

kapten_

Javascript at scale

About me_



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github.com/ChauffeurPrive



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kapten_



Agenda

Kapten_01

Origins_02

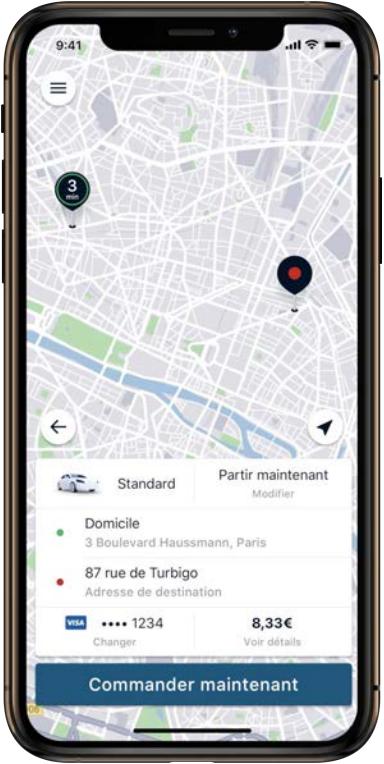
Scaling_03

kapten_



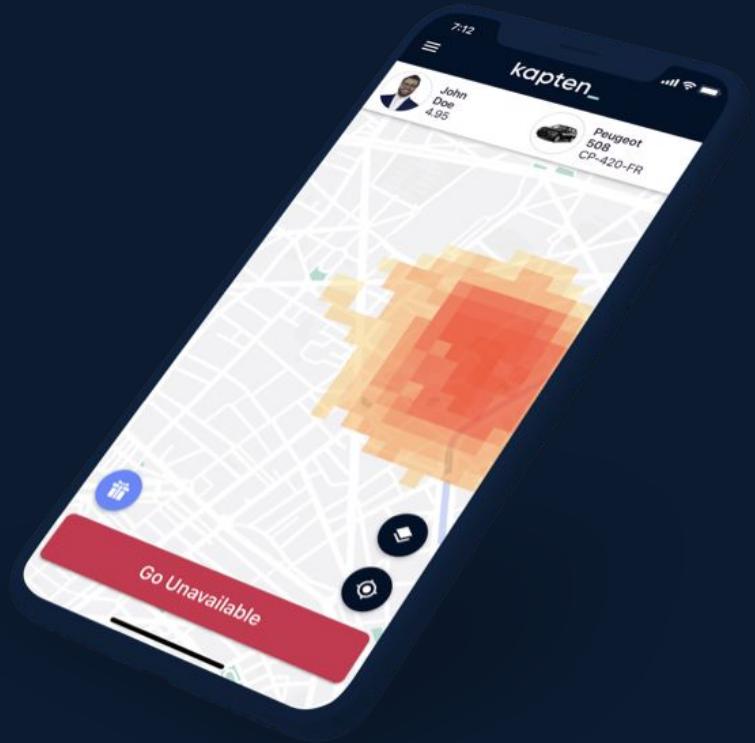
