
ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE
Angular's new Standalone Components
How will They Affect My Architecture?

NgModules Provide Context

```
import { NgModule } from '@angular/core';
import { BrowserModule } from '@angular/platform-browser';

import { AppComponent } from './app.component';
[…]

@NgModule({
  imports: [BrowserModule, OtherModule],
  declarations: [AppComponent, OtherComponent, OtherDirective],
  providers: [],
  bootstrap: [AppComponent],
})
export class AppModule {}
```

Compilation Context

However …

```
import { NgModule } from '@angular/core';
import { BrowserModule } from '@angular/platform-browser';

import { AppComponent } from './app.component';
[…]

@NgModule({
  imports: [BrowserModule, OtherModule],
  declarations: [AppComponent, OtherComponent, OtherDirective],
  providers: [],
  bootstrap: [AppComponent],
})
export class AppModule {}
```

Angular Modules

TypeScript Modules

Standalone Components

```
@Component({
  standalone: true,
  selector: 'app-root',
  imports: [
    HomeComponent,
    AboutComponent,
    HttpClientModule,
  ],
  templateUrl: '…'
})
export class AppComponent {
    […]
}
```

Bootstrapping Components

```
bootstrapApplication(AppComponent);
```

What Does this Mean for

… Compatibility?

… my Architecture?

Contents

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Mental Model

#2
Compatibility

#3
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Architecture

#1: Mental Model

Just Imagine …

Standalone Component = Component + NgModule

(not implemented that way!)

Mental Model

```
@Component({
  standalone: true,
  selector: 'app-root',
  imports: [
    RouterModule,
    HomeComponent,
    AboutComponent,
  ],
  templateUrl: '…'
})
export class AppComponent {
    […]
}
```

```
@NgModule({
  imports: [
    RouterModule,
    HomeComponentModule,
    AboutComponentModule,
  ],
  declarations: [
    AppComponent
  ]
})
export
```

```
@Component({
  selector: 'app-root',
  templateUrl: '…'
})
export class AppComponent {
    […]
}
```

Standalone Pipes

```
@Pipe({
  standalone: true,
  name: 'city',
  pure: true
})
export class CityPipe implements PipeTransform {
  […]
}
```

Standalone Directives

```
@Directive({
  standalone: true,
  selector: 'input[appCity]',
  providers: [ … ]
})
export class CityValidator implements Validator {
  […]
}
```

Importing Standalone Blocks

```
@Component({
  standalone: true,
  imports: [
    […],
    FlightCardComponent,
    CityPipe,
    CityValidator,
  ],
  selector: 'flight-search',
  templateUrl: '…'
})
export class FlightSearchComponent {
   […]
}
```

Wish List

Auto-Imports for Standalone Blocks

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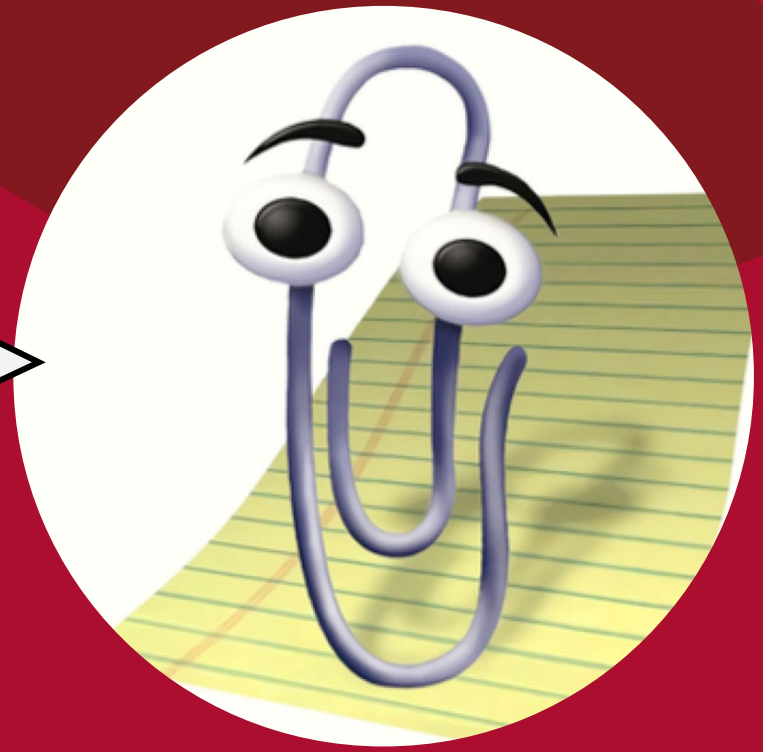
Click-Dummy

```
<my-comp *ngIf="show">
</my-comp>
```



