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# 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 {}
```

The diagram illustrates the integration of Angular Modules and TypeScript Modules. Two curved arrows point from the text labels to specific parts of the code. One arrow from 'Angular Modules' points to the `@NgModule` annotation. Another arrow from 'TypeScript Modules' points to the `import` statements.

# 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?



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Mental Model

#1

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Architecture



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# #1: Mental Model



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# 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,  
  ],  
  declares: [  
    AppComponent  
  ]  
)  
export class AppModule {  
  @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>
```

It looks like you want to use  
*NgIfDirective* and *MyComponent*.  
Shall I import it for you?



# #2: Compatibility



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# 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,  
    ...importProvidersFrom(HttpClientModule),  
    ...importProvidersFrom(RouterModule.forRoot(APP_ROUTES)),  
  ]  
});
```

# Global Providers

```
bootstrapApplication(AppComponent, {  
  providers: [  
    MyGlobalService,  
    ...importProvidersFrom(HttpClientModule),  
    ...importProvidersFrom(RouterModule.forRoot(APP_ROUTES)),  
  ]  
});
```

Expect dedicated functions  
in the future, e. g. configureRouter

# #3: Routing



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# Global Providers

```
bootstrapApplication(AppComponent, {  
  providers: [  
    MyGlobalService,  
    ...importProvidersFrom(HttpClientModule),  
    ...importProvidersFrom(RouterModule.forRoot(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

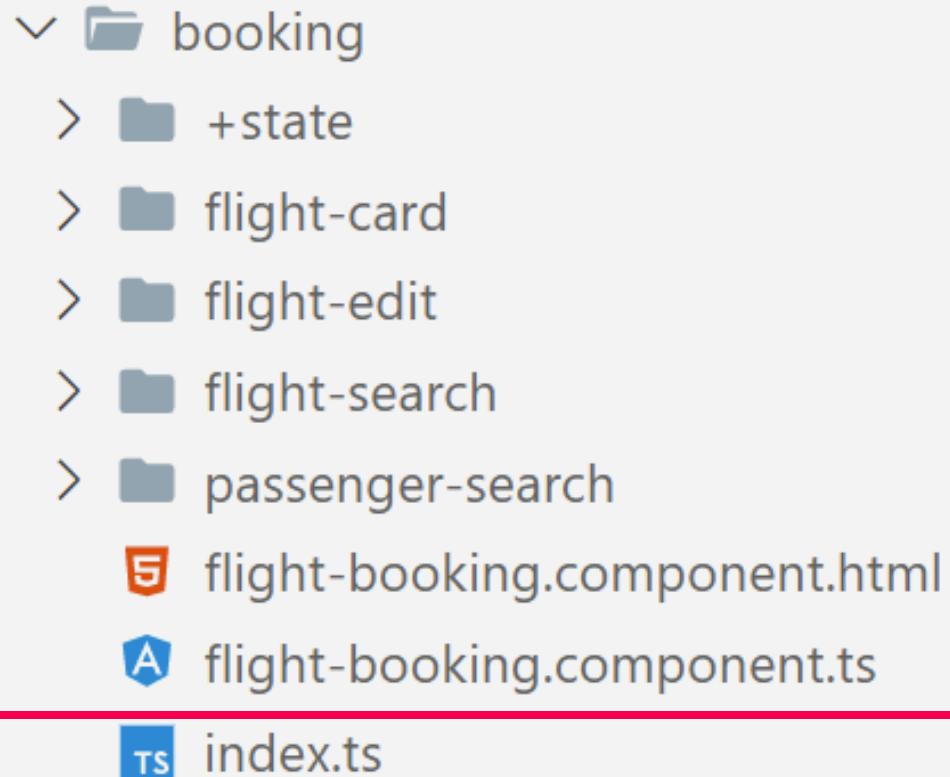


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# Folder

```
✓  folder booking
  > folder +state
  > folder flight-card
  > folder flight-edit
  > folder flight-search
  > folder passenger-search
      5 flight-booking.component.html
      A 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 {
  [...]
}
```

Not beautiful!



