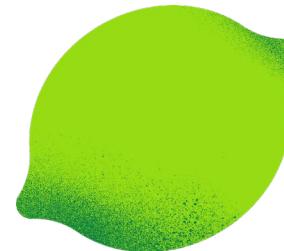


# Micro Frontend

The future is here and easier than you think.





Micro frontends

---

APR  
2019

ADOPT

NOV  
2017

TRIAL

NOV  
2016

ASSESS

ThoughtWorks®

# TECHNOLOGY RADAR



micro frontend



All

Videos

Images

News

Shopping

More

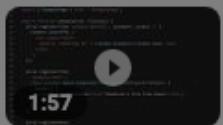
Settings

Tools

About 351,000 results (0.17 seconds)

itnext.io › 11-micro-frontends-frameworks-you-should-k...

## 11 Micro Frontends Frameworks You Should Know | by ...

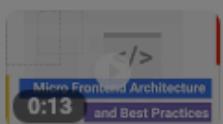


The idea of **Micro Frontends** is to break down the frontend monolith into smaller, more manageable pieces ...

Sep 2, 2020 · Uploaded by MTM Tutorials

www.xenonstack.com › insights › what-is-micro-frontend

## Micro Frontend Architecture and Best Practices - XenonStack

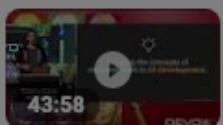


What is **Micro Frontend**? **Micro Frontend** is a Microservice Testing approach to front-end web development ...

Aug 24, 2020 · Uploaded by XenonStack

www.youtube.com › watch

## Micro Frontend Architecture Building an Extensible UI Platform ...



At New Relic, we used a **micro frontend** architecture to migrate from several monolithic products applications ...

Nov 7, 2019 · Uploaded by Devoxx

codeburst.io › 4-practical-ways-to-build-micro-frontends-...

## 4 Practical Ways to Build Micro Frontends | by Jonathan ...



For most projects, the **frontend** world remains largely monolithic. Just as with the **backend** before **micro** ...

Sep 2, 2020 · Uploaded by MTM Tutorials





# ROCKET

Pro · TPO

---

**Quality Decoded**



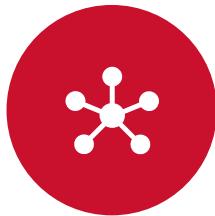
# Agenda



Core  
Concepts



Key  
Benefits



Integration  
Options



Potential  
Disadvantages

# Core Concepts



What exactly is micro frontend?

