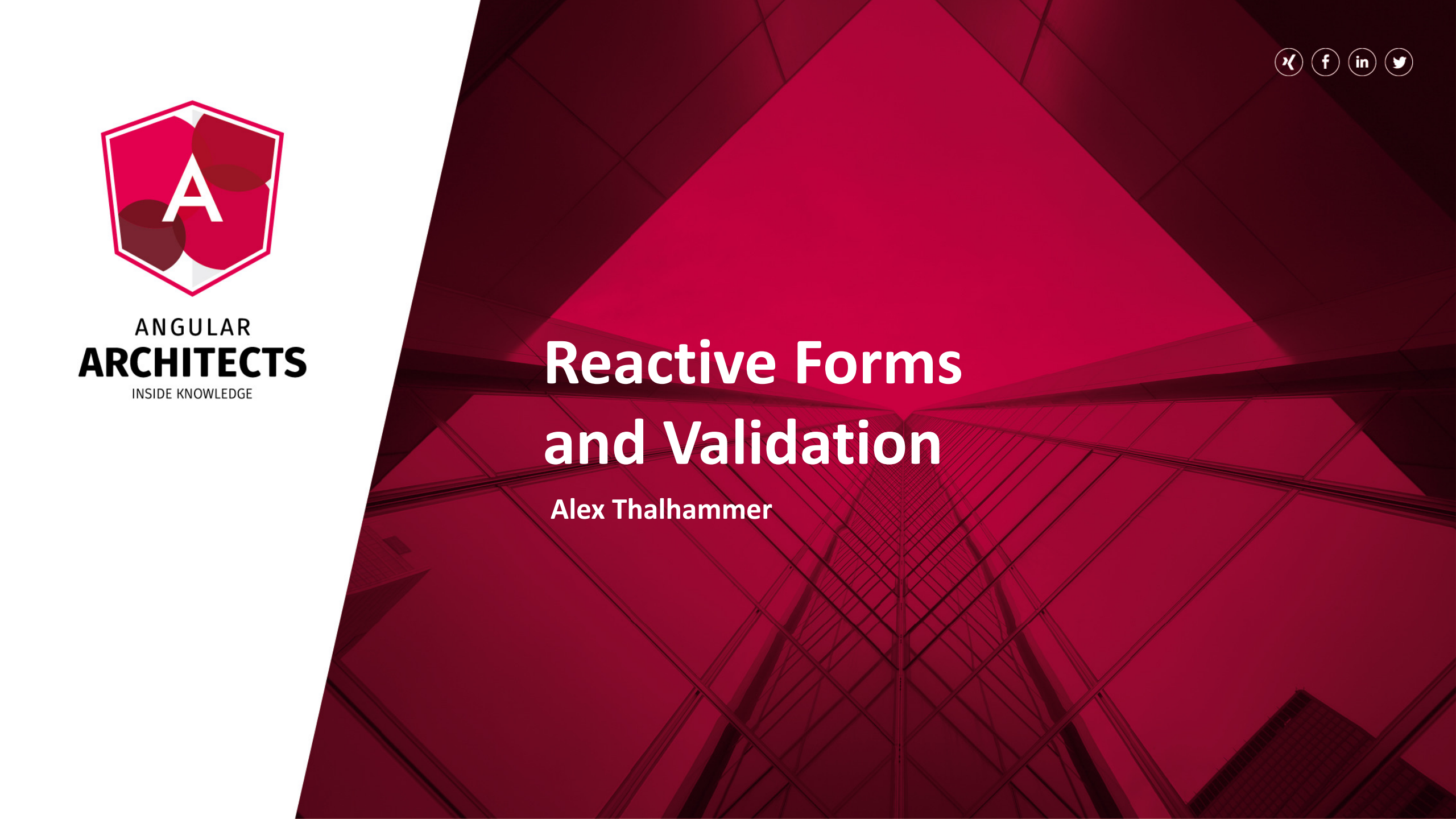
