

O'REILLY®
Software Architecture

How to build an evolutionary architecture

oreillysacon.com

#OReillySACon

Agenda

- Giraffes
- Coffee
- A guy who knows a lot
- ...
- Software Architectures!

Personal introduction

Antonio Jiménez González

- Solutions Architect @The Workshop
- Bassist
- Takes a picture of himself in a basketball shirt in every new country he sets foot in



Personal introduction

Pedro Javier Martos Velasco

- Tech Lead @ The Workshop
- Guitarist
- Book lover
- CD and vinyl lover



The problem

5 years ago...

The monolith



Monolith issues

- Big and costly
- Hard to understand
- Hard to CHANGE



Complexity was killing us



Designed by Freepik

All Architectures need to **change**

3 years later...

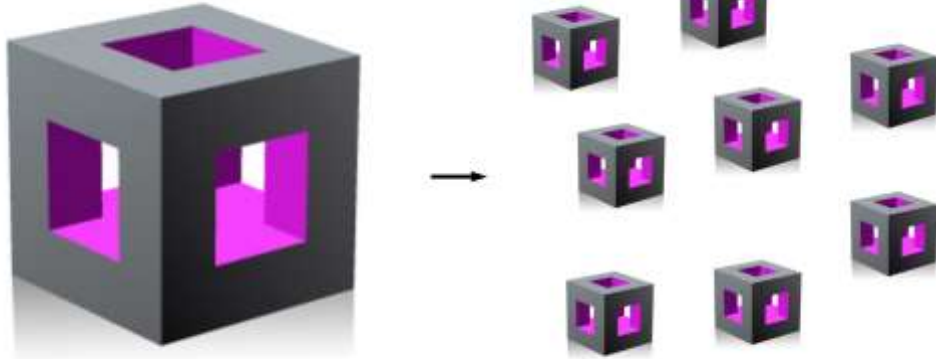
Letter to santa

- Incremental Changes
 - Event driven Architecture
 - Microserices
 - ...
- Shorter Cycle
 - Continuous Delivery
 - Embracing DevOps Culture
 - ...



New platform

- 30 microservices
- Event driven
- CD
- Contract testing
- ...



