Architecting for Digital Disruption

O'Reilly Software Architecture, New York

February 28, 2018

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Joel Crabb

VP, Architecture and Chief Architect

Target

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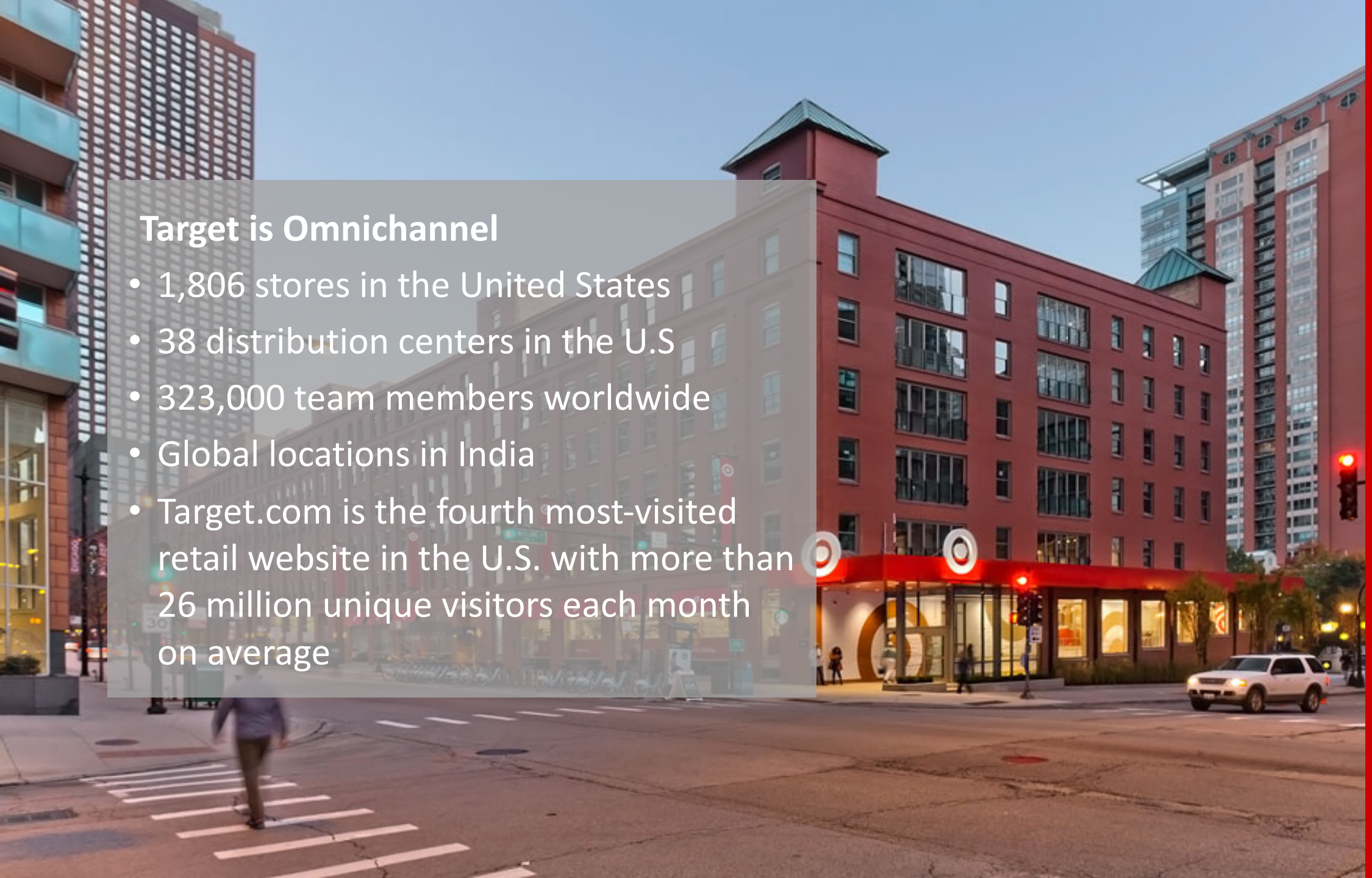

Target is Omnichannel

- 1,806 stores in the United States
- 38 distribution centers in the U.S
- 323,000 team members worldwide
- Global locations in India
- Target.com is the fourth most-visited retail website in the U.S. with more than 26 million unique visitors each month on average

