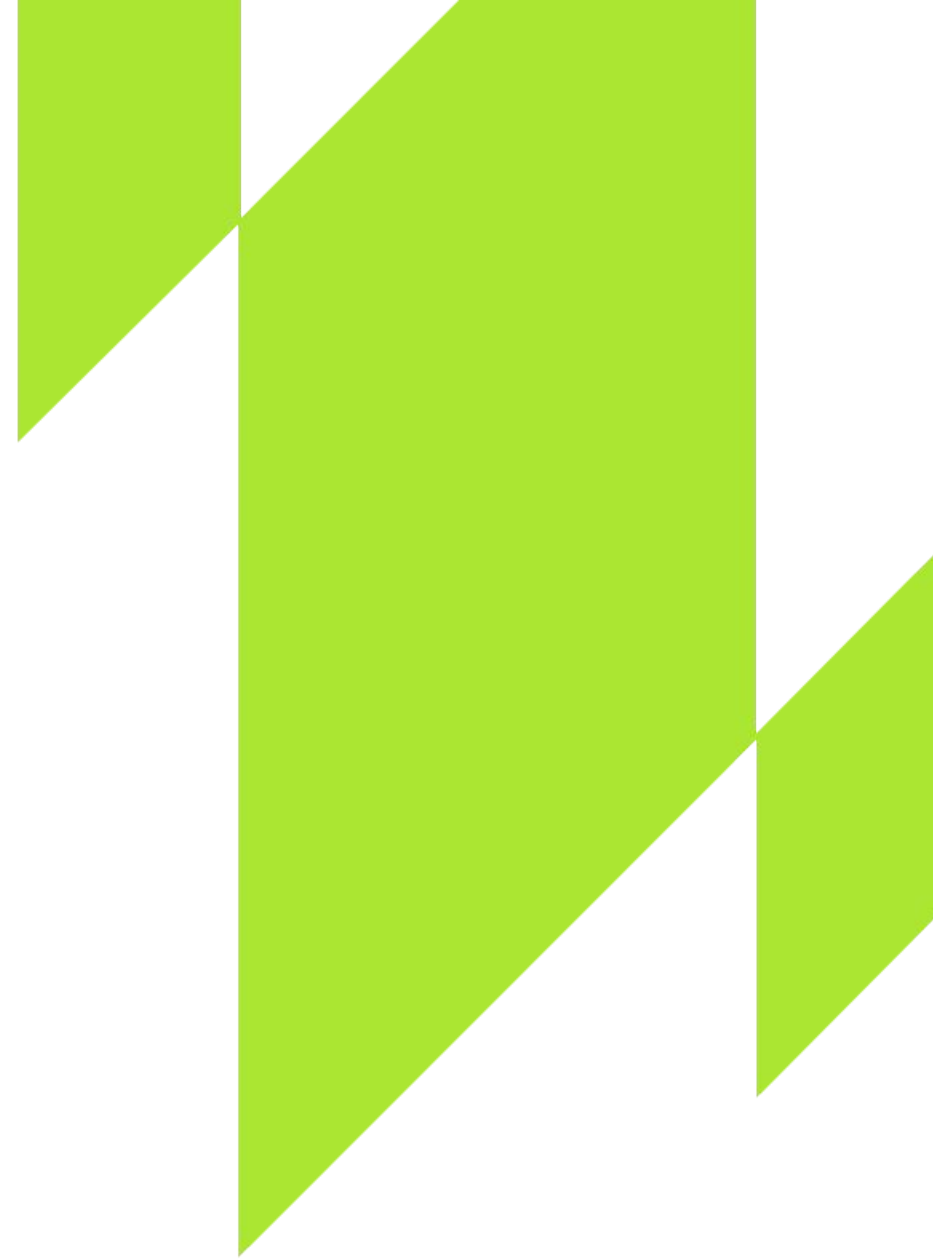


Breaking the Monolith

A Comprehensive Guide to Code Splitting Techniques

—
GUZENKO ALEKSANDR
CHIEF SOFTWARE ENGINEER



Who am I?