Kapten_

Kapten_History



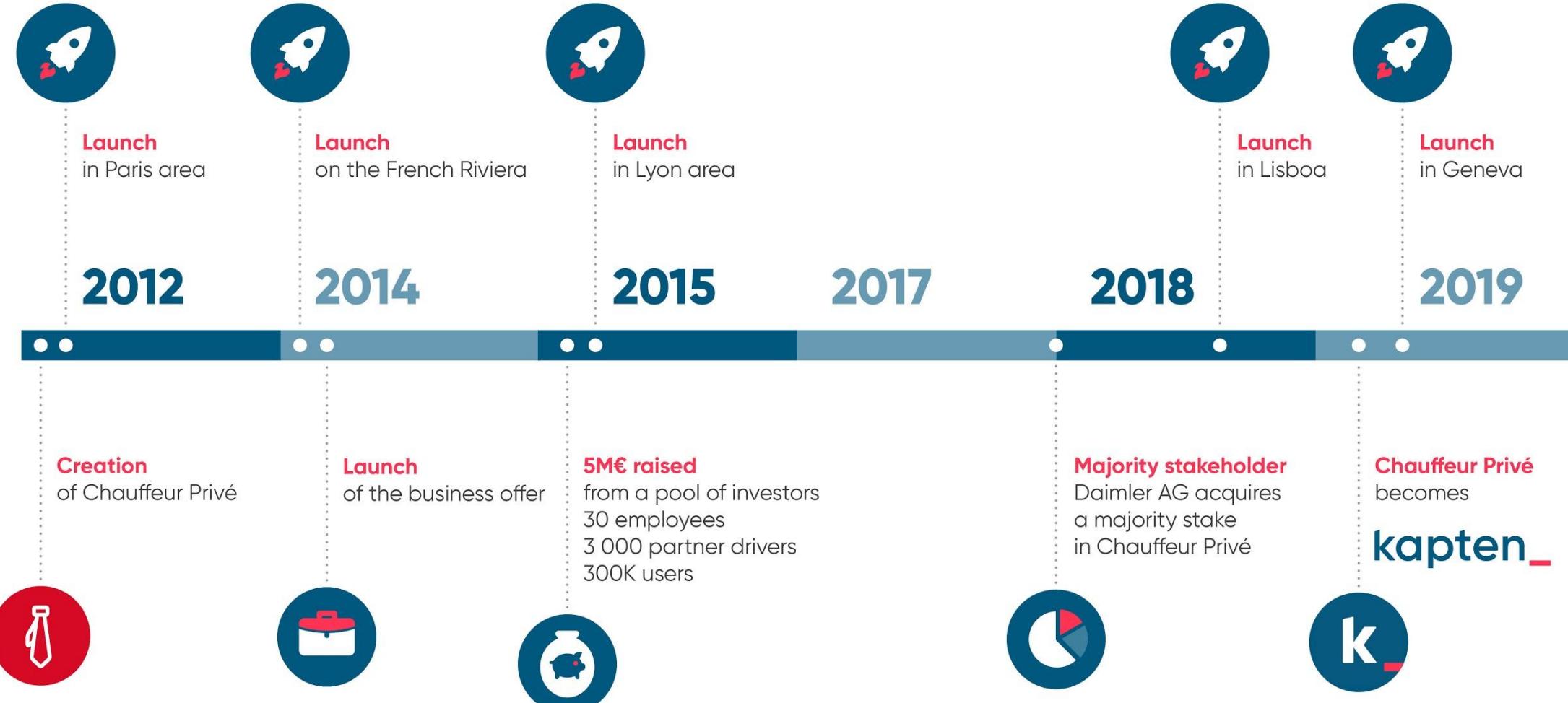
Passenger_

kapten_

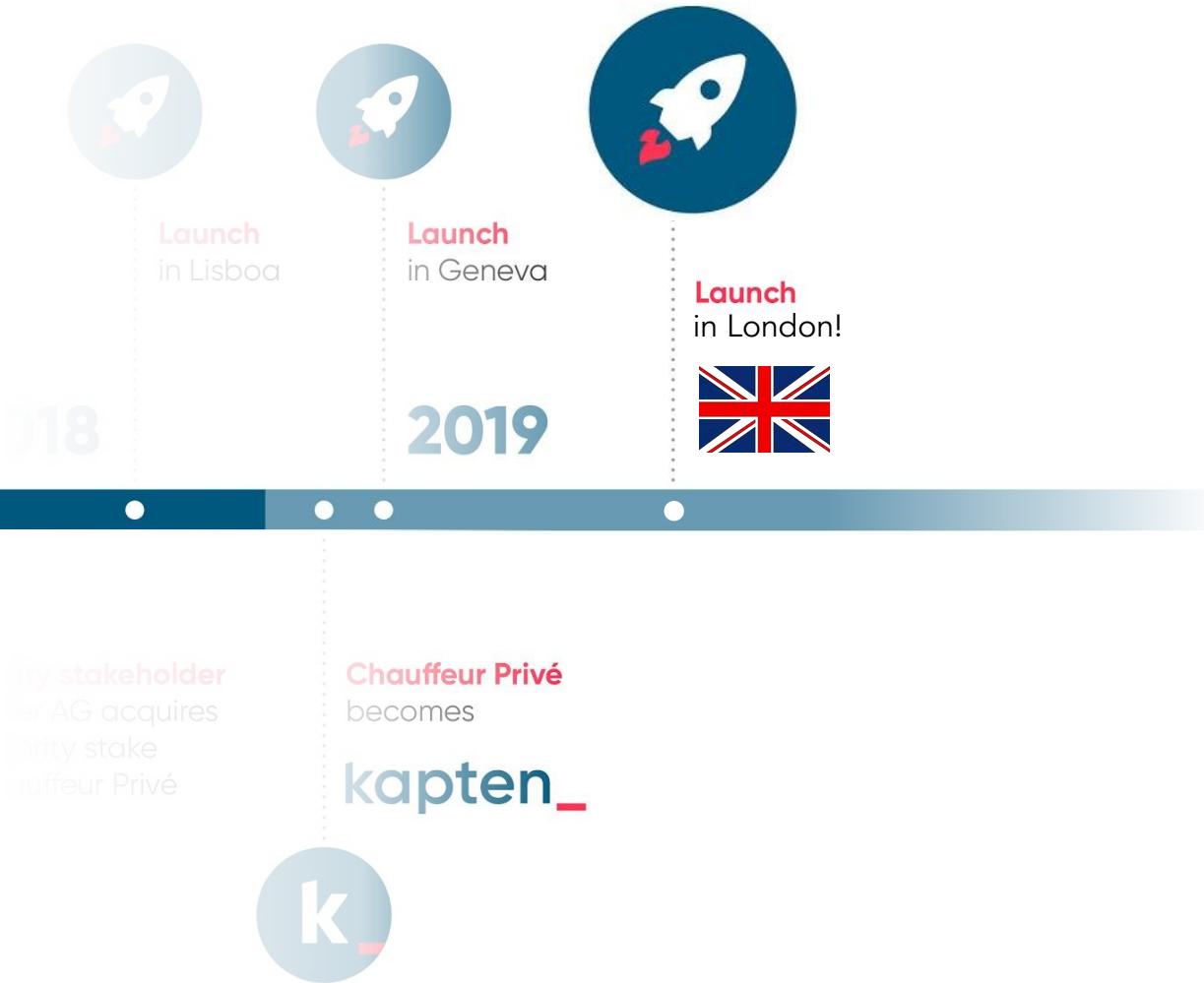


Driver_

Kapten_History



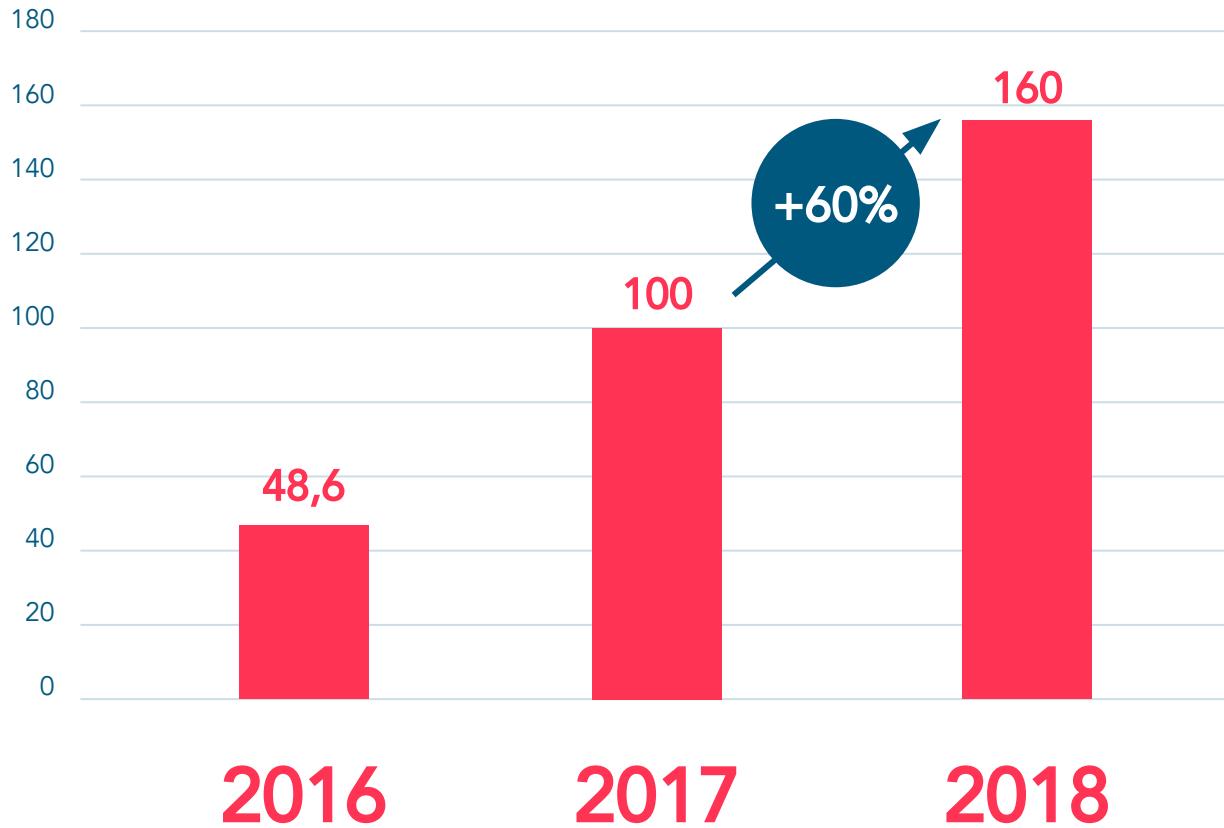
Kapten_History



1 billion \$ business



Revenue 2016 – 2017 – 2018



"8000 % growth between 2013 and 2016."

Les Echos ENTREPRENEURS

