



Micro Frontends



SDC, 2022-06-19
Dr. Florian Rapp

Hello, I'm Florian!



Solution Architect at smapiot

IoT / Embedded Computing

Digital Transformation

Distributed Web Applications

Open-Source Enthusiast

Microsoft MVP Development Tools

Projects for .NET and JS

Articles for various blogs and magazines

Hello, you are?

Background?

Current position?

Experiences?

Expectations?

Access to the Examples

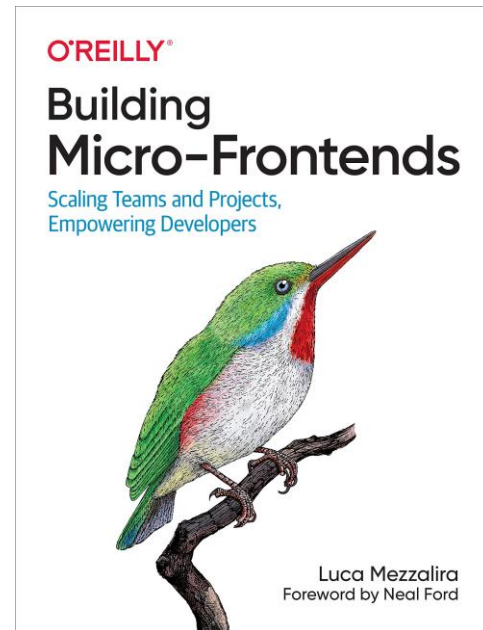
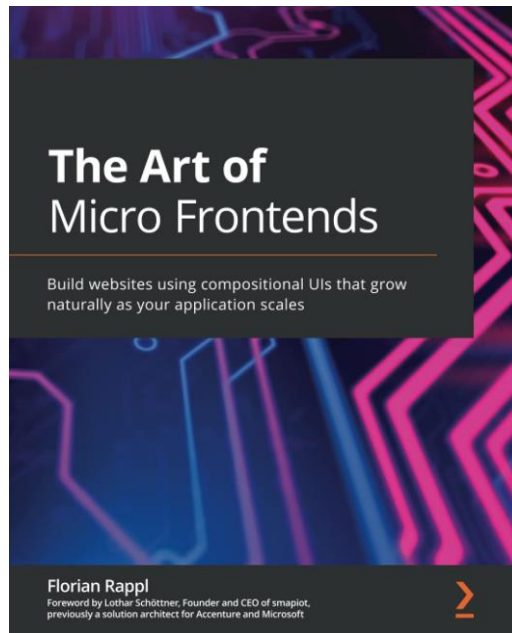
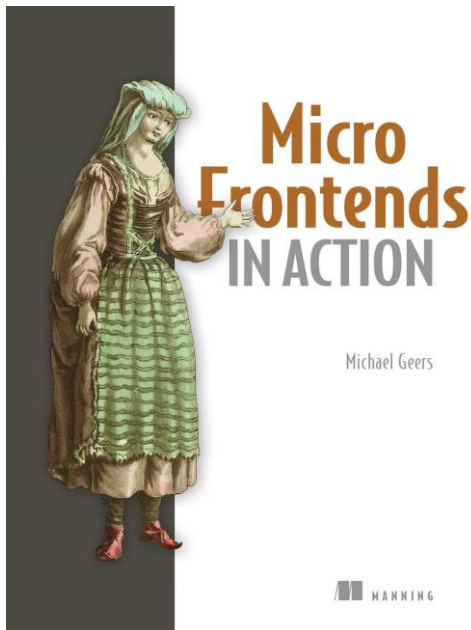
Send me your GitHub account to get access to:

<https://github.com/FlorianRappl/sela-mf-workshop>

Agenda

- 9⁰⁰-10¹⁵ Introduction to Micro Frontends
Scalability Considerations
Domain Decomposition
Web Approach
- 10¹⁵-11⁰⁰ Exercise
- 11⁰⁰-12⁰⁰ Solution Discussion
Server-Side Composition
Technical vs Functional Modules
UX Scaling
- 12⁰⁰-12⁴⁵ Exercise

Available Books



Who uses Micro Frontends?



zalando



breuninger



HELLO
FRESH



FINN

OTTO



PayPal



Alibaba Group



Thalia

KLINGEL

Gruppe

REWE

SAP



StepStone



Spotify



Klarna



namecheap

axinom!



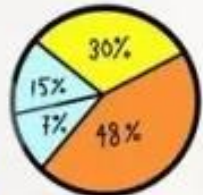
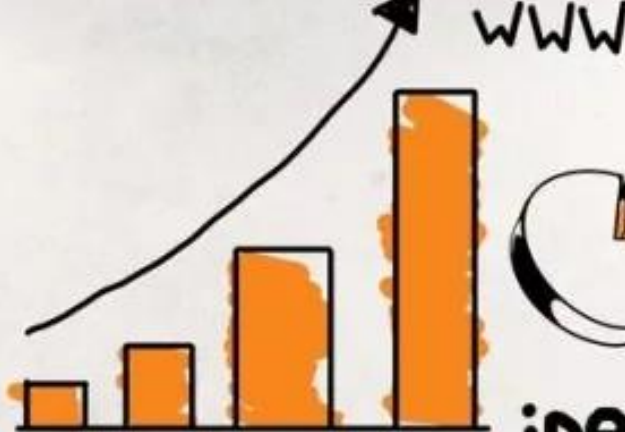
smapiot

rbi

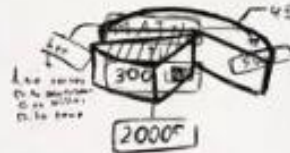


SELA

@FlorianRappl



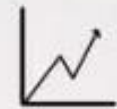
idea 45% is SALE!



