Phoenix and the
WORLD OF TOMORROW

polymet.is

THE NEXT BILLION

More than 3 Billion Smart Phones active right now

Many of the users are coming online for the first time

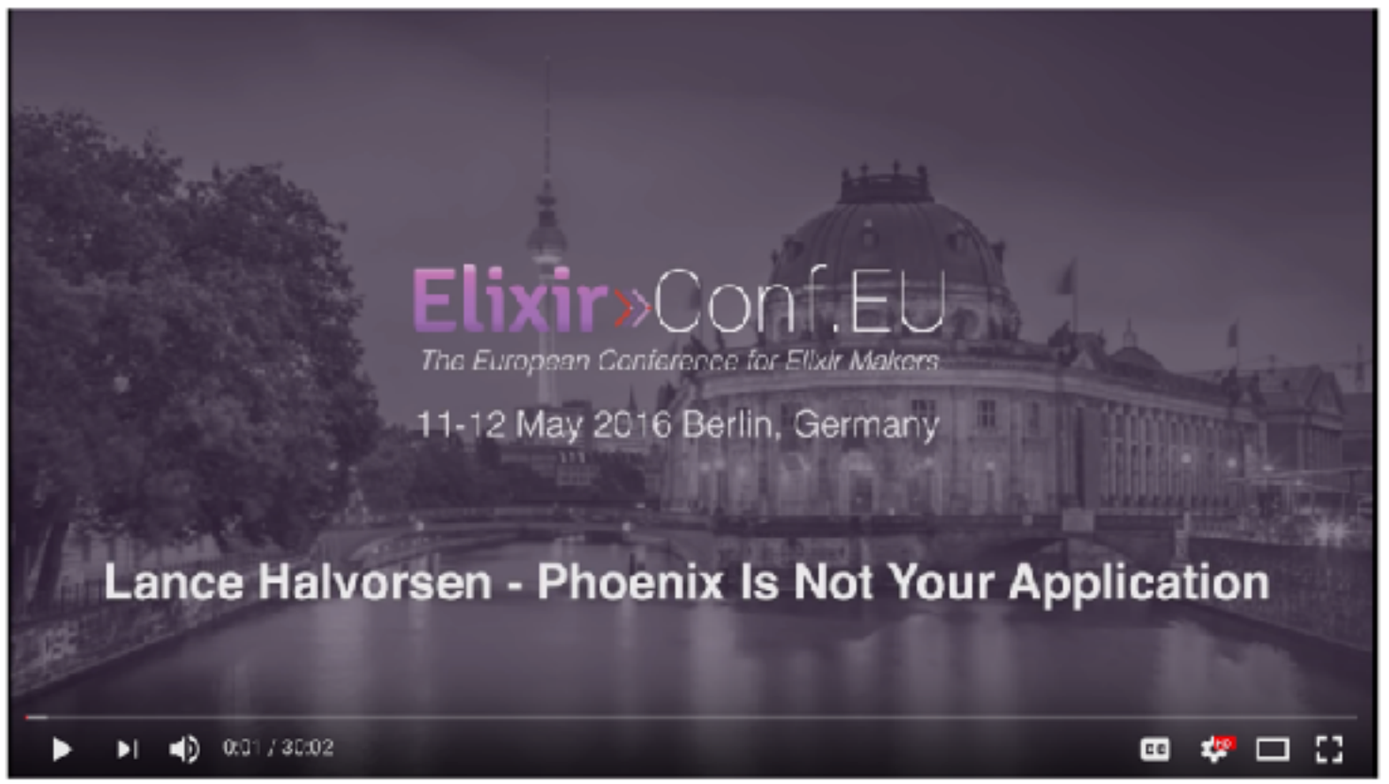
The infrastructure is present but could be quite slow

