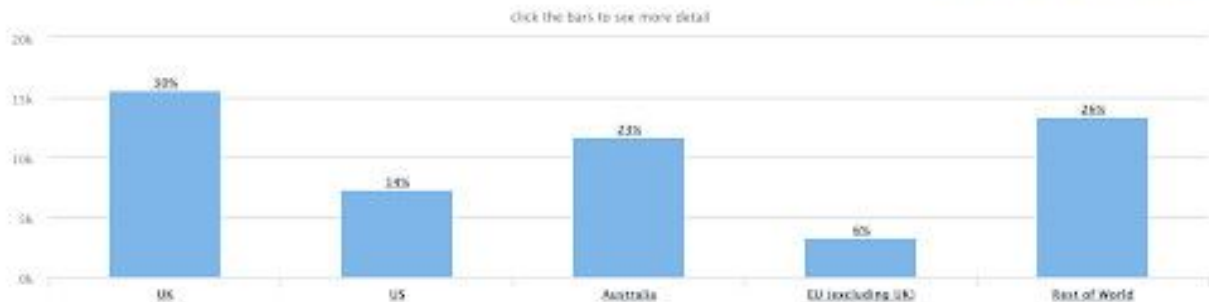
median attention time

942 words



Where is this being read?

show on map » see all countries »



Before



Phillip Roberts @pr6543 · Mar 16

Nothing on mainstream media



Pakistan church bomb: Christians mourn 85 killed in Peshawar suicide...
Pakistan's worst-ever attack on beleaguered Christians prompts warning by bishop for future of minority in Muslim countries
theguardian.com

2 16 14

After



Phillip Roberts @pr6543 · Mar 16

Nothing on mainstream media



Pakistan church bomb: Christians mourn 85 killed in Peshawar suicide...
This article is from 2013. Pakistan's worst-ever attack on beleaguered Christians prompts warning by bishop for future of minority in Muslim...
theguardian.com

2 16 14

Principles

1 — Instant feedback loop

2 — Meaningful metrics

3 — Long term analysis capability

4 — Contextualisation & textual representation

5 — Data democratisation

6 — Inspiring insights

Principles

What is a data architecture that enables those principles to materialise?

