Frontend solutions for Enterprise App

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#XeOneDay

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DBA LAB
A DBA Group Company

Agenda:

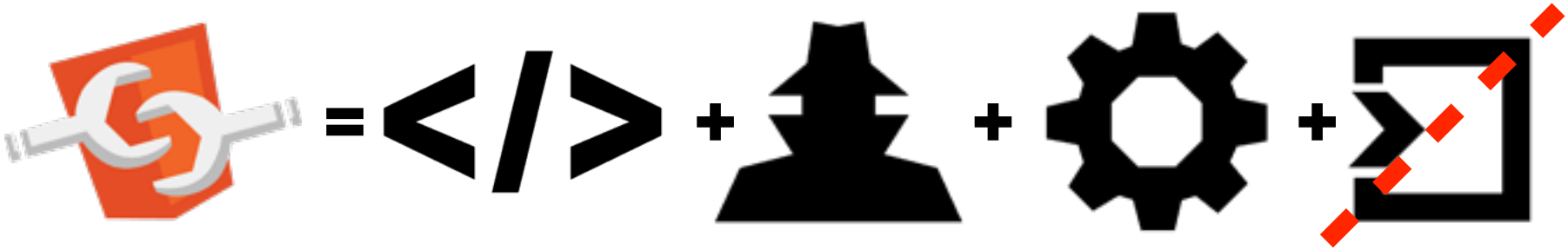
- Intro ai Web Components

- Un pò di storia… “Enterprise”
- Approcci per il Frontend
- DEMO
- Conclusioni

Web Components

Specifica W3C a cappello di 4 features:

- Custom Elements
- Shadow DOM
- HTML Template
- ~~HTML Import~~



WebComponents Vantaggi:

- E’ uno **Standard** indipendente dai FW JS
- **Supporto** browser moderni (polyfill IE11+)
- Permette di arricchire il “dialetto HTML” con dei **`<tag-custom>`** in modo da isolare e riutilizzare la logica aka “**componente**”
- **Facilità di utilizzo** da “Vanilla JS” e HTML
  - Interfaccia conosciute: DOM event/prop
  - Basta caricare `<script src=“tag-def.js”>` + usare nel’HTML `<tag attr=“x”></tag>`
  - Facilità caricamento dinamico (lazyload)

Esempio “code snippet” Web Component

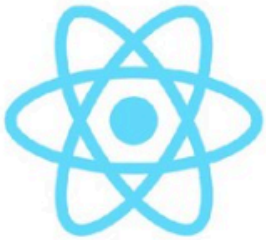
```
class MyComp extends HTMLElement {
    constructor() { //define HTML or use template+shadowDOM
        super()     // this.attachShadow({mode: “open”})
        this.innerHTML = “<div>…</div>”
    }
    //sample Properties any Object types
    get myProp { return … }
    set myProp(value) {
        … //eventually emit Events + data
        this.dispatchEvent(new CustomEvent(“prop-changed”,
                                { detail: … } )
    }

    attributeChangedCallback(name, oldValue, newValue) {
        […] //handle Attribute change, always String in HTML
    }
}
customElements.define(“my-comp”, MyComp) //register new TAG
```

Interazione con i Frameworks JavaScript

- Tutti i Framework JS moderni **supportano** l'**utilizzo nativo** di WebComponent esattamente come gli altri <tag> HTML
- Possibilità di **wrappare** componenti specifici dei vari (* 👇) FrameworkJS ed **esportarli** come **WebComponent**

Angular Elements

Vue.js + Vue CLI



Wrap by hand/
Community Solutions

Intro - THE END

```
</web-component>
<!-- THE END -->
```

Qui inizia la mia vera sessione ... 😎

micro-frontend aka microApp aka miniSPA

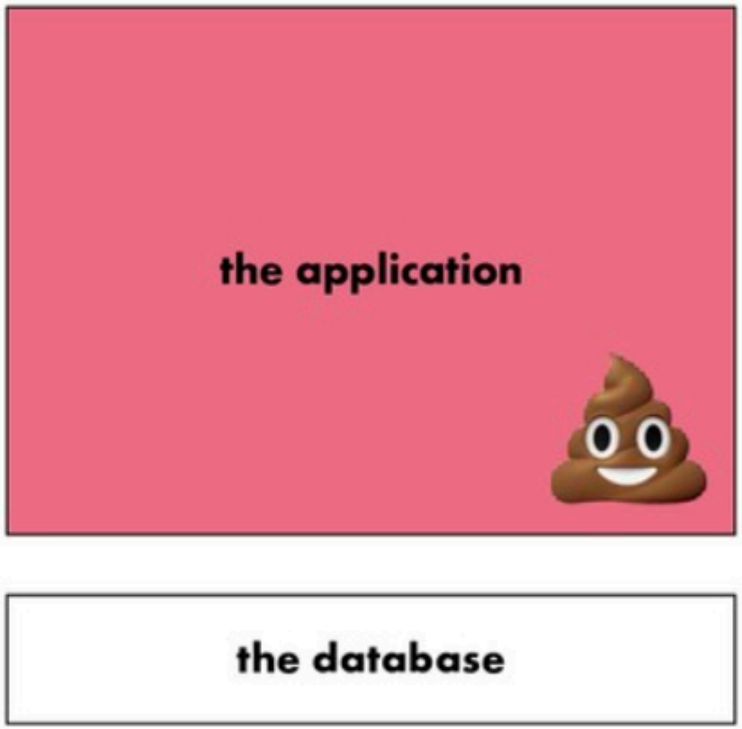
DEFINIZIONE: 🥁

"the idea of **micro frontends** is
to extend the **concept of micro services**
to the **frontend** world."

(micro-frontends.org)

un pò di storia... 🤓

C’era una volta il “monolite”



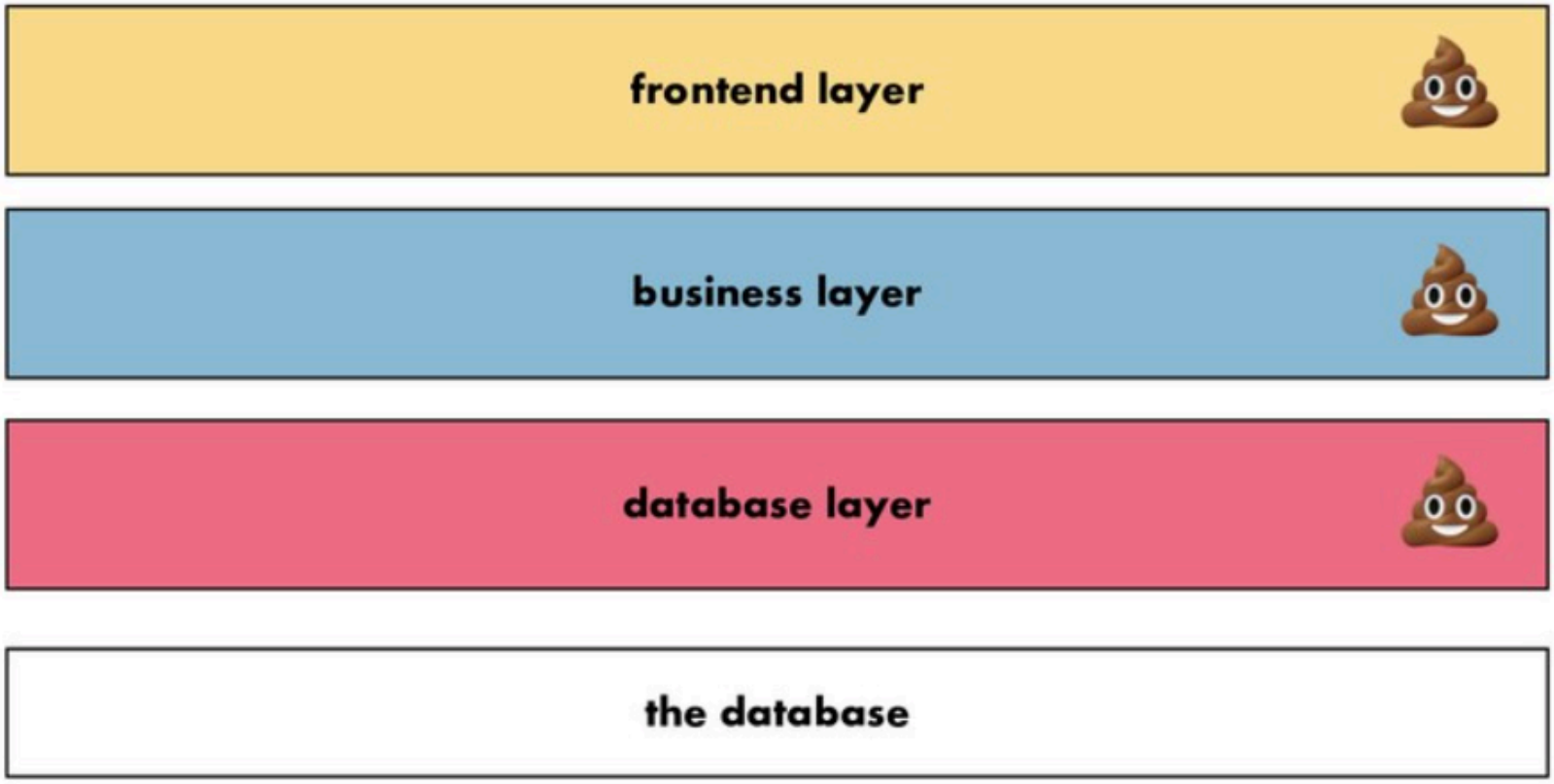
Problemi del “monolite”

