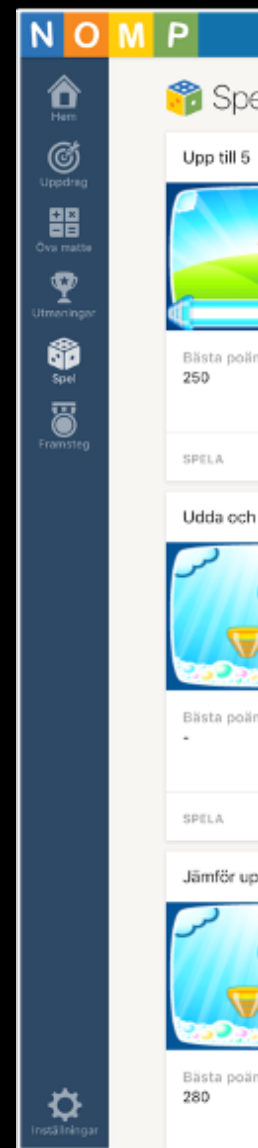


Migrating a large project from AngularJS to Angular

Living with Nomp.se for 12+ years



What is Nomp?



Sannolikhet & statistik

- Begrepp & taluppfattning
 - Mönster
 - Addition
 - Subtraktion
 - Multiplikation
 - Division
- Blandade räknesätt
- Geometri
- Algebra
- Mätning
- Tid
- Sannolikhet & statistik**
- Bråktal
- Proportionalitet & procent
- Programmering

