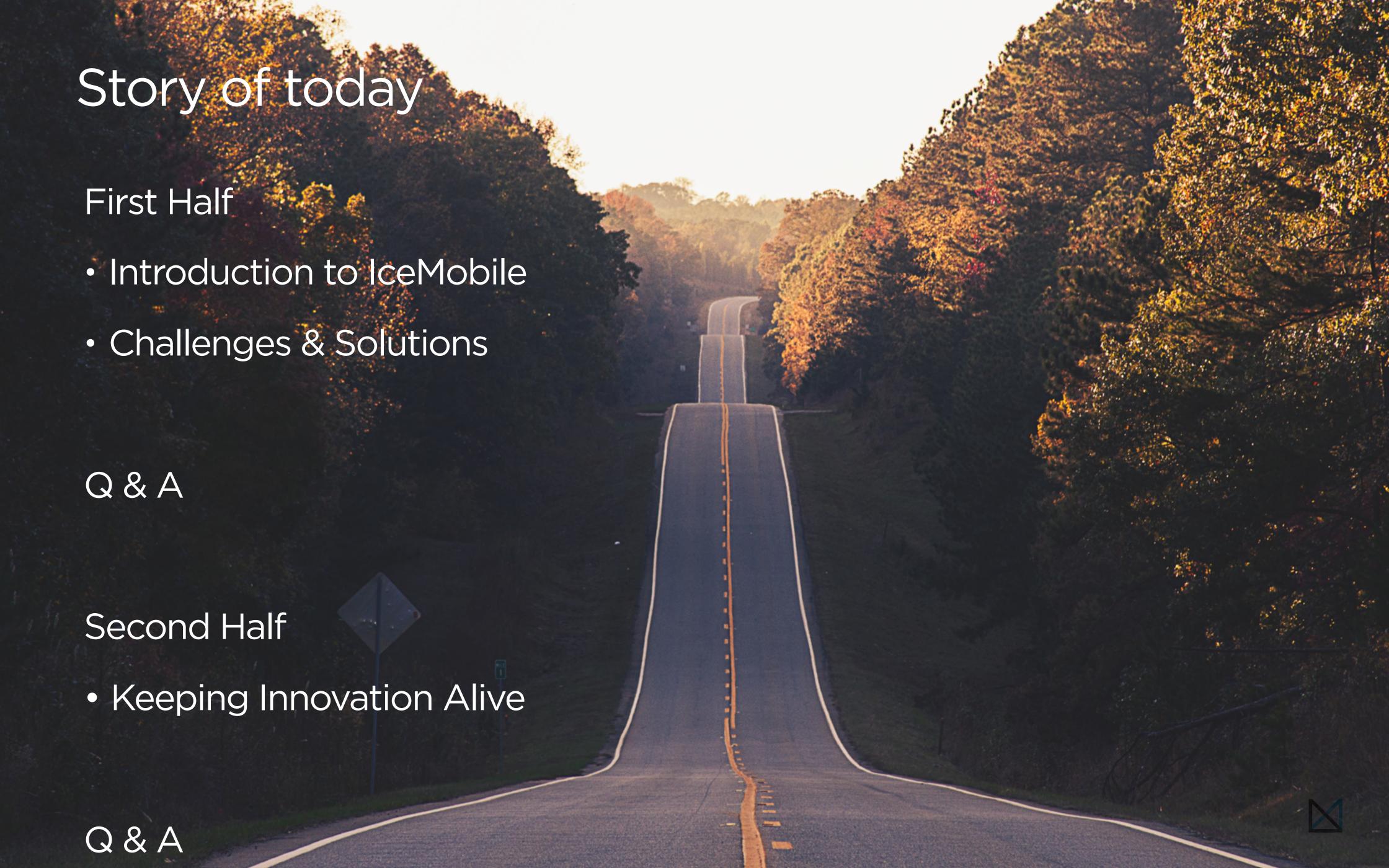
Finding a holy grail in a haystack

October 7, 2016

Marjana Shammi, Niels de Keijzer, Arturo Martinez





ICEMOBILE

Founded in 2002







BRİGHTSTAMPS



2009

2010

2012

2013

2014

last 3 years











Russia

Netherlands

<u>Alfamart</u>

Taiwan

Denmark

China

this year



Thailand

Indonesia



U.S.A.



