



Menschen Methoden Lösungen

MORE THAN CODE

Me

Tobias Hofmann
Senior Consultant



PROFILE

- Fiori
- Cloud
- Portal
- Mobile
- Architect & Developer

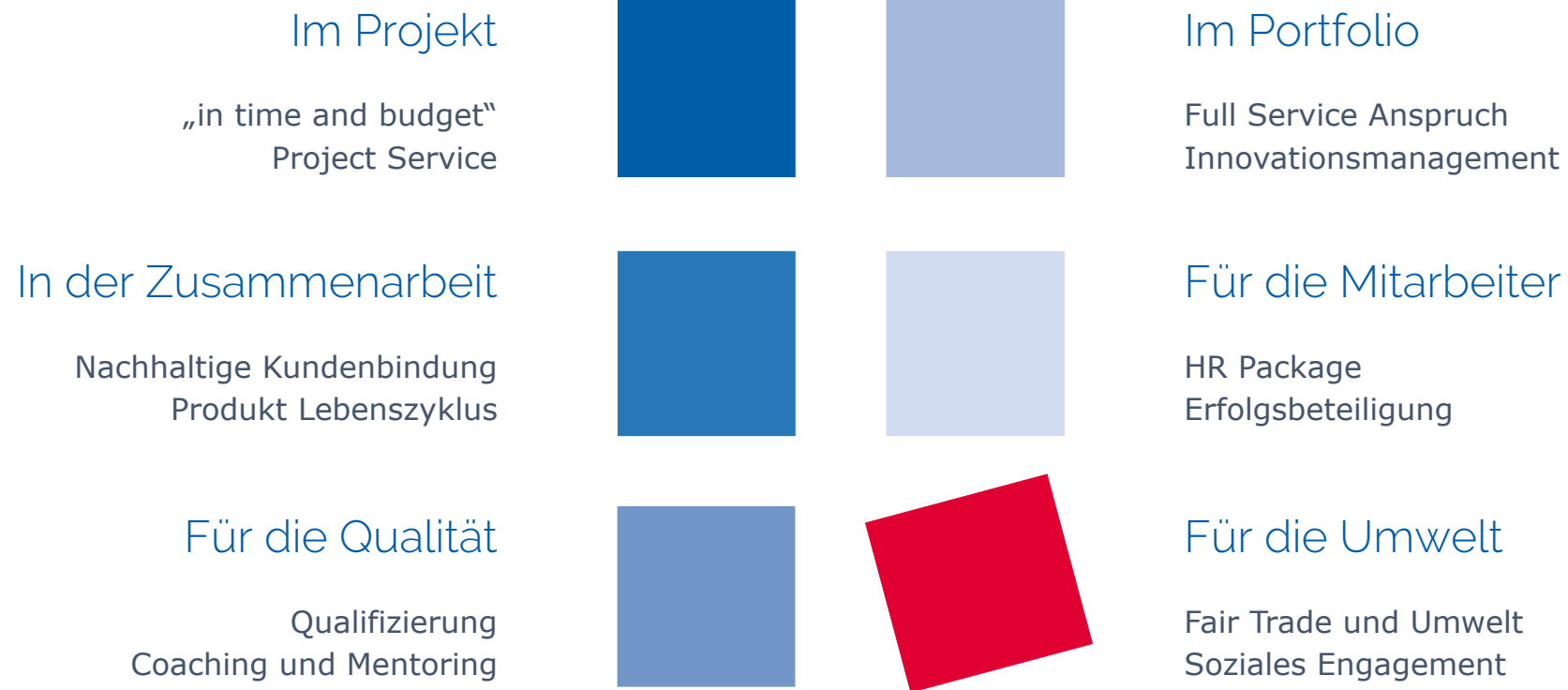
CONTACT

- Twitter: @tobiashofmann
- E-Mail: tobias.hofmann@bridging-it.de

- Seit 2008
Gründung der BridgingIT GmbH Anfang 2008 als IT-Beratungsunternehmen
- Über 520 Mitarbeiter
Kundennähe durch ausgeprägten regionalen Fokus. Standorte: Mannheim, Karlsruhe, Frankfurt, Stuttgart, Köln, München, Zug (CH), Nürnberg und Berlin
- Erfolg
Unabhängigkeit und Stabilität durch Eigenfinanzierung und durchgängigen wirtschaftlichen Erfolg
- CraftingIT
Gründung der Tochter CraftingIT GmbH Anfang 2014 als IT-Service Unternehmen in Magdeburg
- Beratungspartner
Neutral, ohne Produkt- oder Vertriebsbindung
- Netzwerk
Gut ausgebautes Netzwerk aus Applikations- und Technologiepartnern
- Preis-/Leistung
Attraktives Preis-/Leistungsverhältnis durch geringen Overhead, komfortable Mitarbeiter-Self-Services und konsequentes Outsourcing bei Support Prozessen
- Qualität
Fokus auf Qualität und Nachhaltigkeit durch hohe Beteiligung der Mitarbeiter an der Unternehmensentwicklung

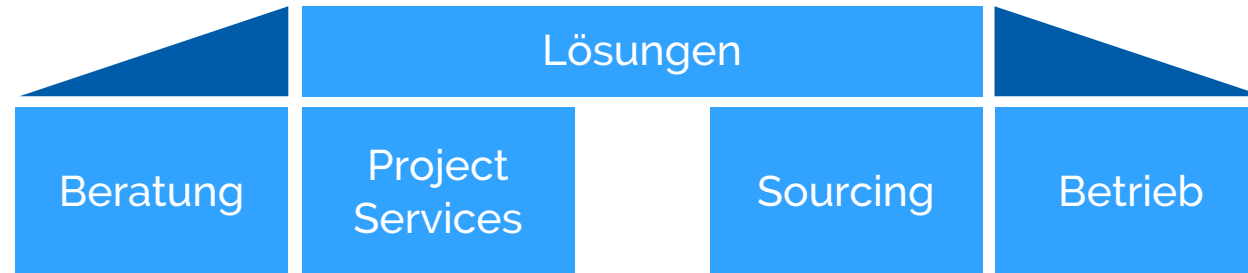
Wir übernehmen Verantwortung

aufmerksam – positiv – zeitgemäß



Portfolio

Unser Full-Service-Ansatz



Beratung

Beratung von der Strategie über die Gestaltung von Geschäftsprozessen bis hin zur Bewertung und Einführung von neuen IT-Systemen und -Anwendungen

Project Services

Unterstützung und Projektsupport bei der Gestaltung von Projekten über den gesamten Lebenszyklus durch Anforderungs-, Projekt- und Testmanagement

Lösungen

Umsetzung von fachlichen und technischen Anforderungen unserer Kunden in bedarfsgerechte, kosteneffiziente und langfristig stabile Lösungen auf der Basis von Standardtechnologien- und Produkten

Sourcing

Unterstützung von der Bereitstellung und Ergänzung von Projektteams über die Beratung in Near-/Offshore-Vorhaben bis hin zum umfassenden Lieferantenmanagement durch CraftingIT GmbH

Betrieb

Dienstleistungen rund um den Betrieb von IT-Systemen und Anwendungen wie Betriebsprozesse, operative Betriebsführung, Beratung zu Fragen der Betriebssicherheit und Wartung

Kunden, Mitgliedschaften, Partner

Kunden *

BMW, Audi, JOHN DEERE, BOSCH, DAIMLER, Allianz, COMMERZBANK, MLP, pwc, DZ BANK Die Initiativbank, EnBW, MVV Energie, GVS Gasversorgung Süddeutschland Ihre Energie. Unsere Leidenschaft., BAUHAUS, messe frankfurt, EDEKA, INTER SPORT, MERCK, Roche, BASF We create chemistry, abbvie, DB, Lufthansa, Deutsche Post, MEDIA - SATURN, Deutsche Telekom, vodafone

Mitgliedschaften *

elektromobilität süd-west, BDI, Internet der Energie BDI initiativ, eMP, SmartGridsBW Energien intelligent vernetzen., BEM eMobilität, GDD MITGLIED GESELLSCHAFT FÜR DATENSCHUTZ UND DATENSICHERHEIT e.V., Metropolregion Rhein-Neckar, VDMA

Partner *

Atlassian Experts, CELUM ALWAYS AHEAD., Enterprise Solution Partner COMMUNITY, e-Spirit Quality Approved Project, e-Spirit Trusted Partner, GERMAN CONSULTING GROUP, LIFERAY SILVER PARTNER, SifooSystems PARTNER GOLD, HYBRIS SILVER PARTNER, Microsoft Partner, Business Partner, e-mobil BW Landesagentur für Elektromobilität und Brennstoffzellentechnologie Baden-Württemberg GmbH, SAP Silver Partner