Tabeller

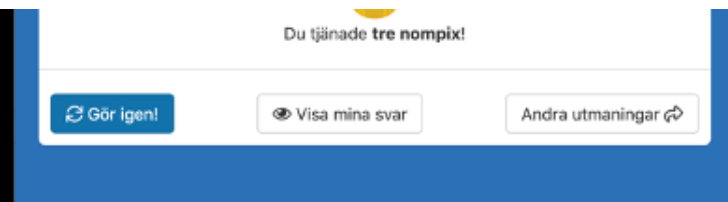
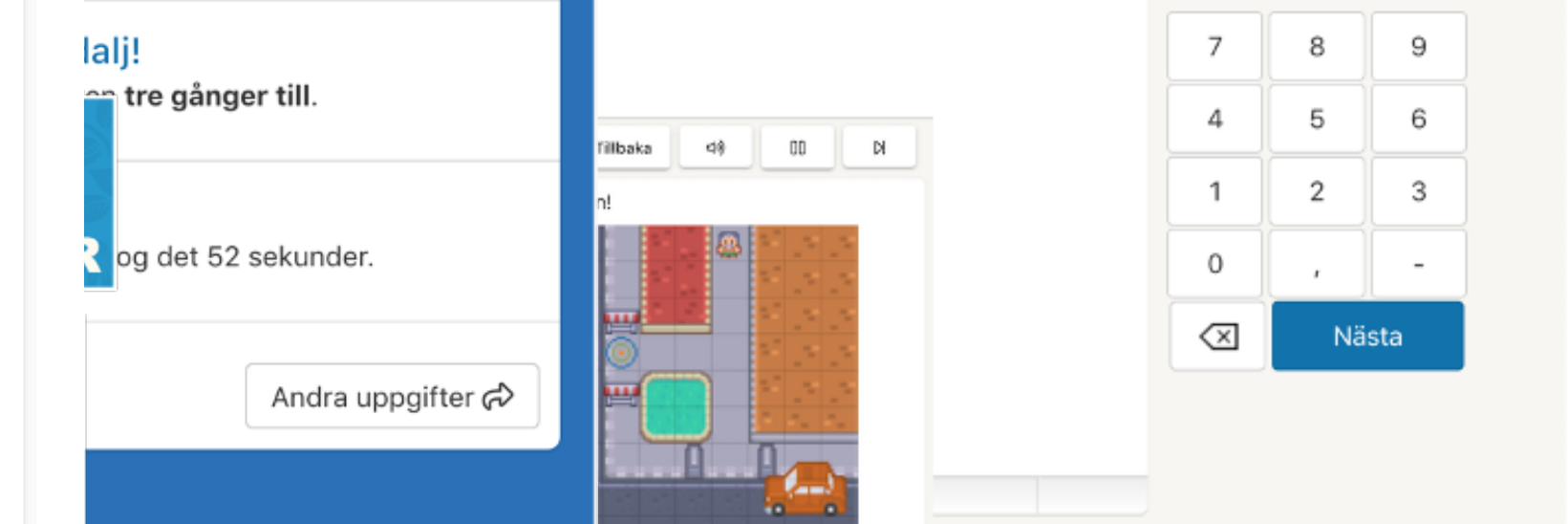
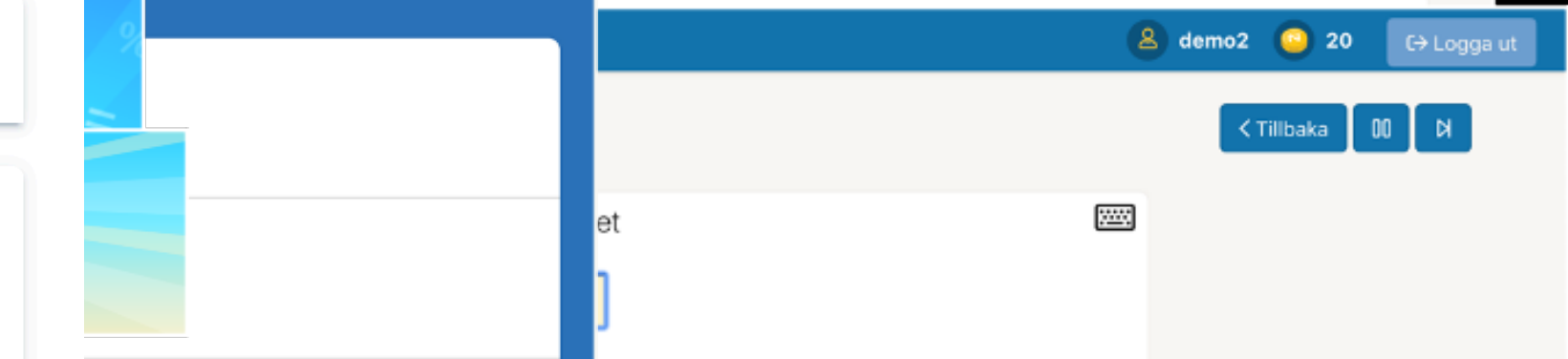
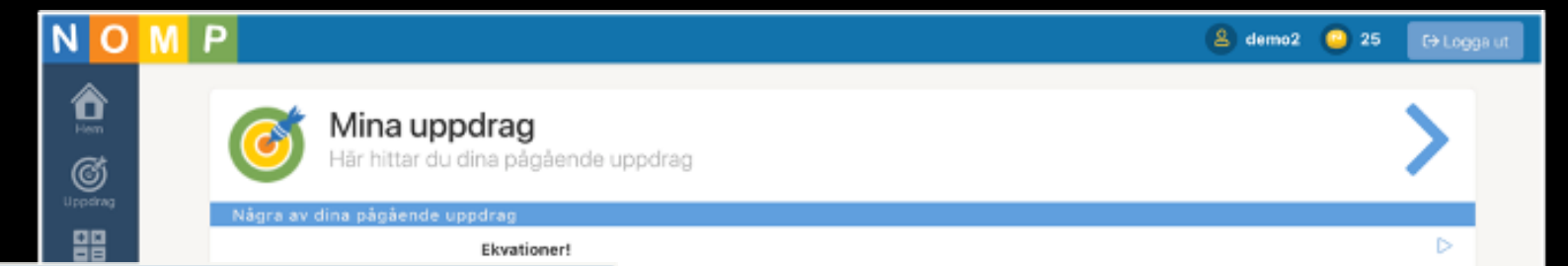
Diagram

Antal i tabeller och diagram (2C)	Stapelldiagram (7A)
Hitta i tabeller och diagram (2C)	Stolpdiagram (7A)
Högst och lägst i tabeller och diagram (2D)	Skapa cirkeldiagram (7C)
Skillnader i tabeller och diagram (2D)	Cirkeldiagram (7C)
Enkla tabeller och diagram (4C)	Skapa linjediagram (7D)
Enkla diagram (4C)	Linjediagram, svårare (7D)
Fler linjediagram (4D)	Skapa stam-bladdiagram (9D)
Linjediagram (4D)	Stam-bladdiagram (9D)
Tolka diagram (6B)	Skapa frekvenstabeller med intervall (9D)
Tolka tabeller och diagram (6B)	Histogram (9D)
Skapa stolpdiagram (7A)	Lådagram (9E)
Skapa stapeldiagram (7A)	Fyll i frekvenstabeller (9E)
Skapa frekvenstabeller (7A)	Skapa lådagram (9E)

Beräkningar

Kombinatorik

Sannolikhet



What more is Nomp?



📣 Över 1 000 000 matteuppgifter löses varje dag på Nomp

Vad vill du beställa?

Licenstag *
Nomp Plus Skola

- Ni väljer själva hur stor licens ni behöver — det behöver inte alls v...
- Lätt att göra individanpassade uppdrag så att varje elev får en utr...
- Ni kan själva lägga till och ta bort lärare och elever från licensen n...
- Obegränsat antal lärare** kan använda Nomp Plus. Ni betalar per...