- Lead the development of a large banking application
- More than 7 years of experience in the frontend
- Reveal the topic of frontend architecture

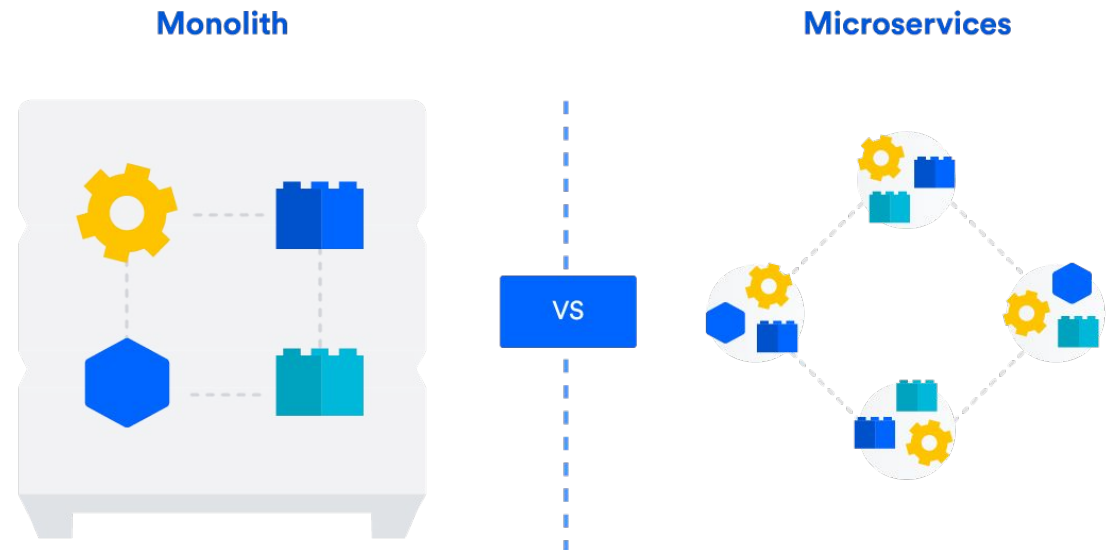


Speech plan

- Problems of Monolithic Applications
- Methods for splitting a monolith
- Conclusions