Transforming Big Box Retail to Digital Omnichannel Retail

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Enterprise Architecture

Digital Disruption

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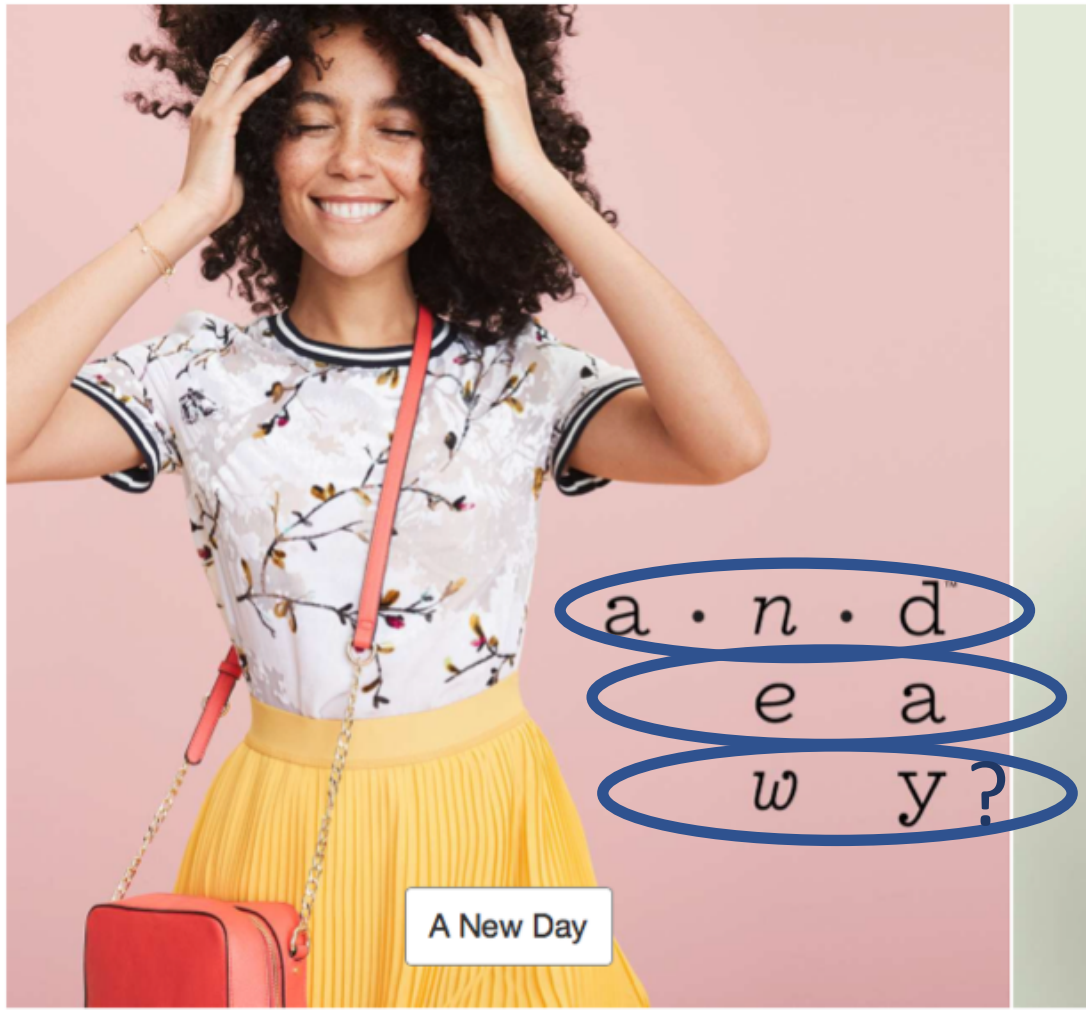
REDcard - save 5% & free shipping on most items see details | registries & lists | weekly ad | manage REDcard | gift cards | find stores | ♡ 0

categories | deals | search | my account hello, Joel | 3 items

meet two of our newest brands, only at Target



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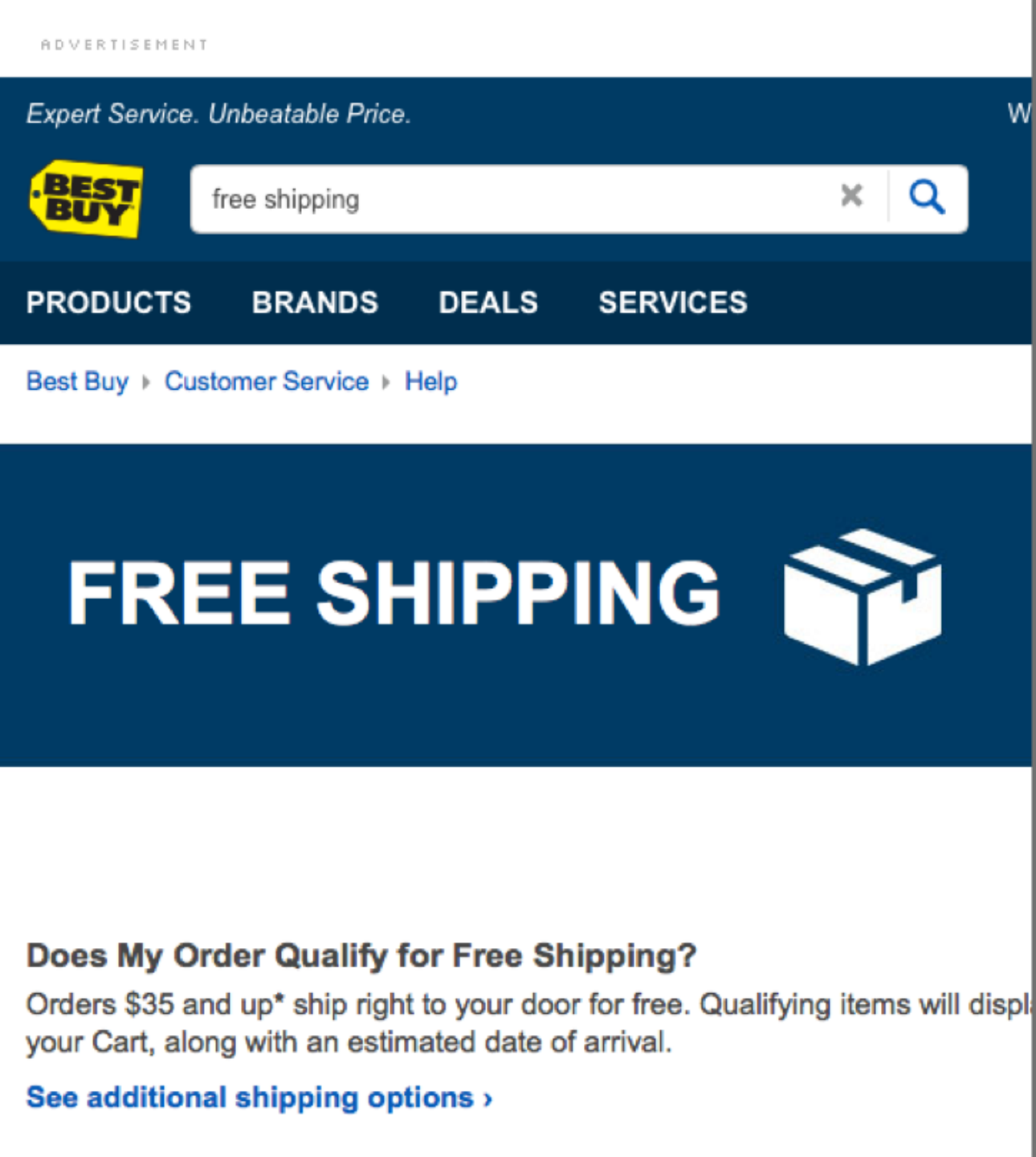