Canada





Test tool stack

Tools we used in the past















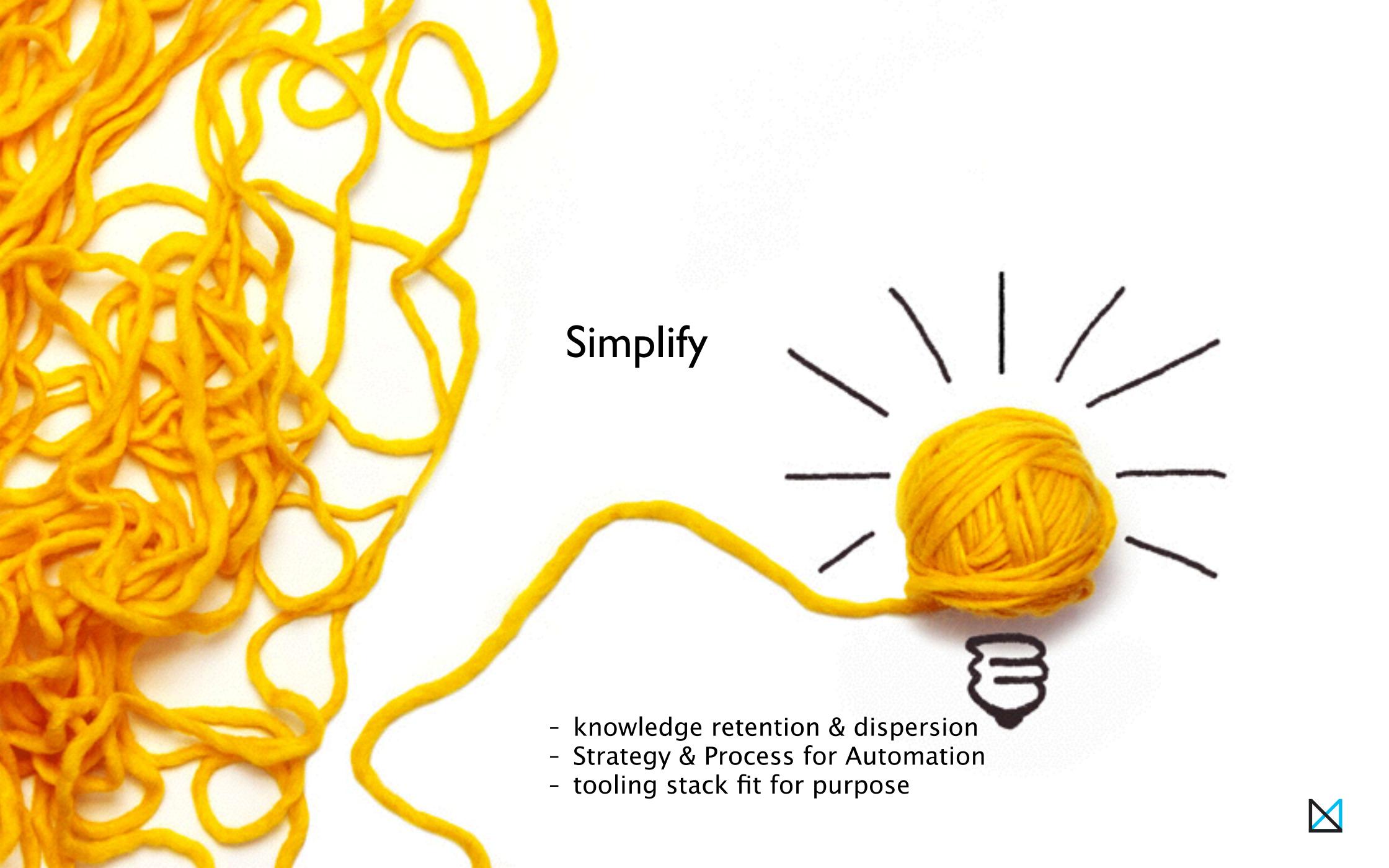




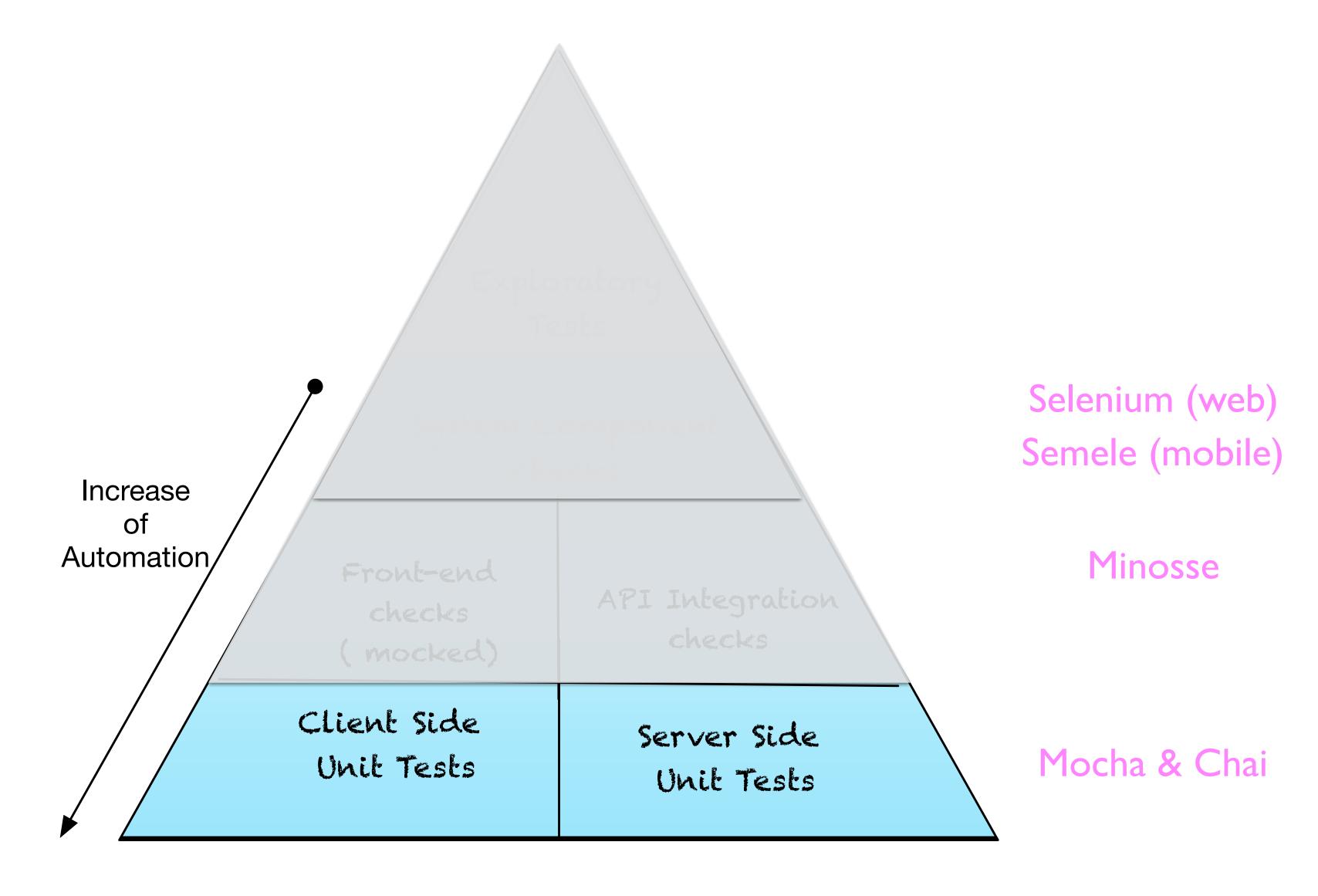
The new tester





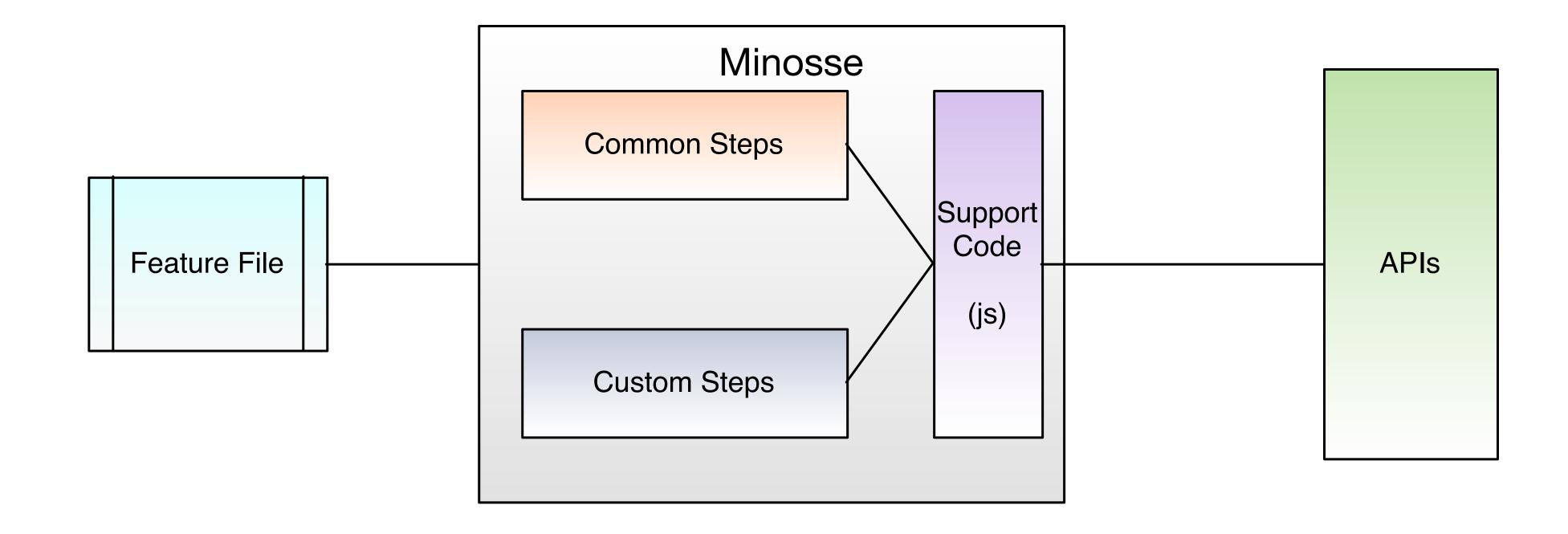


Automation Strategy





Minosse - API automated checks





https://github.com/icemobilelab/minosse

https://github.com/icemobilelab/gherkin-definitions



Mobile automation