Tidsperiod
12 månader

Antal elever *
50

Börjar gälla fr.o.m. *
2022-04-20

Valuta *
SEK

Hur vill du betala?

swish® VISA Mastercard Maestro

Ange ditt mobiltelefonnummer för Swish *

Fortsätt med betalning

Har du inget konto
eller

N O M P

Du är kontaktperson för en

demo1

Uppdrag

På tid! från Nomp

Addition: 10 plus ental
Kvar att göra: 10 av 10 repetitioner ⌚ un

bugg? från Nomp

Tal: Vilket tal är lägst/högst - upp till 10

Addition från Nomp

Addition: Upp till 5

Addition: 1 mer, upp till 10
Kvar att göra: 2 av 3 repetitioner

Addition: Plus noll, upp till 10
Kvar att göra: 3 av 3 repetitioner

Addition: 5:ans talkamrater
Kvar att göra: 3 av 3 repetitioner

Addition: 6:ans talkamrater
Kvar att göra: 3 av 3 repetitioner

N O M P

Användare | Licenser | Försäljning | Användning | **Nyhetsbrev** | Systemunderhåll

Personuppgifter

Skriv Förhandsgranska

Rubrik *

Bloggpost-url

Meddelande *

Mottagare *
ADMIN

Språk *
Svenska

Skicka

Logga ut

info@nomp.se

Åtgärder

mun@nomp.se

tilldelade platser

[2021-01-14: Ändrat utseende på sidorna under Uppdrag och uppdragsuppföljningen](#)
[2020-12-31: Gott nytt år!](#)
[2020-12-17: God jul och gott nytt år!](#)

amn ↑	Enhet	Använda platser	Tilldelade platser	Åtgärder
1	Skola 1	23	50	⋮
2	Skola 2	150		
3	Skola 3	1		

⋮

- Anslutna lärare
- Ändra tilldelning
- Ta bort licens
- Visa licensinformation



94k



LOC Typescript



20k LOC HTML, 16k LOC SASS

177k LOC Java

(all excluding 120k LOC tests)



©2021 Hasbro.

Let's travel back into time...

