

redefining web performance

Tim Kadlec

#deltavconf

@tkadlec

The Oxford
English
Dictionary

The Oxford
English
Dictionary

The Oxford
English
Dictionary

teensy

measly

Unfortunately Harry, I
speak in the morning so
I can only have one
small cocktail.

Unfortunately Harry, I
speak in the morning so
I can only have one
teensy cocktail.

Unfortunately Harry, I
speak in the morning so
I can only have one
measly cocktail.

teensy

1. informal tiny

measly

3. contemptibly small



bootylicious

1. See: Lawson, Bruce



literally

used in an exaggerated way to
emphasize a statement or
description that is not literally true
or possible

web performance

web performance

back-end

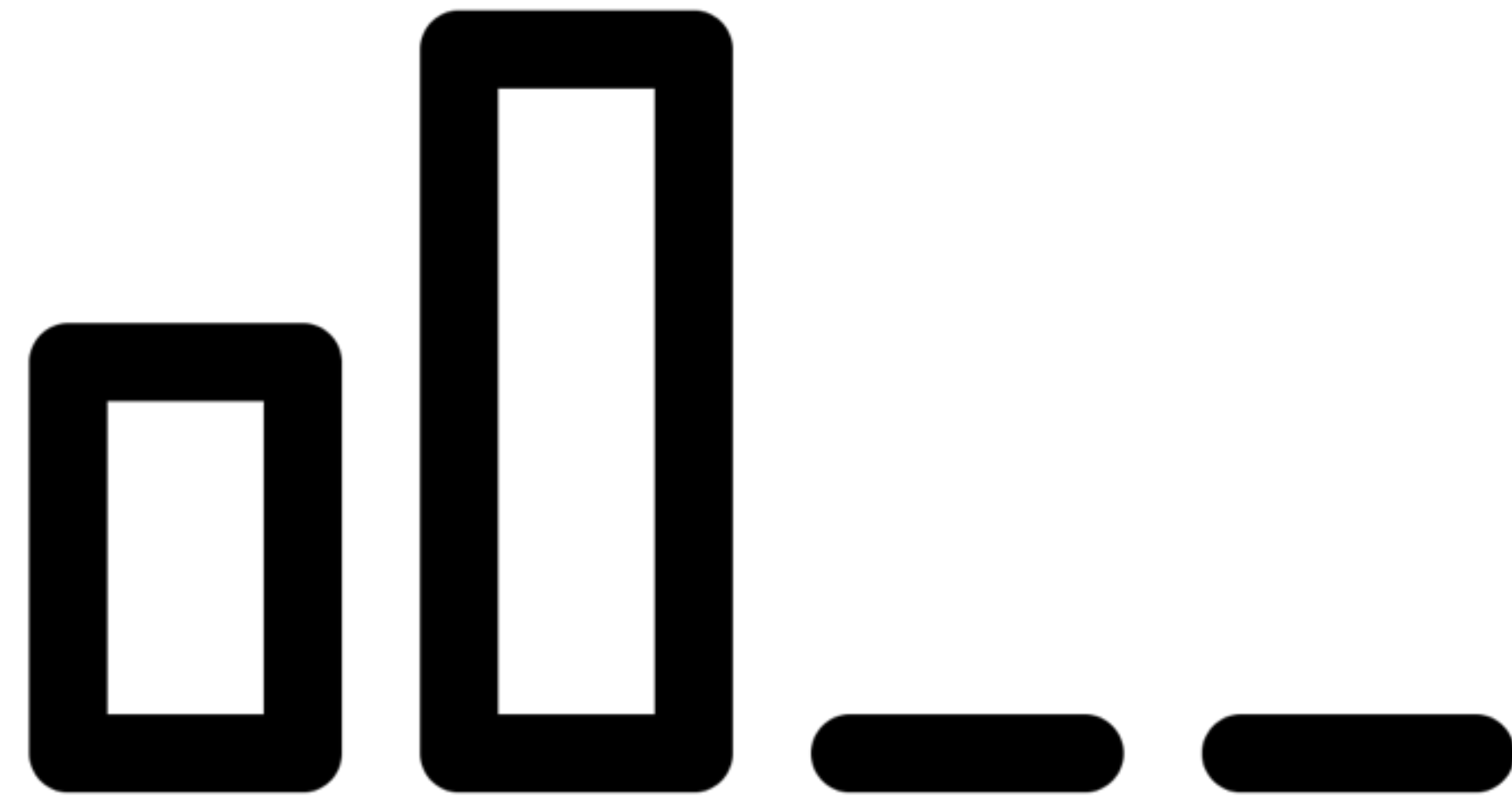
web performance

back-end > front-end

web performance

back-end > front-end > user-centered