(* ein Auszug)

Agenda

01

ONINIT()

02

RTFM

03

DESIGNER TEMPLATES

04

APPLICATION
DESCRIPTOR

05

ENTERPRISE READY

06

TESTING

ONINIT()

More than code

Learn how to code

- <https://www.openui5.org/>
- Documentation, Samples, API
- Write apps, practice

More than code

- Lessons learned
- Glue between code and experience
- Battle proven



5 years
later

Senior UI5 developer
Nice portfolio and backlog
LinkedIn / Xing "head hunter"
requests

I have a bad feeling about this
Know how to pick your battles [1]
Sarcasm

[1] <https://zef.me/pick-your-battles-a5fa1025cb3e>

APP != APP

Minimum viable product

Just enough features
It works and gets the job done
Early adopters / users

DESIGN THINKING



<http://www.bawarchi.com/recipe/lychee-sponge-cake-oetnMcjgaedij.html>



Minimum lovable product

Focus on the features that matter
Purpose driven
Small group that *loves* your product



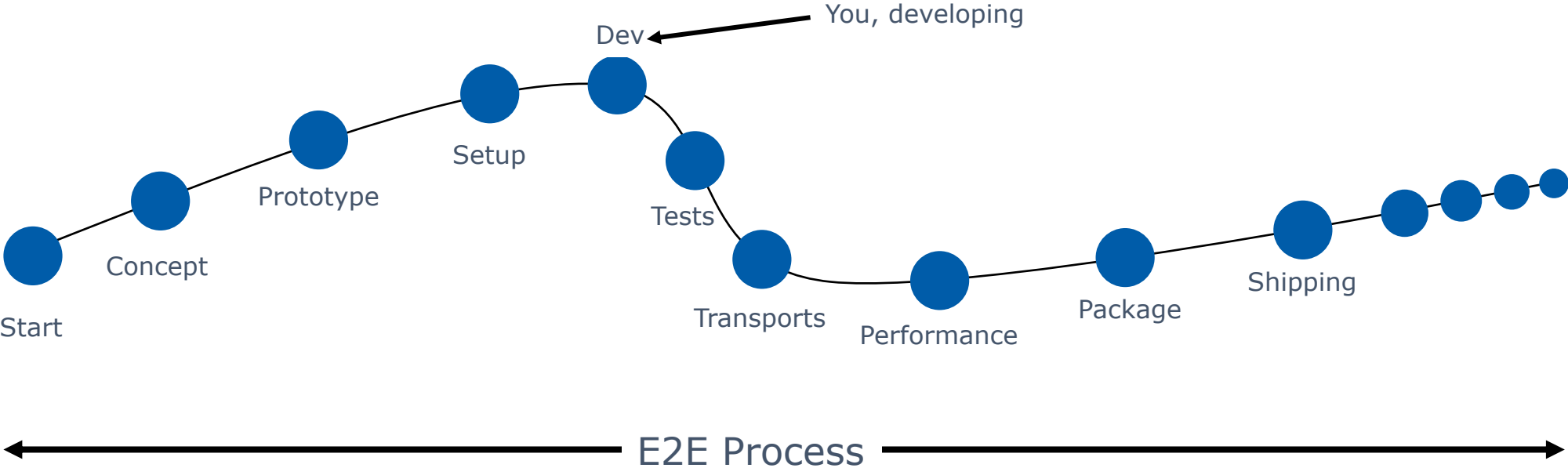
<https://www.momlovesbaking.com/kit-kat-cake/>

PICK TWO

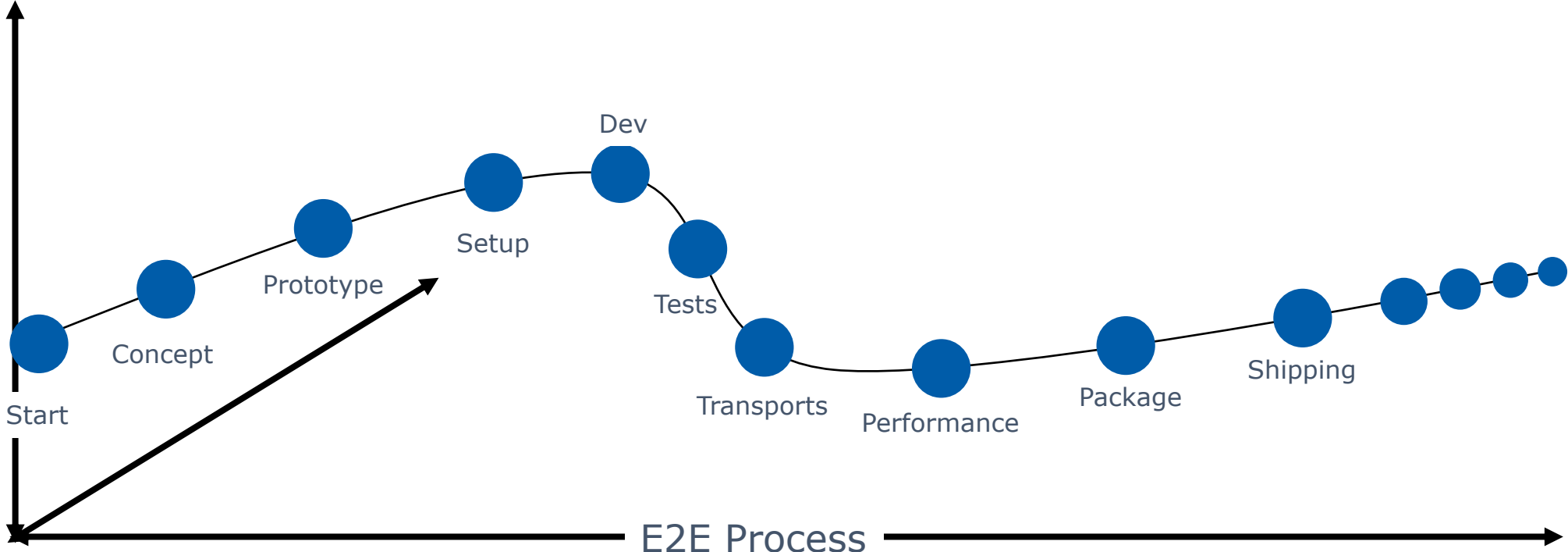


<https://logosbynick.com/fast-good-cheap-pick-two/>

There is more than code



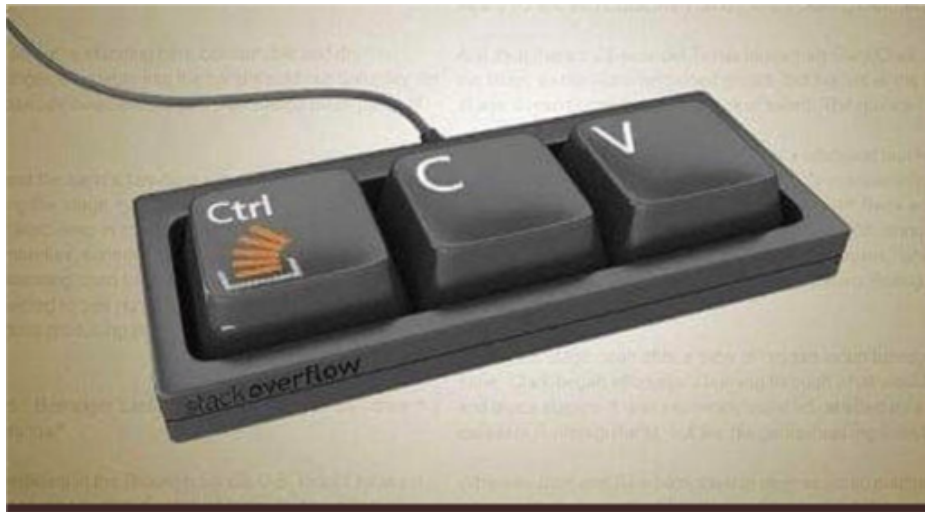
There is more than code



RTFM

UI5 documentation is your best friend

Copy&Paste with Brain



Martin Fischer @cyclingfisch · 22. Juni

According to the latest @SapCoffeeCorner episode, not only for stackoverflow users, also for @sapui5 devs because of the good #ui5 sample library 😂 cc @tobiashofmann @michadelics



Soeren
@SoSchlegel87

After hearing @SapCoffeeCorner we all know:
@tobiashofmann is just a Copy&Paste Programmer
@cyclingfisch