The rate of growth is staggering

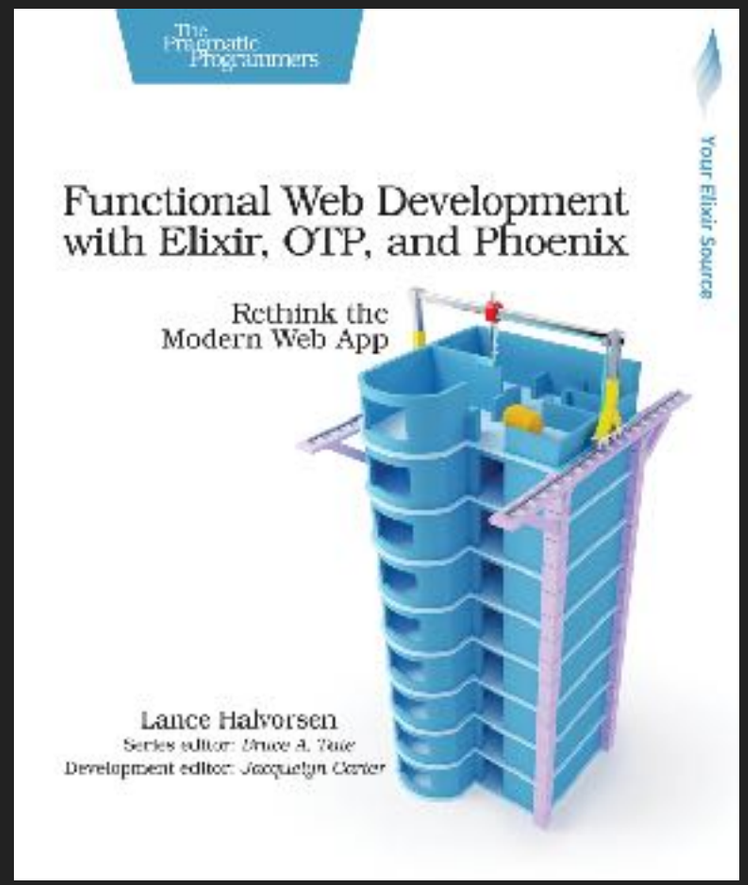
The price of bandwidth is high in both price and time

PHOENIX IS NOT YOUR APPLICATION

Phoenix is the web interface solution



Lance Halvorsen - Phoenix Is Not Your Application (ElixirConfEU 2016)



THE EDGE OF YOUR APPLICATION IS NOT THE DATA CENTRE

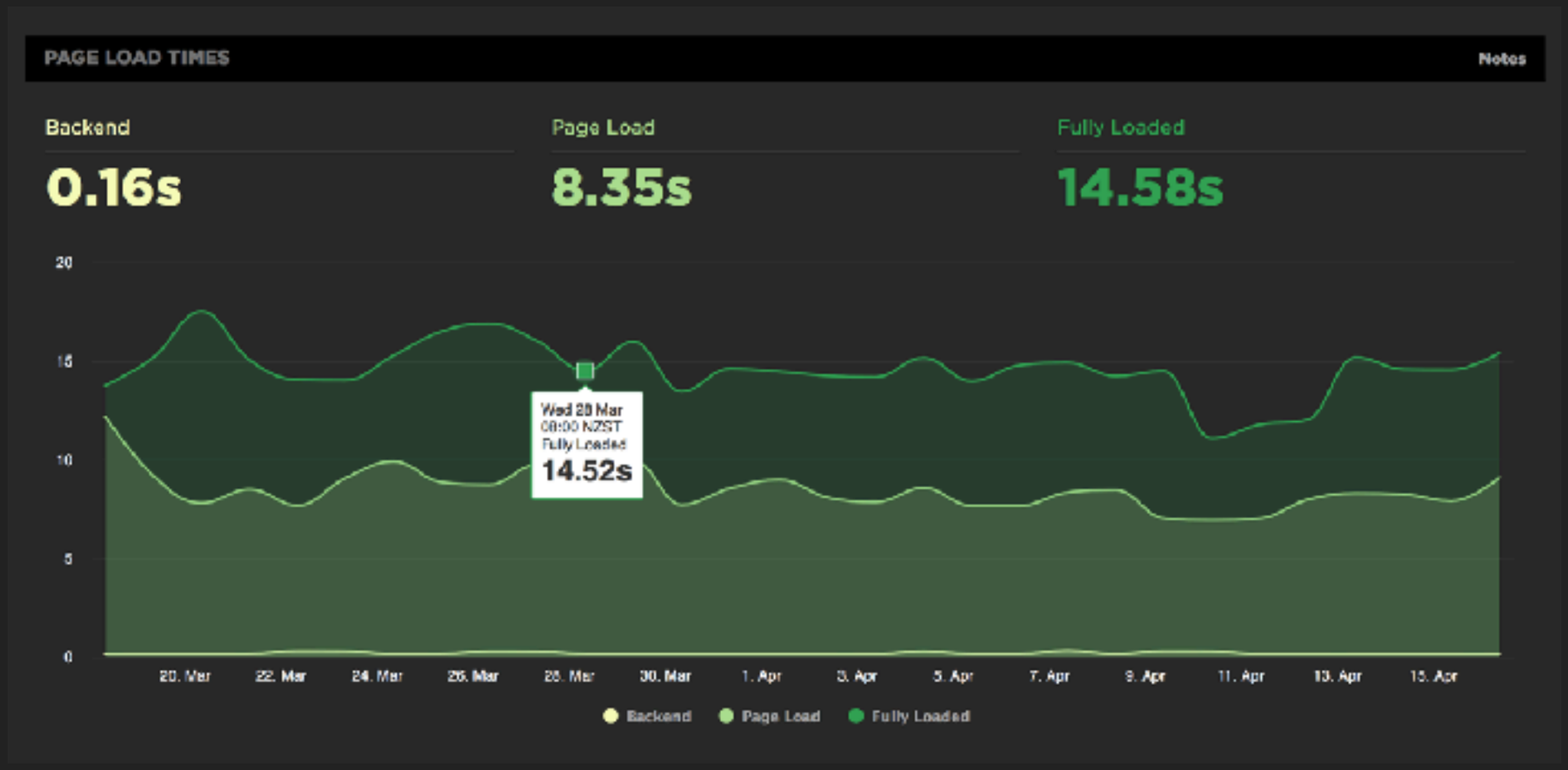
Phoenix is fast to getting data off our server