O'REILLY

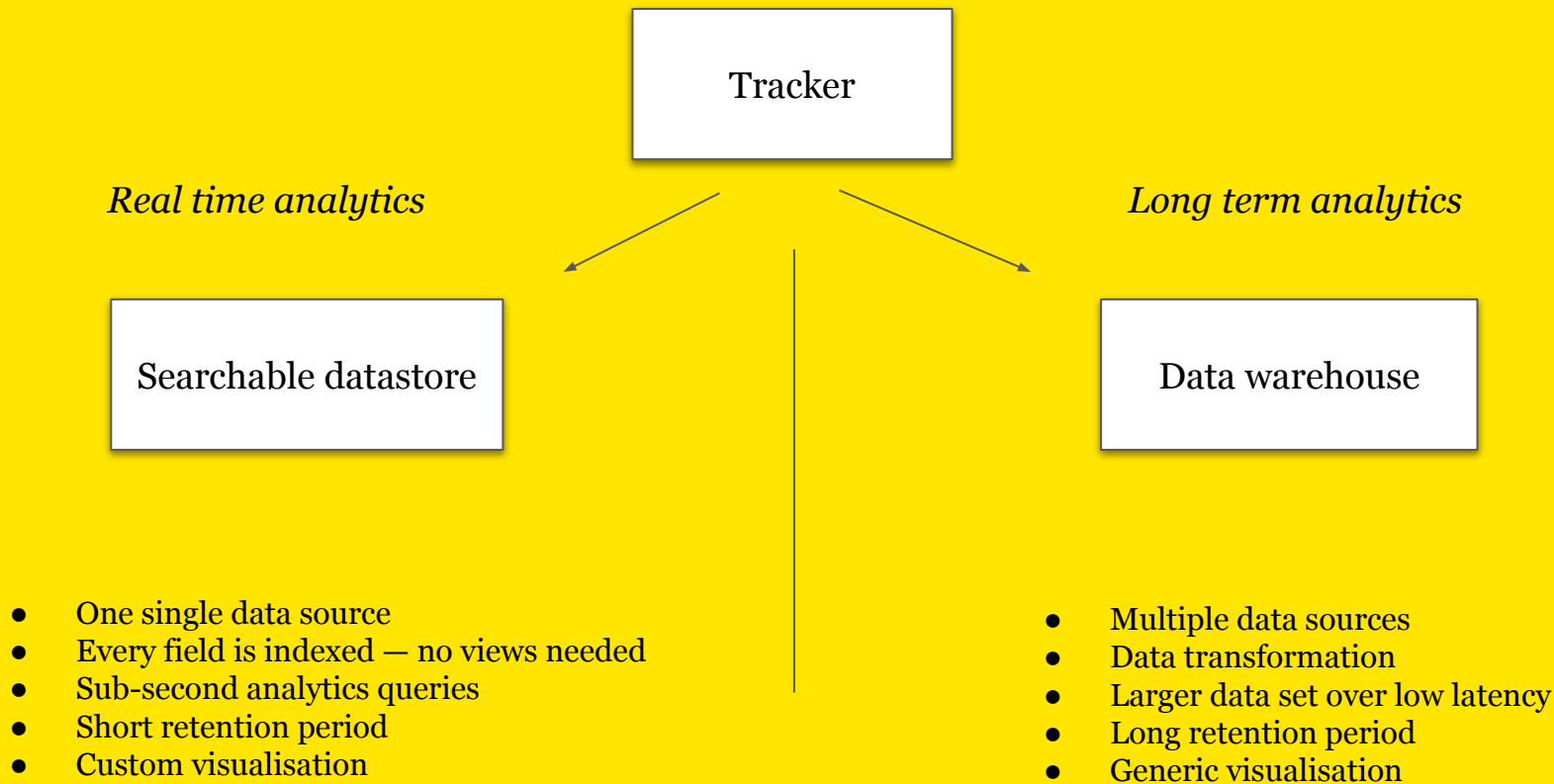
Designing Data-Intensive Applications

THE BIG IDEAS BEHIND RELIABLE, SCALABLE,
AND MAINTAINABLE SYSTEMS

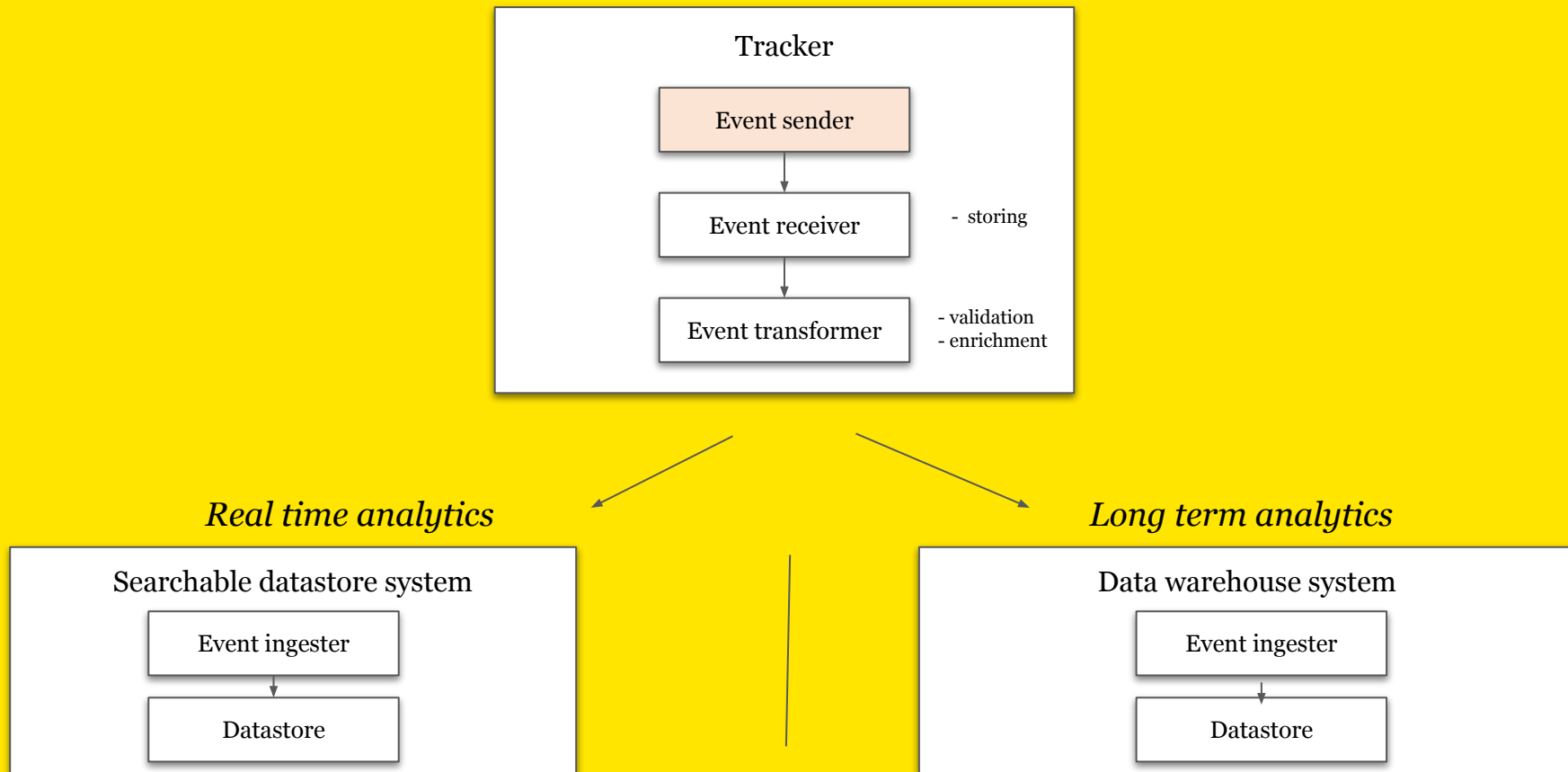


Martin Kleppmann

Overall architecture



Overall architecture



Elasticsearch

http://elastic:Connect

Jacob "Jake" Fury

Cluster Health: green (12/119)

FW FW

Overview / Browser

Structured Query [+] Any Request [+]