TEAM



internet



MARKETING



SUCCESS

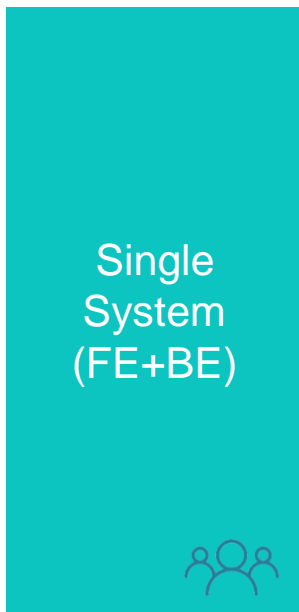




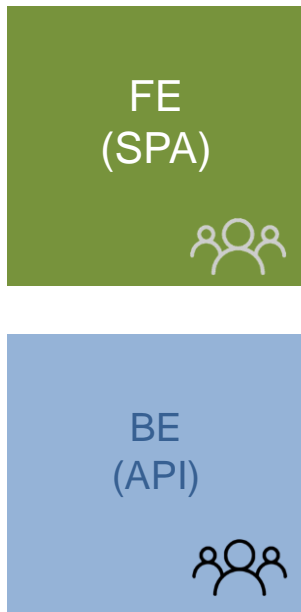
Scalability is the ability to
handle changing demands
on a business.

Web Evolution

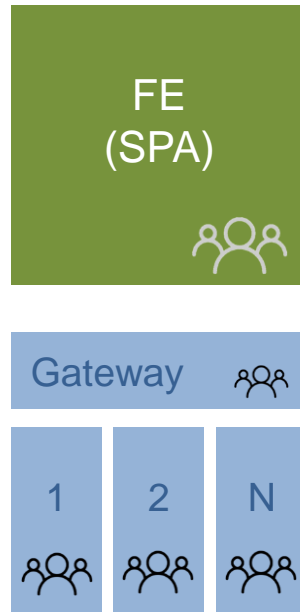
Monolith



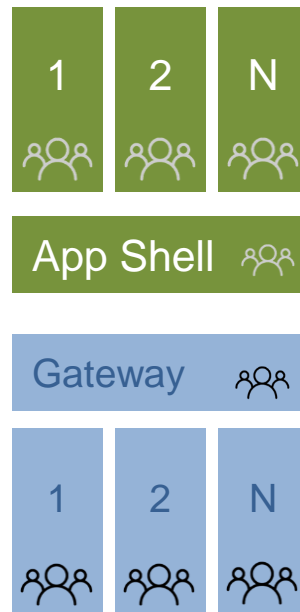
Sep. BE/FE



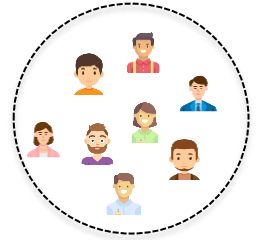
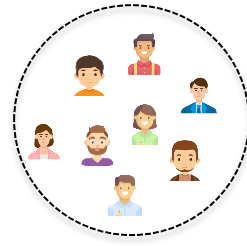
Microservices



