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User Interface Engineering
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eBay Classifieds TechCon
June 2013

8 principles for enabling build/measure/learn

lean engineering in action

a different view of engineering

continuous customer feedback (GOOB)

customer metrics drive everything

think it. build it. ship it. tweak it

fail fast. learn fast.

lots of experimentation... build/measure/learn

paypal vs netflix

contrast this with a large enterprise like paypal (circa 2011)

guess what i found (in 2011)

roll your own. disconnected delivery experience. culture of long shelf life. inward focus. risk averse.

Sign Up | Log In | Help | Safety Advice Search

PayPal

Home | Individuals | Business | Partners

Get started | How it works | Buying safely | Selling safely | Donate to Charity

GET THE MOST OUT OF PayPal

Managing Your Account

In 2011, even a simple content copy change could take as much as 6 weeks to get live to site

Your account is very easy to manage.
Select a demo chapter to see how to:

- Manage Your Account
- Update Your Email Address
- Link Your Credit Card or Bank Account

LOG IN

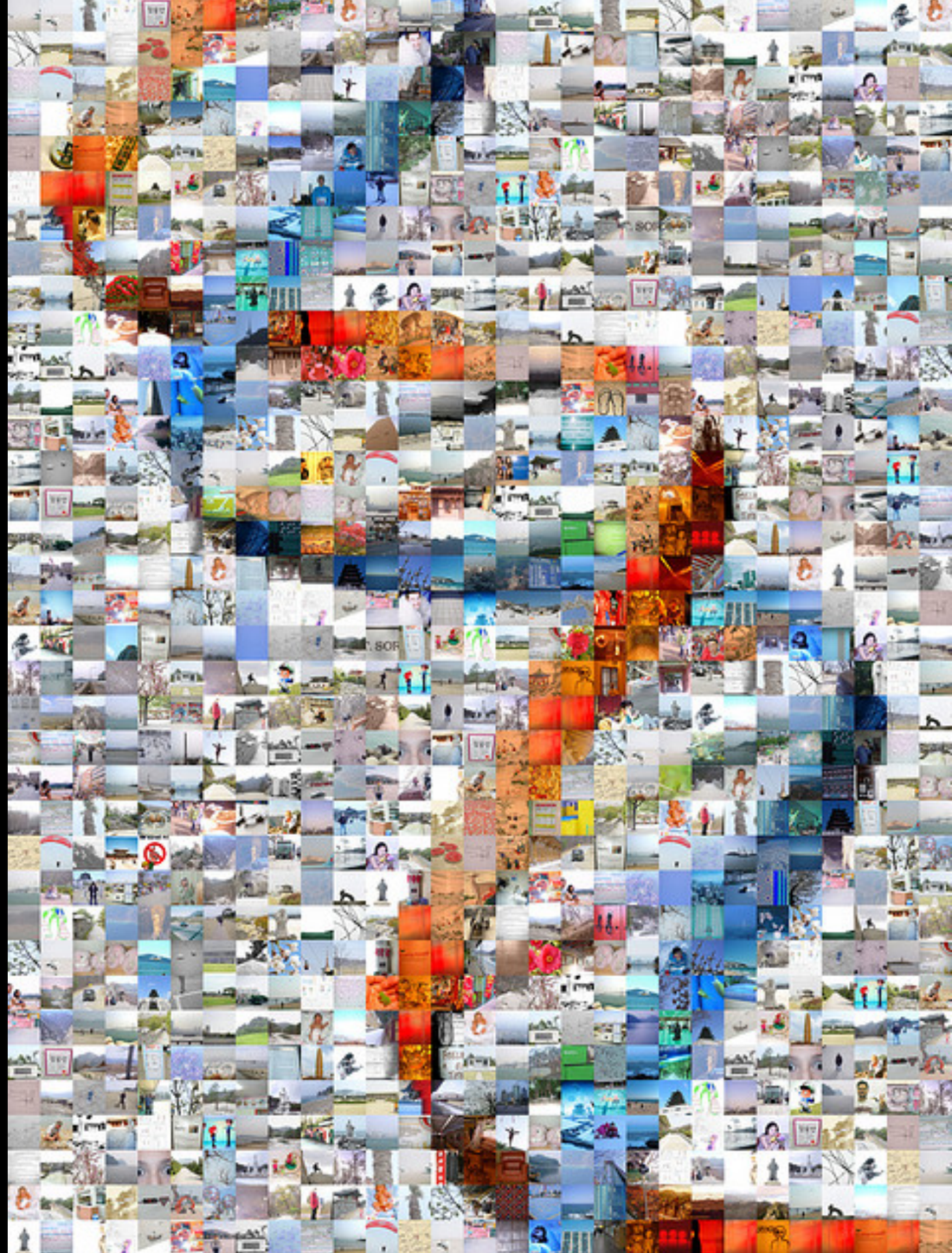
New to PayPal? Sign Up

new dna inserted

jan 2012
fleshed out ui layer that could support rapid experimentation

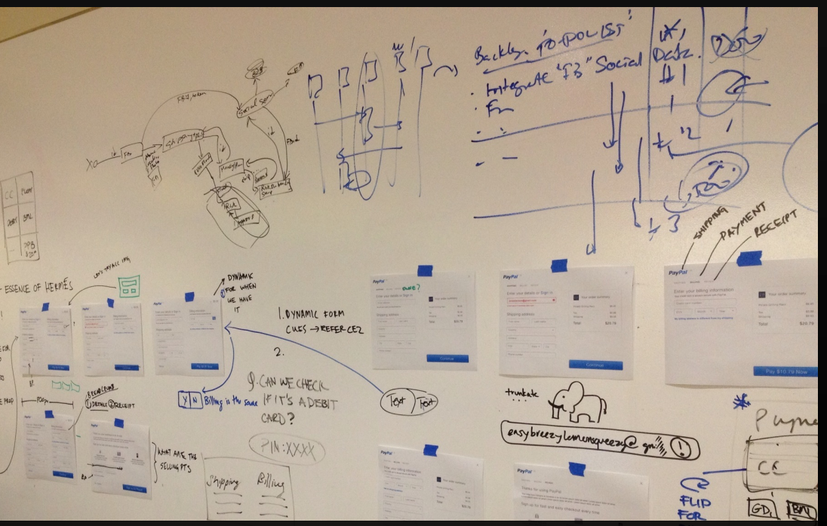
march 2012
david Marcus becomes president of PayPal

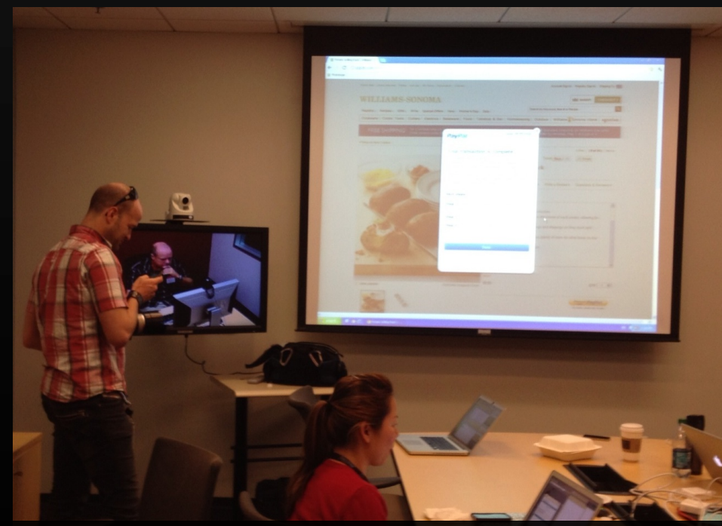
april 2012
formed lean ux team to reinvent checkout experience



hermes project

lean ux/engineering in action





from whiteboard to code → from code to usability →

start again ← learnings ←

Sign Up | Log In | Help | Security Center

oney | Merchant Services | Auction Tools

customers – and increase sales.

e updated automatically in late October.

he new ones. Log in, click the Merchant Services tab,
ll know you're a business that currently uses PayPal. This
them coming back.

HTML changes required.

tton	New button
	Buy Now
rt	Add to Cart
	Donate
	Subscribe
ficate	Buy Gift Certificate

Personal | Business

Email address | forgot?

PayPal | Buy | Sell | Transfer

Three little helpers...