Icons by Freepik

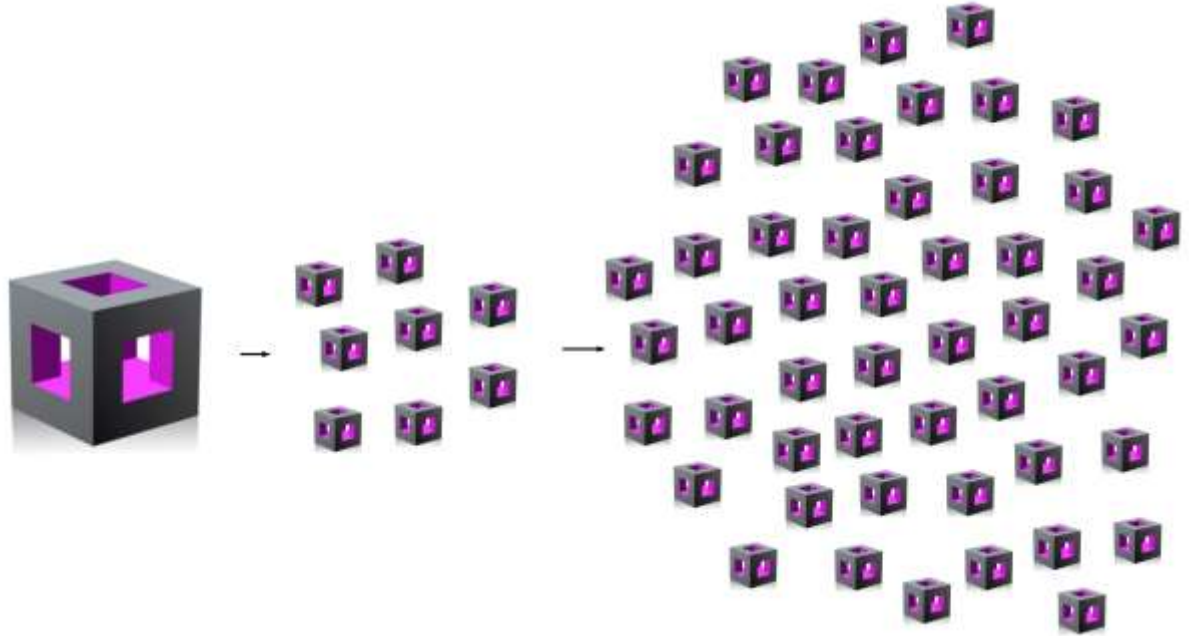
The honeymoon



1 year later...

The platform has grown big!

- 100+ microservices
- Lots of new tech
- Lots of devs
- Lots of changes
- ...



Icons by Freepik

New problem



Degradation

A white ceramic coffee cup with a saucer, filled with coffee, set against a blue background. The cup has a textured, fibrous sleeve around its body. The text "Beyond the coffee cup" is written on a white banner across the cup.