#2: Compatibility

Standalone Component → NgModules

```
@Component({
  standalone: true,
  selector: 'app-root',
  imports: [
    […]
    HttpClientModule,
  ],
  templateUrl: '…'
})
export class AppComponent {
}
```

Standalone Component → NgModules

```
@Component({
  standalone: true,
  selector: 'app-root',
  imports: [
    […]
    HttpClientModule,
  ],
  templateUrl: '…'
})
export class AppComponent {
}
```

NgModule → Standalone Blocks

```
@NgModule({
  imports: [
    FlightCardComponent,
  ],
  declarations: [
    MyTicketsComponent
  ],
})
export class TicketsModule { }
```

NgModule → Standalone Blocks

```
@NgModule({
  imports: [
    FlightCardComponent,
  ],
  declarations: [
    MyTicketsComponent
  ],
})
export class TicketsModule { }
```

Global Providers

```
bootstrapApplication(AppComponent, {
  providers: [
    MyGlobalService,
    provideRouter(APP_ROUTES),
  ]
});
```

Global Providers

```
bootstrapApplication(AppComponent, {
  providers: [
    MyGlobalService,
    provideRouter(APP_ROUTES)
  ]
});
```

Dedicated function for app routes

#3: Routing

Global Providers

```
bootstrapApplication(AppComponent, {
  providers: [
    MyGlobalService,
    provideRouter(APP_ROUTES)
  ]
});
```

Lazy Loading

```
export const APP_ROUTES: Routes = [
    […],
    {
        path: 'flight-booking',
        loadChildren: () =>
            import('@nx-example/booking/feature-book')
                        .then(m => m.FLIGHT_BOOKING_ROUTES)
    },
    {
        path: 'next-flight',
        loadComponent: () =>
            import('@nx-example/booking/feature-tickets')
                        .then(m => m.NextFlightComponent)
    },
];
```

Lazy Loading

```
export const APP_ROUTES: Routes = [
    […],
    {
        path: 'flight-booking',
        loadChildren: () =>
            import('@nx-example/booking/feature-book')
                        .then(m => m.FLIGHT_BOOKING_ROUTES)
    },
    {
        path: 'next-flight',
        loadComponent: () =>
            import('@nx-example/booking/feature-tickets')
                        .then(m => m.NextFlightComponent)
    },
];
```

Routes With Injector

```
export const FLIGHT_BOOKING_ROUTES: Routes = [{
    path: '',
    component: FlightBookingComponent,
    providers: [
        MyService
    ],
    children: [
       […]
    ]
}];
```

Routes With Injector

```
export const FLIGHT_BOOKING_ROUTES: Routes = [{
    path: '',
    component: FlightBookingComponent,
    providers: [
        MyService
    ],
    children: [
       […]
    ]
}];
```