- **Complessità** per numero di funzionalità
- **Manutenibilità** sul lungo periodo
- Difficoltà di **lavoro** da parte **più Team**
- Difficoltà di **cambiamenti architettura**
- Problema del **“Legacy code”** / quale FW scegliere? / Come provare nuovi FW?

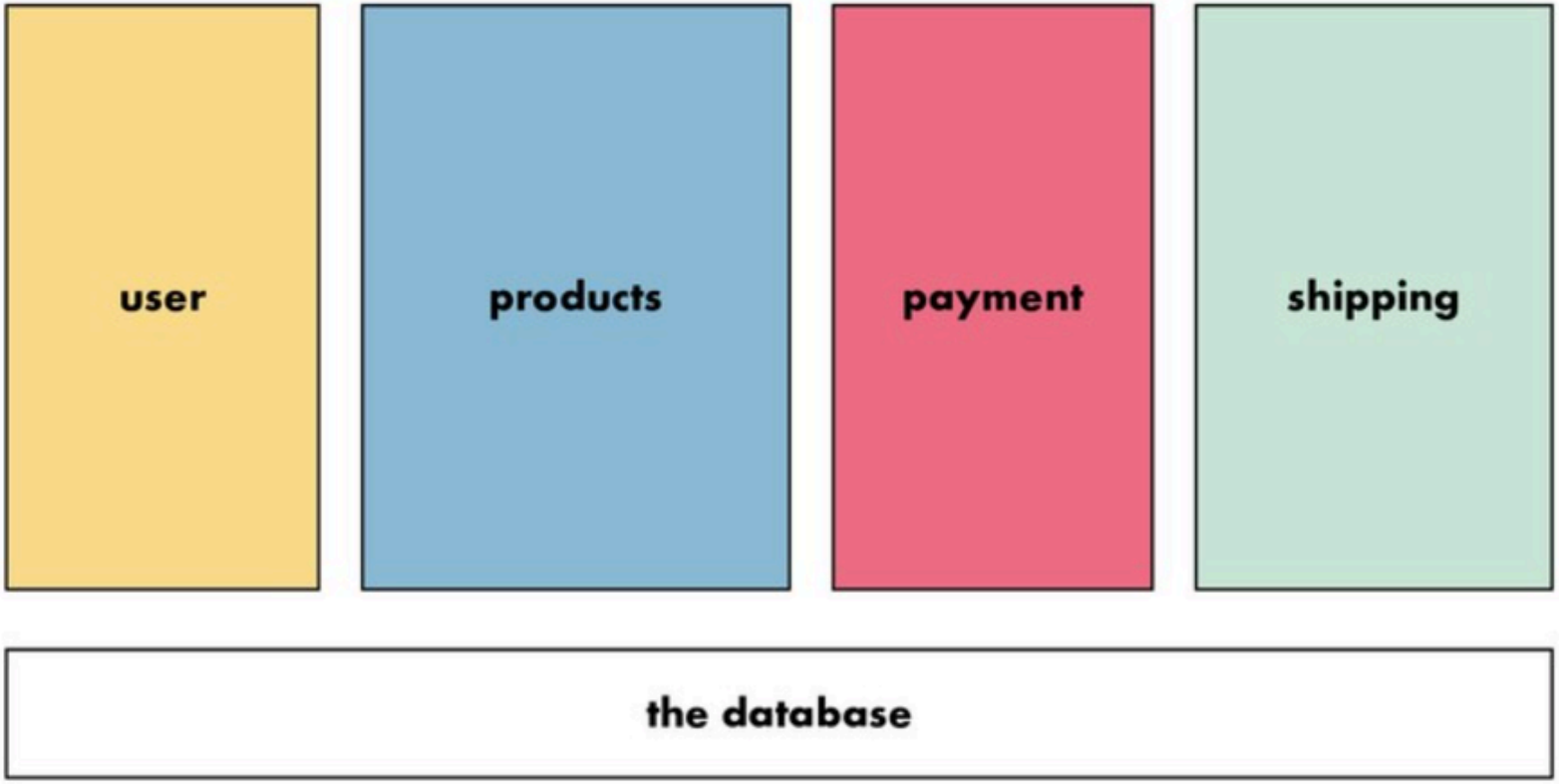
💡IDEA: Tagliare

1️⃣💩 =✂️=> 💯💠

Divisione per “layer”



Approccio a micro-servizi



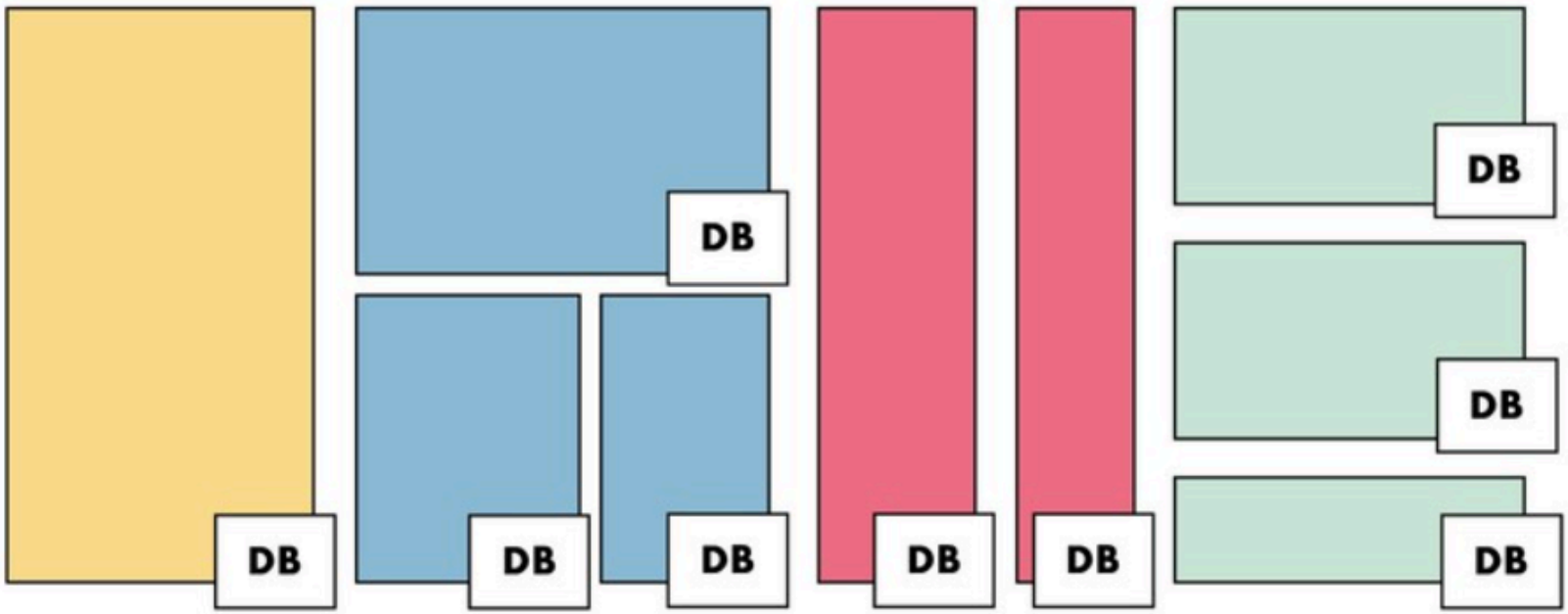
Vantaggi (PRO)

"micro services are small and focused on one thing ... to be **autonomous**. That's it!"