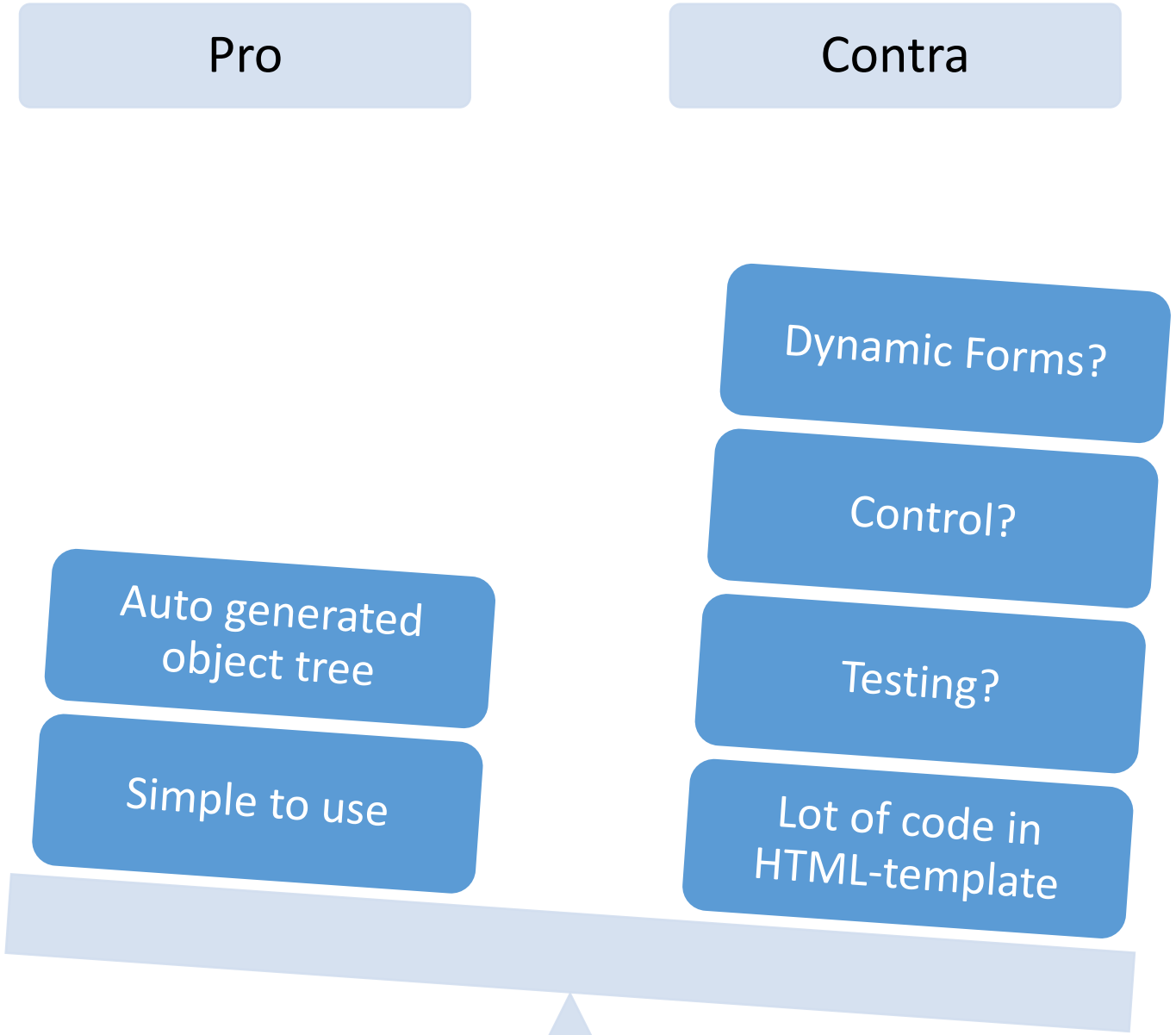


ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE

Reactive Forms and Validation

Alex Thalhammer


Pro
Contra
Dynamic Forms?
Control?
Testing?
Lot of code in HTML-template
Auto generated object tree
Simple to use

Reactive Forms

ReactiveFormsModule

```
@NgModule({
   imports: [
      ReactiveFormsModule,
      CommonModule,
      SharedModule,
      [...]
   ],
   [...]
})
export class FlightBookingModule { }
```

Reactive Forms

```
export class FlightSearchComponent {

    form: FormGroup;

    […]
}
```

Reactive Forms

```
export class FlightSearchComponent {

    form: FormGroup;

    constructor(…) {
        const fromControl = new FormControl('Graz');
        const toControl = new FormControl('Hamburg');
        this.form = new FormGroup({ from: fromControl, to: toControl});

        […]

    }
}
```

Reactive Forms

```
export class FlightSearchComponent {

    form: FormGroup;

    constructor(…) {
        let fromControl = new FormControl('Graz');
        let toControl = new FormControl('Hamburg');
        this.form = new FormGroup({ from: fromControl, to: toControl});

        fromControl.validator = Validators.required;
        […]
    }
}
```

Reactive Forms

```
export class FlightSearchComponent {

    form: FormGroup;

    constructor(…) {
        let fromControl = new FormControl('Graz');
        let toControl = new FormControl('Hamburg');
        this.form = new FormGroup({ from: fromControl, to: toControl});

        fromControl.validator =
                Validators.compose([Validators.required, Validators.minLength(3)]);
    }
}
```

Reactive Forms

```
export class FlightSearchComponent {

    form: FormGroup;

    constructor(…) {
        [...]

        fromControl.validator =
                    Validators.compose([Validators.required, Validators.minLength(3)]);

       fromControl.asyncValidator = Validators.composeAsync([…]);
    }
}
```

FormBuilder

```
export class FlightSearchComponent {

    form: FormGroup;

    constructor(fb: FormBuilder, …) {
        this.form = fb.group({
            from: ['Graz', Validators.required],
            to: ['Hamburg', Validators.required]
        });
        […]
    }

}
```

FormBuilder

```
export class FlightSearchComponent {

    form: FormGroup;

    constructor(fb: FormBuilder, …) {
        this.form = fb.group({
            from: ['Graz', [Validators.required, Validators.minLength(3)] ],
            to: ['Hamburg', Validators.required]
        });
        […]
    }

}
```

FormBuilder

```
export class FlightSearchComponent {

    form: FormGroup;

    constructor(fb: FormBuilder, …) {
        this.form = fb.group({
            from: ['Graz', [Validators.required, Validators.minLength(3)], [ /* asyncValidator */ ] ],
            to: ['Hamburg', Validators.required]
        });
        […]
    }

}
```

API

```
this.form.valueChanges.subscribe(change => {
    console.debug('form value has changed', change);
});
```

```
this.form.controls.from.valueChanges.subscribe(change => {
    console.debug('from input has changed ', change);
});
```

```
let fromValue = this.form.controls.from.value;
const toValue = this.form.controls.to.value;
```

```
const formValue = this.form.value;
fromValue = formValue.from;
```

Reactive Forms

```
<form [formGroup]="form">

   <input formControlName="from">

   […]

</form>
```

Reactive Forms

```
<form [formGroup]="form">

   <input id="from" formControlName="from" type="text">
   <div *ngIf="!form.controls['from'].valid">…Error…</div>

   […]

</form>
```

DEMO

LAB

Validators for Reactive Forms

Reactive Validators === functions

A simple validator

```
function validate (c: AbstractControl): ValidationErrors | null  {
    if (c.value === 'Graz' || c.value === 'Hamburg') {
        return null;
    }
    return { city: true };
}
```

Apply validators

```
this.form = fb.group({
    from: [
        'Graz',
        [
            validate
        ],
        [
            /* asyncValidator */
        ]
    ],
    to: ['Hamburg', Validators.required]
});
```

Parametrizable validators

```
function validateWithParams(allowedCities: string[]): ValidatorFn {

        […]

}
```

Parametrizable validators

```
function validateWithParams(allowedCities: string[]): ValidatorFn {

    return (c: AbstractControl): ValidationErrors | null => {
            […]
    };

}
```

Parametrizable validators

```
function validateWithParams(allowedCities: string[]): ValidatorFn {

    return (c: AbstractControl): ValidationErrors | null => {

        if (allowedCities.indexOf(c.value) > -1) {
            return null;
        }

        return { city: true };

    };
}
```

Use validators

```
this.form = fb.group({
    from: [
        'Graz',
        [
            validateWithParams(['Graz', 'Hamburg'])
        ],
        [
            /* asyncValidator */
        ]
    ],
    to: ['Hamburg', Validators.required]
});
```

DEMO

Asynchronous validators

```
export function cityValidatorAsync(flightService): AsyncValidatorFn {

    return (ctrl: AbstractControl): Observable<ValidationErrors | null> => {
        […]
        return observable;
    }
}
```

Use validators

```
this.form = fb.group({
    from: [
        'Graz',
        [
            validateWithParams(['Graz', 'Hamburg'])
        ],
        [
            cityValidatorAsync(this.flightService)
        ]
    ],
    to: ['Hamburg', Validators.required]
});
```

Multifield validators

```
export function validateMultiField([…]): ValidationFn {

    return (control: AbstractControl): ValidationErrors | null {

        const formGroup = control as FormGroup;

        […]
    }

};
```

Use multifield validators

```
this.form = fb.group({ … });
this.form.validator = validators.compose([validateMultiField([…])])
```

DEMO

LAB