« Champions de la Croissance 2018 » : Chauffeur Privé pied au plancher

LIONEL STEINMANN | Le 13/02/2018 à 07:00 |

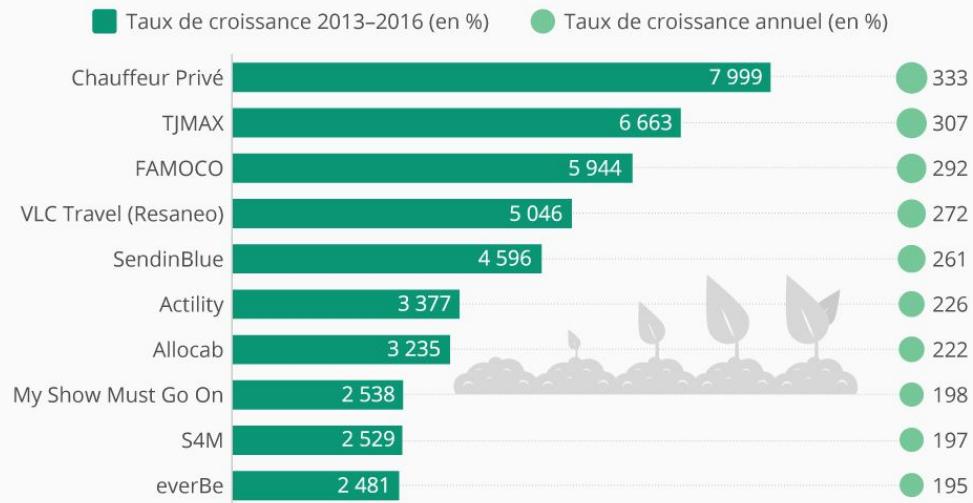


LES CHAMPIONS DE LA CROISSANCE 2018

En collaboration avec statista

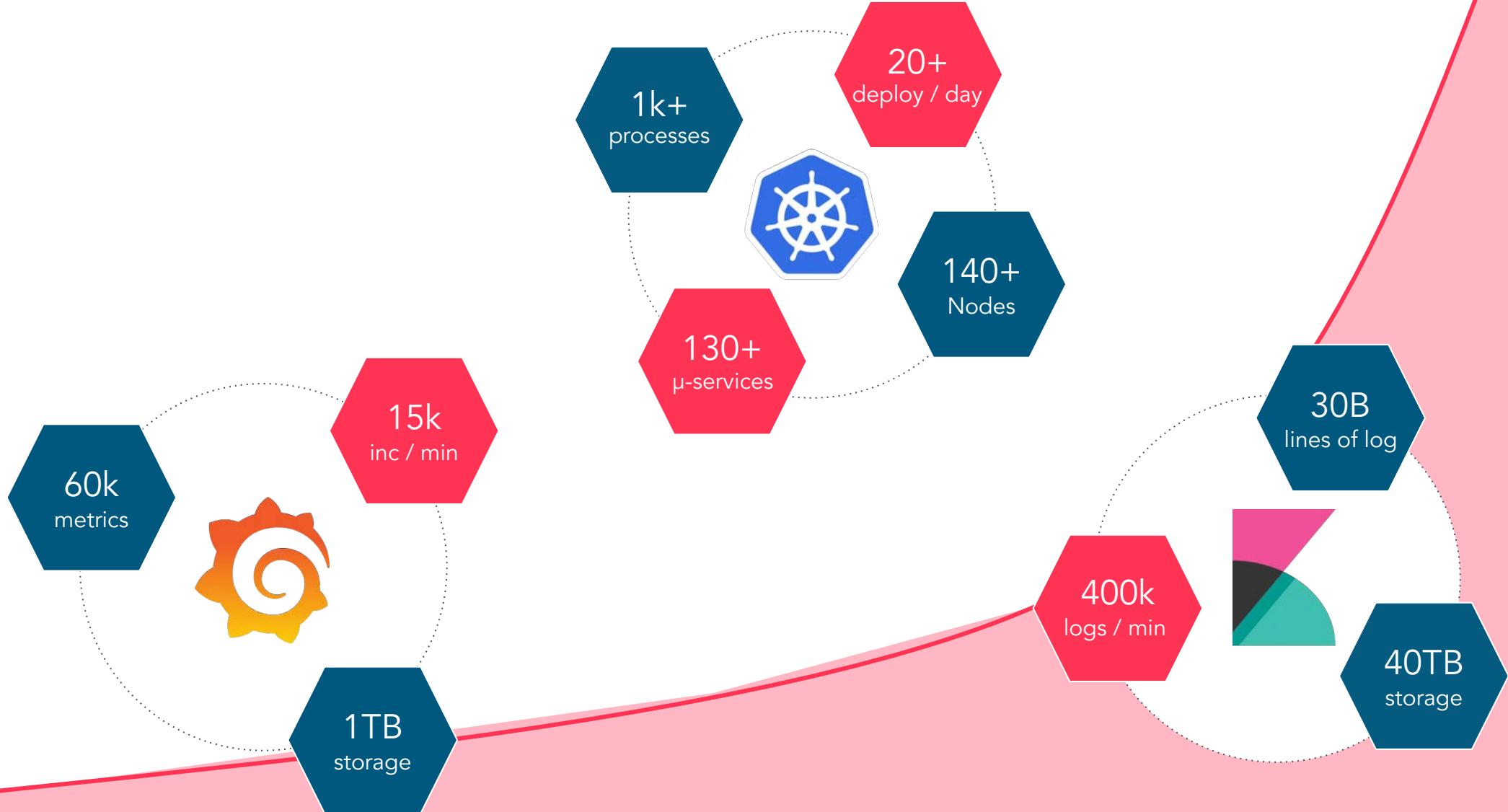
Le Top 10 des Champions de la Croissance 2018

