Micro Frontends in Angular using Nx and Module Federation

What are Micro Frontends?

- Micro frontends are the technical representation of a business subdomain, they allow different implementations with *the same* or *different* technology.
- They should minimize the code shared with other subdomains and they are *owned by a single team*.

Micro Frontends are supposed to be …

- Independent
- Domain aware
- Defines input and output
- Not extensible

Benefits of using Micro Frontends

- Incremental upgrades
- Decentralization
- Team cognitive load reduction
- Scale the technology as well the organization

Challenges when designing micro frontends

- Design consistency ➡️ UI Kit
- Initializing a new Micro Frontend ➡️ templating engine (Tenpureto)
- Decoupling code from appshell

  ➡️ Moving components to design system

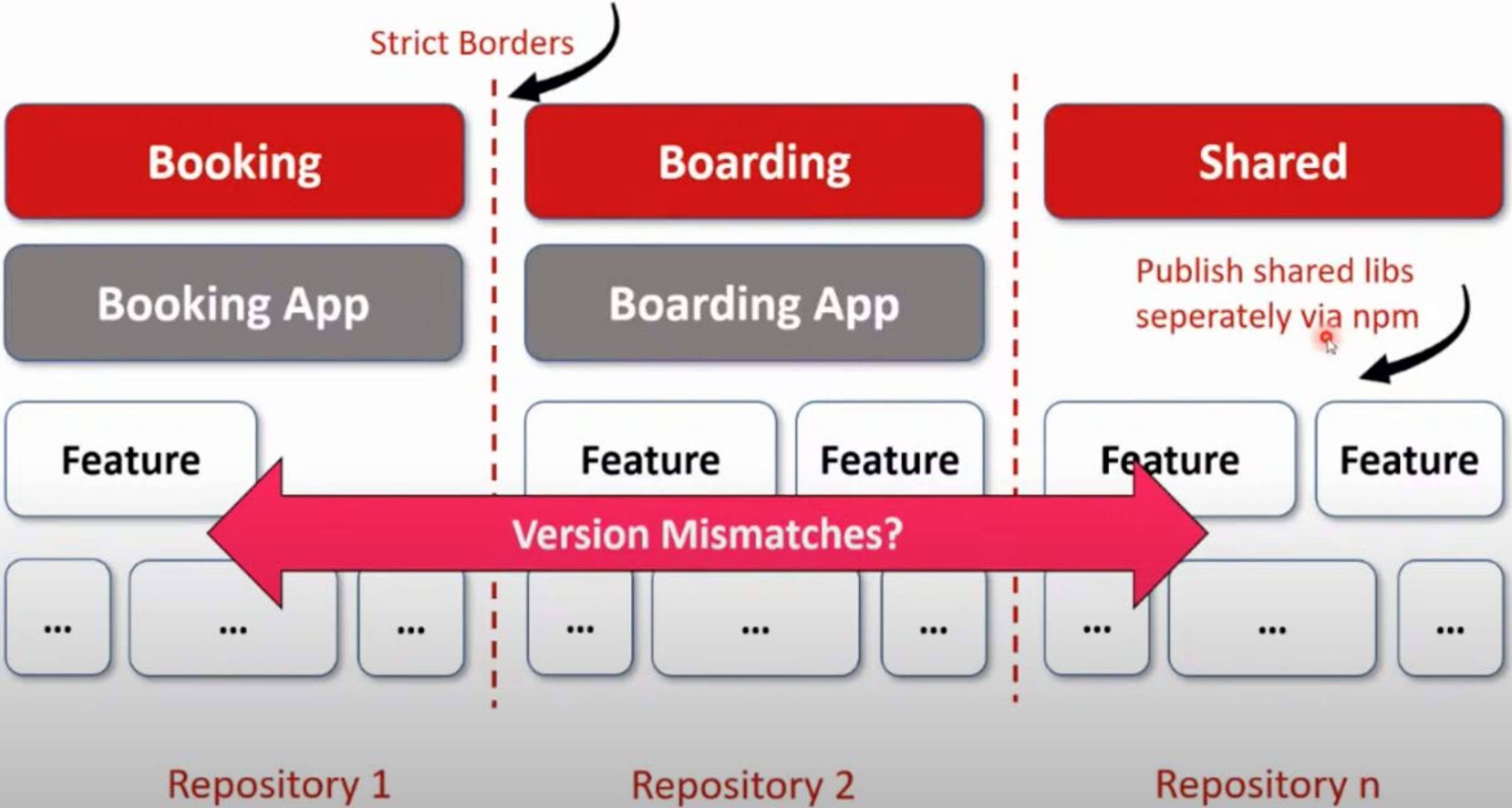
  ➡️ Sharing logic between micro frontends

  ➡️ Building an effective developer experience

Multi-framework approach 👩‍💻

- Dealing with legacy systems
- Migration to a new UI framework/ library
- After acquiring new companies

Micro Frontends in Multiple Repos



Strict Borders

Booking

Booking App

Feature

...