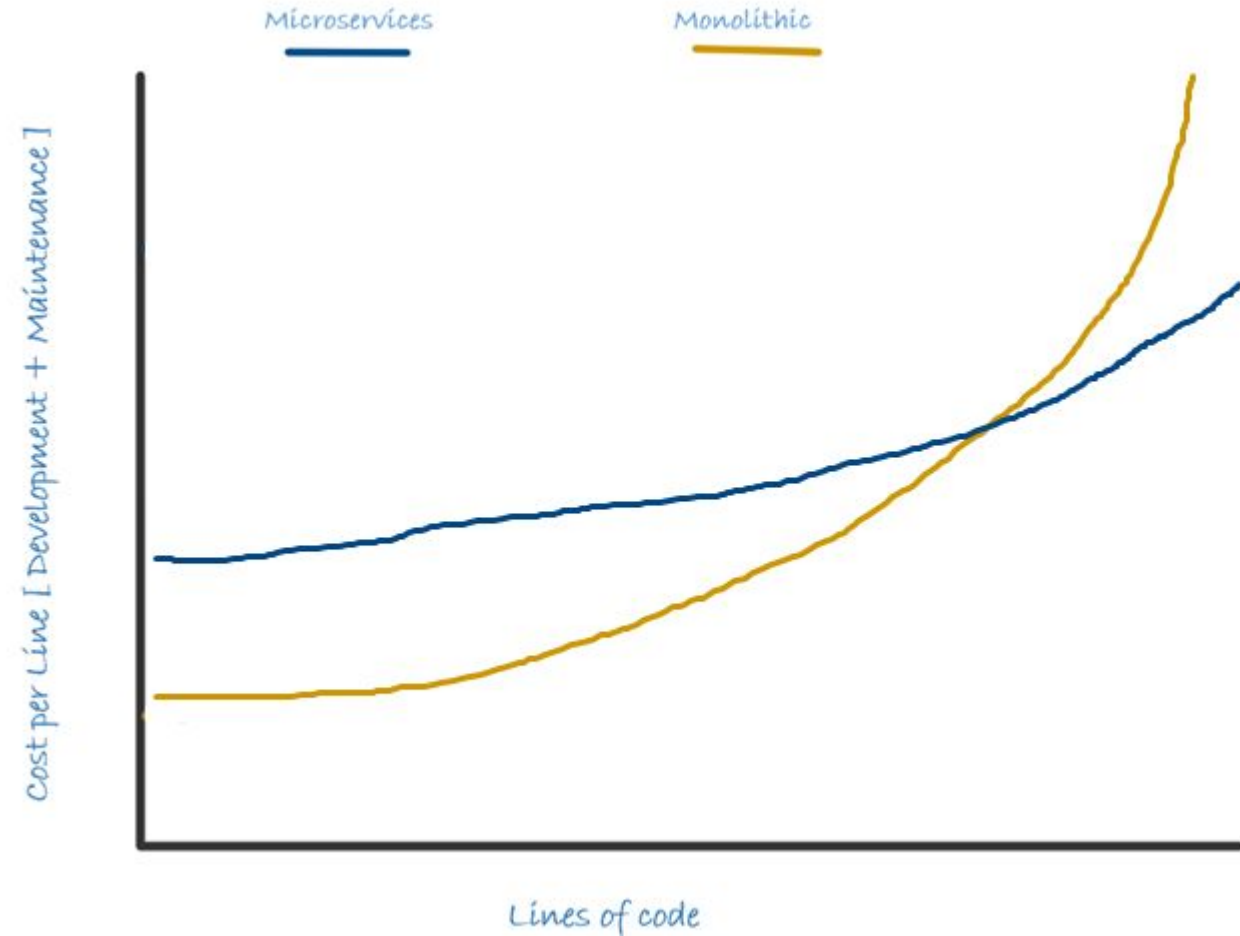
There are 2 approaches

- **Monolithic architecture** - a single module that works autonomously, independent of other applications
- **Microservice architecture** - several independent from each other small, low coupled and easily modified modules



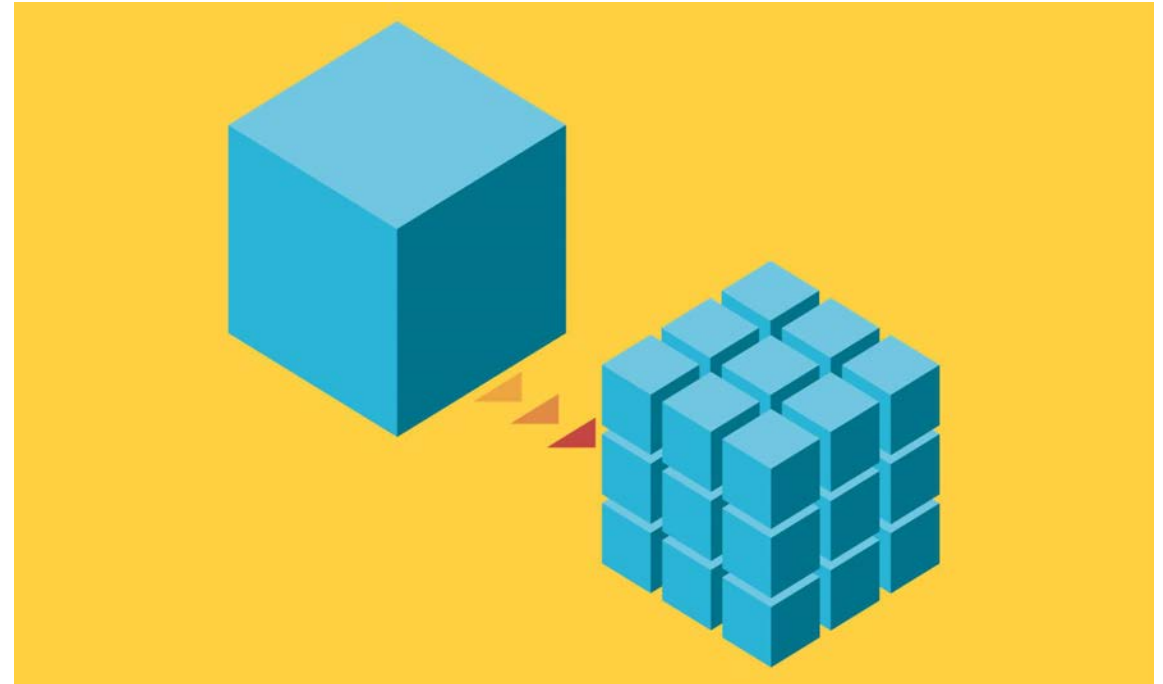
Monolith - is it bad?