<https://twitter.com/PROGRAMMERHUMOR/status/1142356585022230529>

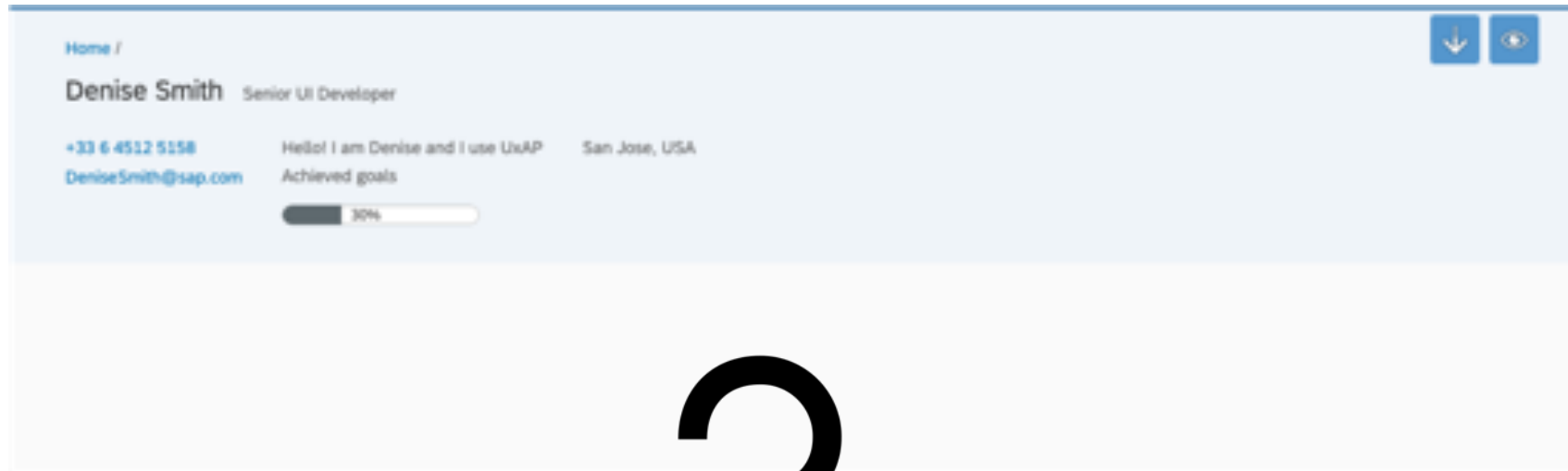
Object Page Layout

Example: SimpleForm

Label: 3
Empty: 2
Columns: 2

The screenshot shows a mobile application interface for a form titled "Form". At the top, there is a navigation bar with a back arrow on the left and the title "Form" on the right. Below the navigation bar is a red error message bar with a warning icon and the text "Error with default icon and close button:". The main content area is titled "Address" and is divided into two columns. The left column, labeled "Office", contains four input fields: "Full name of the contact:", "Street and number where the contact is located:", "ZIP Code and City:", and "Country where the contact is located:" (with a dropdown menu showing "England"). The right column, labeled "Online", contains two input fields: "Web page of the contact:" and "Twitter account of the contact:". The bottom of the form is divided into two large blue rectangular areas, labeled "1" and "2", which correspond to the two columns of the form.

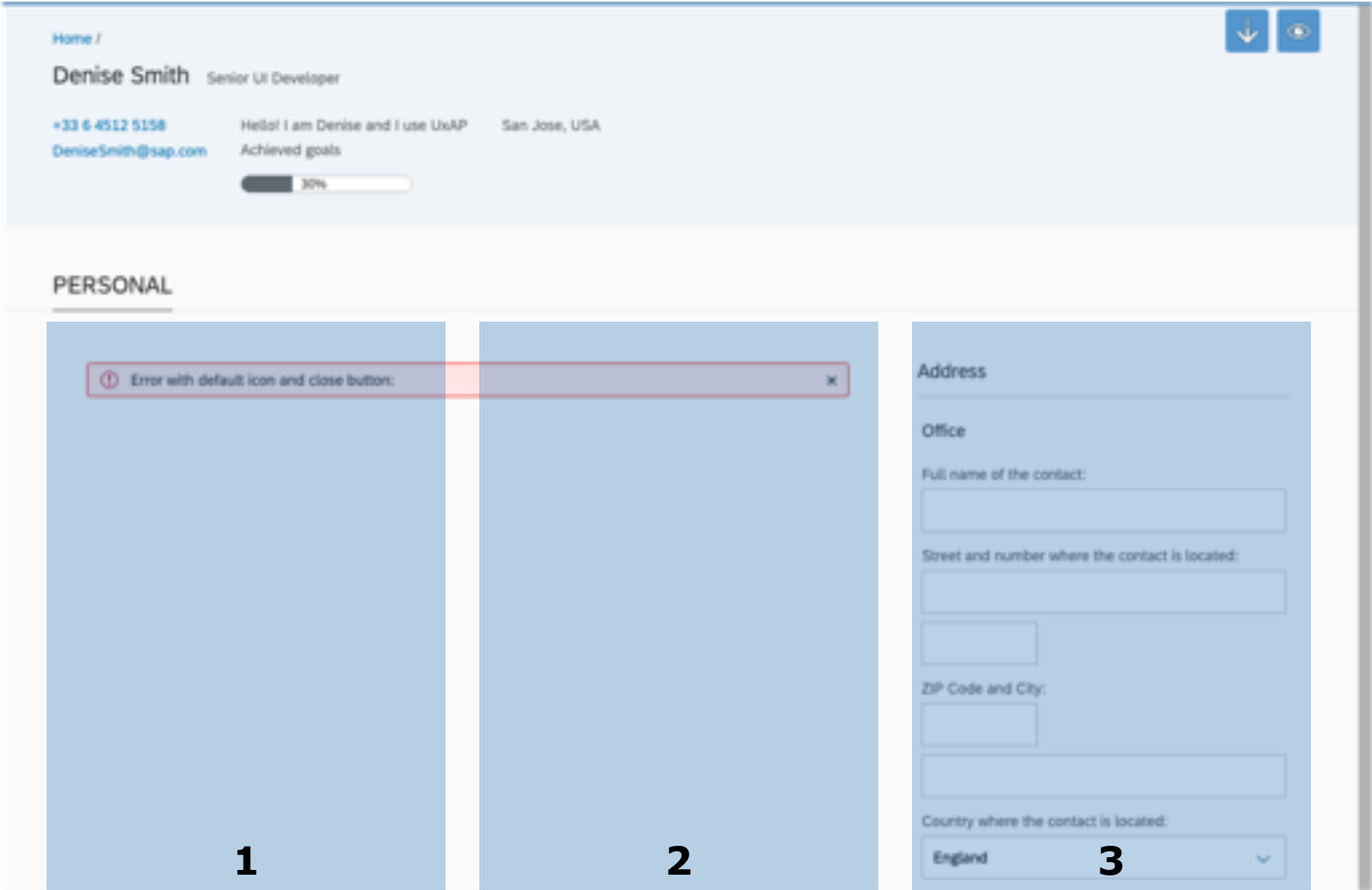
Object Page Layout



Object Page Layout

Copy&Paste Form content

```
<sections>  
  <ObjectPageSection title="Personal">  
    <subSections>  
      <ObjectPageSubSection>  
        <blocks>  
          <m:MessageStrip  
            text="Error with default icon and close button:"  
            type="Error"  
            showIcon="true"  
            showCloseButton="true"  
            class="sapUiMediumMargin">  
          </m:MessageStrip>  
  
          <m:VBox class="sapUiSmallMargin">  
            <f:SimpleForm id="SimpleFormChange354"  
              editable="true"  
              layout="ResponsiveGridLayout"  
              title="Address"  
              labelSpanXL="3"  
              labelSpanL="3">
```



Object Page Layout

Behaviour is exactly as written in the manual: [Fiori Design Guidelines](#)

“If you are using the object page without object page blocks, you can use the [column layout](#) for forms, which automatically distributes form groups across the columns in the object page.”

```
<form:FormBlock id="formBlock" columnLayout="3"/>
```

Object Page Layout

Home / ↓ 👁

Denise Smith Senior UI Developer

+33 6 4512 5158 Hello! I am Denise and I use UxAP San Jose, USA
DeniseSmith@sap.com Achieved goals
██████ 30%

PERSONAL

❗ Error with default icon and close button: ✕

Address

Office	Online
Full name of the contact: <input type="text"/>	Web page of the contact: <input type="text"/>
Street and number where the contact is located: <input type="text"/> <input type="text"/>	Twitter account of the contact: <input type="text"/>
ZIP Code and City: <input type="text"/> <input type="text"/>	
Country where the contact is located: <input type="text" value="England"/>	

Odata v4

Events

Summary

Event	Description
parseError	The 'parseError' event is not supported by this model. <i>Since: 1.37.0.</i>
propertyChange	The 'propertyChange' event is not supported by this model. <i>Since: 1.37.0.</i>
requestCompleted	The 'requestCompleted' event is not supported by this model. <i>Since: 1.37.0.</i>
requestFailed	The 'requestFailed' event is not supported by this model. <i>Since: 1.37.0.</i>
requestSent	The 'requestSent' event is not supported by this model. <i>Since: 1.37.0.</i>
sessionTimeout	The 'sessionTimeout' event is fired when the server has created a session for the model and this session ran into a timeout due to inactivity. <i>Since: 1.66.0.</i>

The model does not support the methods `getData`, `getObject`, `getOriginalProperty`, `getProperty`. For data access, use the context API instead of methods on the model.