- Price Matching
- Return Shipping on Us
- Give Now, Pay Later*

Finish your shopping with us

Learn About Holiday Exclusives

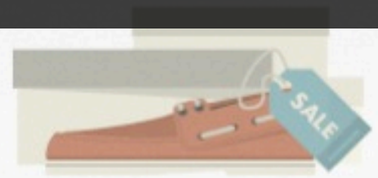
See Terms & Conditions

* Me Later is subject to credit approval.

change has started working its way out

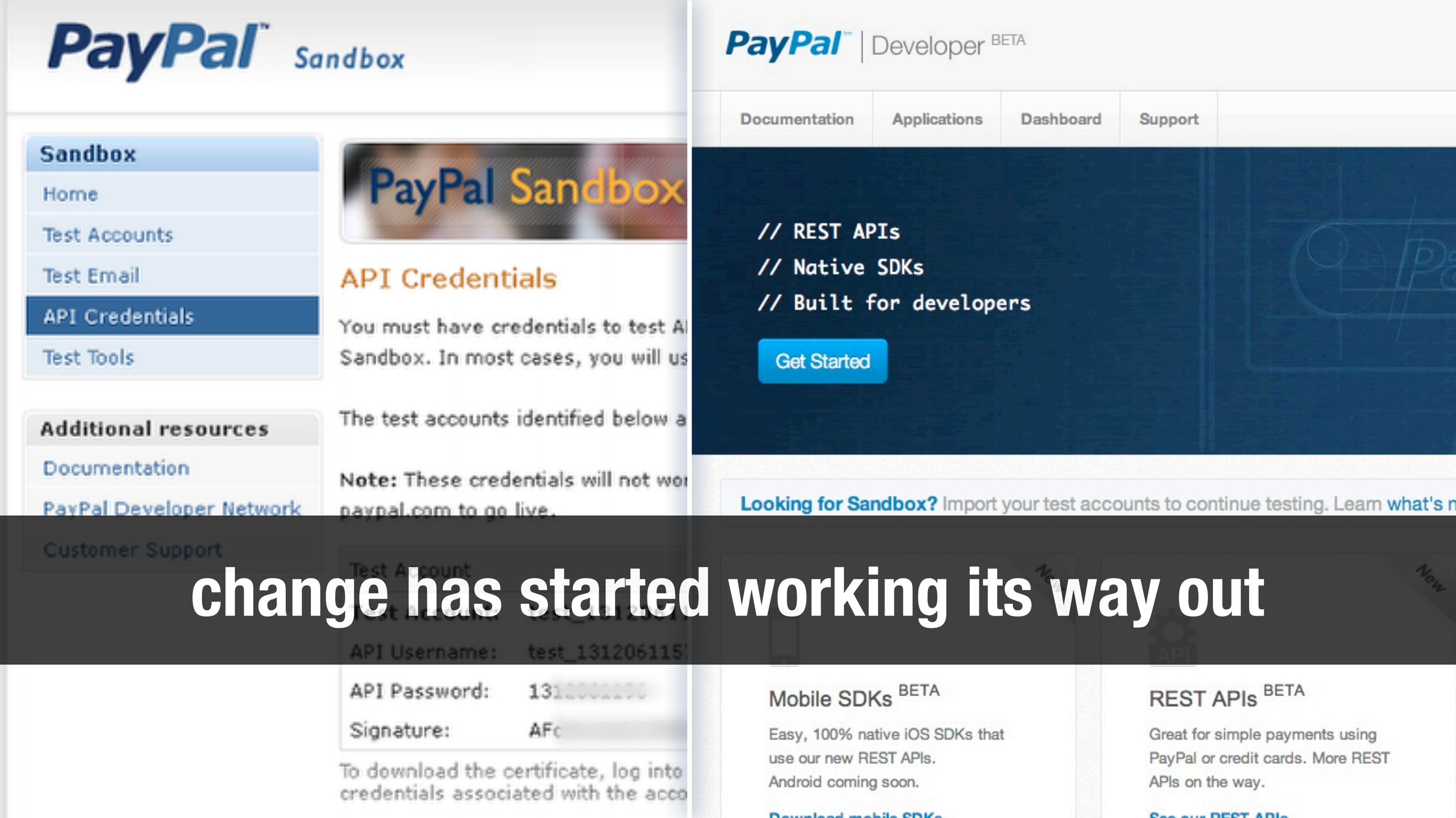
Buy into being safer

No matter where you shop, we'll keep your

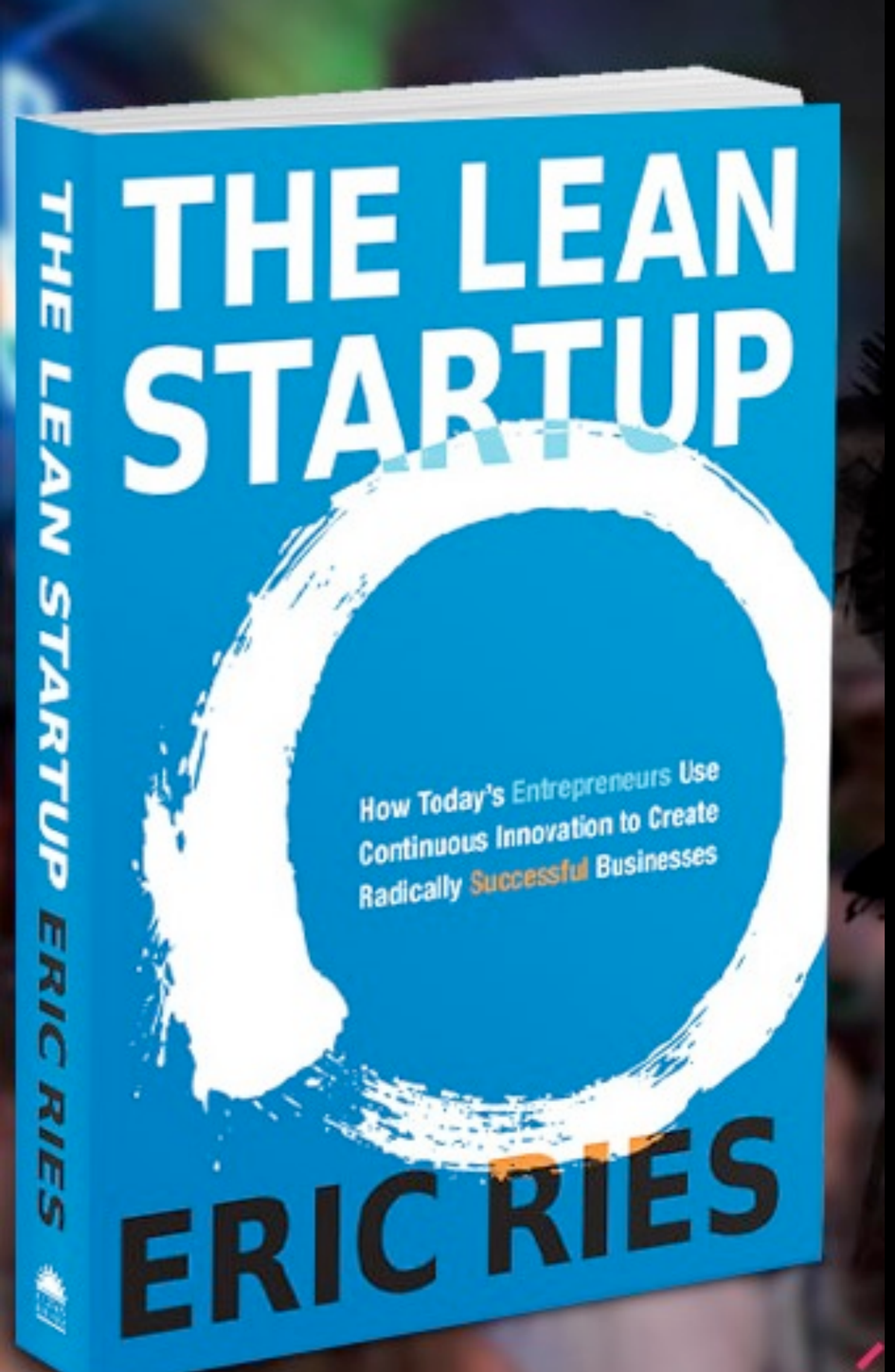


Sell in fewer steps

Gone are the days of waiting to get paid. Now you



change has started working its way out



lean startup movement

founded on **build/measure/learn** cycle

get out of the building (GOOB)