Previous Struggles

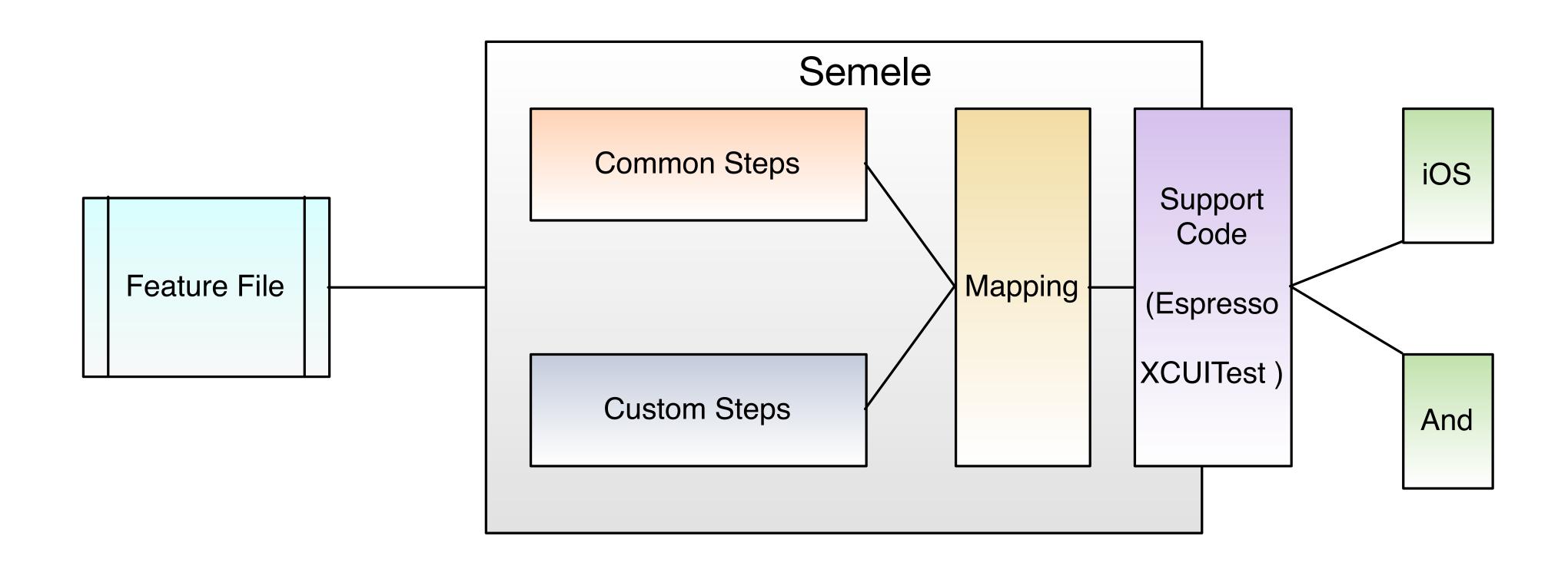
- Use of global names that needed to be duplicated to make work with both platforms.
- Appium asks for using accessibility labels that are not mandatory for iOS.
- App code needed to be modified to work with previous framework Teseo.
- Developers were frustrated to maintain and didn't.
- Appium updates were not too frequent 6 months or so.