… but we don’t think about when in lands.

When the user gets to interact with you is the important bit.

THE EDGE OF YOUR APPLICATION IS NOT THE DATA CENTRE

Speedcurve can help with that.



MOBILE FIRST DESIGN

Go out an buy a low end Android phone

Google recommends and Moto G4

Always keep the Bandwidth throttled to 2G Max

BUDGETS

Two forms of budgets other than monetary

Time

Footprint

BUDGETS

Units of

2.39MB

BUDGETS

Time

- Not all bits are created equal
- EVERYTHING on your page must do a job

- Two Goal Posts
  - Page load
  - Full appreciated experience

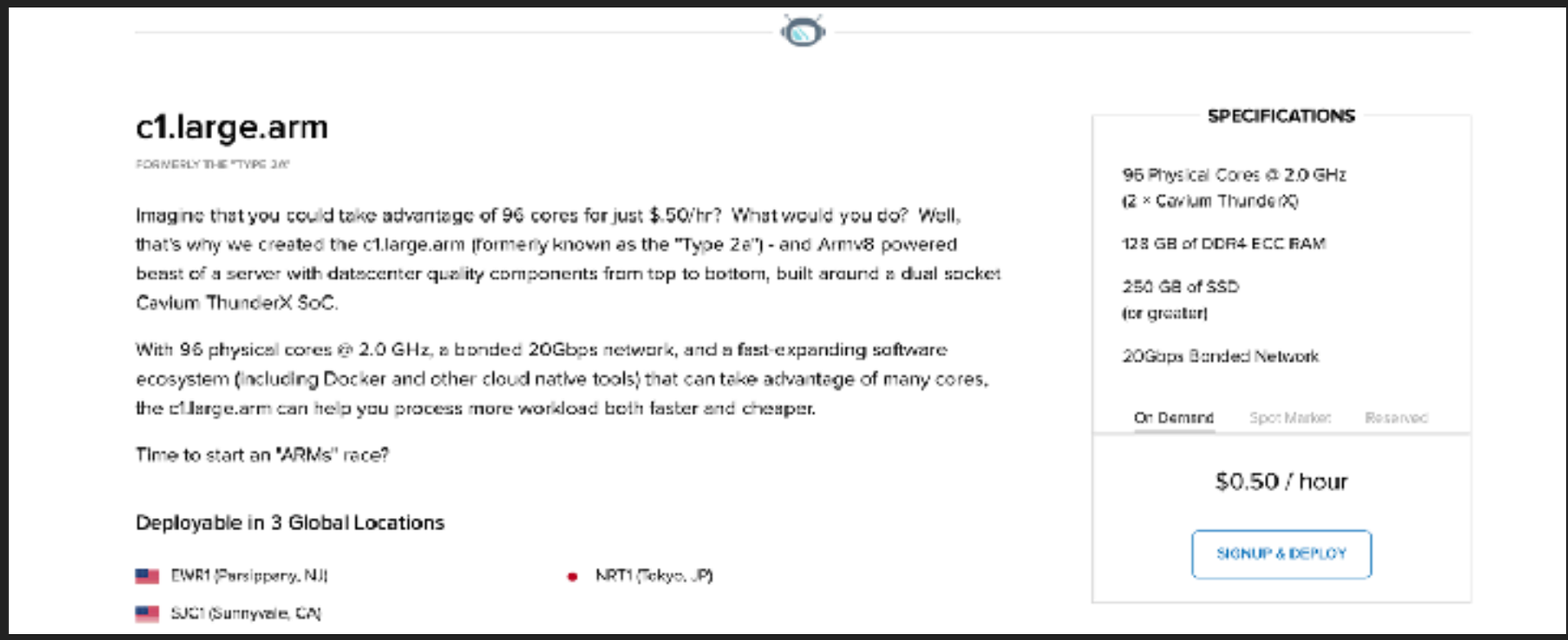
IN THE BEGINNING

There was that server and the sysadmin saw that is was good. And then the developer said let there be apps …

