

Scale, baby, scale!

Julien Simon
Principal Technical Evangelist
Amazon Web Services

julsimon@amazon.fr
@julsimon



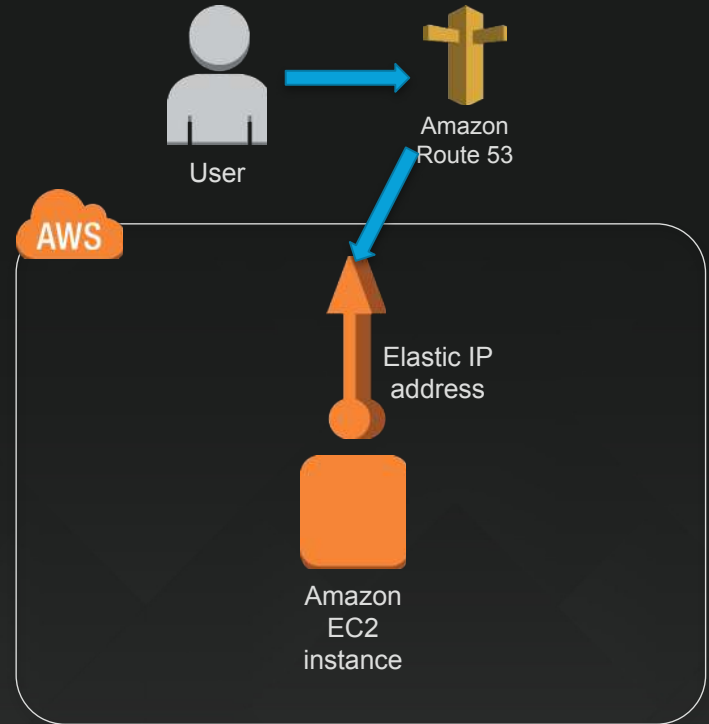
Agenda

- The old way
- The new way
- Demo

**So let's start from
day 1, user 1 (you)**

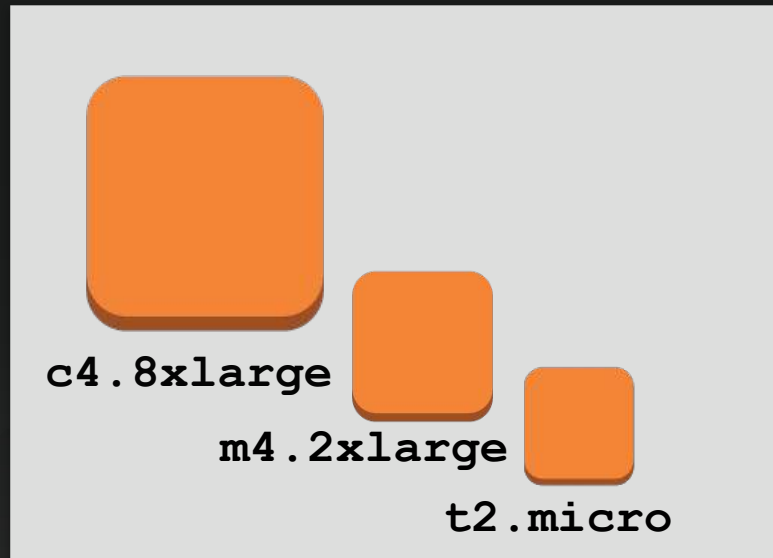
Day 1, user 1

- A single Amazon EC2 instance, with full stack on this host
 - Web app
 - Database
 - Management
 - And so on...
- A single Elastic IP address
- Amazon Route 53 for DNS



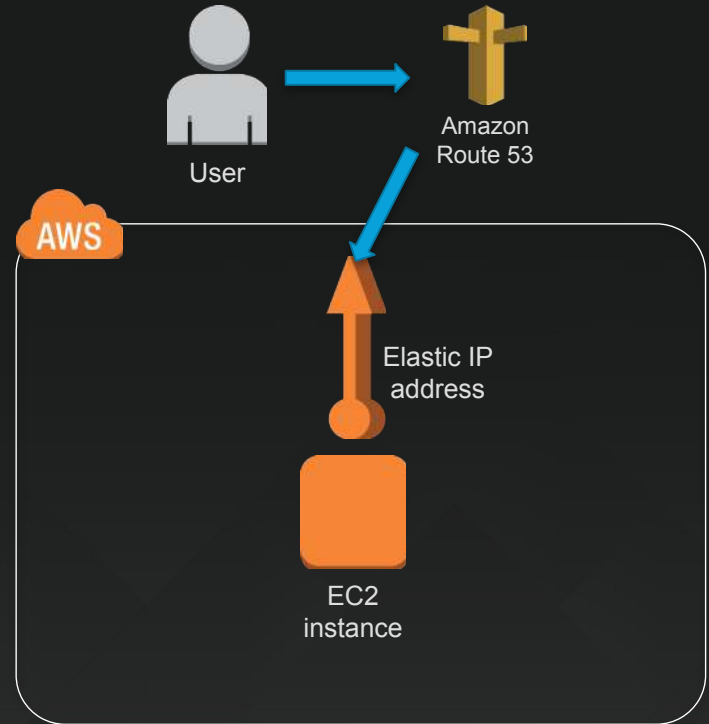
“We’re gonna need a bigger box”

- “Scale up”: simplest approach
- Can now leverage PIOPS
- High I/O instances
- High memory instances
- High CPU instances
- High storage instances
- Easy to change instance sizes
- **Will hit a wall eventually**



Day 1, user 1

- We could potentially get to a few hundred to a few thousand depending on application complexity and traffic
- **No failover**
- **No redundancy**
- **Too many eggs in one basket**