(Sam Newman)

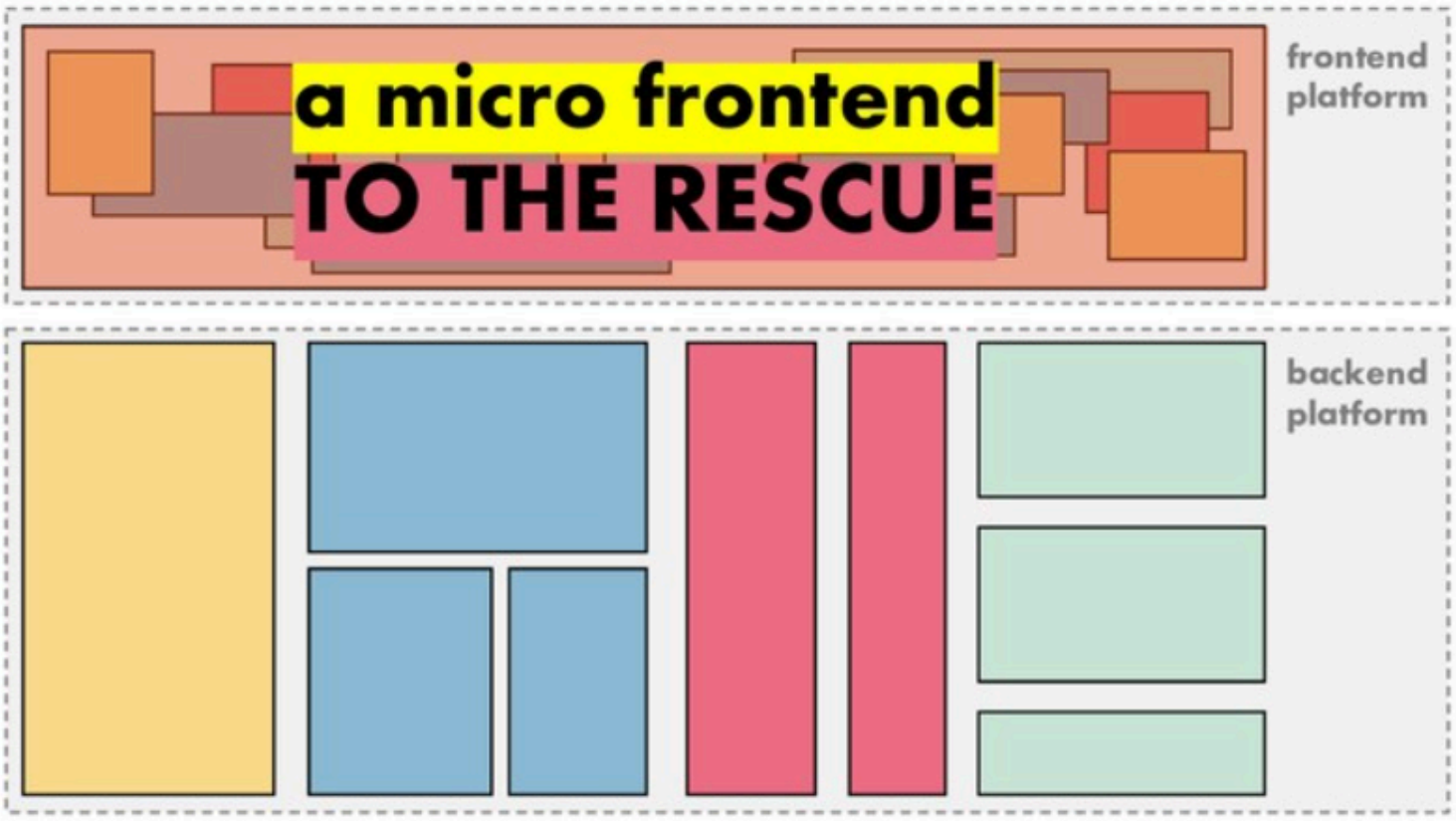
- Più **libertà/indipendenza** dei Team
- **Deploy separato** indipendente
- Possibilità di usare/sperimentare **differenti tecnologie** (e framework)
- "minore complessità" perché si lavora su parti più piccole e **dominio ben definito**

Difficoltà (CONTRO)



- Dovrebbero essere “**Autonomi**” ma:
  - Gestione sistema distribuito (comunicazione)
  - Dati distribuiti (Storage/API indipendenti)

Problema frontend “UI Composition”



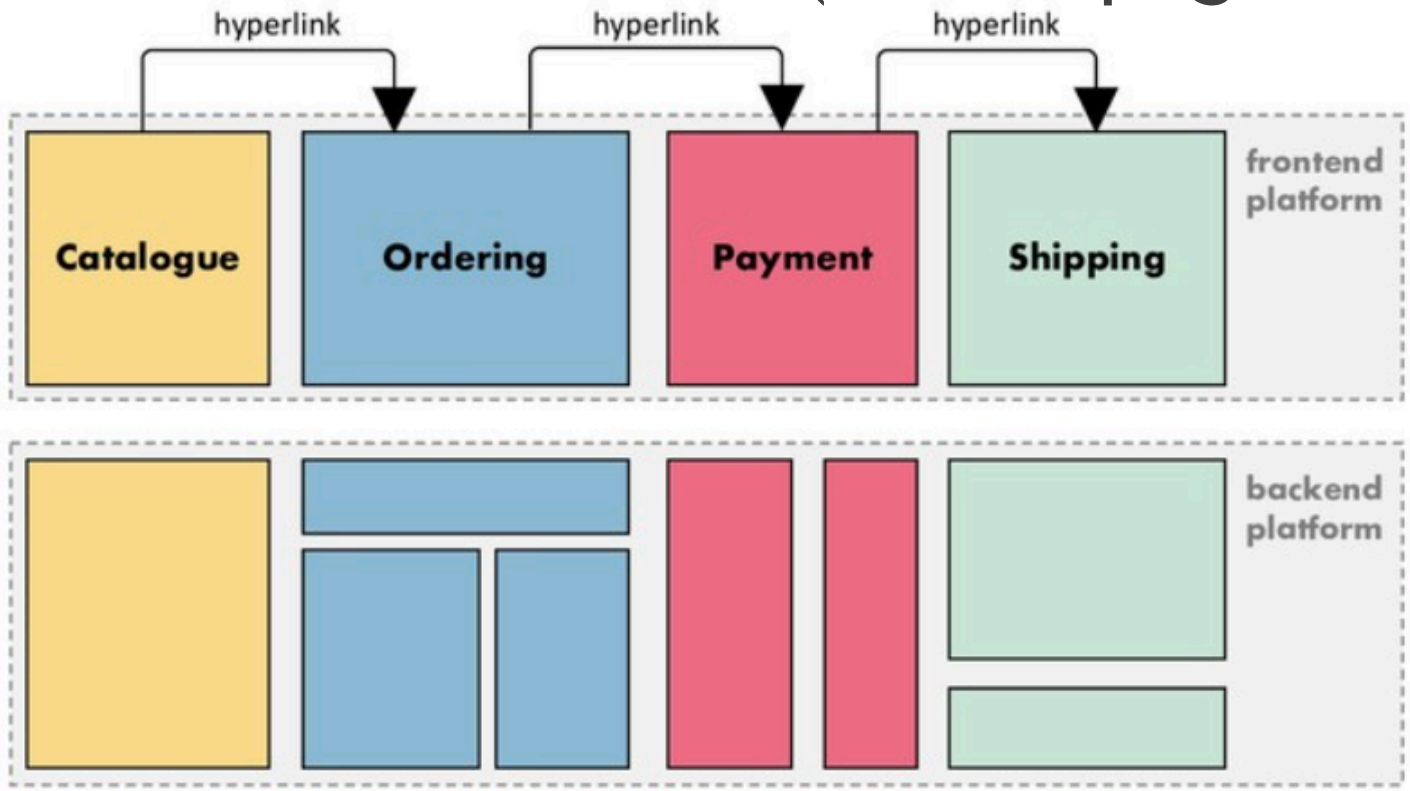
Oggi va di moda fare una SPA ossia un bel “**monolite**” 💩