Improve

- Revise
- Use Native Tooling
- More involvement of developers to keep code & automation consistent
- Keep a similar language convention
- Reduce dependency of external tooling
- Increase of performance runs

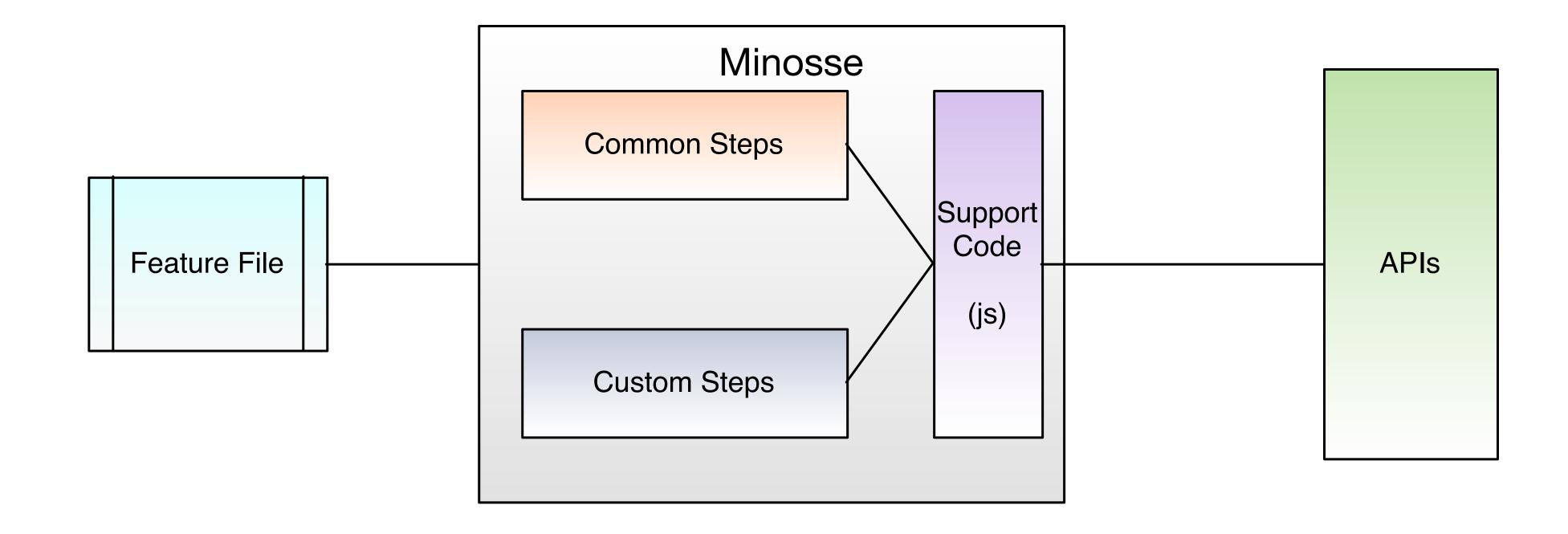


Semele - Mobile Automated checks





Minosse - API automated checks





https://github.com/icemobilelab/minosse

https://github.com/icemobilelab/gherkin-definitions

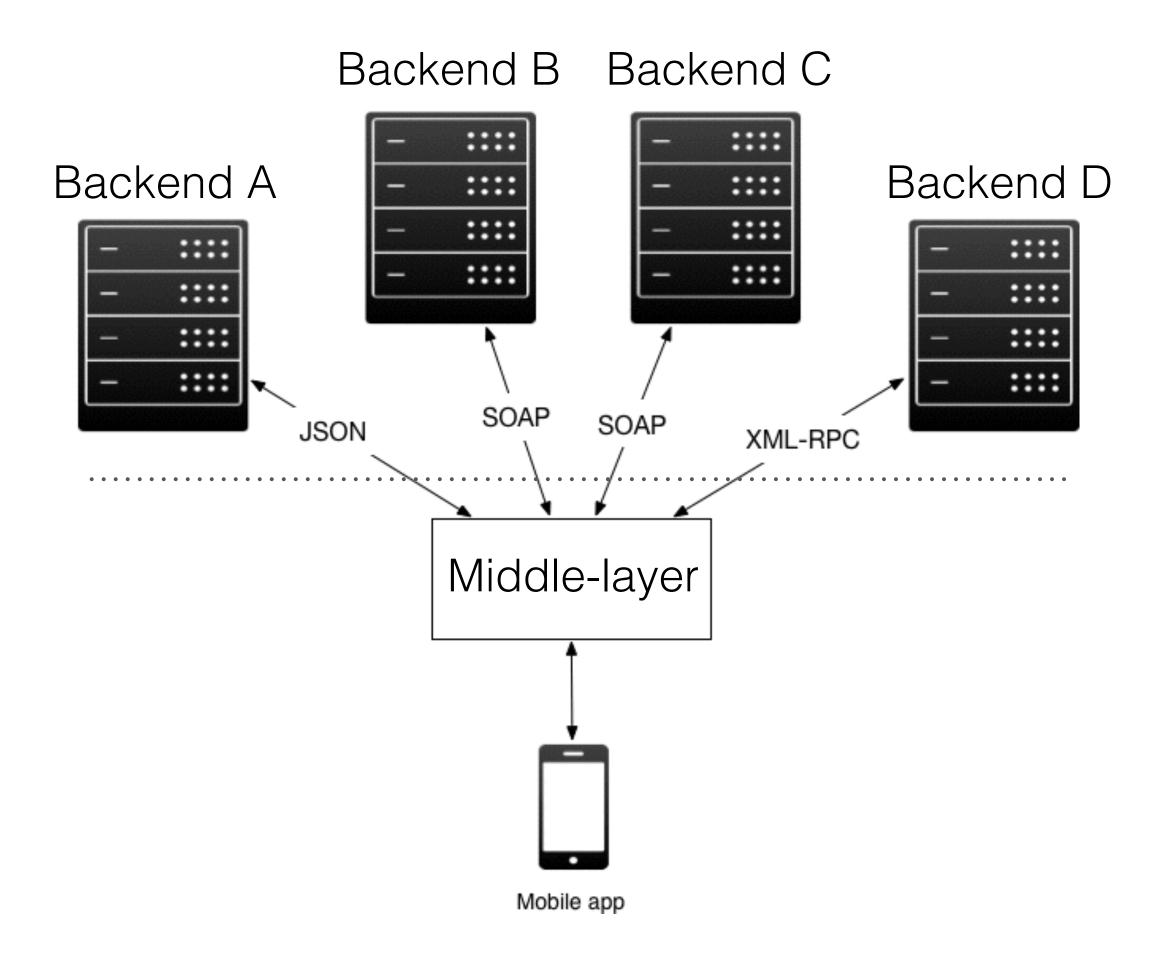


Monitos

A monkey test tool for a mobile app REST API

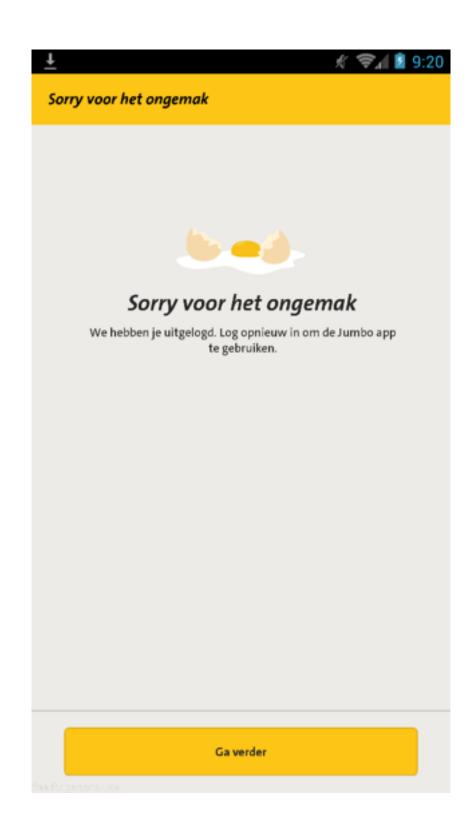


Mobile app landscape



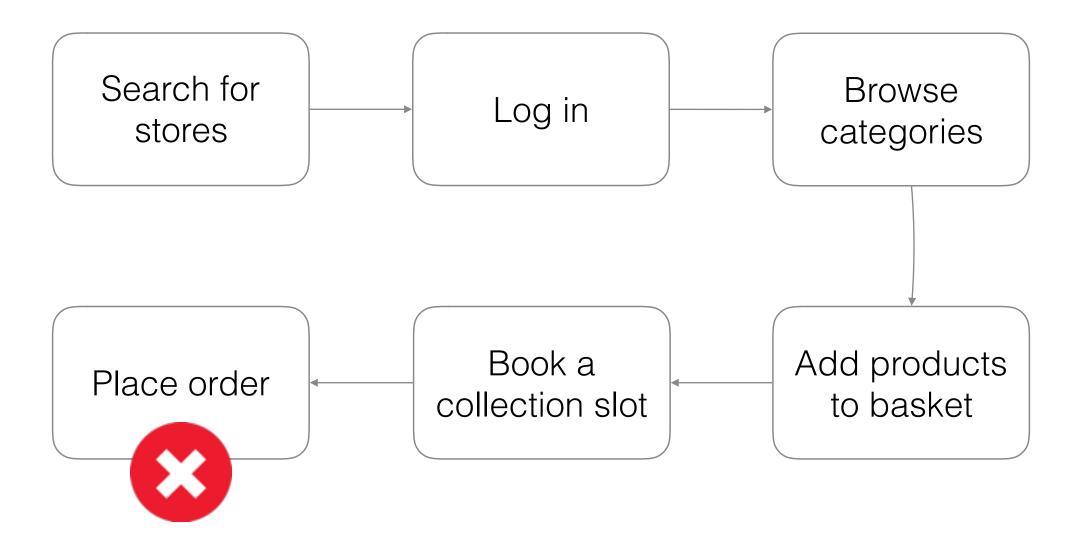


Oops





Steps to reproduce





Cowboy style

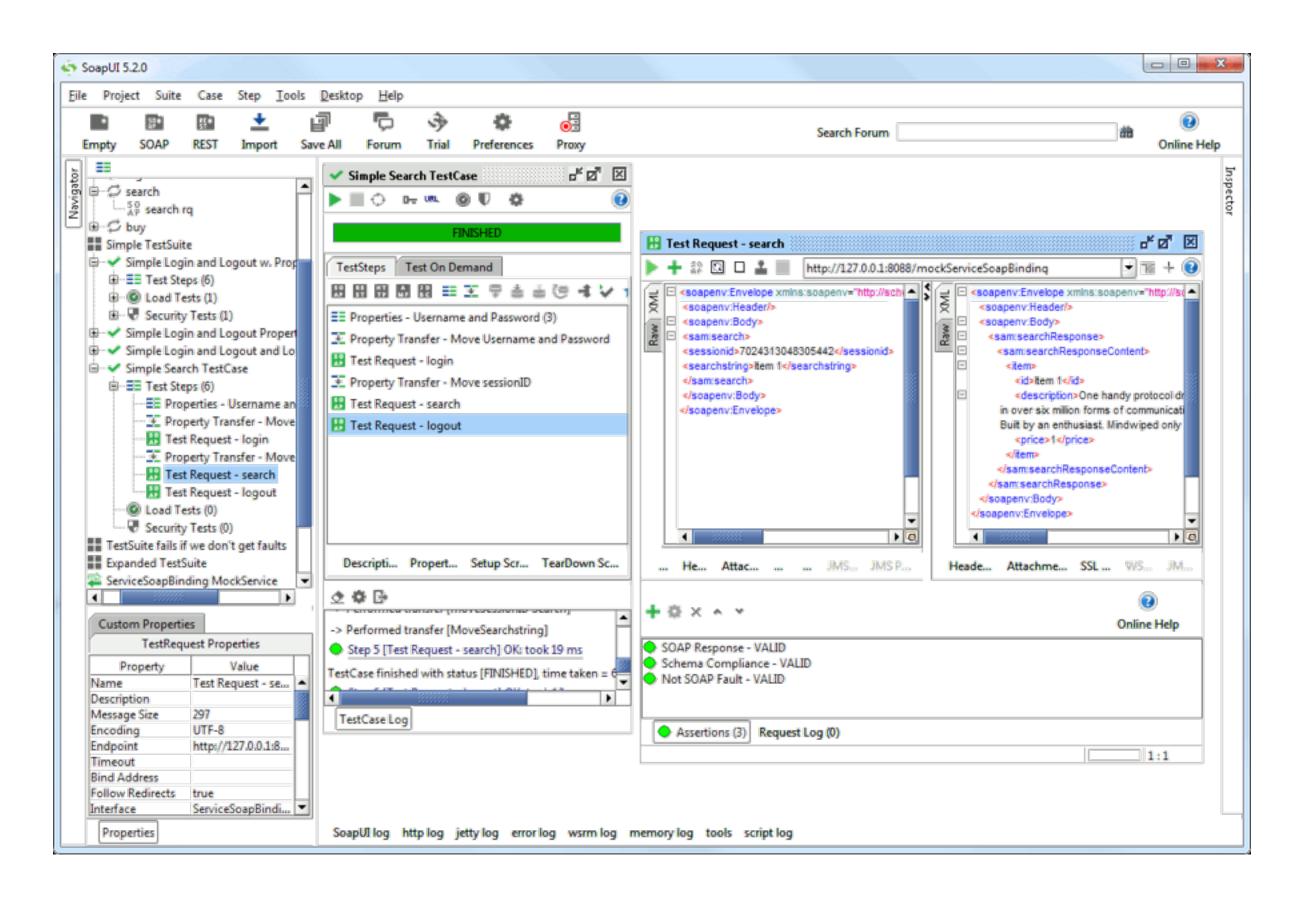
```
curl -i -X GET \
    --cookie "sid=ziB-QA7Ciwx0QFtkq_RpUm3IDFVeKMy37ki8NS6q" \