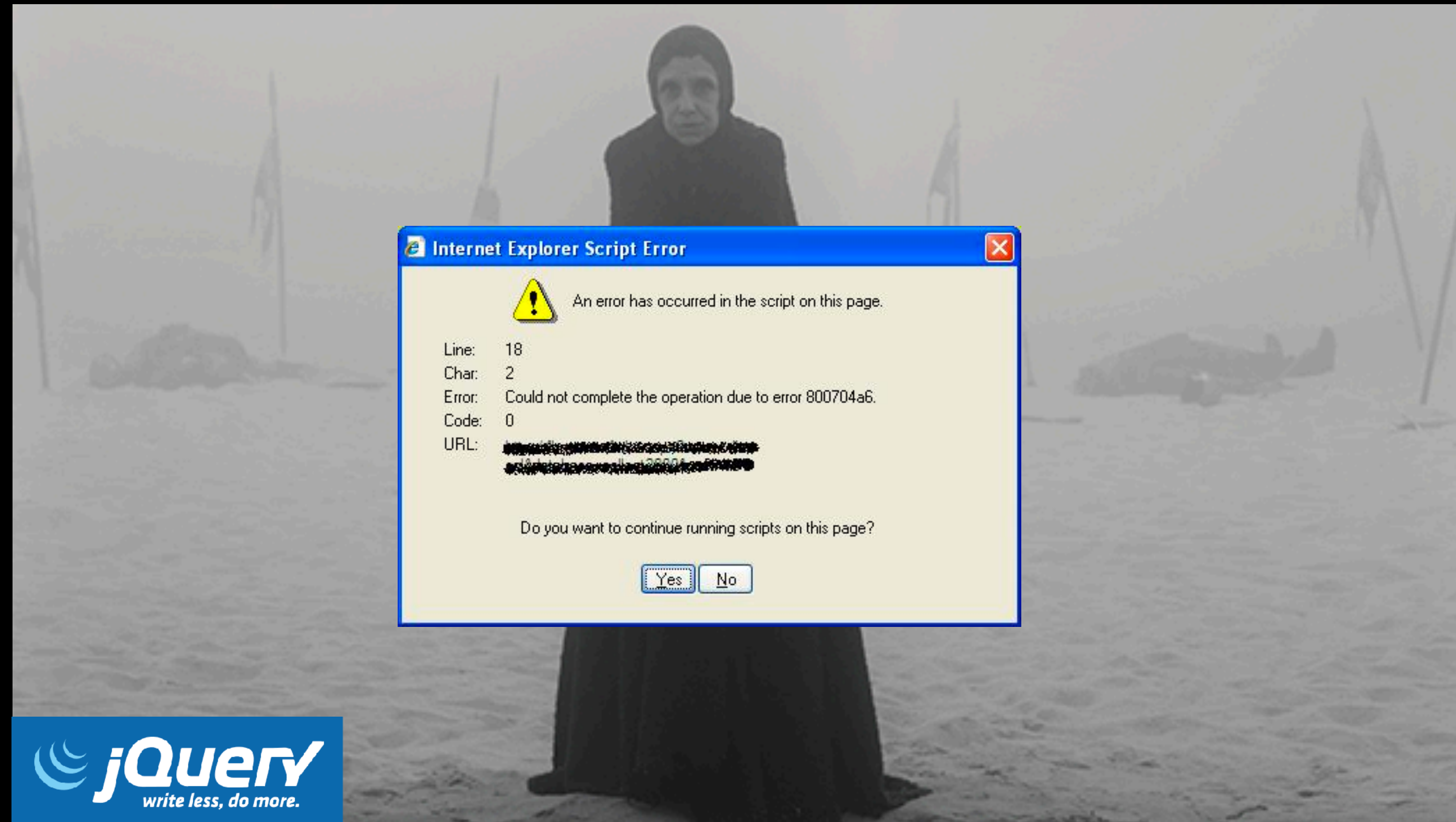


...to the year of 2010

What did the world look like in 2010?



What did the world look like in 2010?



What did the world look like in 2010?



How we launched

- Develop MVP as a hobby
- MVP: Students can practice math for free
- Spread the word to teachers and parents
- Teachers probably have better tools, right?



Traction!