Il frontend non è un dettaglio e va “**architetturato**” 🤓

Approccio #1: Hyperlink

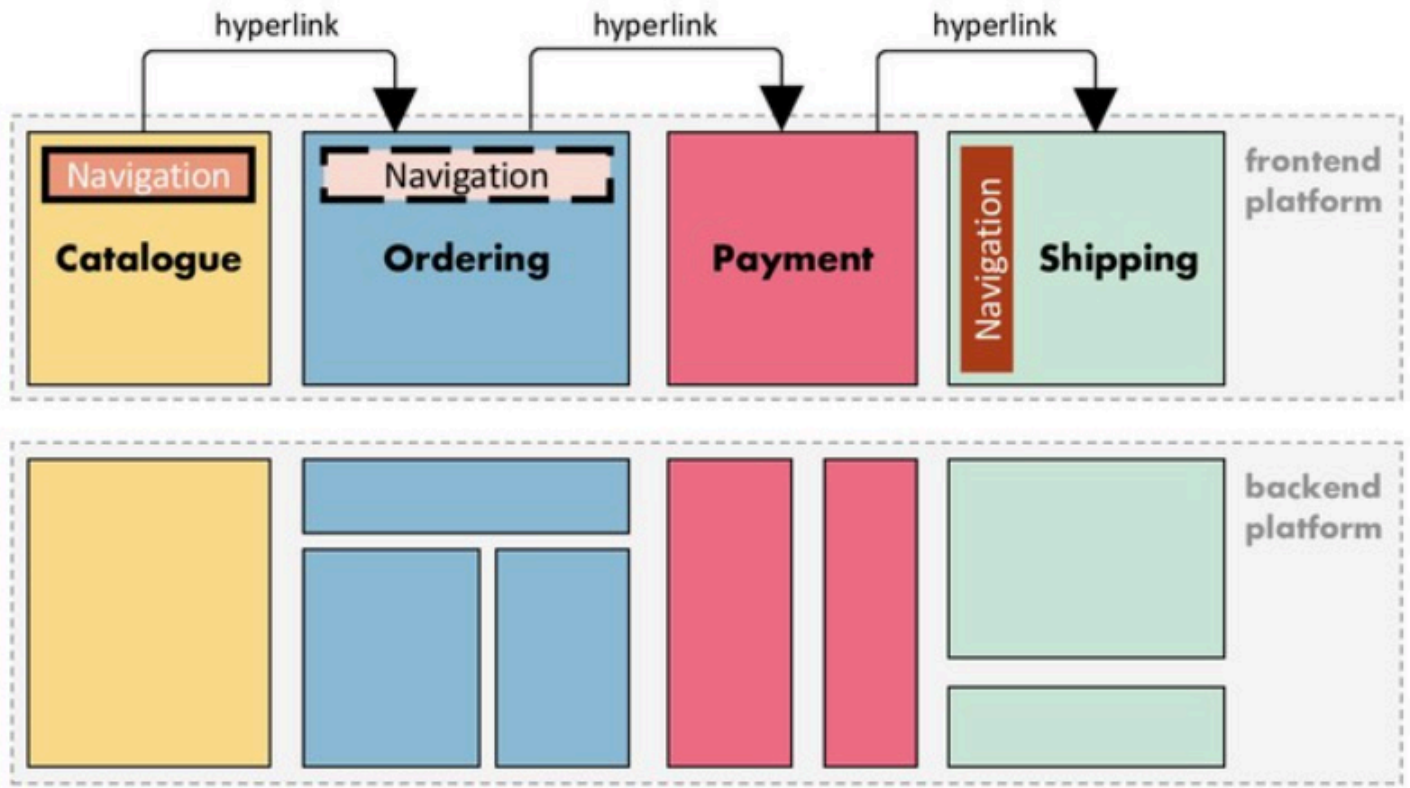
✅PRO: Semplicità + Sviluppo/Deploy separato

🆘CONTRO: Perdita stato (reload pagina/FW)



Approccio #1: Hyperlink

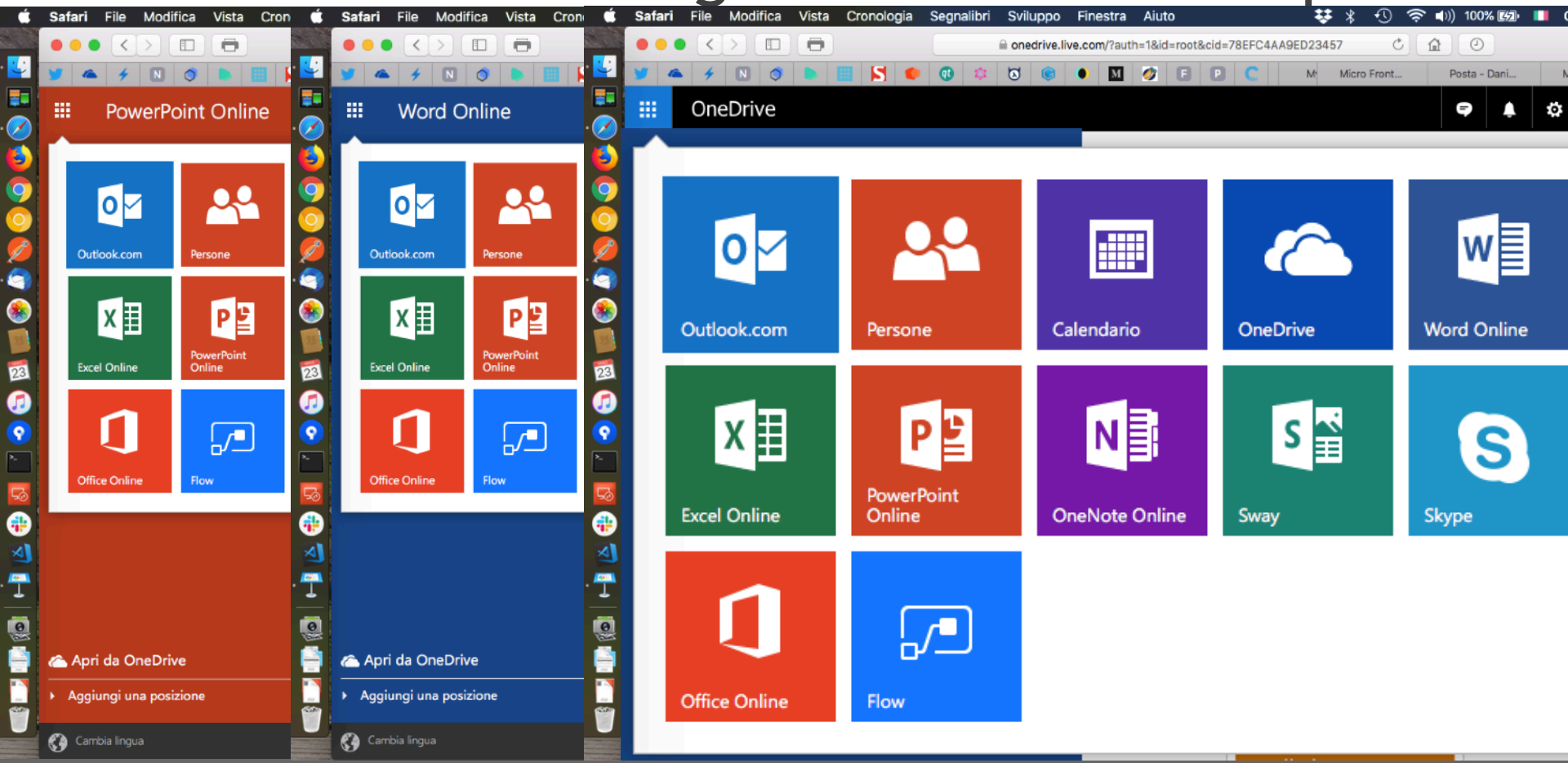
⚠ATTENZIONE: UI/UX Look&Feel Consistente



