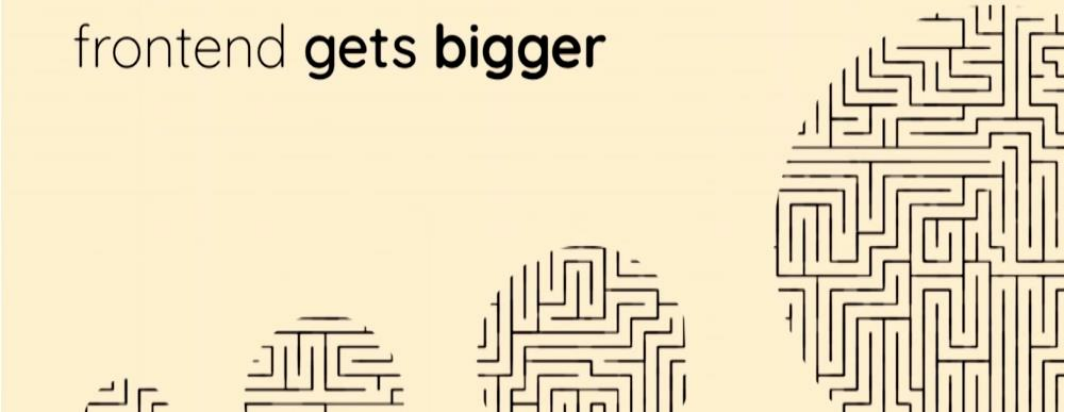
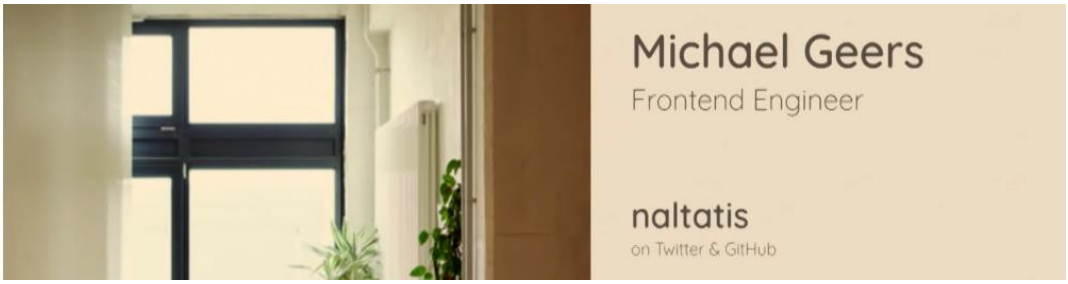
JavaScript frameworks are on the rise. More and more companies employ specialized frontend teams which are building client-side web applications. As projects grow, things start to get more complicated. Building a feature requires coordination between frontend and backend teams. In my talk I present an alternative organizational model where teams have end-to-end ownership. Each team focusses on one specific use-case and not a technology. Building a site with independent cross-functional teams has major advantages. It reduces communication and make shipping features fun again.