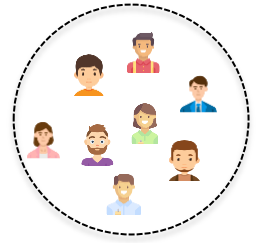
MFs



Distribution of Work



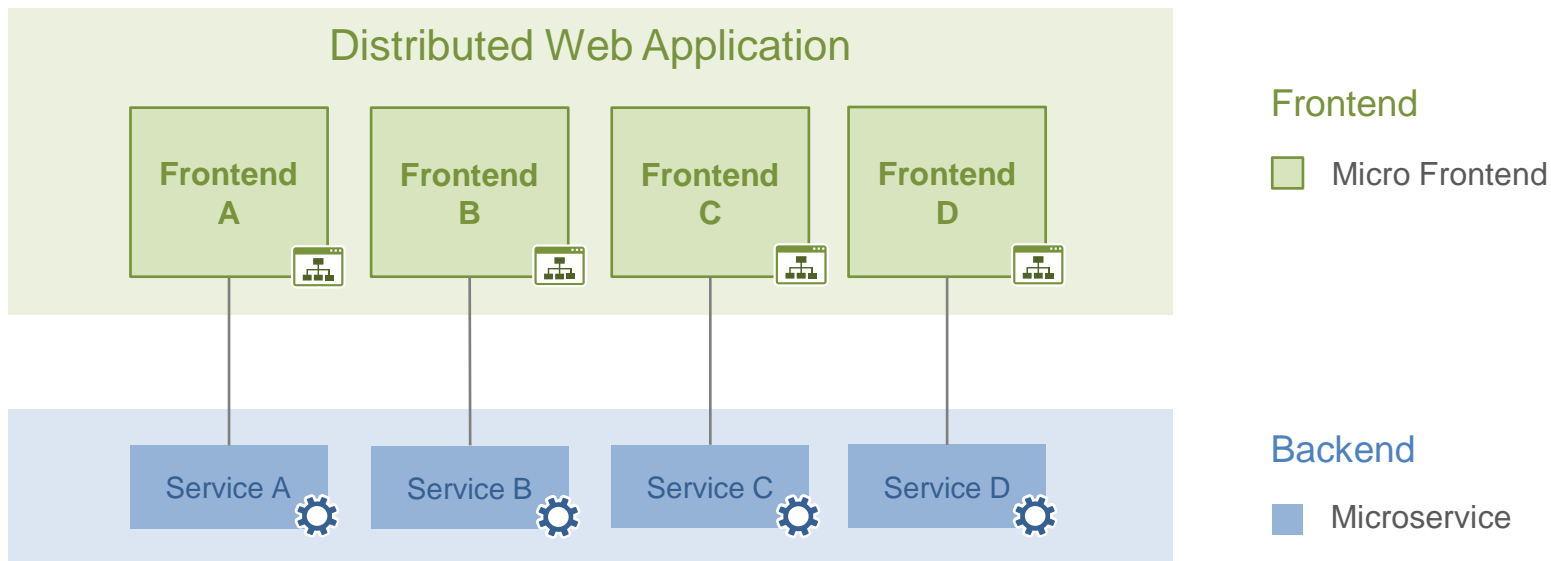
three 8-person teams



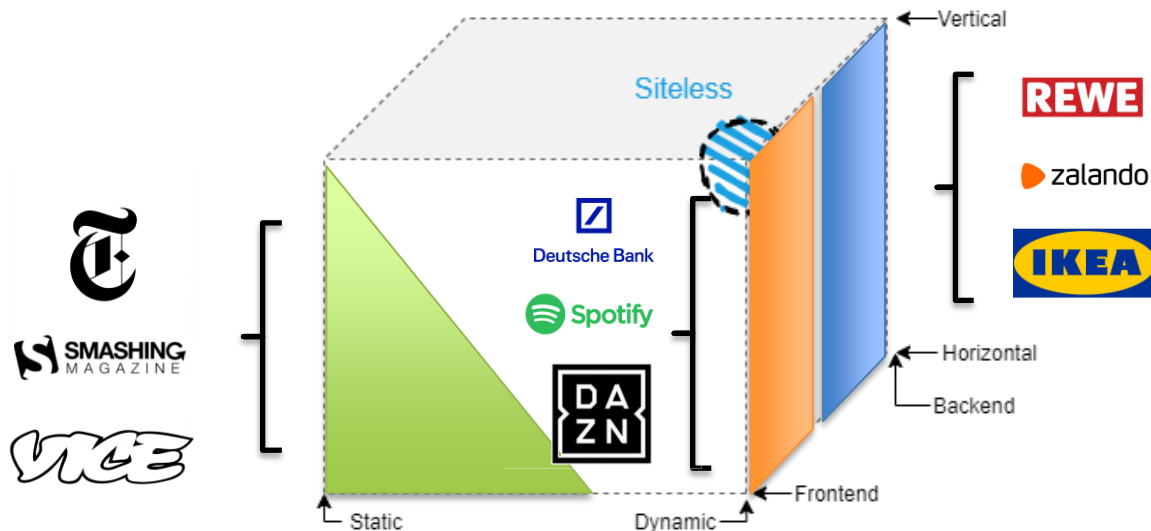
are more effective than

one 24-person team

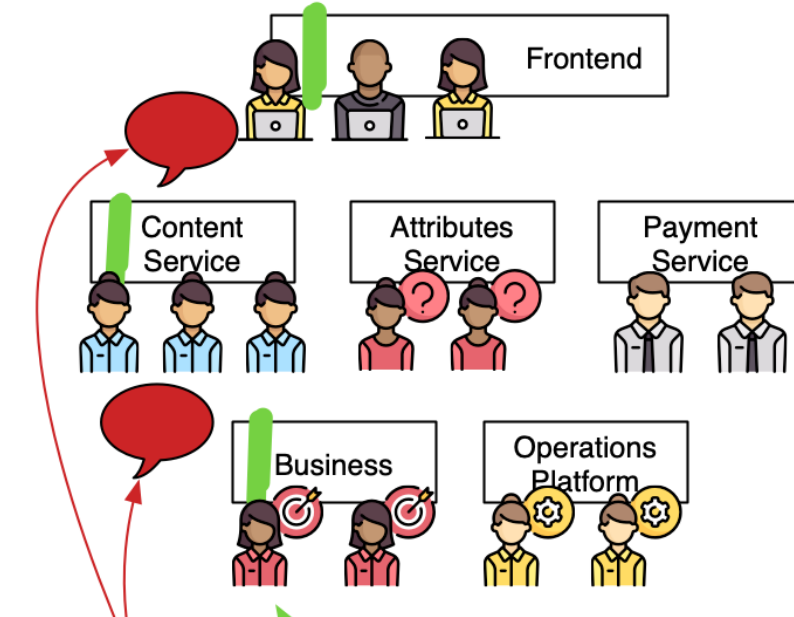
Micro Frontend Architecture



MF Architecture Solution Space



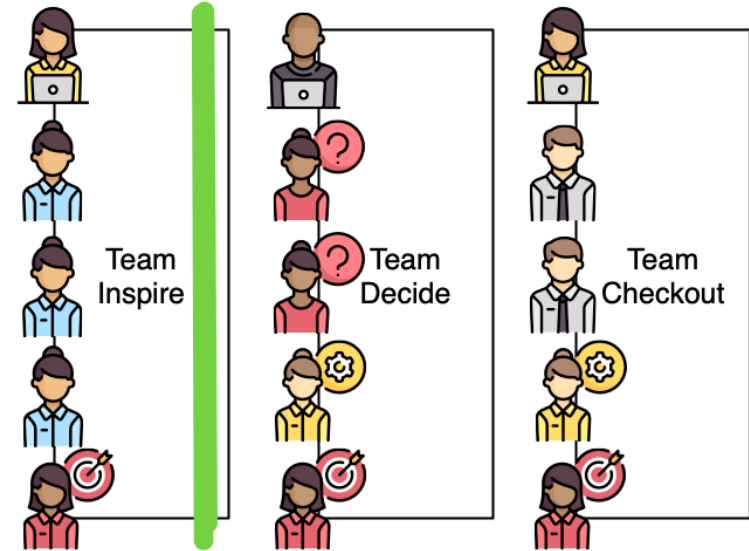
Microservices



