

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



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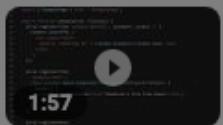
Settings

Tools

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

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

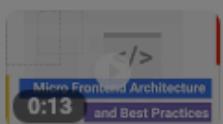


The idea of **Micro Frontends** is to break down the frontend monolith into smaller, more manageable pieces ...

Sep 2, 2020 · Uploaded by MTM Tutorials

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

Micro Frontend Architecture and Best Practices - XenonStack

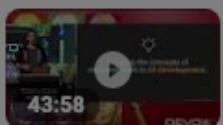


What is **Micro Frontend**? **Micro Frontend** is a Microservice Testing approach to front-end web development ...

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** ...

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ROCKET
Pro · TPO

Quality Decoded



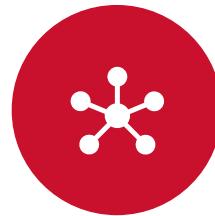
Agenda



Core
Concepts



Key
Benefits



Integration
Options



Potential
Disadvantages

Core Concepts



What exactly is micro frontend?





Presentation Tier

Application Tier

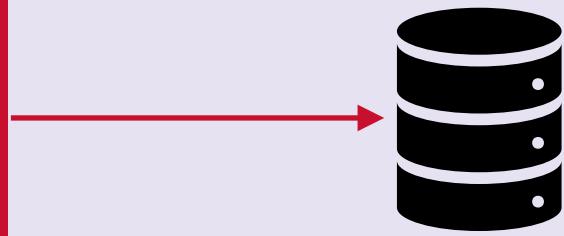
Monolith



Data Tier

Presentation Tier

Application Tier



Data Tier

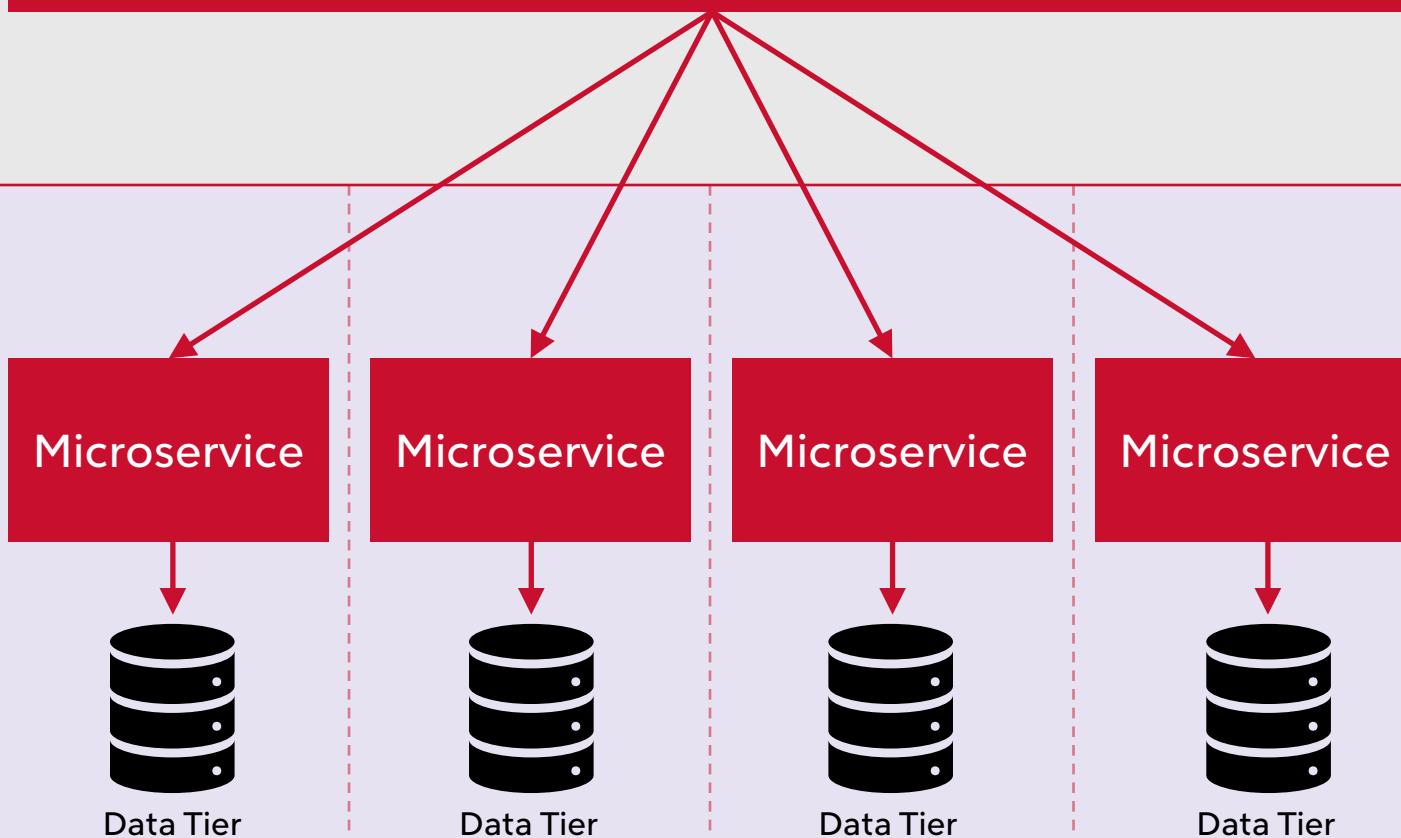


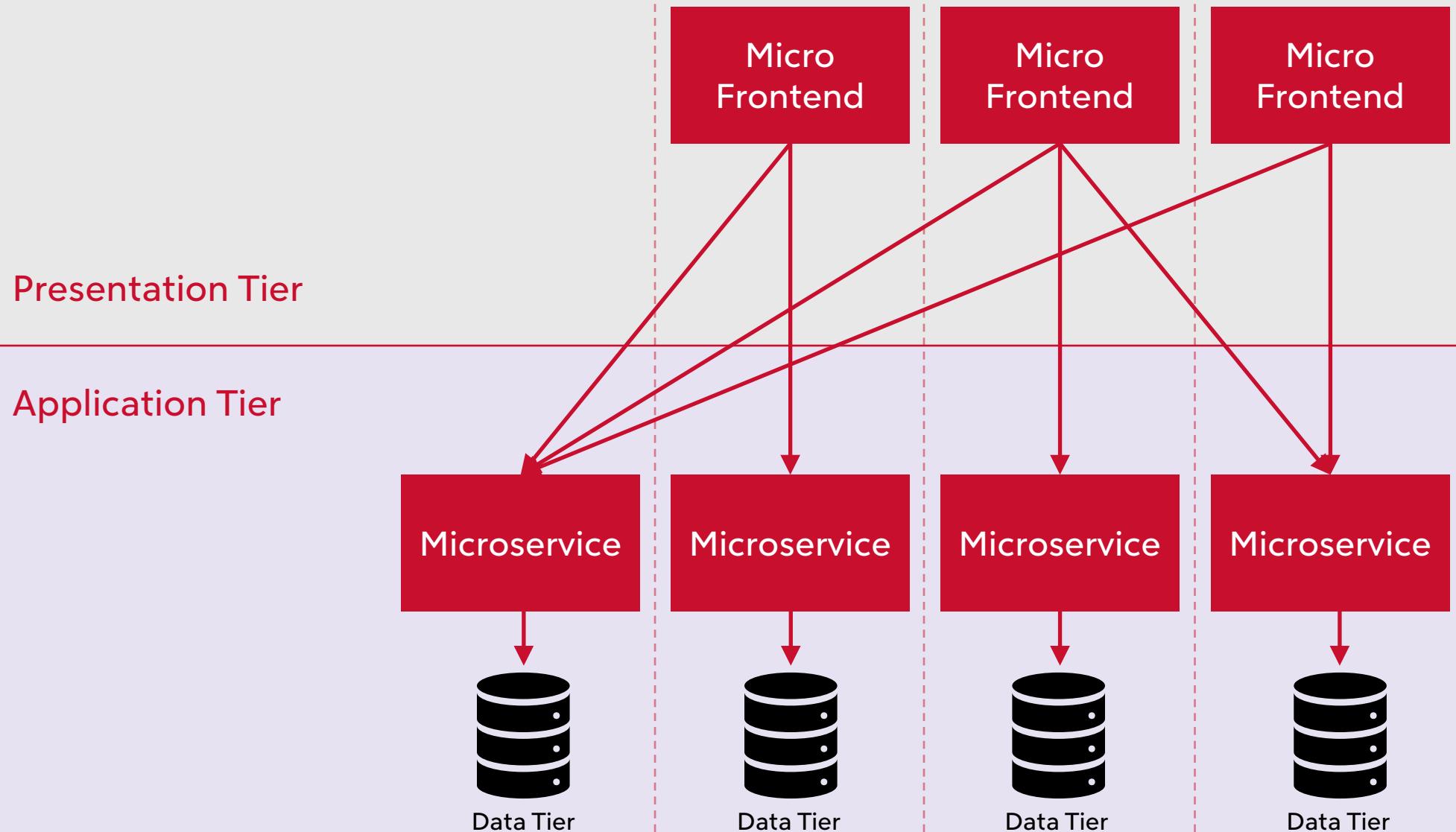
"Explain like I'm 5: Microservices in Node.js" by [Liz Parody](#), used with permission.

Frontend

Presentation Tier

Application Tier







Micro Frontend

“

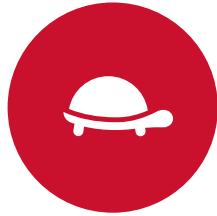
An architectural style where independently deliverable frontend applications are composed into a greater whole.

”