Micro Frontends

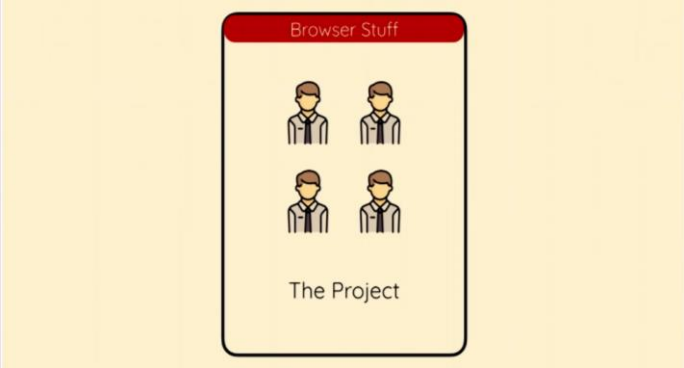
Verticalized Teams

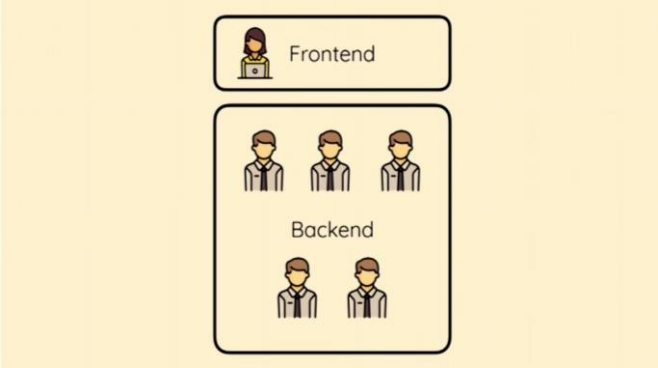
Self Contained Systems

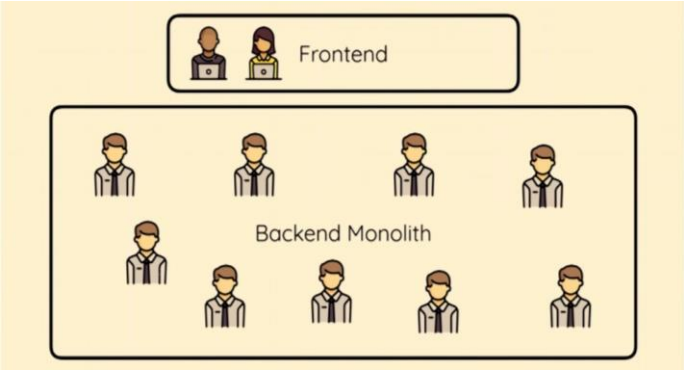
Vertical Decomposition

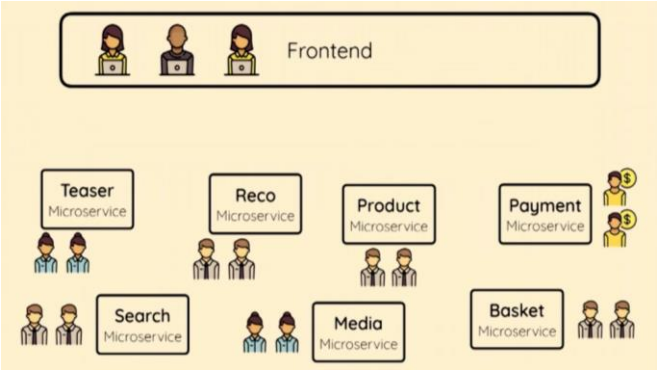
UI Composition

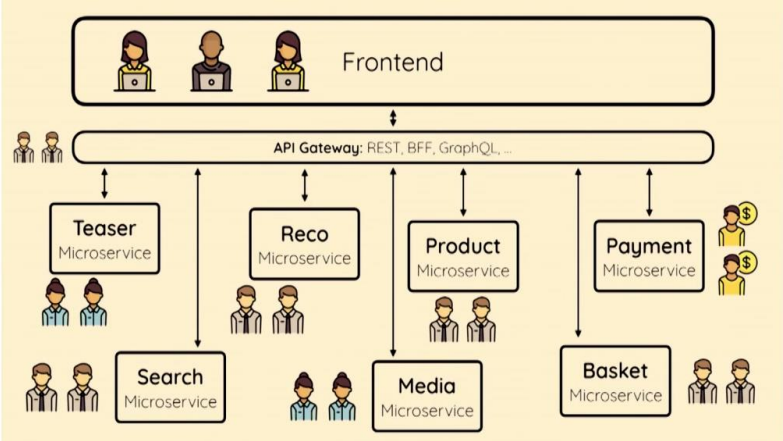
Architecture

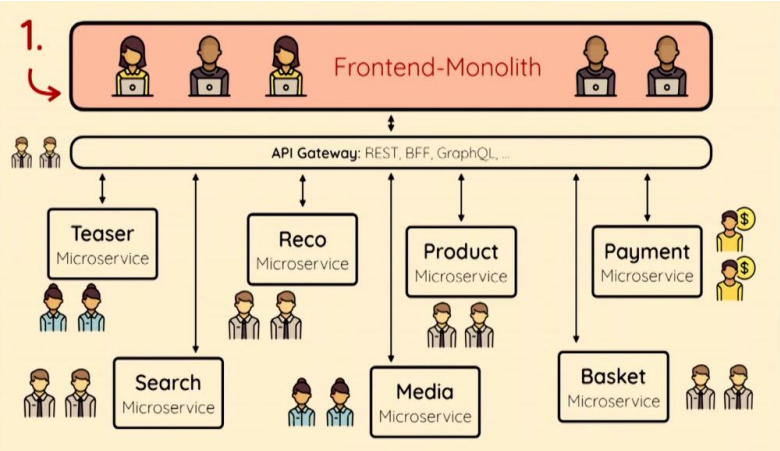