# 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



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# Importing Whole Barrels

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

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

Wish List



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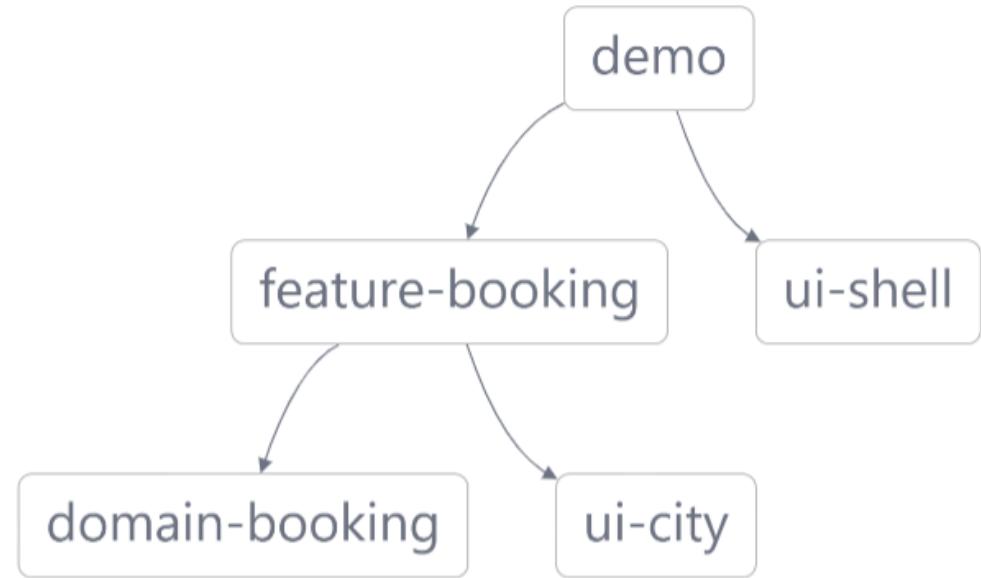
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# Next Logical Step: Nx Workspaces