...

...

Repository 1

Boarding

Boarding App

Feature

Feature

...

...

...

Repository 2

Shared

Publish shared libs
seperately via npm

Feature

Feature

...

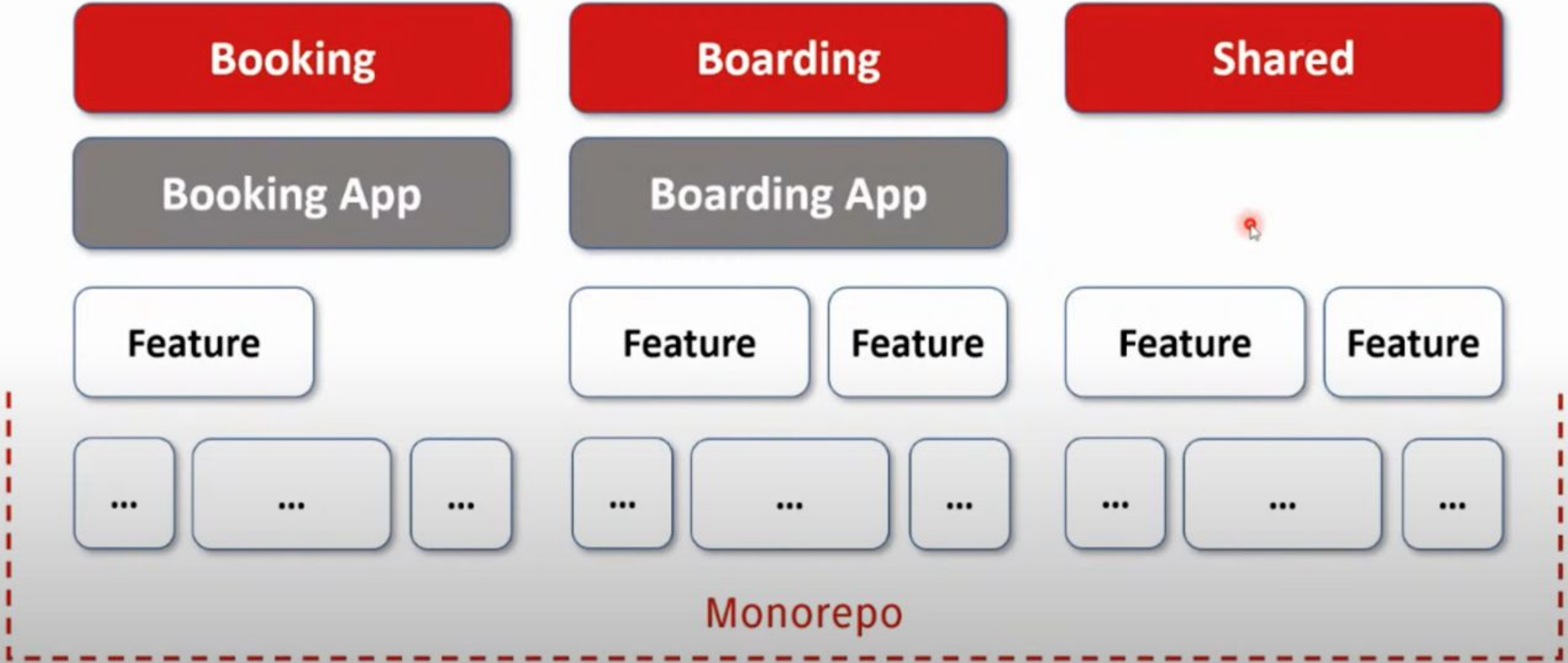
...

...

Repository n

Version Mismatches?