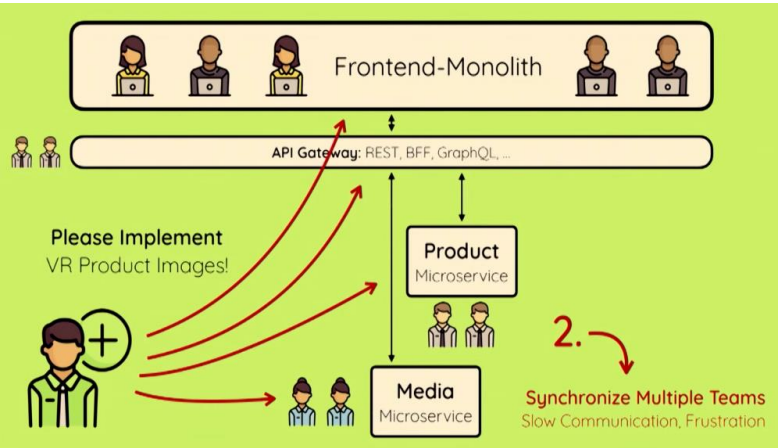


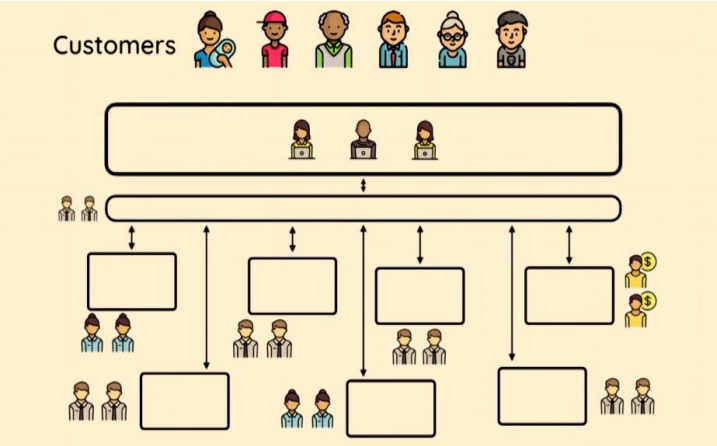


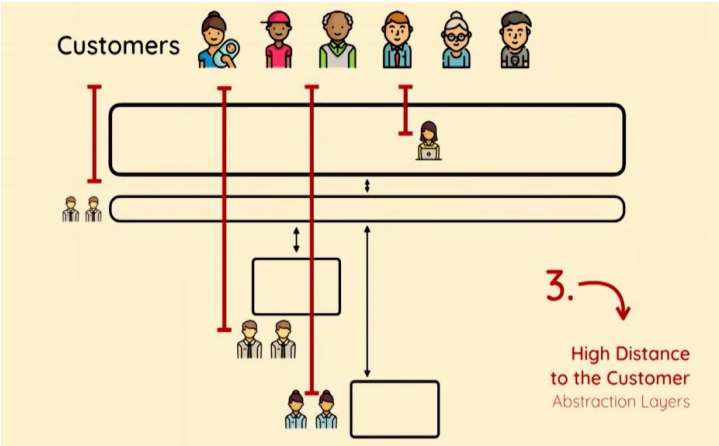




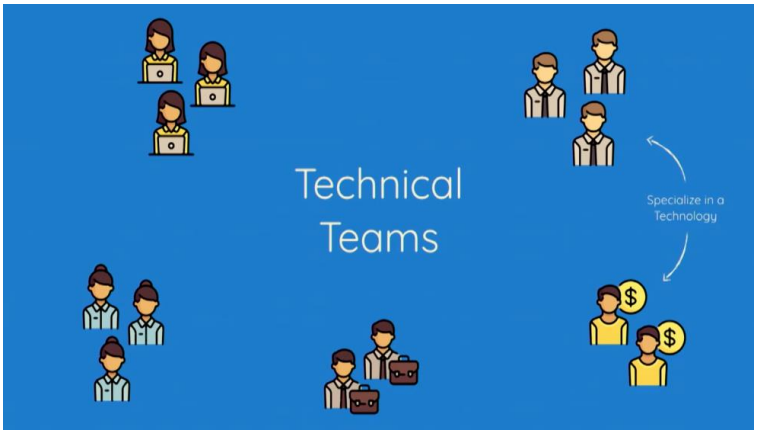


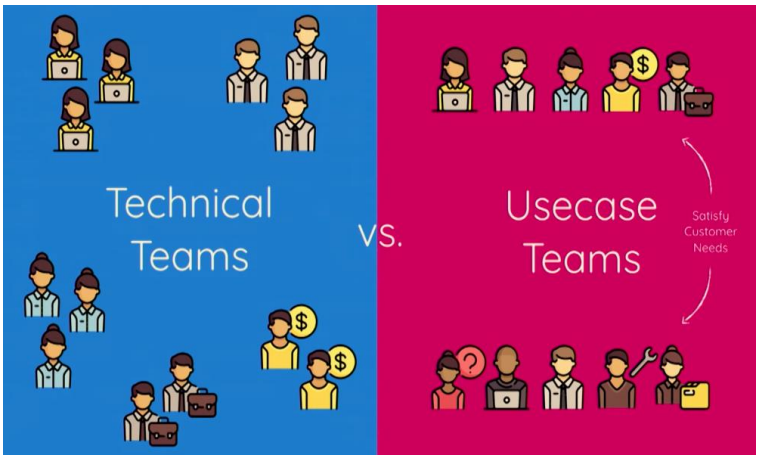




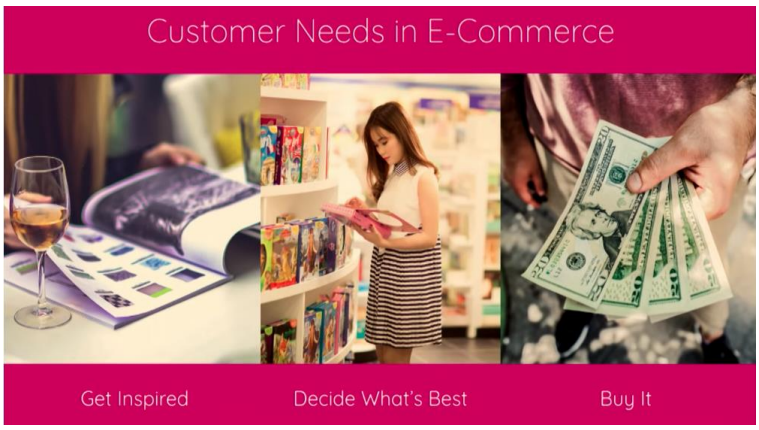


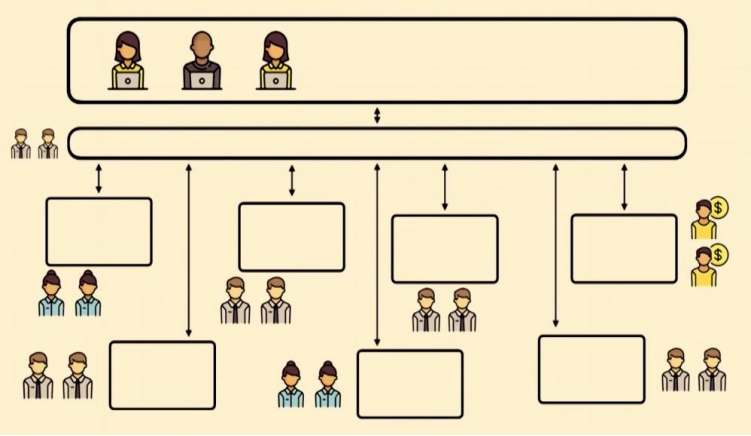
The distance to customer needs increases as we move down the stack