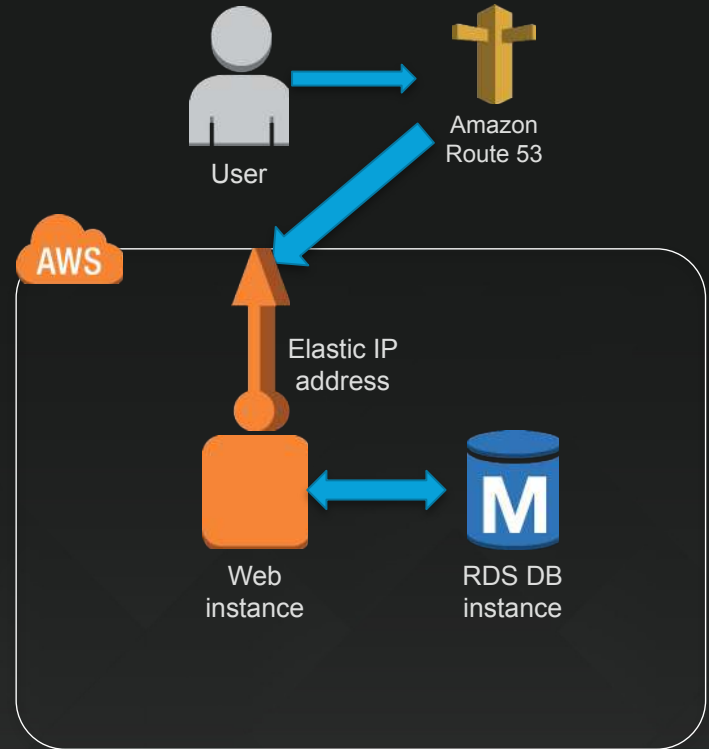


100 users

First, let's separate out our single host into more than one:

