



ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE

Router Deep Dive

ANGULARarchitects.io

Contents

- Basics & Parameters
- Child Routes
- Aux Routes
- Guards
- Resolver
- Lazy Loading



ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE

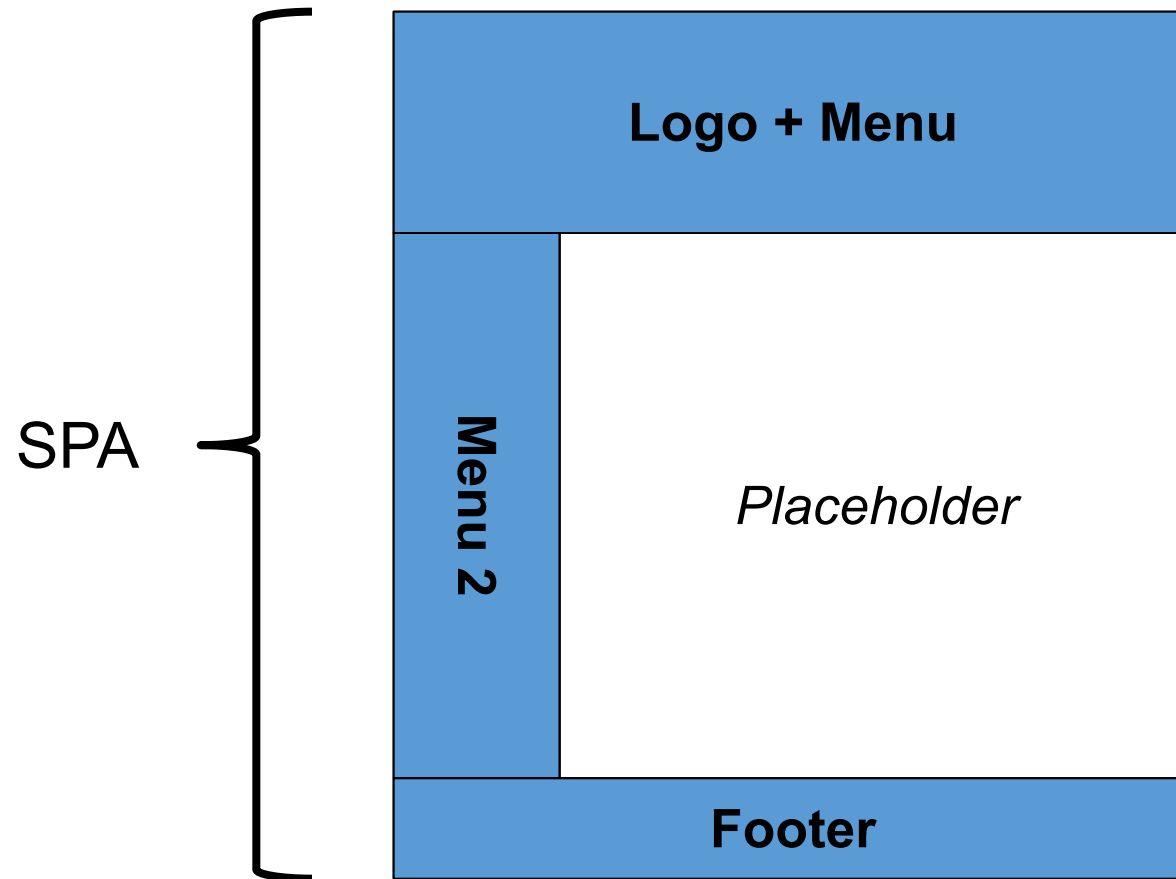


SOFTWARE
ARCHITECT



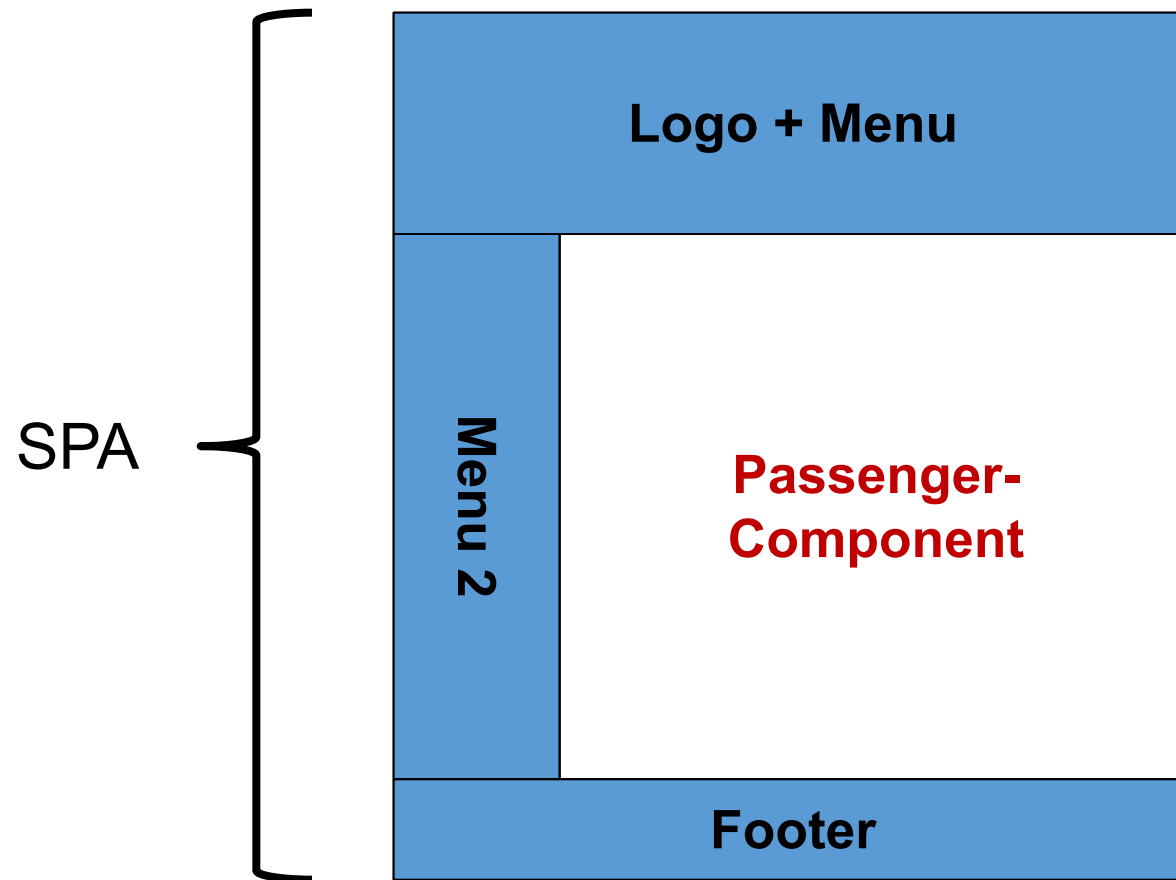
Angular Router

Routing in Angular



Routing in Angular

/FlightApp/**passenger**



Configuration

```
const APP_ROUTES: Routes = [  
  {  
    path: 'home',  
    component: HomeComponent  
  },  
  {  
    path: 'flight-search',  
    component: FlightSearchComponent  
  },  
  {  
    path: '**',  
    redirectTo: 'home'  
  }  
]
```



Configuration

```
// app.module.ts
@NgModule({
  imports: [
    BrowserModule,
    HttpClientModule,
    FormsModule,
    RouterModule.forRoot(ROUTE_CONFIG)
  ],
  [...],
})
export class AppModule {
}
```

For Root-Module

For Feature-Module: forChild



AppComponent

```
<a routerLink="/home">Home</a>  
<a [routerLink]="variableName">Flight Search</a>  
  
<div>  
  <router-outlet></router-outlet>  
</div>
```



Parameters

- passenger
- passenger/7
- passenger/7/ flights
- passenger/flights
- passenger/7?details=true&page=7
- passenger/7;details=true;page=7
- passenger/7;details=true;page=7/flights



Parameters

```
const APP_ROUTES: Routes = [  
  [...]  
  {  
    path: 'flight-search',  
    component: FlightSearchComponent  
  },  
  {  
    path: 'flight-edit/:id',  
    component: FlightEditComponent  
  }  
]
```