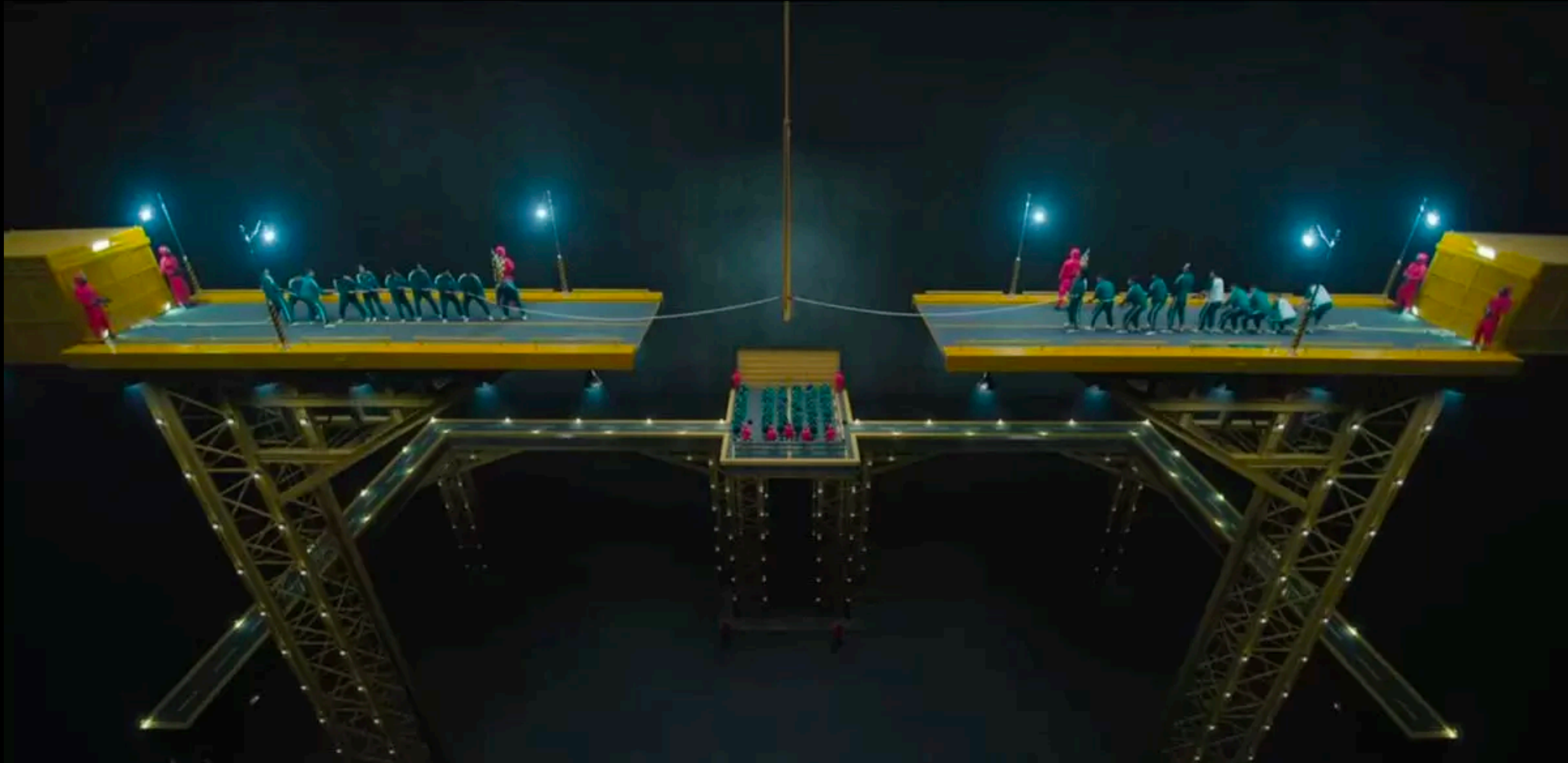
Don't change anything



Stop-and-migrate



“Next-gen” team



Is there a another way?



ONE DOES NOT SIMPLY

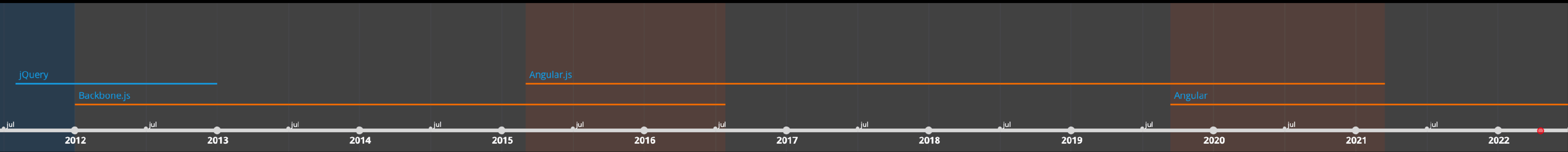


START FROM SCRATCH

```
define([
  'jquery',
  'underscore',
  'angular',
  'shared/util/baseview'
], function($, _, angular, Baseview) {
  'use strict';

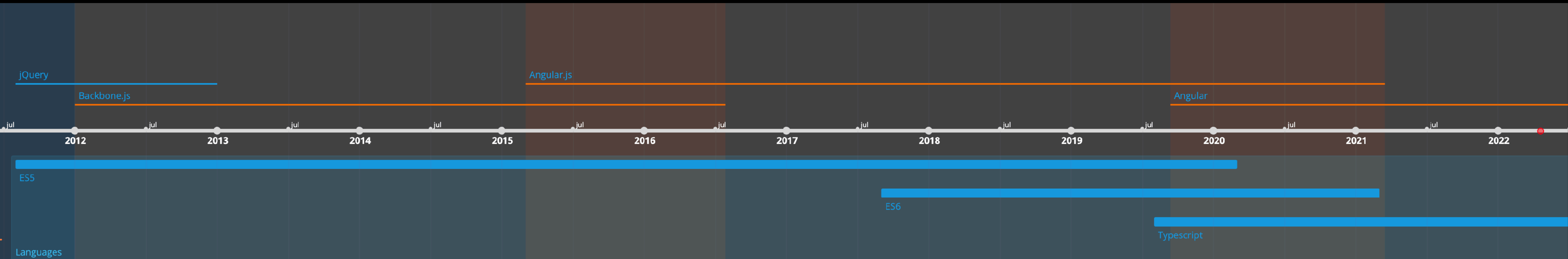
  return (Baseview.extend({
    initialize: function(options) {
      var modules = ['ng'];
      modules.push(this.module);
      this.injector = angular.injector(modules);
    },
    render: function() {
      var container = this.$el;
      var template = this.template;
      this.injector.invoke(function($rootScope, $compile){
        var elem = $compile(template)($rootScope);
        container.html(elem);
        $rootScope.$apply();
      });
      return this;
    }
  }));
});
```