    --cookie "sid=ziB-QA7Ciwx0QFtkq_RpUm3IDFVeKMy37ki8NS6q" \
    -H "authentication-token: vyv+dg0mcYo=|bKv5HMwKVliloznnWwVF+pQDXc6DEWgZhzcTzXLri0lUq3/PSAohWA==" \
    -H "CustomerID: 7827a6ab-738d-48bb-aba5-c4bdd047c46b" \
    -H "CustomerToken: EQuF7NyaGufMhYdF2spj9KKCv+3g0d1DUvzwVnHIpet3cz3bXL0QTjxuvWmFu1wLH5PqDlW+i/782NCt
    E57s/g72hXMU1kunLVN3LkhSm0xnb8ienT87HdGXWlqZ8VtRoZEn+d3QA5kS4MPlcvZQyZKIth+I/YTItwG2cik4aS0ytX6xdYH
    34i6XjSCR4EEfqQQ62myKzzy6hy+UoxCKweatGGnrKNV3xFhnnFHwhlNfIS1T9QrHzZcvVjm/scCPpG/tw17arcjW03w5EQmL7B
    BNJVFiE0XrmEA2u4g5PnvQI5PzLEHcwuJncgghBB30hJtKnDdl4Ui5vRxPvzr16pne5v5GvImqiPWIwpVbzHZujFX4qt19LdDsp
    NesglXY" \
    "http://test.jomni.nl/INTERSH0P/rest/WFS/Jumbo-Grocery-
    Site/mobileapi/getShoppingList?includeCrates=false"
```