Scope: This route
+ all child routes

Routes With Injector

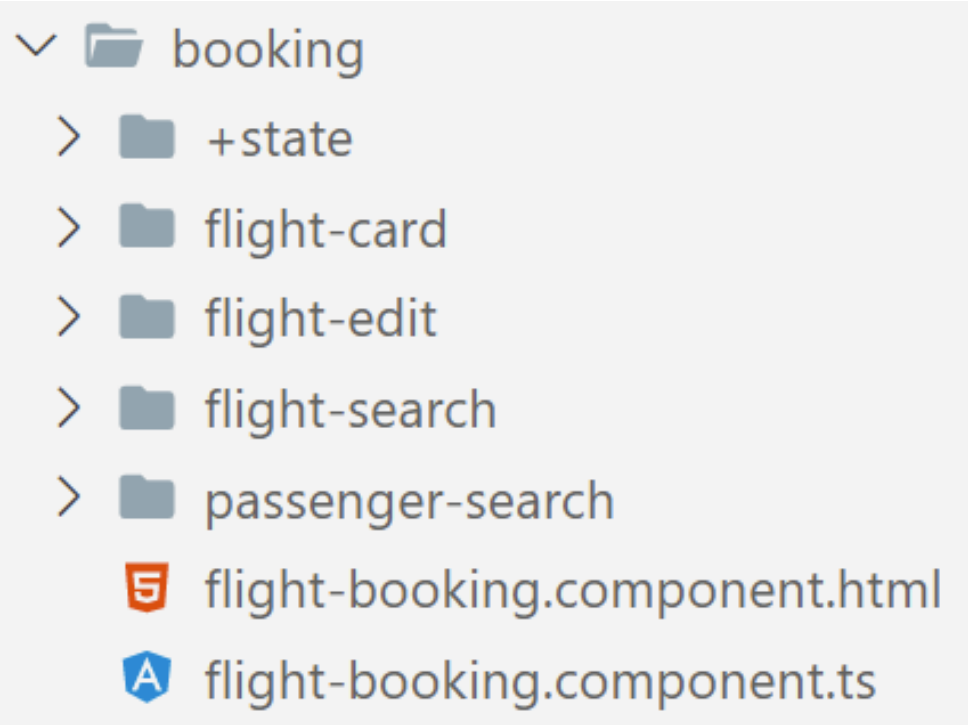
```
export const FLIGHT_BOOKING_ROUTES: Routes = [{
    path: '',
    component: FlightBookingComponent,
    providers: [
        ...forMyLibrary()
    ],
    children: [
       […]
    ]
}];
```

Routes With Injector

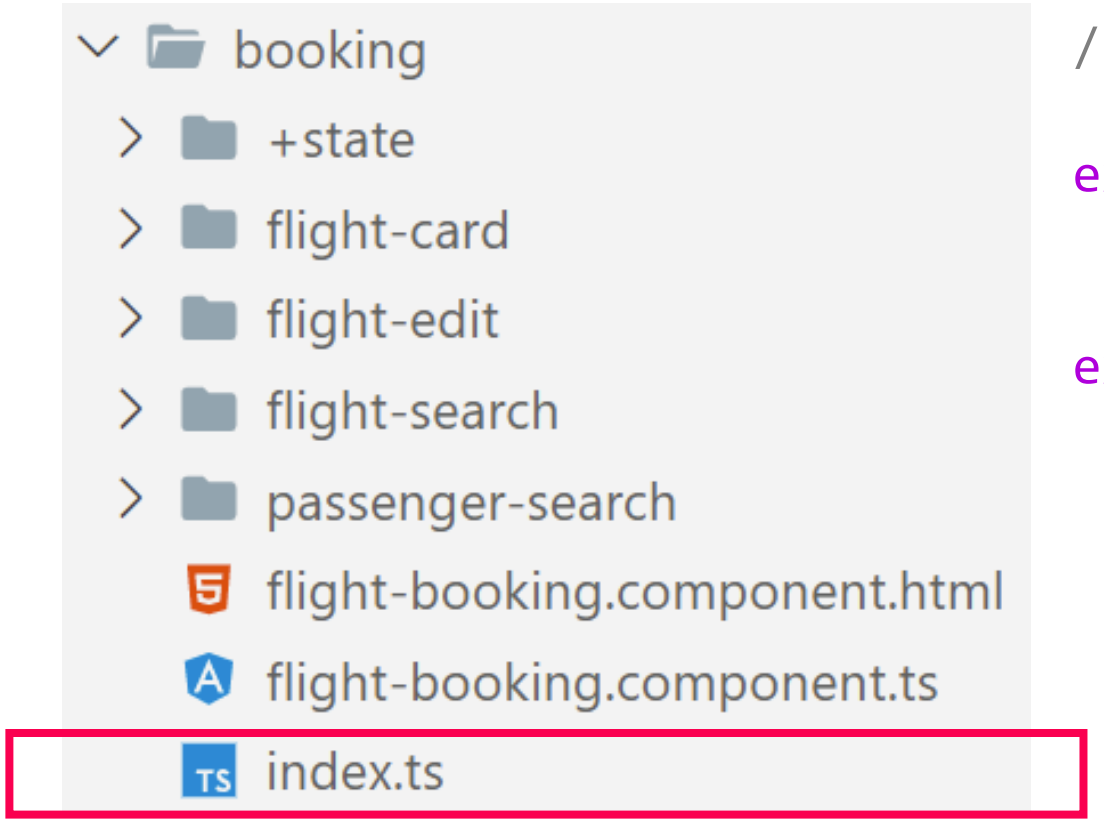
```
export const FLIGHT_BOOKING_ROUTES: Routes = [{
    path: '',
    component: FlightBookingComponent,
    providers: [
        ...forDomainBooking()
    ],
    children: [
       […]
    ]
}];
```