performance is a problem



network constrained



71%

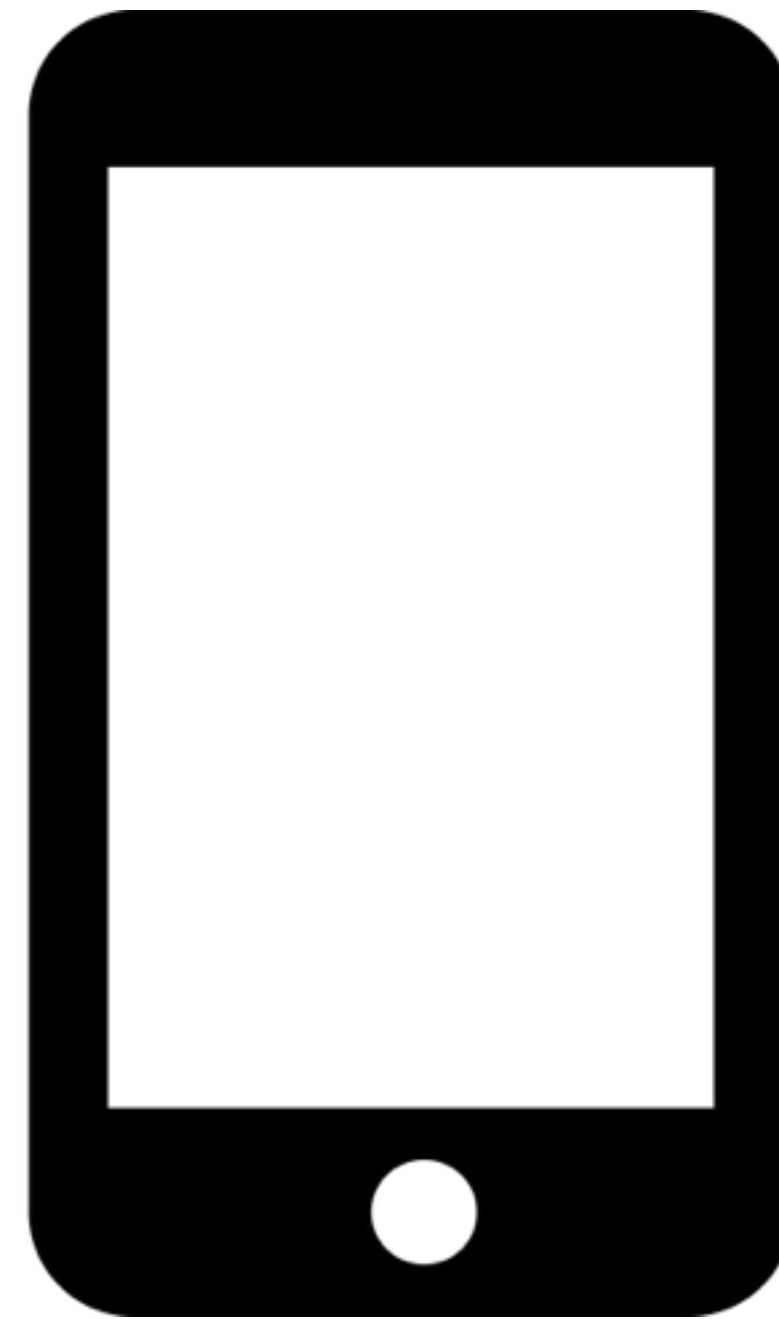
26 or 36

1560kb

median

5754kb

90th
percentile



device constrained





352kb

median

1013kb

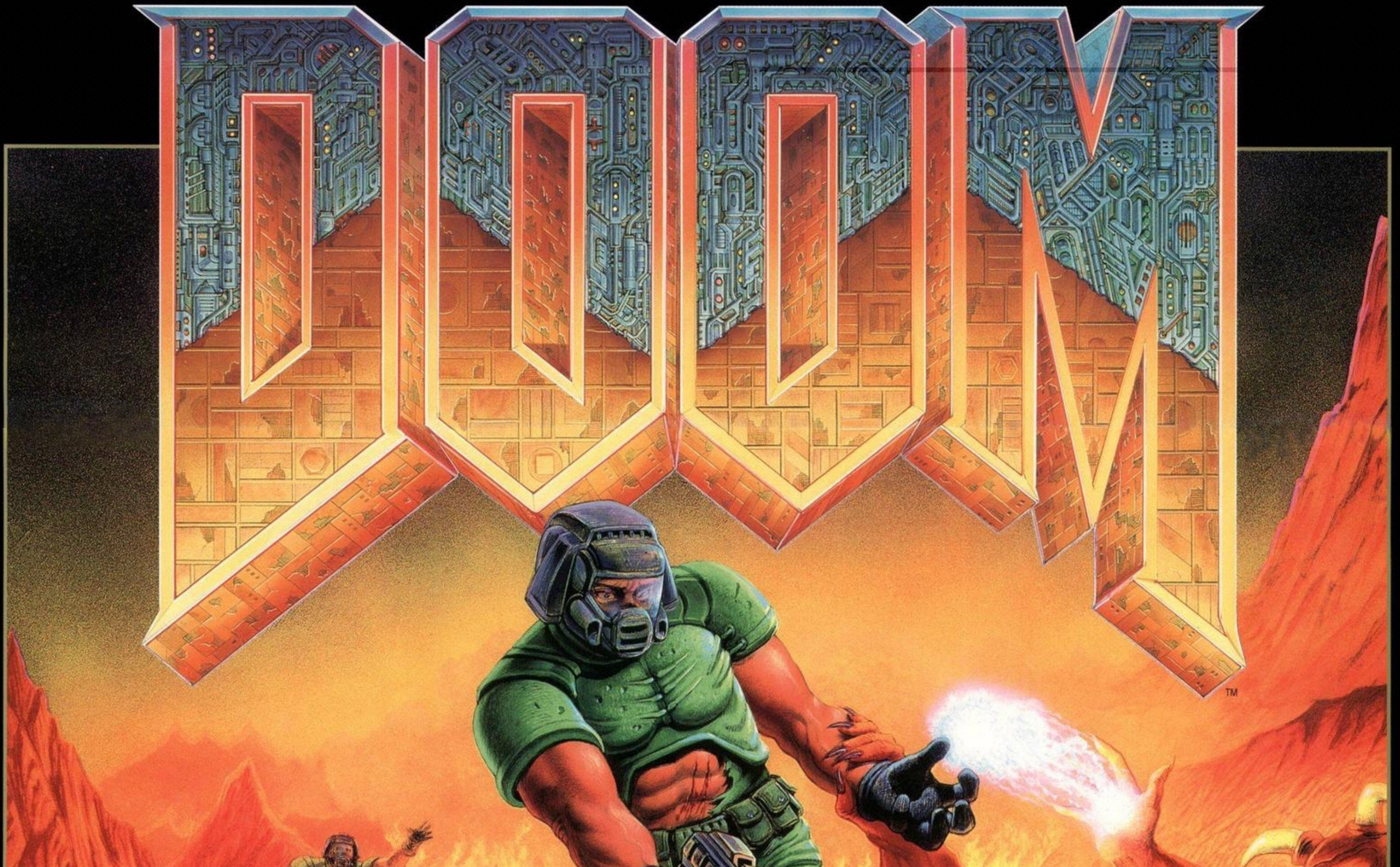
90th
percentile



~2400kb 6915kb

median

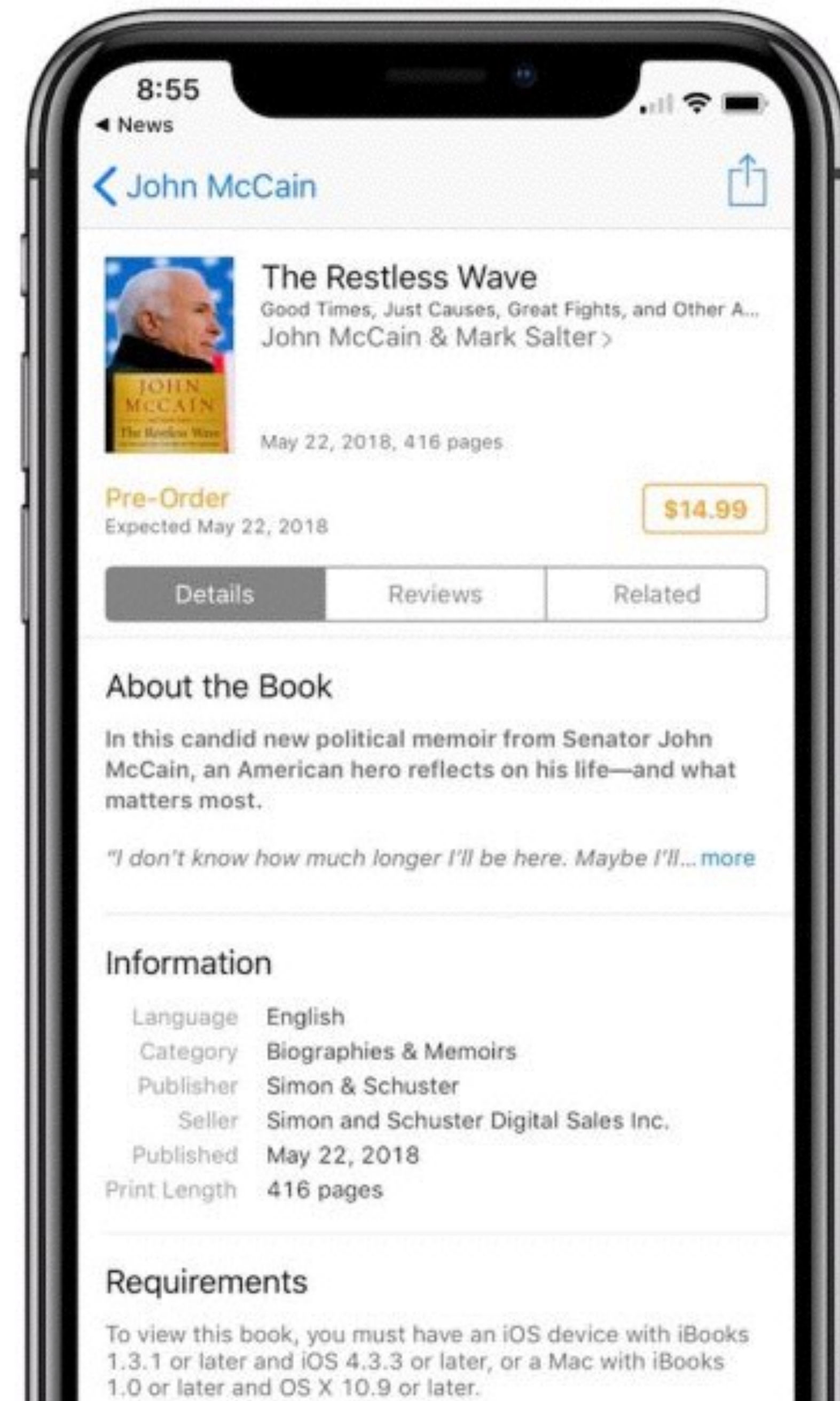
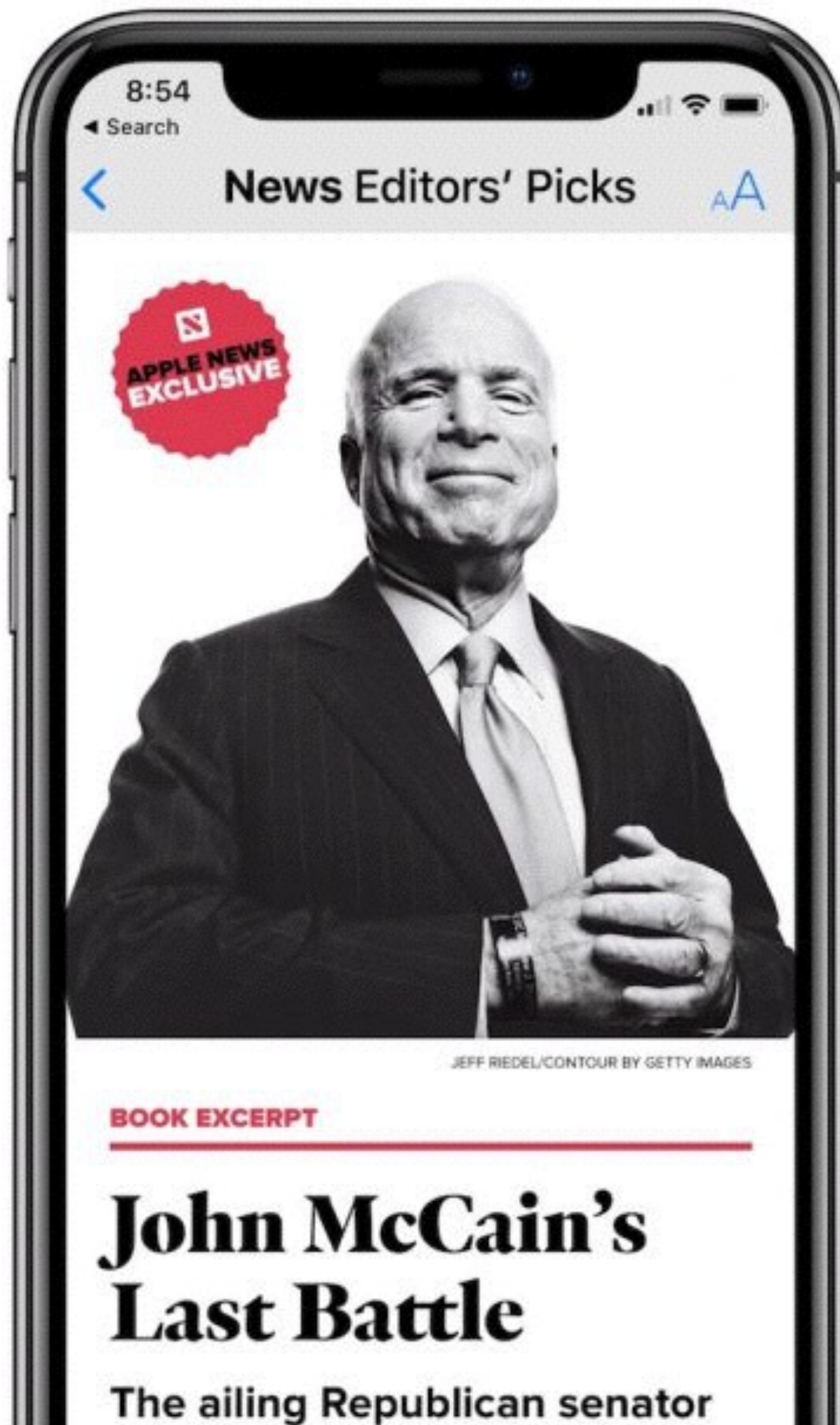
90th
percentile



1244ms 5268ms

median

90th
percentile



94% 2:11 PM

Muckgers



PRODUCTION

DEVELOPMENT

EXAMPLE



WeirdU: Stan the Inspirational LX Driver

WeirdU is a new video series on YouTube, created by Jon Zucker and Alex Bigelisen. In the show, Alex and Jon travel to college campuses across the United States to take you inside the traditions and quirks of college life that make these years so memorable.