invalidate your risky assumptions

fail fast, learn fast

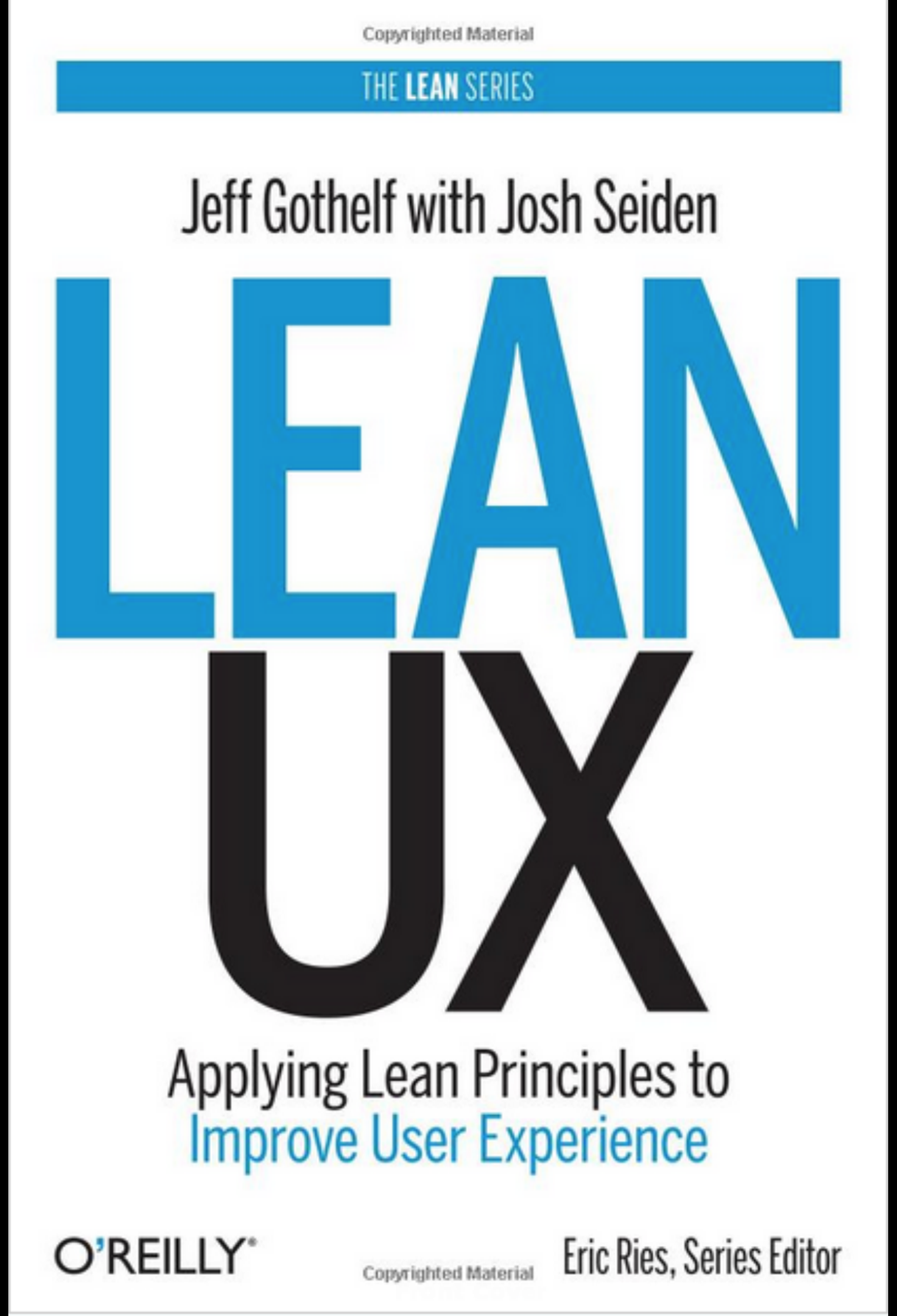
get to the pivot

go for the minimal viable product (MVP)

lean ux

designing products for build/measure/learn
requires 3 rules to be followed at all times

get to & maintain a **shared understanding**
form **deep collaboration** across disciplines
keep **continuous customer feedback** flowing



LEAN ENGINEERING

Enabling Build/ Measure/Learn with Lean Startup Principles

purpose of lean engineering

build

measure

learn

the etsy way. Kellan Elliott-McCrea, CTO etsy

build

embrace
continuous delivery

make mistakes fast

measure

use metrics driven
development

know that you made a
mistake

learn

blameless post
mortem

learn from your
mistakes

LEAN ENGINEERING

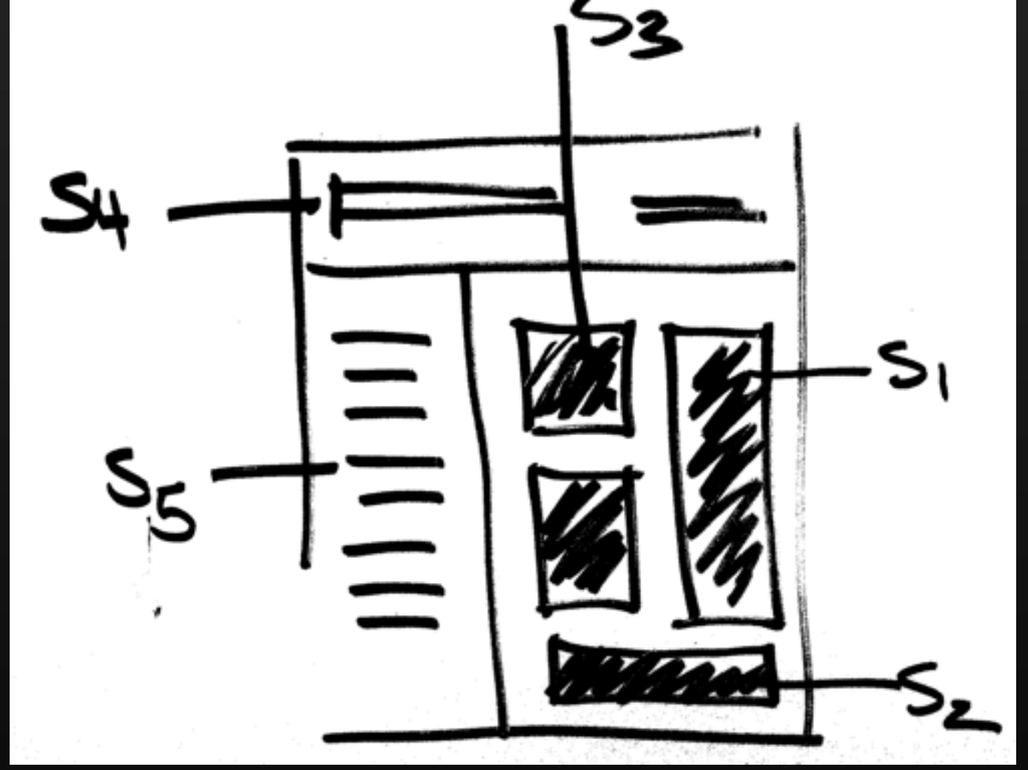
8 principles for enabling build/measure/learn

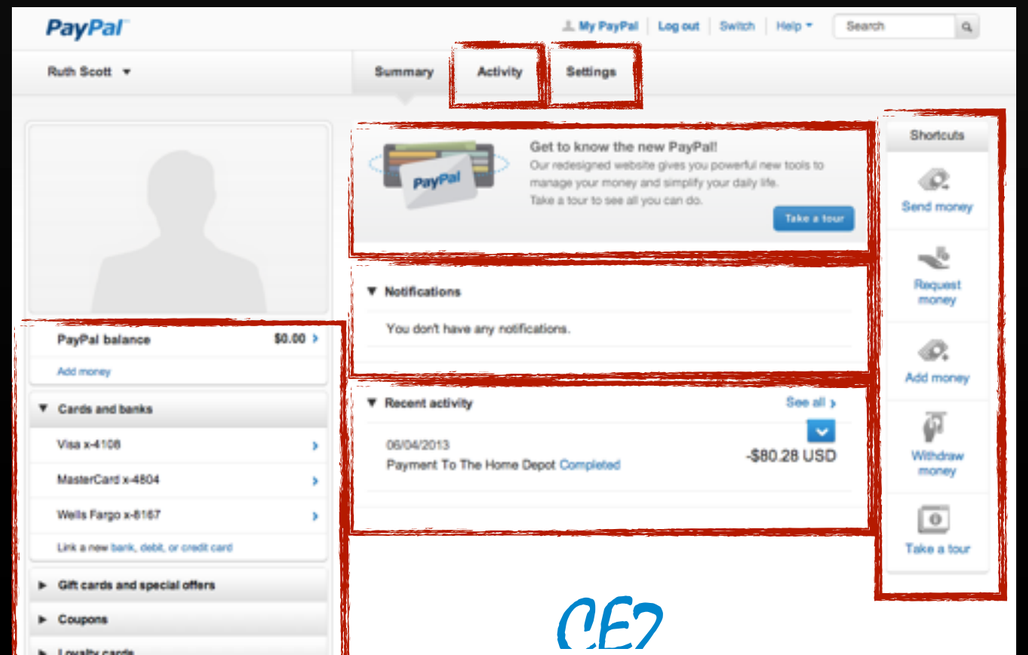
1. focus on learning, not delivery

one of our biggest challenges is moving

from a culture of delivery to a

culture of learning





don't let delivery drive experience

too many teams can create silos within the exerience

common silos that can affect experience:

- number of scrum teams
- specialization of skills
- device channels
- regional adaptations

2. build a culture of rapid experimentation

long shelf life for software

when software is not dynamically updatable

when it takes herculean effort to deliver

result

engineers run the asylum

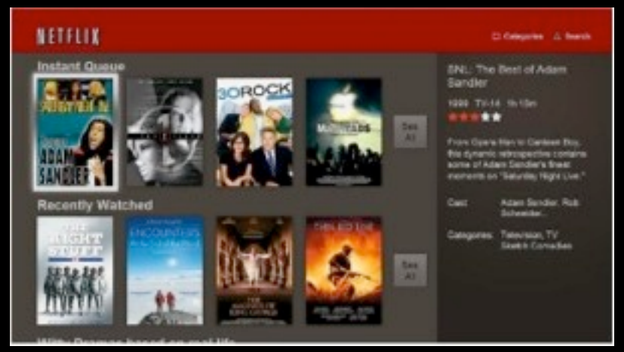
delivery dates drive the experience

BDUF & waterfall prevail

typical netflix release

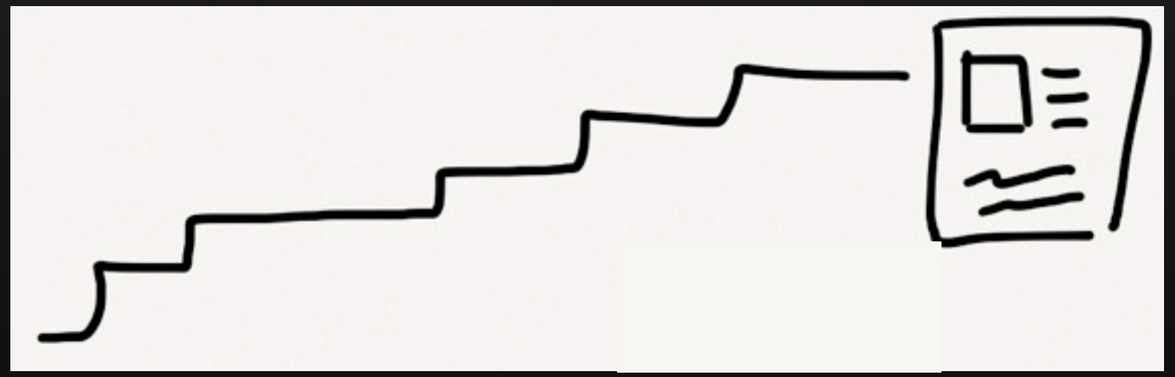
16 different test cells in the initial PS3 Launch (2010)