Reading Parameters

```
export class FlightEditComponent {  
  
    public id: string;  
  
    constructor(  
        private route: ActivatedRoute) {  
  
        route.paramMap.subscribe(  
            p => {  
                this.id = p.get('id');  
                [...]  
            }  
        );  
    }  
    [...]  
}
```



Links for Routes with Parameters

```
<a [routerLink]="['/flight-edit', flight.id, {showDetails: true}]">Edit</a>
```



DEMO



ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE

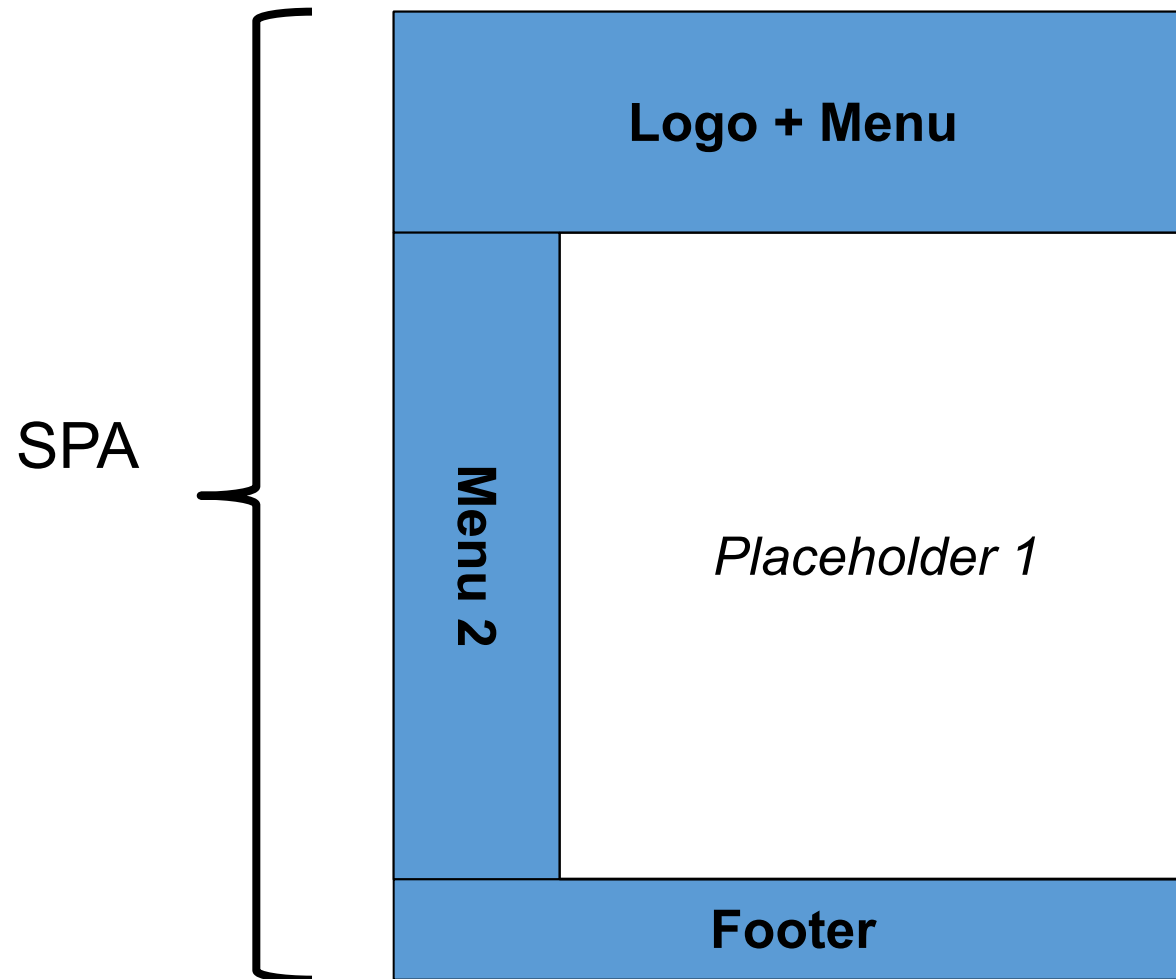


SOFTWARE
ARCHITECT

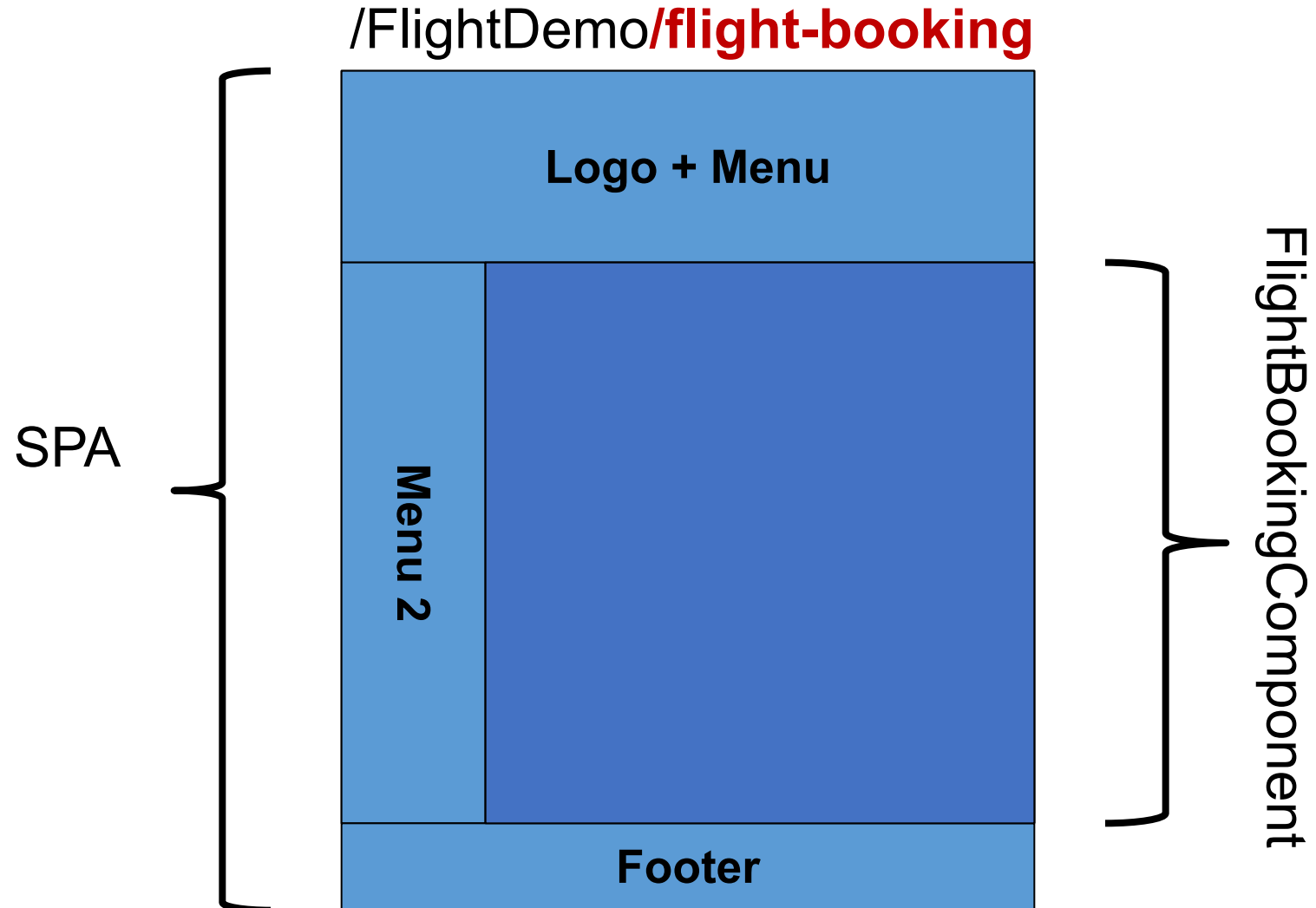


Hierarchical Routing

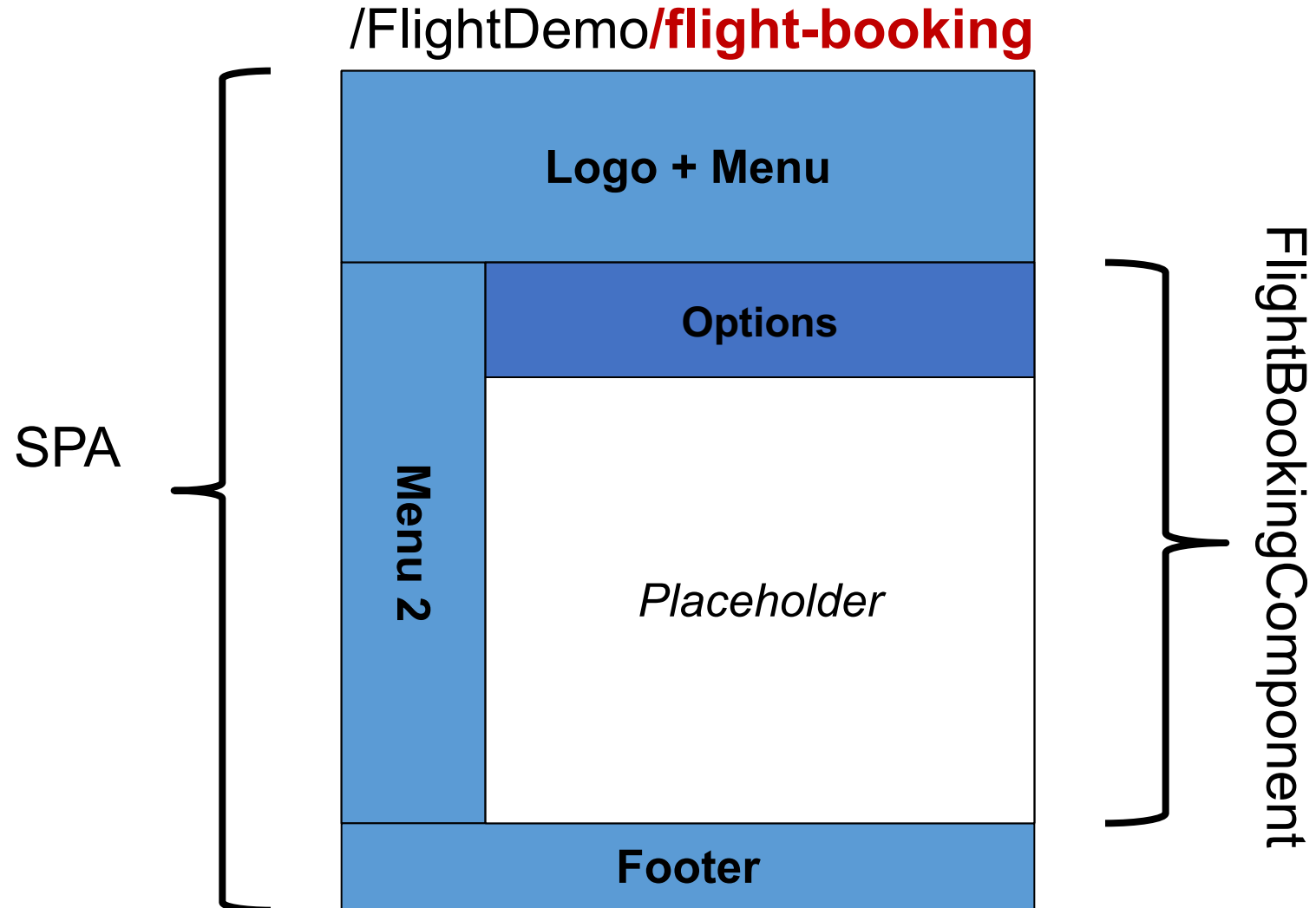
Hierarchical Routing



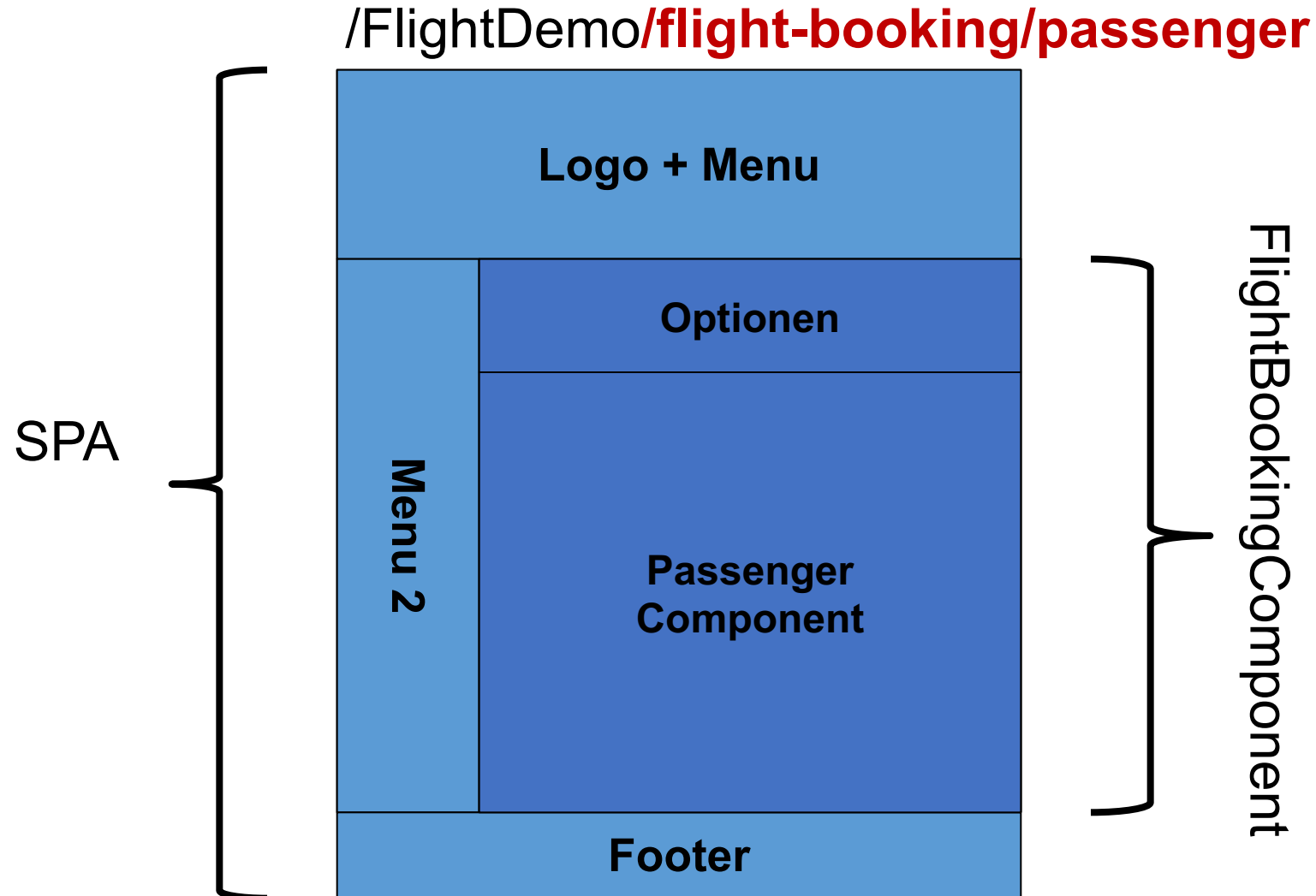
Hierarchical Routing



Hierarchical Routing



Hierarchical Routing