SHARE

ADMINISTRATION

The high price of High Point stadium

BY JULIA VERZBICKIS
MAR 21, 2014

Remember that tour of Rutgers most of us took our senior year of high school, when we were looking at schools? The one that began at the Visitors Center on Busch and highlighted the school's most important contributions, including its longstanding status as "the birthplace of college football?" It's hard to believe that a Division I athletics department with that kind of legacy would need to be funded through university subsidies, at the expense of the school's academics budgets. Alarmingly enough, that's exactly what is happening, and anyone who pays tuition to the university is helping to bankroll an athletics



SHARE



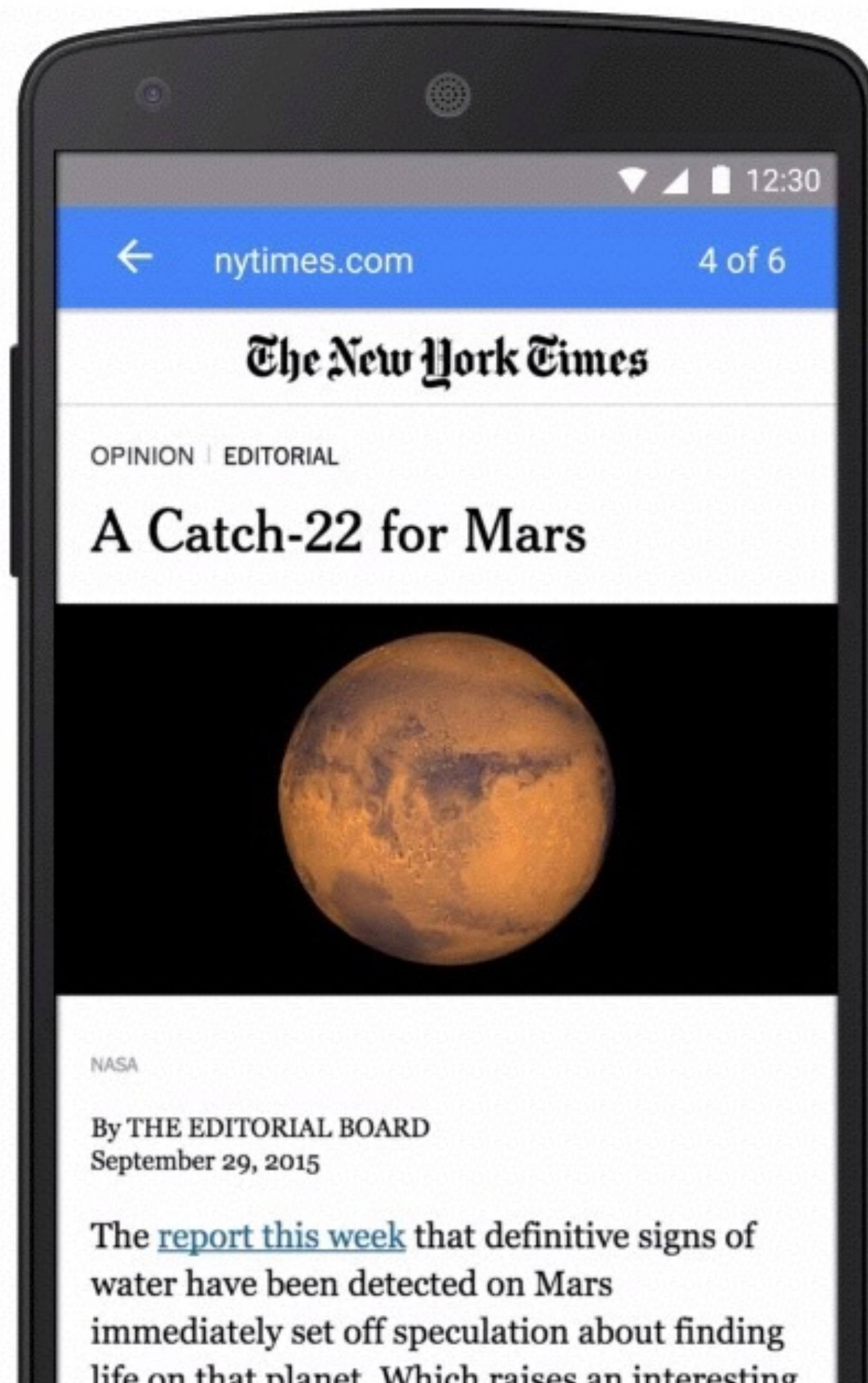
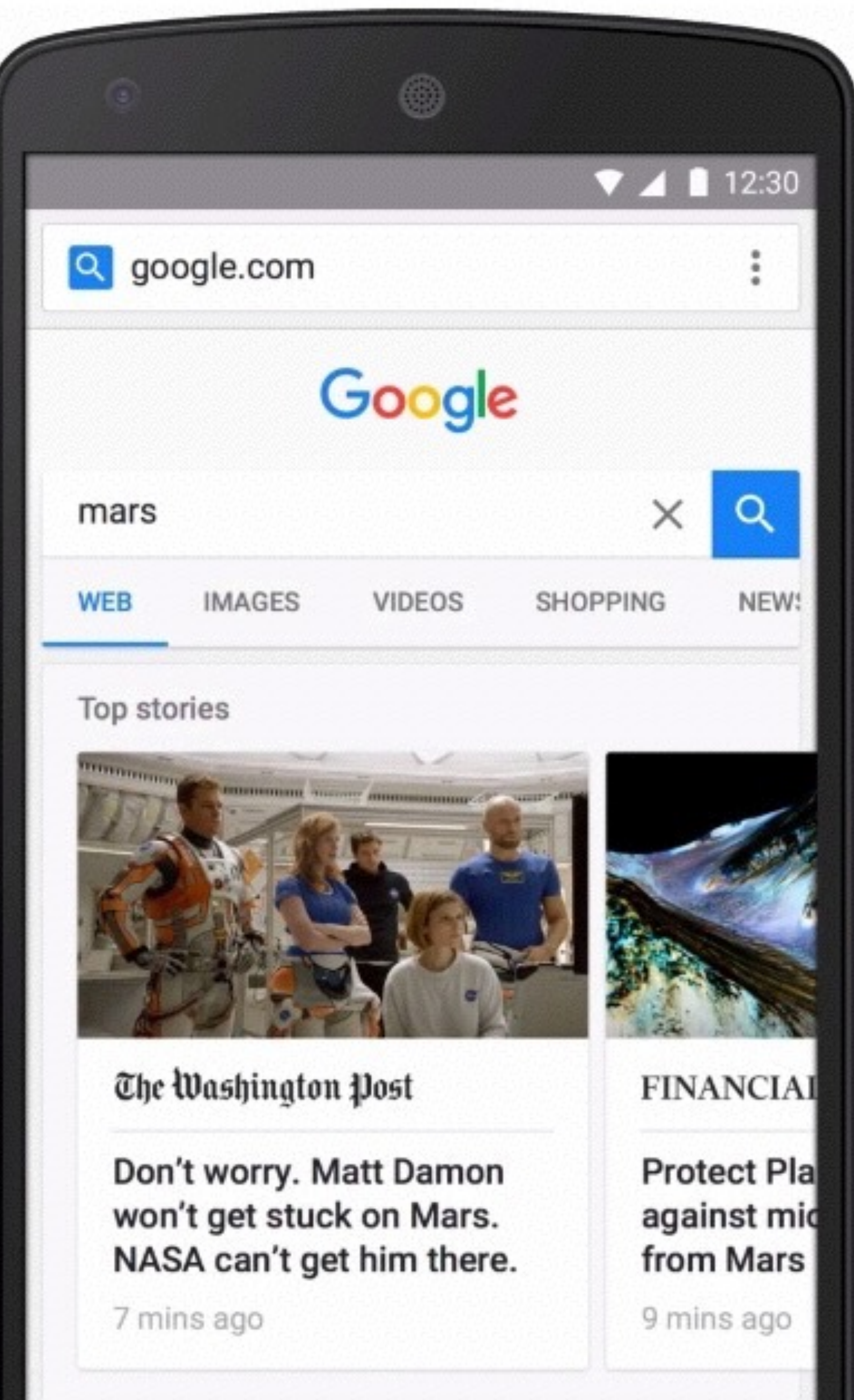
Yesterday was the annual school-wide celebration of all things Rutgers.