#4: Architecture

Folder


booking
+state
flight-card
flight-edit
flight-search
passenger-search
flight-booking.component.html
flight-booking.component.ts

Barrels




```
// index.ts == Public API

export *
  from './flight-booking.component';

export *
  from './flight-card/flight-card.component';
```

Importing Whole Barrels

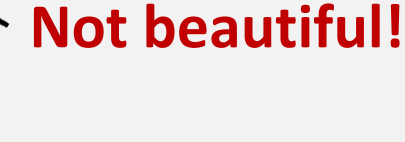
```
import * as booking from './booking';
[…]

@Component({
  standalone: true,
  imports: [
    ...Object.values(booking) as any[],
    […]
  ],
  […]
})
export class MyComponent {
    […]
}
```

Importing Whole Barrels

```
import * as booking from './booking';
[…]

@Component({
  standalone: true,
  imports: [
    ...Object.values(booking) as any[],
    […]
  ],
  […]
})
export class MyComponent {
    […]
}
```



Importing Whole Barrels

```
import * as booking from './booking';
[…]

@Component({
  standalone: true,
  imports: [
    ...all(booking),
    […]
  ],
  […]
})
export class MyComponent {
    […]
}
```

Custom Helper Function

Wish List

Better syntax for importing barrels

Importing Whole Barrels

```
import * as booking from './booking';
[…]

@Component({
  standalone: true,
  imports: [
    booking,
    […]
  ],
  […]
})
export class MyComponent {
    […]
}
```