- Web
- Database

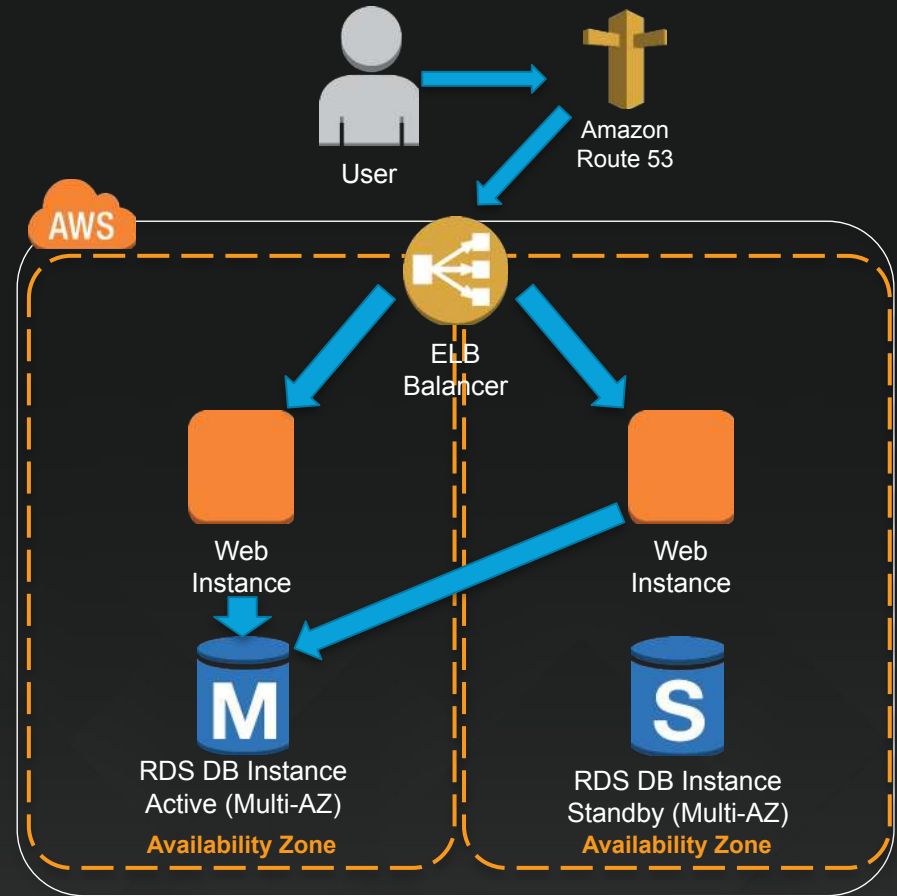
Use Amazon RDS to make your life easier



1000 users

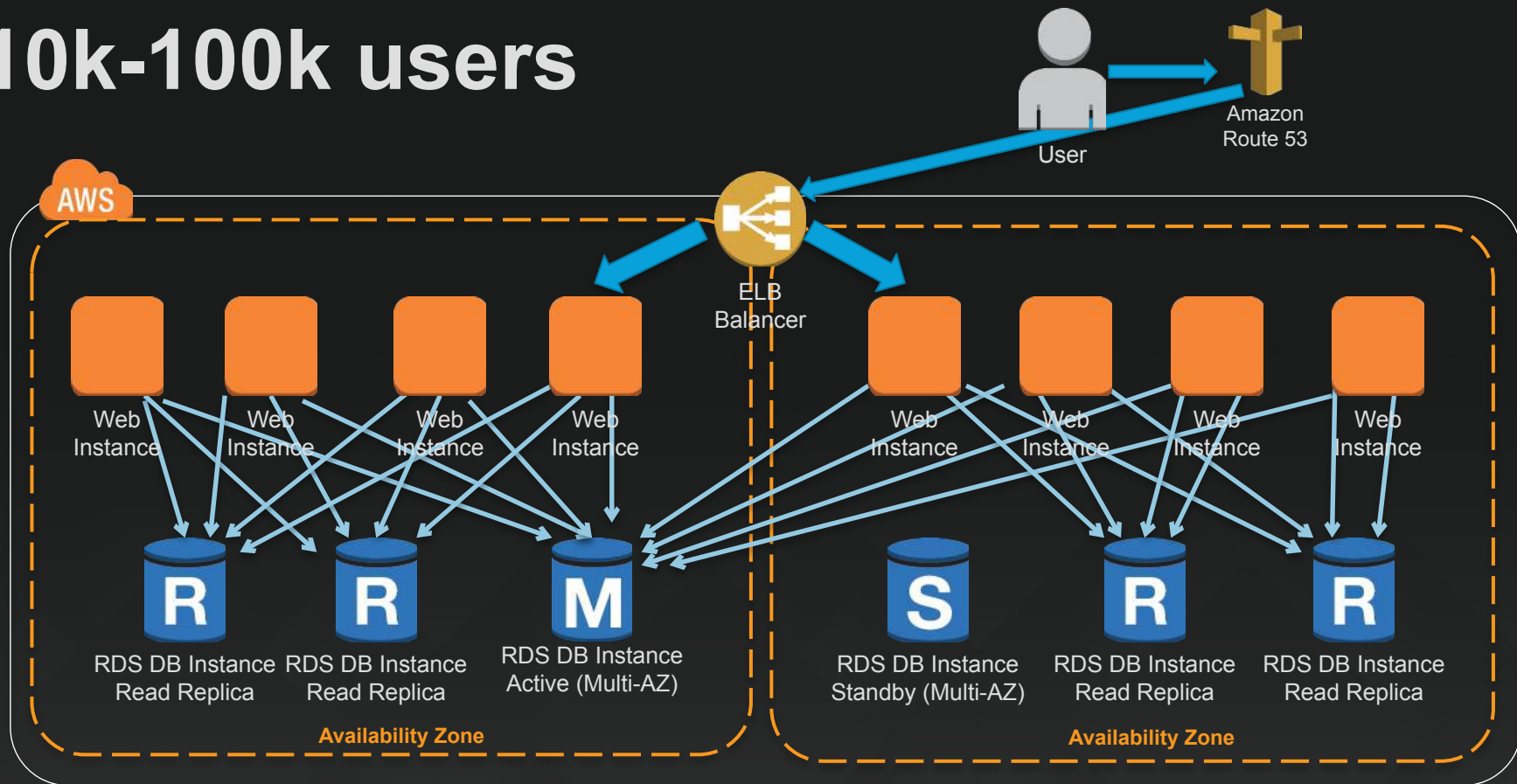
Next, let's address our lack of failover and redundancy issues:

- Elastic Load Balancing (ELB)
- Another web instance
In another Availability Zone
- RDS Multi-AZ



Scaling this horizontally and vertically will get us pretty far (tens to hundreds of thousands)