OData operations executed via binding: Model does not support the method `callFunction`.

No CRUD methods on model: Model does not support the methods `create`, `read`, `remove`, `update`.

No metadata access via model: Model does not support methods `getServiceAnnotations`, `getServiceMetadata`, `refreshMetadata` as well as methods corresponding to the events `metadataFailed`, `metadataLoaded`.

**NOT
SUPPORTED**

Odata v4

Goal

Simplification

Access data via bindings & controls



Incompatibility

Going from Odata v2 to v4 breaks code

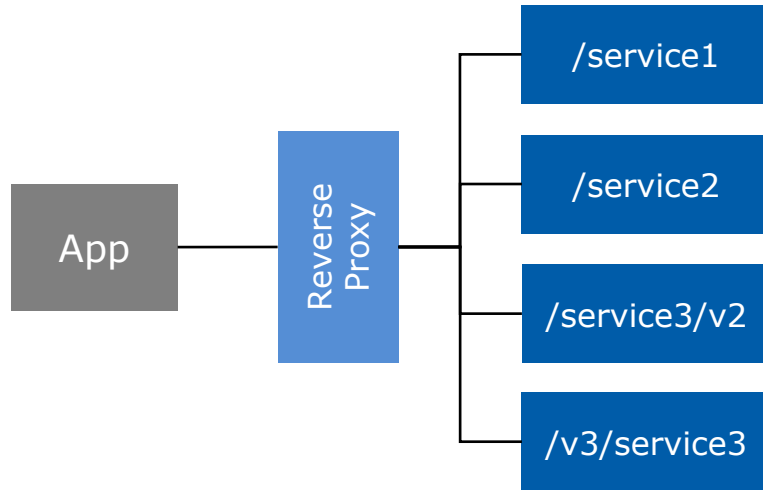
Limitations for established patterns

Odata v2 !== Odata v4

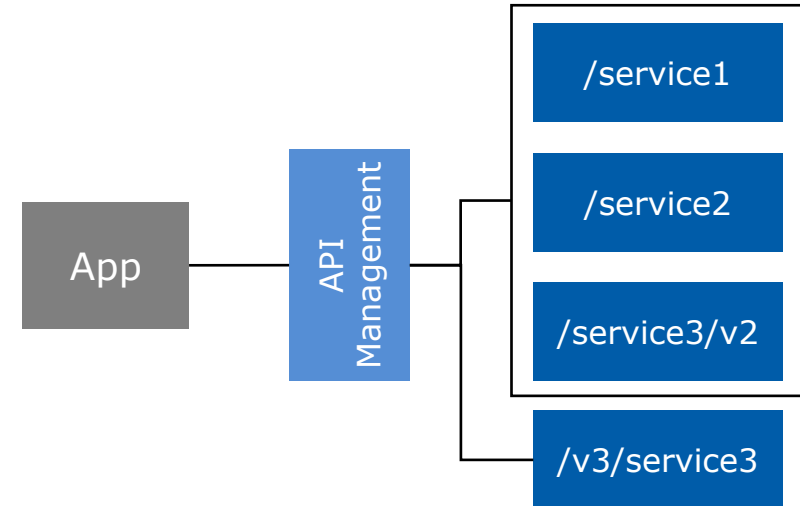
Do NOT use Odata v4 in UI5 app if you can avoid it

<https://openui5.hana.ondemand.com/#/api/sap.ui.model.odata.v4.ODataModel>
<https://openui5.hana.ondemand.com/#/topic/abd4d7c7548d4c29ab8364d3904a6d74.html>

API Management



Make APIs available



Bundle APIs into a product
Manage & control access

APIKey in HTTP Header ← **Not with Odata v4!**
Alter requests
Transform API into a service

API Management

53.45% [▲]

API Response Time

50.76% [▲]

Target Response Time

33.94% [▼]

Total API Calls

16.67% [▲]

Request Processing Latency

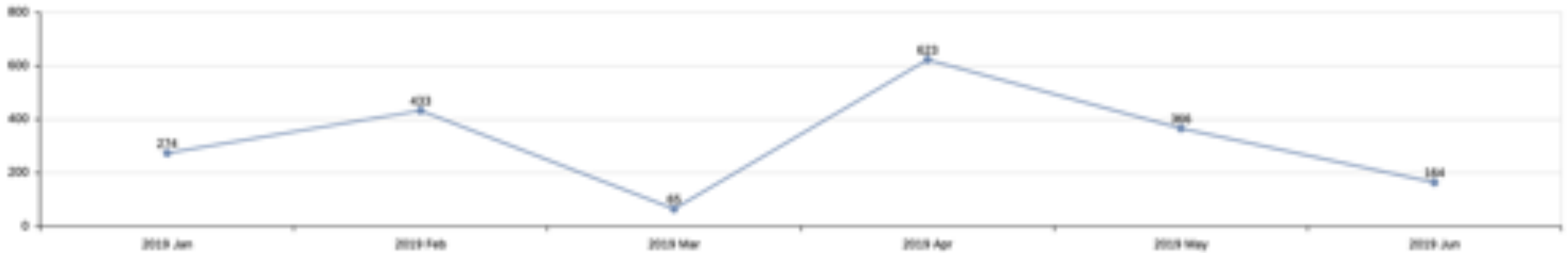
167.65% [▲]

Target System Errors

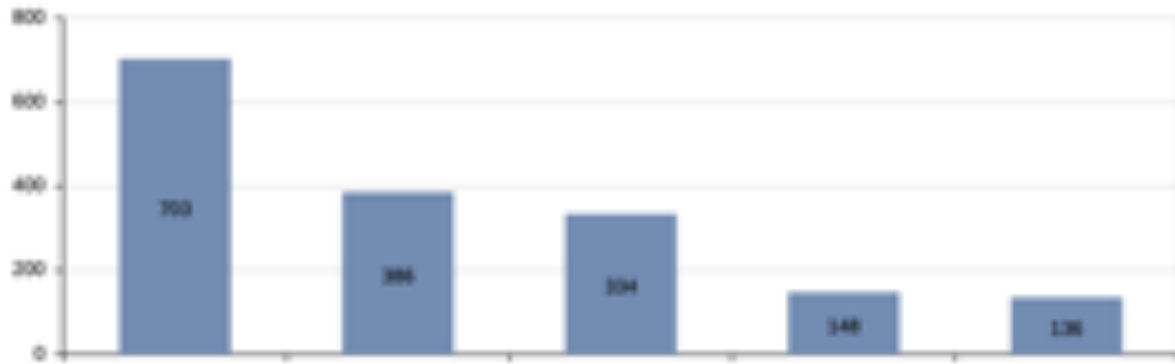
169.23% [▲]

Total API Errors

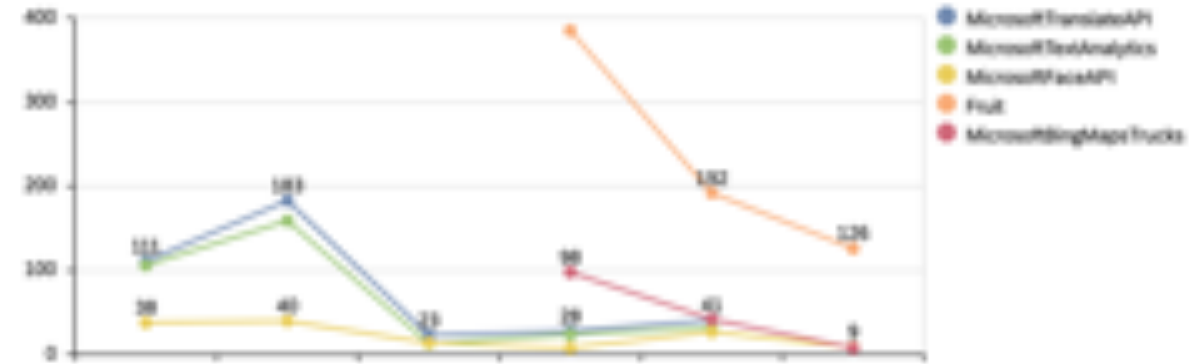
API Traffic - Total number of Calls



Frequently used APIs - Total number of Calls



Calls by API Proxy



UI5 documentation

Amazing set of resources made available

Tutorials, Best Practices, Samples, Demo Apps, Icons, etc.