Reproducing the issue with SoapUI



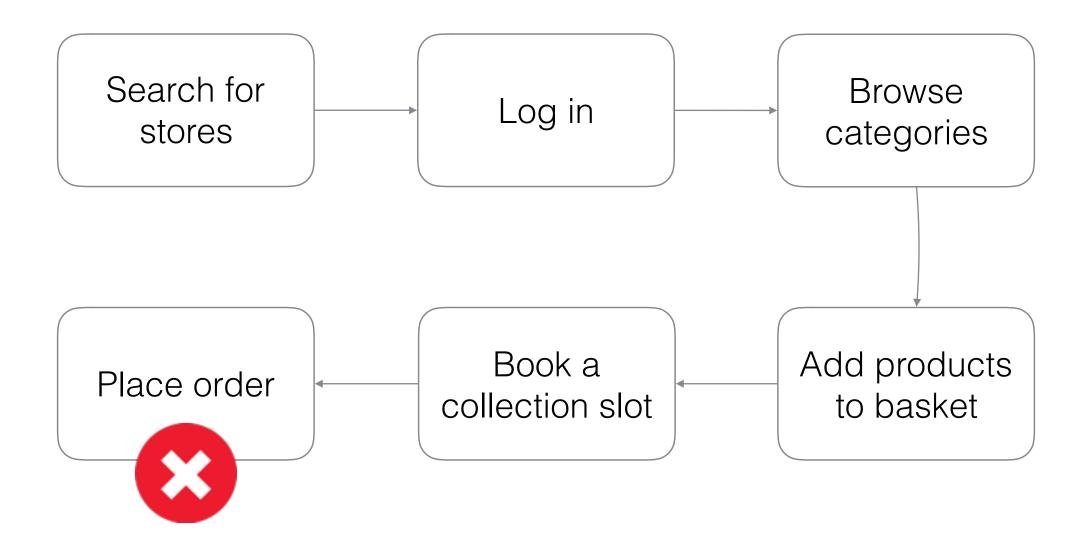


501N36 orks op his sorks on orks o machine Machine 2001ine





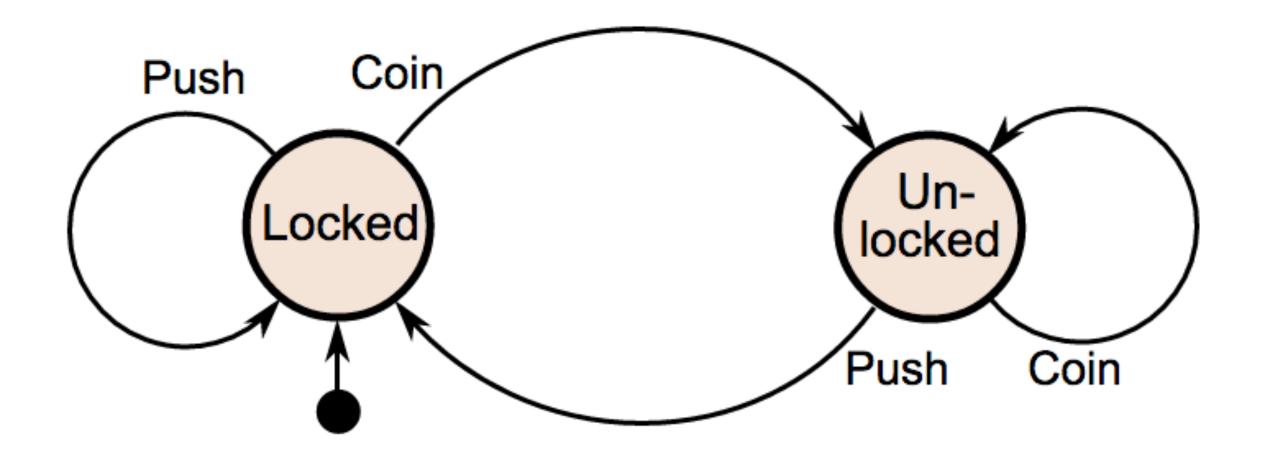
The same set of calls, but then in a Node.js script