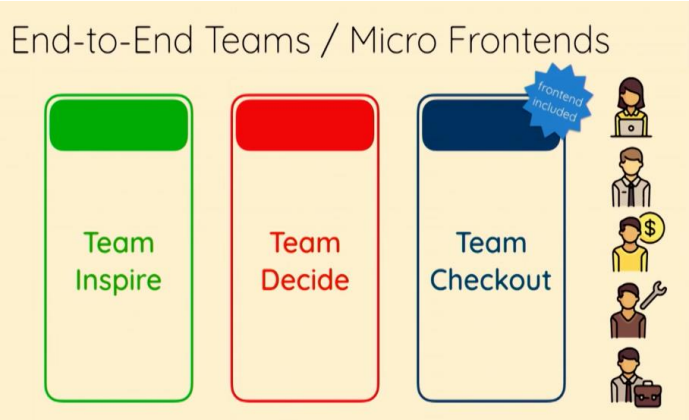


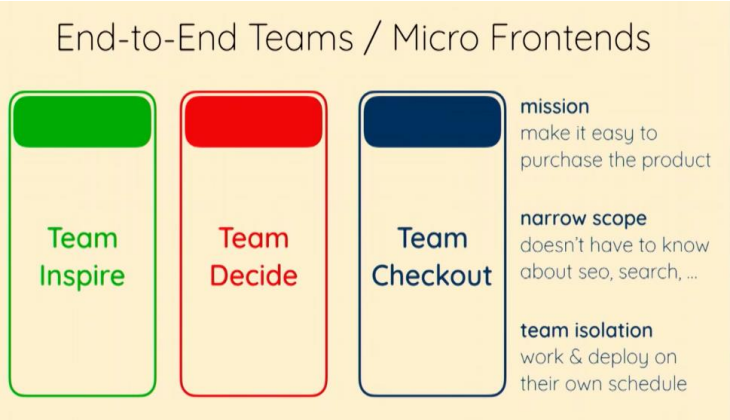
Cross functional teams are much better at being able to build what customers need quickly

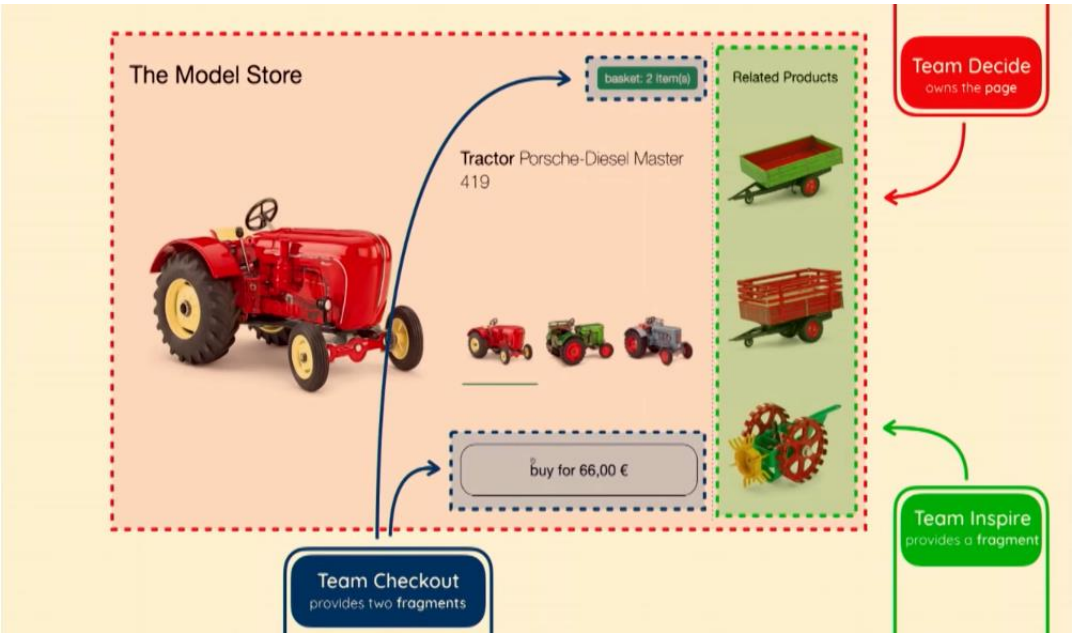




This is the classical microservice architecture that we need to improve on







How to integrate?