Read | Try | Understand | Repeat



Tobias Hofmann @tobiashofmann · 11. Juni

Antwort an [@SoSchlegel87](#) [@SapCoffeeCorner](#) und [@cyclingfisch](#)

Ahem! I use well established patterns and best practices



Continuously integration: continuously test your pipeline

Day 1: set up pipeline

...

Day 8: working pipeline

- Build
- Test
- Analyze
- Package
- Deliver

File	% Stmts	% Branch	% Funcs	% Lines	Uncovered Lines
webapp/ Component.js	100	100	100	100	
webapp/controller/ Overview.controller.js	100	100	100	100	
webapp/model/ models.js	100	100	100	100	
All files	100	100	100	100	

Continuously integration: continuously test your pipeline

Day 45: Last run: successfull

Day 145: Next run: broken build

```
Running "karma:unit" (karma) task
PhantomJS 2.1.1 (Mac OS X 0.0.0) ERROR: '2019-06-24 14:50:27 [context.html] PhantomJS is not supported! UI5 might break on PhantomJS in future releases. Please use Chrome Headless instead. - DEVICE'

PhantomJS 2.1.1 (Mac OS X 0.0.0) ERROR
  {
    "message": "TypeError: undefined is not a constructor (evaluating 'Object.assign')\nat https://openui5.hana.ondemand.com/resources/sap-ui-core.js:133:0",
    "str": "TypeError: undefined is not a constructor (evaluating 'Object.assign')\nat https://openui5.hana.ondemand.com/resources/sap-ui-core.js:133:0"
  }
}
```



Your pipeline will break

Try to minimize frustration level

Run your pipeline continuously to see when it breaks

Continuously integration: continuously test your pipeline

A lot can happen in 100 days

- Updated NPM packages
- Updated CI tool
- Updated Infrastructure
- Supported → Deprecated → Ignored

Fitness program for CI

- Run pipeline daily
- Monitor output

Cannot run pipeline continuously?



You do not have continuous integration

Use UI5 tools & features

UI5 Evolution

- NPM
- Async
- Web Components
- Typescript?

Reverse Proxy

- Ui5 tooling includes basic Reverse Proxy

```
"mainService": {  
  "uri":  
  "http://localhost:8080/proxy/http/localhost:4004/store/",  
  "type": "OData",  
  "settings": {  
    "odataVersion": "4.0"  
  }  
}
```

▼ General

```
Request URL: http://localhost:8080/proxy/http/localhost:4004/store/Stores?$expand=address,orders&$orderby=name&$skip=0&$top=20  
Request Method: GET  
Status Code: ● 200 OK  
Remote Address: 127.0.0.1:8080
```

DESIGNER TEMPLATES

Designers are not a developers best friend



Font type and size?

Colors?

Spacing and Margins?

Button color changes?

Icons? Where to get them?

Mobile and Desktop Design?

Do NEVER accept

- Design handed over as PDF or Image
- Material forwarded via e-mail
- Without documentation



Forrest Gump Design

Design specifications

Designer & Customers: From generic box of chocolate to a detailed specification



<https://www.laderach.com/shop/en/48-assorted-chocolates.html>

<https://smile.amazon.de/Lindt-Spr%C3%BCngli-Geburtstags-Pralines-Pack/dp/B00908MEKS>

Good Design

SAP provides tools that should be used for designs

Rule #1: Use the provided tools

Rule #2: See #1

Designers: use UI5 based designs

- Use standard UI5 controls
- Sweet spot for UI5: business apps

Tools

Fiori design guidelines

Design stencils

SAP Build

WebIDE

Don't try this with UI5

The image displays a grid of car advertisements. On the left, there are two vertical panels for Citroën and Dacia. The Citroën panel lists models like M7 Coupe, M4 Convertible, M5 Saloon, and various Estate and Van models. The Dacia panel lists Duster Estate, Logan Estate, and Logan Stepway. The main grid features six car models with their specifications and leasing offers:

- Skoda Octavia:** 1.6 TDI SE Technology 12v (117bhp) (3 year) Hatchback Sal 999cc Petrol Manual (5 Speed). Rent New: £196/week. 2 year cheap car leasing. 3-23.
- Suzuki Swift:** 1.2 Dualjet Allroad 38v (90bhp) Hatchback Sal 1243cc Petrol Manual (5 Speed). Rent New: £200/week. 3 year cheap car leasing. 3-35.
- Renault Clio:** 0.9 TCE 67 Line 12v (90bhp) Hatchback Sal 999cc Petrol Manual (5 Speed). Rent New: £201/week. 2 year cheap car leasing. 3-23.
- Hyundai i30 Estate:** 1.6 T GDI S 12v (120bhp) Estate Sal 999cc Petrol Manual (5 Speed). Rent New: £202/week. 3 year cheap car leasing. 3-35.
- Seat Leon:** 1.6 TDI SE Dynamic (92) Hatchback Sal Diesel Manual (5 Speed). Rent New: £208/week. 3 year cheap car leasing. 3-35.
- Audi A1 Sportback:** 1.0 20 TFSI SE 12v (90bhp) Hatchback Sal 999cc Petrol Manual (5 Speed). Rent New: £220/week. 3 year cheap car leasing. 6-35.

At the bottom right, there is a section for LINGSCARS.com with business info and a map showing a location in the Midlands.

<https://www.lingscars.com/>

APPLICATION DESCRIPTOR

Meta information for project

Find out early where the app is going to life



Meta information for project

Solve basic problems before start coding

- Who is doing what?
- Who are these people?
- How to onboard new members?
- Communicate real project dates.
- Documentation: Wiki, Issue Tracker, README.md, Architecture. Make it your single source of truth.
- Review regularly quality of information provided by single source of truth.
- JIRA => Waterfall in Jira is still waterfall.
- Test data provider & quality.
- Bus factor.
- Be honest.

Every App deserves a documentation

Documentation is part of the app

Repository must include all documentation needed to develop, test & run app

External Wiki / Issue Tracker: for additional, project relevant information

Reference: Why

Document: How

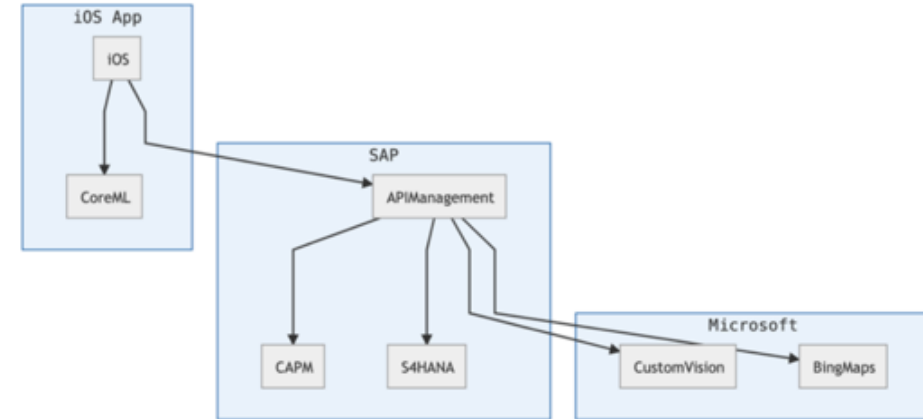
Do	Don't
README.md	Link to internal documentation needed to build & run app
Markdown	Documentation in issue ticket
List dependencies: UI, frontend, DB, etc.	Don't include code or text as image
Include basic architecture information	Secure documentation with additional access restrictions
Additional documentation: doc folder	Works on my machine
Update on regular basis	

Pictures help

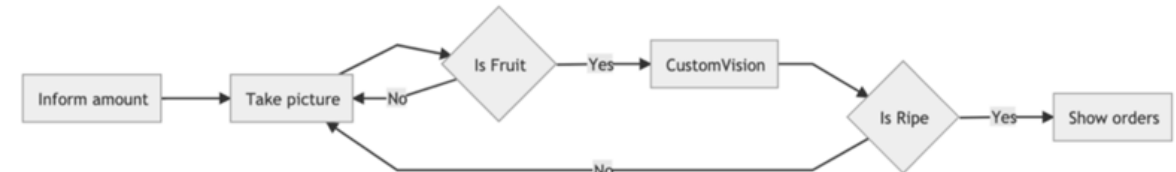
```
graph LR
  iOS-- HTTPS --- SCP
  SCP-- HTTPS --- SAP
```