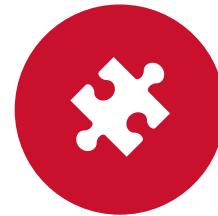
Terminology



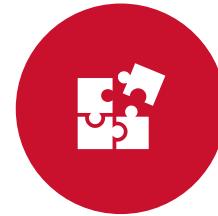
Container



Shell



Component



Fragment

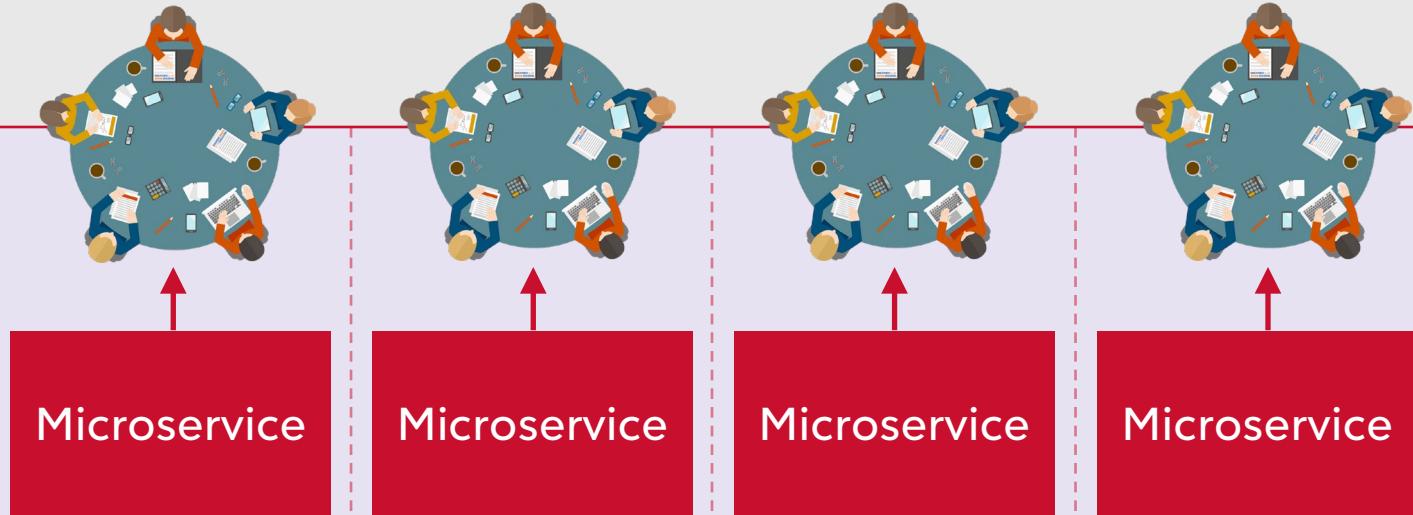
Key Benefits





Presentation Tier

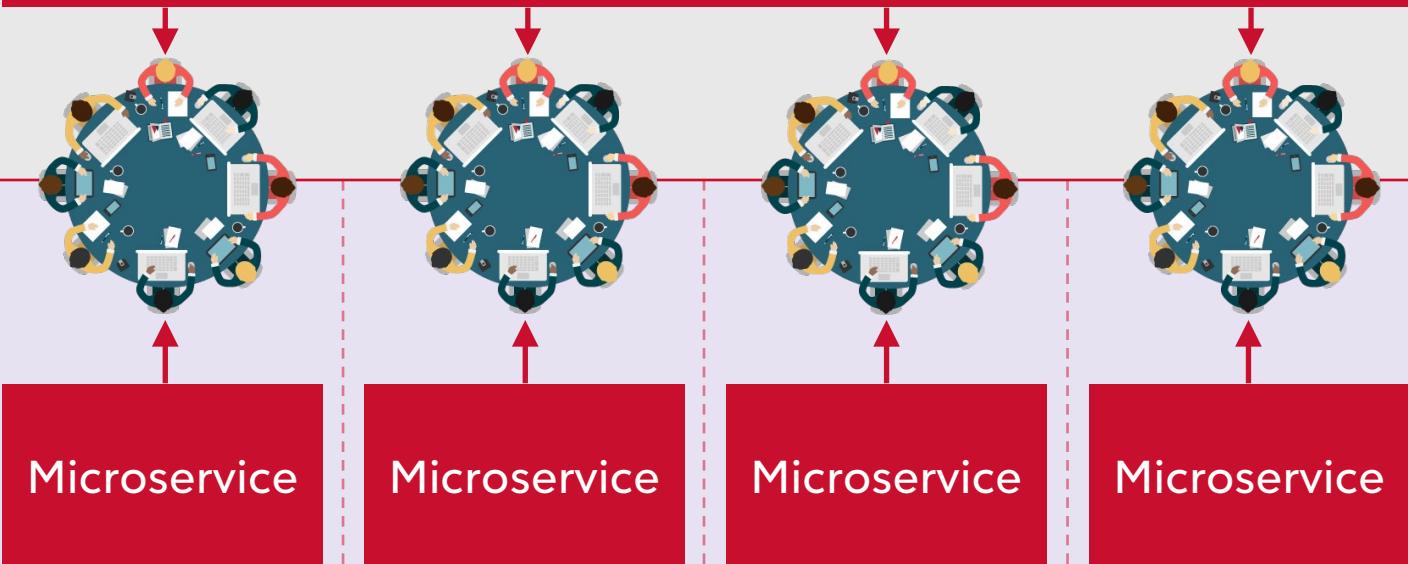
Application Tier

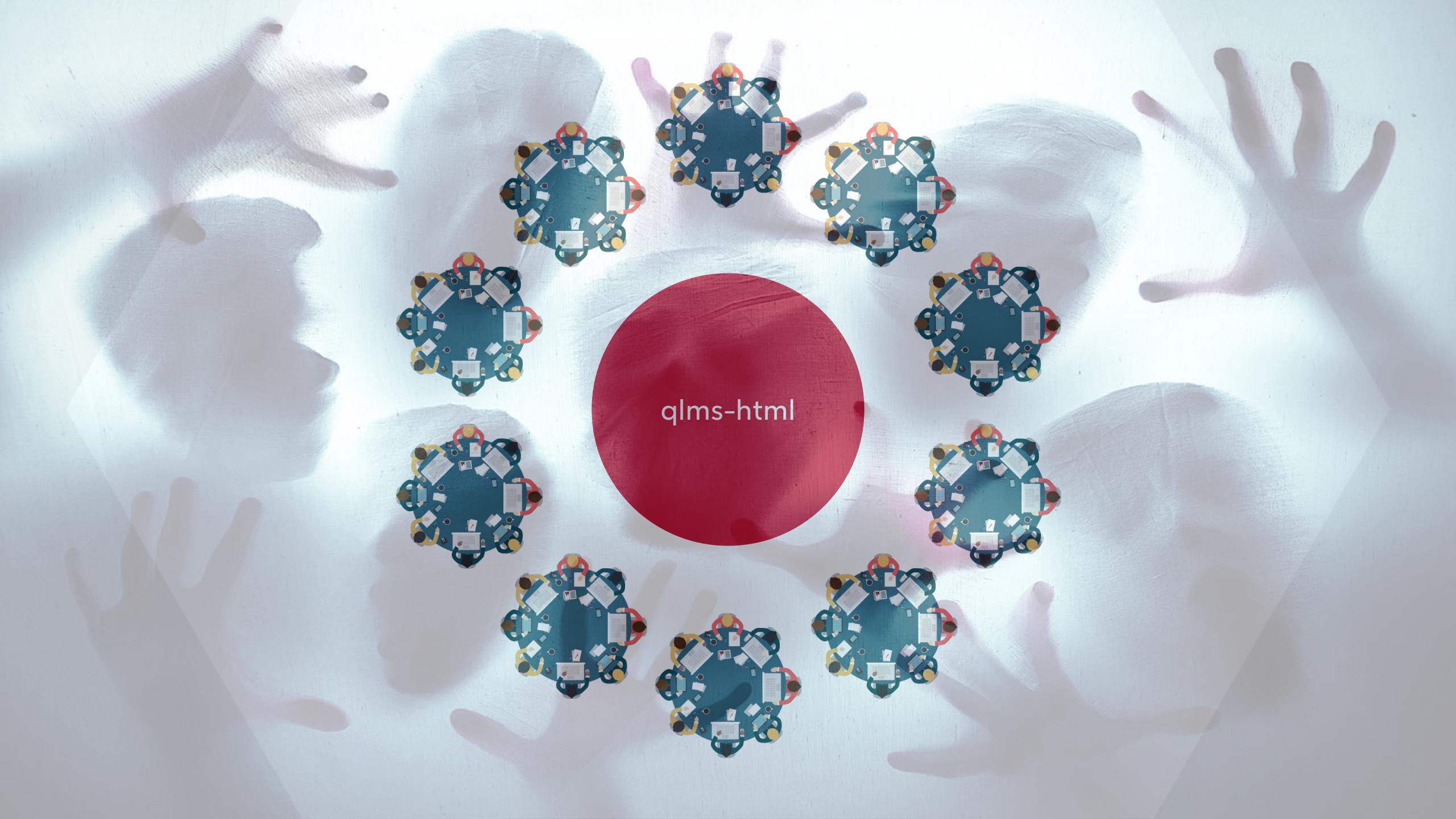