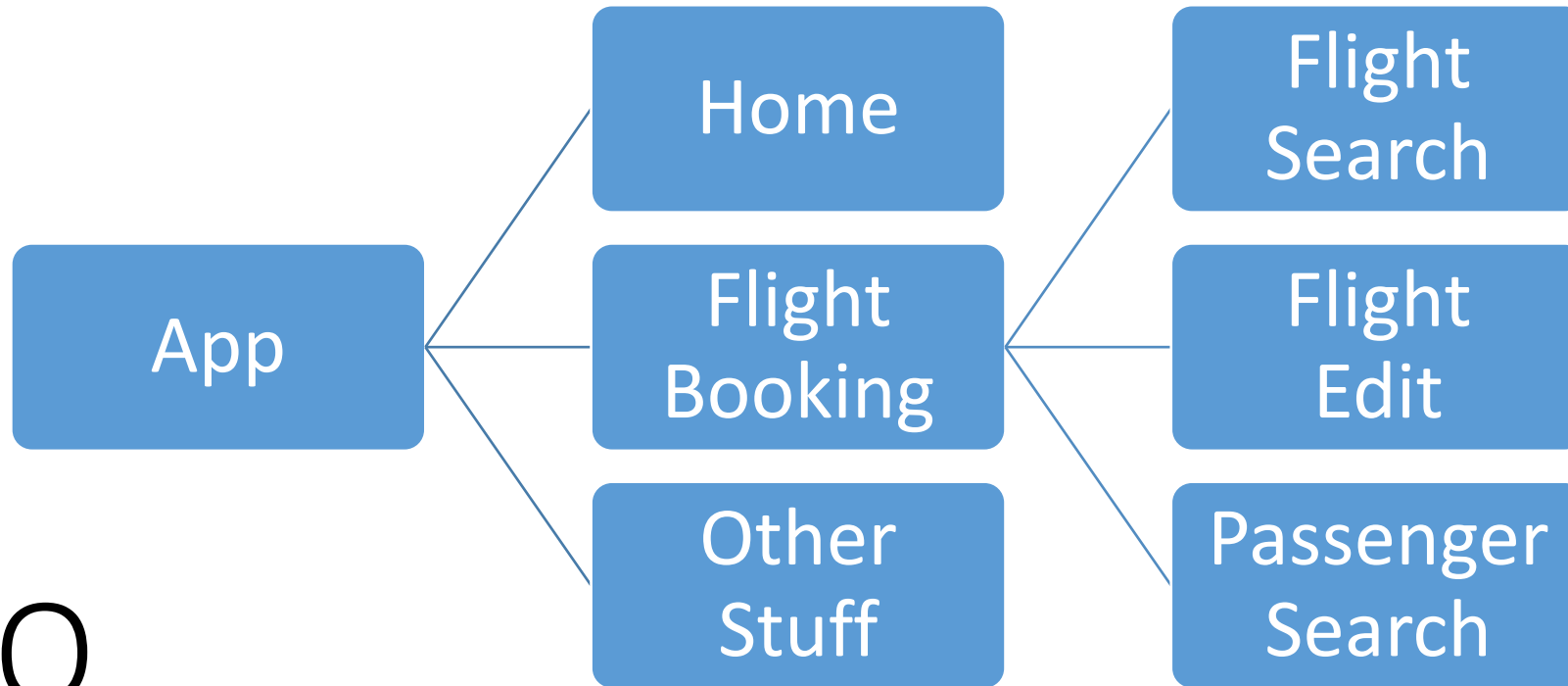


Configuration

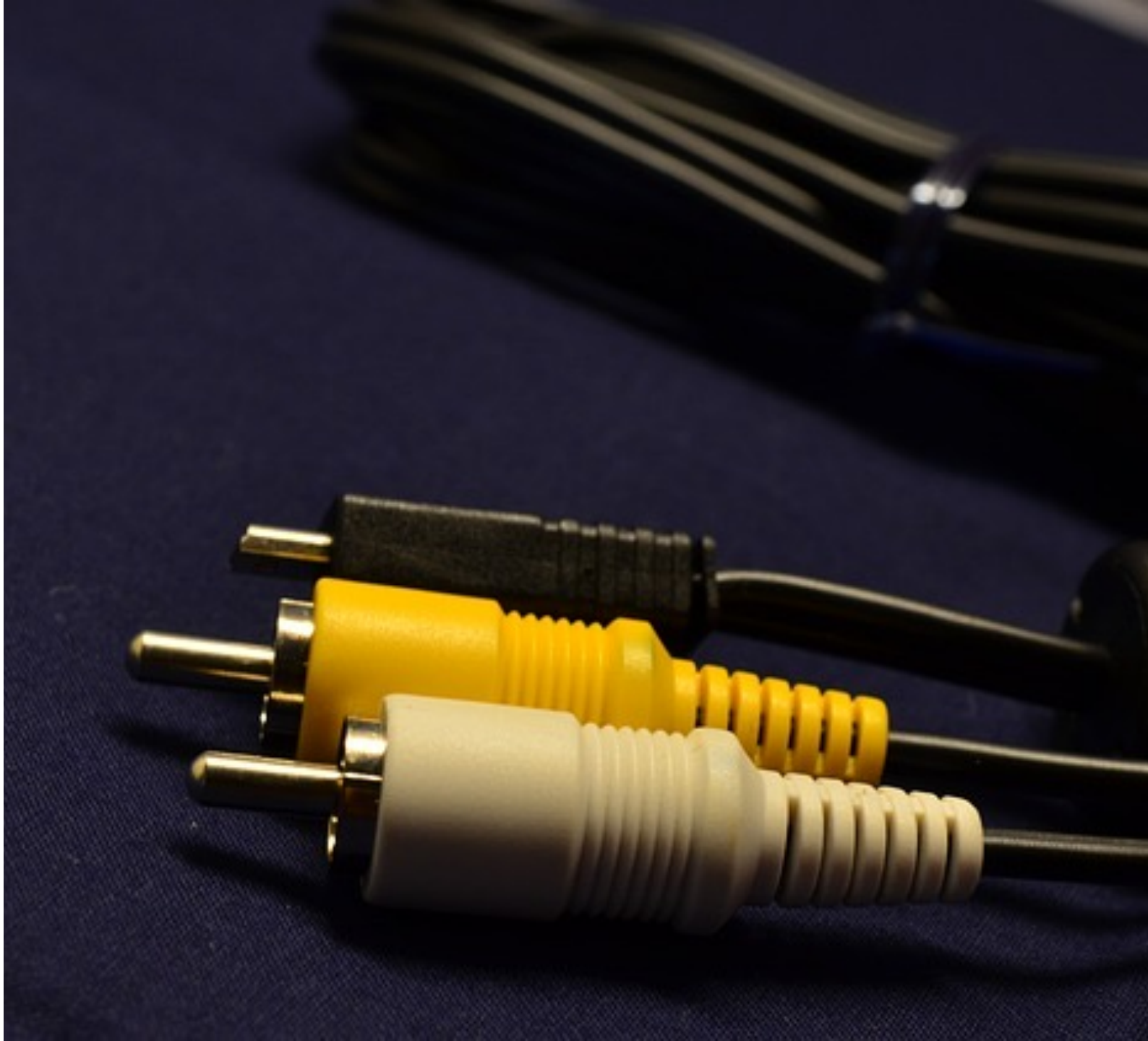
```
const APP_ROUTES: Routes = [  
  {  
    path: '',  
    component: HomeComponent  
  },  
  {  
    path: 'flight-booking',  
    component: FlightBookingComponent,  
    children: [  
      {  
        path: 'flight-search',  
        component: FlightSearchComponent  
      },  
      [...]  
    ]  
  }  
];
```