Rutgers Day Was Missing A Few "Did You Know?" Signs

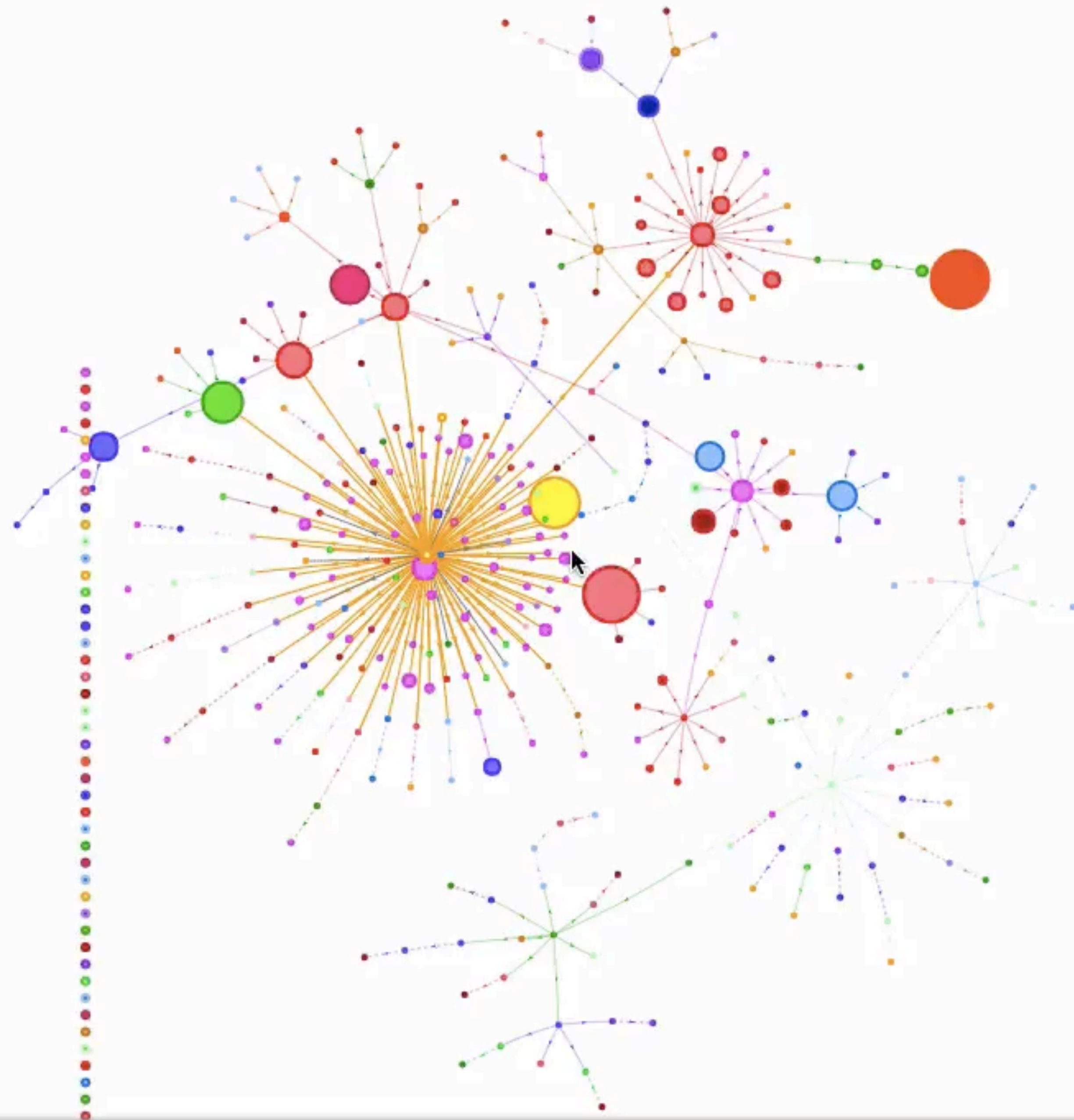
BY SIMON GALPERIN
MAY 2, 2016

Rutgers Day is the annual celebration of all things Rutgers but there were a few important facts missing from the "Did You Know?" signs all over campus, so we made our own.