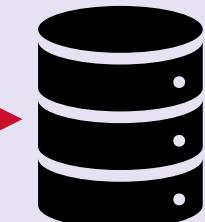




Presentation Tier

Application Tier

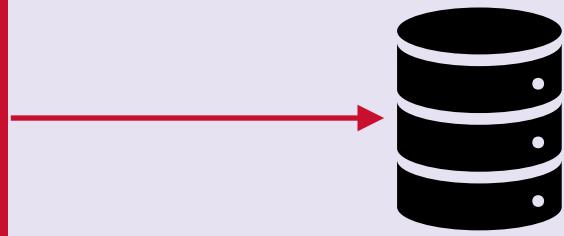
Monolith



Data Tier

Presentation Tier

Application Tier



Data Tier



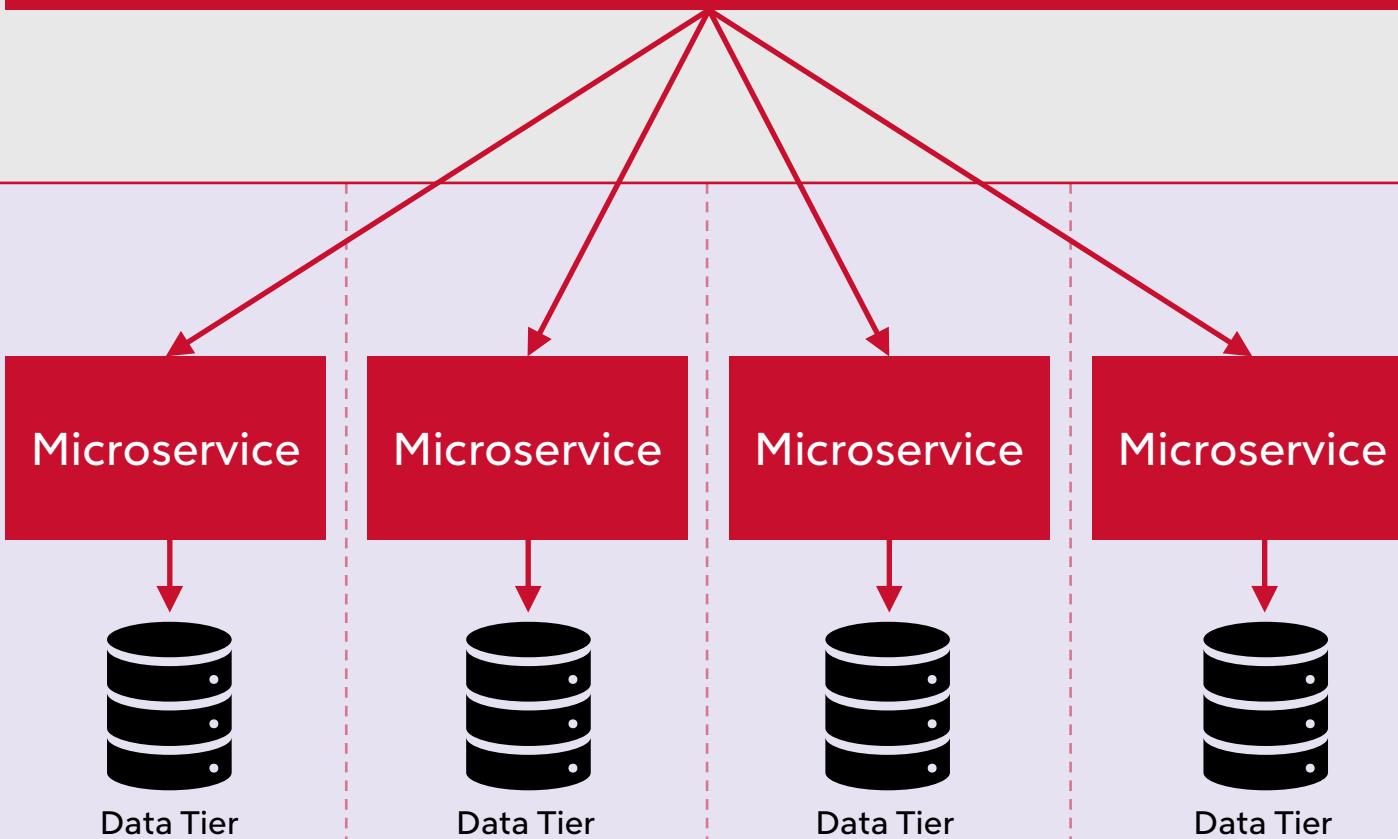
# MICROSERVICES

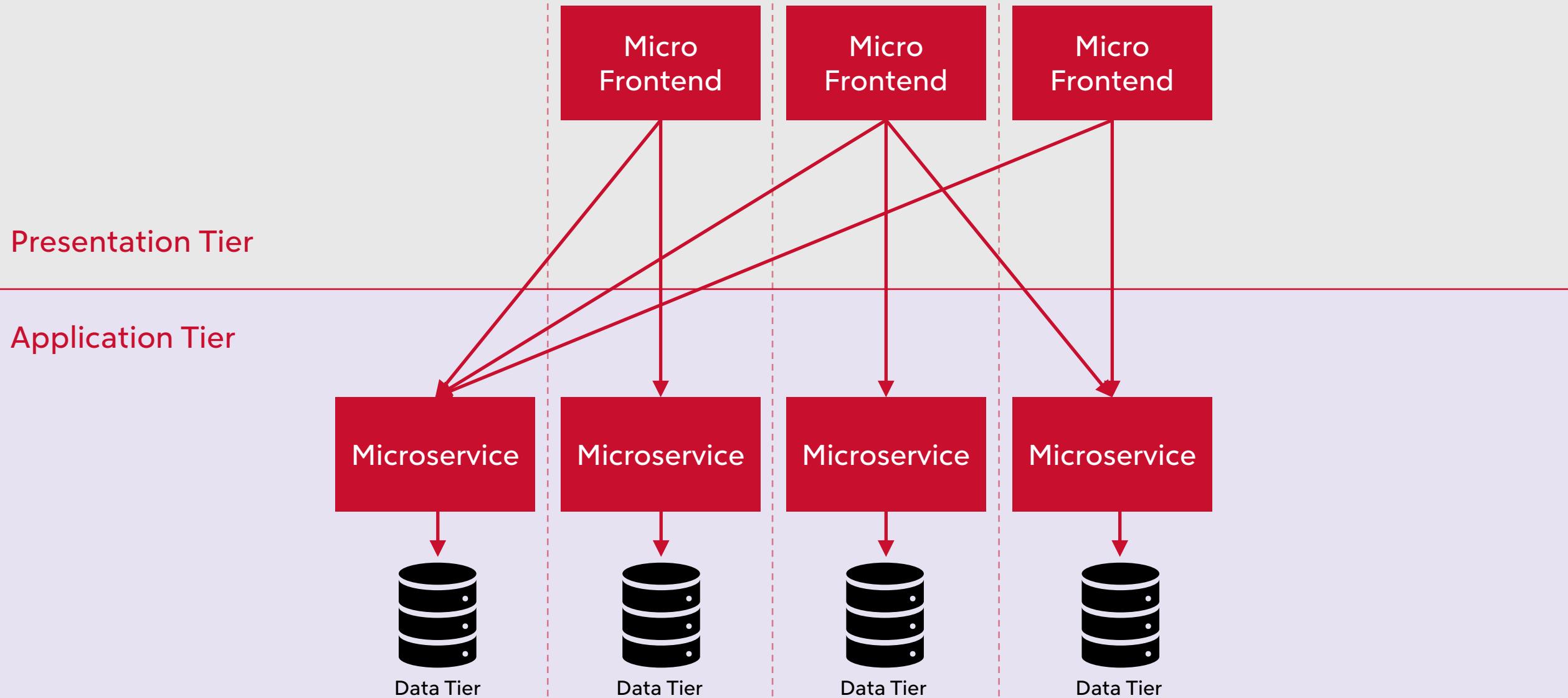
## To the rescue!

# Frontend

Presentation Tier

Application Tier







## Micro Frontend

“

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

”