We need to have a mutual component model so that teams can be technology agnostic and use what they want

Custom Elements

```
<checkout-basket></checkout-basket>
```

Element Lifecycle

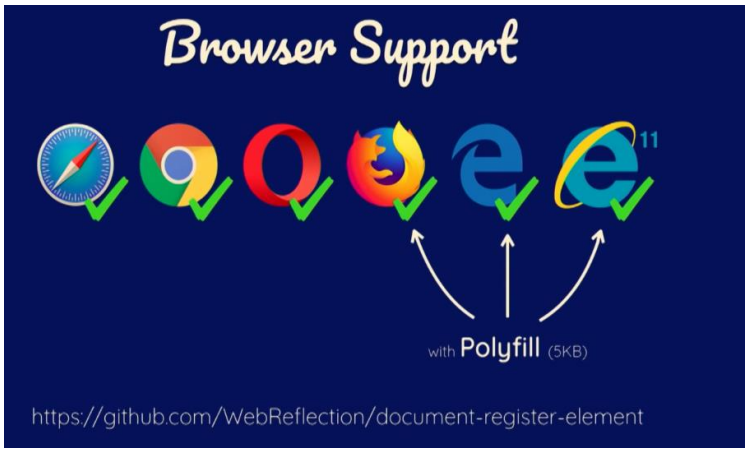
```
class CheckoutBasket extends HTMLElement {
  constructor() {...}
  connectedCallback() {...}
  attributeChangedCallback(attr, oldVal, newVal) {...}
  disconnectedCallback() {...}
}
```

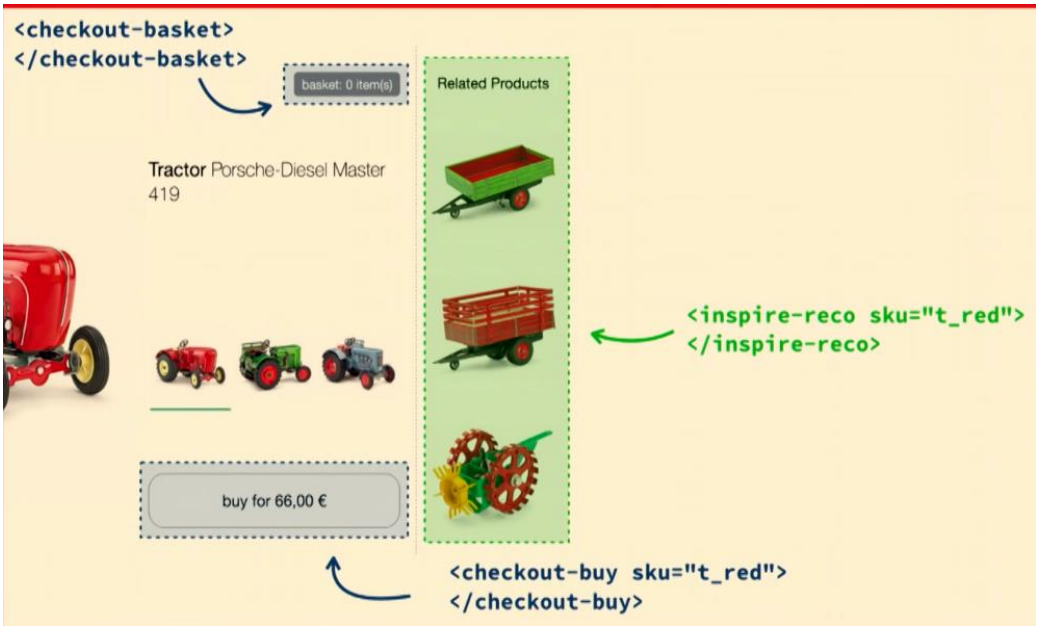
is created

attached to DOM

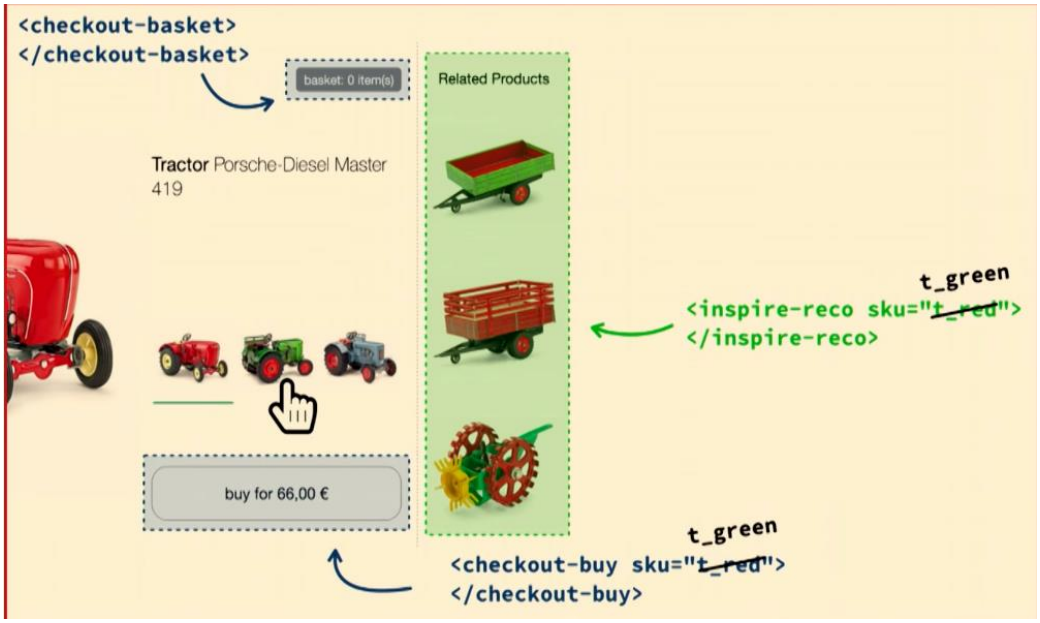
someone change an attribute

removed from DOM, cleanup!