Nomp front-end frameworks

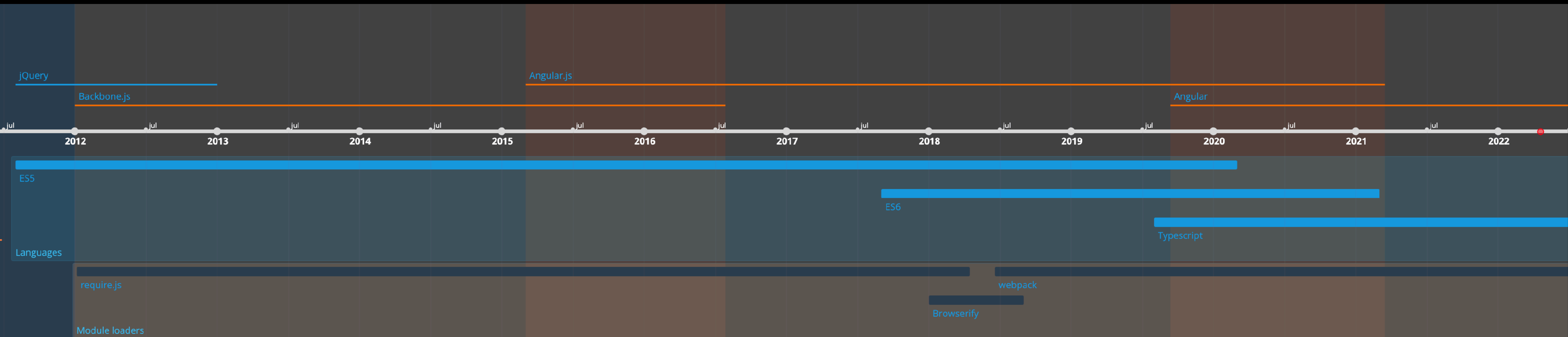


- Pure server-side Java / Spring / Freemarker
- jQuery, underscore templates
- Backbone.js
- Angular.js
- Angular

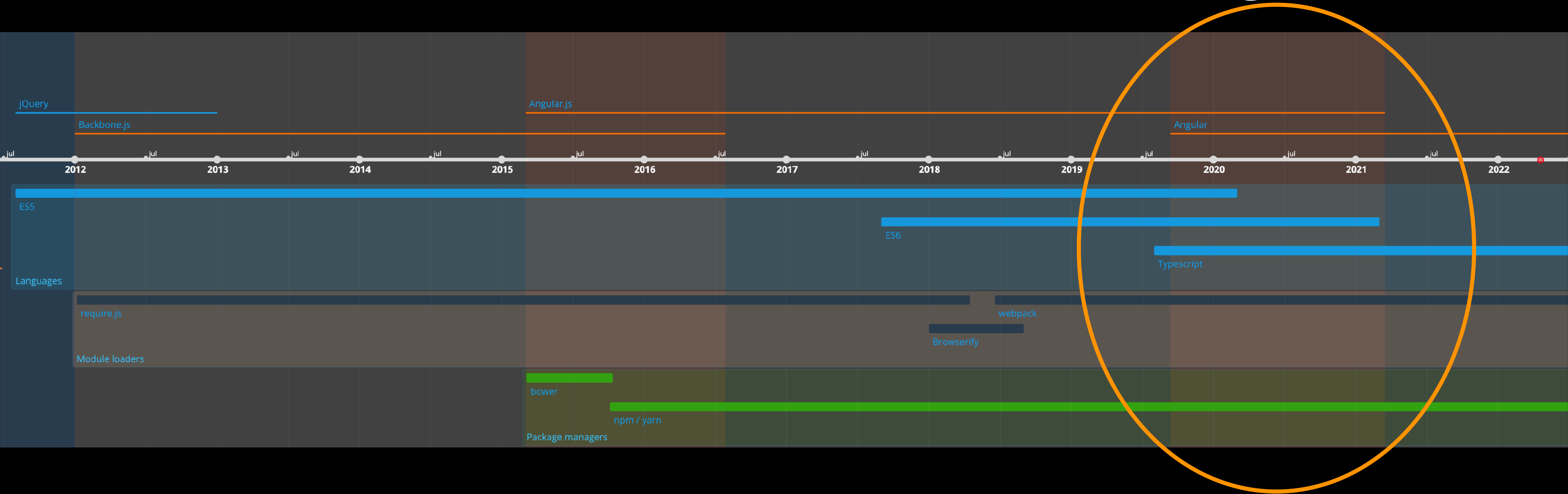
Nomp front-end languages



Nomp front-end timeline



Nomp front-end modules and packages



“How we did it” overview

- Legacy angular.js app (mixed es5/es6, without css modules) using UIRouter, webpack & babel
- Add typescript support to Babel
- Hybrid app with NgUpgrade and UI Hybrid router
- Commence migration of components (leaf-first) to Angular/Typescript
- Pure Angular app w/ UIRouter (remove hybrid router, angularjs)
- Migrate to angular-cli (and angular compiler)
- Migrate to Angular Router

Dev dependencies package.json

```
"name": "nomp",  
"version": "0.1.0",  
"private": true,  
"devDependencies": {  
  "@angular/language-service": "8.2.13",  
  "@babel/cli": "7.7.0",  
  "@babel/core": "7.7.2",  
  "@babel/node": "7.7.0",  
  "@babel/plugin-proposal-class-properties": "7.7.0",  
  "@babel/plugin-proposal-decorators": "7.7.0",  
  "@babel/plugin-proposal-optional-chaining": "7.6.0",  
  "@babel/preset-env": "7.7.1",  
  "@babel/preset-typescript": "7.7.2",  
  "autoprefixer": "9.1.0",  
  "babel-loader": "8.0.6",  
  "babel-plugin-transform-typescript-metadata": "0.2.2"
```