BARE METAL AND NEIGHBOURS

Dramatic speed boost to actually be on hardware

No noisy neighbours



c1.large.arm

FORMERLY THE "TYPE 2A"

Imagine that you could take advantage of 96 cores for just $.50/hr? What would you do? Well, that's why we created the c1.large.arm (formerly known as the "Type 2a") - and Armv8 powered beast of a server with datacenter quality components from top to bottom, built around a dual socket Cavium ThunderX SoC.

With 96 physical cores @ 2.0 GHz, a bonded 20Gbps network, and a fast-expanding software ecosystem (including Docker and other cloud native tools) that can take advantage of many cores, the c1.large.arm can help you process more workload both faster and cheaper.

Time to start an "ARMs" race?

Deployable in 3 Global Locations

- EWR1 (Parsippany, NJ)
- NRT1 (Tokyo, JP)
- SJC1 (Sunnyvale, CA)

SPECIFICATIONS

96 Physical Cores @ 2.0 GHz
(2 × Cavium ThunderX)

128 GB of DDR4 ECC RAM

250 GB of SSD
(or greater)

20Gbps Bonded Network

On Demand | Spot Market | Reserved

$0.50 / hour

SIGNUP & DEPLOY

FREEBSD AND ZFS

Just do it

HAPROXY ET AL.

Use a proxy outside the VM

COMPRESSION

Netflix saved 43% of their bandwidth by turning on gzip compression. :O

GZIP AND BROTLI

Gzip is Ubiquitous

So is Brotli

However …

- HTTPS only
- Can be slower

But not really

DIAL IT TO 11


VOLUME I
VOLUME II
LOOK.
RIGHT ACROSS THE BOARD.
ELEVEN, ELEVEN, ELEVEN.

HTTPS

Harfleur on Hex Right Now

```elixir
def call(conn, _opts \\ []) do
  breach = :rand.uniform(128)
    |> :crypto.strong_rand_bytes()
    |> :base64.encode()

  conn
    |> Conn.put_resp_header("x-welcome-robot-overlords", breach)
end
```

WEBSOCKETS - THERE BE DRAGONS

```
Once upon a midnight dreary, while I {pon}dered weak an{d wea}{ry,}
Over many{ a }quaint{ and }curious volume of forgotten lore,
W{hile I }nodded, n{ear}ly napping, su{dde}n{ly }th{ere} ca{me }a t{apping,}
As{ of }so{me o}ne gent{ly }r{apping, }{rapping} at my chamb{er }door.
`'Tis{ some }visitor,'{ I }mu{tte}r{ed, }`t{apping at my chamber door} -
O{nly th}is,{ and }no{thi}{ng }m{ore}.'

Ah, distinc{tly }I reme{mber }it was in{ the} bl{eak }Dec{ember}{,
A}{nd }each separate dy{ing }{ember }wrou{ght }its ghost{ upon }{the }fl{oor.
}Eager{ly I }wish{ed }{the }{mor}row; - v{ain}{ly I }had{ so}{ught }to b{orrow}
From{ my }book{s s}urcease{ of so}{rrow}{ - }{sorrow }{for}{ the }l{ost }Len{ore}{ -
}F{or the }ra{re }{and }radia{nt }mai{den}{ wh}{om }{the }angels{ na}{me }{Lenore -
}N{ame}less {here }{for }e{ver}{more.}
{
And }{the }silk{en }s{ad }u{nce}rt{ain} rustl{ing }{of }{each }purp{le }{cur}{tain}
Thrill{ed }{me }- f{illed me }with f{ant}a{sti}c {ter}ror{s n}{ever} felt be{for}e;
So{ th}{at }now,{ to }{sti}ll{ the b}eat{ing of }{my }h{ear}t,{ I }stoo{d r}ep{eating}{
`'Tis some visitor} {ent}r{eating }{entr}a{nce }{at my chamber door -
}S{ome }l{ate }{visitor entreating entrance at my chamber door}{; -}{
Th}{is }{it }{is, and nothing more},{'

}Pres{ently }{my }{sou}l grew{ st}ro{nge}{r; }he{sit}{ating }{the}n{ no}{ lo}{nger},
`Si{r,' }s{aid} I{, `}{or }Madam{, t}ru{ly }your{ forg}iven{ess }I impl{ore;
}But{ the f}ac{t is}{ I w}as{ napping, }{and }so{ gently }{you}{ came }r{apping,
A}{nd so }f{aint}{ly you came }{tapping,} {tapping at my chamber door},{
Th}{at }{I s}ca{rce}{ was }{sur}{e I }{hear}d{ you}'{ - }{here }I op{ene}{d w}{ide}{ the }{door; -
}Dark{ness }{there}{, and nothing more.}
```

WAIT ISN’T THIS A PHOENIX TALK ….