- Monolith is NOT bad
- Monolith is NOT bad UNTIL a certain point



When should a monolith be broken?

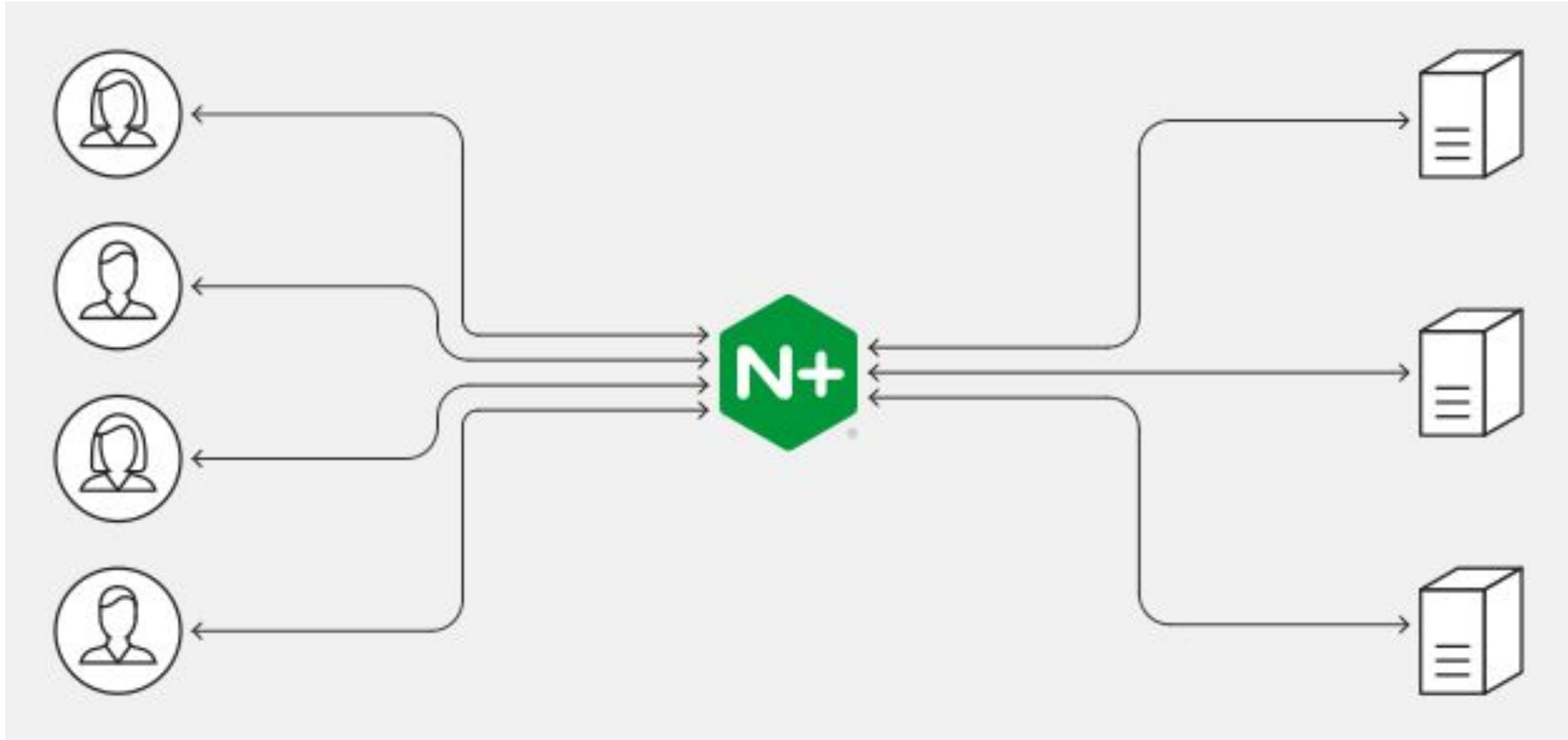
- Long builds and CI pipelines
- Rapidly increasing codebase complexity
- Increasing project entry threshold
- More than 5 people working on the project