Wish List

Next Logical Step:
Nx Workspaces

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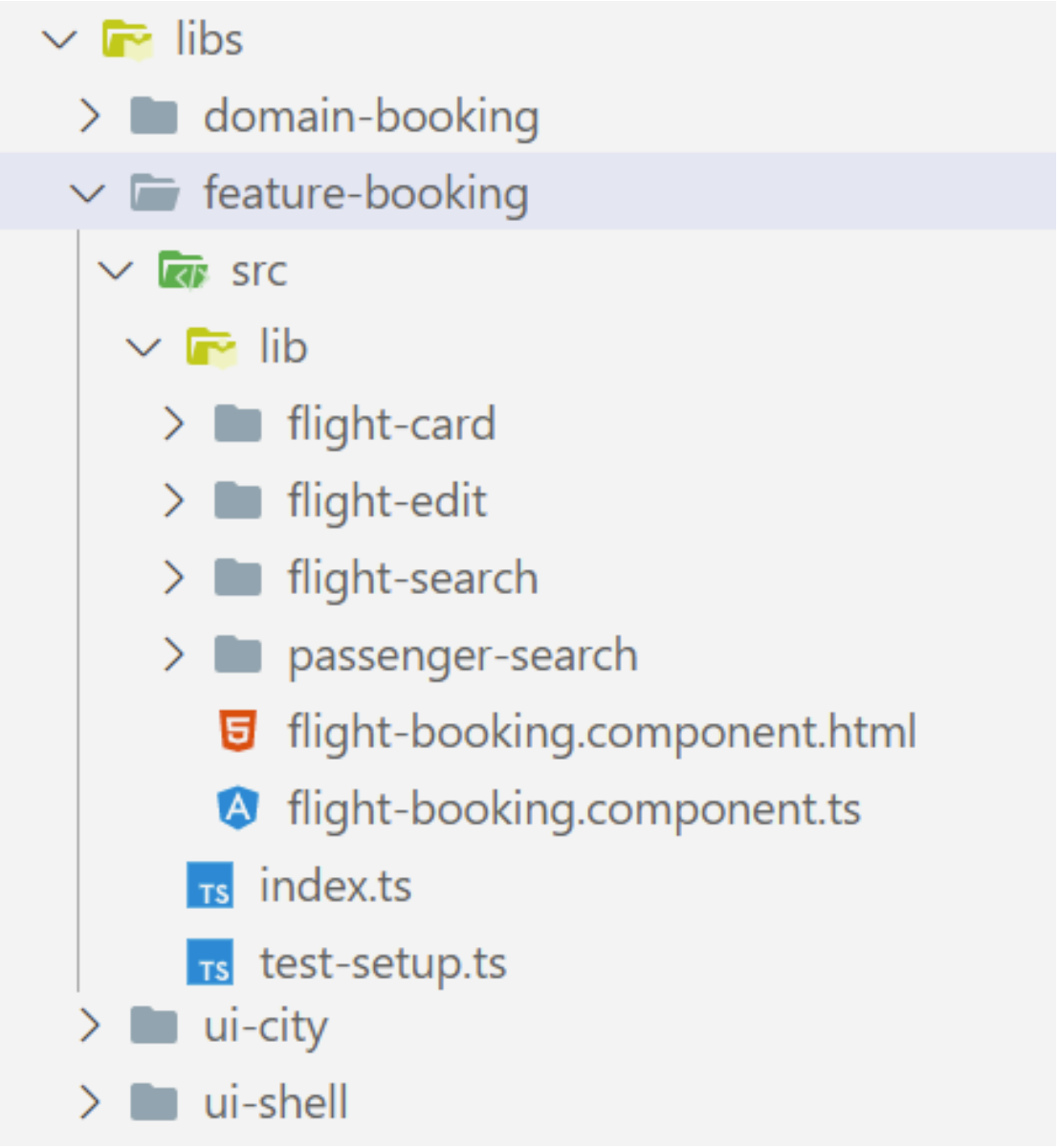
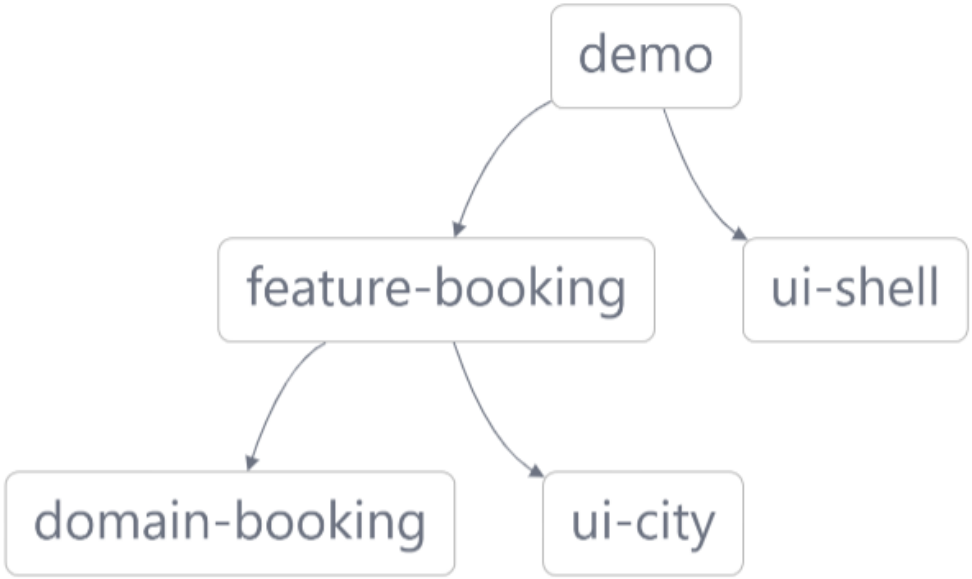




+ Generates path mappings
+ Generates initial barrel
+ Prevents bypassing *index.ts*
+ much more

Constraints: "No Broken Windows!"