business
^

performance is a problem



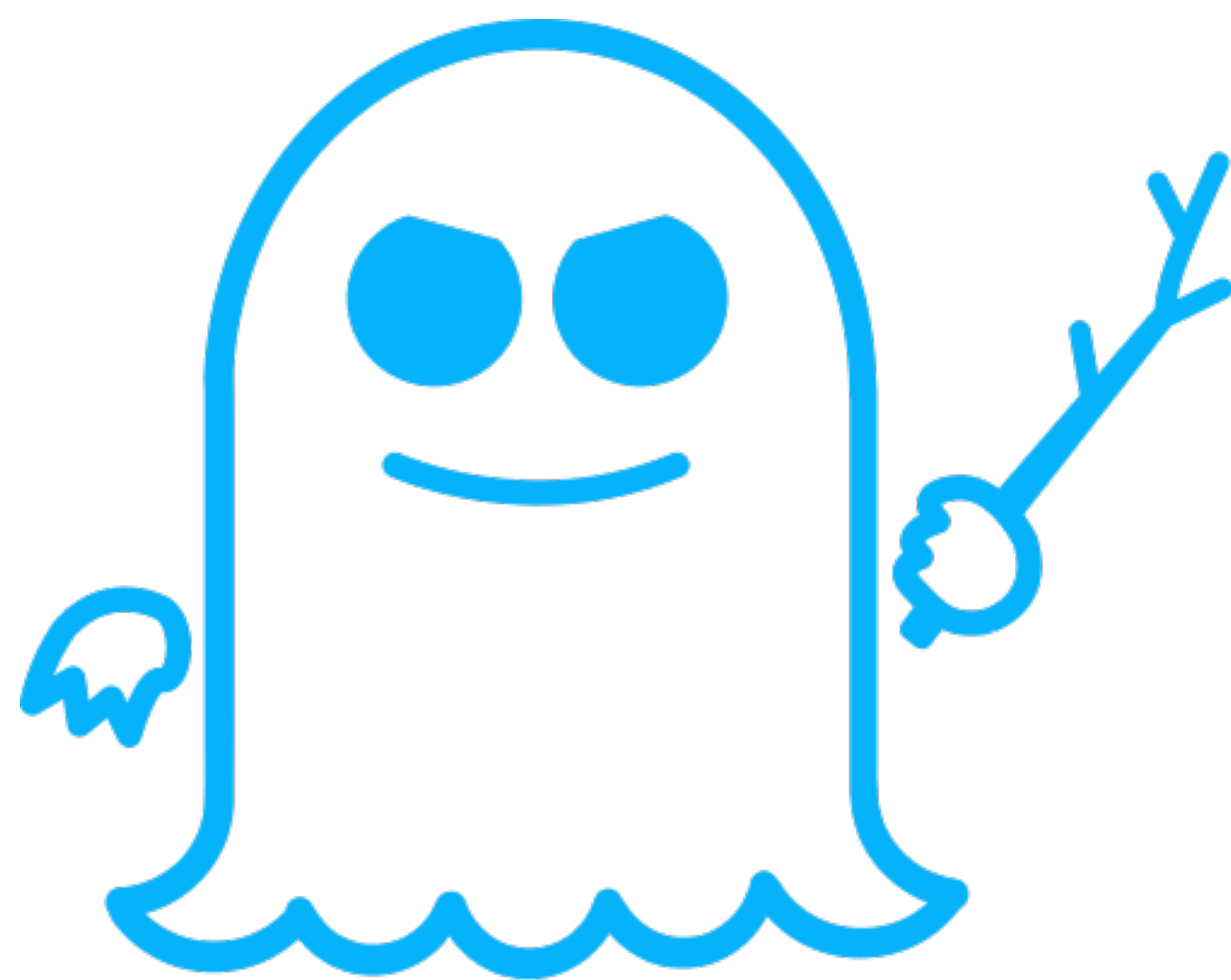
content strategy

performance is a [^]problem



The New York Times

security
performance is a problem



SPECTRE



MELTDOWN

```
let myData = [1, 2, 3, 4];  
let item = 1000;  
  
if (item < myData.size) {  
    myData[input];  
}
```



```
let myData = [1, 2, 3, 4];
```

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let item = 1000;
```

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if (item < myData.size) {  
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    myData[input];  
}
```


an accessibility

performance is ~~a~~ problem



...make the difference between
minimizing my computer use and
being able to use the web freely.

The Keystroke-Level Model for User Performance Time with Interactive Systems

Stuart K. Card and Thomas P. Moran
Xerox Palo Alto Research Center

Allen Newell
Carnegie-Mellon University

There are several aspects of user-computer performance that system designers should systematically consider. This article proposes a simple model, the Keystroke-Level Model, for predicting one aspect of performance: the time it takes an expert user to perform a given task on a given computer system. The model is based on counting keystrokes and other low-level operations, including the user's mental preparations and the system's responses. Performance is coded in terms of these operations and operator times summed to give predictions. Heuristic rules are given for predicting where mental preparations occur. When tested against data on 10 different systems, the model's prediction error is 21 percent for individual tasks. An example is given to illustrate how the model can be used to produce parametric predictions and how sensitivity analysis can be used to redeem conclusions in the face of uncertain assumptions. Finally, the model is compared to several simpler versions. The potential role for the Keystroke-Level Model in system design is discussed.

Key Words and Phrases: human-computer interface, human-computer interaction, user model, user performance, cognitive psychology, ergonomics, human factors, systems design

CR Categories: 3.36, 4.6, 8.1

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1. Introduction

The design and evaluation of interactive computer systems should take into account the total performance of the combined user-computer system. Such an account would reflect the psychological characteristics of users and their interaction with the task and the computer. This rarely occurs in any systematic and explicit way. The causes of this failure may lie partly in attitudes toward the possibility of dealing successfully with psychological factors, such as the belief that intuition, subjective experience, and anecdote form the only possible bases for dealing with them. Whatever may be true of these more global issues, one major cause is the absence of good analysis tools for assessing combined user-computer performance.

There exists quite a bit of research relevant to the area of user-computer performance, but most of it is preliminary in nature. Pew et al. [14], in a review of 40 potentially relevant human-system performance models, conclude "that integrative models of human performance compatible with the requirements for representing command and control system performance do not exist at the present time." Ramsey and Atwood [15], after reviewing the human factors literature pertinent to computer systems, conclude that while there exists enough material to develop a qualitative "human factors design guide," there is insufficient material for a "quantitative reference handbook."

This paper presents one specific quantitative analysis tool: a simple model for the time it takes a user to perform a task with a given method on an interactive computer system. This model appears to us to be simple enough, accurate enough, and flexible enough to be applied in practical design and evaluation situations.

The model addresses only a single aspect of performance. To put this aspect into perspective, note that there are many different dimensions to the performance of a user-computer system:

- Time.* How long does it take a user to accomplish a given set of tasks using the system?
- Errors.* How many errors does a user make and how serious are they?
- Learning.* How long does it take a novice user to learn how to use the system to do a given set of tasks?
- Functionality.* What range of tasks can a user do in practice with the system?
- Recall.* How easy is it for a user to recall how to use the system on a task that he has not done for some time?

The authors of this report are listed in alphabetical order. A. Newell is the principal author. S.K. Card and T.P. Moran are co-authors.

performance = time

performance = time

level of effort

performance = time

level of effort

human memory limits

performance = time

level of effort

human memory limits

task completion

user experience
performance is a ^ problem

ARTICLES

The Truth About Download Time



by Christine Perfetti

We hear all the time from web designers that they spend countless hours and resources trying to speed up their web pages' download time because they believe that people are turned off by slow-loading pages. Their concerns have been amplified by experts like Jakob Nielsen who asserts that users become frustrated after waiting too long for pages to load. It makes sense that a slow loading page is unusable. We know that if a page takes 2 hours to load, chances are people will abandon their tasks. But when does download time go from too slow to fast enough?

Nielsen reports that the home pages of the most popular sites he studied took an average of 8 seconds to download, whereas the pages of the less popular sites took an average of 19 seconds to download. He therefore concludes that

web performance

how efficiently can users
accomplish their goals

performance is a

business

content strategy

accessibility

security

user experience problem

but it's fixable!

performance is a problem

thank you!

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