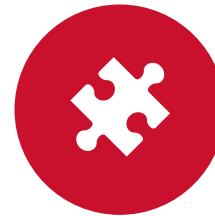
# Terminology



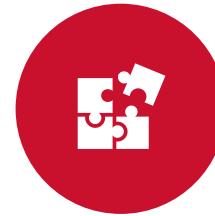
Container



Shell



Component



Fragment

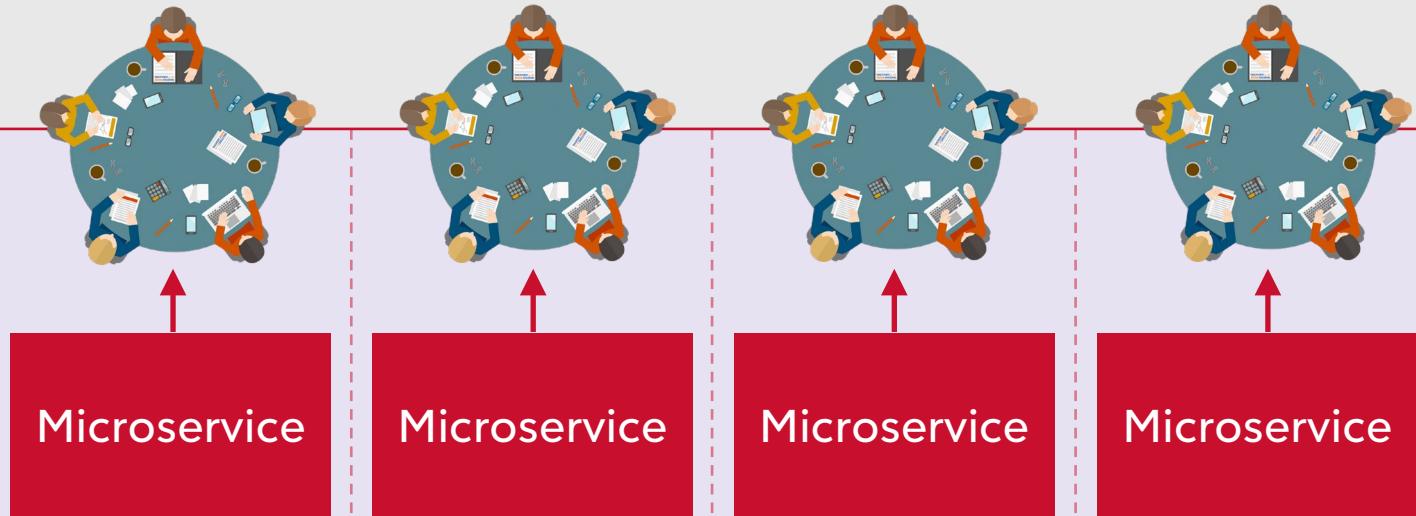
# Key Benefits





Presentation Tier

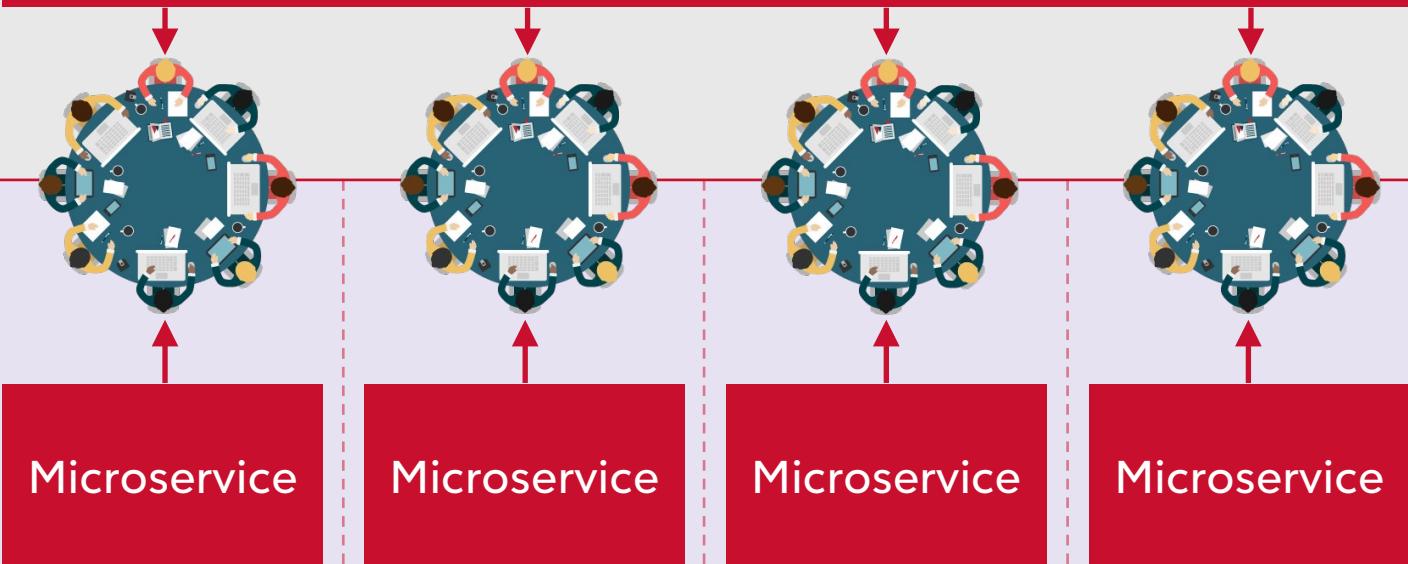
Application Tier

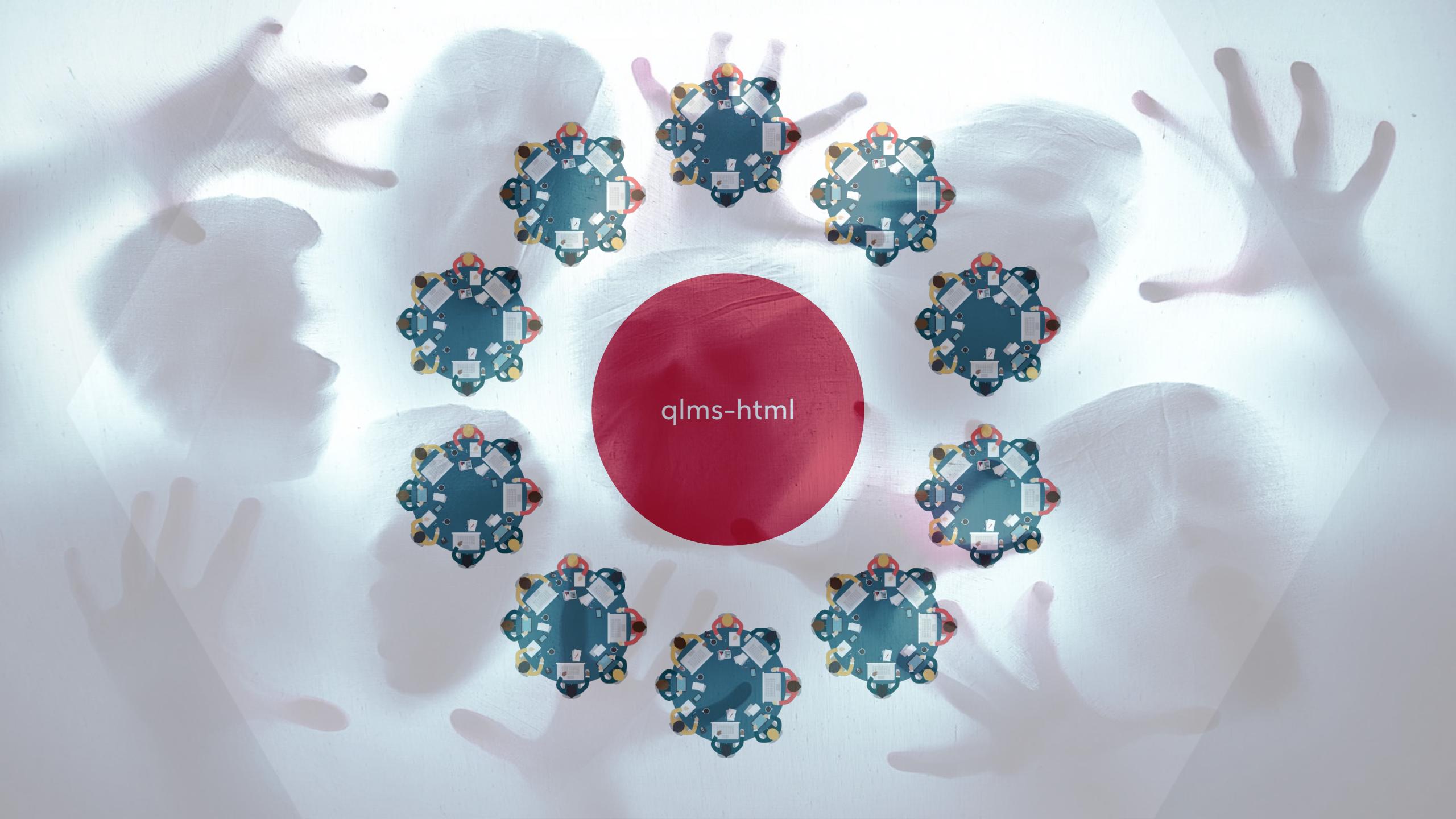


# Frontend

Presentation Tier

Application Tier





qlms-html

## Edit Conflict: Favourite Animal

Your version



Cat Lover's version

