# Micro Frontends with Luigi
# UI Development at Scale

Philipp Pracht, SAP

DEV TOBER FEST

SAP TECHED

# Micro Frontends - Definition

**Micro Frontends**

Micro-Front-Ends

Micro Front-Ends

Microfrontends

Micro-Frontends

Microfront Ends

# "An architectural style where independently deliverable frontend applications are composed into a greater whole"

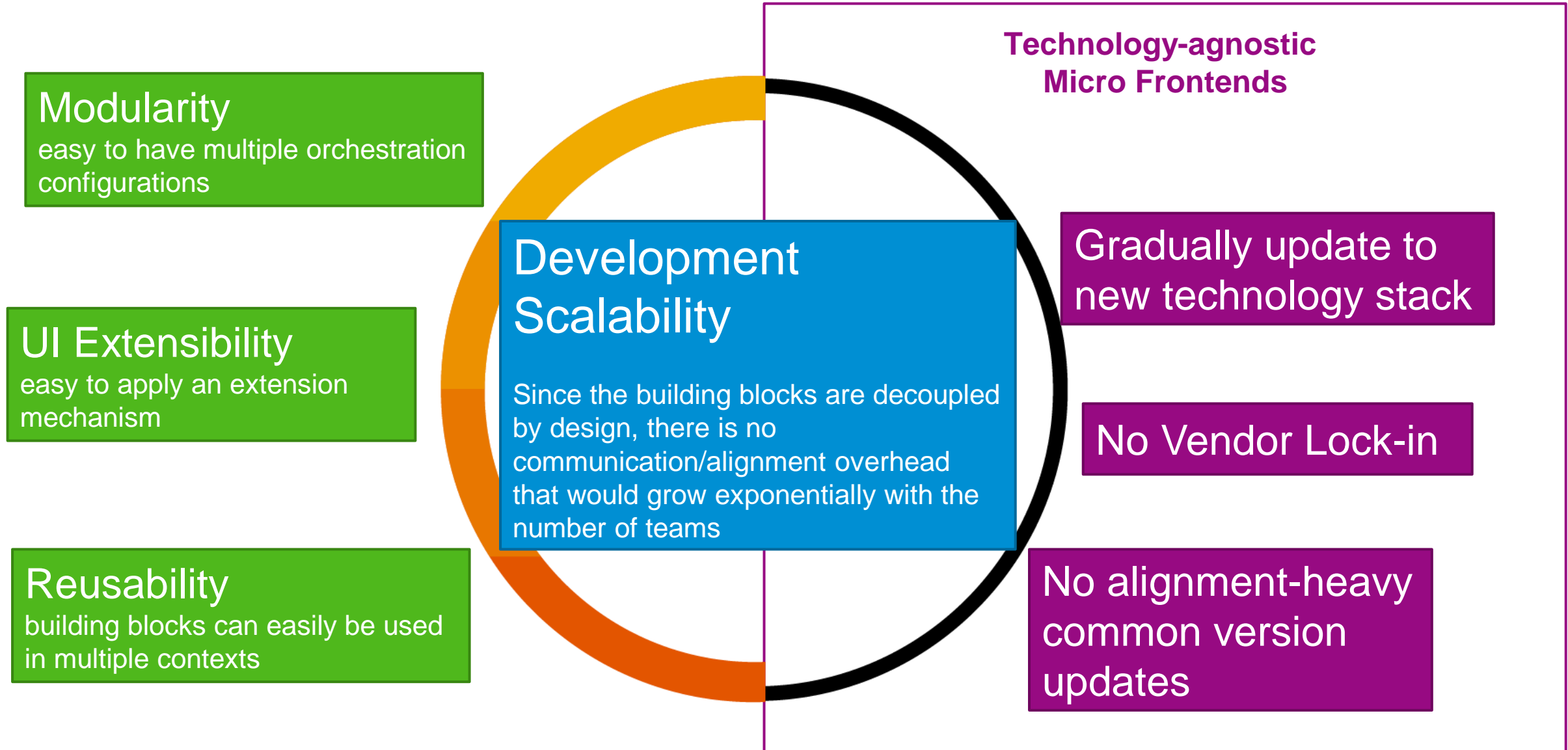Cam Jackson, Thoughtworks

# Micro Frontends – What is it?

- It is about composing a frontend application out of smaller pieces

- It is not about conventional components but applications

- It is not about solving technical but organizational problems

- It is not about visual size but what is deliverable independently

- It is not about reuse for multiple purposes but about reuse with the same purpose in multiple contexts