Frontend

Presentation Tier

Application Tier





qlms-html

Edit Conflict: Favourite Animal

Your version



Cat Lover's version

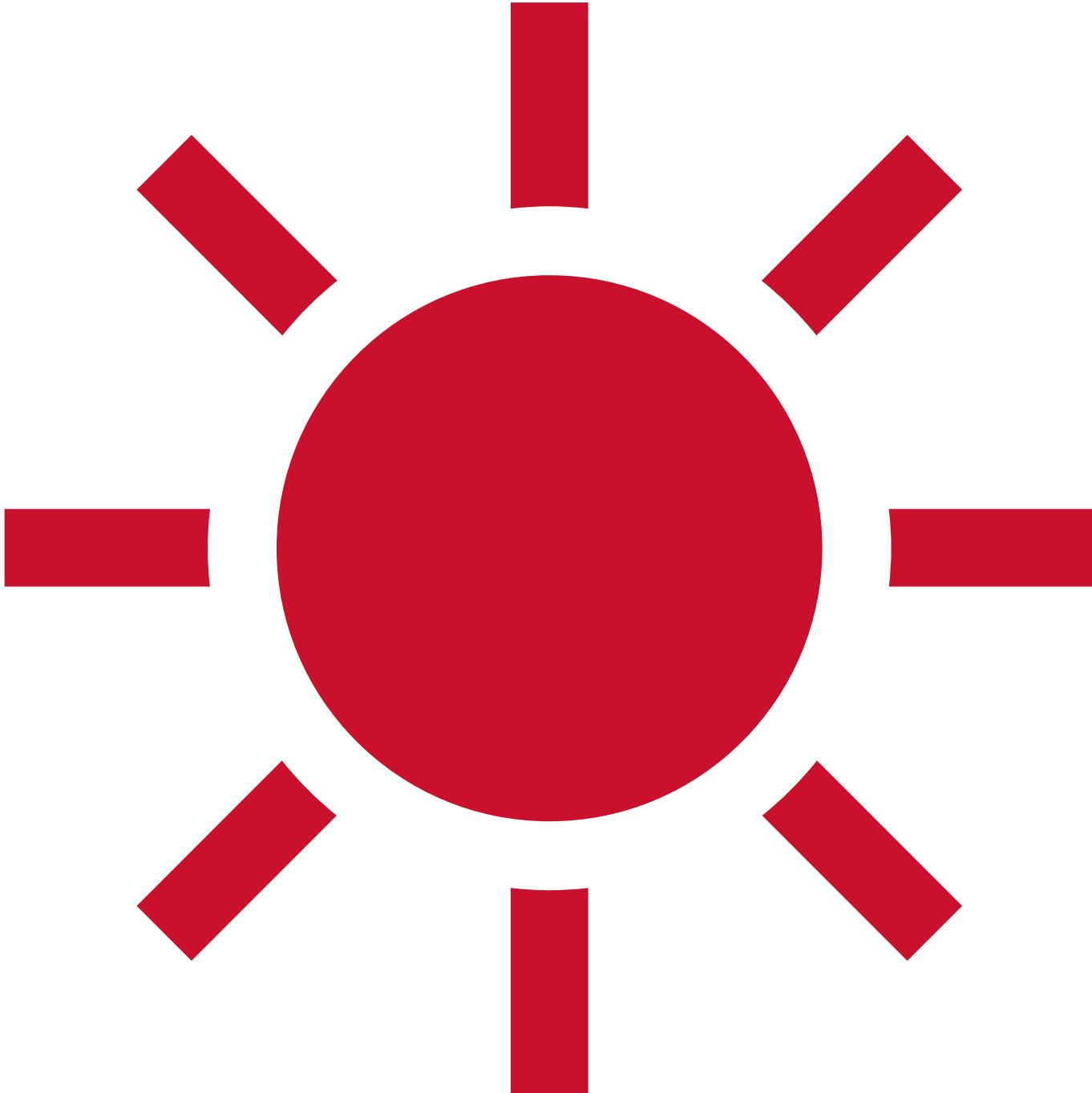


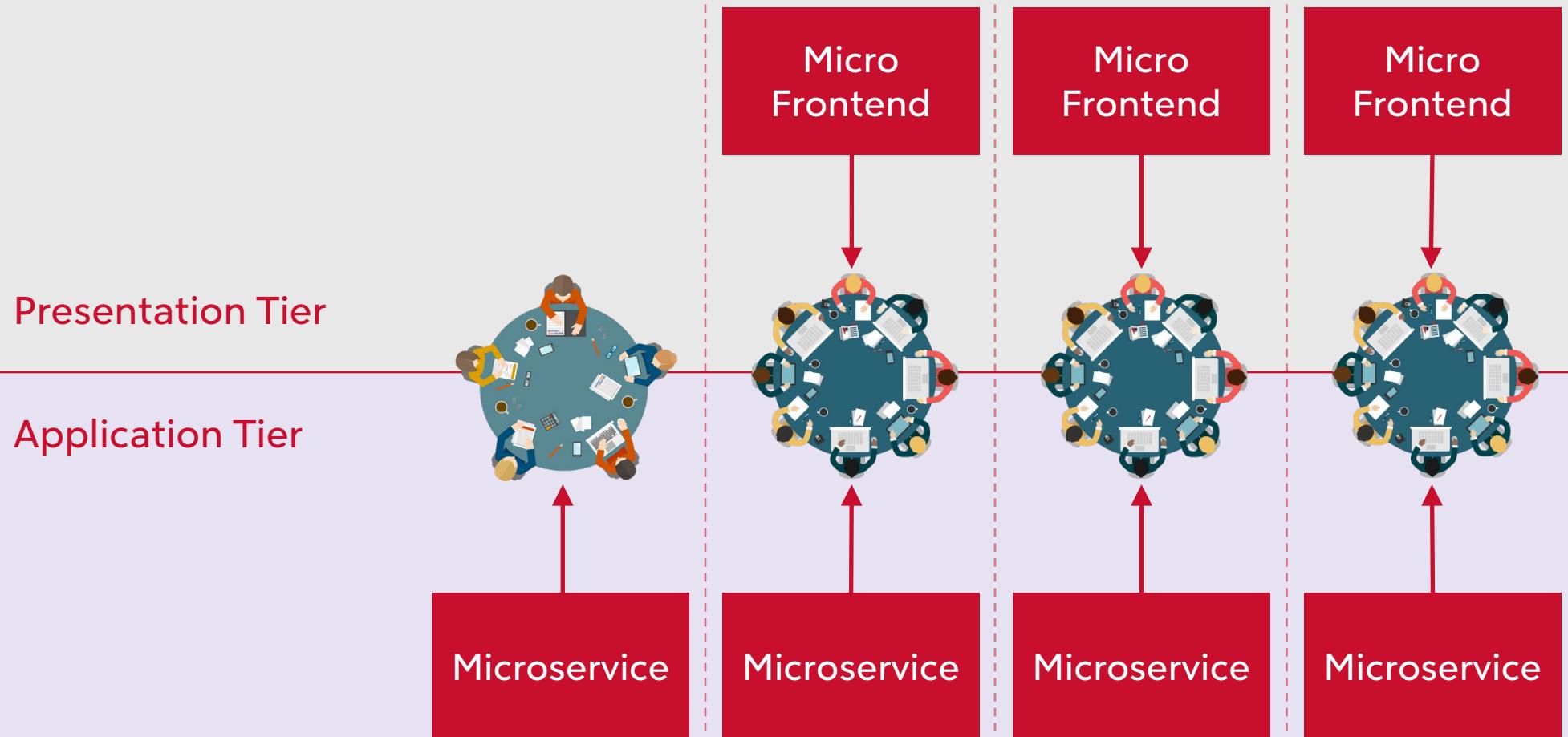
=













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

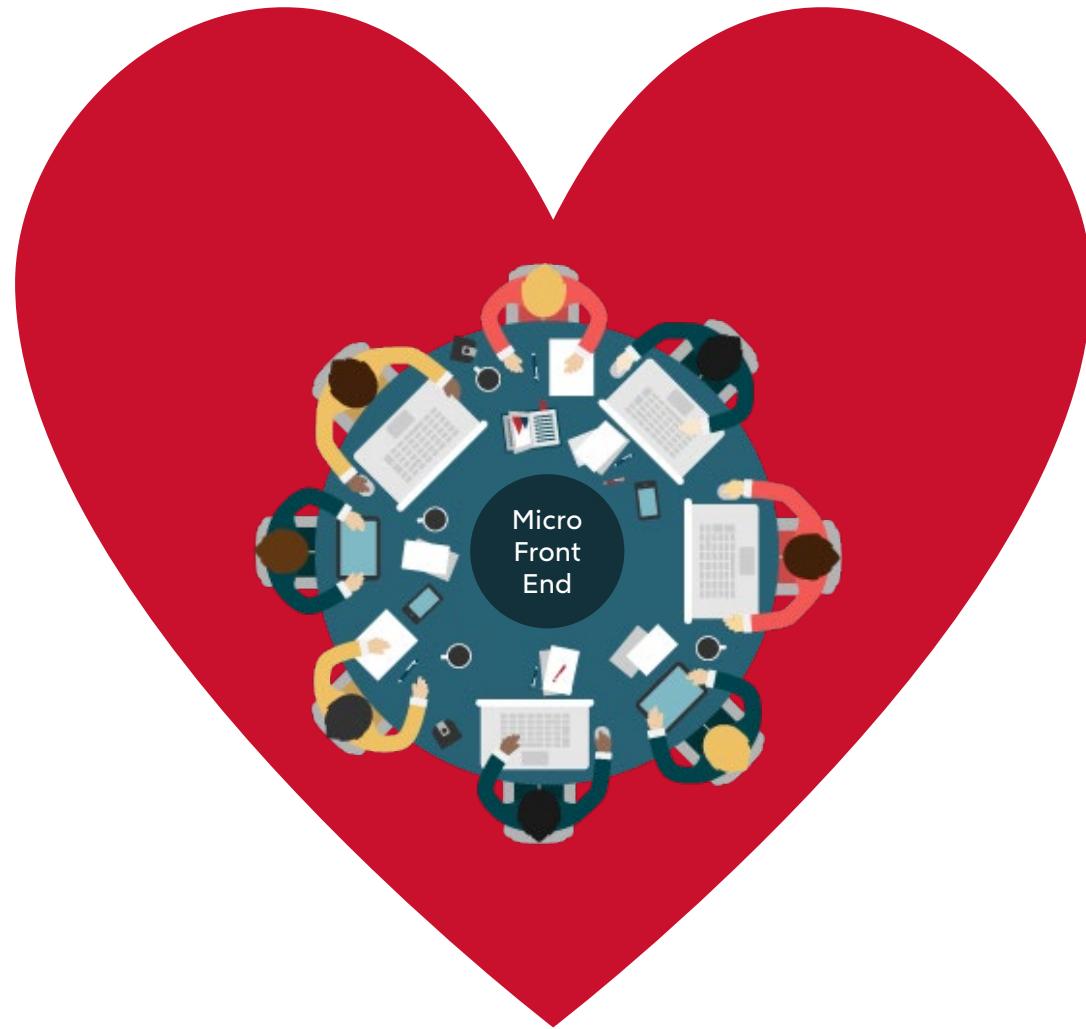