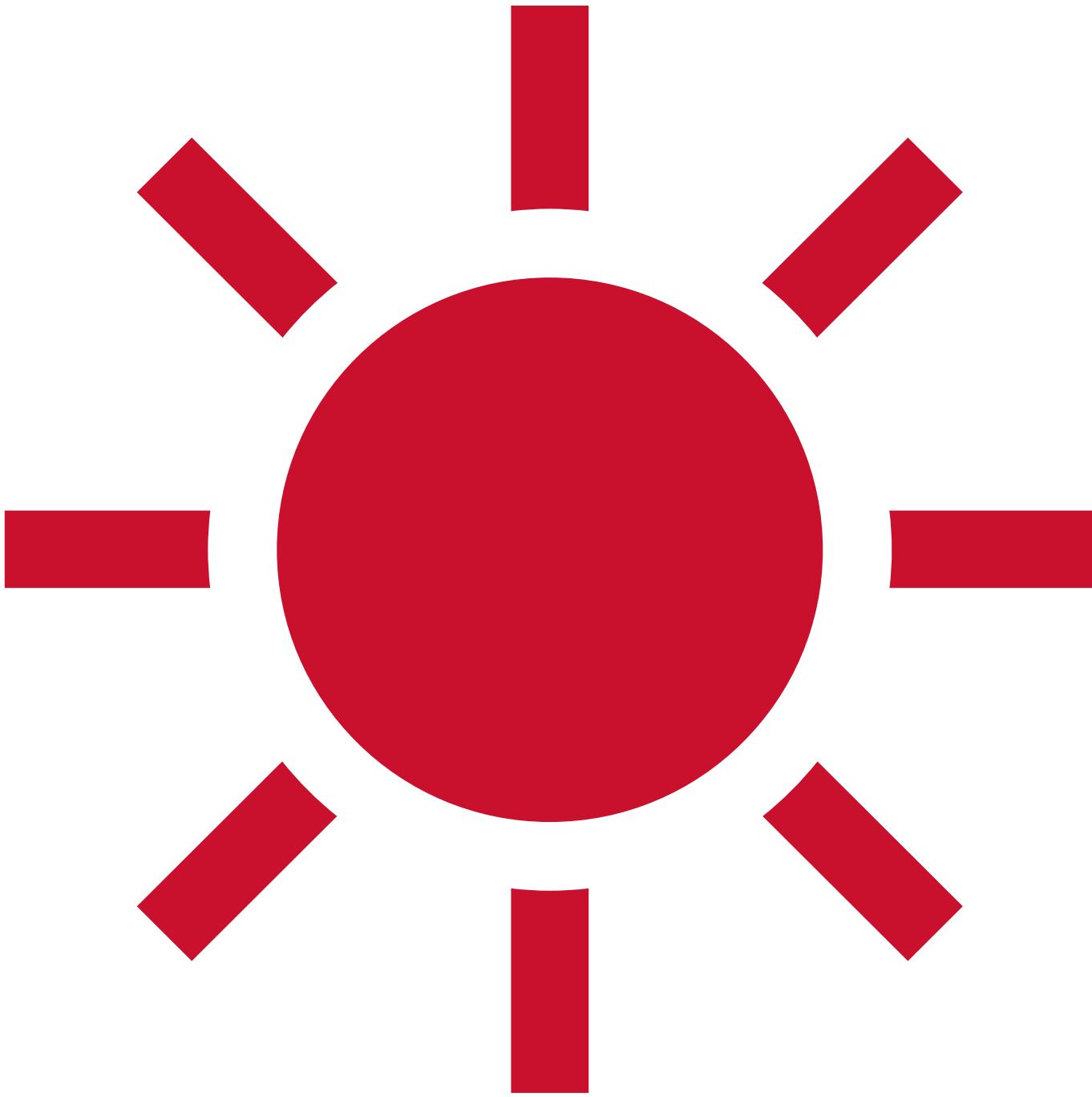


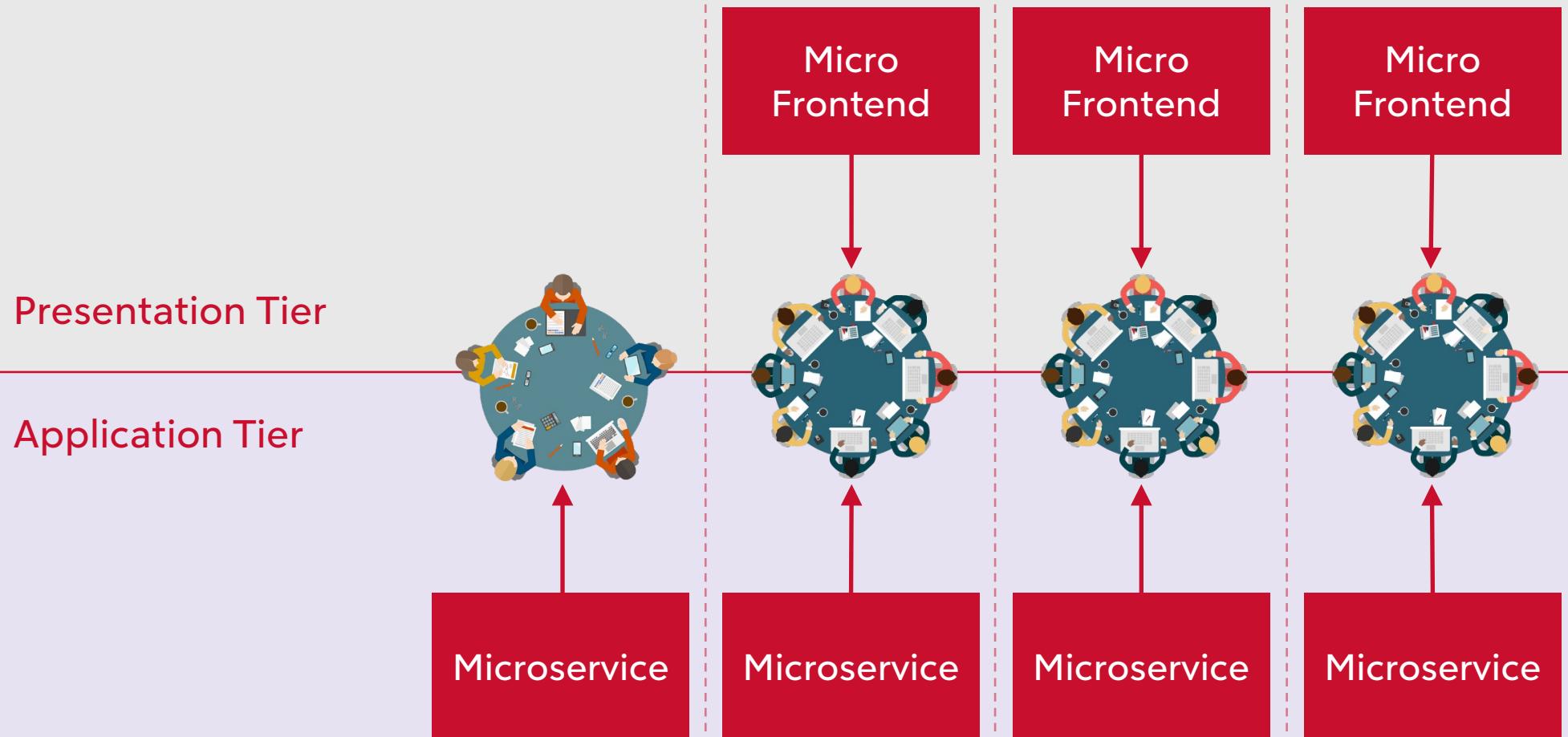
=













# Frontend

Same framework/version for everyone

Monolith

Micro Frontend

Micro  
Frontend

Angular 9

Micro  
Frontend

Angular 11

Micro  
Frontend

Angular 9

Micro  
Frontend

Angular 10

# Frontend

Same framework/version for everyone

Monolith

Micro Frontend

Micro  
Frontend

Angular

Micro  
Frontend

React

Micro  
Frontend

Vue.js

Micro  
Frontend

LitElement