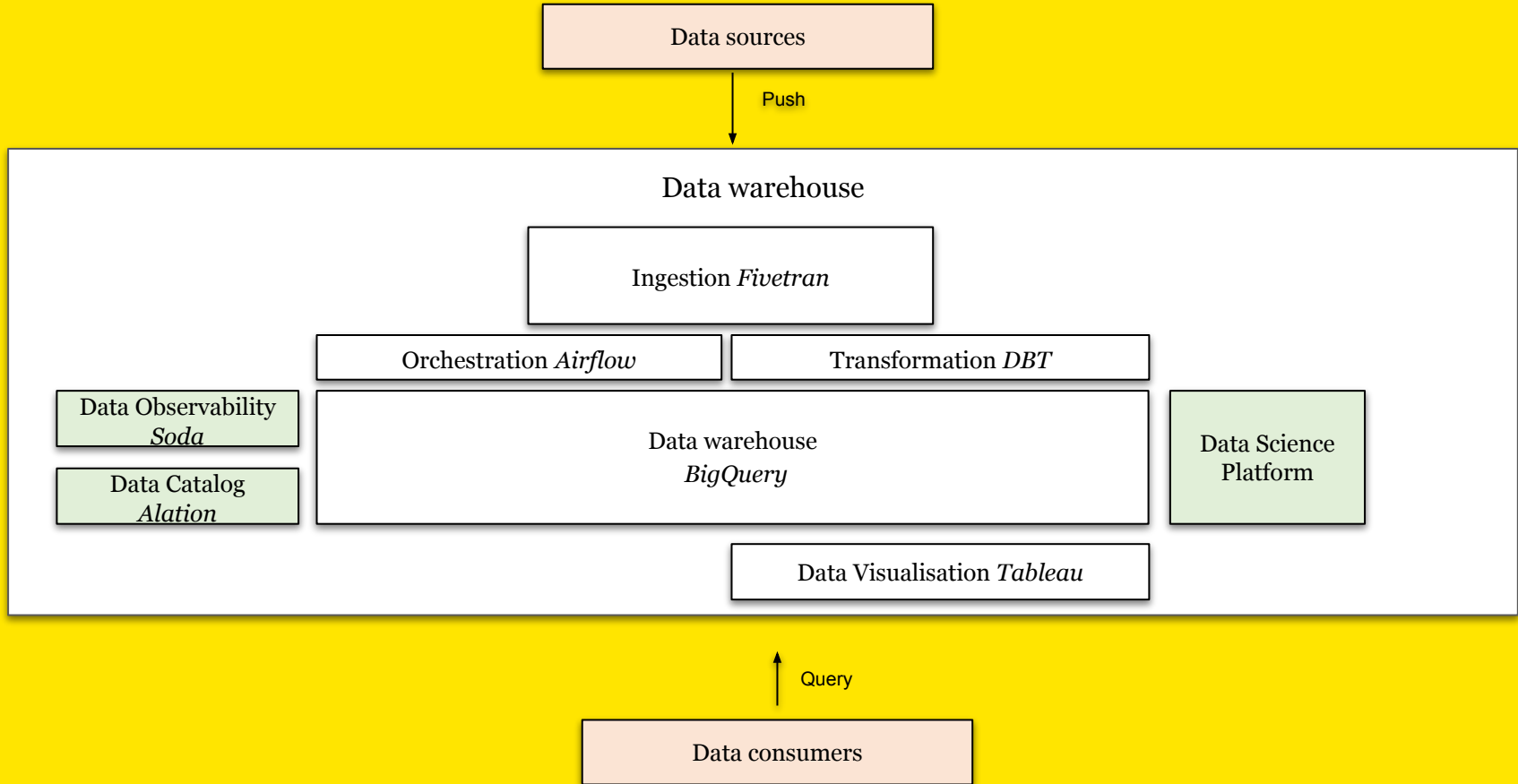
ads

size: 4.09M (12.2M)














































docs: 17,661 (18,027)

FW FW

Long term analysis architecture



Google translated articles in the last 8 hours

| Date | Views | Lang | Office | Fronts | Sensitivity | Title |
|--------------|-------|-----------------------------|--------|---|---|--|
| Thu 31 17:23 | 12 | fr 2 it 2 mk 1 sv 2 pl 5 | UK |    |  | Sport Caroline Wozniacki criticises scheduling of Maria Sharapova at US Open  |
| 03:24 | 10 | fr 2 it 1 de 3 es 2 pl 2 | AU |    |  | Politics Liam Fox accuses EU of trying to 'blackmail' UK over Brexit deal  |
| Sat 22 11:00 | 9 | de 1 el 8 | UK | | | Opinion Eastern Germany: the most godless place on Earth Peter Thompson  |
| 00:11 | 7 | pt-PT 1 it 1 sv 1 sk 1 ro 3 | UK |    |  | Sport Roger Federer's frailties exposed in US Open win over Mikhail Youzhny  |
| 13:27 | 7 | fr 1 es 5 pl 1 | UK |   | | Politics EU's border stance paves way for Northern Ireland to get special status  |
| 05:42 | 6 | ca 1 es 4 pt-BR 1 | AU |     |  | World news 606 pairs of empty shoes: the growing toll of suicide in New Zealand  |
| 10:00 | 6 | pt-BR 1 de 1 ru 1 en 1 es 2 | US |   |  | Science Dr Con Man: the rise and fall of a celebrity scientist who fooled almost everyone  |
| Wed 30 06:01 | 6 | es 6 | AU |    |  | Books Terry Pratchett's unfinished novels destroyed by steamroller  |
| Thu 31 12:41 | 5 | fr 1 cs 1 it 1 fi 1 hu 1 | UK |    |  | Politics UK's approach to Brexit is 'nostalgic and unrealistic', says EU negotiator  |
| 06:35 | 5 | fr 2 es 1 pt-PT 2 | AU |  | | World news Friday briefing: Spot of Barnier trouble as Fox rejects Brussels 'blackmail'  |
| Wed 9 07:28 | 5 | th 3 hi 2 | AU | | | World news North Korea v the US: how likely is war?  |
| 07:00 | 5 | fr 1 es 3 hu 1 | UK |  | | Politics Is a frictionless Irish border 'magical thinking'? - Brexit Means... podcast  |
| Thu 28 | 4 | ca 4 | UK | | | Global Development Professionals Network Green Deal: how can it help us achieve our net-zero goals?  |

What's being read from 10 Jun 2016 11:24:20 to 10 Jun 2016 11:27:20 (BST)

email this

22,012

views/min

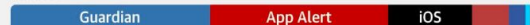
Content

Politics



No single market access for UK after Brexit, Wolfgang Schäuble says

Referrers



Onward traffic



Device



1,836

views/min

8.3%
of traffic

World news



Archaeologists discover massive Petra monument that could be 2,150 years old

Referrers



Onward traffic



Device



315

views/min

1.4%
of traffic

Football



Euro 2016: Guardian writers' predictions for the tournament in France

291

views/min

Fronts

/uk

Onward traffic



Device



4,005

views/min

18.2%
of traffic

/international

Onward traffic



Device



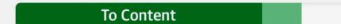
945

views/min

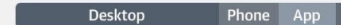
4.3%
of traffic

/football

Onward traffic



Device



445

views/min

2.0%
of traffic

/au

353

Thank you