Legacy Code

Feature C

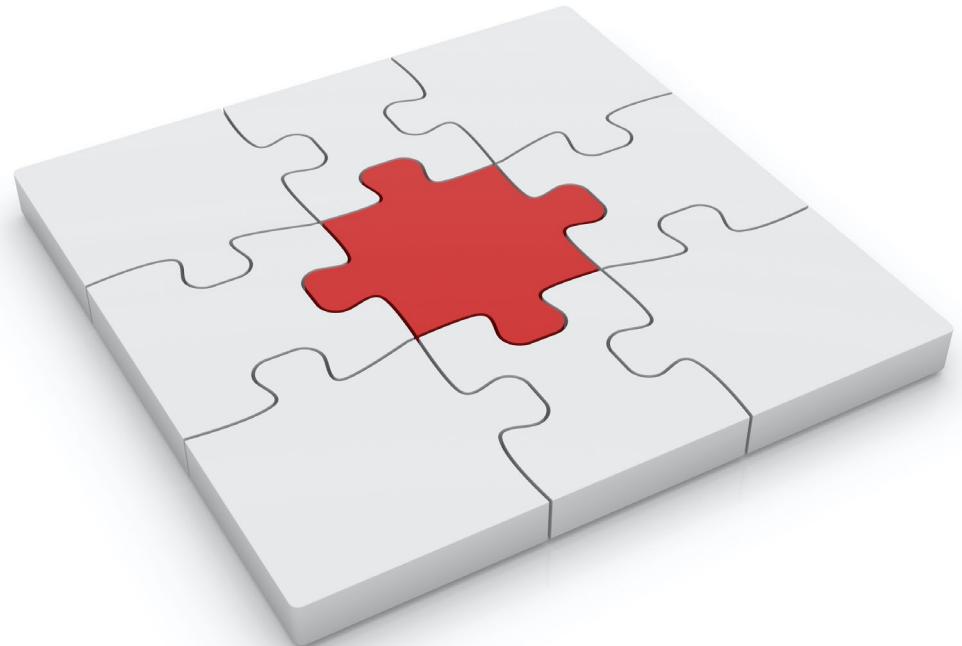
Legacy Code

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

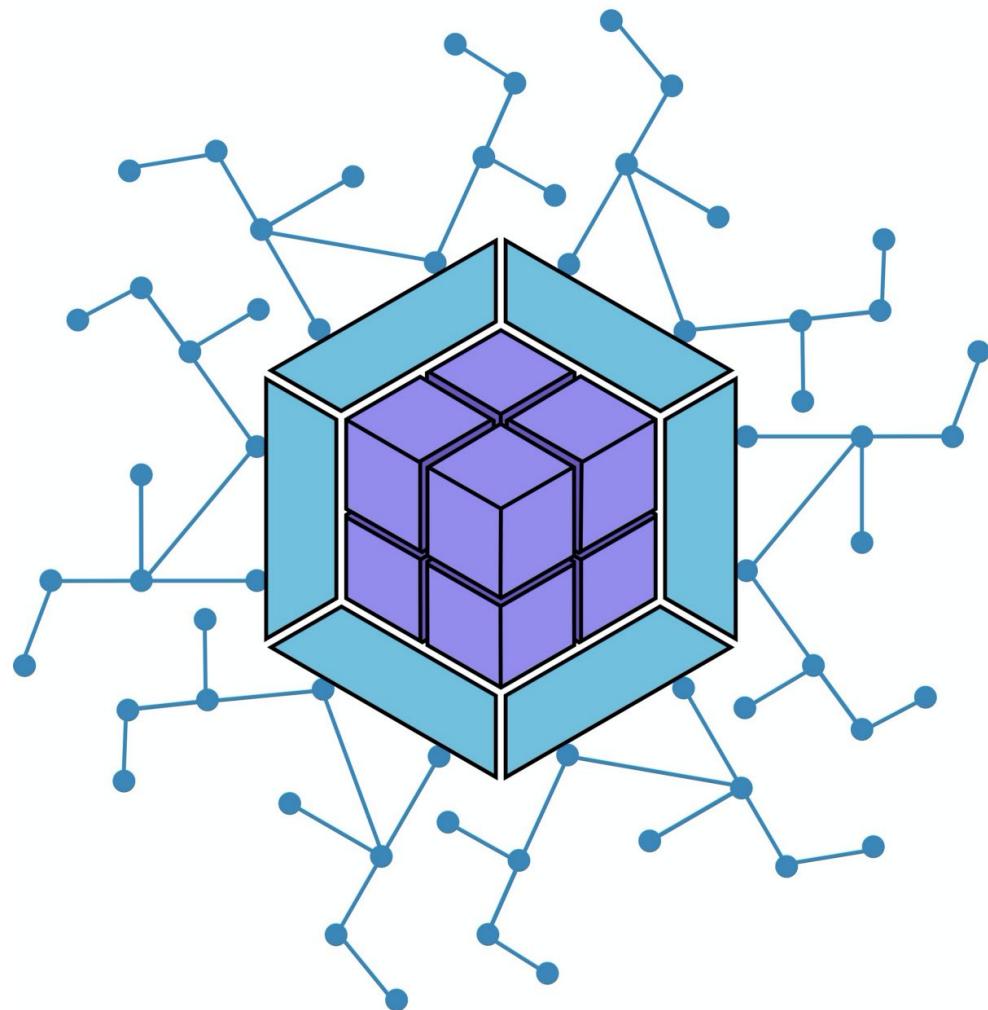
```
<html>
  <body>
    <script src="micro-frontend-1.js"></script>
    <script src="micro-frontend-2.js"></script>