**Monolith**

**Micro Frontend**

Feature A

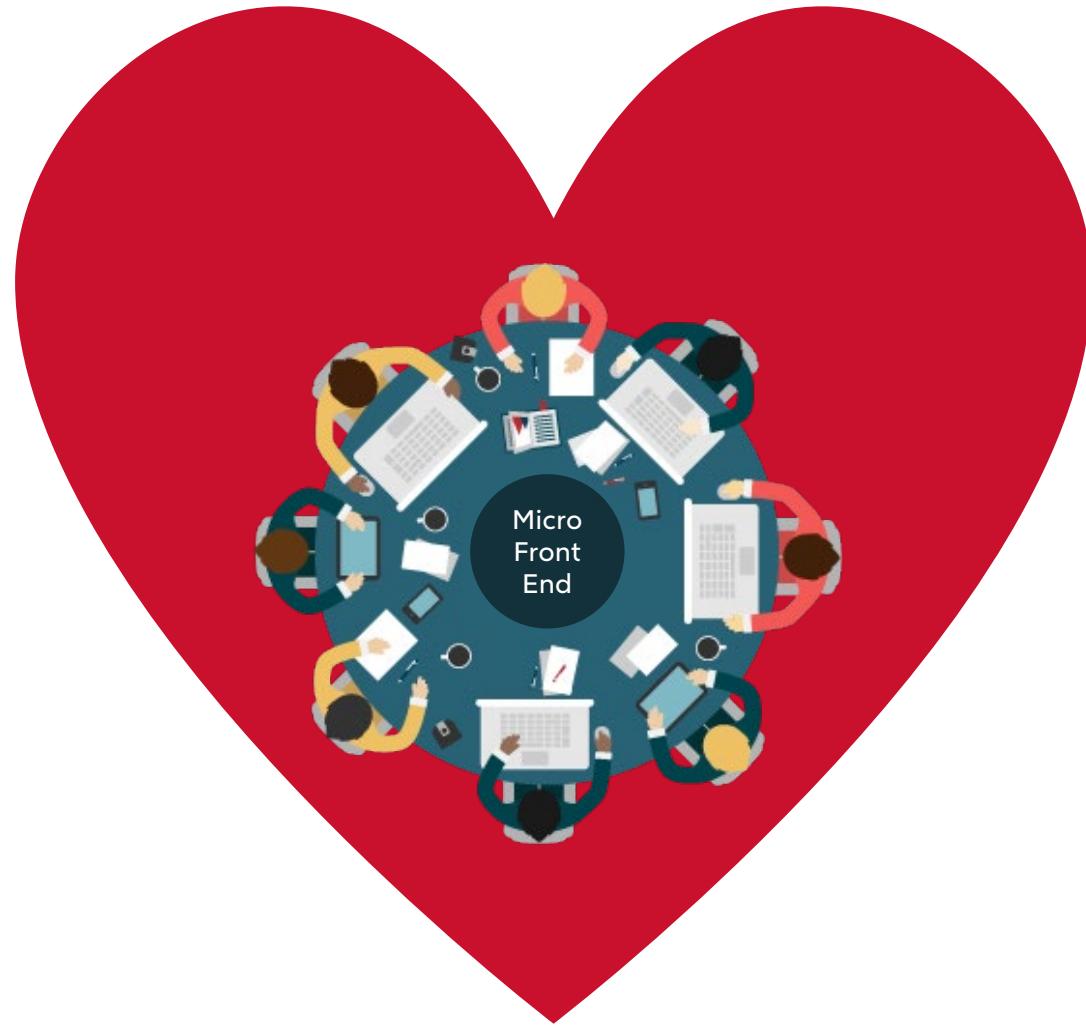
Legacy Code

Feature C

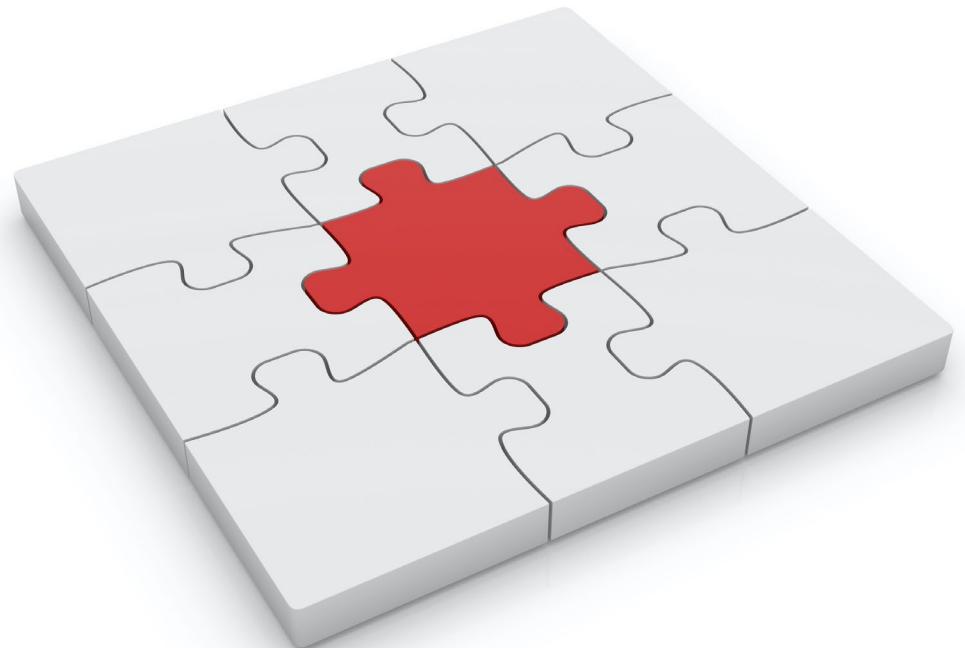
Legacy Code

Feature B

Modern Code



# Integration Options



# Server Side Includes

```
<html>
  <body>
    <!--#include virtual="micro-frontend-1/index.html" -->
    <!--#include virtual="micro-frontend-2/index.html" -->
    <!--#include virtual="micro-frontend-3/index.html" -->
  </body>
</html>
```