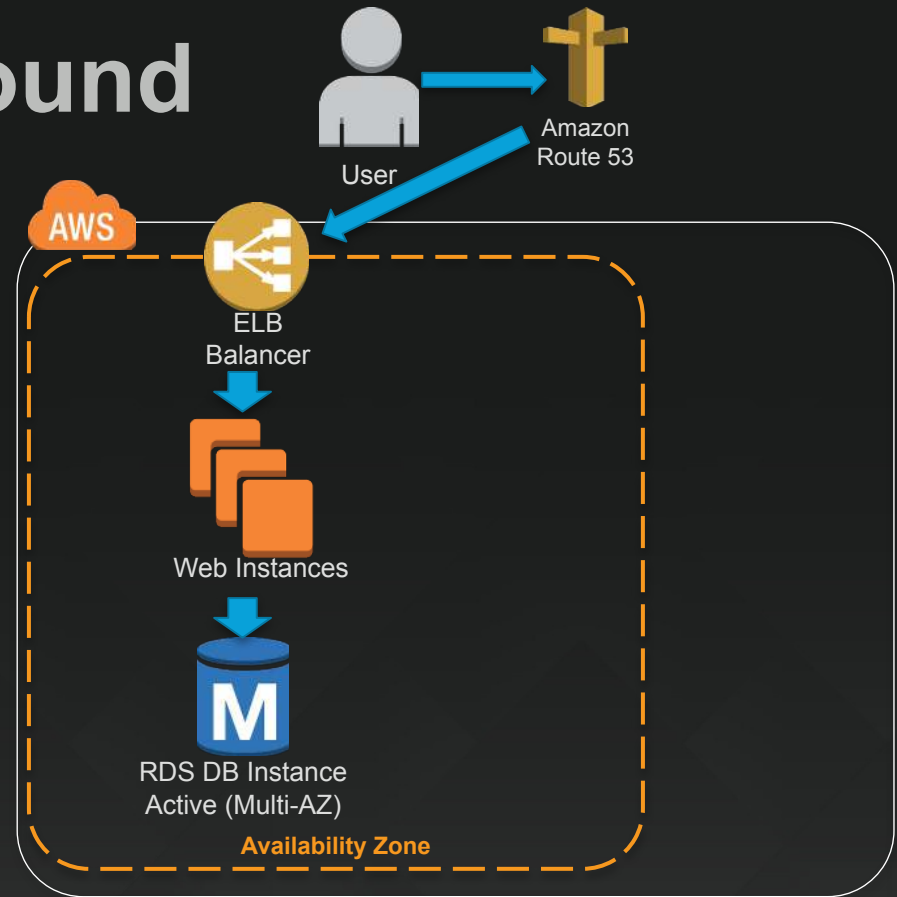
10k-100k users



**This will take us pretty far, but
we care about *performance*
and *efficiency*, so let's
improve further**

Shift some load around

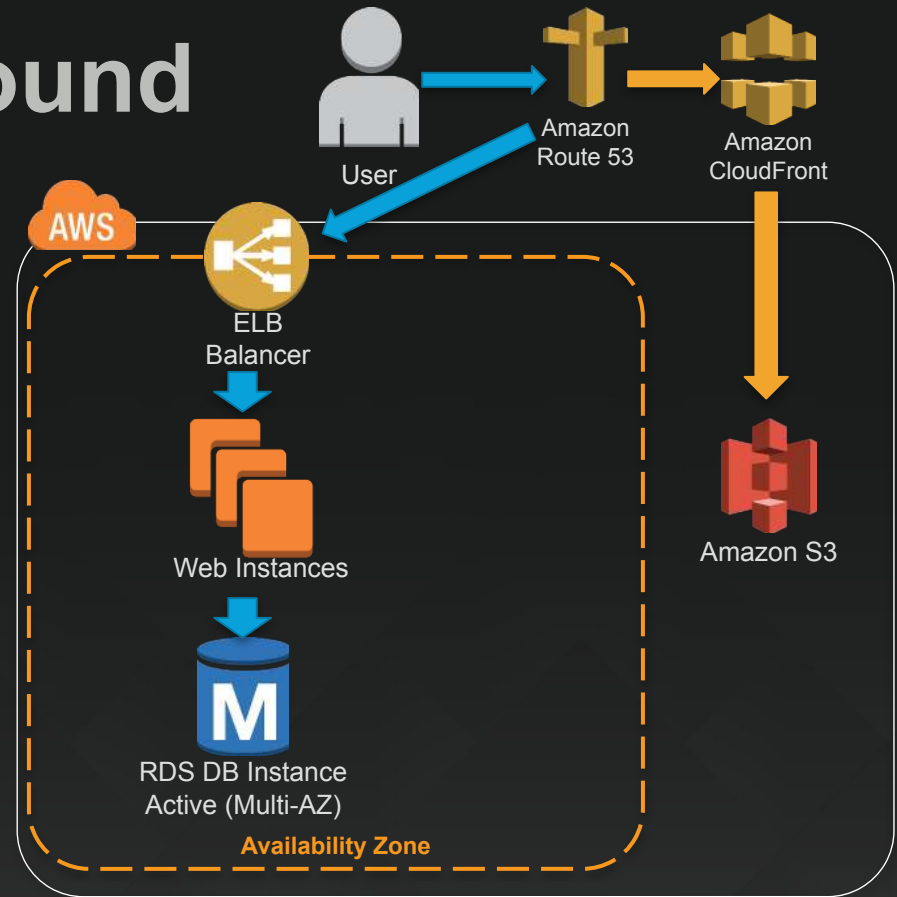
Let's lighten the load on our web and database instances



Shift some load around

Let's lighten the load on our web and database instances:

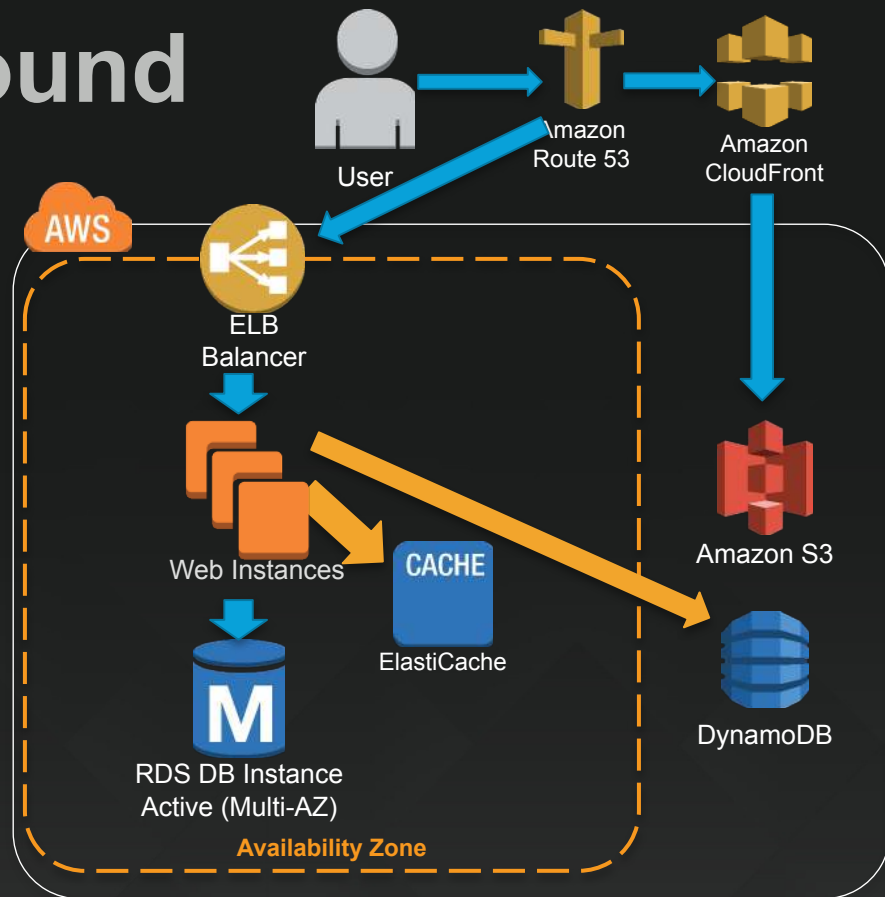
- **Move static content from the web instance to Amazon S3 and Amazon CloudFront**