Monorepo: One-Version-Policy



Booking

Boarding

Shared

Booking App

Boarding App

Feature

Feature

Feature

Feature

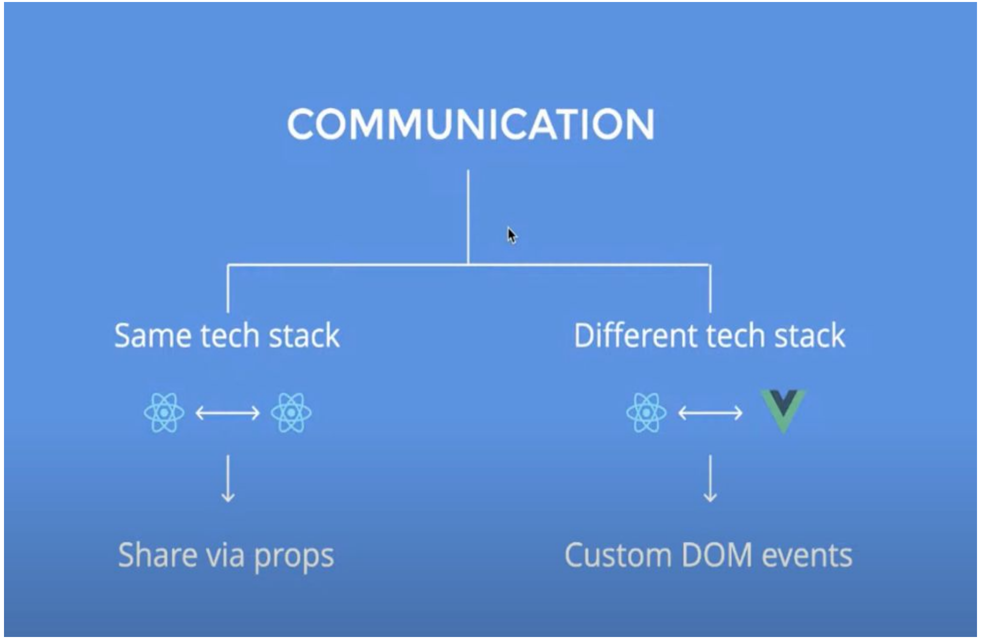
Feature

... ...

Monorepo

Shell App

- shared business logic:
- login
- tracking
- system config
- routing



COMMUNICATION

Same tech stack

Different tech stack

Share via props

Custom DOM events

Traditional vs new approach

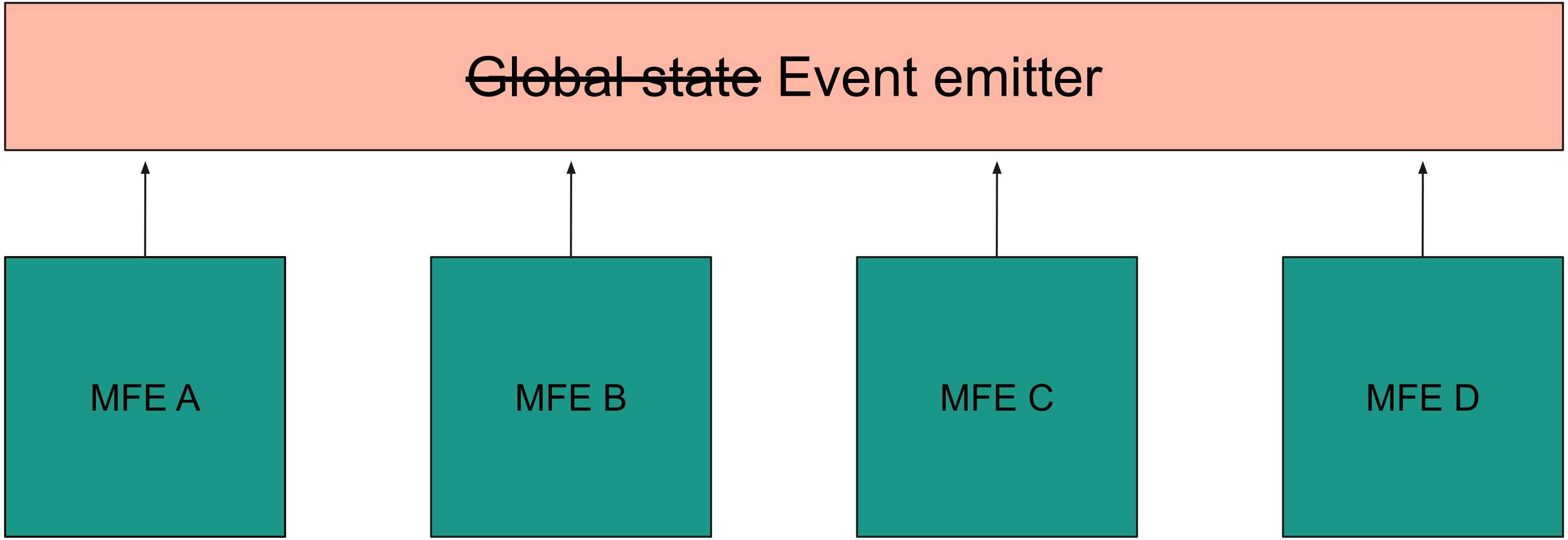
- IFrames
- Node Modules

- Module federation

Module Federation Plugin

- Introduced by Webpack 5
- Enable multiple, independently built and deployed bundles of code to form a single application
- The foundation of Micro Frontend Architecture
- Using Nx it can be fairly straightforward to scaffold and build a Micro Frontend Architecture from a monorepo with all the additional benefits of Nx

The global state VS loosely coupled entities



Demo Time :)

https://github.com/teodoraalexandra/Micro-Frontends