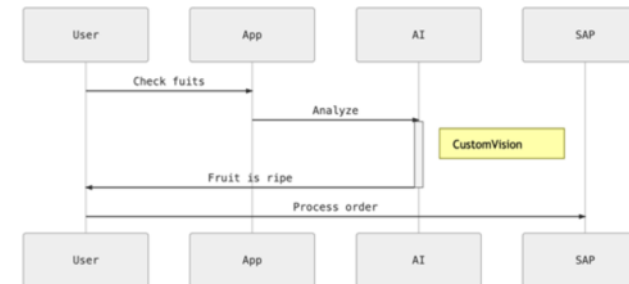
```
graph TB
  subgraph Microsoft
    CustomVision
    BingMaps
  end
  subgraph SAP
    APIManagement-->CAPM
    APIManagement-->S4HANA
    APIManagement-->CustomVision
    APIManagement-->BingMaps
  end
  subgraph iOS_App [iOS App]
    iOS-->APIManagement
    iOS-->CoreML
  end
```



```
graph LR
  A[Inform amount]-->B[Take picture]
  B-->D{Is Fruit}
  D-- Yes -->E[CustomVision]
  D-- No -->B
  E-->F{Is Ripe}
  F-- Yes -->G[Show orders]
  F-- No -->B
```



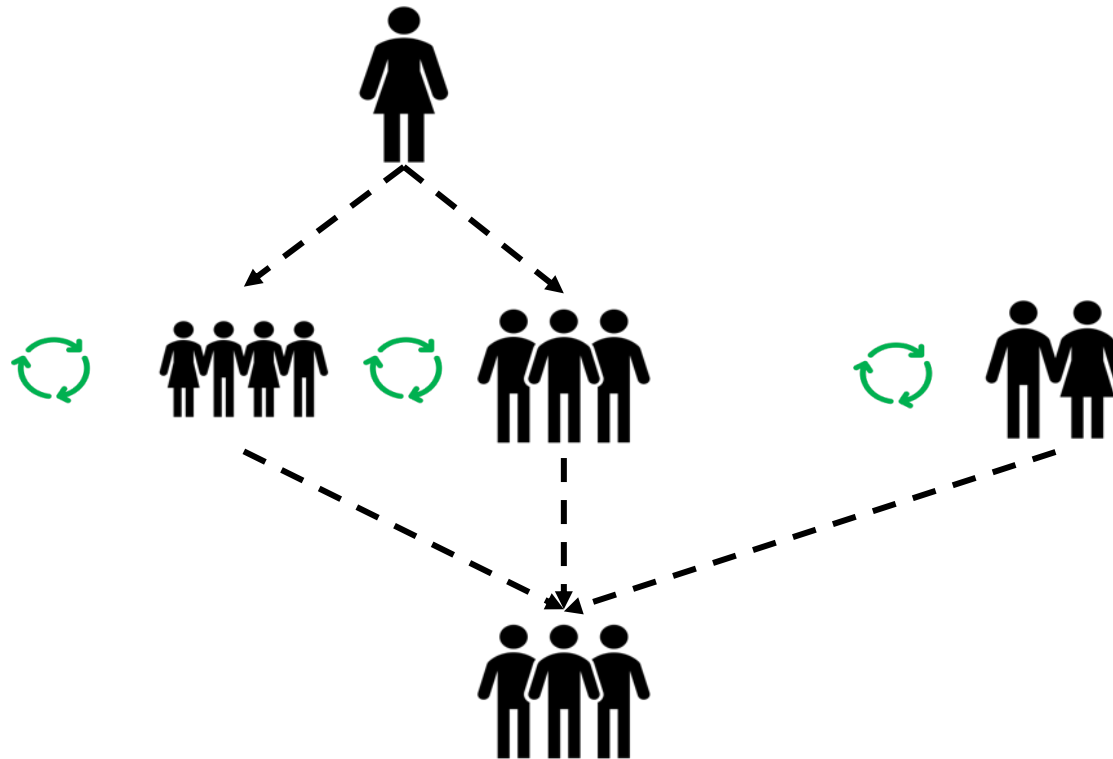
```
sequenceDiagram
  participant User
  participant App
  participant AI
  participant SAP
  User->>App: Check fruits
  App->>AI: Analyze
  Note right of AI: CustomVision
  AI->>User: Fruit is ripe
  User->>SAP: Process order
```



Team evolution



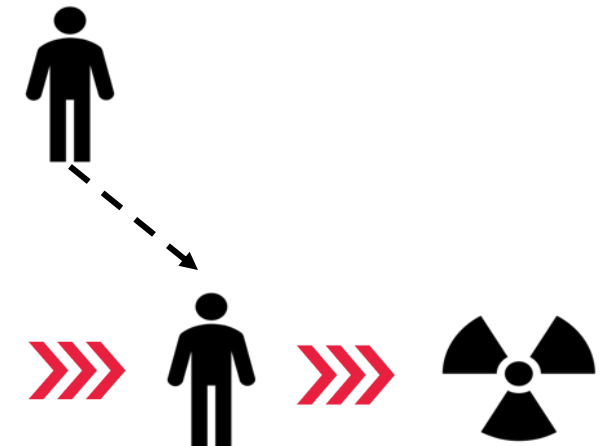
Start



Project execution



Maintenance



Support

Documentation

```
84 lines (67 sloc) | 1.66 KB
1 package com.tobias.sup.ejb;
2
3 import java.io.Serializable;
4
5 import javax.persistence.Column;
6 import javax.persistence.Entity;
7 import javax.persistence.GeneratedValue;
8 import javax.persistence.GenerationType;
9 import javax.persistence.Id;
10 import javax.persistence.PostLoad;
11 import javax.persistence.PostUpdate;
12 import javax.persistence.PrePersist;
13 import javax.persistence.PreUpdate;
14 import javax.persistence.Table;
15 import javax.persistence.TableGenerator;
16
17 /*
18  * create table PRODUCTS (id integer, Name varchar(50), price float);
19  */
20 @Entity
21 @TableGenerator(name="productGen", table="GEN_ID", pkColumnName="GEN_KEY", value
22 @Table(name = "PRODUCTS"))
23 public class Product implements Serializable {
24
25     /*
26     *
27     */
28     private static final long serialVersionUID = 1L;
29
30     @Id
31     @GeneratedValue(strategy = GenerationType.TABLE, generator="productGen")
32     @Column(name = "id")
33     private int id;
34
35     @Column(length=50, name = "name")
36     private String Name;
37     @Column(name = "price")
```

```
19 lines (18 sloc) | 437 Bytes
1 <?xml version="1.0" encoding="UTF-8" ?>
2 <persistence-unit name="com.xml/ns/persistence"
3 xmlns="http://xmlns.jcp.org/xml/ns/persistence"
4 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="1.0"
5 xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/persistence
6 http://xmlns.jcp.org/xml/ns/persistence/persistence_1_0.xsd">
7 <description>
8     Persistence Unit for transaction-type="JTA">
9     <provider>
10         persistence.PersistenceProviderImpl</provider>
11         <data-source>
12             <non-jta-data-source>
13                 <class>com.tobias.sup.ejb.User</class>
14                 <properties>
15                     <property name="openjpa.jdbc.Synchroniz
16                 </properties>
17             </non-jta-data-source>
18         </data-source>
19     </persistence-unit>
```

```
20 lines (11 sloc) | 437 Bytes
1 package com.tobias.sup.ejb;
2
3 import java.util.List;
4
5 import javax.jws.WebService;
6
7 @WebService(name = "ProductPortType", targetNamespace = "http://tobias.com")
8 public interface ProductInterface {
9
10     public int createProduct(String name, float price);
11
12     public boolean deleteProduct(int productId);
13
14     public Product changeProduct(Product product);
15
16     public List<Product> getAllProducts();
17
18     public Product getProduct(int productId);
19 }

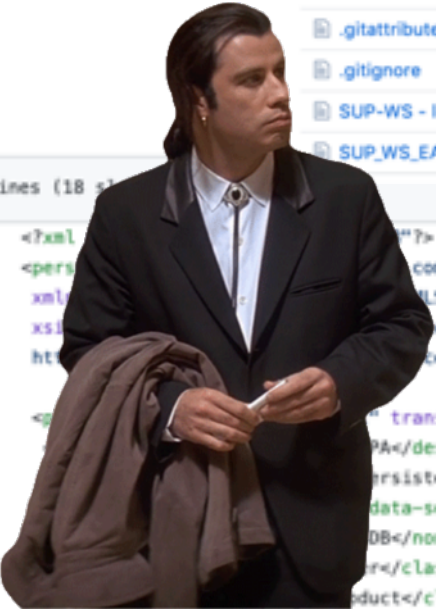
```