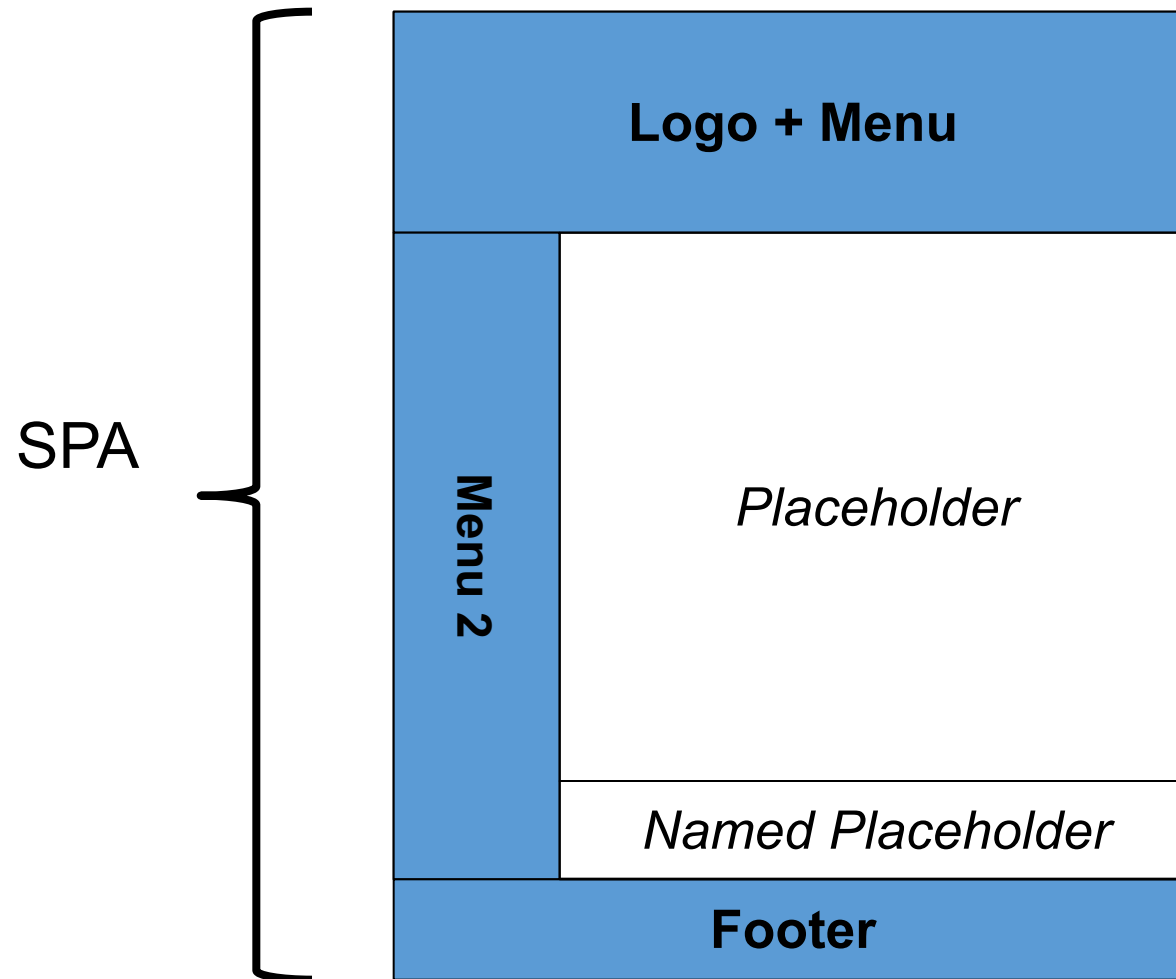
DEMO



Aux Routes

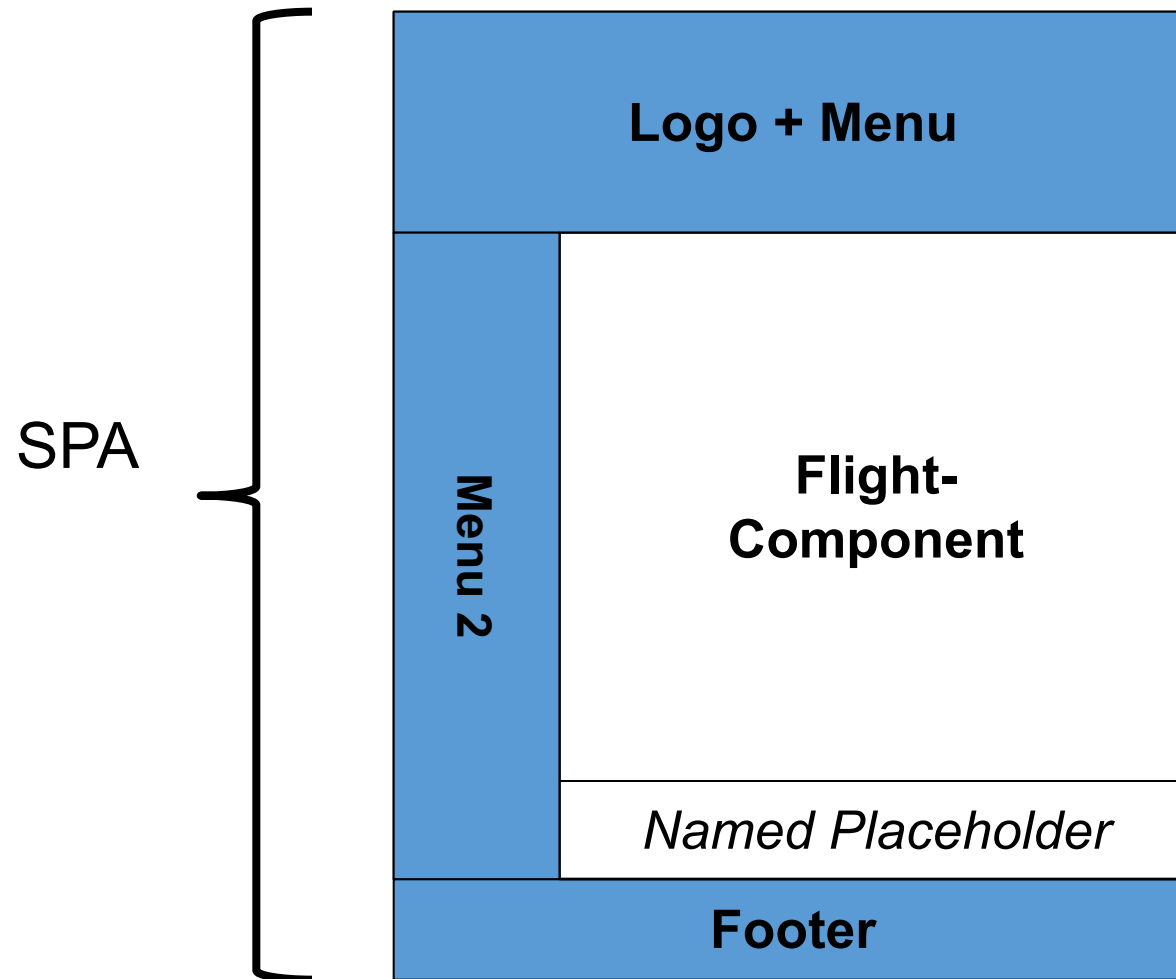


Aux-Routes



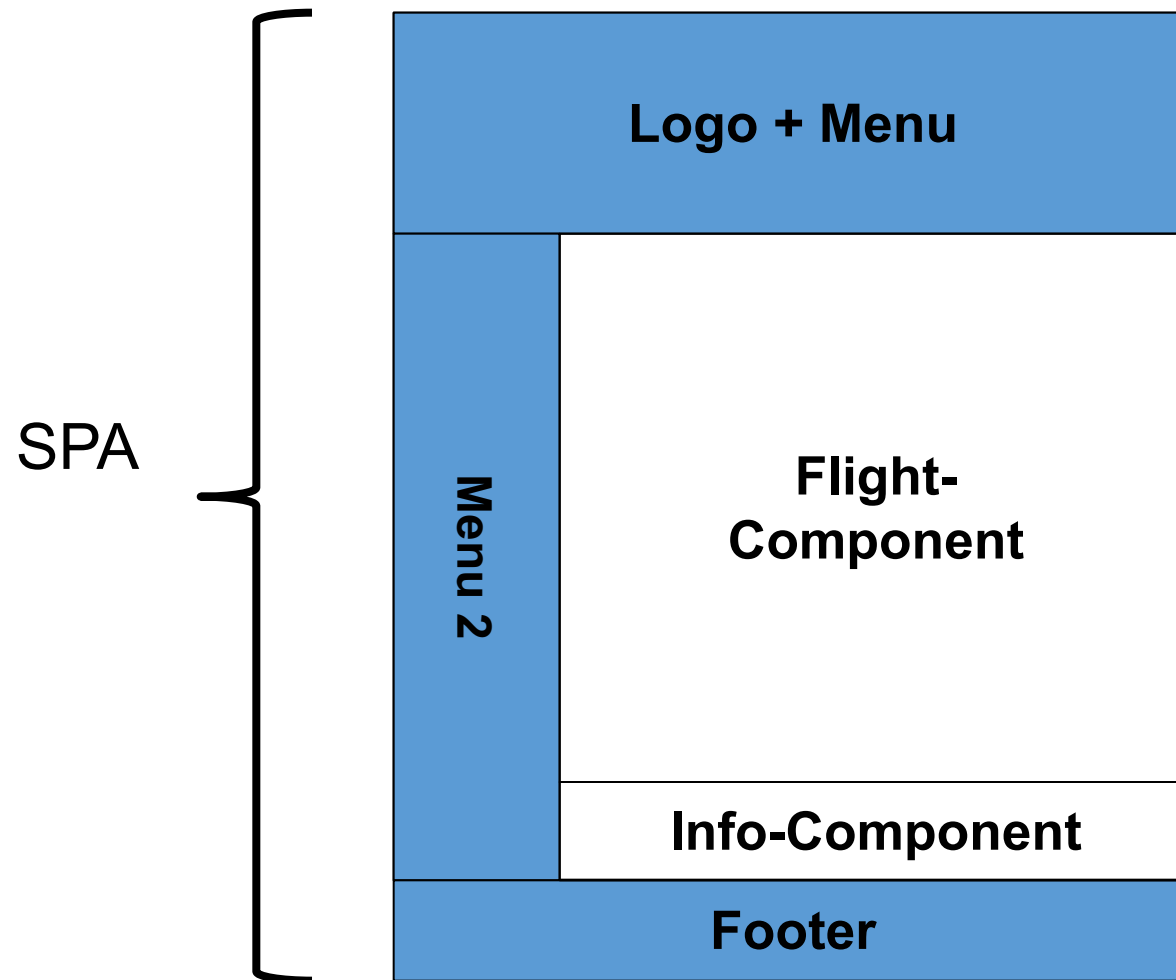
Aux-Routes

/FlightApp/**flights**



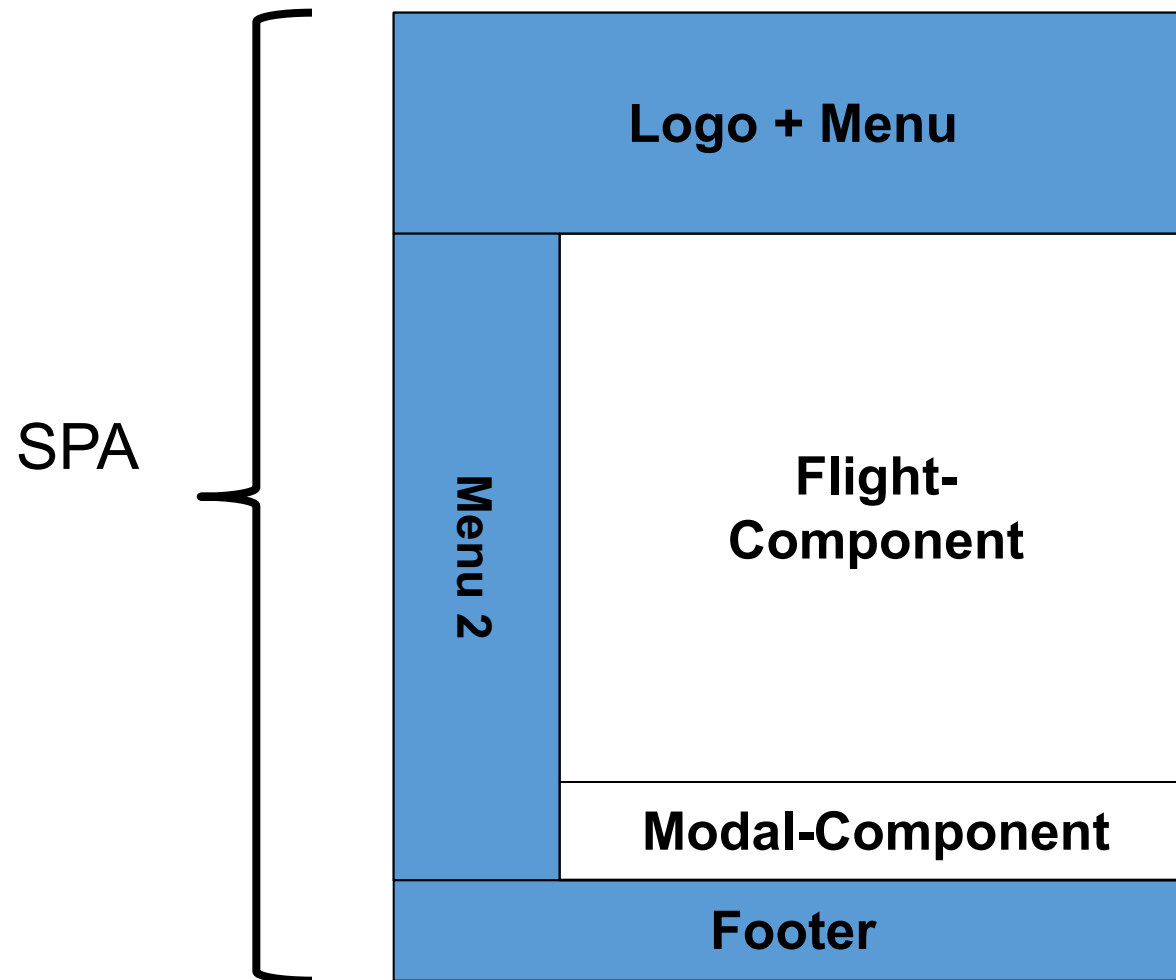
Aux-Routes

/FlightApp/**flights(aux:info)**