Approccio #1: Hyperlink

⚠ ATTENZIONE: UI/UX Look&Feel Consistente

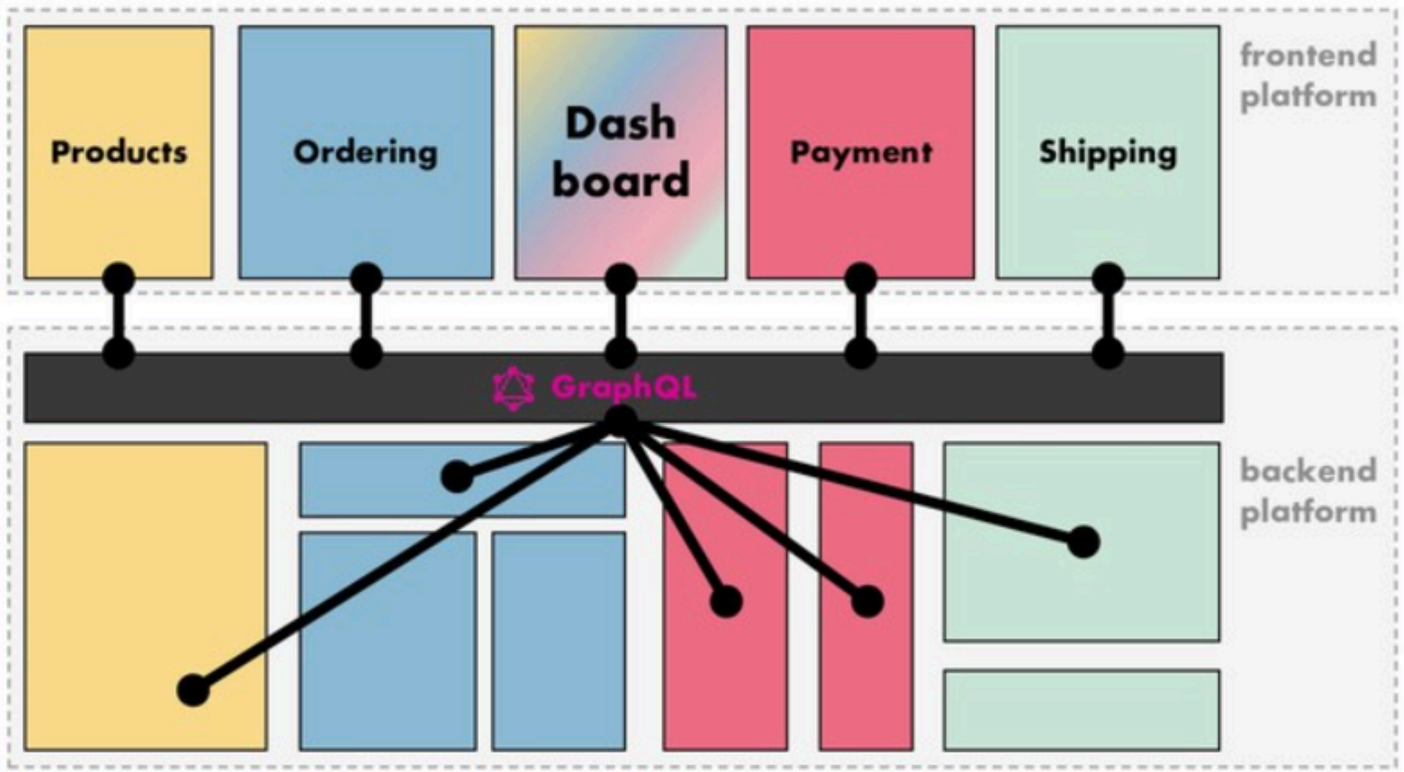
💡 IDEA/SOLUZ: Widget UI con WebComponent



Approccio #1: Hyperlink

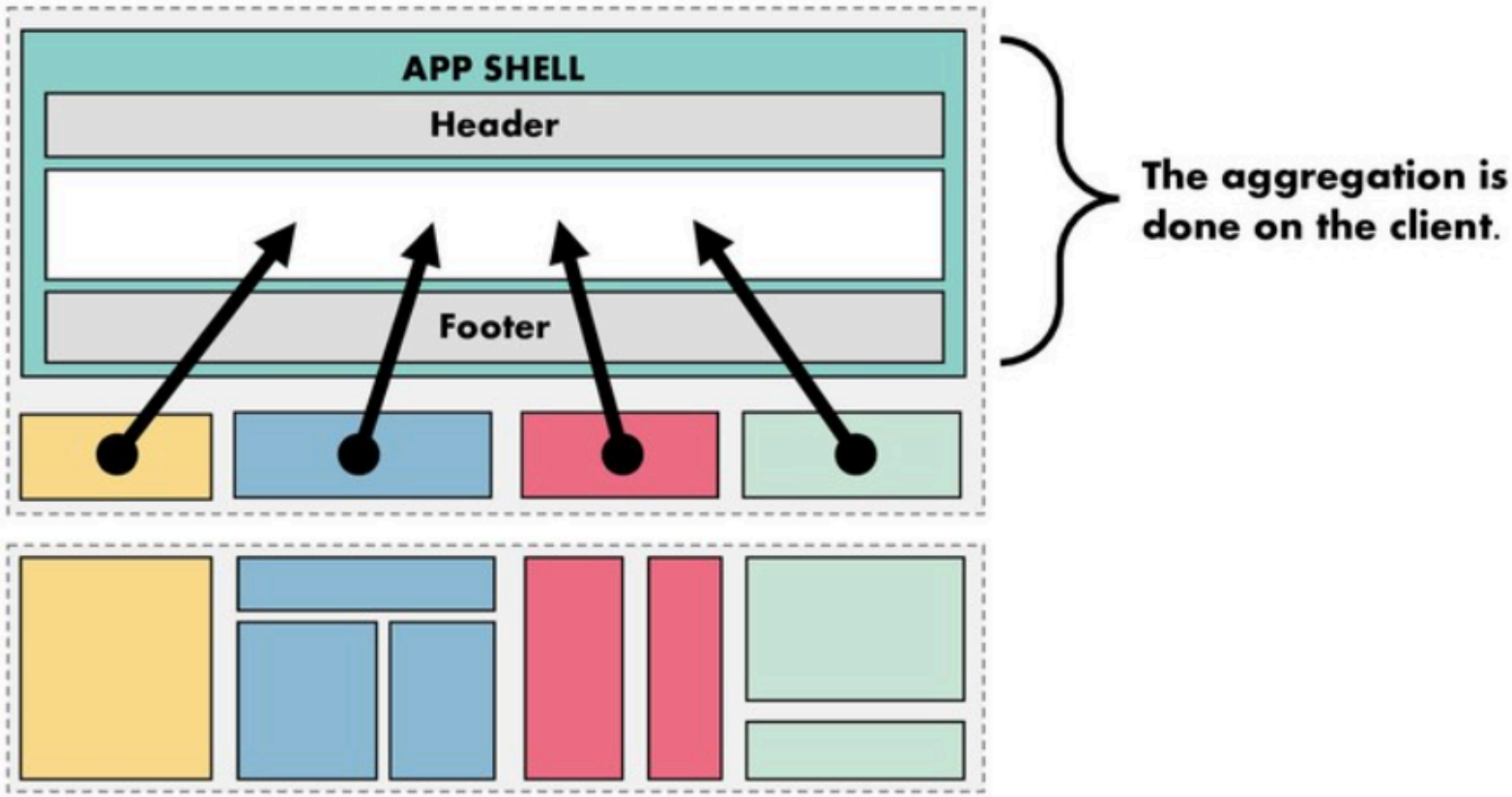
⚠️ATTENZIONE: Pagine “cross”-dominio/slice