    <script src="micro-frontend-3.js"></script>

    <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

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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

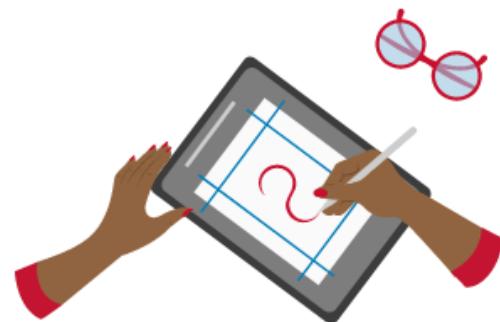
Lorem ipsum dolor sit amet consectetur adipisicing elit. Placeat accusamus eum ut enim adipisci vitae excepturi mollitia perferendis quia aperiam! Velit quae repellendus corrupti sit distinctio ea, quisquam exercitationem expedita!

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

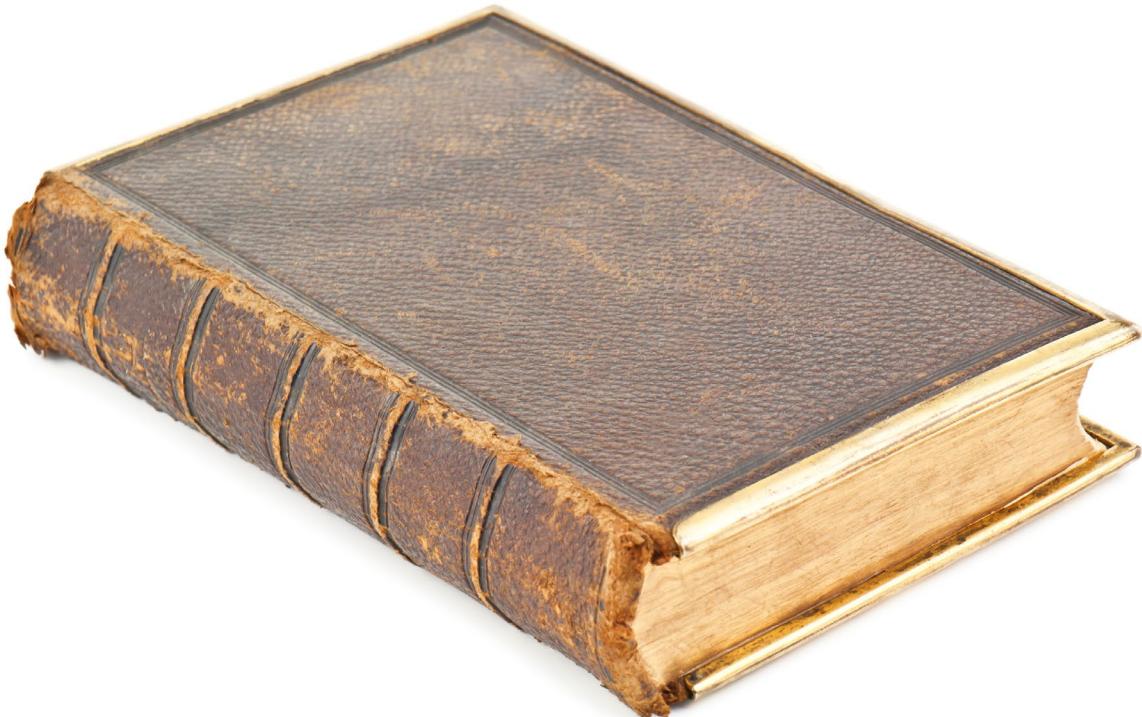


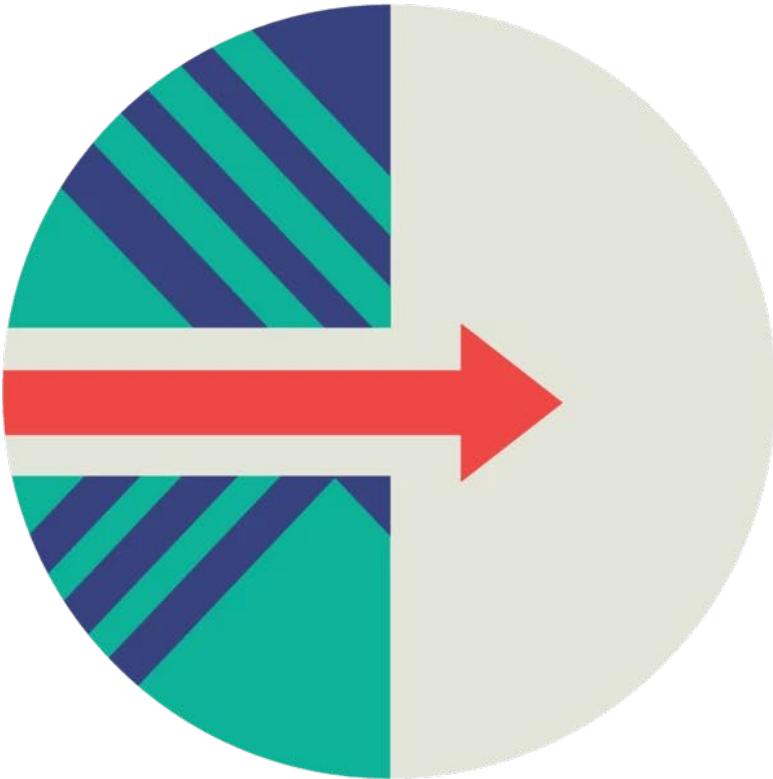