Entreprises françaises avec le plus fort taux de croissance



Source : Les Echos / Statista
"Les Champions de la Croissance 2018"

Les Echos statista



Origins_

Origins_Team growth



2012

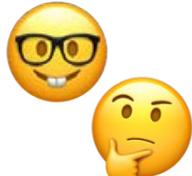
2013

2014

time



1 hero



2 heroes



1 team

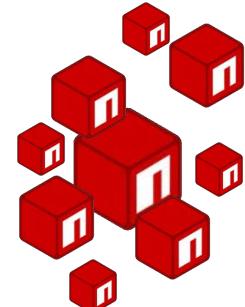
01. Unconfident production

- a. No log nor metric



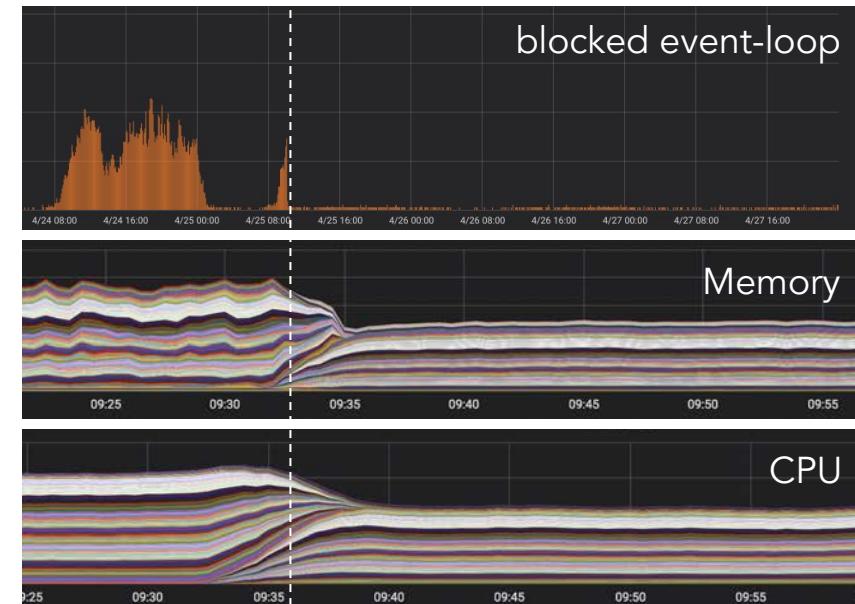
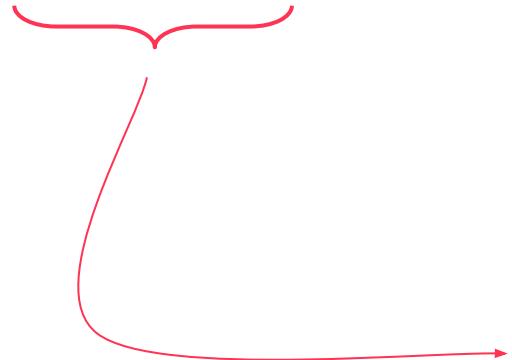
02. Unconfident releases

- a. Dependencies: quantity, no pin nor lock



03. Performances

- a. Event-loop blocked → /heartbeat ? 
- b. V8 optimization killers → try / catch
- c. Loops in the loop → $O(1)$ → $O(n)$ → $O(n^2)$ → 
- d. Not the latest version of Node.js



Upgrade to Node 10

04. Sorcery

a. Race conditions

```
const common = require('hcommon');

let user;
let ride;
common.step([
  (next) => findUser(next),
  (_user, next) => {
    user = _user;
    findRide(user, next);
  }
  (_ride, next) => {
    ride = _ride,
    cancel(ride, next);
  }
])
```



b. Zombies



```
(node:27177) UnhandledPromiseRejectionWarning: Unhandled promise rejection (rejection id: 1): Error: Error
```

05. Local

```
if (address.includes('Paris')) {  
    // ...  
}
```

Paris only

```
function applyTimeBasedLogic(date) {  
    // UTC or locale date?  
}
```