TypeScript
support



DI support



Babel 7+ .babelrc

Typescript
support



Typescript
metadata (for DI)



```
{
  "sourceType": "unambiguous",
  "presets": [
    [
      "@babel/preset-env",
      {
        "useBuiltIns": "usage",
        "corejs": 3,
        "targets": {
          "browsers": [
            "> 1% in SE"
          ]
        }
      }
    ],
    ["@babel/preset-typescript", {
      "allowDeclareFields": true
    }]
  ],
  "plugins": [
    "babel-plugin-transform-typescript-metadata",
    "@babel/plugin-proposal-optional-chaining",
    ["@babel/plugin-proposal-decorators", { "legacy": true }],
    ["@babel/plugin-proposal-class-properties", { "loose": true }]
  ]
}
```

Some interop tsconfig.json

```
    "typeRoots": [  
      "node_modules/@types"  
    ],  
    "allowSyntheticDefaultImports": true,  
    "esModuleInterop": true,  
    "emitDecoratorMetadata": true  
  }  
}
```

Add dependencies package.json

Add Angular dependencies



```
"dependencies": {  
  "@angular/animations": "8.2.13",  
  "@angular/common": "8.2.13",  
  "@angular/compiler": "8.2.13",  
  "@angular/core": "8.2.13",  
  "@angular/forms": "8.2.13",  
  "@angular/platform-browser": "8.2.13",  
  "@angular/platform-browser-dynamic": "8.2.13",  
  "@angular/router": "8.2.13",  
  "@angular/upgrade": "8.2.13",  
  "@uirouter/angular-hybrid": "9.0.0",  
  "angular": "1.7.5",  
  "angular-animate": "1.7.5",
```

Replace @uirouter/angularjs
with the hybrid router



Remove ng-app attribute as we will do manual bootstrap index.html

Before

```
<!DOCTYPE html>  
<html ng-app="nomp">  
<head>
```

After

```
<!DOCTYPE html>  
<html>  
<head>
```

AngularJS

app.js renamed to ng1app.js

```
import * as angular from 'angular';  
import uiRouter from "@uirouter/angularjs"; ← Change import, ignore warn  
import { upgradeModule } from "@uirouter/angular-hybrid";  
  
const nomp = angular.module( name: 'nomp', requires: [  
  uiRouter,  
  upgradeModule.name, ← Register upgrade module  
  'ngAnimate',  
  'ngSanitize',  
  'ngCookies',  
]);
```

Angular bootstrap.ts

Register angular.js global



```
setAngularJSGlobal(angular);
```

This tells UI-Router to wait
with the configuration



```
ng1App.config(['$urlServiceProvider', ($urlService: UrlService) => {  
    $urlService.deferIntercept()  
}]);
```

Start the router manually
after bootstrap



```
platformBrowserDynamic().bootstrapModule(RootModule).then(platformRef => {  
    // get UrlService from DI (this call will create all the UIRouter services)  
    const urlService: UrlService = platformRef.injector.get(UrlService);  
  
    // Instruct UIRouter to listen to URL changes  
    function startUIRouter() {  
        urlService.listen();  
        urlService.sync();  
    }  
  
    const ngZone: NgZone = platformRef.injector.get(NgZone);  
    ngZone.run(startUIRouter);  
});
```


Angular RootModule

```
import {DoBootstrap, NgModule} from '@angular/core';  
import {BrowserModule} from '@angular/platform-browser';  
import {UpgradeModule} from '@angular/upgrade/static';  
import {HttpClientModule} from "@angular/common/http";  
import {UIRouterUpgradeModule} from '@uirouter/angular-hybrid';  
import {TranslateModule} from '@ngx-translate/core';  
import {SublicenseModule} from "../routes/home/sublicense/sublicense.module";
```

```
@NgModule({  
  imports: [  
    BrowserModule,  
    UpgradeModule,  
    HttpClientModule,  
    TranslateModule.forRoot(),  
    UIRouterUpgradeModule.forRoot(module: {states: []}),  
    SublicenseModule  
  ]  
})  
  
export class RootModule implements DoBootstrap {  
  constructor(private upgrade: UpgradeModule) {  
  }  
  
  ngDoBootstrap() {  
    this.upgrade.bootstrap(document.body, modules: ['ngmp'], config: {strictDi: true});  
  }  
}
```