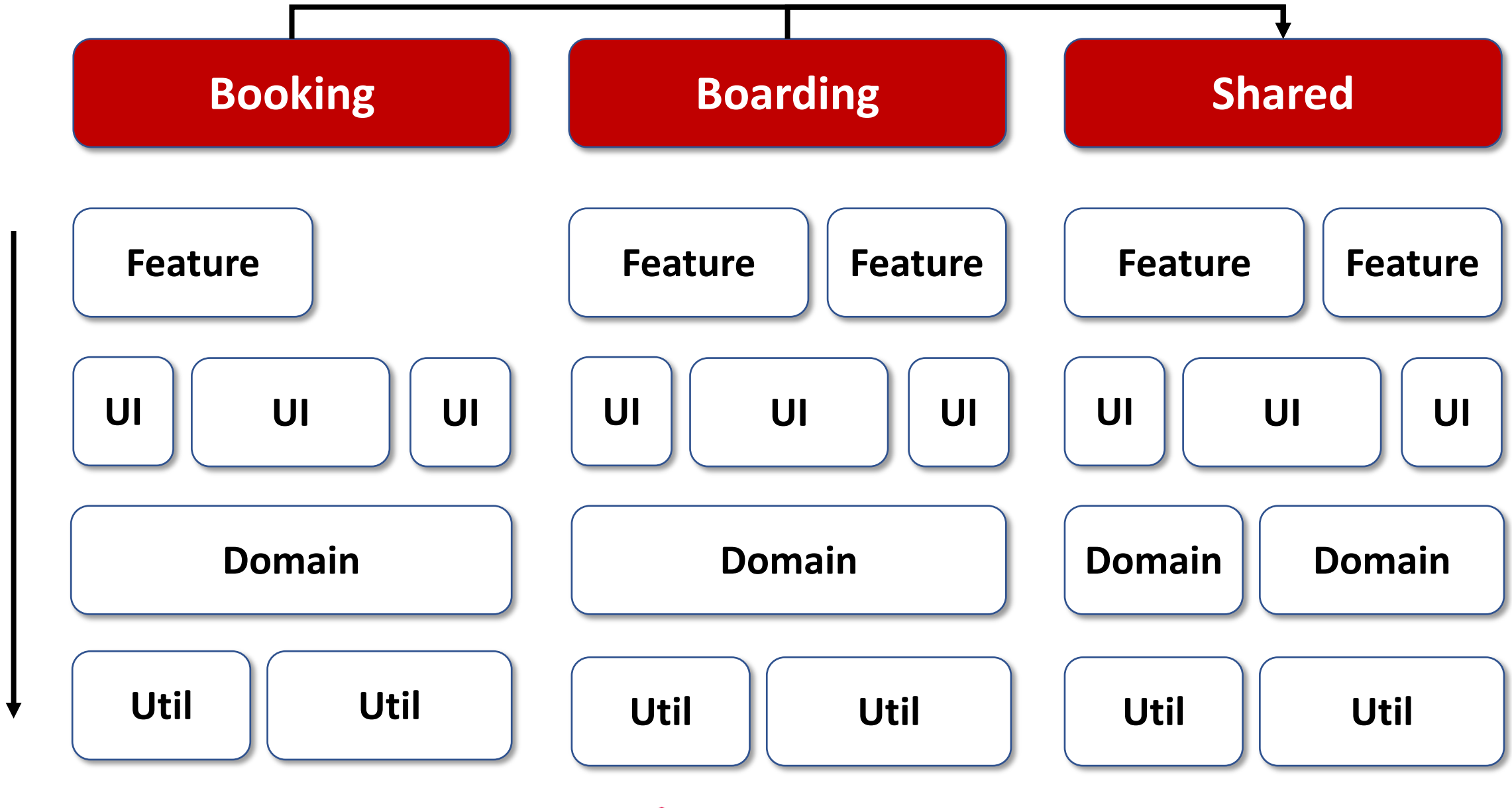
```
import { Component } from '@demo/util-shim';
import { FlightBookingComponent } from '@demo/feature-booking';
```

"FlightBookingComponent" ist deklariert, aber der zugehörige Wert wird nie gelesen. ts(6133)