Shift some load around

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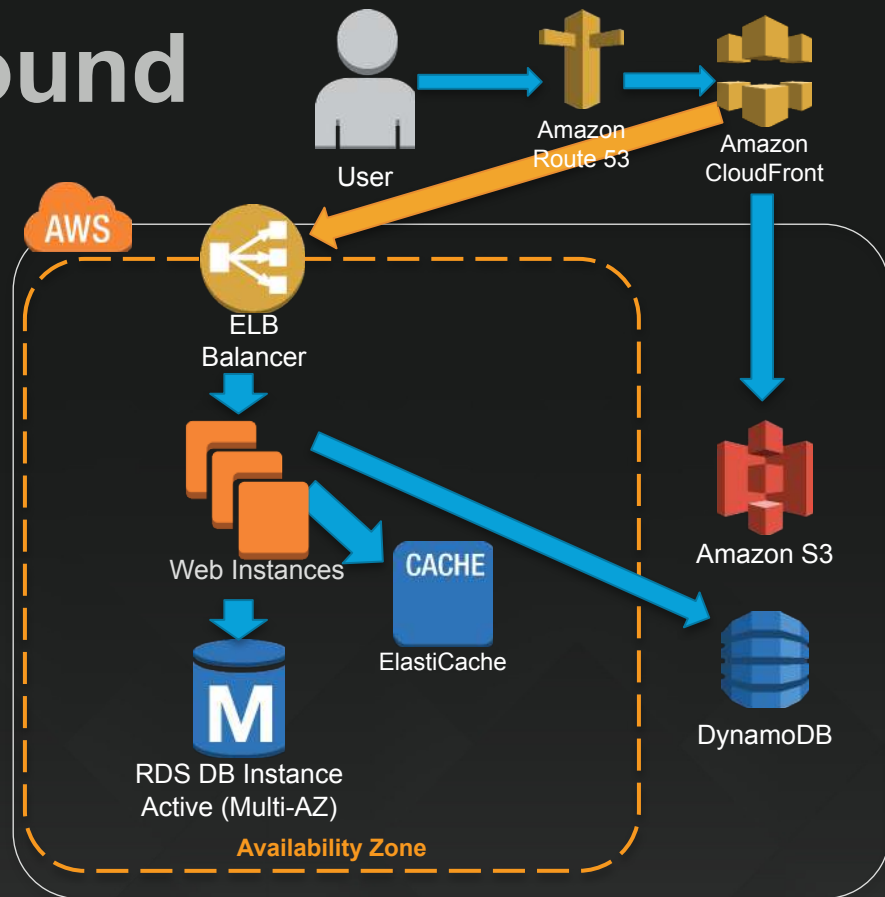
- Move static content from the web instance to Amazon S3 and Amazon CloudFront
- **Move session/state and DB caching to Amazon ElastiCache or Amazon DynamoDB**



Shift some load around

Let's lighten the load on our web and database instances:

- Move static content from the web instance to Amazon S3 and Amazon CloudFront
- Move session/state and DB caching to ElastiCache or DynamoDB
- **Move dynamic content from the ELB balancer to Amazon CloudFront**



**Now that our web tier is
much more lightweight...**

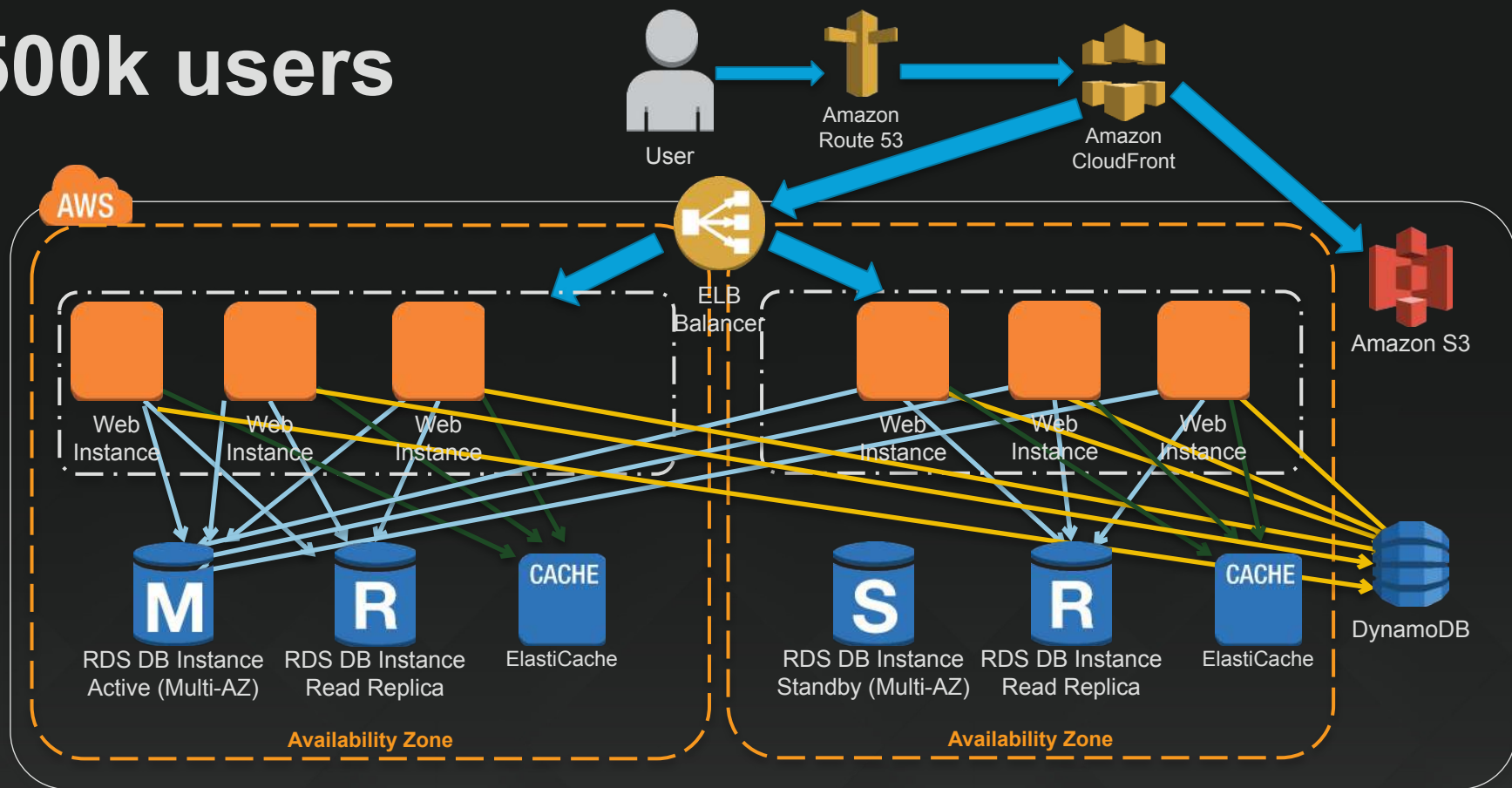
Auto Scaling!