slow **inter-team**
communication

adding a **new feature**

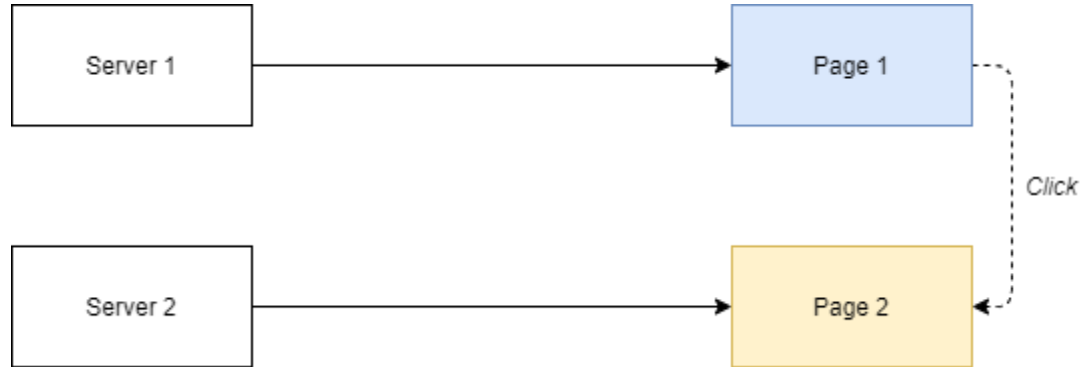
Micro Frontends



Graphic by M. Geers

Architecture Pattern

Web Approach



The Model Store

basket: 0 item(s)



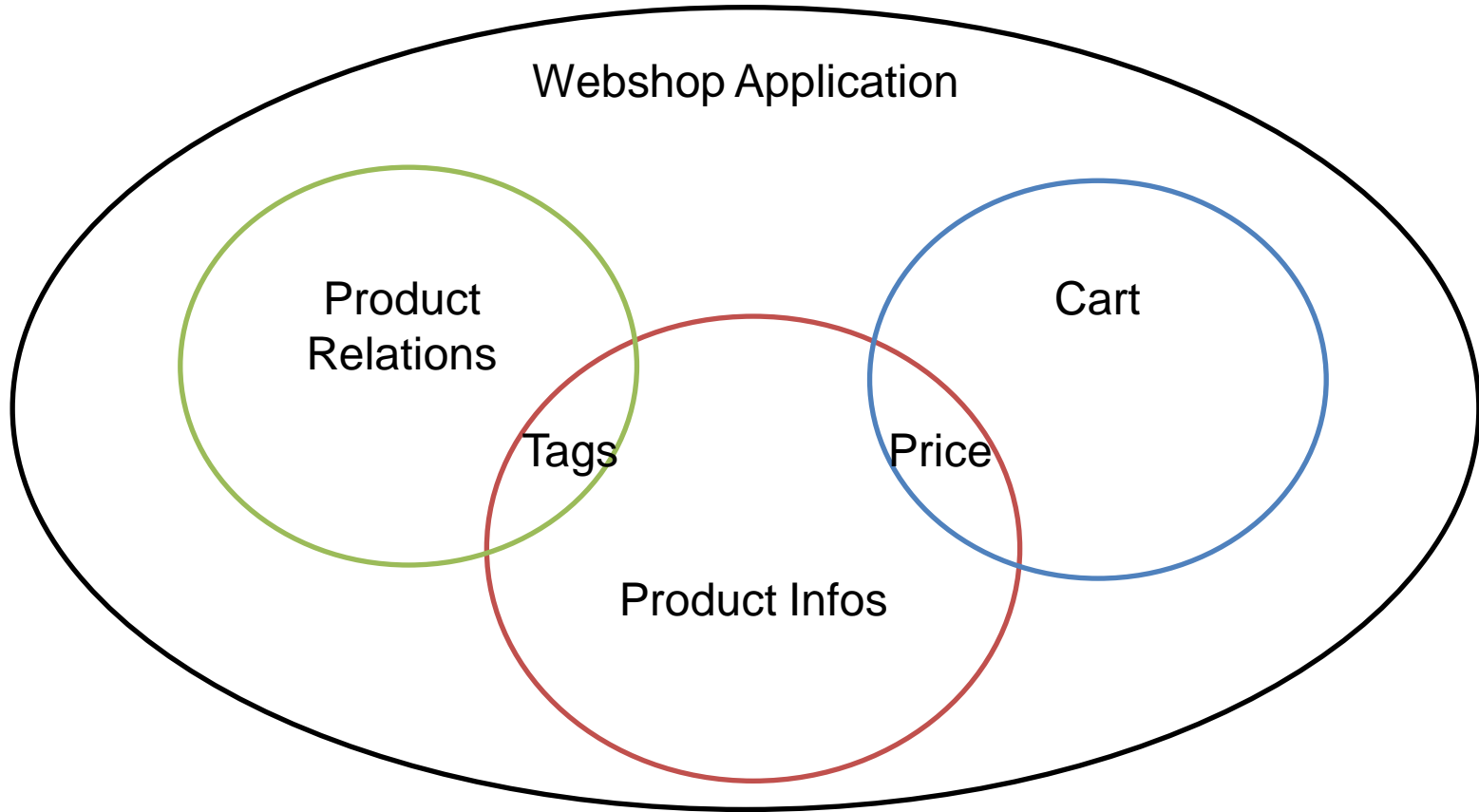
Tractor Porsche-Diesel Master
419



buy for 66,00 €

Related Products





The Model Store

basket: 0 item(s)