2010: Pre-Digital Thinking

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September 12, 2001

Amazon and Target Forge E-tail Partnership

http://www.ecommercetimes.com/story/13470.html

By Keith Regan
Sep 12, 2001 9:26 AM PT

August 24, 2011

Target (finally) parts ways with Amazon, but retailer's new site sputters at launch

GeekWire

BY JOHN COOK on August 24, 2011 at 10:47 am

https://www.geekwire.com/2011/target-finally-parts-ways-amazoncom-retailers-web-site-launch-starts-outage/

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"At Starbucks, I had one architect, everyone else was engineers."

Stephen Gillette, 2012

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What is the business value of architecture in digital companies?

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categories deals search my account hello, Joel 2 items

Target Black Friday

Target / Target Black Friday (38)

We just couldn't wait!

Check out our **Black Friday** ad to see all the deals right now.

Black Friday ad

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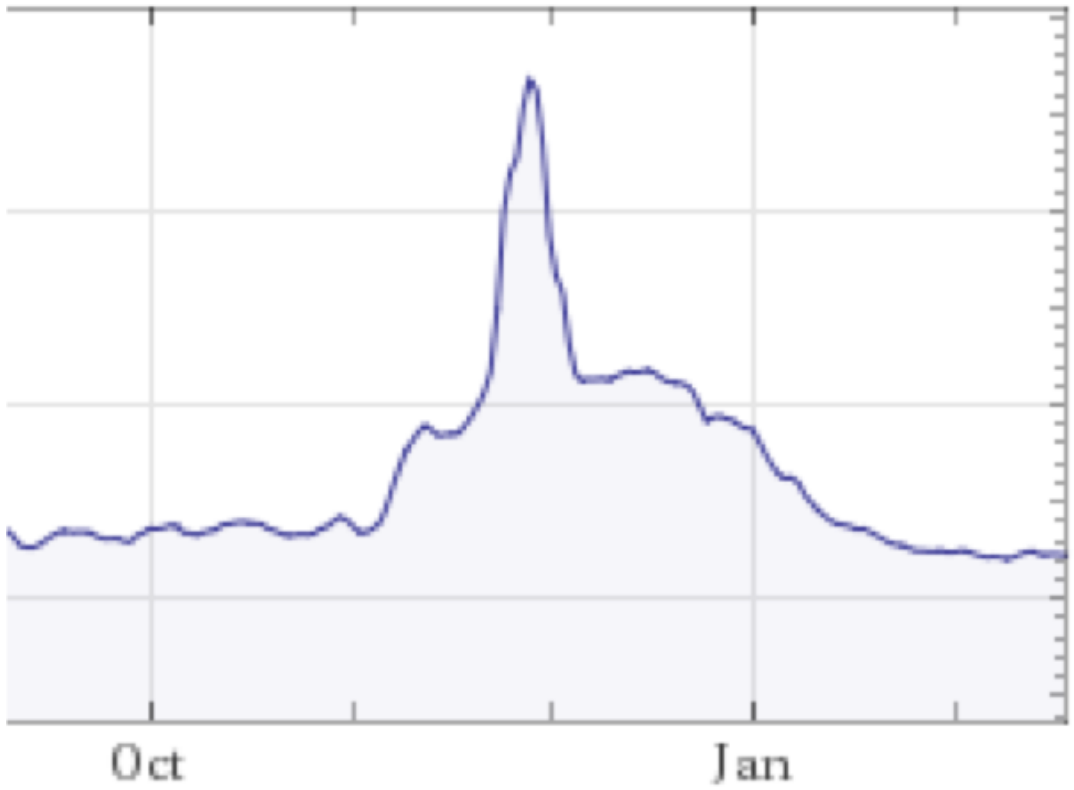
At Holiday:

4th Highest scaling ecommerce site

Millions of concurrent users

2s response times



(from Feb 19, 2017 to Feb 18, 2018) (in millions of visits per day
(7-day moving averages)

Source: Wolfram Alpha

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In a typical month:

1000 deployments

100 new features

Zero planned downtime

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Singles' Day Alibaba Stats 11/11/2017

$5B in 15 min

$5.5M/sec

$25B total

~82% Mobile

12 minutes

@Copyright 2017 Target Corp.

https://www.forbes.com/sites/helenwang/2017/11/12/alibabas-singles-day-by-the-numbers-a-record-25-billion-haul

The boundary between offline and online commerce disappears as we focus on fulfilling the personalized needs of each customer.