- Ultimately it is about a team owning the lifecycle of a feature end-to-end
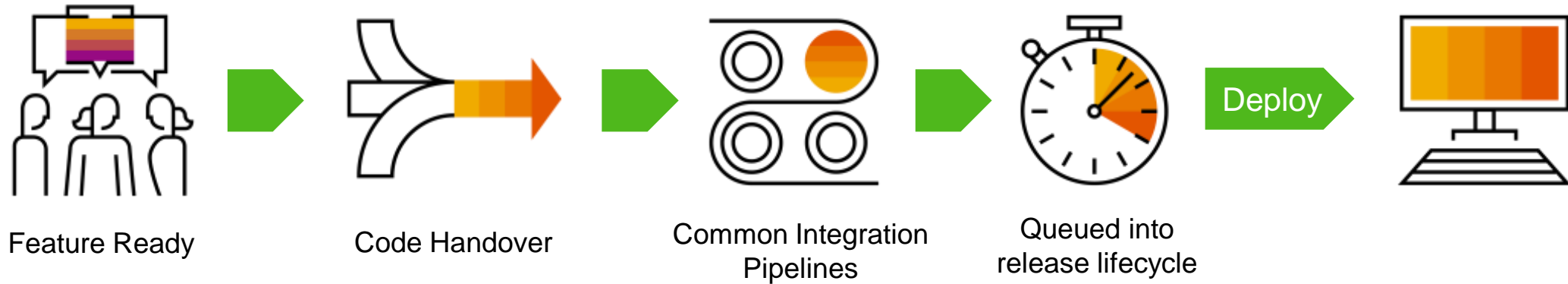
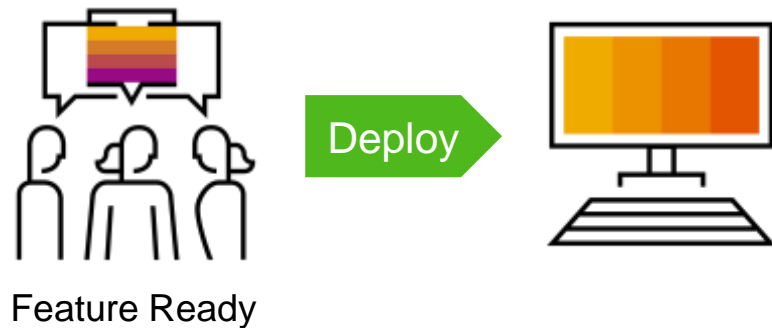# Why Micro Frontends?

# Micro Frontends – Why?

**Technology-agnostic Micro Frontends**

**Modularity**
easy to have multiple orchestration configurations

**UI Extensibility**
easy to apply an extension mechanism

**Reusability**
building blocks can easily be used in multiple contexts

**Development Scalability**
Since the building blocks are decoupled by design, there is no communication/alignment overhead that would grow exponentially with the number of teams

Gradually update to new technology stack

No Vendor Lock-in

No alignment-heavy common version updates

# Typical Shipment Processes



## Conventional

Feature Ready → Code Handover → Common Integration Pipelines → Queued into release lifecycle → Deploy

## Micro Frontends

Feature Ready → Deploy

8

# Project "Luigi"

# Project "Luigi" (started in 2018)

## What is it about

enterprise-ready micro frontend framework to build modularizable, extensible, scalable and consistent administration and business user interfaces and web applications

## Value proposition

- Used to build distributed web applications based on SAP standards
- Technology-agnostic approach prevents UI framework lock-in
- Essential shell features shipped with the framework out-of-the-box

## Good to know

- Perfect solution for gradually moving to a modern UI stack
- Follows SAP's Technical Guidelines and Product Standards
- Used by various SAP products and external projects

## For more information

# Luigi – Technical Classification *

- **Definition**
  - Vertical Split
  - Horizontal Split
  - Hybrid
- **Composition**
  - Client-side Composition
- **Route**
  - Client-side
- **Communication**
  - Events (via postmessage for iframe-based micro frontends, event bus for horizontal split)
  - URL parameters
  - Client API
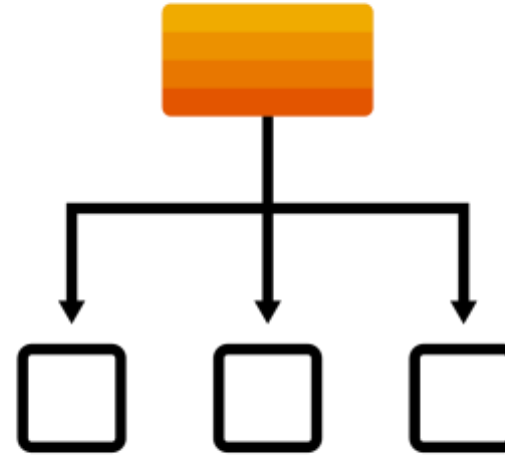
* according to the Micro-frontends decisions framework by Luca Mezzalira