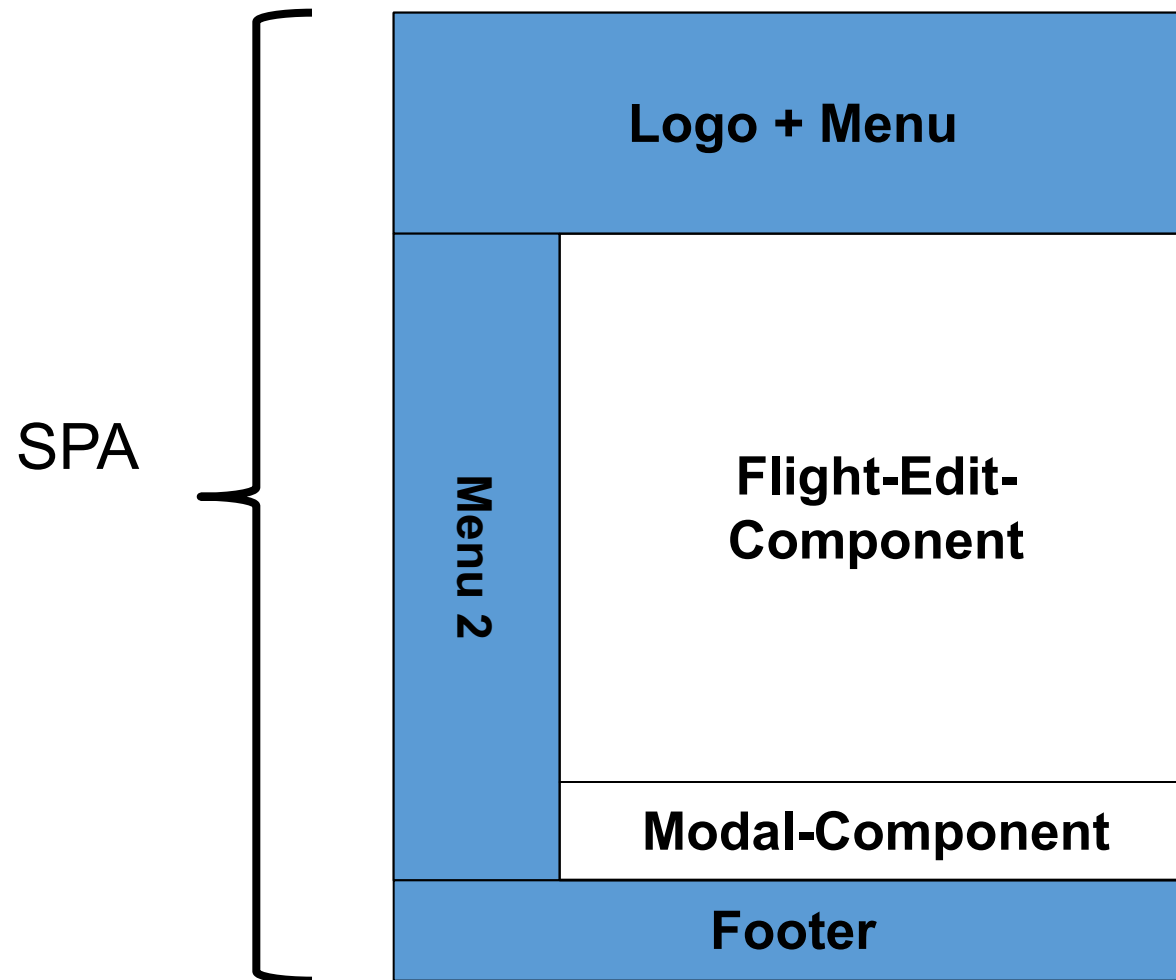
Aux-Routes

/FlightApp/**flights(aux:info/modal)**



Aux-Routes

/FlightApp/**flights(aux:info/modal)/edit/17**



Use Cases

- Partly autonomous parts of an application
- „Norton Commander Style“
- (CSS-based) Popups and Modals