focus is on **build/measure/learn**

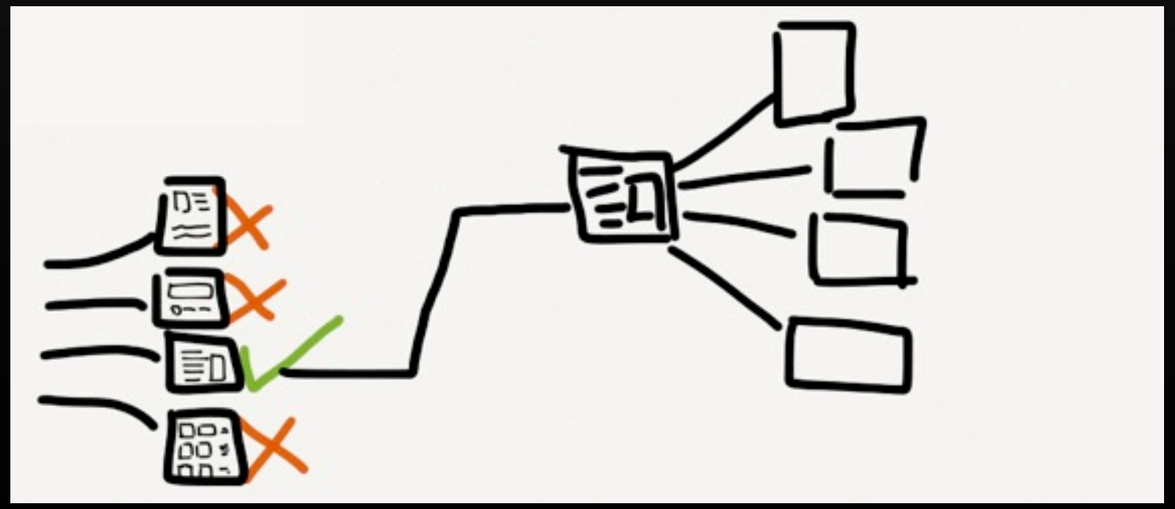


four distinct PS3 experiences launched on same day

ramping vs experimenting



ramping model results in one experience (with some tweaks along the way) after a long ramp up time



experimentation model results in many experiences being tested all along the way

avoid disconnected delivery experience

circa 1985

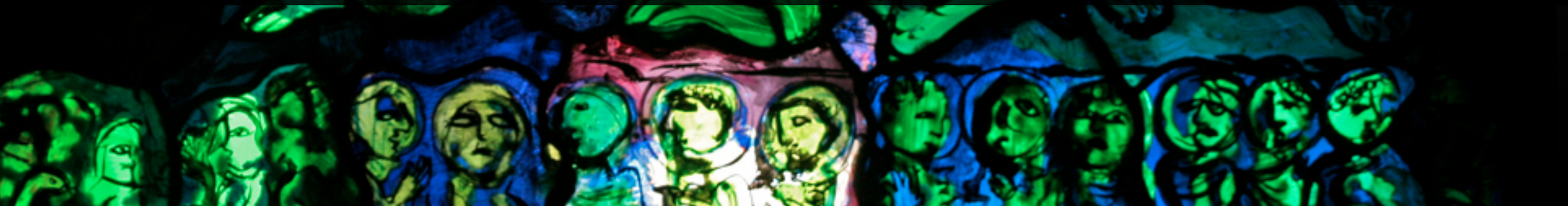
deliver to disk then to user

everything was focused on getting it perfect for stamping on the disk

no user in the loop. experience happened somewhere down the supply chain

3. design for volatility

the epiphany



you have to engineer for volatility

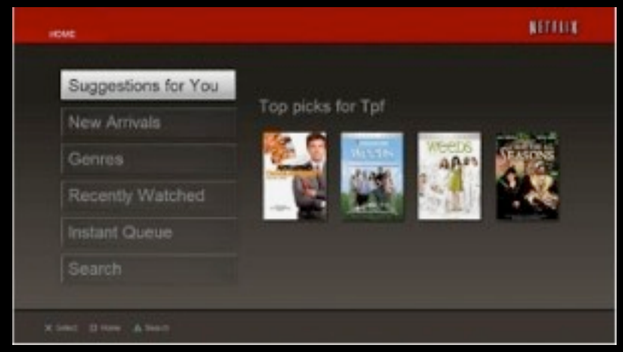
majority of the experience code written is thrown away in a year

change is the norm

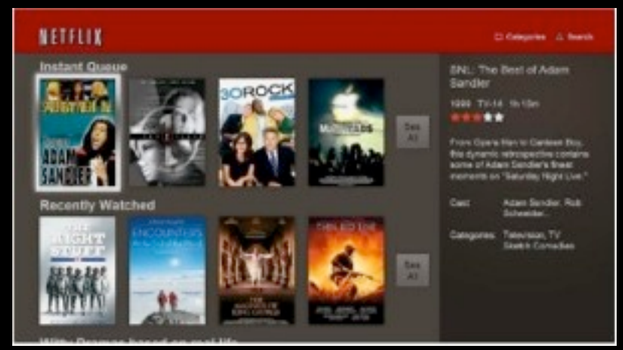
experimentation is not a one time event

launching a product is giving birth to the product. the product's life just begins.

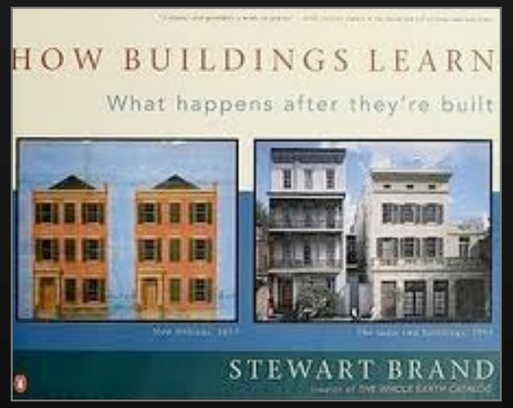
design for throwaway-ability



the ui layer is the experimentation layer



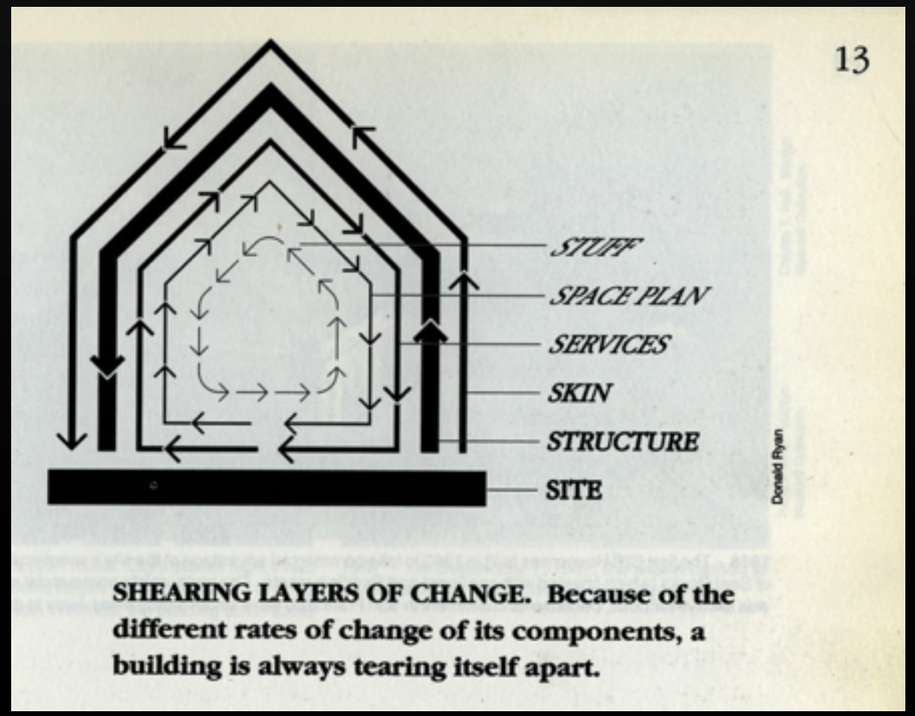
experiences must learn



All buildings are predictions.
All predictions are wrong.

There's no escape from this grim syllogism, but it can be softened.