Related Products



Tractor Porsche-Diesel Master
419



buy for 66,00 €



Team Product

Team Checkout

Team Inspire

Exercise (1)

Derive a domain decomposition for Netflix. Their application consists of a video catalogue, previews, related content, popular videos, profile management, and a video player.

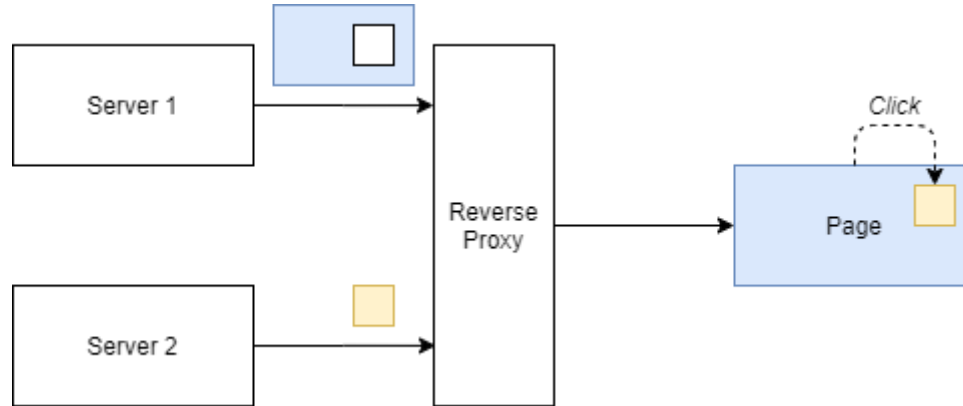
Questions:

- What teams should / have to exist and what are their subdomains?
- Which micro frontends (and components) could make sense?

→ Use the „exercises/exercise-01“ directory as a starting point.

Architecture Pattern

Server-Side Composition



Podium

- Server-side composition of smaller frontend parts called “podlets”
- Aggregated in a server using a layout