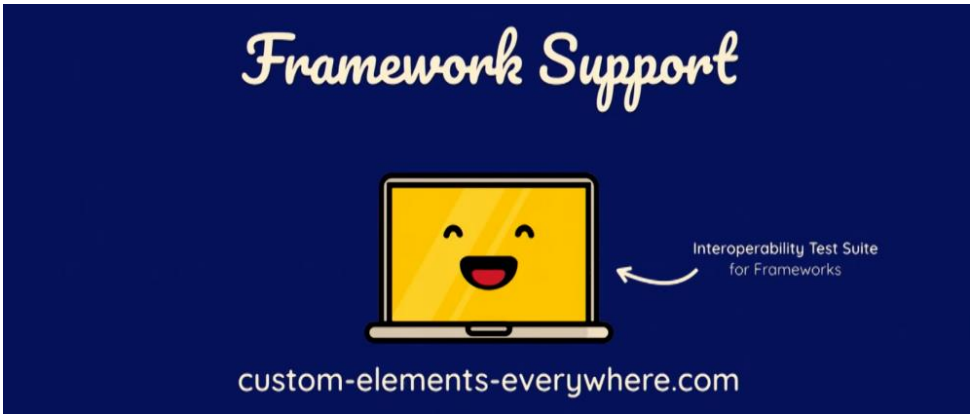


These 3 fragment blocks are custom elements that the Red team that owns the page has to include in their code



When the user clicks on a product, the red team only has to toggle the SKU property from red to green and the custom elements on the page will react as needed. Each fragment gets a call and can re-render itself

Define the tag name of your custom element, specify the attributes that can be used with it, and the events that it triggers/dispatches to the DOM and the event that it listens to on the DOM.



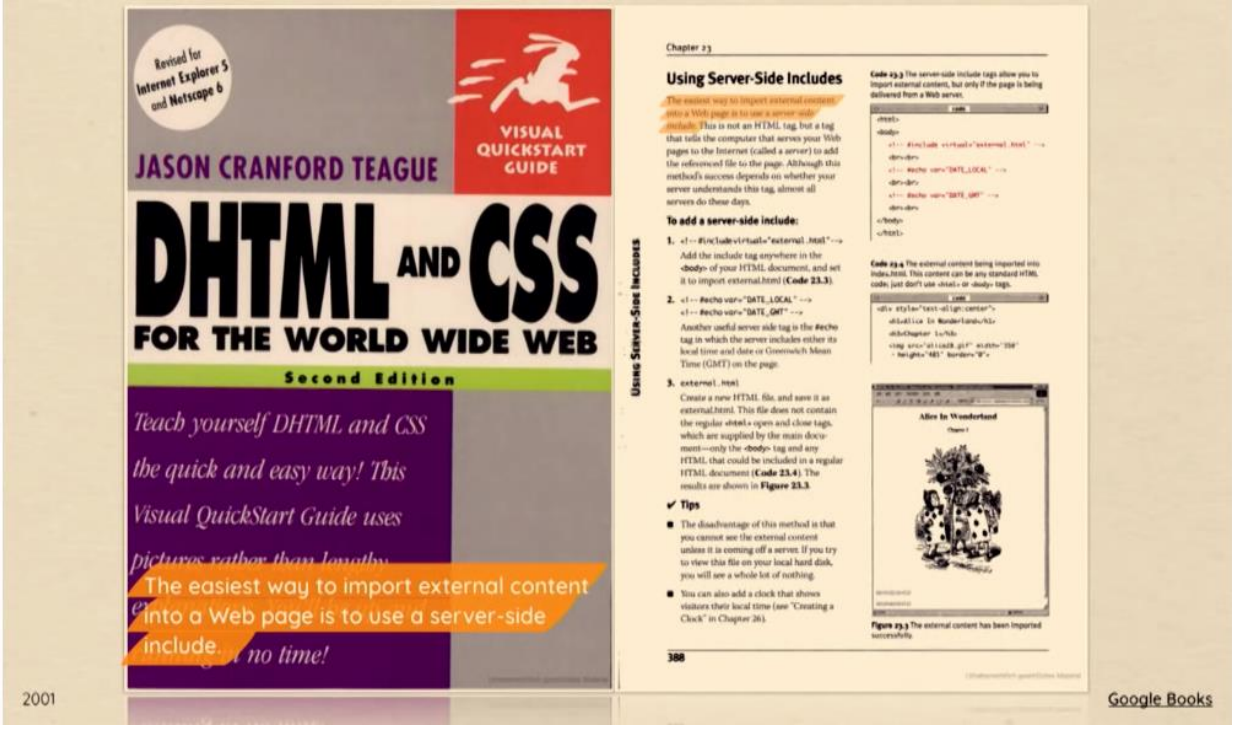
The custom element specification is only concerned with what goes on inside the browser and not for the server-side