Stewart Brand



Our software is always tearing itself apart (or should be)

Recognize that different layers change at different velocities

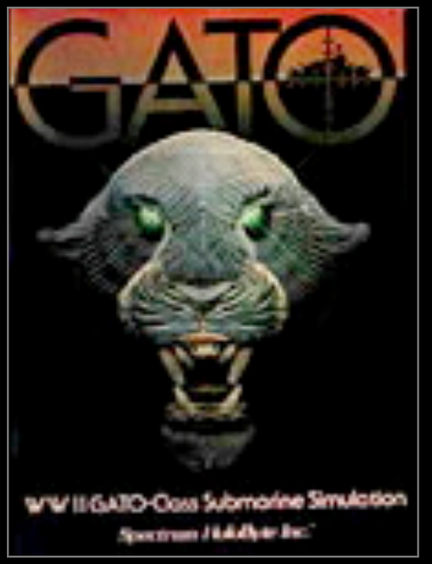
github
SOCIAL CODING

4. embrace open source

building experiences circa 1985

merry band of three. dropped out of college for semester. it was nirvana.

however...



roll your own “everything”

(close your eyes & imagine)

no internet. no google. no blogs. no email. no blogs. no stackoverflow. no github. no twitter.

much of the software era has been about building from scratch.

of course open source was gaining momentum. unix. gnu. linux. perl. mozilla.

use open source religiously

Bootstrap, from Twitter

express

BOWER

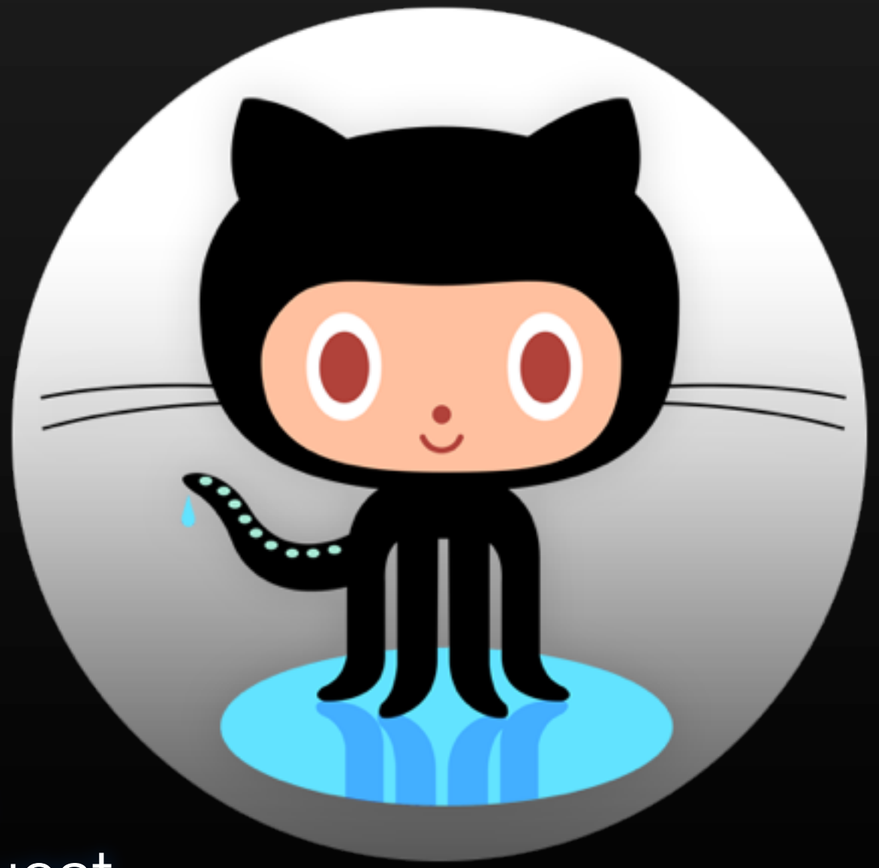
work in open source model

internal github revolutionizing
our internal development

rapidly replacing centralized
platform teams

innovation democratized

every developer encouraged
to experiment and generate repos
to share as well as to fork/pull request



give back to open source

we have projects that we will open source

- node webcore (similar to yeoman)

we are contributing back to open source

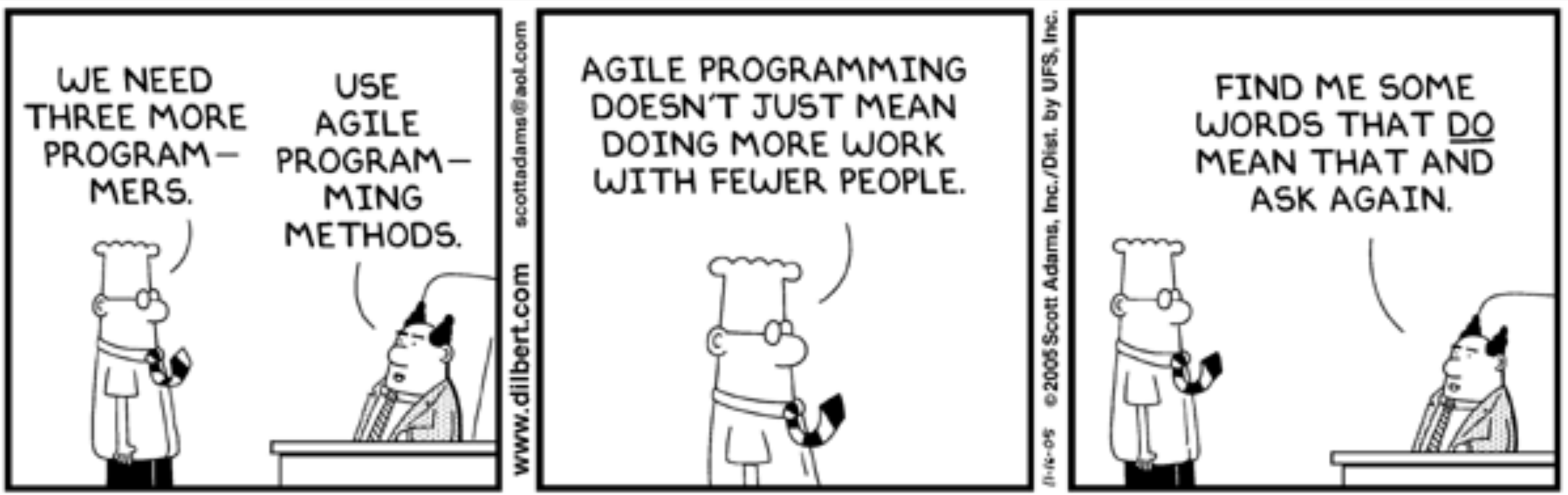
- contributions to bootstrap (for accessibility)
- contributions to bootstrap (for internationalization)
- core committer on dustjs project

using github for continuous *

use github for continuous integration

starting to use github repo model for continuous deployment

- marketing pages
- product pages
- content updates & triggers into i18n, l10n, adaptation
- components



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5. map lean onto agile

btw, agile doesn’t have a brain...

agile has been a big step in the right direction

but is an engineering discipline

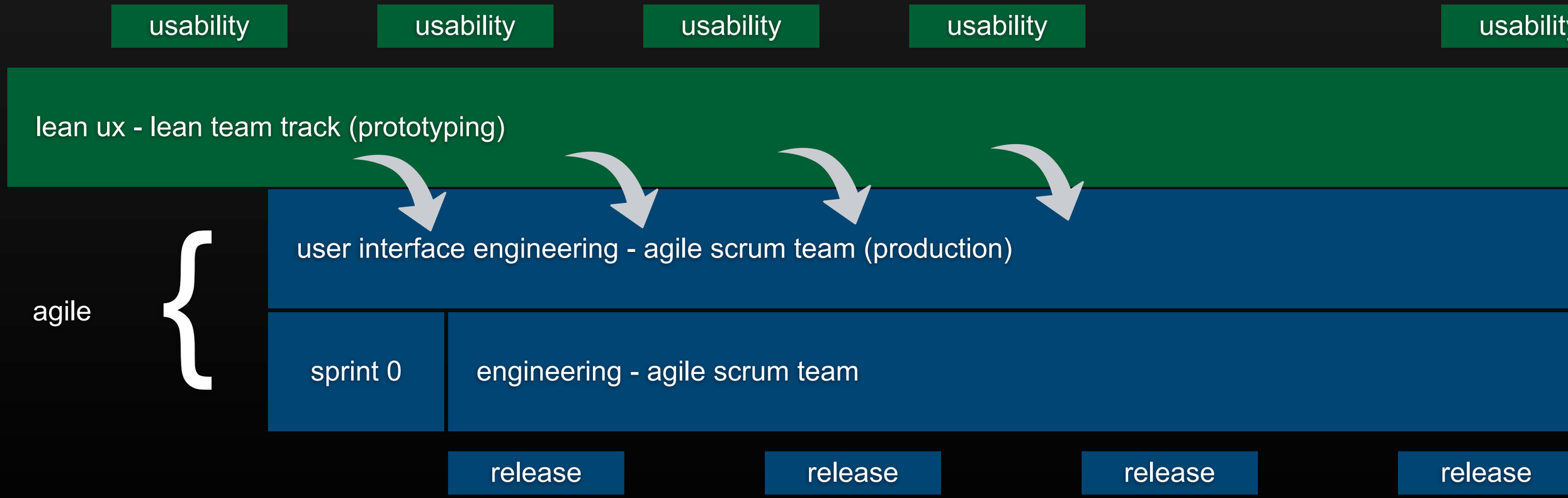
doesn’t address the full life cycle

agile has become big business and sometimes collapses under the weight of “ceremonies” (process)

but agile is a good “engine” for delivery if you know what to roughly build

agile needs a brain...