**Resize server farms automatically
based on monitoring metrics**

Spot instances!

**Bid on unused EC2 capacity
(typically at 80% discount)**

500k users



**There are more
improvements to be made
and we could get much
higher, but do we really
want to manage all these
instances ?**



No Server Is Easier To Manage Than No Server

Werner Vogels, CTO, Amazon.com
AWS re:Invent 2015

Use the Force, Luke!

**Managed services
+ AWS Lambda
= Serverless architecture**

**Many of our customers
have figured it out.**

**This is what they're
building!**

Case study: Nordstrom

<https://www.youtube.com/watch?v=TXmkj2a0fRE>



NORDSTROM

Nordstrom Recommendation

15-20 minute of
processing into seconds

2x order of magnitude
for cost savings



(Nordstrom VPC)



Kinesis
Stream



Lambda Functions

Redshift



DynamoDB



Lambda Functions



Any Other App

Recommendations for You

Need a little shopping inspiration? Take a look at recommendations for similar brands, bestsellers, new items and more.

You Viewed

People Also Viewed



Ray-Ban Classic Aviator®
Sunglasses
\$139.95 (\$150.00)
★★★★★ (28)



TOMS Lunar® Suede Bootie
(Women)
\$149.95 (\$160.00)
★★★★★ (28)



Ray-Ban Aviator® Sunglasses
(Women)
\$149.95 (\$160.00)
★★★★★ (18)



Ray-Ban Aviator® Sunglasses
(Women)
\$149.95 (\$160.00)
★★★★★ (28)



TOMS Classic - Women's
Sneaker (Women)
\$149.95 (\$160.00)
★★★★★ (28)

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People Also Viewed



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(Women)
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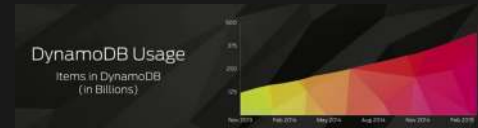
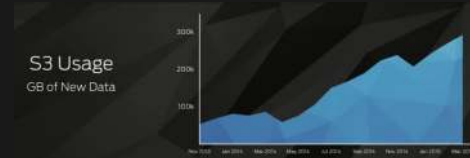
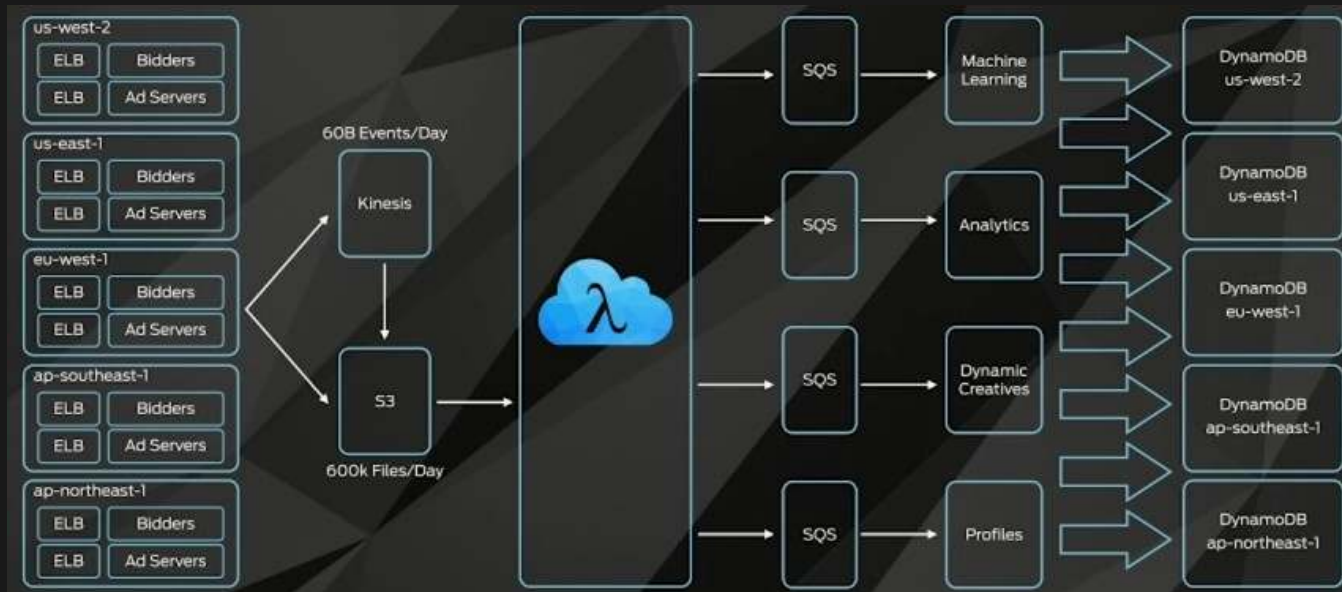
Case study: AdRoll