# Luigi Out-Of-The-Box Features (Selection)

**Responsive Design**

**Optional UI for shell & navigation**

**Role-based visibility restrictions**

**Notification Management**

**Security/ID provider abstraction**

**Form- and Modal Management**

**Multi language support**

# Examples
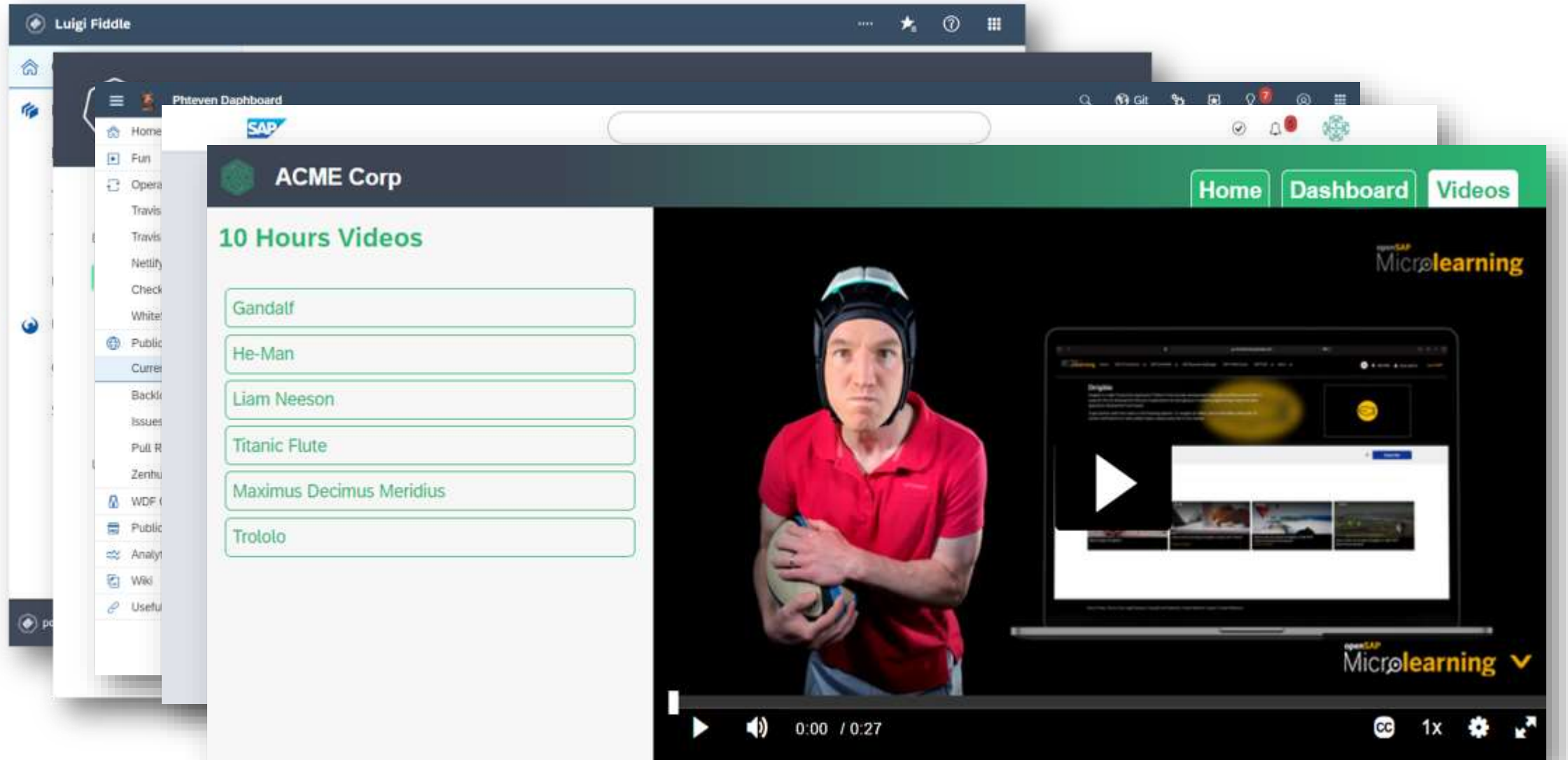
# Types of Luigi Micro Frontends



*iFrame*

*single web component*

*horizontal split*

*nested micro frontends*
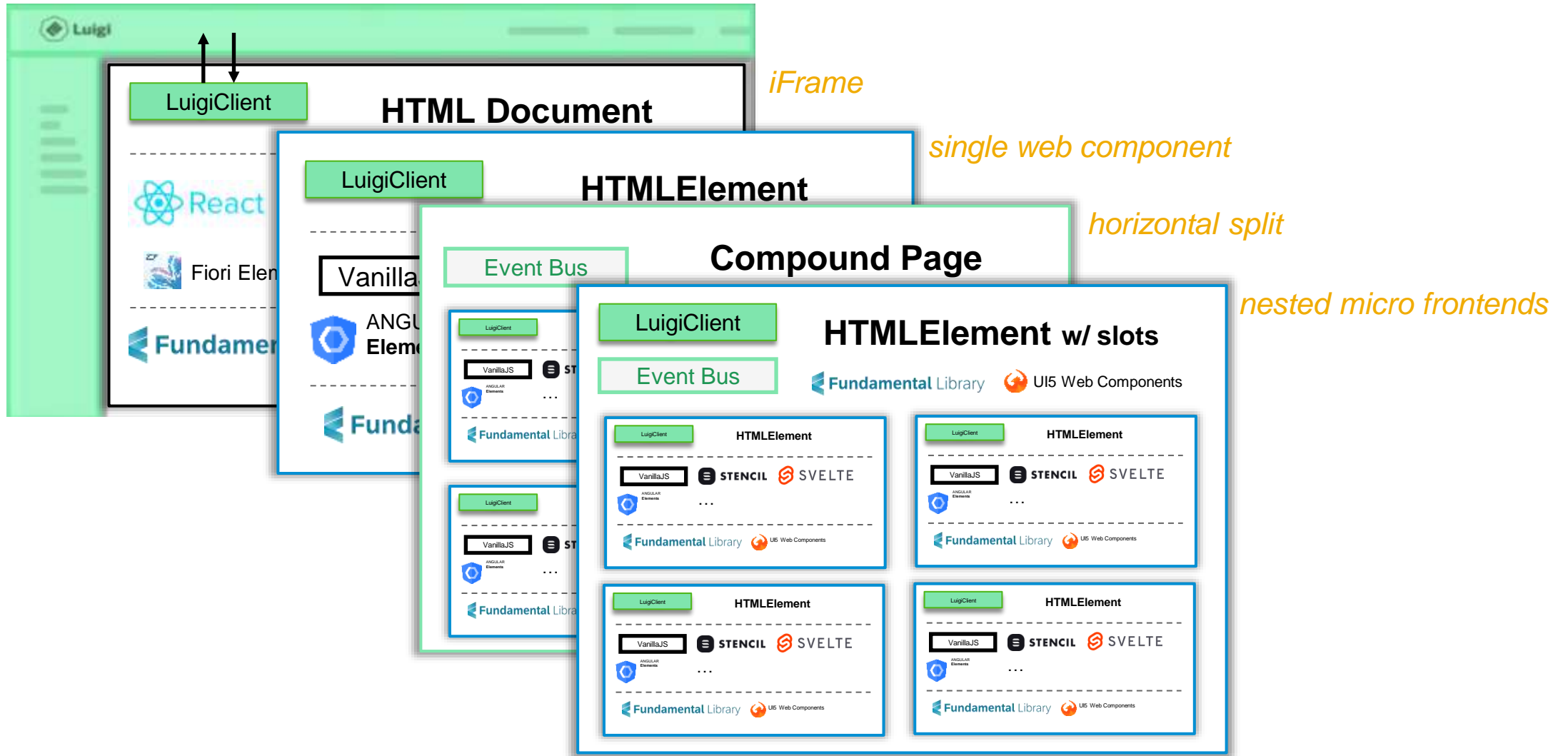
# Minimalistic Code Example