Beyond the coffee cup

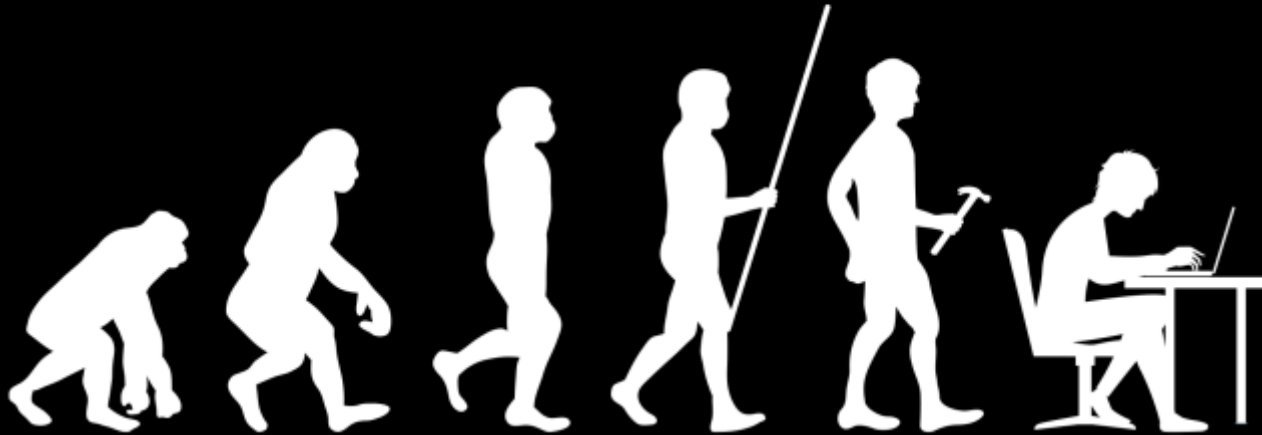
We didn't see it coming
We need to see

Hypothesis

- If we know what to measure
- And how to do it
- We can compare

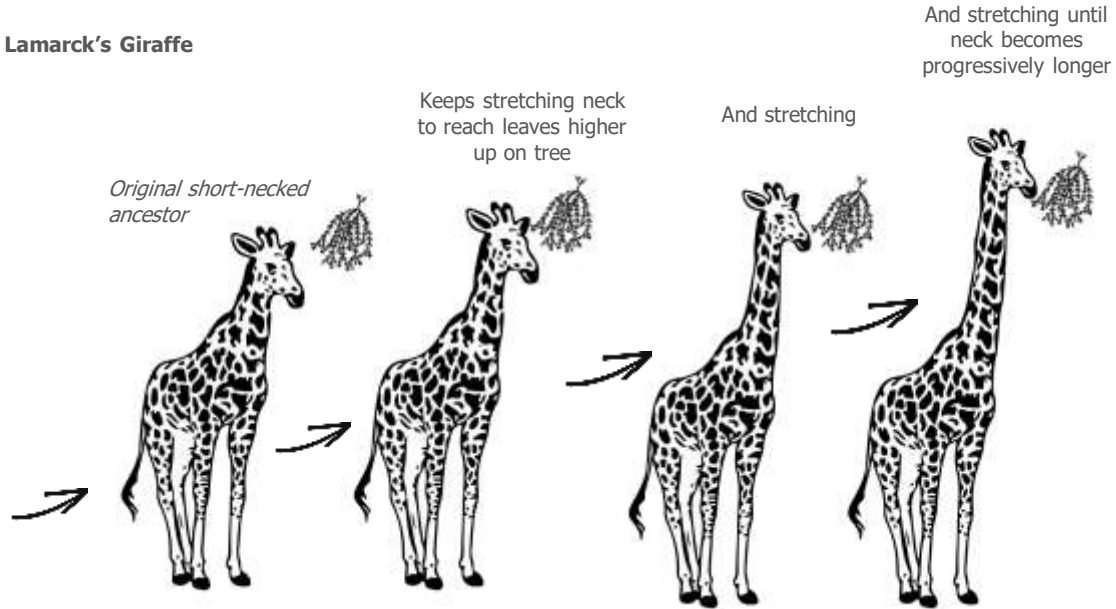
All Architectures need to change

Evolutionary Architectures evolve



Survival of the fittest

Lamarck's Giraffe



What's an evolutionary architecture?

"An evolutionary architecture supports guided, incremental change across multiple dimensions."

*Building Evolutionary Architectures
2017 O'Reilly
Ford, Parsons, Kua*

Hypothesis: revisited

- What are going to measure?
- How are we going to measure it?
- What are going to do with that data?

Architectural dimensions

- Maintainability
- Auditability
- Security
- ...

} ***-ilities***

Our *-ilities*

The Workshop's architecture principles:

- Resilience
- Consistency
- Simplicity
- Efficiency
- Observability
- Technology Independence
- Security
- Disposability