Connect SUP to a Geronimo Web Service

1 commit | 1 branch | 0 releases | 1 contributor

Branch: master | New pull request | Find File | Clone or download

tobiashofmann initial check-in	Latest commit 8c8527c on 17 Sep 2012
SUP-WS-EJB/ejbModule	Initial check-in 7 years ago
SUP_WS_EAR/EarContent/META-INF	Initial check-in 7 years ago
.gitattributes	Initial check-in 7 years ago
.gitignore	Initial check-in 7 years ago
SUP-WS - localhost.xml	Initial check-in 7 years ago
SUP_WS_EAR.ear	Initial check-in 7 years ago



ENTERPRISE READY

Semantic versioning

1.66.1



- Patch version MUST be incremented if only **backwards compatible** bug fixes are introduced.
- Minor version MUST be incremented if new, **backwards compatible** functionality is introduced to the public API.
- Major version MUST be incremented if any **backwards incompatible** changes are introduced to the public API.

Good news: Current UI5 is backwards compatible with 5+ year old code

UI5 is Enterprise Ready

Semantic versioning

OpenUI5 sample app <https://github.com/SAP/openui5-sample-app>

Commits on Dec 10, 2014

Initial commit
matz3 committed on 20 Oct 2014

1st commit

css	Initial commit	5 years ago
i18n	Initial commit	5 years ago
view	Initial commit	5 years ago
Component.js	Initial commit	5 years ago
index.html	Initial commit	5 years ago

Component.js

```
sap.ui.core.UIComponent.extend('todo.Component', {
  metadata: {
    name: 'Sample todo app',
    version: '1.0.0',
    includes: ['css/styles.css'],
    dependencies: {
      libs: ['sap.m']
    },
  },
  rootView: 'todo.view.App'
});
```


The dark ages

- Once there was a time before manifest.json [1]
- No UI5 Inspector or OPA
- No Walkthroughs and Tutorials

[1] <https://openui5.hana.ondemand.com/1.26.1/#docs/guide/0187ea5e2eff4166b0453b9dcc8fc64f.html>

Was muss getan werden?

- update app
- Start this app
- Learn OpenUI5

 Clear completed (1)

Putting an app into a box does not make it enterprise ready

- Documentation
- Tests
- Support
- Logs and measures
- ...



Logs

```
this._oLogger = Log.getLogger("de.bit.ui5con.Talk");  
this._oLogger.trace("Pressing button for starting presentation");  
this._oLogger.info("I am presenting");  
this._oLogger.error("Presentation is not working");
```

Measures

<http://hooli.xyz/>

Know if the app meets user expectation

Can the app help the user to perform a given task?

Based on numbers and real data

Important: faster is not a number

Example: Distributed tracing with Elastic APM

Transaction: Navigate to a page

Tasks: Load page, load data, update table data



Fruit Checker

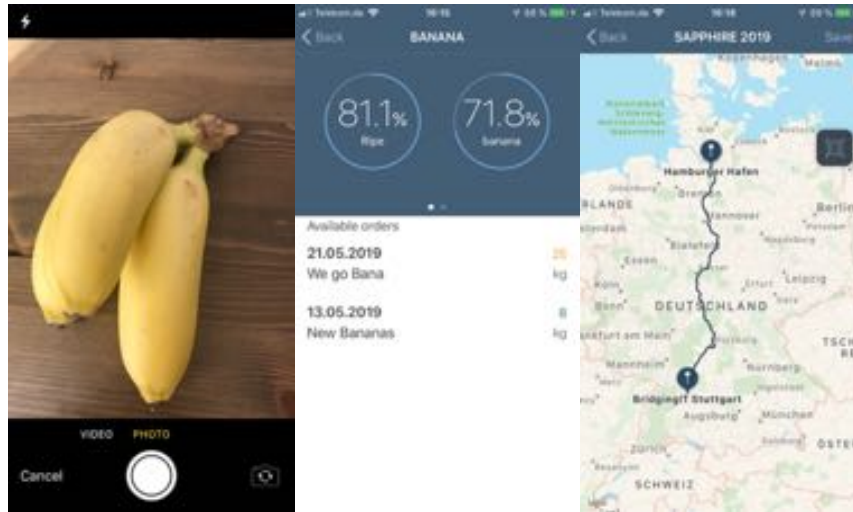
Example: Fruit Checker App

ML enhanced order processing: iOS (native) and web (UI5)