~ Jack Ma, 2017

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The big architecture era is over

Digital is about:

- Personalized value
- Speed to market
- Constant change
- Instant competition

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Digital native companies do not have Enterprise Architecture

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https://www.facebook.com/careers/life/

facebook

What's EA?

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What's happening to EA?

EA is being disintermediated

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Security Architecture?

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Infrastructure Architecture?

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Application Architecture?

code with target

```
<p class="intro"> We're looking for developers who like to so
Try at least one challenge to unlock the contact form.* </p>


<!-- choose a challenge -->

<div class="challenge-descriptions">
   <p> Rock, Paper, Scissors: This challenge is simple—we'll
   <p> Hello, Android: There's more than what meets the eye.
   <p> Aisle Maze: See if you can make this a quick trip to t
   <p> Data Dive: Dig deep into some data—bring your best piv
   to the table. </p>
   <p> The Scrambler: Secode, darse, pilter, and fort. </p>
   <p> iOS Master: Another day, another acronym...or is it? <
   <p> Hacked: We've noticed some suspicious behavior on one
   out. </p>
</div>
```

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Data Architecture?

Chief Data Officer

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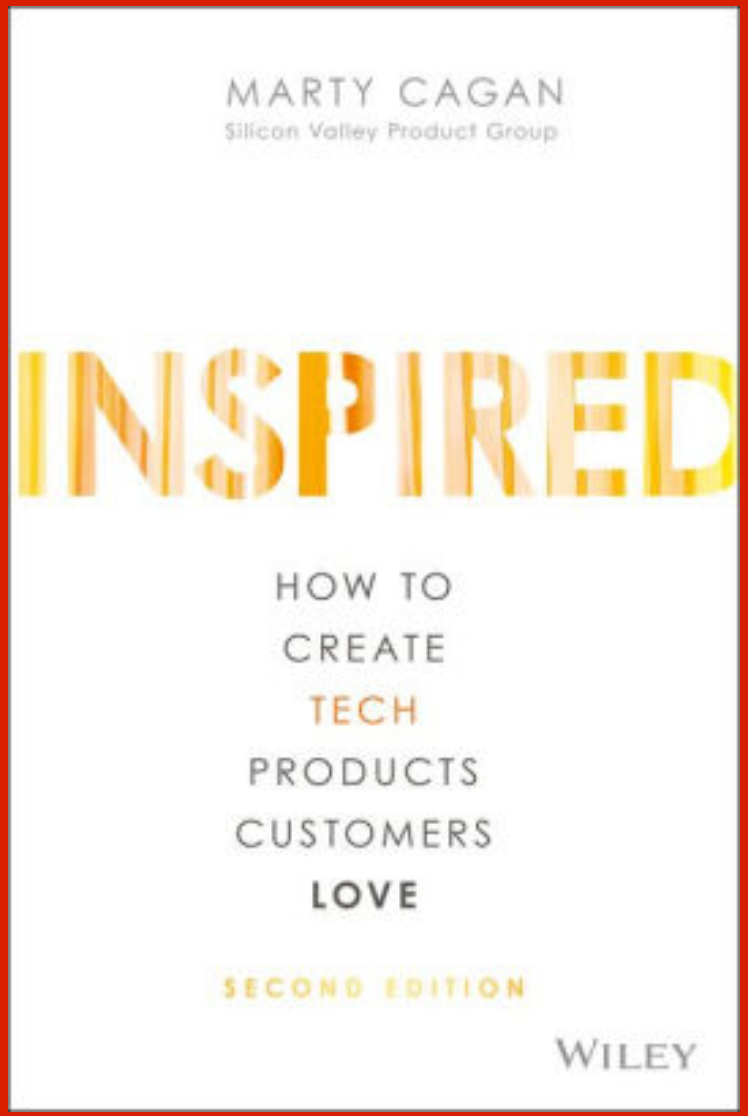
Business Architecture?



Product Management

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And EA why?

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Option 1:

Holistic Enterprise Oversight

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Option 2:

Architecture Supported Engineering

Technology strategy

Engineering culture

Chaos management

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Enterprise Technology Strategy

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Relevant architecture teams ensure engineering teams can quickly take advantage of great ideas

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Provide an enterprise-wide architecture vision