Fitness functions

A metric about some relevant
aspect of your architecture

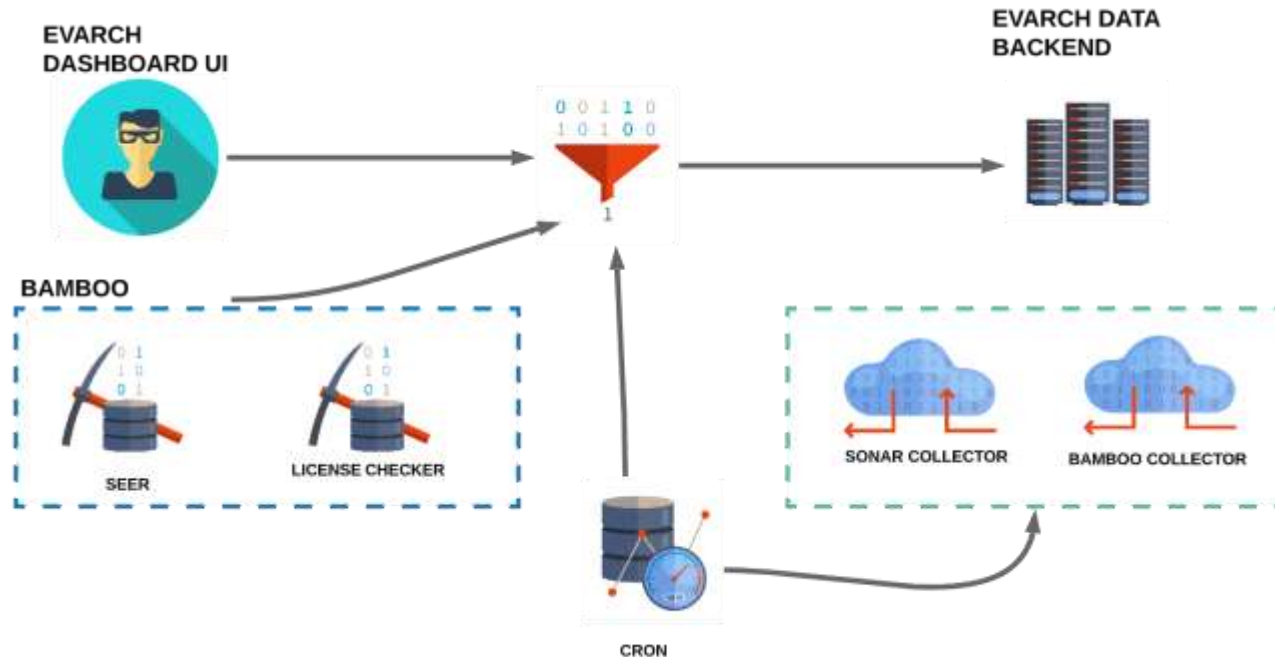
Our Architectural dimensions

	Load Test	Compl exity	Duplica tion Density	Average # of code committed	% entypoin ts intrument ented	Vulnerabi lities	Coverage	Code smells	Latent objects	Build & deploy Time	#licences Open Source
Resilience	✓										
Simplicity		✓	✓	✓							
Observability					✓						
Security						✓					
Disposability			✓				✓				
Consistency			✓					✓	✓		
Efficiency	✓									✓	
Tech Ind.											✓

Tools we reviewed

- Hygieia
- ArchUnit
- Sonar
- ...

The product



Icons by Freepik

It's demo time!

Fitness Functions (new features)

	Server Patching	OWASP violations	Contract testing coverage	Entrypoint naming	Artifact naming	Deviation from standard stack	Web Perf.	HA	Auto scaling	Data Quality	Simian Army
Resilience								✗	✗		✗
Simplicity											
Observability											
Security	✗	✗									
Disposability			✗								✗
Consistency				✗	✗	✗		✗	✗		✗
Efficiency							✗				
Tech Ind.											

Conclusions

- No change is bad

Yes change is good

Too many changes... it depends

- Evolutionary Architectures prevent degradation
- It's not easy

We believe...

evolutionary architectures
will be to architects
as unit tests are to developers

Cyberconflict: A new era of war, sabotage, and fear

See passes & pricing

David Sanger (The New York Times)
9:55am - 10:10am Wednesday, March 27, 2019
Location: Ballroom

 Add to Your Schedule
 Add Comment or Question

[Secondary topics](#) [Security and Privacy](#)

Rate This Session

We're living in a new era of constant sabotage, misinformation, and fear, in which everyone is a target, and you're often the collateral damage in a growing conflict among states. From crippling infrastructure to sowing discord and doubt, cyber is now the weapon of choice for democracies, dictators, and terrorists.

David Sanger explains how the rise of cyberweapons has transformed geopolitics like nothing since the invention of the atomic bomb. Moving from the White House Situation Room to the dens of Chinese, Russian, North Korean, and Iranian hackers to the boardrooms of Silicon Valley, David reveals a world coming face-to-face with the perils of technological revolution—a conflict that the United States helped start when it began using cyberweapons against Iranian nuclear plants and North Korean missile launches. But now we find ourselves in a conflict we're uncertain how to control, as our adversaries exploit vulnerabilities in our hyperconnected nation and we struggle to figure out how to deter these complex, short-of-war attacks.

David Sanger
The New York Times



David E. Sanger is the national security correspondent for the *New York Times* as well as a national security and political contributor for CNN and a frequent guest on CBS *This Morning*, *Face the Nation*, and many PBS shows.

✓ **Attending** Notes Remove

Cyberconflict: A new era of war, sabotage, and fear

9:55 AM - 10:10 AM, Wed, Mar 27, 2019

Speakers

 **David Sanger**
National Security Correspondent
The New York Times

📍 Ballroom

Keynotes

David Sanger explains how the rise of cyberweapons has transformed geopolitics like nothing since the invention of the atomic bomb. From crippling infrastructure to sowing discord and doubt, cyber is now the weapon of choice for democracies, dictators, and terrorists.

 **SESSION EVALUATION**

Any questions?

Thank you!

Antonio Jiménez González



<https://es.linkedin.com/in/ayimgo>



<http://www.twitter.com/ayimgo>

Pedro Javier Martos Velasco



<https://www.linkedin.com/in/pjmartos>



<http://www.twitter.com/pjmartos>



<https://onerandomdev.com>