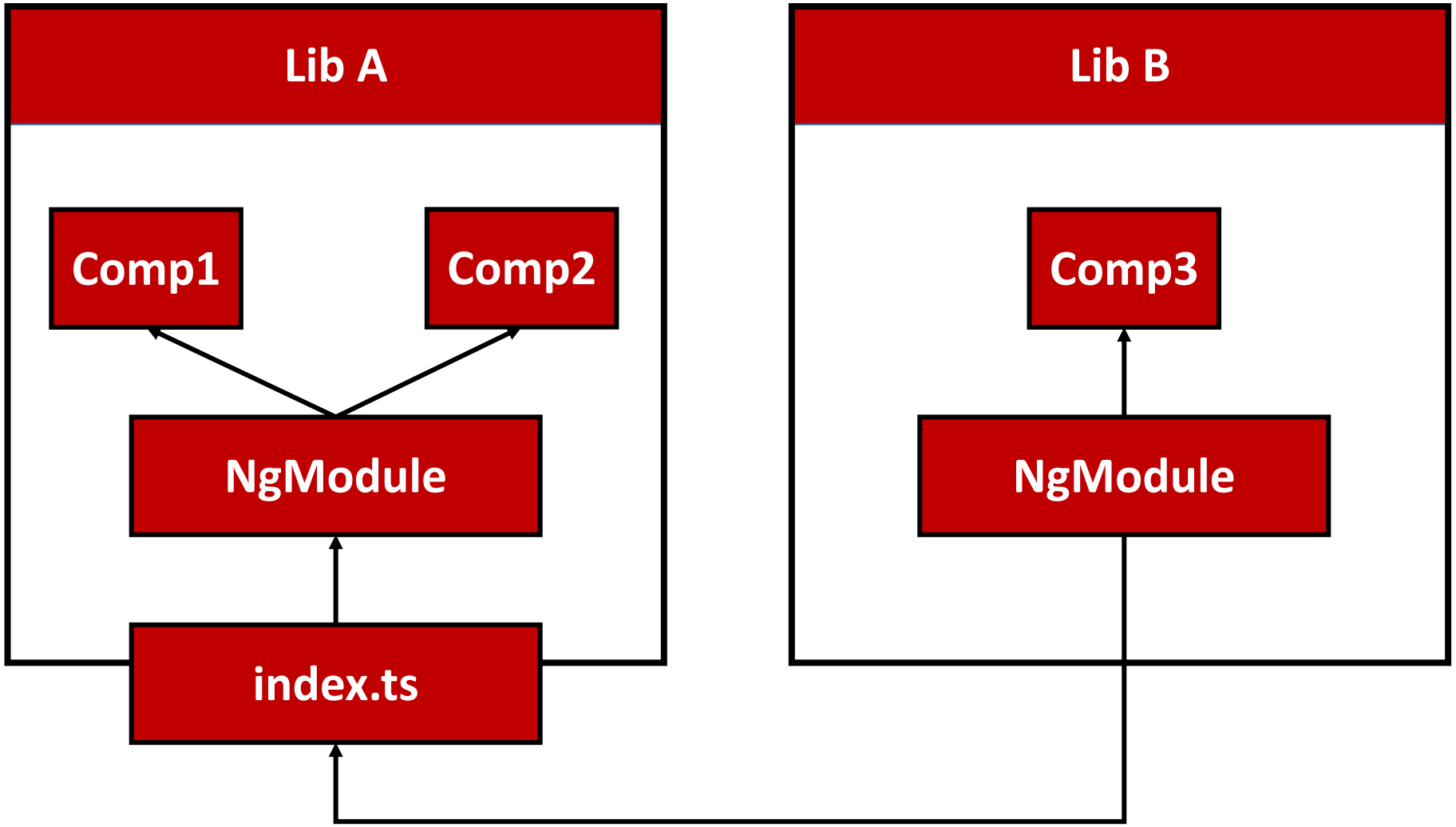
A project tagged with "ui" can only depend on libs tagged with "domain", "util" eslint(@nrwl/nx/enforce-module-boundaries)

Problem anzeigen Schnelle Problembehebung ... (STRG+.)