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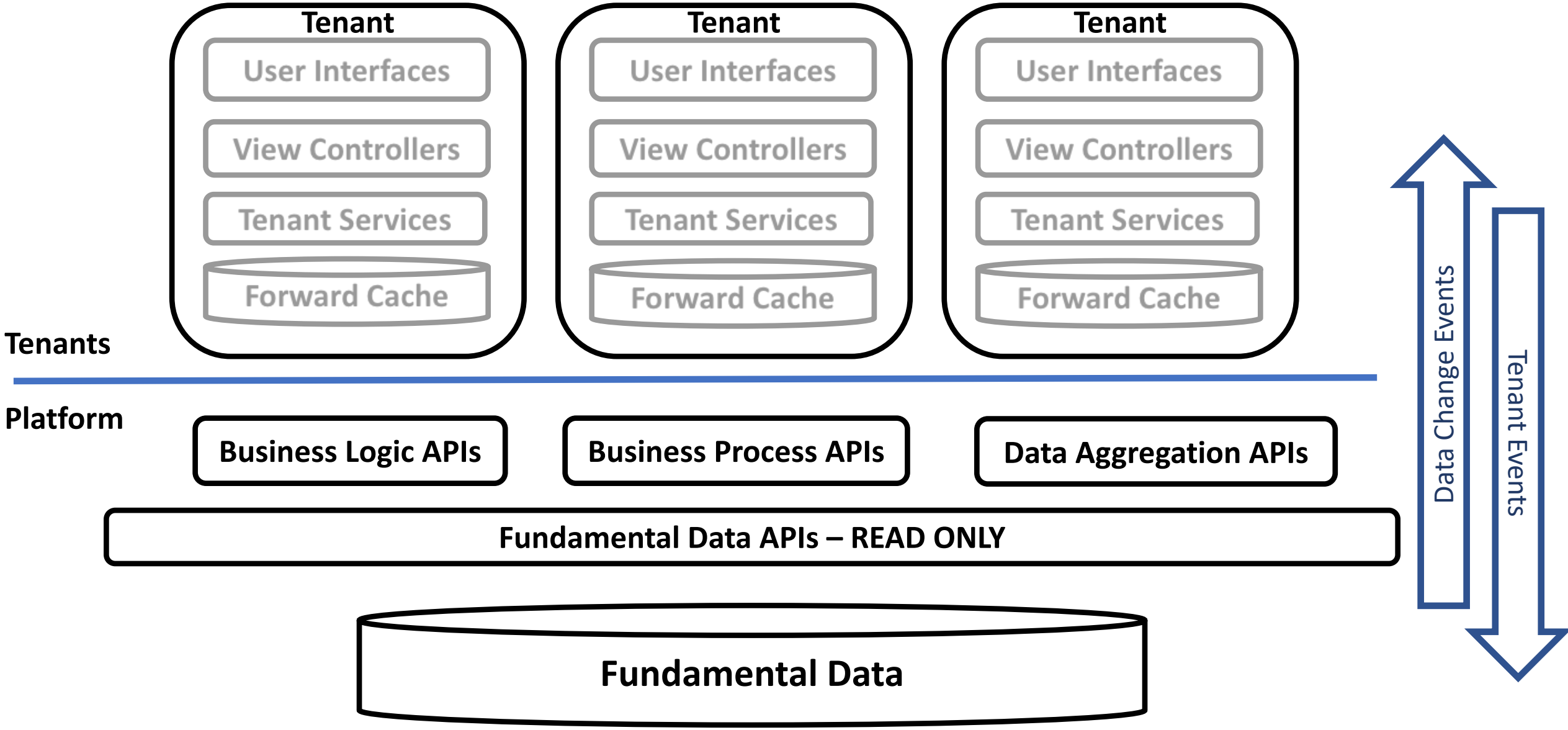

Generic Platform Architecture

Complete Platform

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Engineering Culture

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Forget Governance

"How could someone go build these things in a **few days**, yet it's gonna take the student government **two years** to build an online face book."

~ Mark Zuckerberg, 2017 interview with Reid Hoffman

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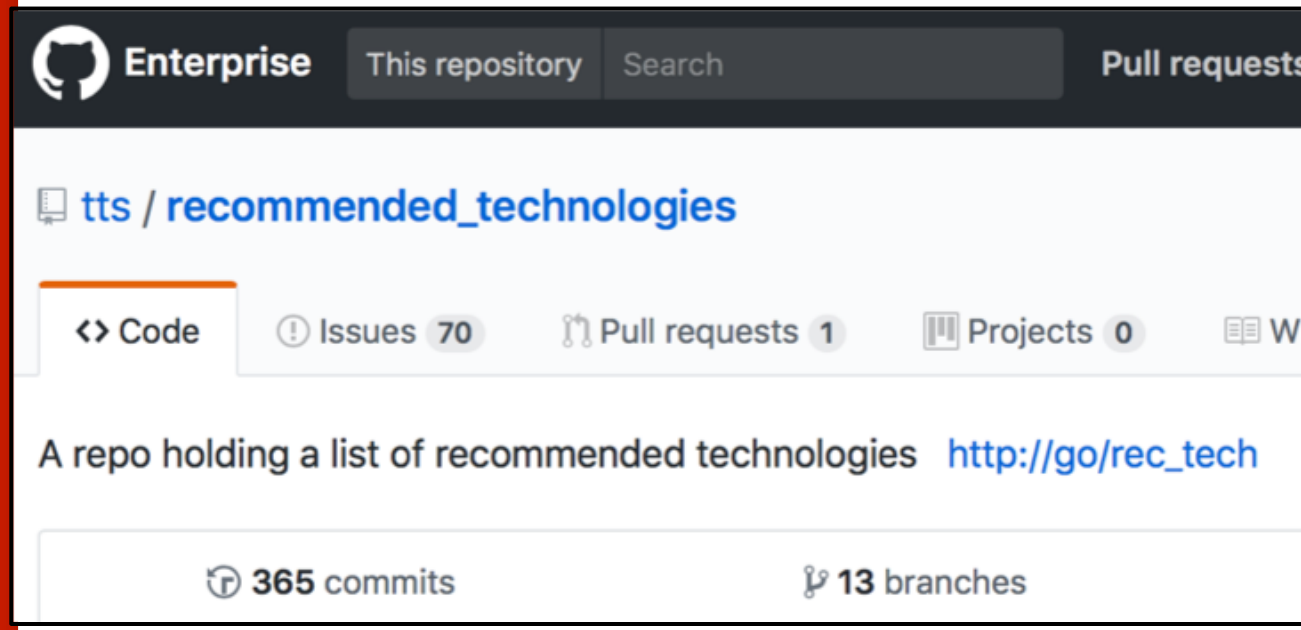
Let Engineers Write Standards



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Automatically Measure Compliance

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Chaos Management

http://www.science4all.org/wp-content/uploads/2013/03/fern.png

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“We manage right on the edge of chaos.”