lean ux: enable a brain for agile

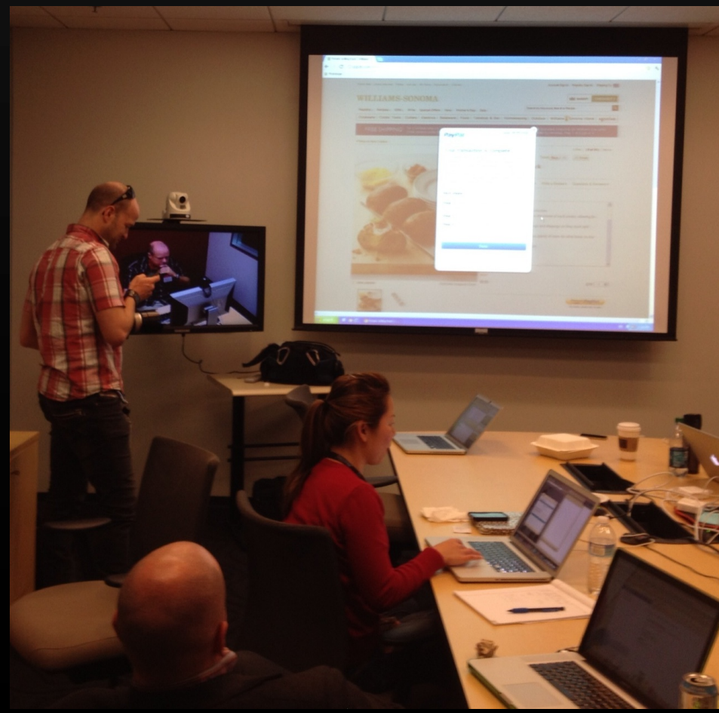


6. make your product a living spec

create a living spec

enabling the prototype

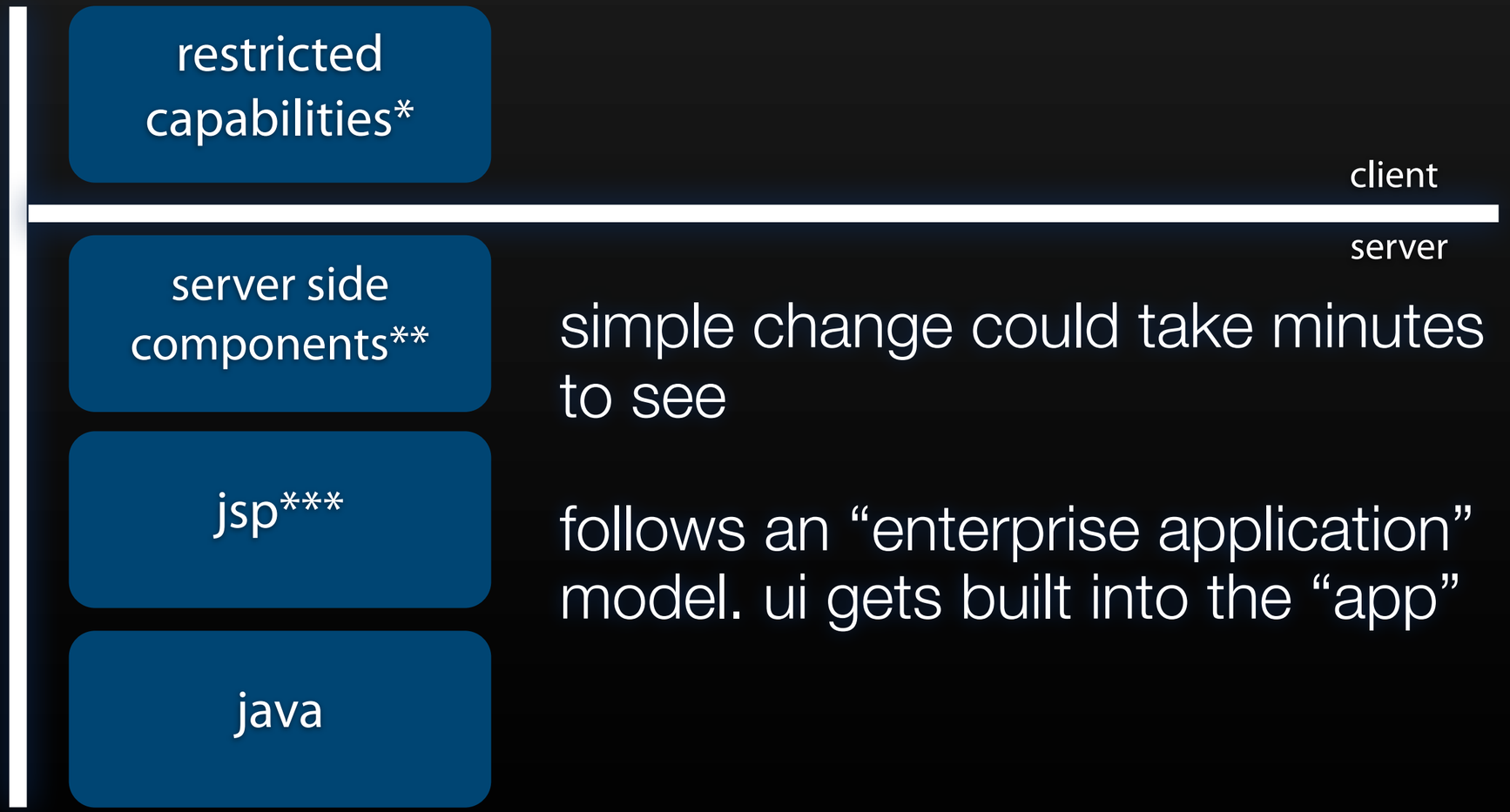
learning



stack circa 2011/early 2012

prototyping was hard

"ui bits" could only live here

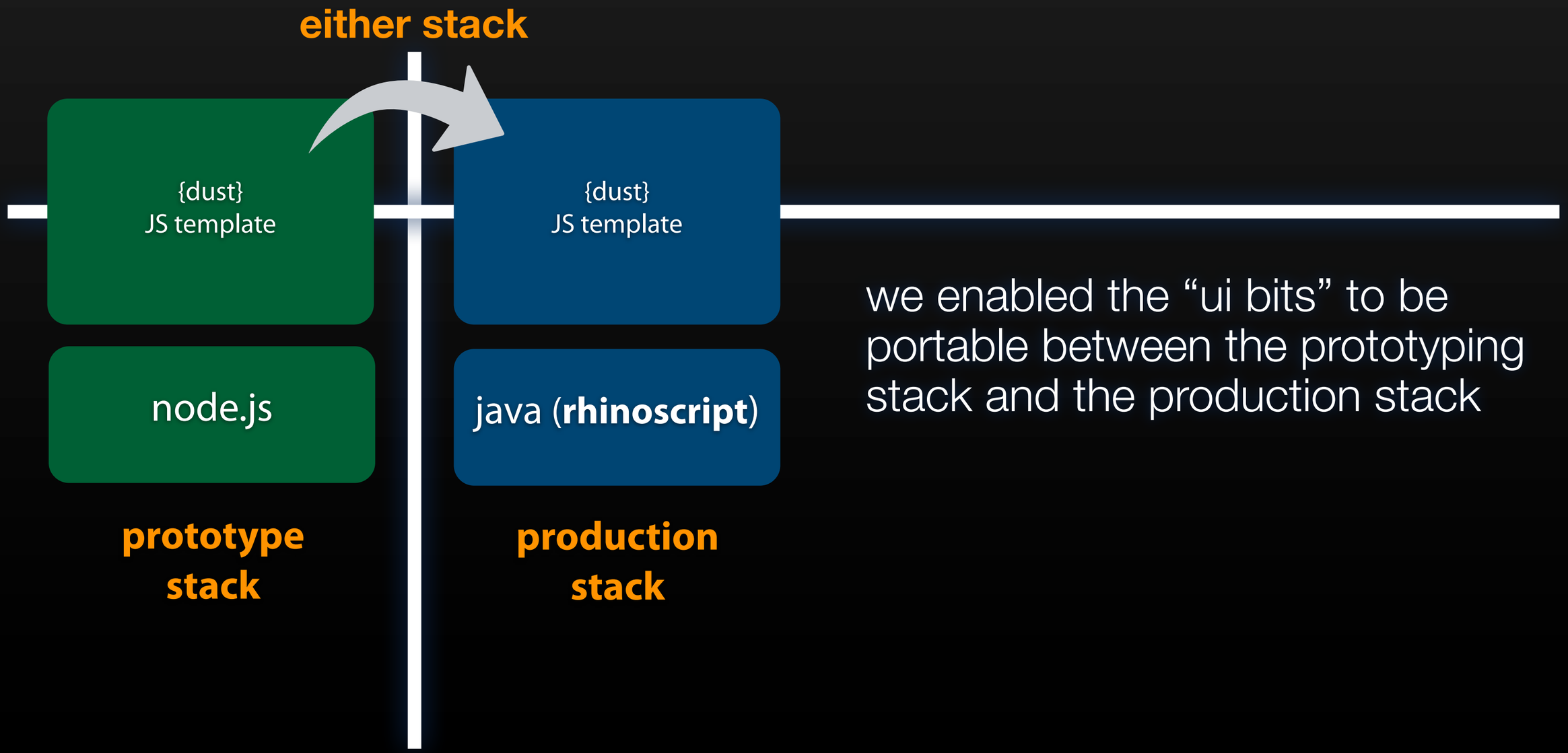


simple change could take minutes to see

follows an "enterprise application" model. ui gets built into the "app"