# iFrames

```
<html>
<body>
  <iframe src="https://micro-frontend-1.com">
  <iframe src="https://micro-frontend-1.com">
  <iframe src="https://micro-frontend-1.com">
</body>
</html>
```



# Microsites

Microsite 1

Microsite 2

Microsite 3



# Libraries

```
$ npm install --save micro-frontend-1  
$ npm install --save micro-frontend-2  
$ npm install --save micro-frontend-3
```

```
// app.module.ts  
imports: [  
  MicroFrontend1Module,  
  MicroFrontend2Module,  
  MicroFrontend3Module,  
],  
  
// app.component.html  
<lib-micro-frontend-1></lib-micro-frontend-1>  
<lib-micro-frontend-2></lib-micro-frontend-2>  
<lib-micro-frontend-3></lib-micro-frontend-3>
```



# Global Functions

```
<html>
<body>
  <script src="micro-frontend-1.js"></script>
  <script src="micro-frontend-2.js"></script>
  <script src="micro-frontend-3.js"></script>

  <script type="text/javascript">
    window.renderMicroFrontend1();
    window.renderMicroFrontend2();
    window.renderMicroFrontend3();
  </script>
</body>
</html>
```



# Custom Elements

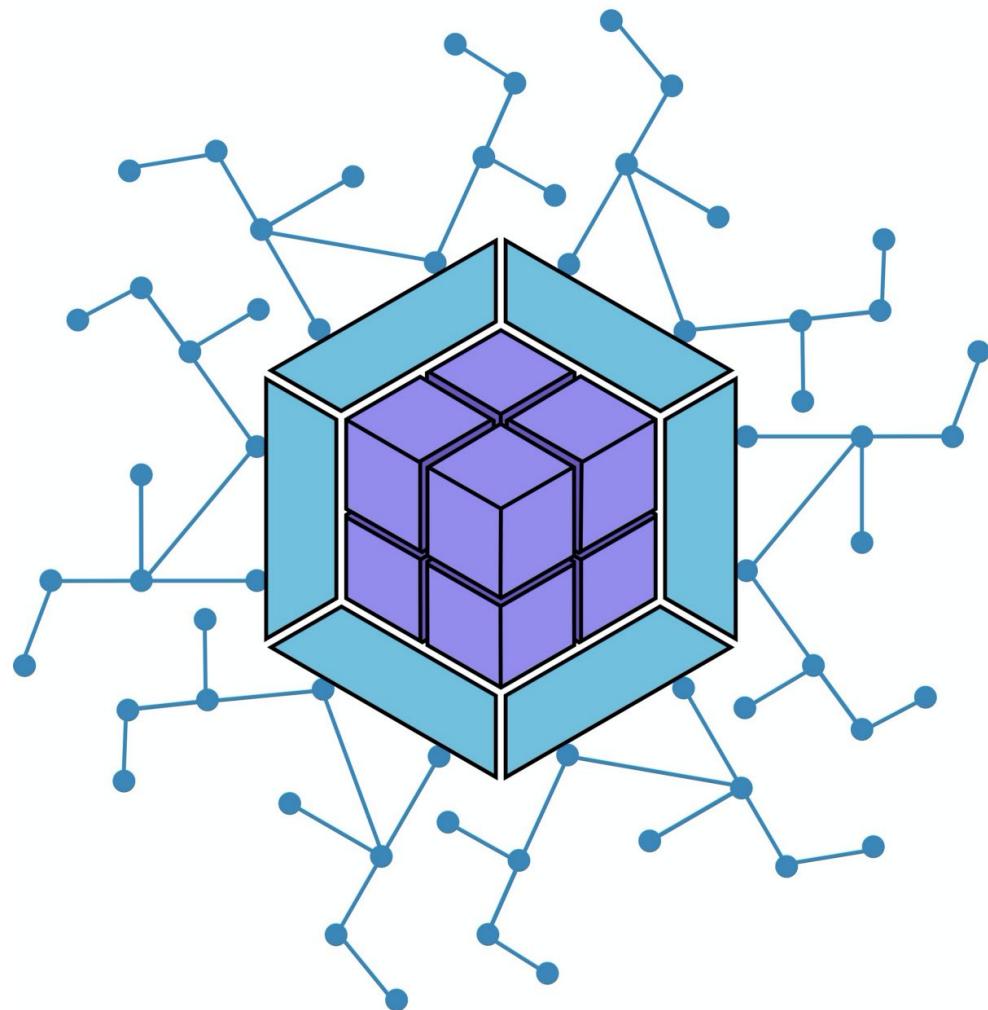
```
<html>
  <body>
    <script src="micro-frontend-1.js"></script>
    <script src="micro-frontend-2.js"></script>
    <script src="micro-frontend-3.js"></script>

    <micro-frontend-1></micro-frontend-1>
    <micro-frontend-2></micro-frontend-2>
    <micro-frontend-3></micro-frontend-3>
  </body>
</html>
```



# Webpack Module Federation

```
// webpack.config.js
module.exports = {
  plugins: [
    new ModuleFederationPlugin({
      remotes: {
        "micro1": "micro1@https://example.com/micro1.js",
        "micro2": "micro2@https://example.com/micro2.js",
        "micro3": "micro3@https://example.com/micro3.js"
      }
    })
  ]
};
```





single-spa



Podium



OpenComponents



Nuz



Mashroom Server



FrintJS



Scalecube



Bit



Piral



Qiankun



Luigi



Mosaic



PuzzleJs



Ara



Nut Project



icestark



ILC



Misk-Web



One App



Berial

# Potential Disadvantages



## Browser support



CHROME



OPERA



SAFARI



FIREFOX



EDGE



HTML TEMPLATES



STABLE



STABLE



STABLE



STABLE



STABLE



CUSTOM ELEMENTS



STABLE



STABLE



STABLE



STABLE



STABLE



SHADOW DOM



STABLE



STABLE



STABLE



STABLE



STABLE



ES MODULES



STABLE



STABLE



STABLE



STABLE



STABLE

# Style Bleeding

**First**

**First**

**Second**

**Second**

**Third**

**Third**



# UX Cohesion

## First

Lorem ipsum dolor sit amet consectetur adipisicing elit. Ullam quod nihil maxime, voluptas mollitia, perspiciatis asperiores a magnam vel iusto facere eos expedita aliquid. Consequuntur laboriosam pariatur esse enim quis!