Timezone

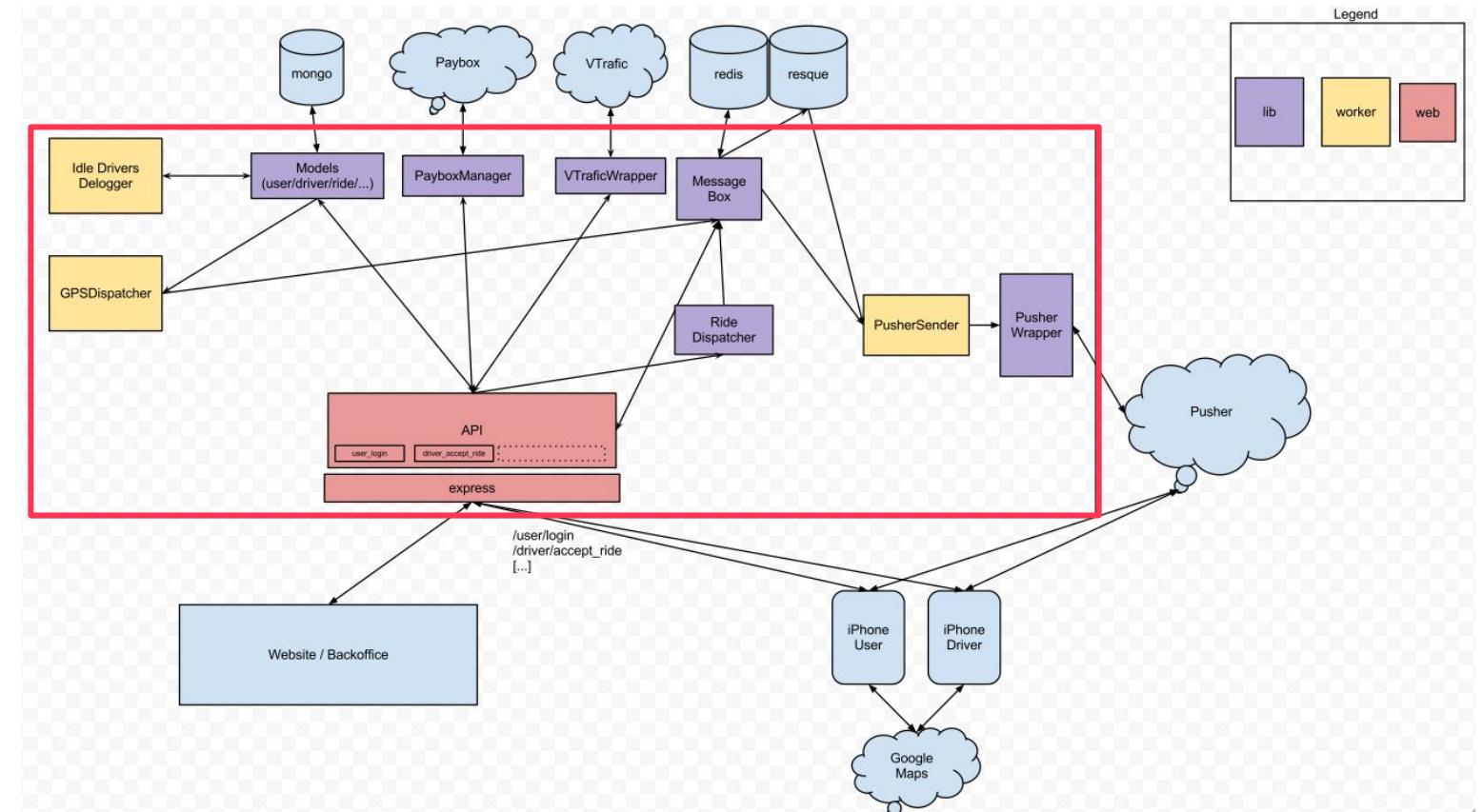
```
const amount = 20.12; // EUR ?
```

Currency

Labels → Internationalization (i18n) → Localization (l10)



06. Monolith



Scaling_

00. Scaling for what?

- a. Deliver **features** to more and more customers
- b. Reduce Tech stack **complexity**
- c. Make the platform **scalable**



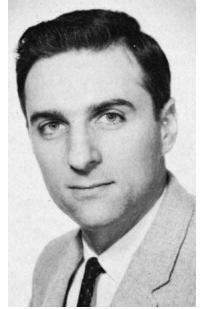
Scaling_Team

Scaling_Organization

k

The basic thesis of this article is that organizations which design systems (in the broad sense used here) are constrained to produce designs which are copies of the communication structures of these organizations.

Dr. Conway



Early age at Kapten



Tribes and squads

Kapten Style Guide

The purpose of this project is to give an overall reference of coding conventions, style guides and tips ; in most of the technologies we are using at work.

- Overall
 - Twelve-Factor App
 - American English
 - Dates
 - Currencies
 - Locales
 - Referencing the identity-provider `_id`
 - Examples
- Operations
- Environment variables
- Security
- Architecture
- RESTful API
- Node.js
- Go
- Python
- MongoDB
- PostgreSQL
- Android
- Swift / iOS
- React / React Native
- Resources



Dates

Dates are formatted in [ISO 8601](#).

Good	Bad
<code>2015-09-26T19:47:03+00:00</code>	<code>1443431933184</code>
<code>2015-09-26T19:47:03Z</code>	<code>Mon Sep 28 2015 11:18:53</code>

 MohamedJeffal	Merge pull request #26 from transcovo/TRAN-27709_worker	...	Latest commit <code>3a1d0e1</code> on Dec 31, 2018
 .chassis	TECH Adding Seeds, a debug route and first API routes	6 months ago	
 .circleci	TRAN-27709 - feat(run queue): Implemeting worker + instances polling	4 months ago	 
 .github	TECH Initialized Node.js project with MongoDb and OpenAPI	7 months ago	
 docs	TECH Fixing models and tests	6 months ago	  
 examples	TECH - review: Generalizing scenario template + executing steps in order	5 months ago	
 gatling	TECH Allow any scenario to call the save session instruction	5 months ago	
 reports	TECH Adding reports directory	7 months ago	
 src	TRAN-27709 - feat(run queue): Implemeting worker + instances polling	4 months ago	
 test	TRAN-27709 - feat(run queue): Implemeting worker + instances polling	4 months ago	
 .dockerignore	TECH Initialized Node.js project with MongoDb and OpenAPI	7 months ago	
 .esdoc.json	TECH Initialized Node.js project with MongoDb and OpenAPI	7 months ago	

Scaling_Knowledge



#peer-review

randomized pairs, 3x / week,
codeowners



#stand-up

 5:26 PM

hi there, there are some free seats at the ab test mentoring next monday 2-3pm.
. You are more than welcome. Come and see how an abtest is actually coded in
the platform !
hands on guaranteed !!