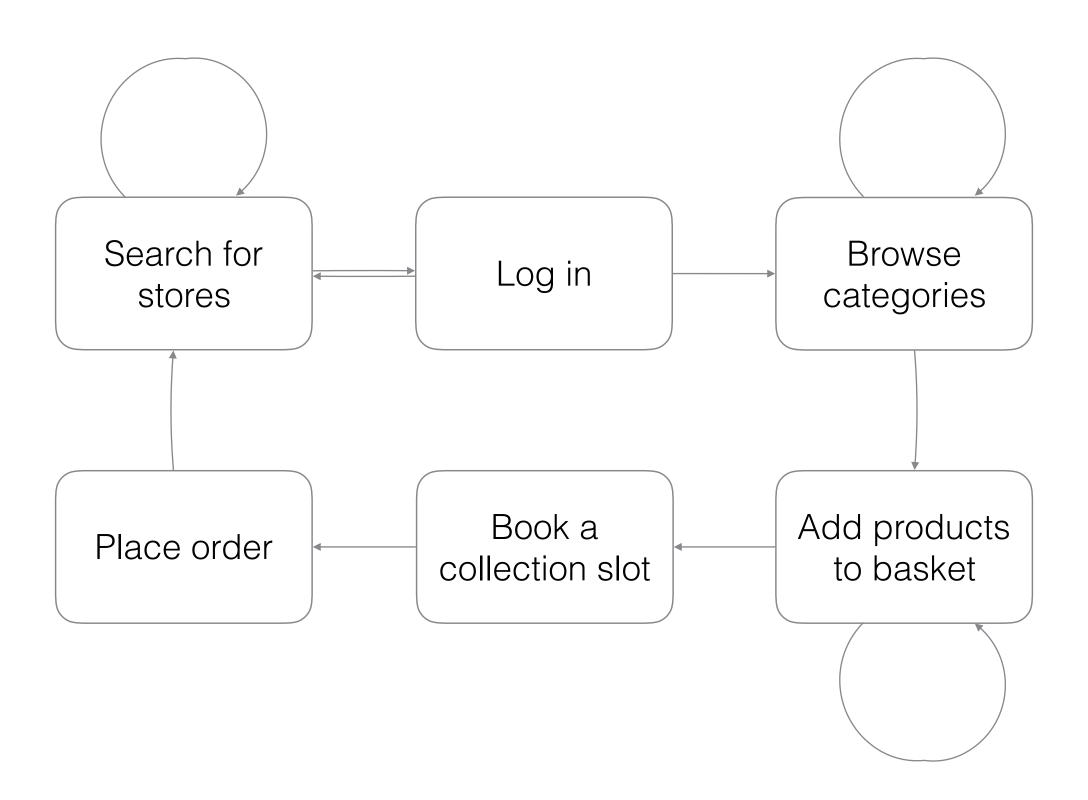
Enter state machines

State diagram of a turnstile





More realistic journeys





Search for stores Log in Search for stores

Book a

collection slot



Place order



Add products

to basket



Monitos





Current usage

- Monkey testing for the middle-layer
 - Find obscure user journeys that lead to errors
 - Spawn a couple dozens and let them run for some time, hopefully catching some bugs in the process
- Reproduction of complex error scenarios
- Smoke test alternative
- Cache warmup mechanism



```
MONITOS_ENV=test node bin/monitos.js
Hi, I am a monito. Let's do something fun!
Current environment is "test"
  Which persona would you assign to this monito? purchaser
Moving to state configuration
   /v2/configuration responded in 51 ms.
   [3%] Fetched the UX-API configuration
Moving to state getSearchTerms
   /v2/autocomplete responded in 45 ms.
   [6%] Retrieved 3450 search terms
Moving to state chooseHomeStore
   /v2/stores responded in 66 ms.
   /v2/users/me/homestore responded in 106 ms.
   [13%] Home store set to Jumbo Leeuwarden Van Loonstraat
  Moving to state registerOrLogIn
Moving to state register
   /v2/users/register responded in 1810 ms.
   [16%] Registered an account with the email test_lucas_jacobs_1475492130267@icemobile.com
Moving to state backgroundSync
   /v2/users/me/collections/product responded in 225 ms.
   [19%] Synced favorites in the background
Moving to state browseForAWhileOrNot
Moving to state addProductsToBasket
   /v2/products responded in 1814 ms.
   Adding 2 pieces of 33162FLS
   /v2/basket responded in 308 ms.
   [28%] Added products to basket, I have 1 item now
Moving to state addProductsToBasket
```



```
/v2/basket/timeslot responded in 217 ms.
   [69%] Booked a slot on Wednesday, October 19th 2016, 16:00:00
Moving to state previewOrder
   /v2/basket/checkout responded in 361 ms.
   [69%] Previewed the order
Moving to state placeOrder
  /v2/users/me/orders/purchase responded in 65 ms.
Could not place the order
   [69%] Bye
  Order Doesn't Meet Minimum Order Value
Error response
{ code: '4044',
 message: 'Order Doesn\'t Meet Minimum Order Value',
 tid: 'f1875a83-2f11-4404-b9d7-c72fa0932b37' }
Last request information
{ uri: '/v2/users/me/orders/purchase',
 method: 'post',
 body: {},
 headers: { 'X-jumbo-token': 'eyJ@eXAi@iJKV1QiLCJhbGci@iJIUzI1NiJ9.eyJkZXZpY2VpZCI6IjVkYTQz
 nRpY2F0aW9uLXRva2VuIjoiMGhza2pDM2I4bkk9fDRYRU5mTzFPaDBzMGRwQWtMVkNYWWhGSkNBa3E4WnB5bTR6Qy
enVkTnpTNDc1YTlhM3hyREh2aHRwYnU4X09YMHR4bWkiLCJDdXN0b21lclRva2VuIjoiRVF1RjdOeWFHdWZNaFlkRjJz
 /21GdTF3TEg1UHFEbFcraS830DJ0Q3RFNTdzL2c3MmhYTVUwRXVuTFZ0M0xraFNtMHlHL0RBdXhJNlFtK01IR1cyc2N1
OXhCUzIrejNlM3JQdlRQMHRiUjhKWVk1dTJrdElkV3o2ZEJMaXF1bHNYR3F2cGZsQzc0TDZldUxRdStIOEhZdEN0OWx
dGFmQTJvNUtFdmI1NlIzMnJDNDFEM01qOVY5MFdVUGhGMHh5SDVOZ1plTTRjQTJBRmlzbm1JZlVnVCtFVVZ6MGttSWY0
N1hWIiwiQ3VzdG9tZXJJRCI6IjVlZjM2ZjM2LTg4NTctNDhlZi1iM2NiLWZjZmRlYjkyYzMyZCIsIkN1c3RvbWVyVXNl