iframe

The image shows a web browser window displaying the OpenStreetMap interface. The browser's address bar shows the URL: `https://www.openstreetmap.org/?mlat=37.5744386&mlon=126.9712525&zoom=16#map=16/37.5748/126...`. The browser's developer tools are open, showing the HTML source code of the page. The code includes an `<iframe>` element with the following attributes: `width="425" height="350" frameborder="0" scrolling="no" marginheight="0" marginwidth="0" src="https://www.openstreetmap.org/export/embed.html?bbox=126.95717096328737%2C37.56970179&style="border:1px solid black"></iframe>`. The browser's 'Share' menu is open, showing the 'HTML' option selected. The 'HTML' option is circled with a '2'. The 'HTML' option is also circled with a '3'. The 'HTML' option is also circled with a '1'. The 'HTML' option is also circled with a '4'. The 'HTML' option is also circled with a '5'.

NGINX or another proxy server



Web Components

```

class AwesomeCardComponent extends HTMLElement {
  constructor() {
    super();

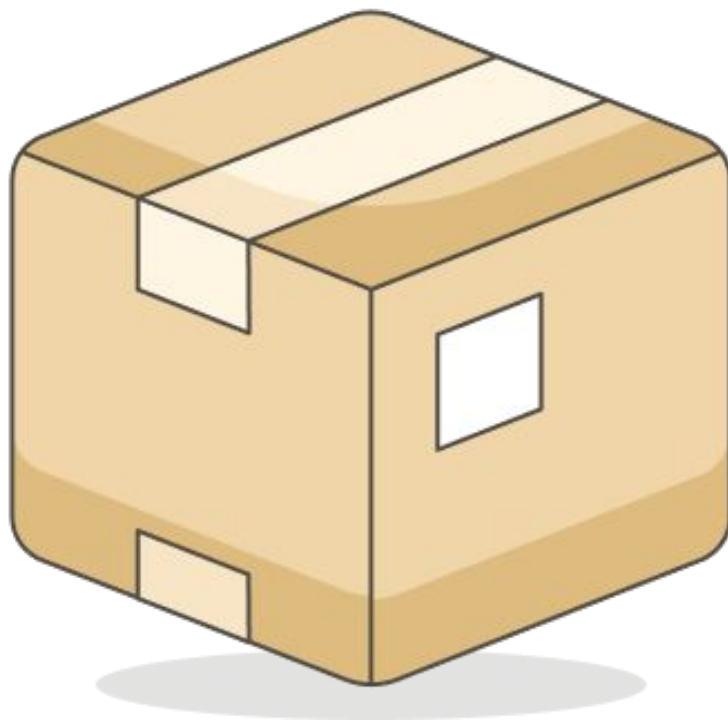
    this.innerHTML = this.greeting;
  }

  get greeting() {
    return this.getAttribute('greeting');
  }

  set greeting(val) {
    if (val) {
      this.setAttribute('greeting', val);
    } else {
      this.removeAttribute('greeting');
    }
  }
}

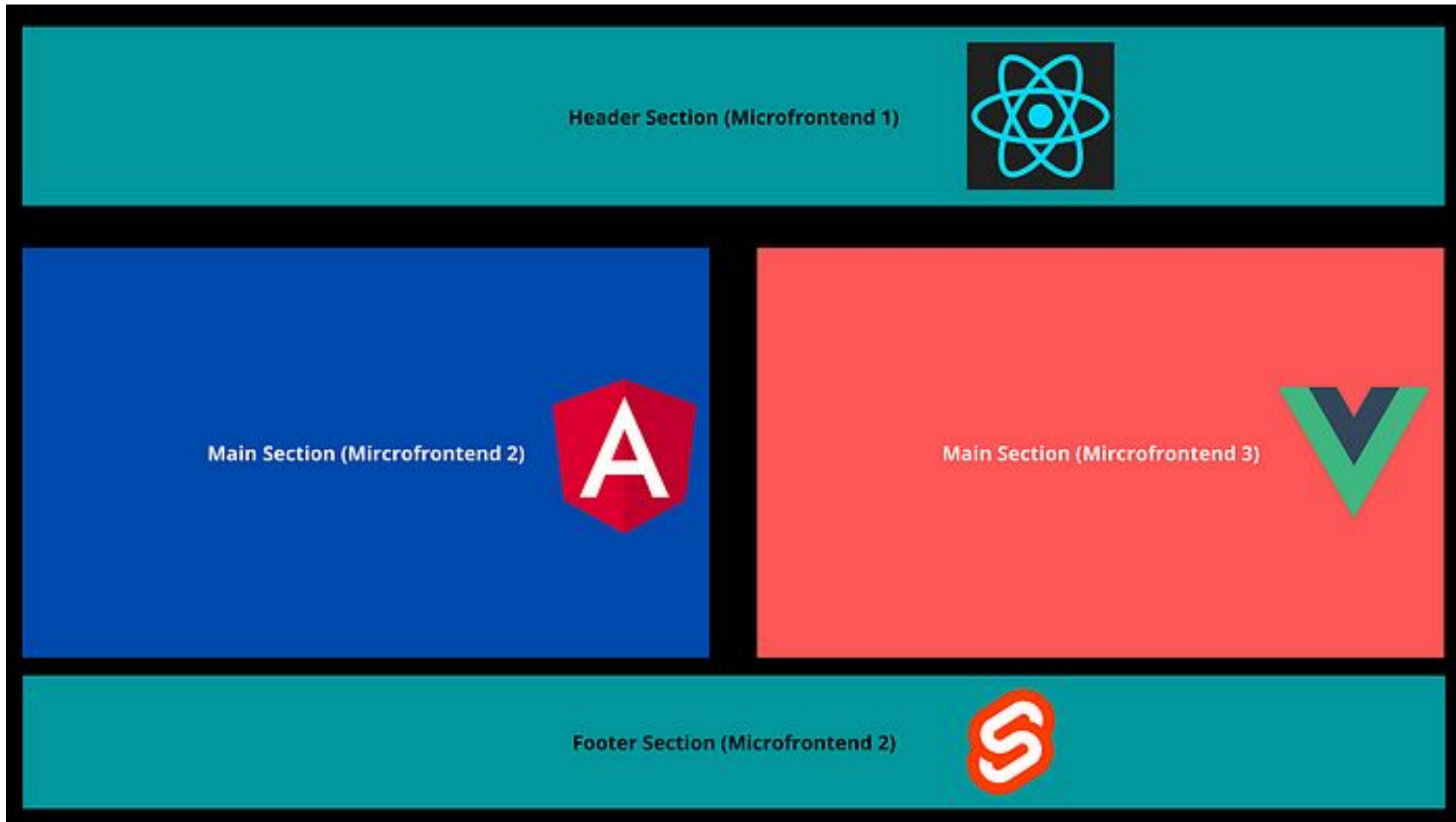
// Register our awesome card component to the Custom Elements Registry
customElements.define('awesome-card', AwesomeCardComponent);

// Example usage in your app:
<awesome-card greeting="Hello world!"></awesome-card>
```