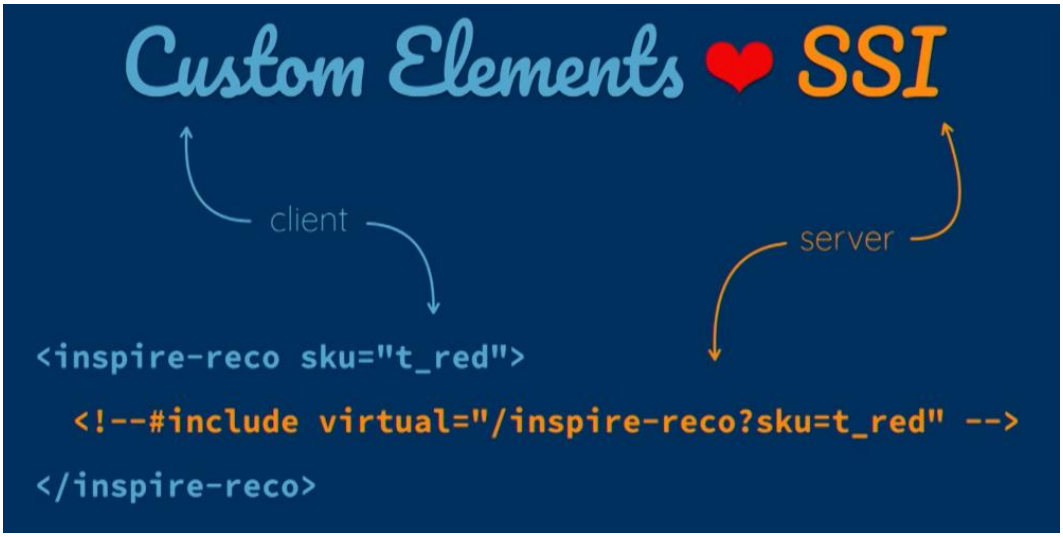
But we can make URLs on the server that delivers some HTML fragments to the browser when called

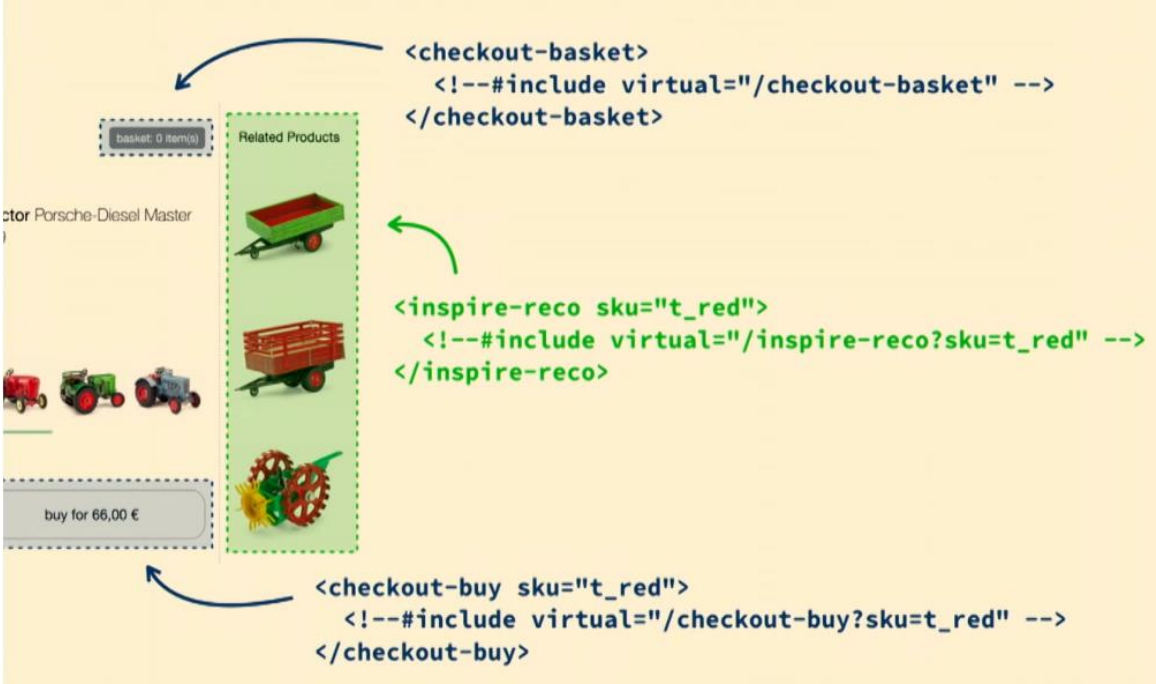
SSI Server Side Includes

```
<!--#include virtual="/some-url" -->
```

For the initial page load, we need to integrate how to get the fragments and render them out on the first load/initial render using SSI with <! --#include> tags to import external HTML into the DOM.