## Second

Lorem ipsum dolor sit amet consectetur adipisicing elit. Placeat accusamus eum ut enim adipisci vitae excepturi mollitia perferendis quia aperiam! Velit quae repellendus corrupti sit distinctio ea, quisquam exercitationem expedita!

## Third

Lorem ipsum dolor sit amet consectetur adipisicing elit. Debitis reprehenderit, error suscipit asperiores incidenti deleniti facilis eaque quidem molestiae sapiente iure ut blanditiis fugiat tenetur illo distinctio et molestias dolorum.



## First

Lorem ipsum dolor sit amet consectetur adipisicing elit. Ullam quod nihil maxime, voluptas mollitia, perspiciatis asperiores a magnam vel iusto facere eos expedita aliquid. Consequuntur laboriosam pariatur esse enim quis!

## Second

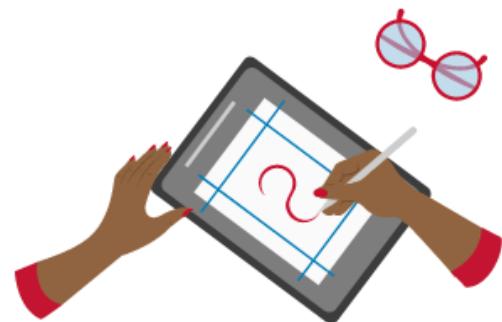
Lorem ipsum dolor sit amet consectetur adipisicing elit. Placeat accusamus eum ut enim adipisci vitae excepturi mollitia perferendis quia aperiam! Velit quae repellendus corrupti sit distinctio ea, quisquam exercitationem expedita!

## Third

Lorem ipsum dolor sit amet consectetur adipisicing elit. Debitis reprehenderit, error suscipit asperiores incidenti deleniti facilis eaque quidem molestiae sapiente iure ut blanditiis fugiat tenetur illo distinctio et molestias dolorum.

# Spark Design System

Spark Design System is where we collect our best solutions for how to design and build unified digital experiences for the Rocket brands.



## Designer Basics

Get started with Design by reading the principles that we use in Spark Design System.

[Go To Designer Basics](#)

## Developer Basics

Learn how to install Spark's npm packages into the build of your application. You'll also find support for setting up Sass, React, Angular, and more.

[Go To Developer Basics](#)

## Components

Explore the library of Spark components and supporting documentation, including design guidelines, code samples, and configuration options.

[Go To Components](#)