Reed Hastings, CEO, Netflix

Interview with Walter Isaacson, 2017

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Be Comfortable with Change

Engineering moves faster than you can track

Ideas spin up and shut down in weeks

Technologies are rapidly adopted and discarded

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And EA why?

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Architecture's Purpose in the Digital World

Create the environment where great ideas win by getting them to production quickly.

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https://platformbeer.co

Digital Architecture Rules

Speed before Cost

Build before Buy

Try before Plan

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Establish a Language of Engineering

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Get Results

"I am like an EA fan boy so getting to submit a PR to a repo like this, its a reward in and of itself!"

~ Actual Target Engineer

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Great Results!

"EA is finally working for us, not against us!"

~ Actual Target IT VP

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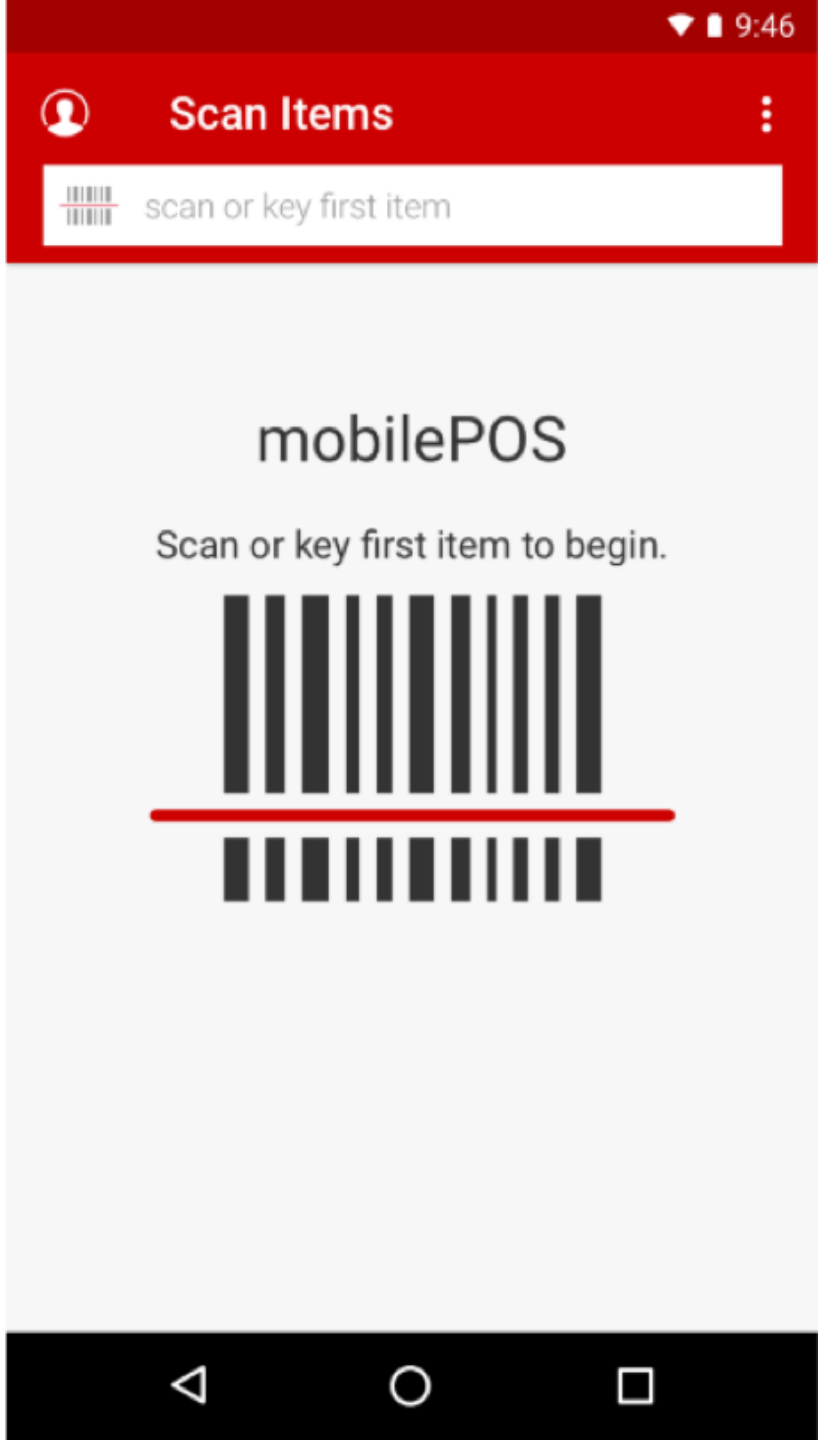
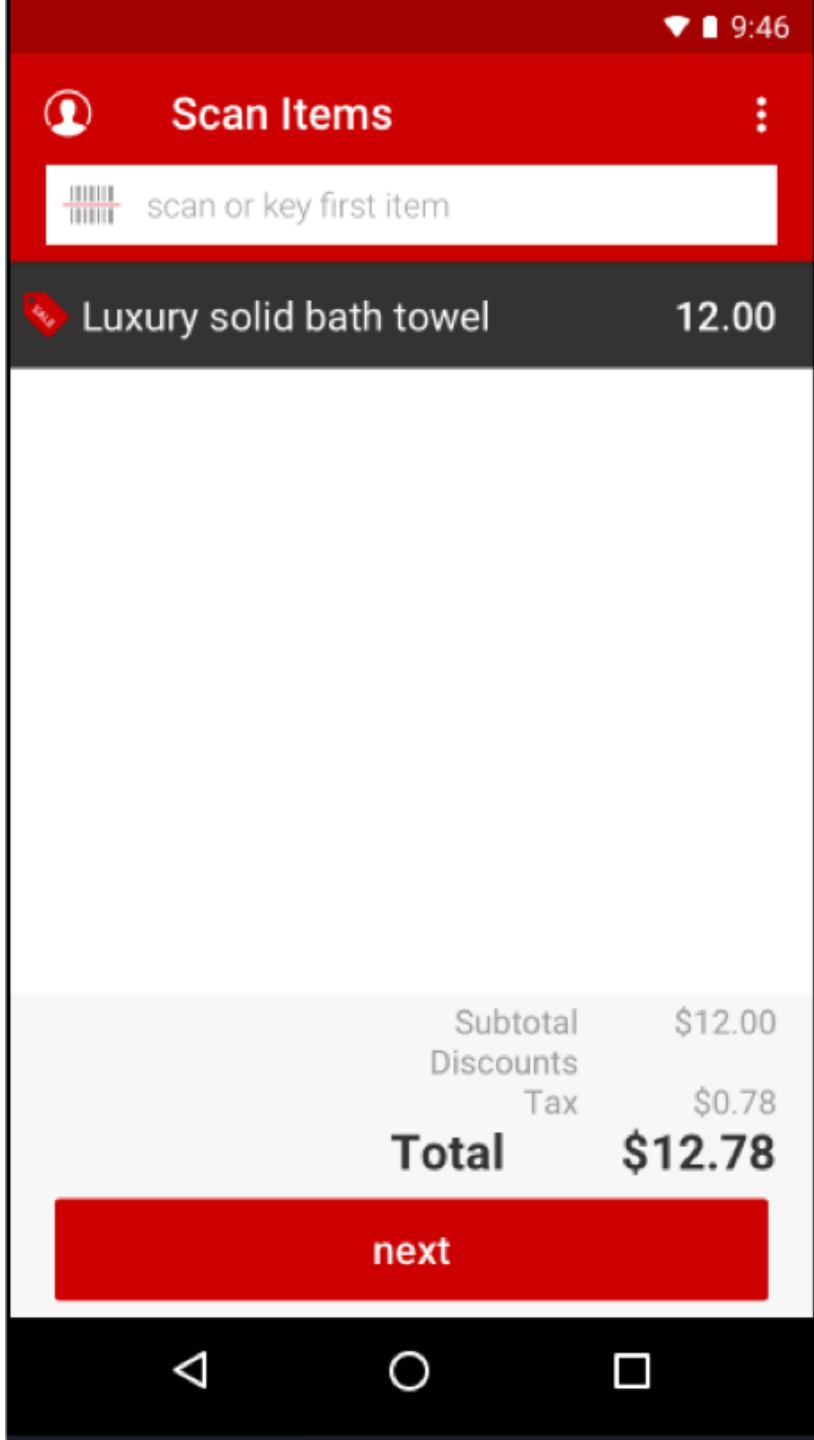
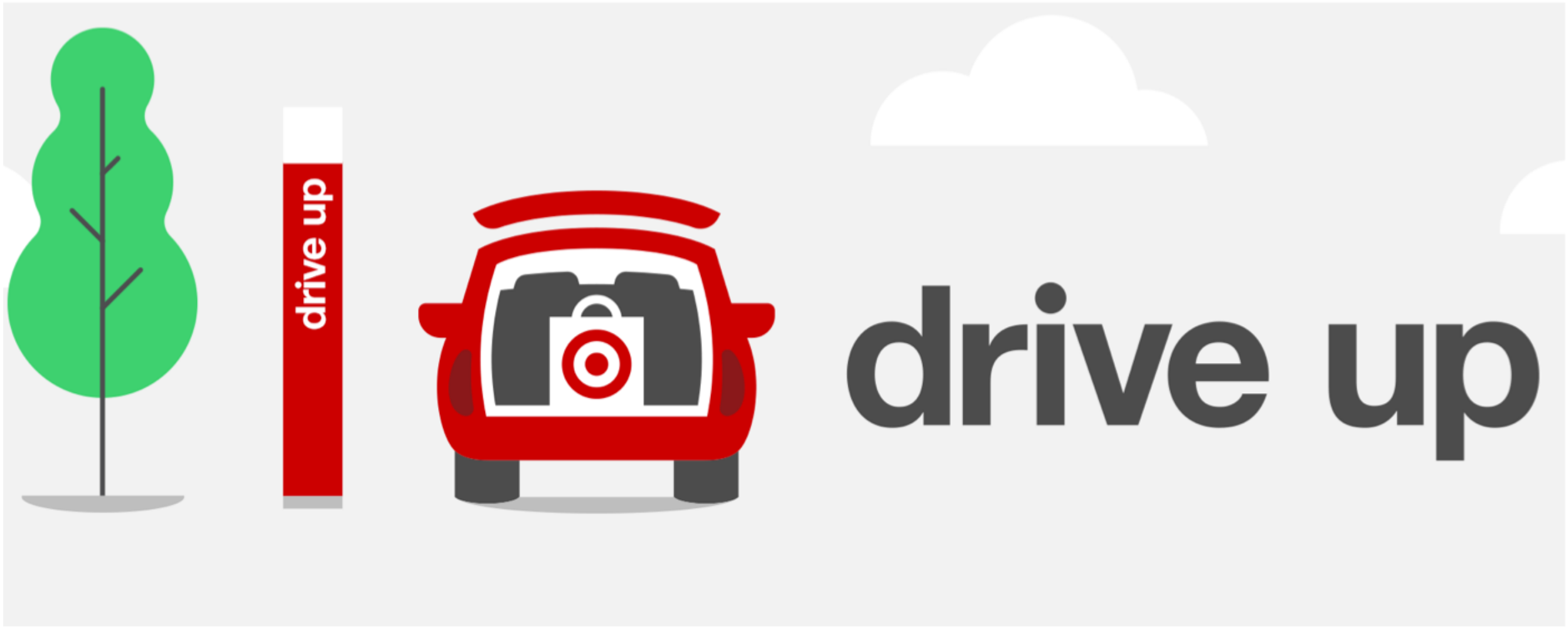
mobilePOS