<https://www.youtube.com/watch?v=JFfvD2cw2IE>

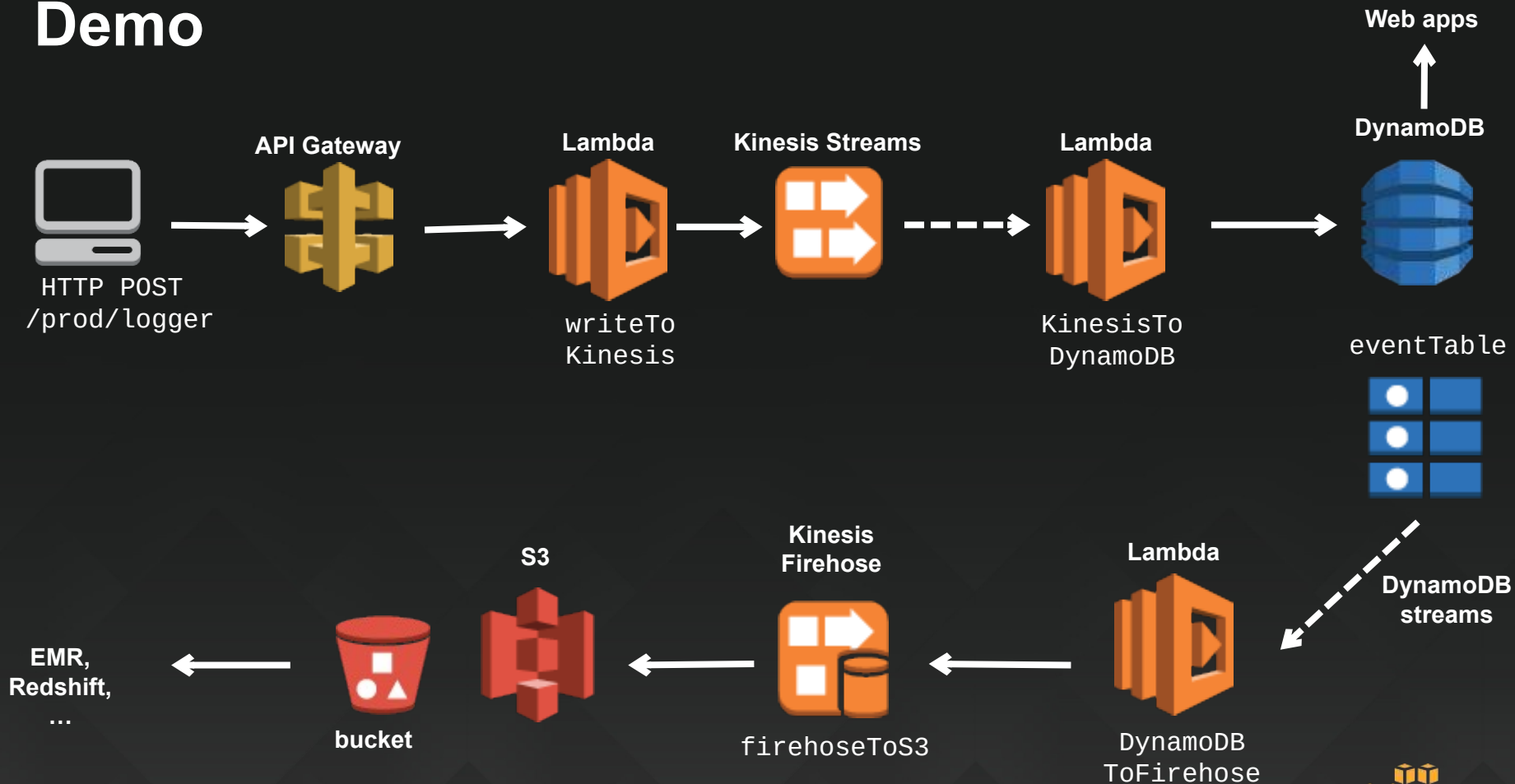
<https://aws.amazon.com/fr/dynamodb/adtech/>