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="utf-8">
    <link rel='stylesheet' href='https://unpkg.com/@luigi-project/core/luigi.css'>
    <script src="https://unpkg.com/@luigi-project/core/luigi.js"></script>
</head>
<body>
  <script>
        Luigi.setConfig({
            settings: { header: { title: 'This is simple!' }},
            routing: { useHashRouting: true },
            navigation: {
                nodes: [{
                    pathSegment: 'home',
                    hideFromNav: true,
                    children: [{
                        pathSegment: 'luigi',
                        label: 'Hello Luigi',
                        viewUrl: 'https://fiddle.luigi-project.io/examples/micro
                        context: { title: 'Hello Luigi!' }
                    },{
                        pathSegment: 'mario',
                        label: 'Hello Mario',
                        viewUrl: 'https://fiddle.luigi-project.io/examples/micro
                        context: { title: 'Hello Mario!' }
                    }]
                }]
            }
        });
    </script>
</body>
</html>
```

**SAP** This is simple!

Hello Luigi

Hello Mario

## Hello Mario!

Some content

# Further Information

Luigi     https://luigi-project.io/

SAP Developers     https://developers.sap.com/group.luigi-app.html

YouTube Channel     https://www.youtube.com/channel/UC5WsYsHapDlg2K3iXS4n4AQ

twitter     https://twitter.com/luigiprojectio
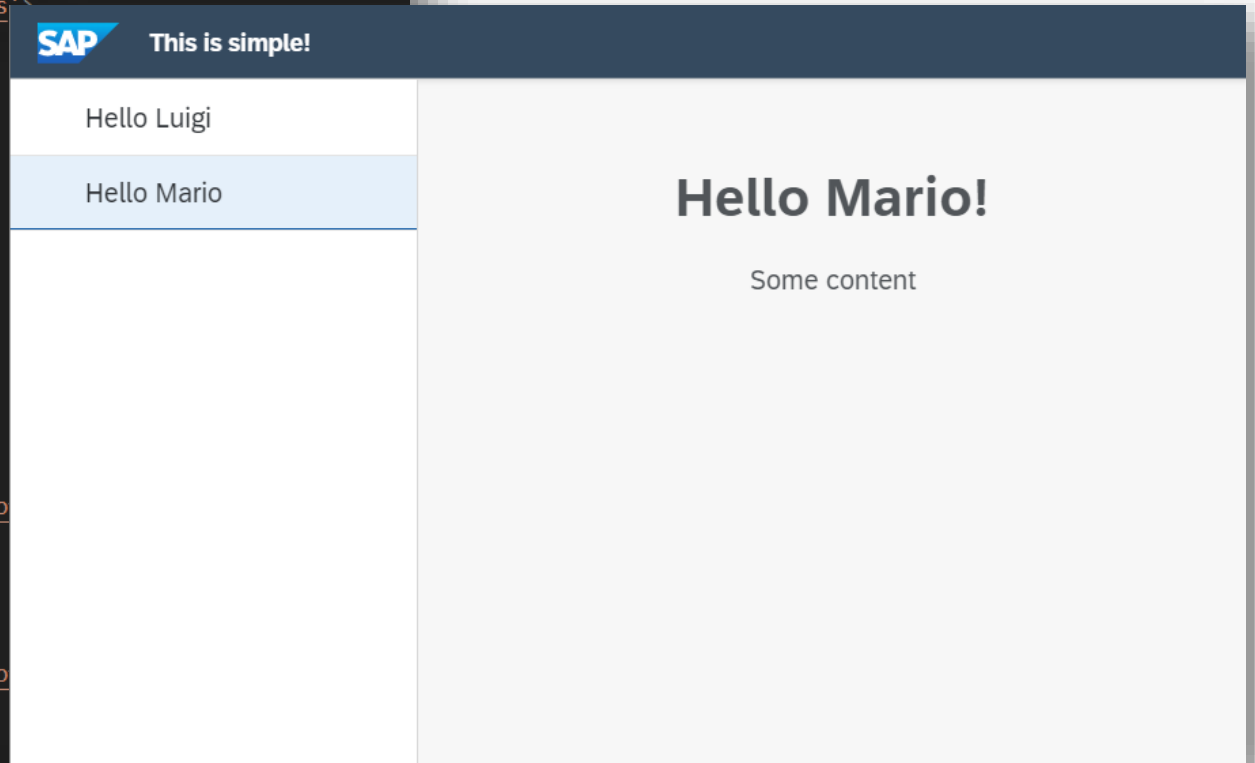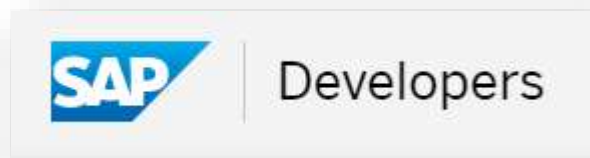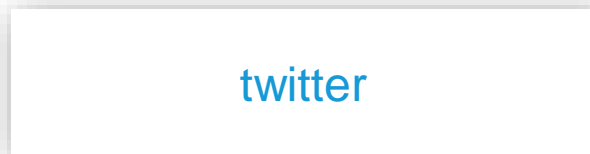
# Thank you.

Contact information:

**Philipp Pracht**

philipp.pracht@sap.com

Follow us

www.sap.com/contactsap

THE BEST RUN SAP