More information: <https://podium-lib.io/>

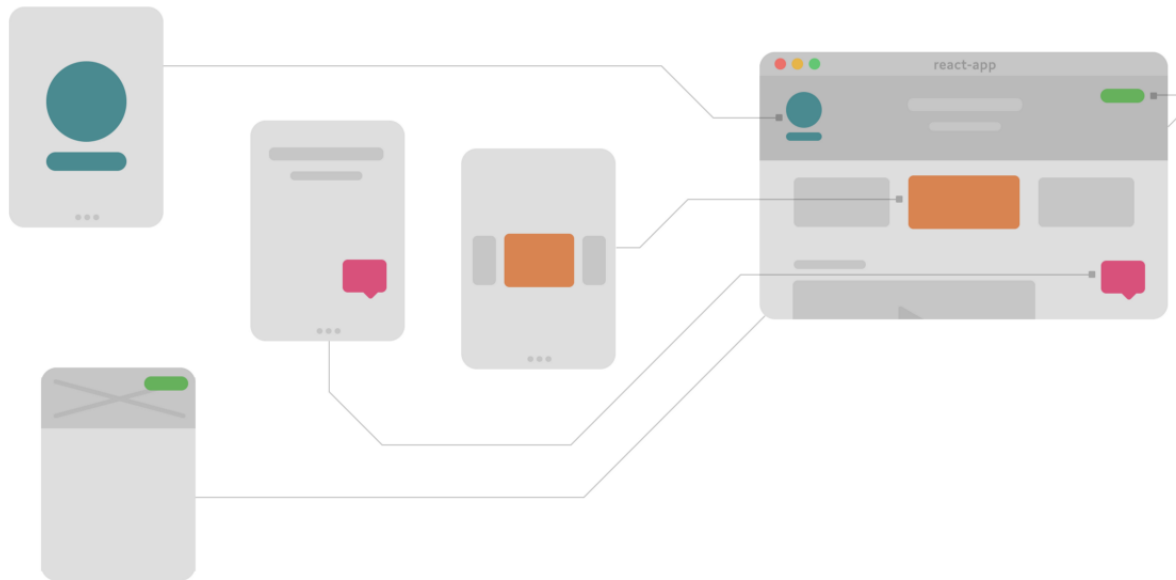
Architecture Pattern

Server-Side Composition



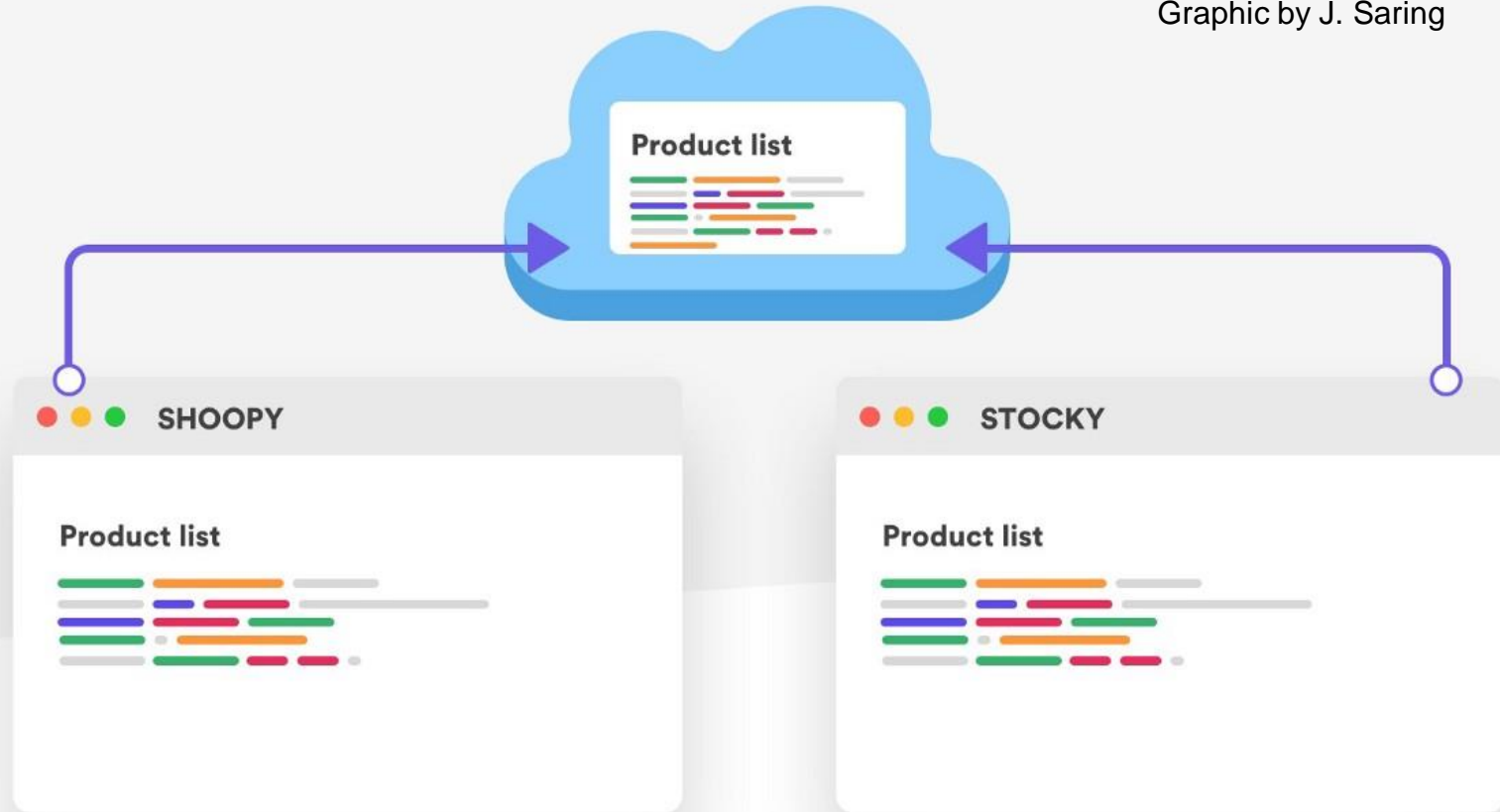
GitHub repository
demos/demo-01

UX Scaling



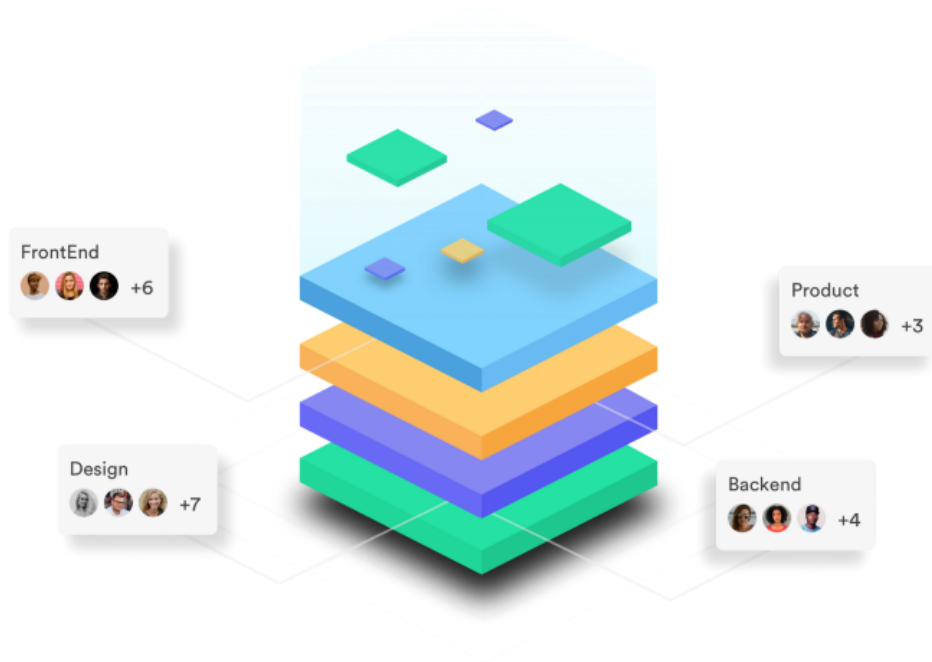
Graphic by J. Saring

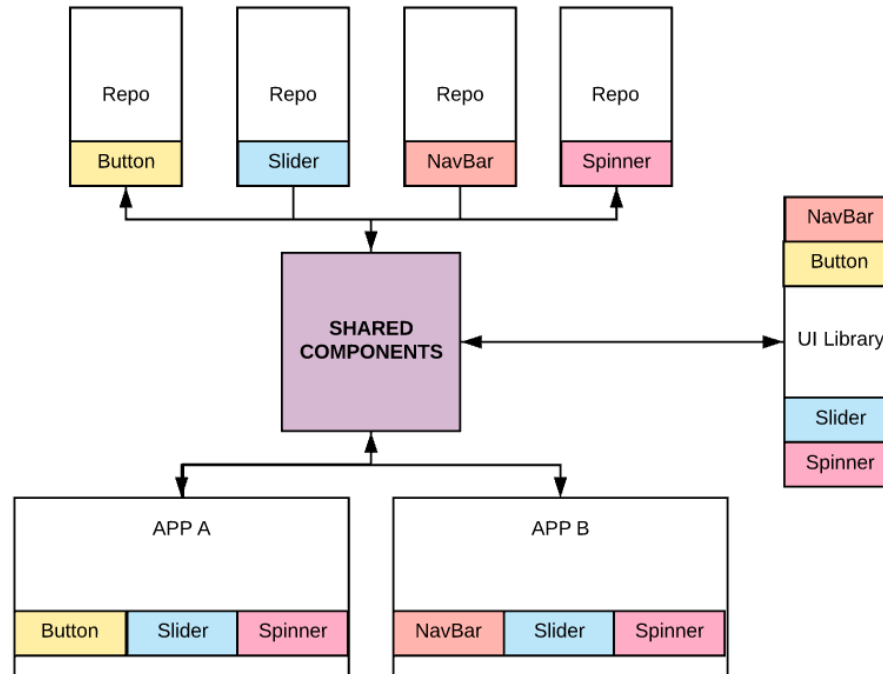
Graphic by J. Saring