PHOENIX TEMPLATING

EEX is both very fast and very good - USE IT!

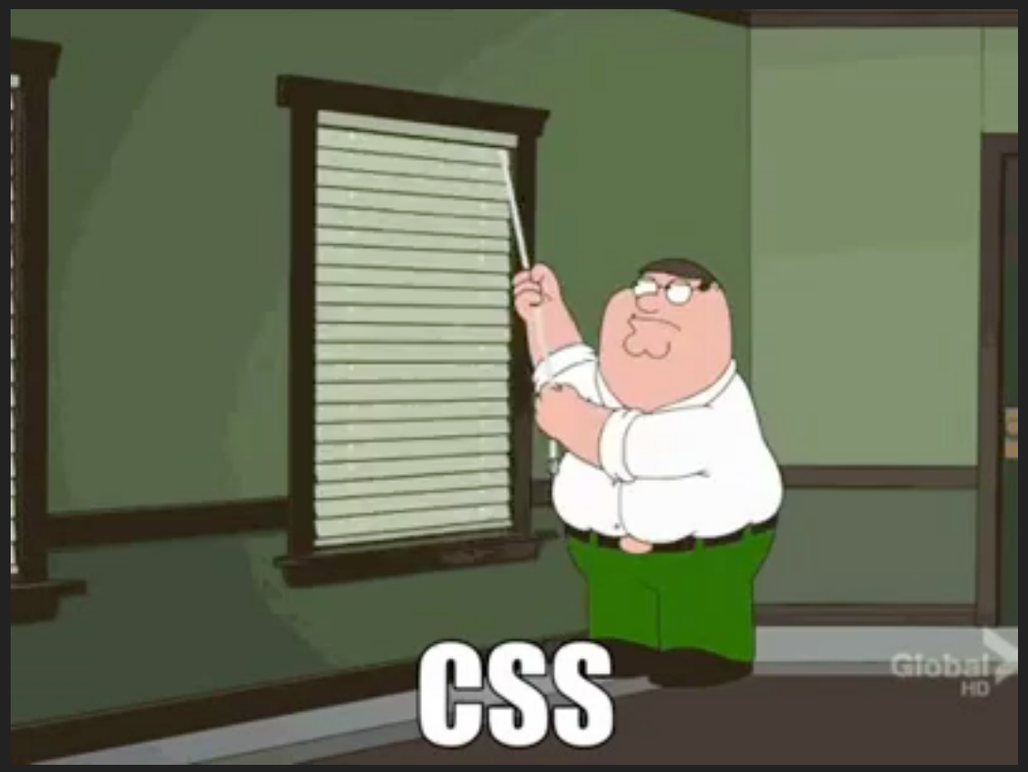
Care about HTML Semantics - it’s important for accessibility

Gettext - Same.

SOON ™

CSS - WHAT IS IT EVEN?

CSS
IS
AWESOME



CSS - HOW IT ACTUALLY WORKS

```elixir
defmodule Browsercss do
  defstruct{ important: 0, inline: 0, id: 0, class: 0, elements: 0}

  def render(html, css, _javascript) do
    dom(html)
    |> cssom(css)
    |> layout()
    |> paint()
  end
end
```

CSS - CSS CLASS ONLY DESIGN

Inverted Pyramid

BEM naming structure

Boils CSS down

Harry Roberts - CSSWizardry

csswizardry.com

CSS - WHY I IGNORED GOOD ADVICE

Normalize but for a brand

Element only style with one exception

Very few media queries

Zero external dependencies!!!!

CSS - WHY?

Backend is not an unmovable block

Low bandwidth version of the site

Zero external dependencies!!!

We wrote a plug to explicitly call this.

SOON ™

JAVASCRIPT

Try breaking up your app from slow moving to fast

Consider Javascript and web sockets as an appreciate experience rather than the only.

It depends. ¯_(ツ)_/¯

THE OLD WAYS

This is just good fault tolerant architecture

THANK YOU!!!

ley@polymet.is

polymet.is

THANK YOU!!!

IWANTMYNAME IS HIRING

polymet.is