9:46
Scan Items
scan or key first item
mobilePOS
Scan or key first item to begin.


9:46
Scan Items
scan or key first item
Luxury solid bath towel
12.00
Subtotal
$12.00
Discounts
Tax
$0.78
Total
$12.78
next



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Code always wins!

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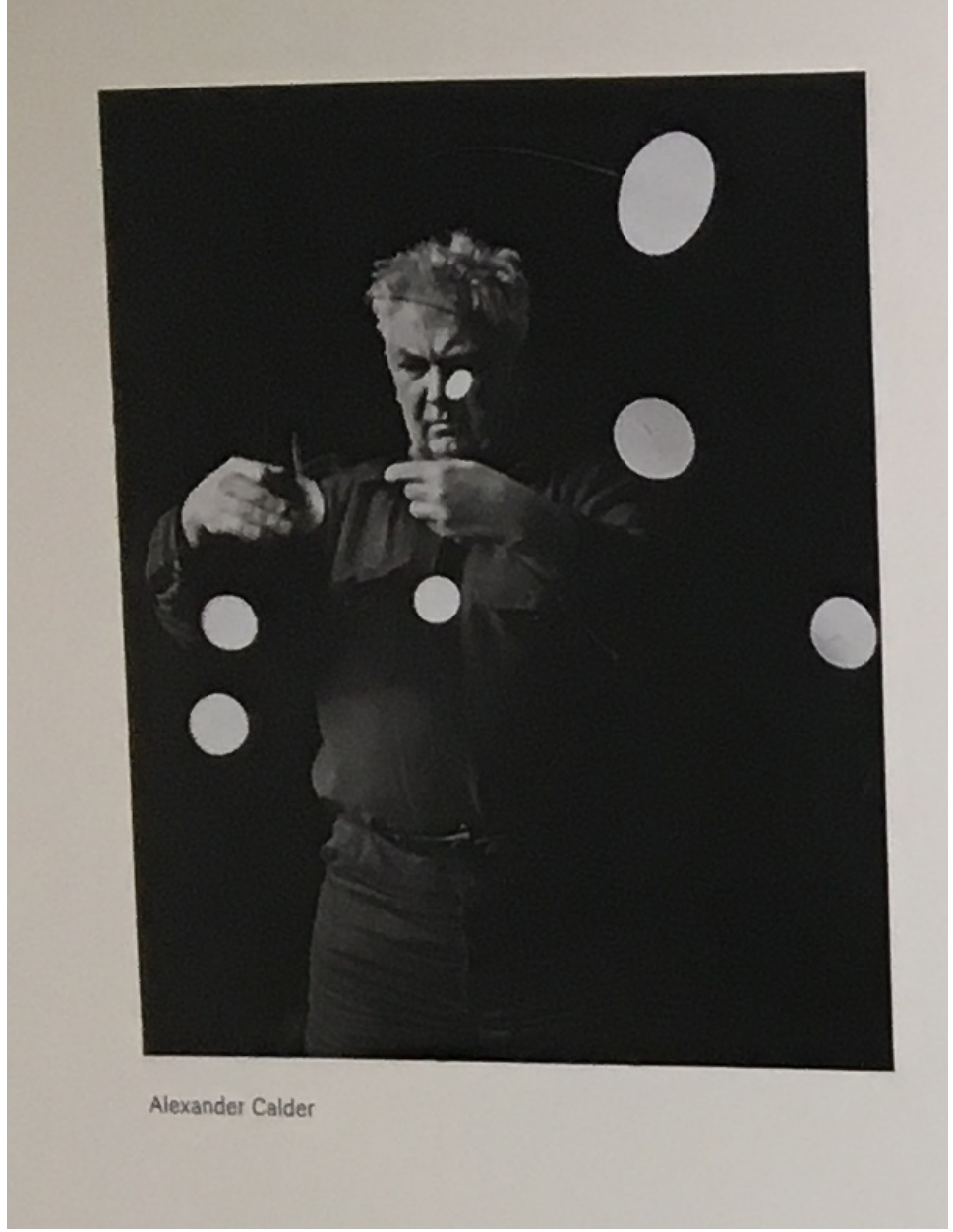

Alexander Calder, 1962

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The universe is real, but you can’t see it.

You have to imagine it.

Once you imagine it, you can be realistic about producing it.