QGljZW1vYmlsZS5jb20iLCJDdXN0b21lclR5cGUiOiJCMkMiLCJCYXNrZXRJZCI6InY0UUtZeE1wVm44QUFBRlhrdFZw
```



```
Moving to state chooseAndBookSlot
Ok bye! This is how far we got...
T Endpoints T
UX-1 Autocomplete: 1 time
UX-2 Browse categories: 0 times
UX-3 Update favorites: 1 time
UX-6 Configuration: 1 time
UX-7 Product search: 2 times
UX-8 Product details: 0 times
UX-12 Recipe search: 0 times
UX-13 Recipe details: 0 times
UX-14 Store finder: 1 time
UX-17 Register: 1 time
UX-21 Login: 0 times
UX-22b Update basket: 2 times
UX-23 Order history: 0 times
UX-24 Order preview: 0 times
UX-25b Slot booking: 0 times
UX-26 Order details: 0 times
UX-28 Cancel order: 0 times
UX-29a Update order preview: 0 times
UX-29b Update order preview: 0 times
UX-34 Slot availability: 0 times
UX-35 Place order: 0 times
UX-38 Set home store: 1 time
UX-40 Fulfilment methods: 1 time
Achievements
T
REACHED_MAX_LINE_SIZE_IN_BASKET: 0 times
INCREASED_LINE_AMOUNT_IN_BASKET: 0 times
DELETED_LINE_IN_BASKET: 0 times
ADDED_LINE_IN_BASKET: 5 times
COLLECTION_ORDER: 0 times
HOME_DELIVERY_ORDER: 0 times
UPDATE_ORDER_GRAMS_TO_PIECES: 0 times
UPDATE_ORDER_PIECES_TO_GRAMS: 0 times
UPDATE_ORDER_INCREASE_AMOUNT: 0 times
```

- List of endpoints called
- Achievements



```
const Monito = require('monitos');
        const states = {
            register: (monito, next) => {
                monito.register((err) => {
                    next(err, 'getProfile');
                });
            getProfile: (monito, next) => {
                monito.getProfile((err) => {
 10
 11
                    next(err, { browse: 4 }, 'shop');
 12
                });
 13
 14
            browse: (monito, next) => {
 15
                monito.browse((err) => {
 16
                    next(err, {
17
                        browse: 6,
 18
                        getProfile: 16
 19
                    }, 'shop');
20
                });
21
22
23
            addProductsToBasket: (monito, next) => {
                monito.register((err) => {
24
                    next(err, {
25
                        addProductsToBasket: 2,
26
                        browse: 2
27
                    }, 'placeOrder');
28
                });
29
30
            placeOrder: (monito, next) => {
31
                monito.register((err) => {
32
                    next(err); // Finished
33
                });
Շ};
35
36
37
        let monito = new Monito(states, 'register');
38
        monito.on('error', function (err) {
39
            console.log('An error has occurred');
40
            console.log(err);
41
        });
42
        monito.on('state', function (state) {
43
            console.log('New state:', state);
44
45
        monito.on('end', function () {
46
            console.log('0k bye!');
47
        }});
        monito.start();
```



Monitos core library

- State machines meet D&D
- http://npmjs.com/package/monitos
- https://github.com/dunkelheit/monitos



Demo time





Questions?

ICeMobile