Error: Unsatisfied version 5.0.0 of shared singleton module apple (required 4.0.0)

Live Demo



Closing Thoughts





**SIMPLICITY
IS GENIUS.**



Contact Information

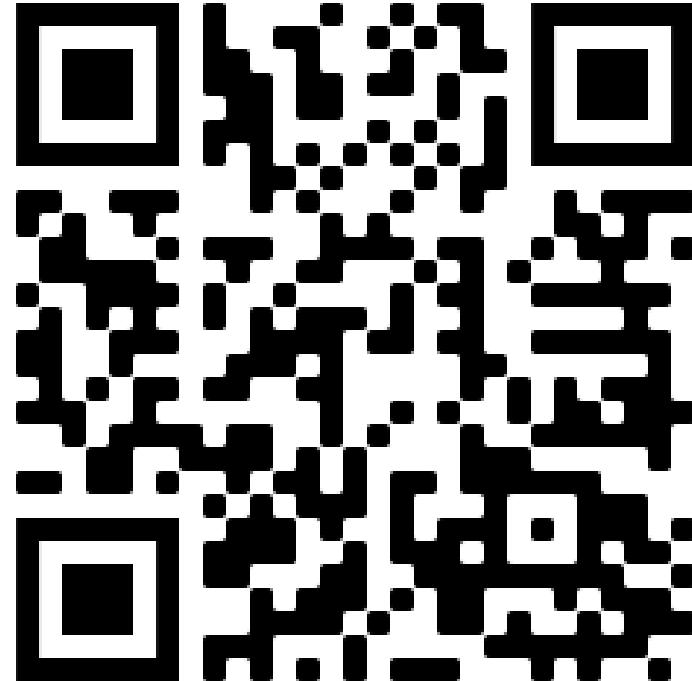


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Slides, references, additional info:



<https://git.io/J6IW2>