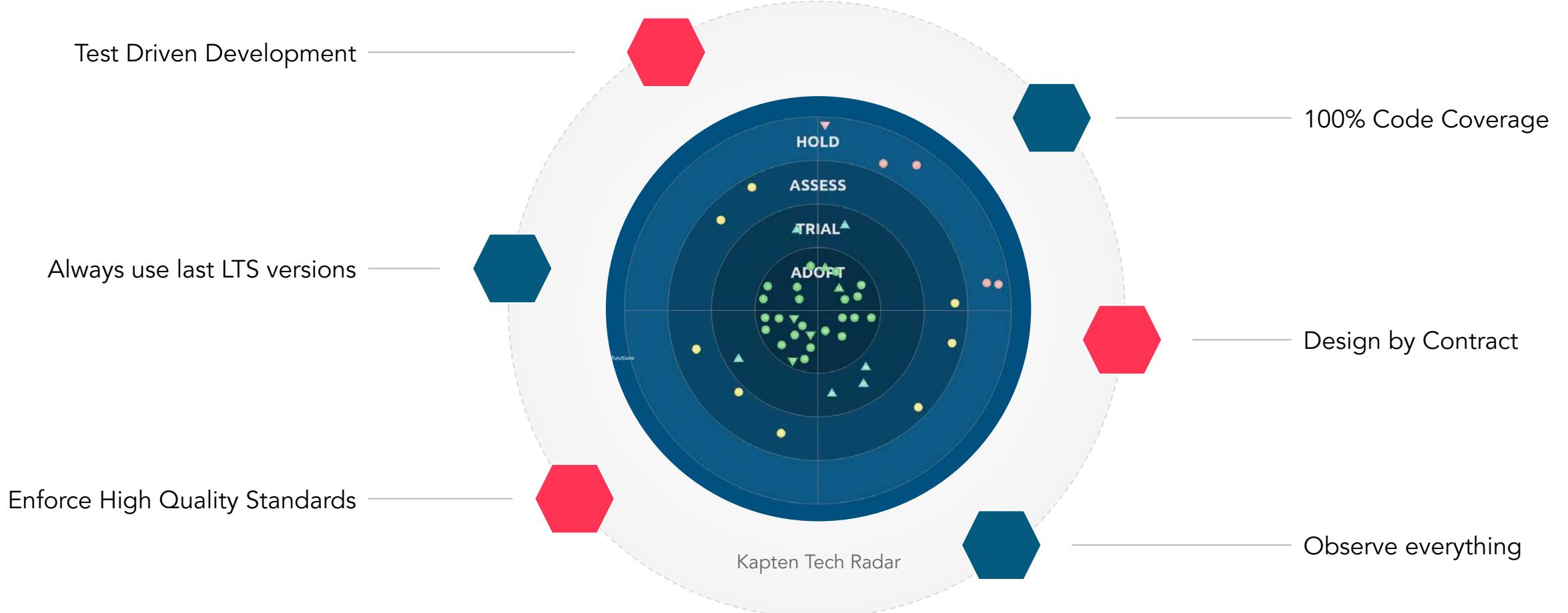
#mentoring

Scaling_Stack

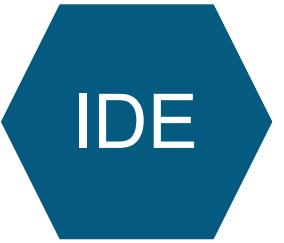
"The cost of each error increases indefinitely"

	Function_	How_	What_	Cost_
#1	Logger → chpr-logger	JSON format for ELK ingestion	- Application logs - Level \geq INFO in Production	- Format = Nothing - Content = Medium - IDs = High
#2	Metrics → chpr-metrics	statsd, Prometheus, ...	- Functional metrics	- Nothing
#3	Tracing	jaeger, stackdriver, elastic, ...	- Tracing ID per Request	- Medium
#4	APM → chpr-apm	keymetrics, elastic, ...	- Blocked Event-Loop - CPU - Memory	- High
#5	Golden metrics (SRE)	Istio, middlewares, ...	- Traffic - Latency - Errors - Saturation	- High

Scaling_Best practices

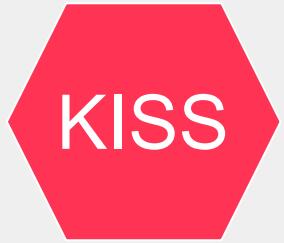


Scaling Productivity



Be the Master

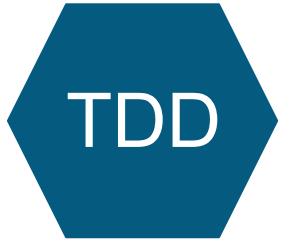
linter, TDD, complexity,
auto documentation,
refactoring



Code for humans

Small functions, code for
humans, fail fast, reduce
fallbacks, explicit over
implicit

Scaling_Testing

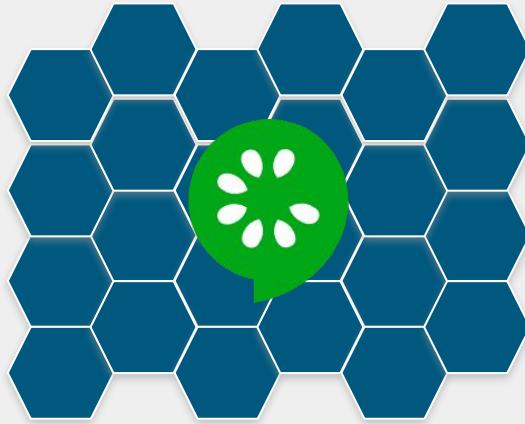


Remove variability
in tests

clean before test, sort
before asserting, no
dynamic date, use
sandboxes, ...