Backend: CAPM on K8S

iOS App Build: Microsoft AppCenter

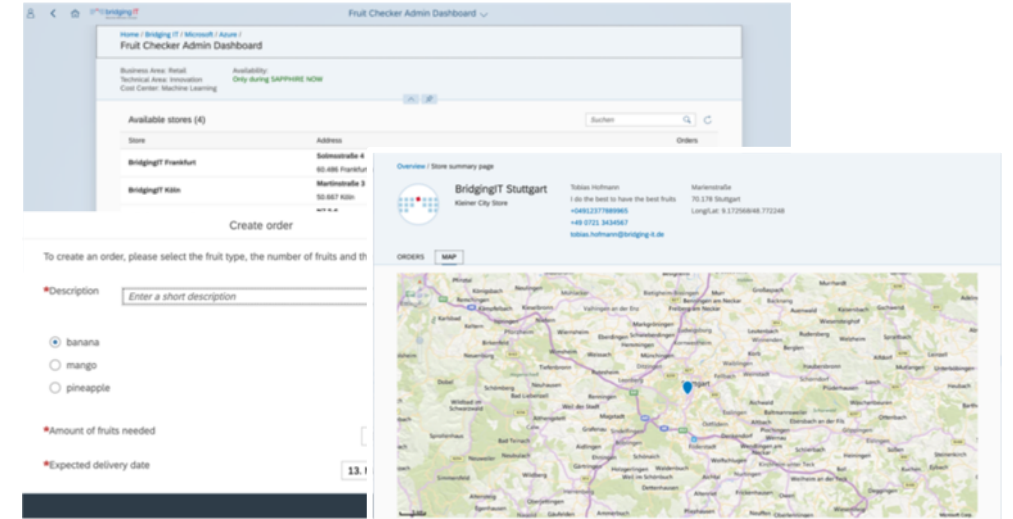
100% Cloud App



iOS App

Fiori for iOS

CoreML

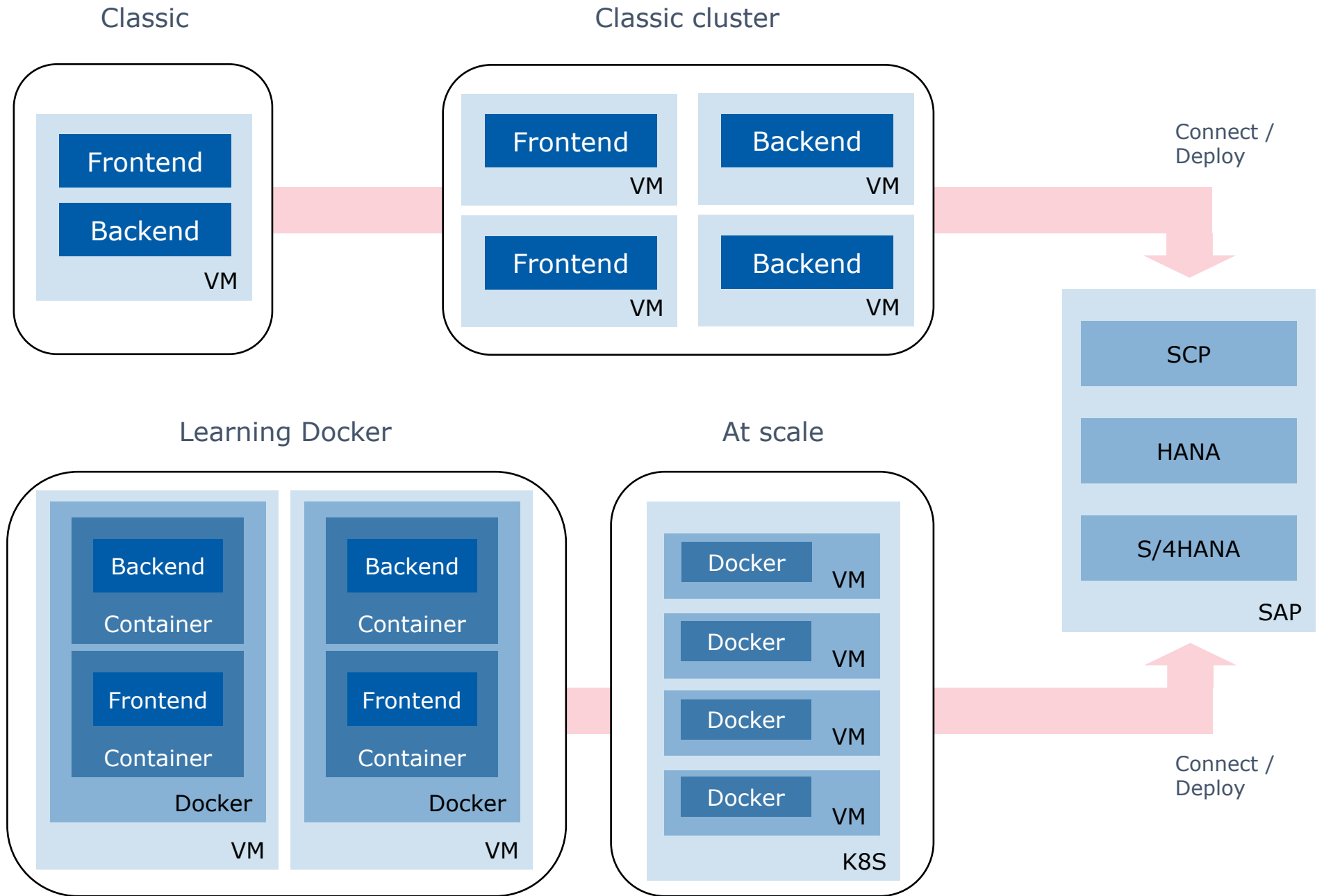


UI5 App

Integrated in Fiori Launchpad

GeoMap

Fruit Checker CAPM



Leverage multi cloud
Deploy & Run in Container on K8S
Select container runtime of your choice

Example: Azure K8S

Clusterkapazität gesamt

Kerne 2 vCPUs

Arbeitsspeicher 7 GiB

 1 x Standard DS2 v2 (2 vcpus, 7 GiB Arbeitsspeicher)



Clusterkapazität gesamt

Kerne 2 vCPUs → 200 vCPUs (neu)

Arbeitsspeicher 7 GiB → 700 GiB (neu)

 100 x Standard DS2 v2 (2 vcpus, 7 GiB Arbeitsspeicher)

Multicloud on API Level

Use what serves best your needs

Need to calculate route for a truck? Microsoft Bing Maps offers a Truck API

Need to use Machine Learning? Azure CustomVision, Google AI or Leonardo

Text analytics? Azure Cognitive Services, SAP Translation Hub

...

Glue to combine services is API Management

- Document your API
- Version your API
- Control access
- Measure usage
- Analyze impact

```

/store/order:
  post:
    tags:
      - "store"
    summary: "Place an order for a pet"
    description: ""
    operationId: "placeOrder"
    produces:
      - "application/xml"
      - "application/json"
    parameters:
      - in: "body"
        name: "body"
        description: "order placed for purchasing the pet"
        required: true
        schema:
          $ref: "#/definitions/Order"
    responses:
      200:
        description: "successful operation"
        schema:
          $ref: "#/definitions/Order"
      400:
        description: "Invalid Order"
/store/order/{orderId}:
  get:
    tags:
      - "store"
    summary: "Find purchase order by ID"
    description: "For valid response try URL like
    Other values will generated except
    operationId: "getOrderById"
    produces:
      - "application/xml"
      - "application/json"
    parameters:
      - name: "orderId"
        in: "path"
        description: "ID of pet that need

```

store Access to Petstore orders

GET	/store/inventory	Returns pet inventories by status
POST	/store/order	Place an order for a pet
GET	/store/order/{orderId}	Find purchase order by ID
DELETE	/store/order/{orderId}	Delete purchase order by ID

TESTING



Rules

#1	Just do it!!!
#2	You will always meet at least 2 times.
#3	Just like with documentation, you write tests for your future self.
#4	Testing is not free. 100%+ time effort is not unrealistic. Learn how to write testable code.
#5	No excuses: If you do not write tests, it's because of you.
#6	Something is better than nothing.
#7	Unit tests are not enough

UI5 apps support qunit, OPA5, Istanbul, Karma, mocha, chais, selenium, etc.

Tests can be written and run using a wide range of tools

Transparent reporting of test runs and results

Tests with wdio

OPA5 is fine

Consider an alternative

Selenium is widely adopted. There is a reason to it.

Try to use it

Try webdriver.io

File	% Stmts	% Branch	% Funcs	% Lines	Uncovered Lines
controller/ Overview.controller.js	0	0	0	0	... 80,83,86,89
model/ models.js	55.56	100	66.67	55.56	17,18,19,20
All files	9.09	0	25	9.09	



You can too!

File	% Stmts	% Branch	% Funcs	% Lines	Uncovered Lines
webapp/ Component.js	100	100	100	100	
webapp/controller/ Overview.controller.js	100	100	100	100	
webapp/model/ models.js	100	100	100	100	
All files	100	100	100	100	

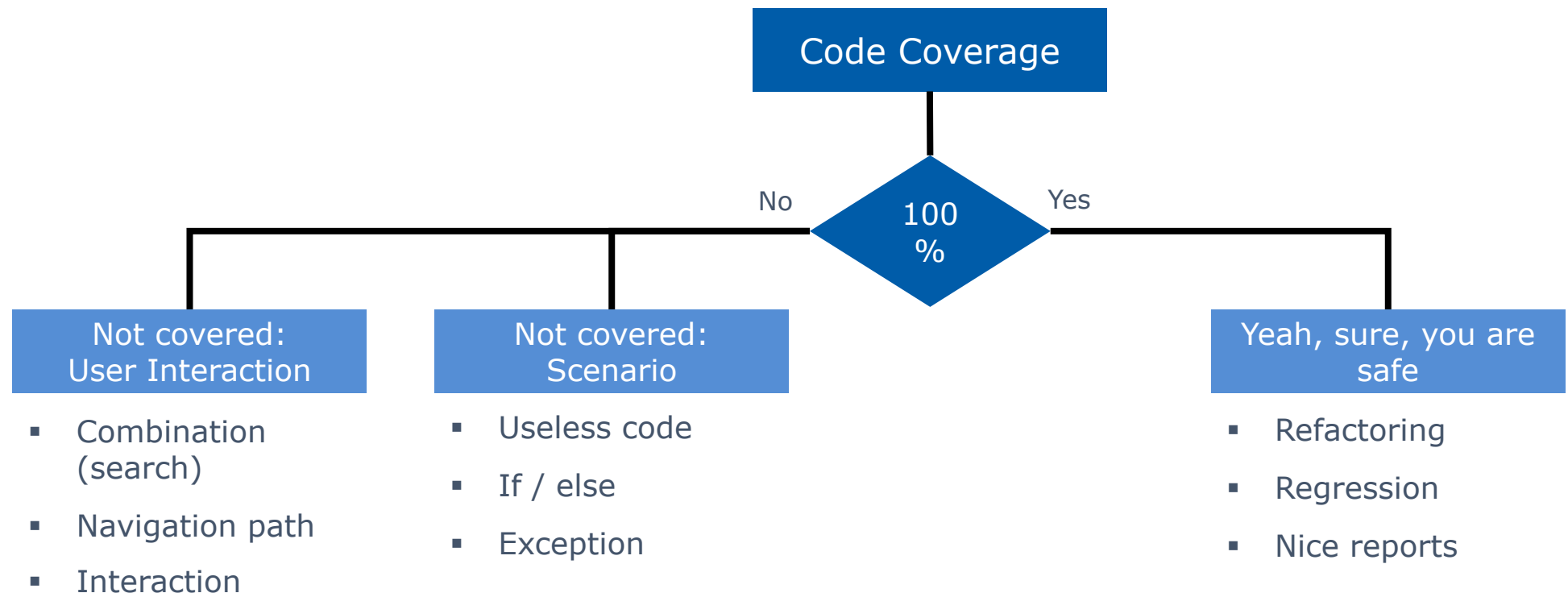
Combination of integration tests with code coverage

Cover possible paths

Find not covered user interactions

Free extra: go to 100% code coverage

100% does not mean an app is bug free





Wir freuen uns auf Sie!

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70178 Stuttgart

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