# Performance

1

Bundle  
Sizes

2

Duplicate  
Dependencies

3

HTTP  
Requests

# Communication

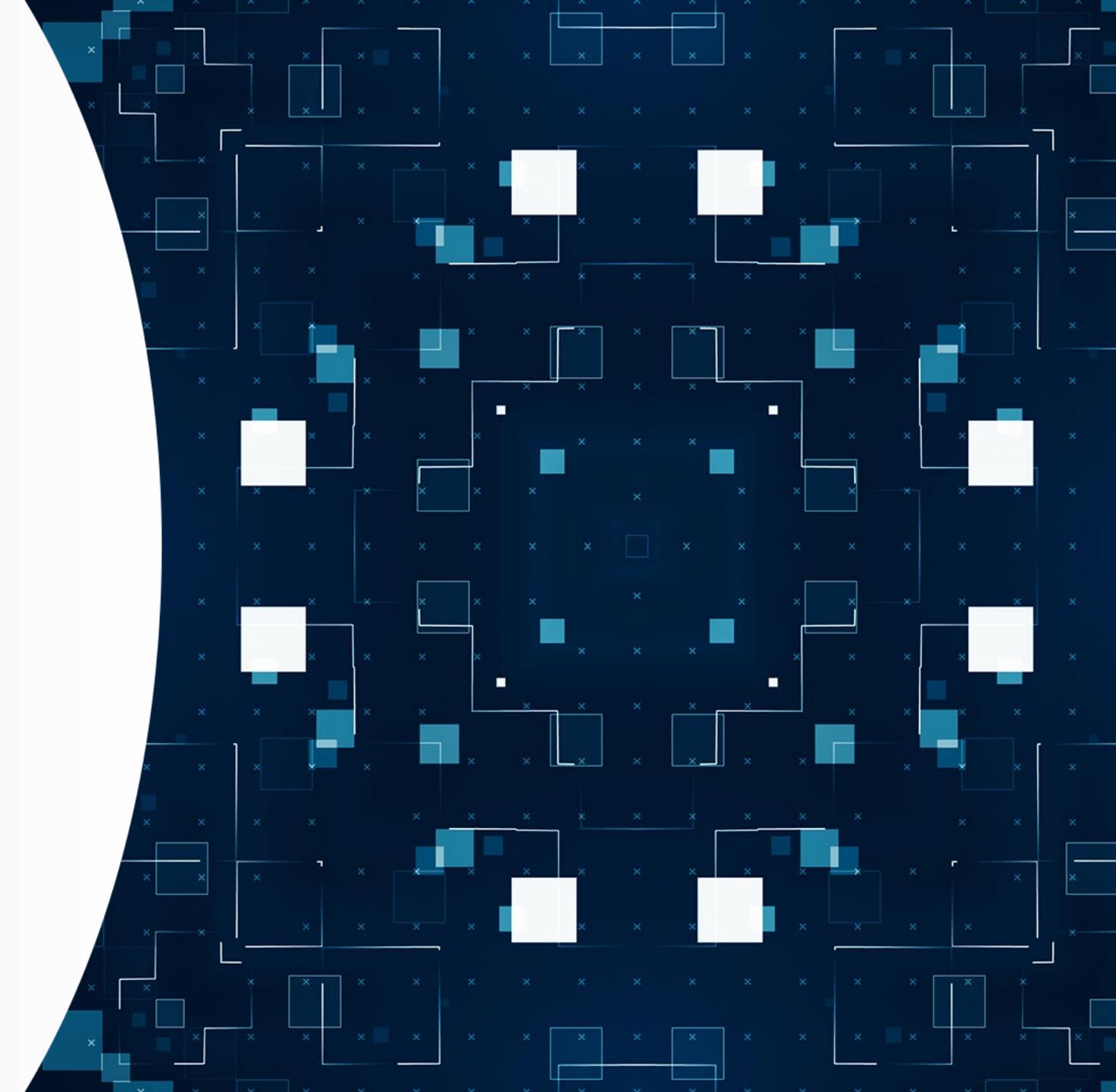


# Version Mismatch

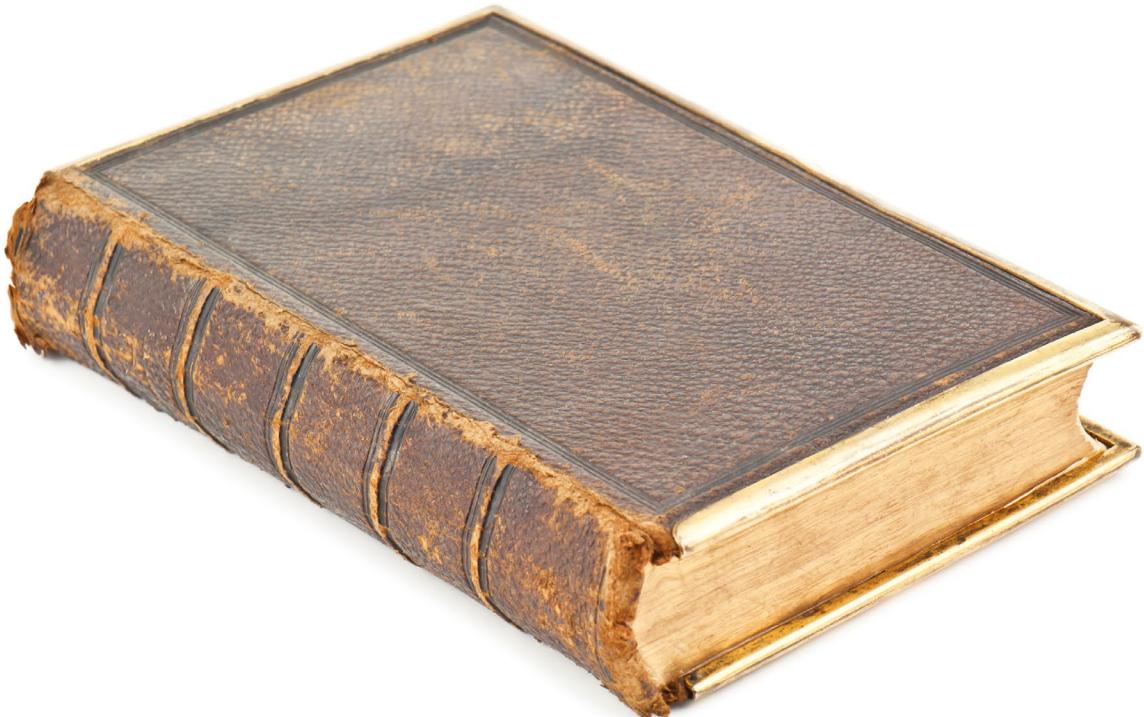


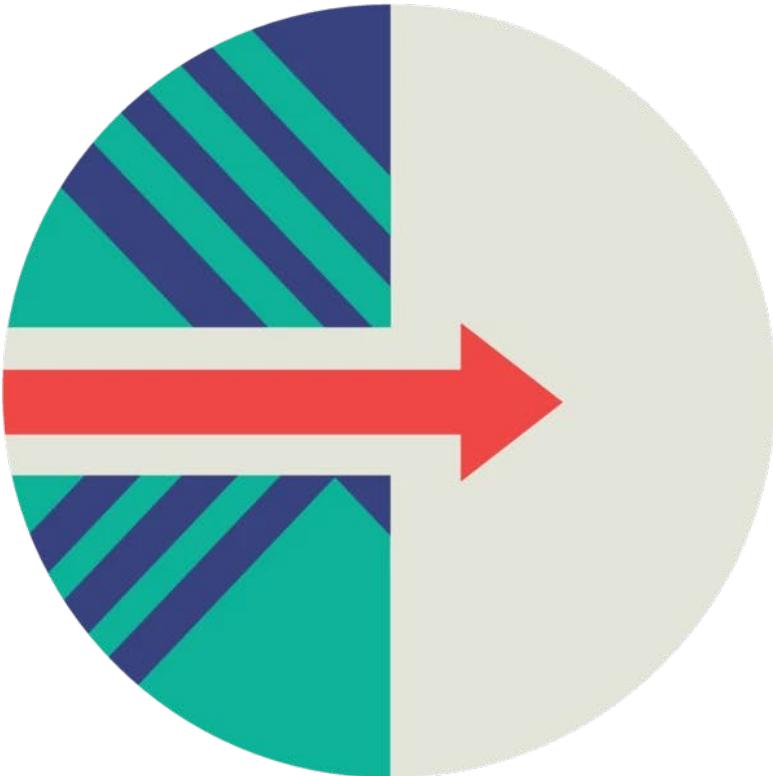
*Error: Unsatisfied version 5.0.0 of shared singleton module apple (required 4.0.0)*

# Live Demo



# Closing Thoughts





**SIMPLICITY  
IS GENIUS.**



# Contact Information

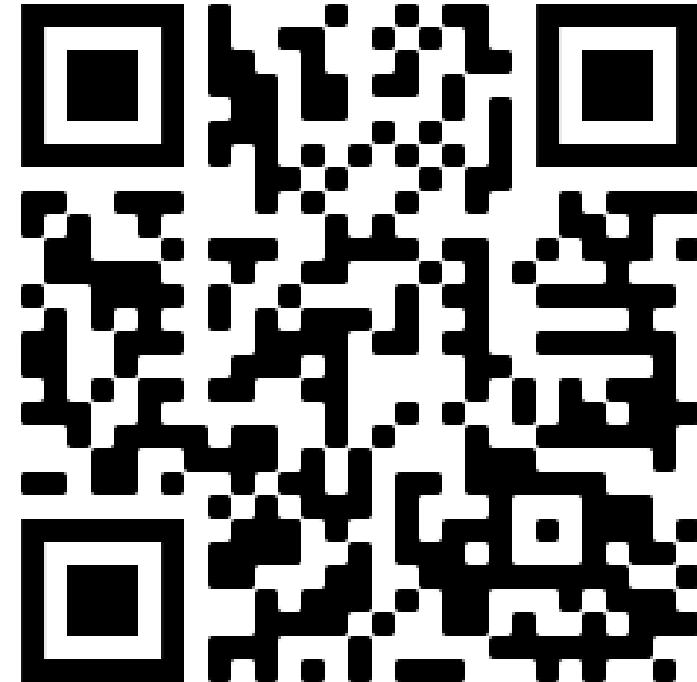


[@JasonNeal](https://twitter.com/JasonNeal)



[JasonNeal@RocketMortgage.com](mailto:JasonNeal@RocketMortgage.com)

Slides, references, additional info:



<https://git.io/J6IW2>