UX Scaling

Graphic by J. Saring





Exercise (2)

Write another MF for the webshop using Podium. The MF should show reviews related to the currently selected product.

Questions:

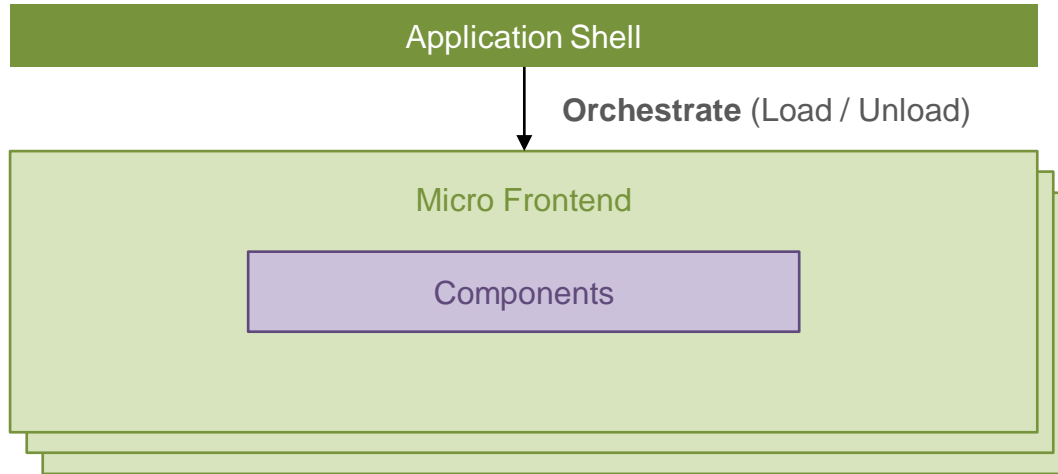
- How can the new MF be integrated?
- How is the MF being debugged?

→ Use the „**exercises/exercise-02**“ directory as a starting point.