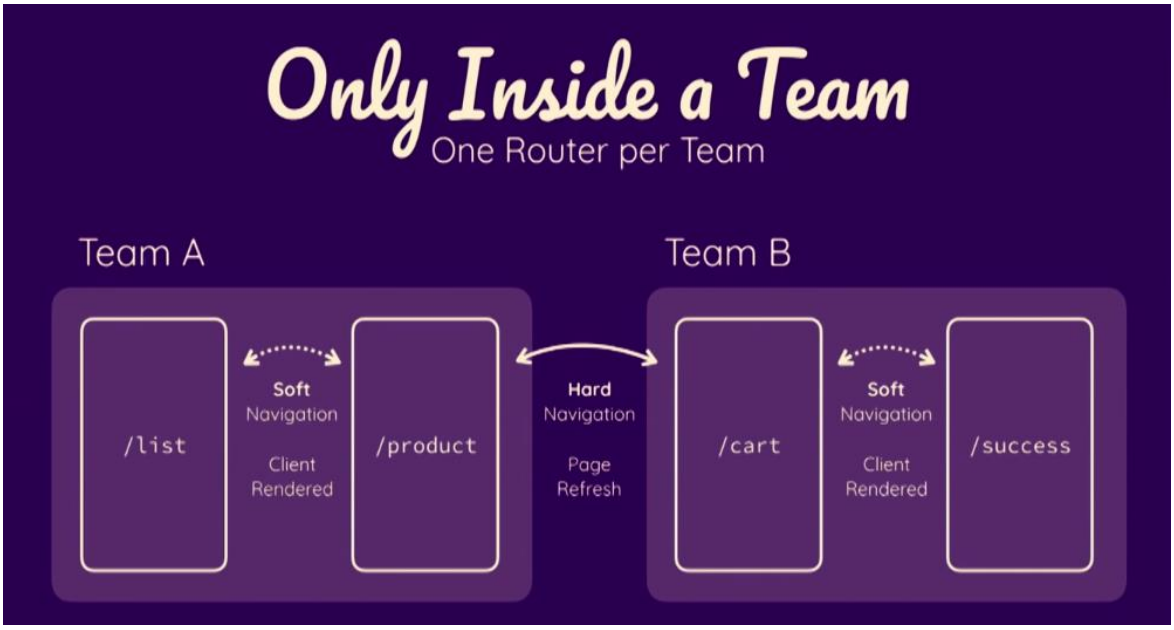




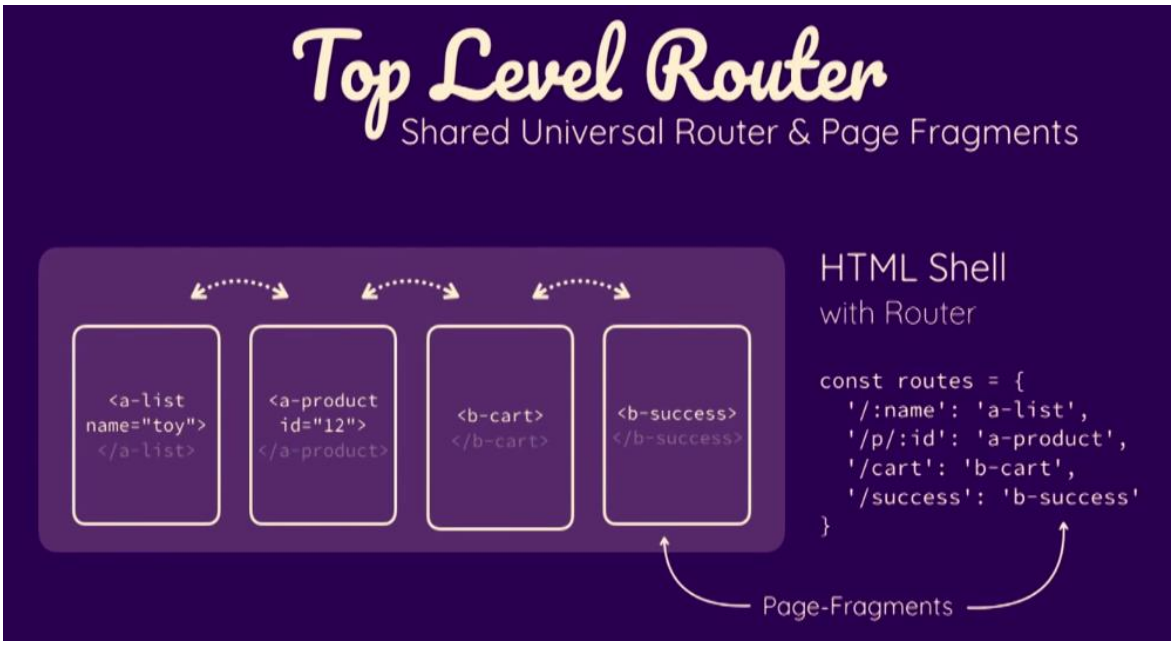


The red team just needs to include the correct custom elements on the page using SSI includes as above

Page Transitions



This is an easy solution where each team delivers a complete HTML per page with head and body tags, the drawback is when you have an increasing number of teams and the hard navigations start increasing with degrading user experience



A top-level router requires that each team does not deliver a complete HTL page with head and body tags, they only deliver the snippets of HTML for render in a larger parent component. We will have a common page HTML that is blank and contains client-side and server-side router with a centralized mapping list. The drawback is that we have shared code between all the teams and changing code brings some coupling.

Lazy load components or do code splitting to only load components when needed

HTTP/2 allows you to lazy load multiple JS files in parallel when needed

Always prefix each team's JS, CSS classes as well as prefix all the events with the team name.