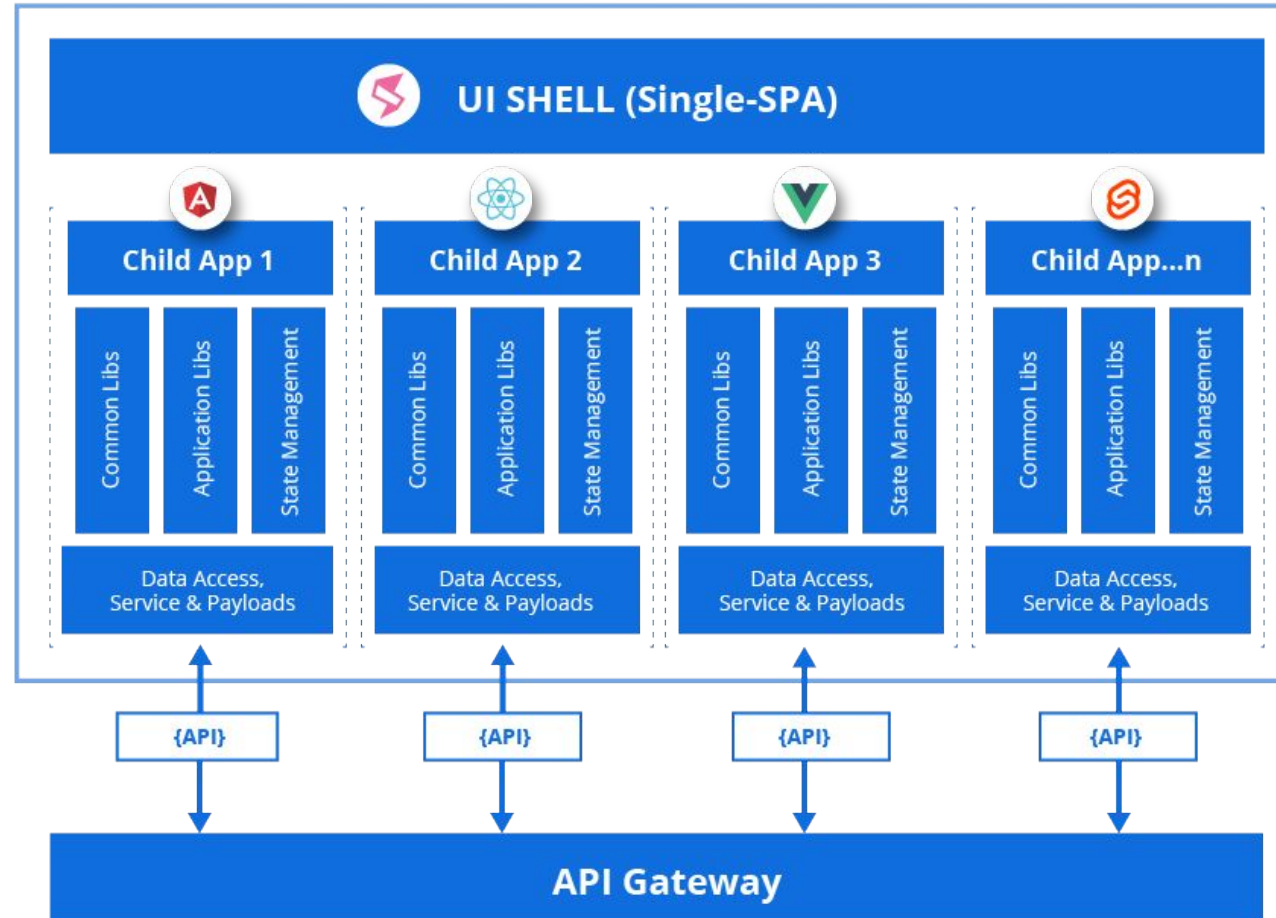
IT.ONE

—
WAYS TO SPLIT A MONOLITH

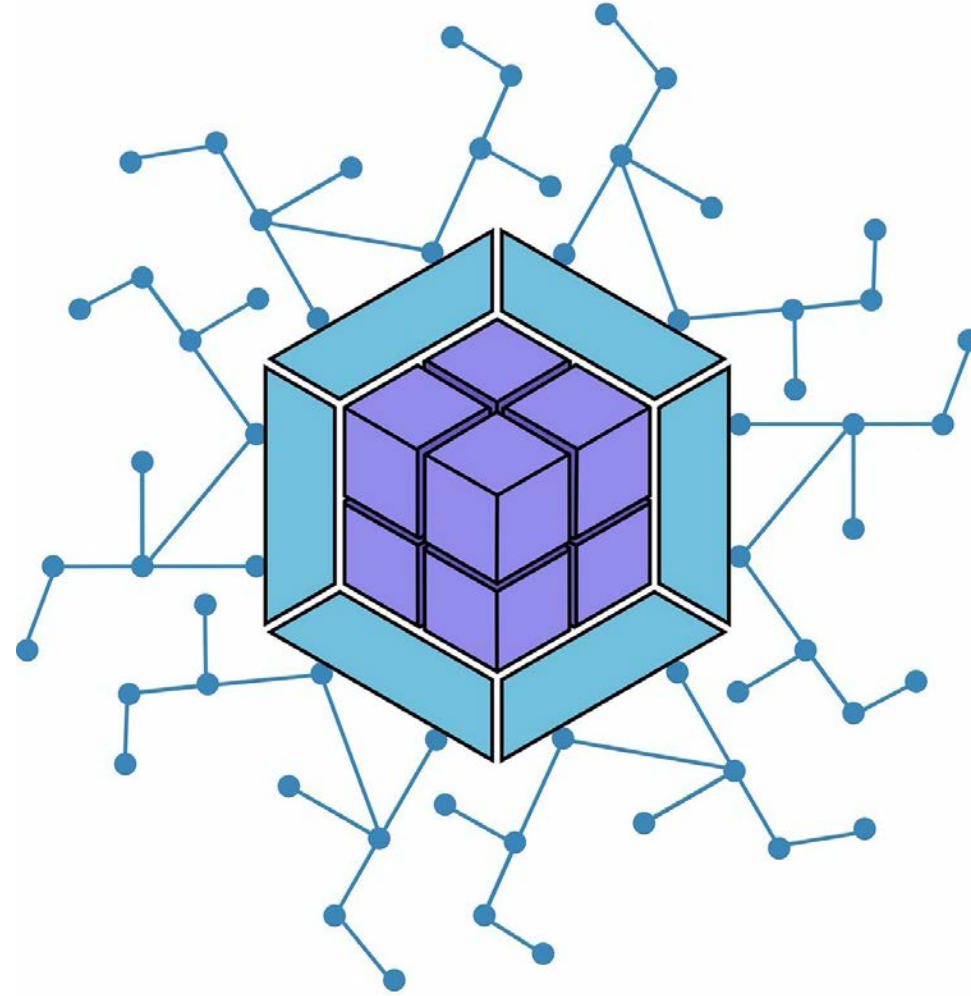


Single-spa

Micro Frontend Reference Architecture



Webpack 5 Module Federation



iframe

- Embedding a module into a site without using heavy frameworks (for example, maps)
- OR
- Composition of several simple applications

Proxy server

- Transition period from one framework to another
AND
- If we don't want to bother with microfrontends
AND
- Ready to sacrifice performance

Web Components



- No binding to the infrastructure of any framework
- OR
- We want to make cross-platform components

npm

- We want to reduce the codebase
AND
- We don't want to bother with microfrontends

Single-spa



- We need to combine several applications on different frameworks
OR
- We want to get involved in the application life cycle
OR
- We want to link applications to specific URLs

Webpack 5 Module Federation



- We want to optimize the bundle (for example, do not load React for each application)
- AND
- We use Webpack 5

Thank you for your attention!

CONTACTS

MANKEY.SN@GMAIL.COM

—

[HTTPS://WWW.LINKEDIN.COM/IN/ALEKSANDR-GUZENKO/](https://www.linkedin.com/in/ALEKSANDR-GUZENKO/)