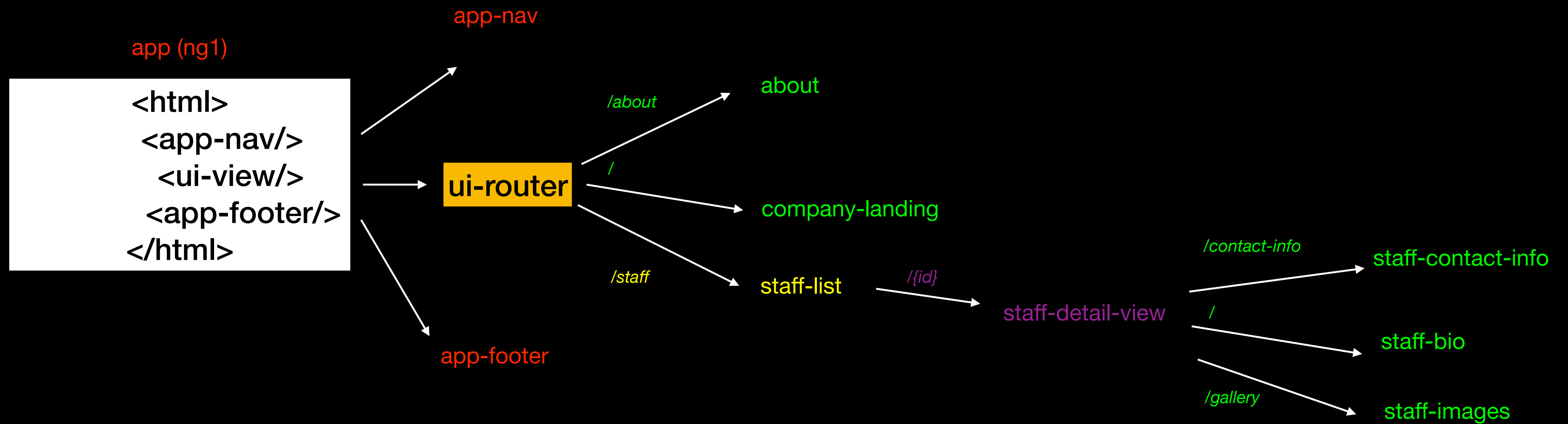
UIRouter root

A feature module

Start the ng1 app
with UpgradeModule



Where to start



Migrate components

- Create new a feature module
- Add routing
- Migrate templates, styles, code
- Release
- Repeat

Angular in ng1 template downgradeComponent

staff-contact-info (ng1) template

```
<h1>Contact {{name}}</h1>
```

```
Contact-  
button
```

Angular component



```
export default angular.module('my-module')  
  .directive('contactButton', downgradeComponent({component: ContactButtonComponent}))
```

Strategy for migrating services

- downgradeInjectable is an option to consider
- Duplicate services as you go
- One method at a time
- Sync state where needed

Communicate with an angularjs service from Angular using \$rootScope

```
import {Inject, Injectable} from "@angular/core";
import {HttpClient} from "@angular/common/http";
import {ReplaySubject} from "rxjs";
import {IRootScopeService} from "angular";

@Injectable({
  providedIn: 'root'
})
export class NompixService {

  private _nompixBalance = new ReplaySubject<number>(1);
  public nompixBalance$ = this._nompixBalance.asObservable();

  constructor(private httpClient: HttpClient, @Inject('$rootScope') private _rootScope: IRootScopeService) {}

  fetchBalance() {
    this._rootScope.$broadcast('nompix-balance-changed');
    this.httpClient.get<number>('/api/user/nompix').subscribe(options: newBalance => this._nompixBalance.next(newBalance));
  }

  Only for StudentQuizService
  setBalance(newBalance: number) {
    this._nompixBalance.next(newBalance);
  }
}
```

Angular-cli migration

- Make a new project: “ng new”
- Move over some modules, make sure it builds, repeat
- Migrate webpack config to typescript
- Move proxy rules to angular-cli’s proxy-conf.json
- Make use of src/environments.ts

Using custom webpack config with Angular-cli Angular.json

```
"architect": {  
  "build": {  
    "builder": "@angular-builders/custom-webpack:browser",  
    "options": {  
      "allowedCommonJsDependencies": [  
        "..."  
      ],  
      "customWebpackConfig": {  
        "path": "./extra-webpack.config.ts",  
        "replaceDuplicatePlugins": true,  
        "mergeStrategies": {  
          "externals": "prepend"  
        }  
      },  
    },  
  },  
}
```

Migrating to the Angular router

- Route config very similar
- Move resolve code into the components
- Remove @Input
- Use RouteGuards for CanActive, CanExit et.c

Many months later...



Thank you



ps. It's free!