💡IDEA/SOLUZ: Backend for Frontend/GraphQL

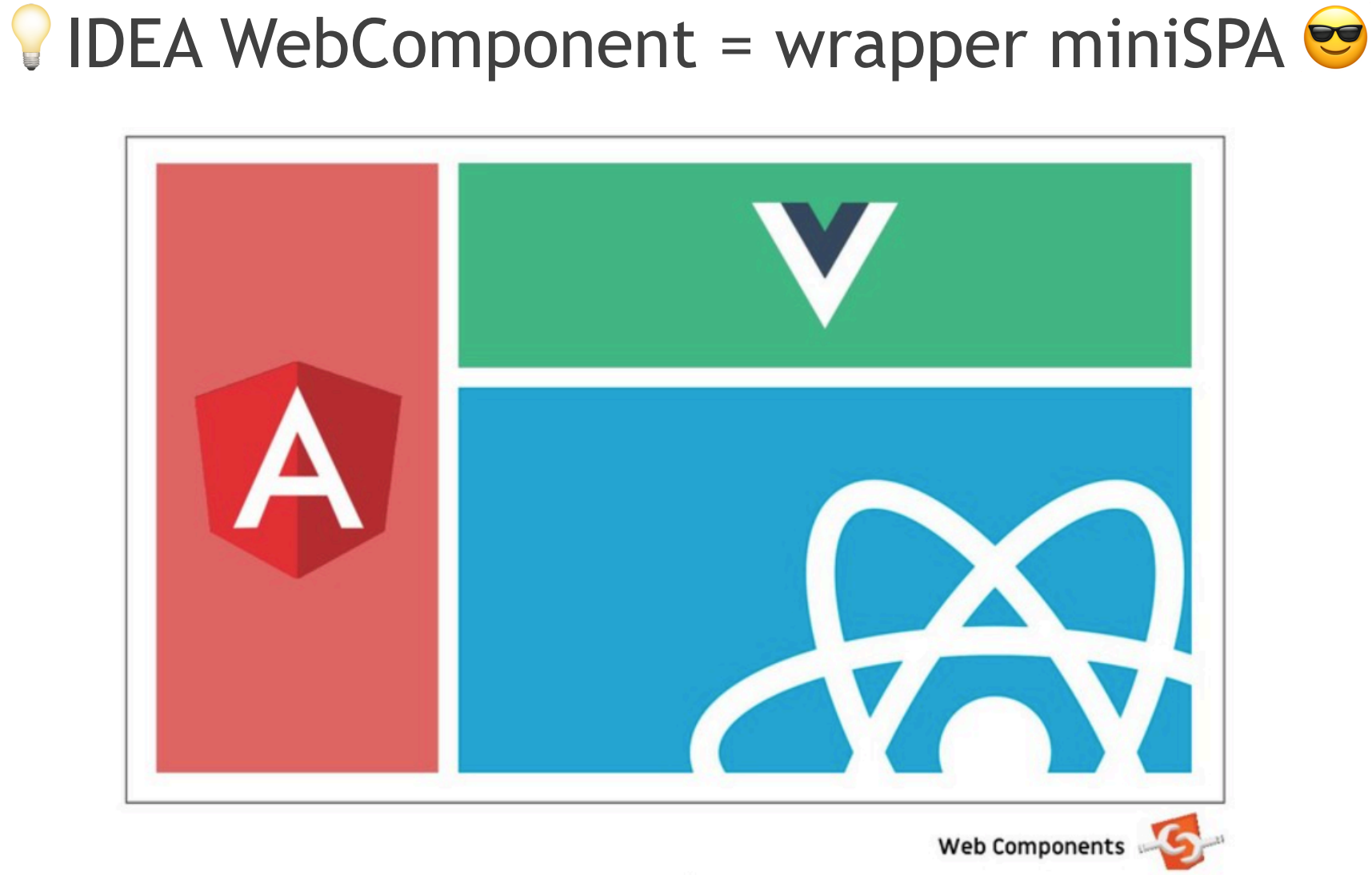


Approccio #2: App Shell con

```
<iframe  src="😱">
```



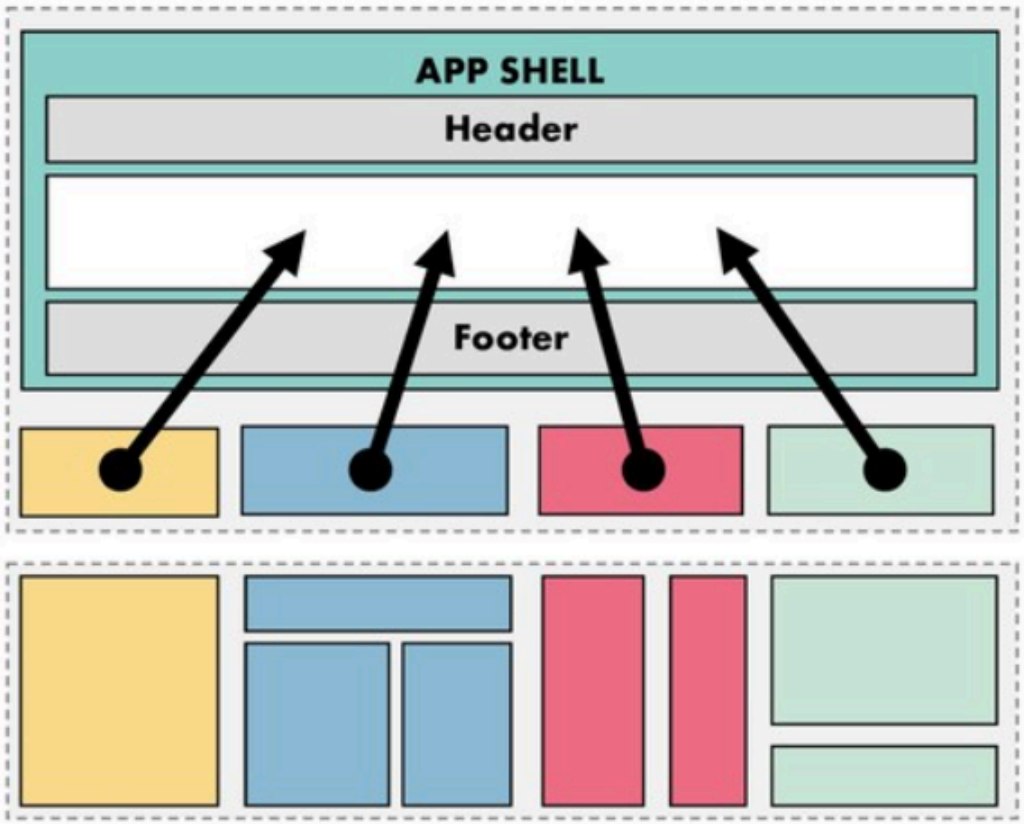
Approccio #3: App Shell con



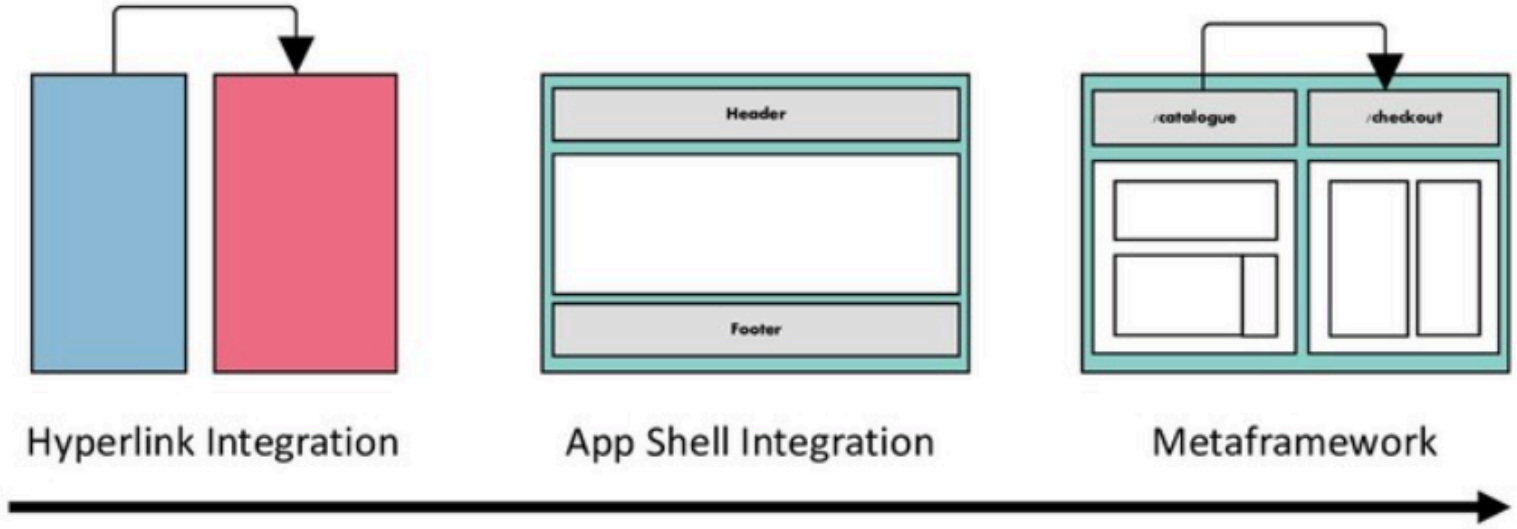
Approccio #3: App Shell

✅PRO: Abilita diverse tecnologie + UI uniforme