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```
✓ libs
  > domain-booking
  ✓ feature-booking
    ✓ src
      ✓ lib
        > flight-card
        > flight-edit
        > flight-search
        > passenger-search
        ⚡ flight-booking.component.html
        ⚑ flight-booking.component.ts
        TS index.ts
        TS test-setup.ts
      > ui-city
      > ui-shell
```



- + 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**

**UI**

**UI**

**UI**

**Domain**

**Domain**

**Domain**

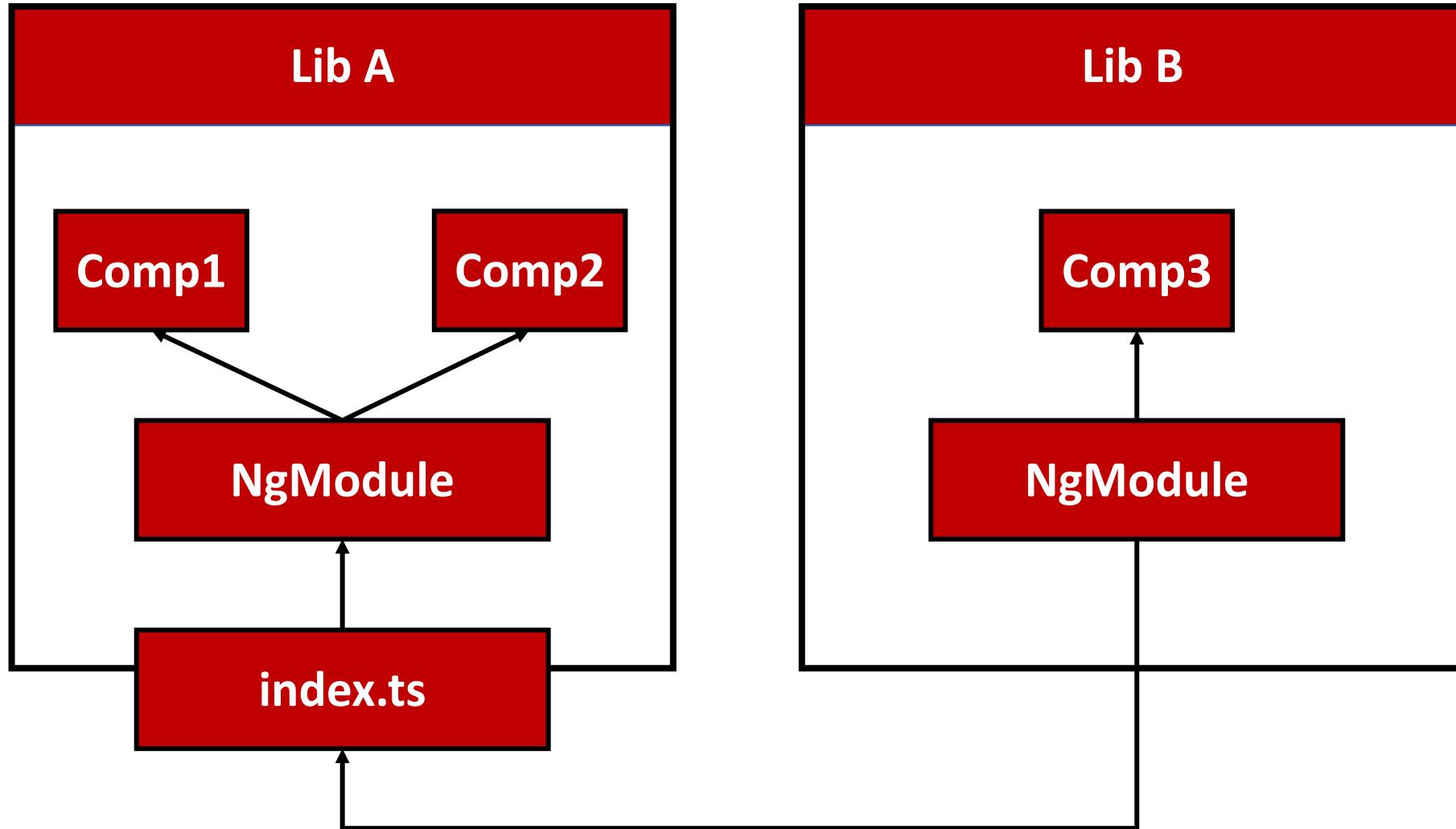
**Util**

**Util**

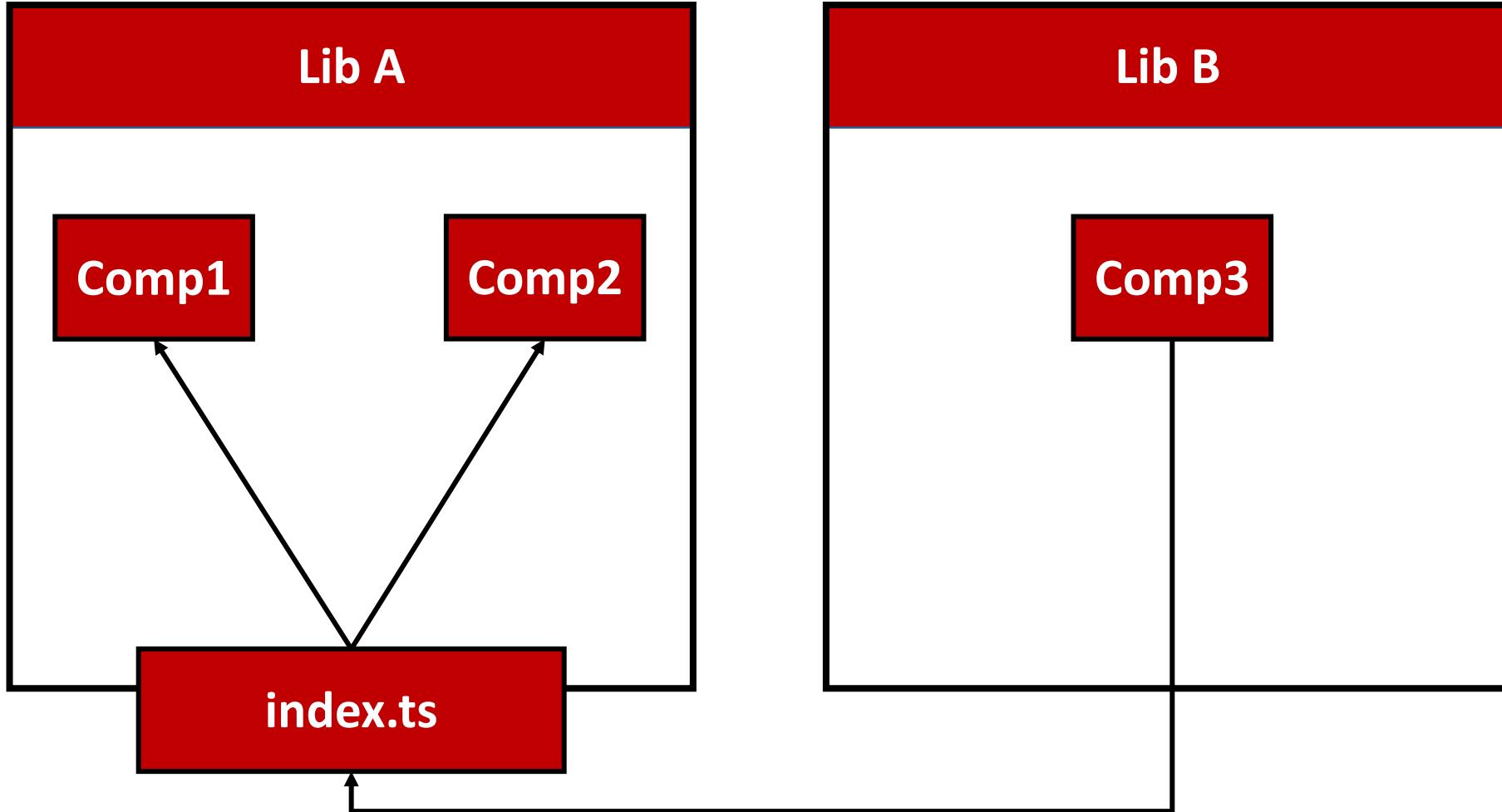
**Util**



# Today (with NgModules)



# Tomorrow (without NgModules)



# Conclusion

Mental Model

Folders & Barrels

Mapped Paths

Nx, Libs, and  
Constraints FTW!



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