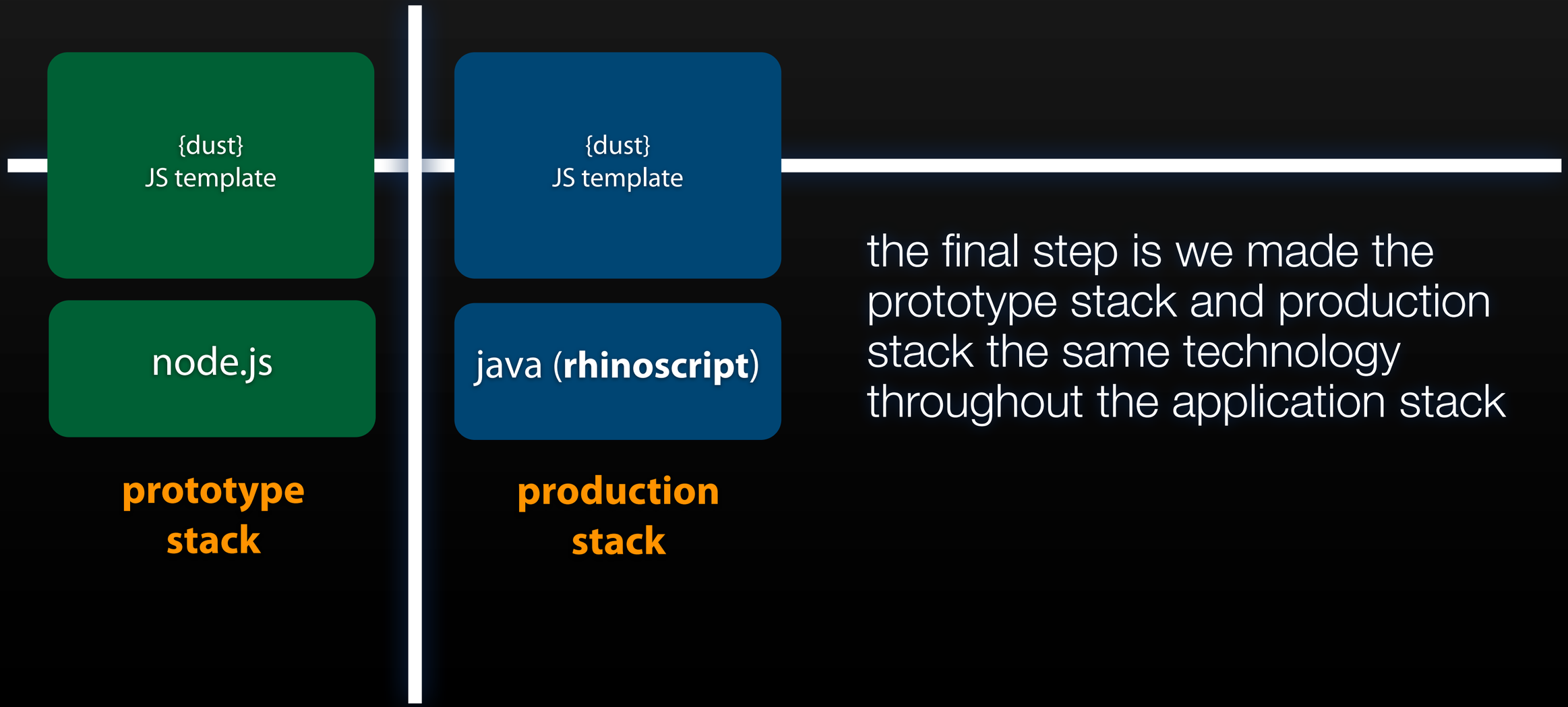
** assumed client developers were low-skill*
** required server side java eng for simple client changes*
*** java server pages. server-side java templating solution*

we blended prototype & production



we enabled the “ui bits” to be portable between the prototyping stack and the production stack

one stack: prototype & production



the final step is we made the prototype stack and production stack the same technology throughout the application stack

7. refactor your way out of debt

technical debt

rarely do you have a clean slate

generally you will have to refactor your way to a nimble framework

we separated the ui bits

templates = JS {dust}

code = JS (backbone)

style = CSS (less)

images

re-engineered the user interface stack so that the only artifacts are:

- javascript
- css
- images

ditched the server-side mentality to creating UIs

- no more server-side only templates
- no more server-side components
- no more server-side managing the ui

we used javascript templating

templates = JS {dust}

code = JS (backbone)

style = CSS (less)

images

templates get converted to javascript

Hello {name}

{dust}

JavaScript

compiles to...

javascript executed to generate ui

we used natural web artifacts - “web bits”

templates = JS {dust}

code = JS (backbone)

style = CSS (less)

images

server-side language independent

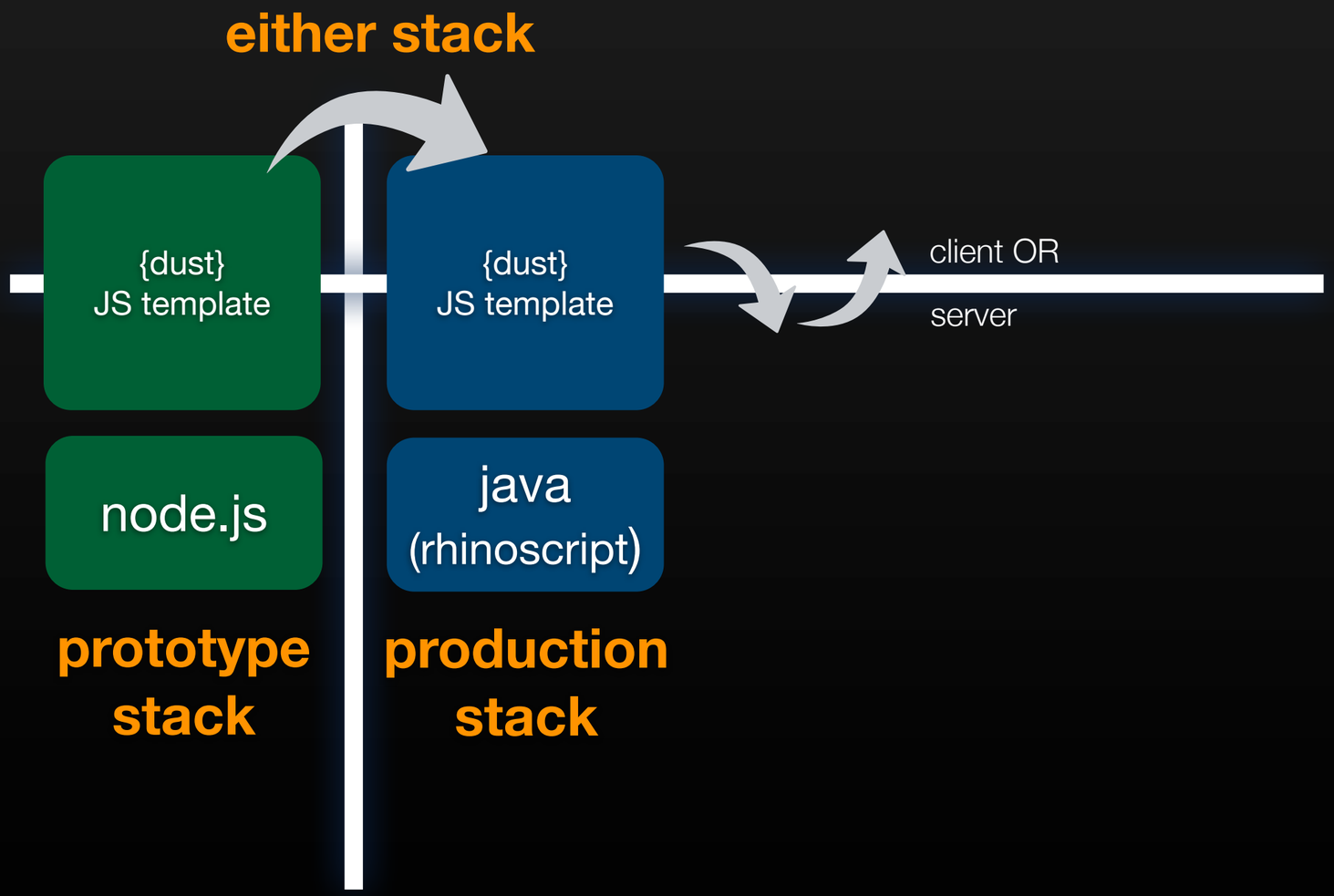
server/client agnostic

CDN ready

cacheable

rapid to create

ensured we could run on new & legacy



JS templating can be run in client browser or server on the production stack

we can drag & drop the ui bits from prototyping stack to the production stack

experience debt

don’t just think about our technical debt

consider our “experience debt”

cripples our ability to capture market and inhibits learning

8. learn across all channels

mobile strategy ≠ just iOS app

native apps make it easier to create a **rich** experience

however, they are limited in **reach** and in **learning** capability

app install rates will only be a subset of the customer base

you need both a native and html5 strategy in order to maximize learning

html5 is critical to learning strategy

netflix gambled on html5 for mobile (iOS, android) and for game consoles, bluray players, hdtvs, etc.

why? build/measure/learn. network delivery.