🆘CONTRO: Caricamento lento + Interazione?🧐



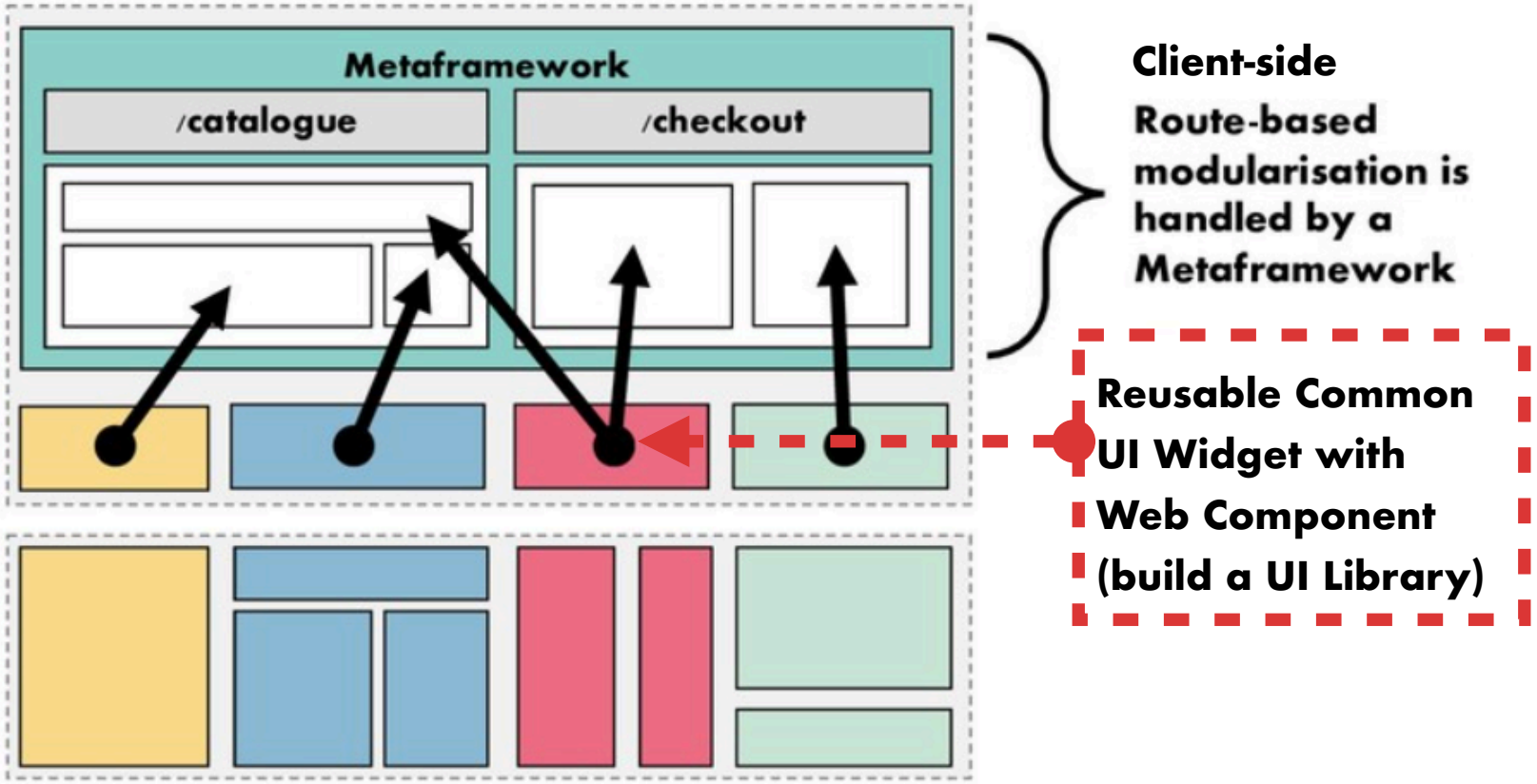
Crescendo di “Interazione” tra i vari Moduli



Approccio #4: MetaFramework + WidgetUI

✅PRO: Interattività/Comunicazione/Riutilizzo

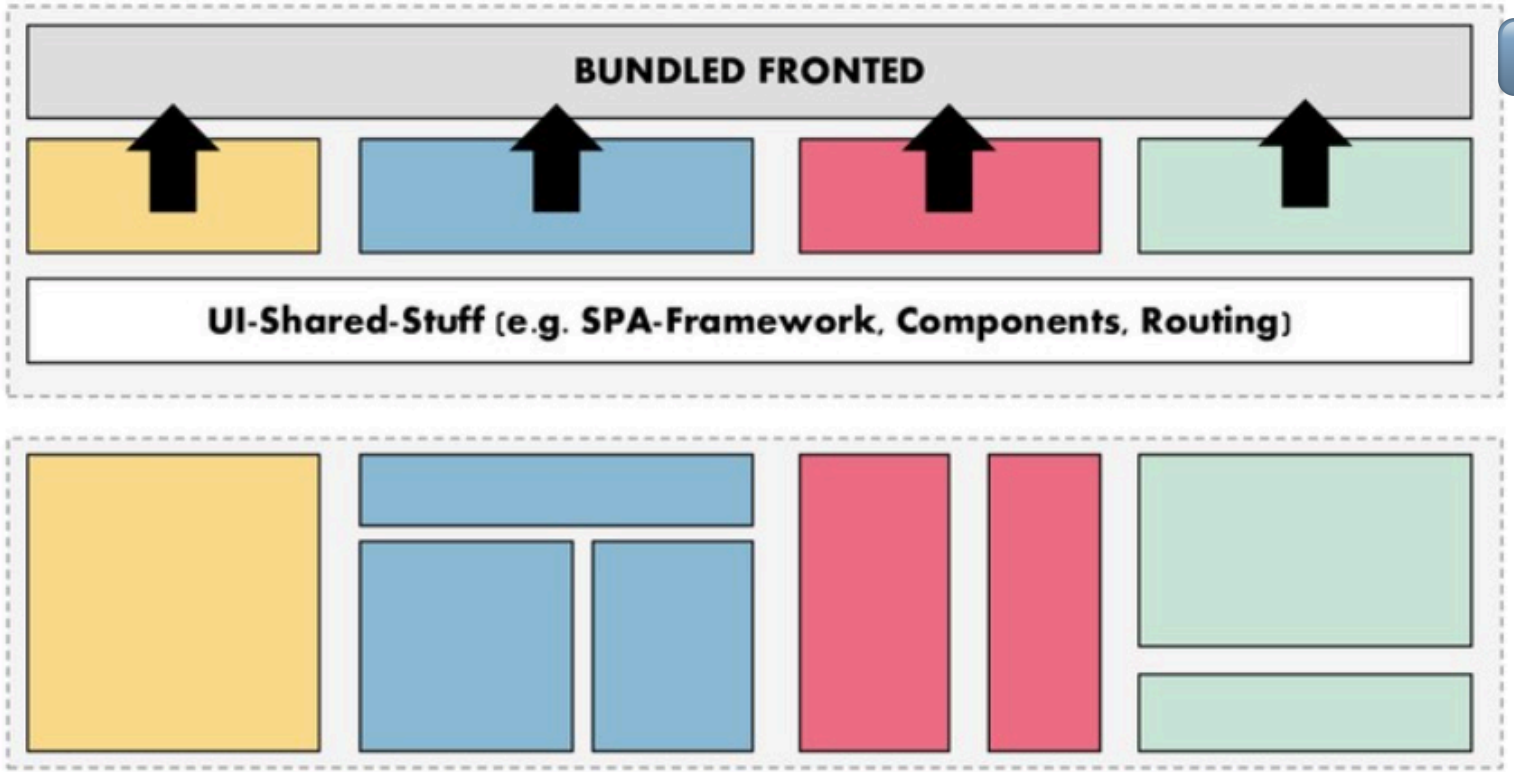
🆘CONTRO: Bundle size (soprattutto se più FW)