Unit Test



e2e Test



2 UNIT TESTS, 0 INTEGRATION TESTS

```
@app-handshake @login
Feature: Login
  As a Chauffeur Privé user
  I want to login
  In order to access my preferred services

Background:
  Given a user navigating to the page "https://welcom

Scenario: Login with email address and password
  Given I am a valid Chauffeur Privé account
  When I enter my personal login and password
  And click on the main login button
  Then I must be successfully authenticated
  And redirected to "https://app.kapten.com/commander"
```

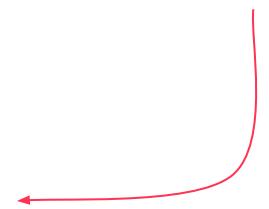
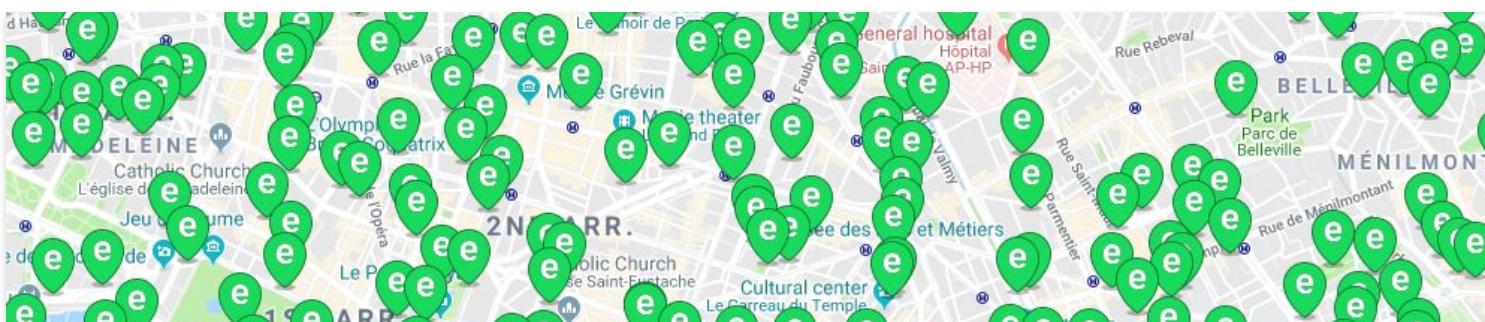
Scaling_Performances