new users will see your html5 experience

the onramp to onboarding is the lowly link

network delivery makes a/b testing straightforward

summary

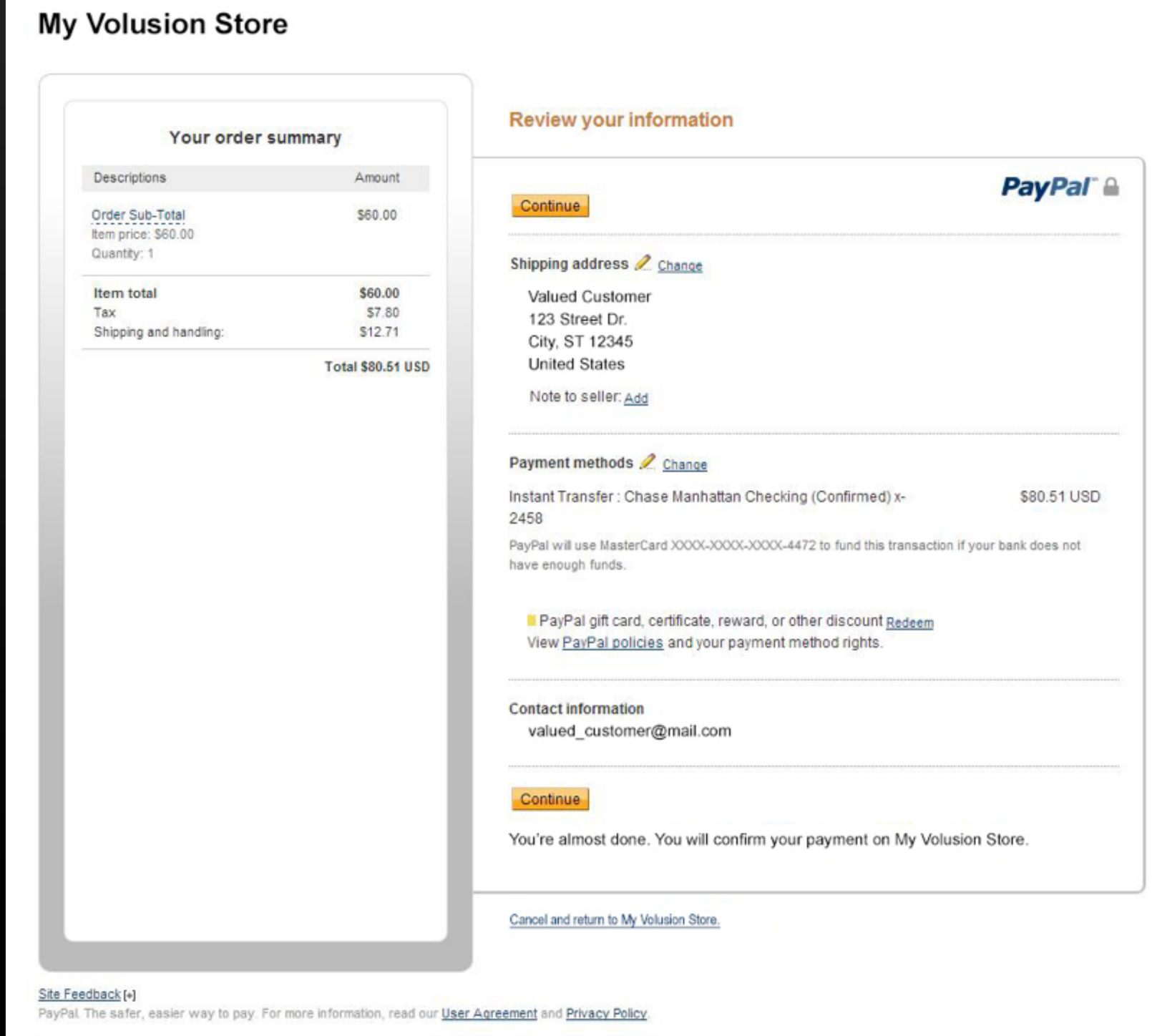
rethink engineering. every dimension of your engineering needs to be about enabling build/measure/learn

technology. but not for tech sake. we are doing it for the experience to support lean startup principles.

process. enabled lean ux and put a brain on agile.

people. revitalizing our existing talent and started attracting new talent.

before



My Volusion Store

Your order summary

Descriptions	Amount
Order Sub-Total Item price: $60.00 Quantity: 1	$60.00
Item total	$60.00
Tax	$7.80
Shipping and handling:	$12.71
Total $80.51 USD	

Review your information

PayPal

Continue

Shipping address Change

Valued Customer
123 Street Dr.
City, ST 12345
United States

Note to seller: Add

Payment methods Change

Instant Transfer : Chase Manhattan Checking (Confirmed) x-2458 $80.51 USD

PayPal will use MasterCard XXXX-XXXX-XXXX-4472 to fund this transaction if your bank does not have enough funds.

PayPal gift card, certificate, reward, or other discount Redeem
View PayPal policies and your payment method rights.

Contact information
valued_customer@mail.com

Continue

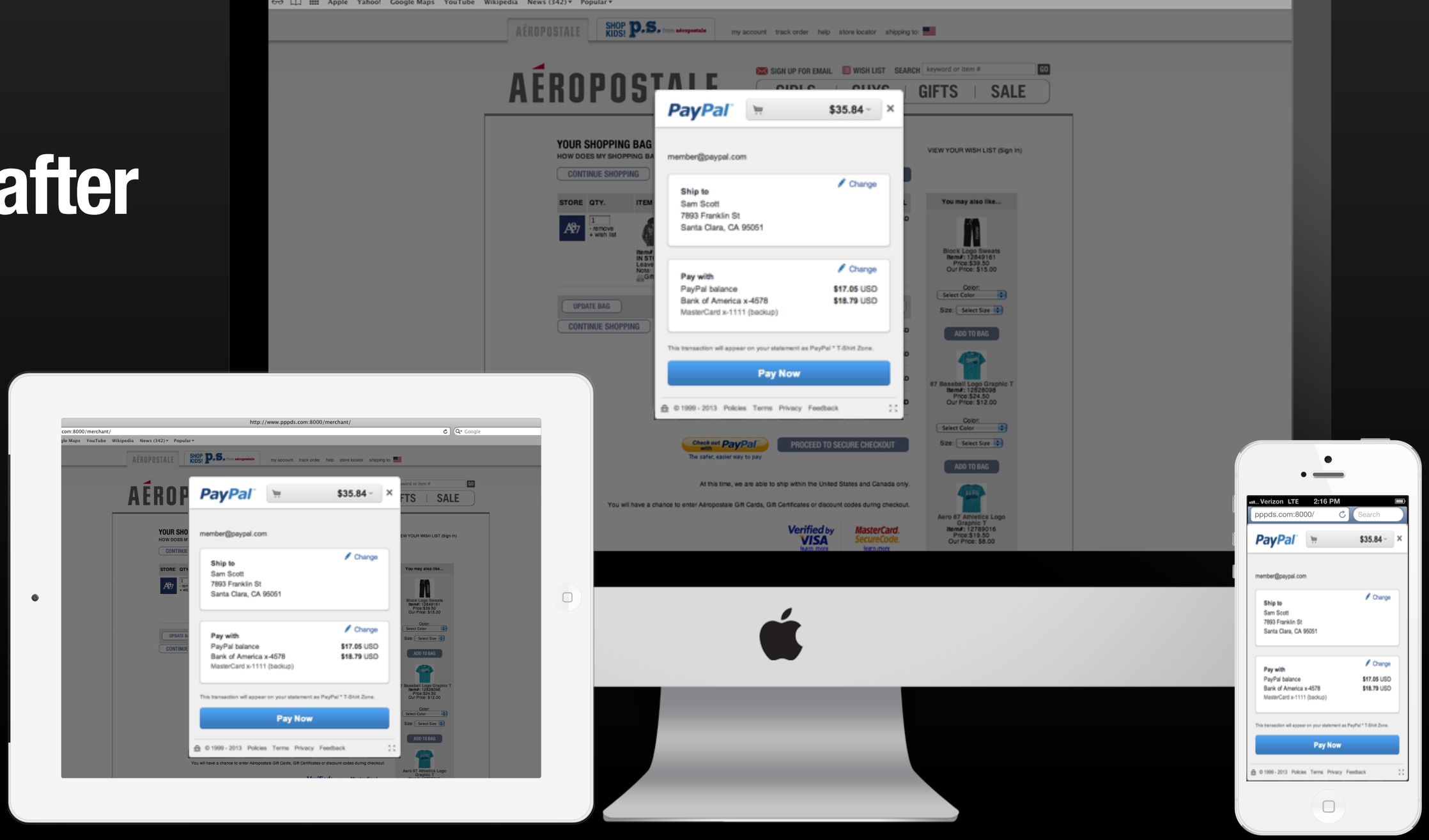
You're almost done. You will confirm your payment on My Volusion Store.

Cancel and return to My Volusion Store.

Site Feedback [+]

PayPal. The safer, easier way to pay. For more information, read our User Agreement and Privacy Policy.

after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PayPal balance $17.05 USD
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MasterCard x-1111 (backup)
This transaction will appear on your statement as PayPal * T-Shirt Zone.
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AÉROPOSTALE
GIFTS | SALE
YOUR SHOPPING BAG
CONTINUE SHOPPING
UPDATE BAG
PROCEED TO SECURE CHECKOUT
At this time, we are able to ship within the United States and Canada only.
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