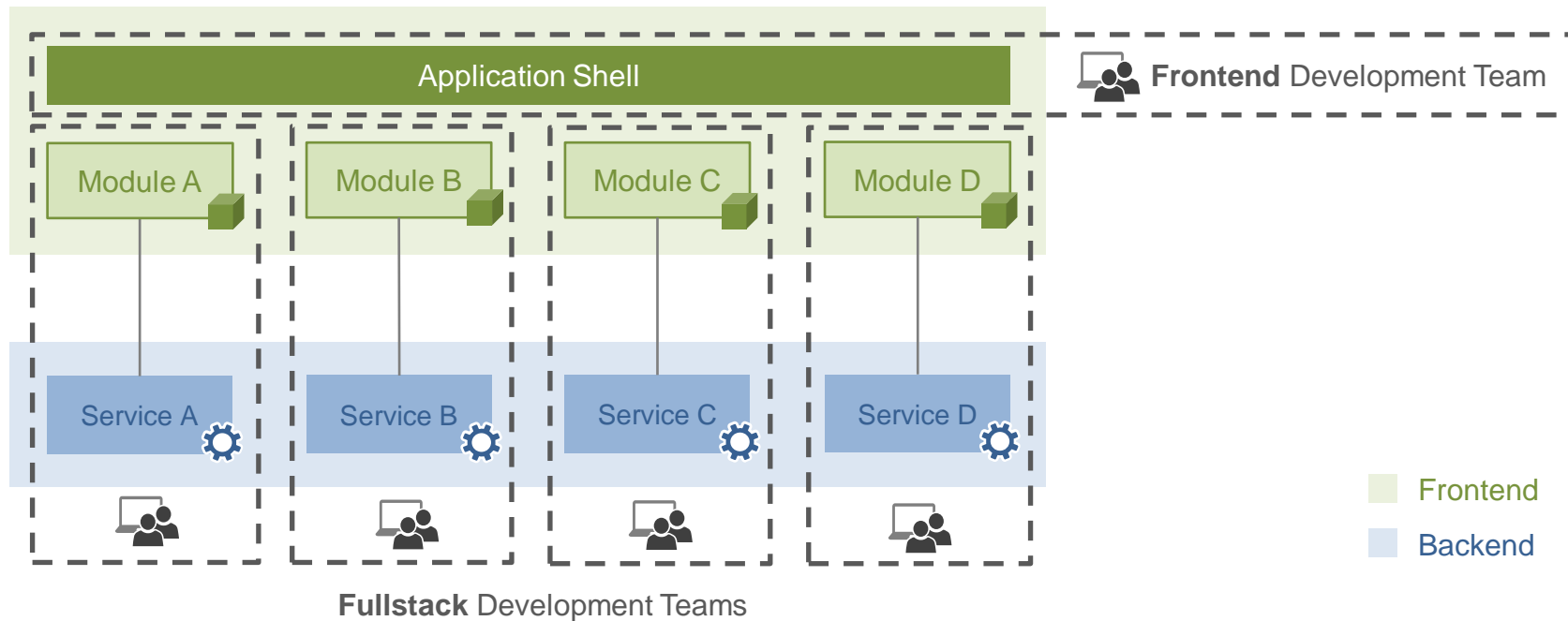
Agenda

- 13⁴⁵-14⁴⁵ Solution Discussion
 - App Shell Model
 - Client-Side Composition
 - Web Components**
- 14⁴⁵-15³⁰ Exercise
- 15³⁰-16⁰⁰ Solution Discussion
 - Recap & Outlook

		Application Shell	
		NO	YES
Shared Libraries	YES	Framework shared libs only	„MODULITH“ Architecture Foundation, Design & Shared Libraries
	NO	Empty No basis	Layout Design only



Development Approach

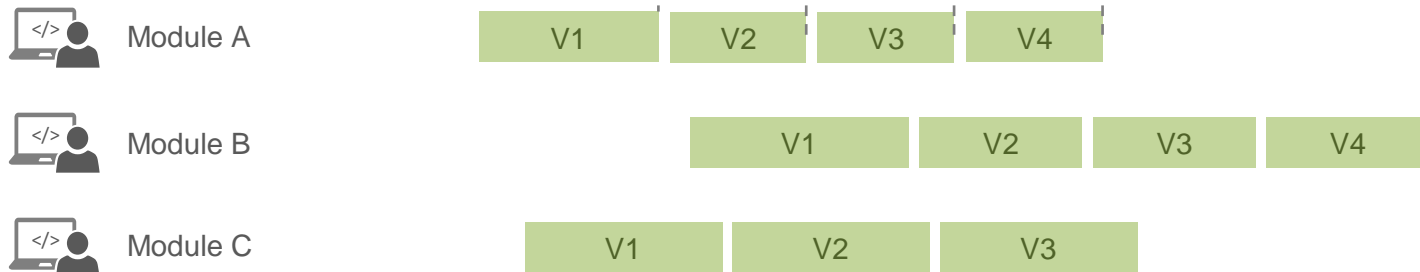


Development Lifecycles

App Shell Development

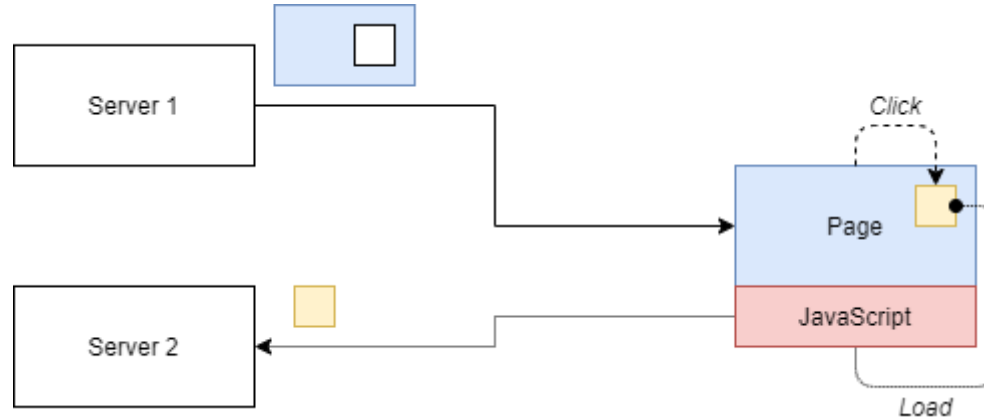


Module Development



Architecture Pattern

Client-Side Composition



Web Components

- Combination of different technologies
 - Shadow DOM (style / node isolation)
 - Custom elements (register a custom tag name)
 - HTML templates (pre-parse trees into reusable fragments)
- They can be used to transport and inject a full micro document (“component”) seamlessly, i.e., without using an iframe

Architecture Pattern

Client-Side Composition



GitHub repository
demos/demo-02

Exercise (3)

Write another MF for the webshop using web components. The MF should show reviews related to the currently selected product.

Questions:

- How can the new MF be integrated?
- How is the MF being debugged?

→ Use the „exercises/exercise-03“ directory as a starting point.

Thank you!



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smapiot.com

github.com/smapiot



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Piral

piral.io

docs.piral.io