Approccio #5: MonoRepo - Bundle

✅PRO: Massimizza riutilizzo/Moduli share/Lazy

🆘CONTRO: Deploy unico / Build-time / scelta



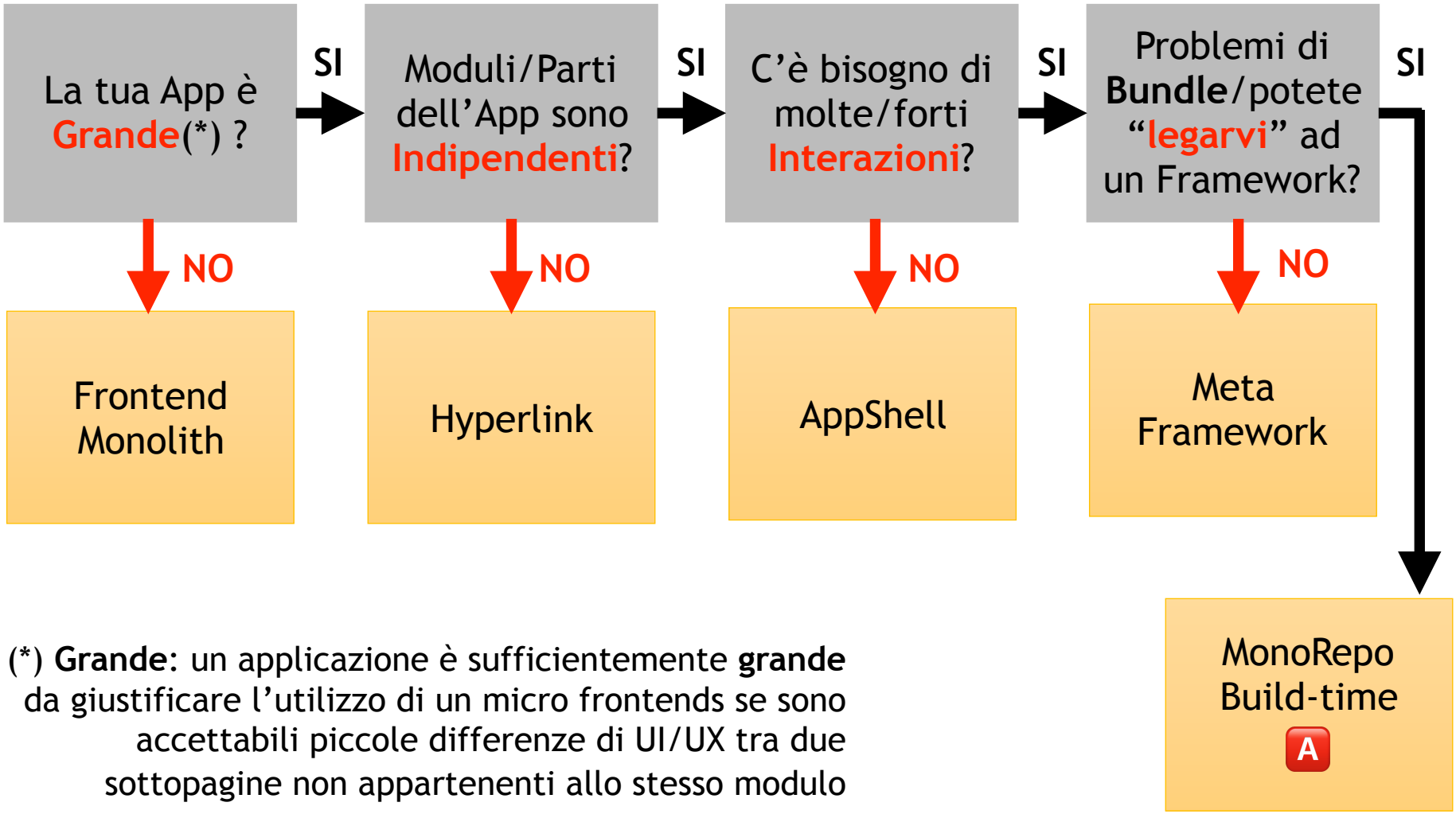
DEMO

SHELL con WebComponents
utilizzando differenti Framework
> cd shell
> npm i
> npm start

https://github.com/dmorosinotto/XE_OneDay_EnterpriseApp

Quale è l'approccio migliore/giusto? 🥁

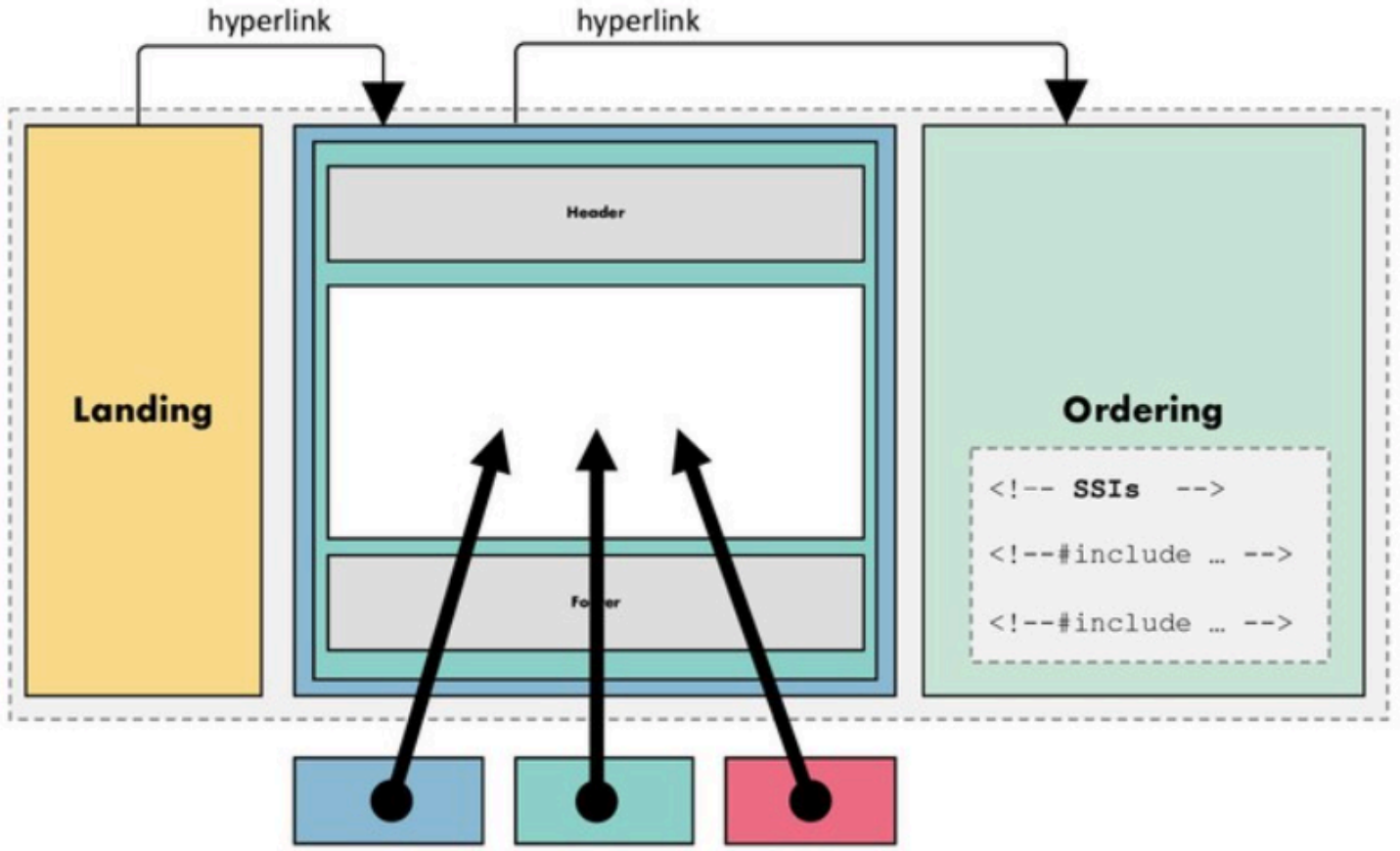
Come scegliere...



(*) **Grande**: un applicazione è sufficientemente **grande** da giustificare l'utilizzo di un micro frontends se sono accettabili piccole differenze di UI/UX tra due sottopagine non appartenenti allo stesso modulo

E' ammesso "improvvisare" 😜

💡TIP: Spesso un approccio unico NON risolve tutte le necessità bisogna **combinare** più soluz.



Conclusioni

"**Frontend** is …

NOT an **implementation detail,**

it is a **critical part** of your

microservice **architecture!**"

KISS: "**think twice** if a frontend monolith does not fit your needs and **start with** a **monolith first** approach."

(David Leitner)

Contatti

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JavaScript enthusiast

https://github.com/dmorosinotto/XE_OneDay_EnterpriseApp

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L👀k m❤m

I'm here 😘

Thanks to you!