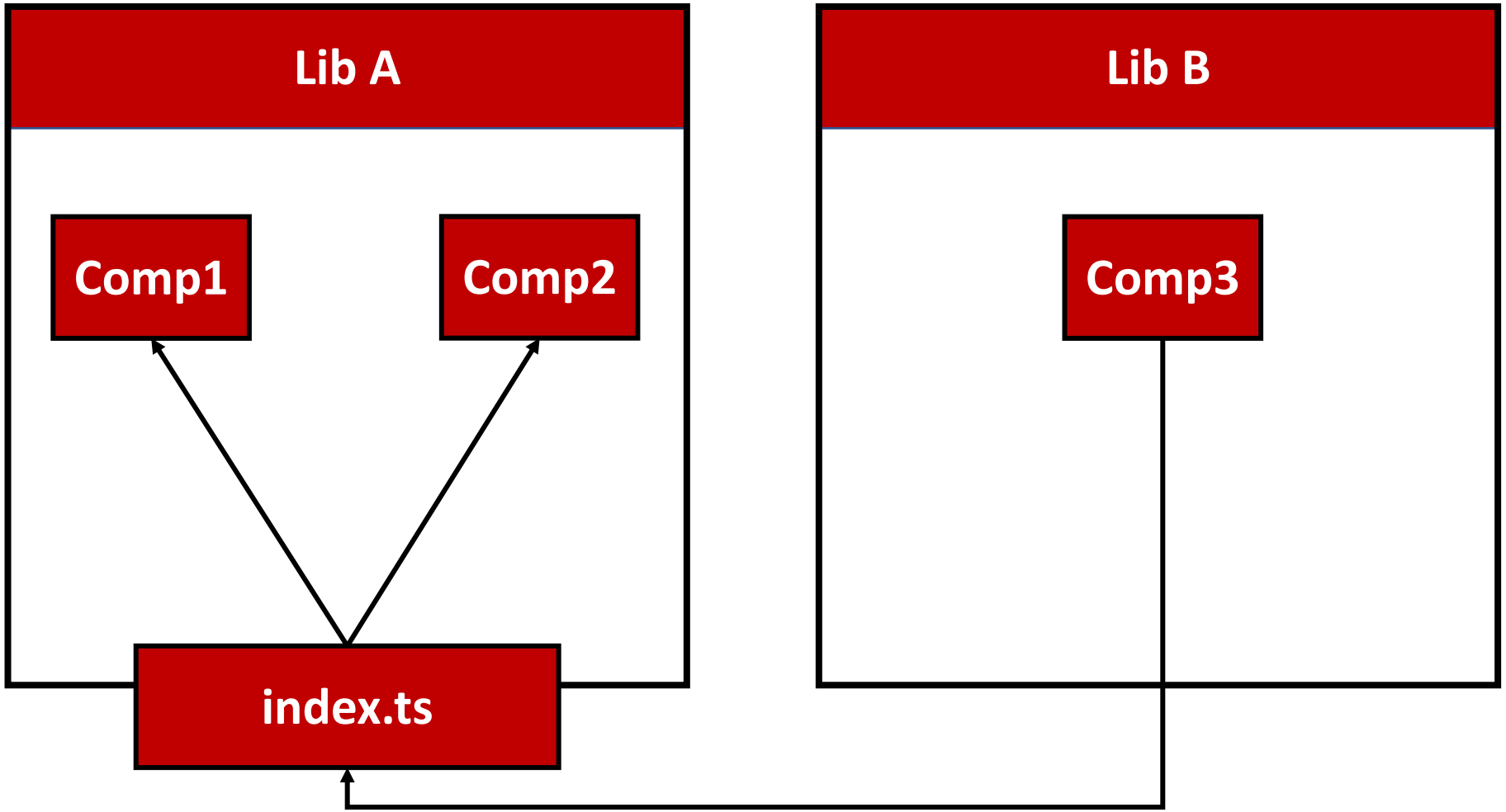
```
export class NavbarComponent {
  sidebarVisible = false;
```


Booking
Boarding
Shared
Feature
Feature
Feature
Feature
Feature
UI
UI
UI
UI
UI
UI
UI
UI
UI
Domain
Domain
Domain
Domain
Util
Util
Util
Util
Util
Util

Today (with NgModules)



Tomorrow (without NgModules)



Conclusion

Mental Model

Folders & Barrels

Mapped Paths

Nx, Libs, and Constraints FTW!