AdRoll

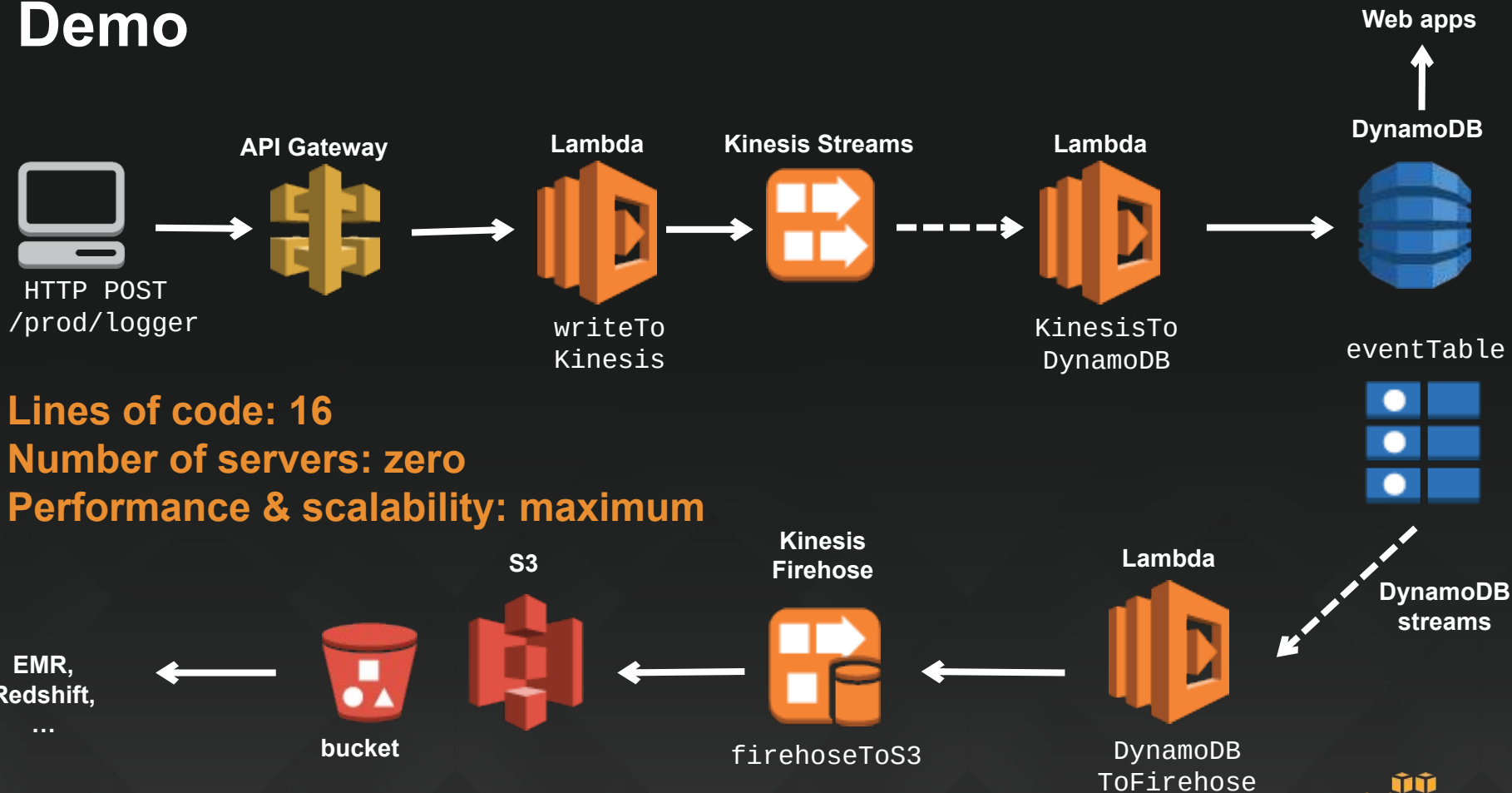
60 billion Real-Time Bidding events daily



Demo



Demo



Lines of code: 16

Number of servers: zero

Performance & scalability: maximum

**Putting all this together
means we should now
easily be able to handle
10+ million users!**

**Are you ready for
catastrophic success?**

**The Barbarians are
at your gates!**



Supercell: 100 million active users daily



Ilkka Paananen @ipaananen · 7 mars

Voir la traduction

100MILLION! Huge milestone for us, wanted to share some thoughts and a video: supr.cl/100m #welovetuvalu

Hi Everyone,

Today we've announced a major milestone in Supercell's history: **100m daily active players!**

100 million! It blows my mind to think of that many people playing our games all around the world, every single day. I want to thank every single one of them: from Albania to Zimbabwe and everywhere else in between. Wish we had someone from Tuvalu! :-)

<https://twitter.com/ipaananen/status/706844089216532480>

Case study: Supercell

<https://aws.amazon.com/fr/solutions/case-studies/supercell/>



45 billion real-time events and 10 TB of data every day

Kinesis



EMR



DynamoDB



S3



Glacier



“We don’t have to worry about being able to manage our infrastructure to match our growth — AWS tools make it easy for us.”

Sami Yliharju, Services Lead



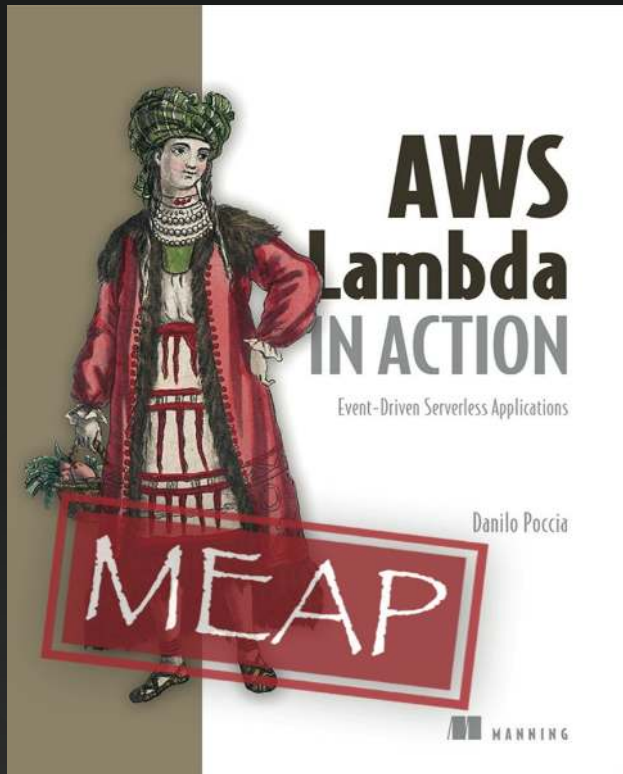
**“AWS is the easy answer for any
Internet business that wants to
scale to the next level”**

Nathan Blecharczyk
Co-founder & CTO of Airbnb

And now it's your turn!
What will you build?



Upcoming book on AWS Lambda



Written by AWS Technical Evangelist
Danilo Poccia

Early release available at:
<https://www.manning.com/books/aws-lambda-in-action>

AWS User Groups



Lille
Paris
Rennes
Nantes
Bordeaux
Lyon
Montpellier
Toulouse



facebook.com/groups/AWSFrance/



[@aws_actus](https://twitter.com/aws_actus)



Thank You !

Julien Simon
julsimon@amazon.fr
@julsimon