Define Outlets

Default Name: primary

```
<router-outlet></router-outlet>
```

```
<hr>
```

```
<router-outlet name="aux"></router-outlet>
```



Configuration

```
export const ROUTE_CONFIG: Routes = [  
  {  
    path: 'home',  
    component: HomeComponent  
  },  
  {  
    path: 'info',  
    component: InfoComponent,  
    outlet: 'aux'  
  },  
  {  
    path: 'dashboard',  
    component: DashboardComponent,  
    outlet: 'aux'  
  }  
]
```



Activating Aux-Routes

```
<a [routerLink]="[{outlets: { aux: 'info' }}]">  
  Activate Info  
</a>  
  
<a [routerLink]="[{outlets: { aux: null }}]">  
  Deactivate Info  
</a>
```



Activating Several Aux Routes at Once

```
<a [routerLink]="[{outlets: {  
    aux: 'basket',  
    primary: 'flight-booking/flight-search' }}]"> ... </a>
```

```
<a [routerLink]="[{outlets: { aux: 'basket',  
    primary: ['flight-booking', 'flight-search'] }}]"> ... </a>
```

```
<a [routerLink]="[{outlets: { aux: 'basket',  
    primary: ['flight-booking', 'flight-edit', 17] }}]"> ... </a>
```



ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE



SOFTWARE
ARCHITECT

Code-based Routing

```
export class AppComponent {  
  
    constructor(private router: Router) {}  
  
    activateInfo(): void {  
        this.router.navigate([{outlets: { aux: 'info' }}]);  
    }  
  
    deactivateInfo(): void {  
        this.router.navigate([{outlets: { aux: null }}]);  
    }  
}
```



DEMO



Lab





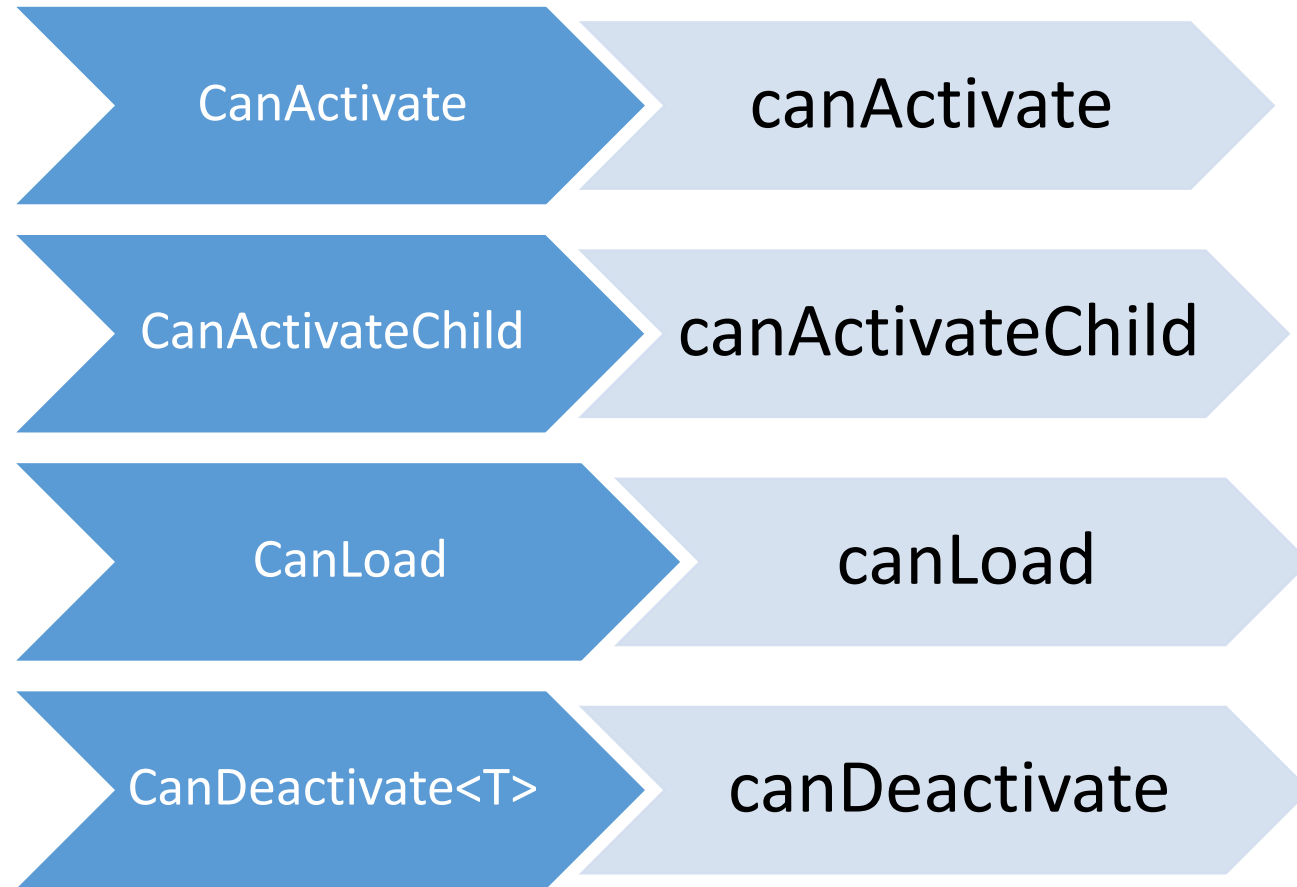
Guards

What are Guard?

- Services
- Can prevent the Activation or Deactivation of a Route



Guards



Result: boolean | Observable<boolean> | Promise<boolean>



ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE



SOFTWARE
ARCHITECT

Guards and the Router Configuration

```
const APP_ROUTES: Routes = [  
  {  
    path: '/flight-booking',  
    component: FlightBookingComponent,  
    canActivate: [AuthGuard],  
    children: [  
      {  
        path: 'flight-edit/:id',  
        component: FlightEditComponent,  
        canDeactivate: [FlightEditGuard]  
      },  
      [...]  
    ]  
  }  
]
```



Provider for Guards

```
// app.module.ts
@NgModule({
  providers: [
    FlightEditGuard,
    AuthGuard
  ],
  [...]
})
export class AppModule {
}
```



DEMO



Resolver



ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE



SOFTWARE
ARCHITECT

What are Resolver?