Load Tests: bots, stress, spike, endurance



Bots



Scaling_Architecture

Scaling_Architecture



Public traffic

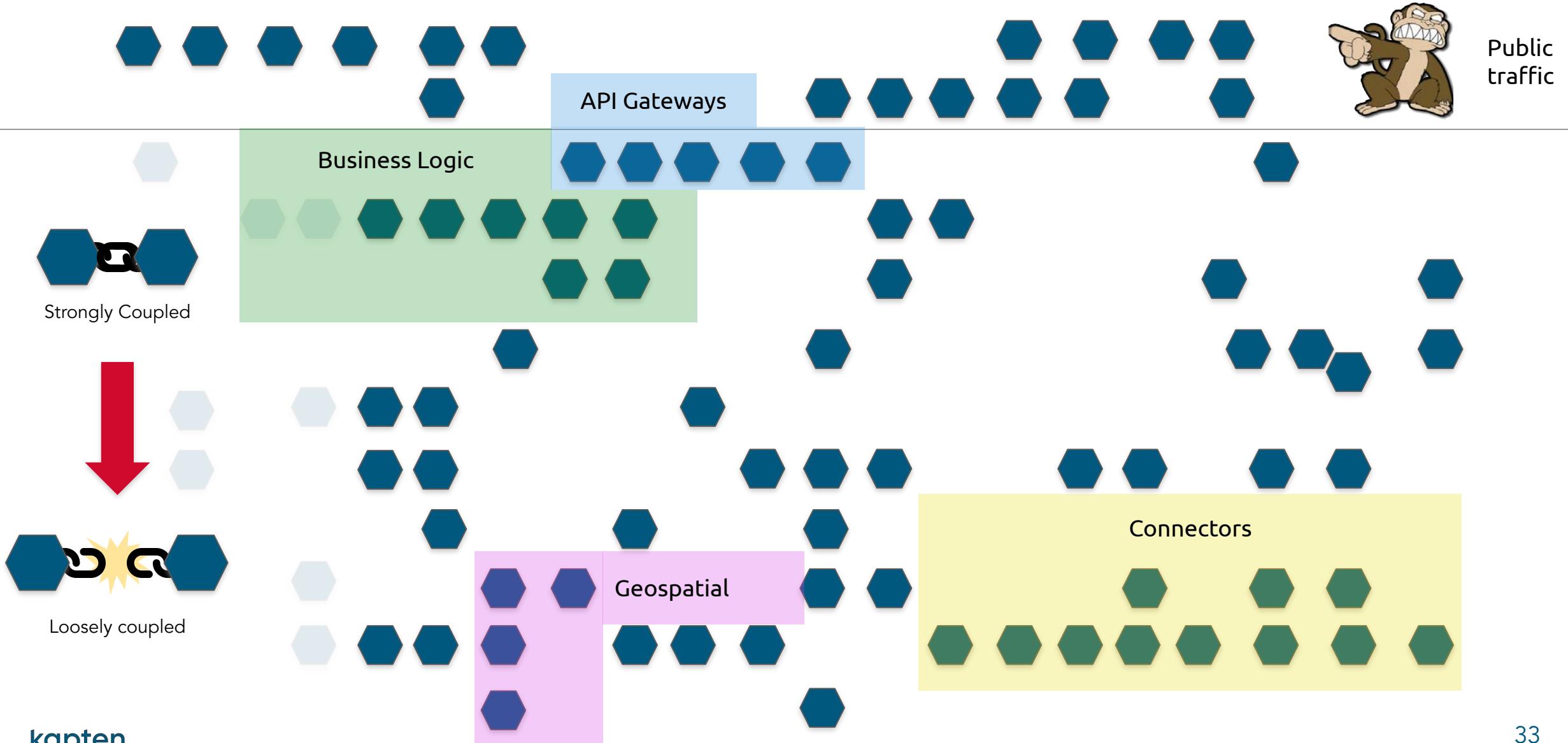
Strongly Coupled



Loosely coupled



Scaling_Architecture



Scaling_Architecture



Public traffic

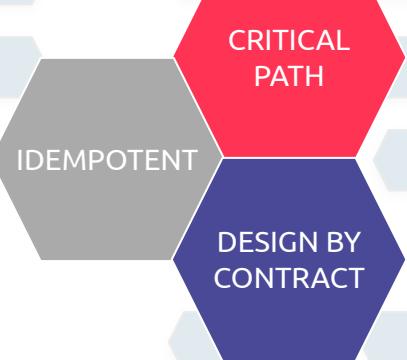


Business Logic

API Gateways

ASYNC
PROCESSING

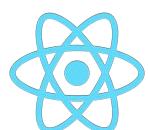
EVENT
DRIVEN



Geospatial

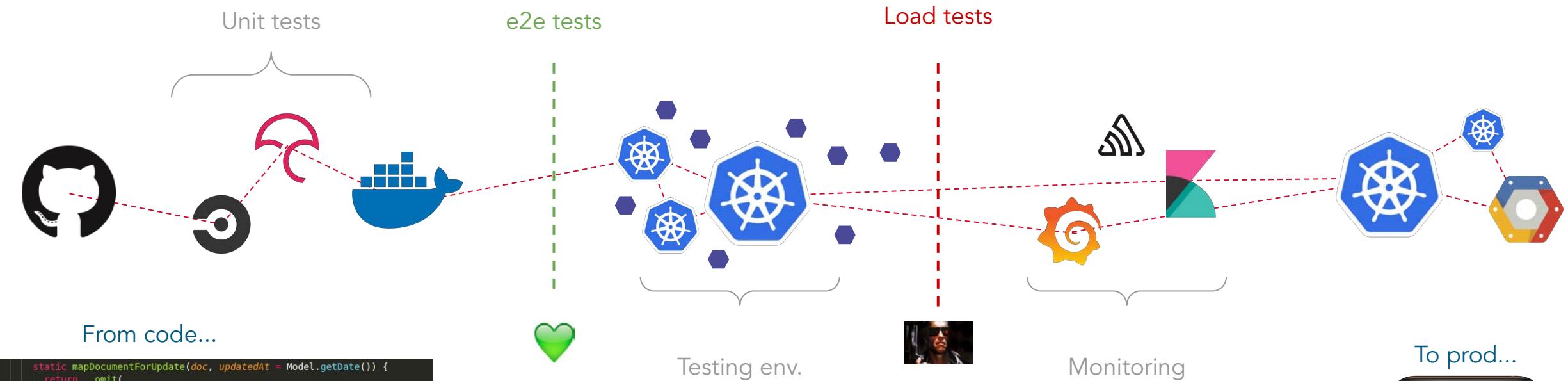
Connectors

“Invest your time on what has value: business logic”



Scaling _ Deployment

Scaling Deployment with nestor



```
23 static mapDocumentForUpdate(doc, updatedAt = Model.getDate()) {
24     return _.omit(
25         {
26             ...doc,
27             updated_at: updatedAt,
28         },
29         '_id',
30     );
31 }
32
33 static mapDocumentForInsert(doc) {
34     const createdAt = Model.getDate();
35     return Model.mapDocumentForUpdate(
36         {
37             ...doc,
38             created_at: createdAt,
39         },
40         createdAt,
41     );
42 }
43
44 static collection(mongodb) {
45     return mongodb.db(def.DATABASE).collection(def.COLLECTION);
46 }
47
48 static findMany(mongodb, query) {
49     return Model.collection(mongodb).find(query);
50 }
51
52 static findOne(mongodb, query, fieldsOrOptions) {
53     return Model.collection(mongodb).findOne(query, fieldsOrOptions);
54 }
```

```
$ chassis enshrine app ~/dev/app node
$ nestor deploy staging app
```

...in minutes with
nestor !

Scaling Infrastructure

01. Kubernetes road



k8s migration checklist_

- #1 Update deployment toolchain
- #2 Dockerize each service
- #3 Replace testing environments
- #4 Update metrics & monitoring
- #5 Perform integration tests
- #6 Perform load tests
- #7 Migrate workers
- #8 Migrate HTTP flux progressively
- #9 Migration party

Done_



“With Great Power Comes Great Responsibility”

02. Rundeck

RUNDECK + nestor_

#tech-release-prod

☆ | 863 | 0 | Add a topic

RELEASE / production / 1.6.0-sha-329adda..1.6.0-sha-c2f1bd0
c2f1bd0
46e5532

RELEASE / production / 2.1.0-sha-db33ad6..2.1.0-sha-f7e6e14
f7e6e14

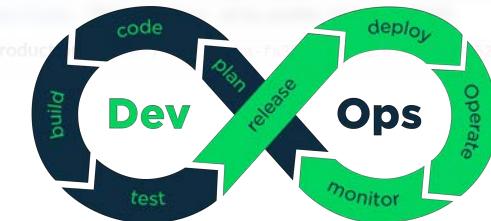
RELEASE / production / 2.1.0-sha-db33ad6..2.1.0-sha-f7e6e14
f7e6e14

RELEASE / production / 0.5.3-sha-6874e4dd..0.5.3-sha-fb98939b
fb98939b
ad378794
b34eb23a

RELEASE / production / 6.1.1-sha-a30c30d..6.1.1-sha-572ec05
572ec05

RELEASE / production / 0.2.0-sha-f1af4c7..0.2.0-sha-6b9153d
6b9153d
28a89b5
fc843f1

RELEASE / production / 1.0.0-sha-2787214..1.0.0-sha-8bc9c23
8bc9c23
51dac54
6d7d29e



Where are we _?

"Culture eats Strategy for Breakfast"

Peter Drucker

Language



Testing



Data-Driven



Resiliency



"Our teams are making the scaling, not the opposite"

kapten_

Thank you_!



Meet us on our stand if you want to talk
about Event-Sourcing ;) !



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[ChauffeurPrive](https://github.com/ChauffeurPrive)

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