- Services
- Are activated when the Router switches over to another route
- Can load needed data
- Postpone activation of target route until data is loaded
- Meanwhile, a loading indicator can be shown

Resolver

```
@Injectable()
export class FlightResolver implements Resolve<Flight>
{
    constructor(private flightService: FlightService) {
    }

    resolve(route, state) :
        Observable<Flight> | Promise<Flight> | any {

        return [...]
    }
}
```



ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE



SOFTWARE
ARCHITECT

Register Resolver

```
const FLIGHT_BOOKING_ROUTES: Routes = [  
  [...]  
  
  {  
    path: 'flight-edit/:id',  
    component: FlightEditComponent,  
    resolve: {  
      flight: FlightResolver ←----- Token  
    }  
  }  
  
];
```



Receive Data in Component

```
@Component({ ... })
export class FlightEditComponent {

  flight: Flight;

  constructor(private route: ActivatedRoute) { }

  ngOnInit() {
    this.route.data.subscribe(
      data => {
        this.flight = data['flight'];
      }
    );
  }
}
```



DEMO



ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE



SOFTWARE
ARCHITECT

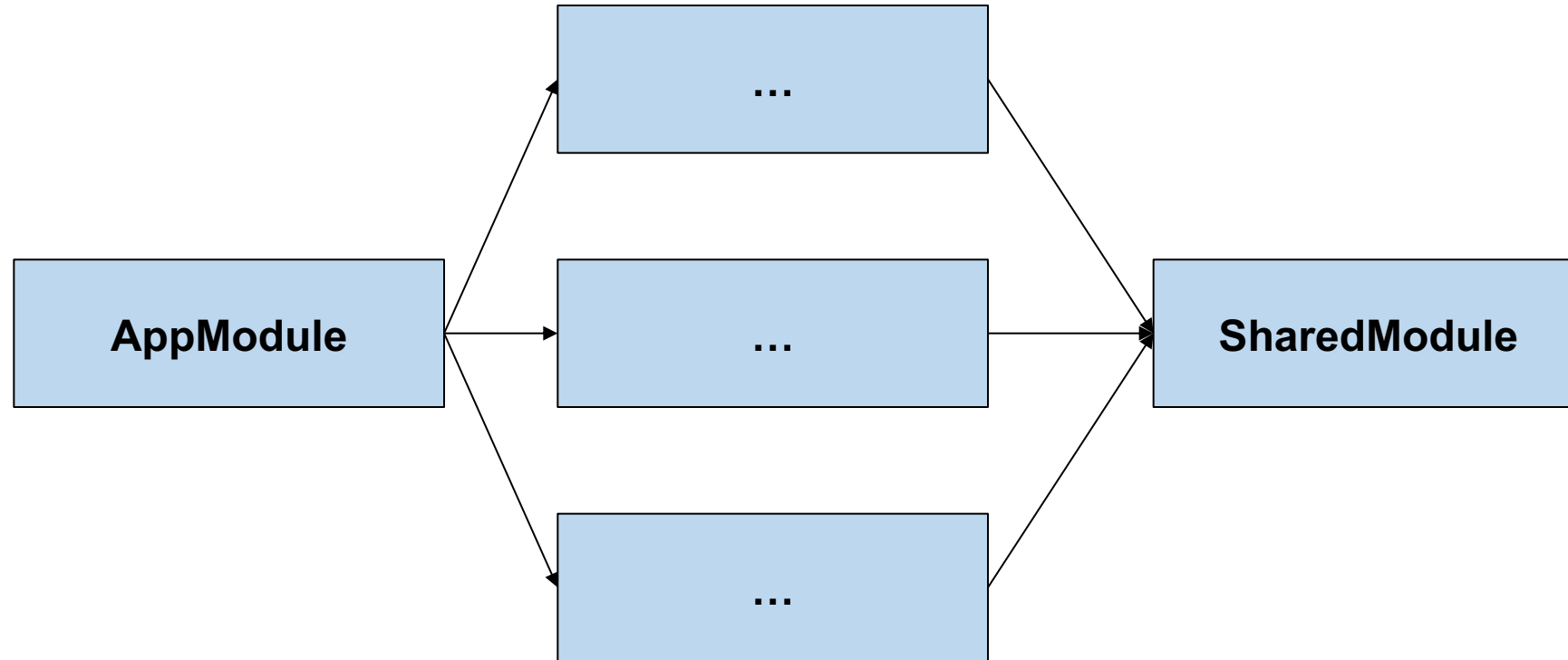
Lab



Lazy Loading



Module Structure

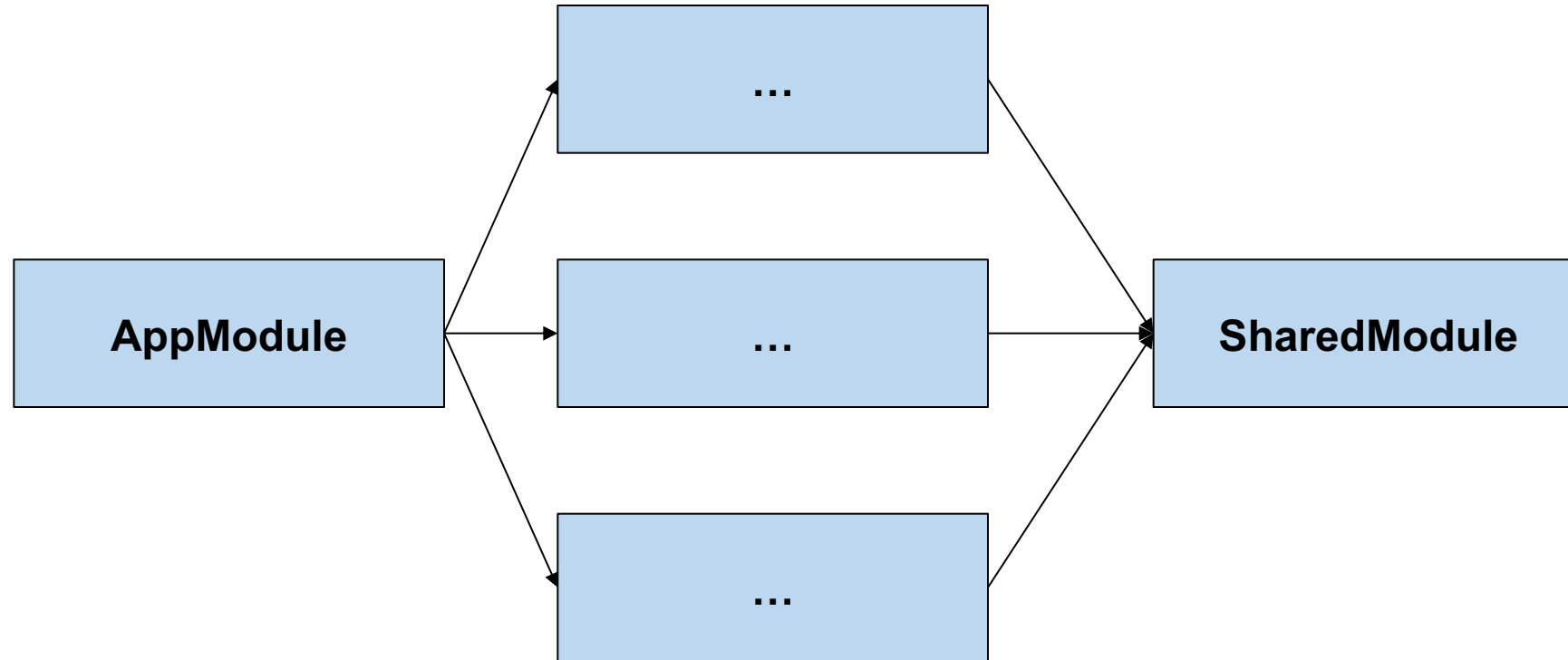


Root Module

Feature Modules

Shared Module

Lazy Loading



Root Module

Feature Modules

Shared Module

Root Module with Lazy Loading

```
const APP_ROUTE_CONFIG: Routes = [  
  {  
    path: 'home',  
    component: HomeComponent  
  },  
  {  
    path: 'flight-booking',  
    loadChildren: () => import('./[...]/flight-booking.module')  
      .then(m => m.FlightBookingModule)  
  }  
];
```



Routes for Feature Module

```
const FLIGHT_ROUTES = [  
  {  
    path: '',  
    component: FlightBookingComponent,  
    [...]  
  },  
  [...]  
]
```



Routes for Feature Module

```
const FLIGHT_ROUTES = [  
  {  
    path: '/bookings',  
    component: FlightBookingComponent,  
    [...]  
  },  
  [...]  
]
```

Url: /flight-booking/bookings

Triggers Lazy Loading

DEMO

Preloading



Idea

- Modules that **might be needed** later are loaded after (!) the start of the application
- When the module is actually needed, it is available **immediately**



Activating Preloading

```
const AppRoutesModule =  
  RouterModule.forRoot(  
    ROUTE_CONFIG,  
    { preloadingStrategy: PreloadAllModules }));
```



DEMO



ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE



SOFTWARE
ARCHITECT

Lab



Conclusion

Child Routes
& Parameters

Aux Routes

Guards

Lazy Loading



ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE



SOFTWARE
ARCHITECT