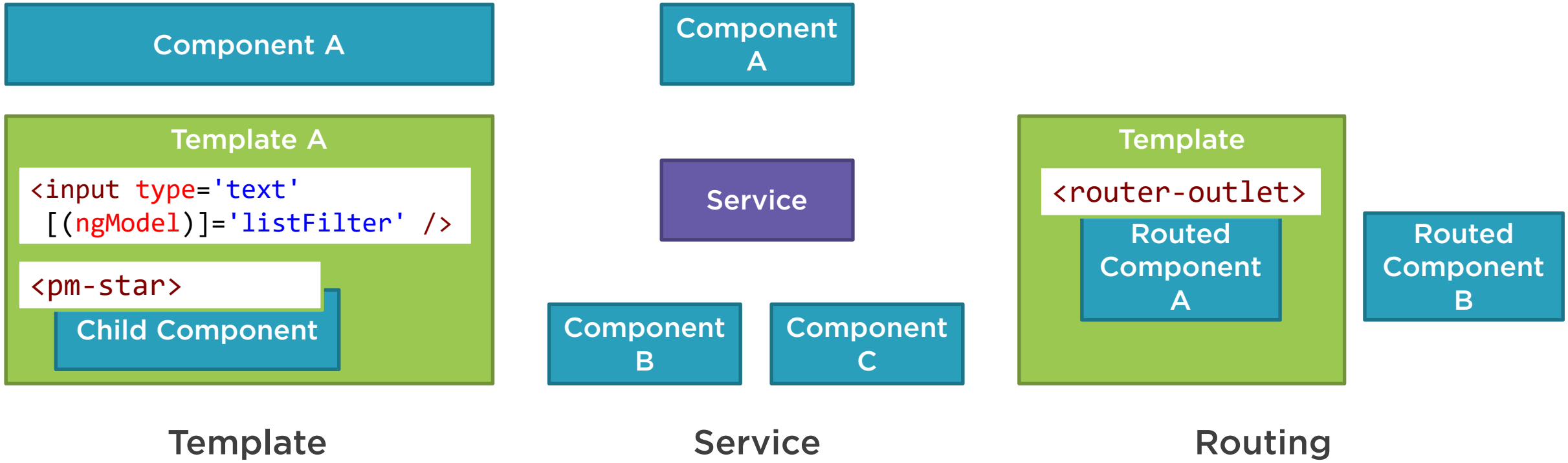
ViewChild and ViewChildren

Deborah Kurata
CONSULTANT | SPEAKER | AUTHOR | MVP | GDE

@deborahkurata | blogs.msmvps.com/deborahk/

Component Communication



Module Overview

ViewChild

ViewChildren

ViewChild and Angular Forms

- valueChanges Observable

ViewChild and ngIf


Could you set your focus?
Sure! Setting my focus.
Component A
Template A


Is your form currently valid?
OK, I'll save.
Yep!
Component A
Template A

Getting a Reference

DOM

```
let divElement = document.getElementById('divElementId');
```

Decorator

```
@ViewChild('divElementVar') divElementRef;
```

ViewChild

Angular Directive

```
@ViewChild(NgModel) filterInput: NgModel;
```

```
<input type='text' [(ngModel)]='listFilter' />
```

Custom Directive / Child Component

```
@ViewChild(StarComponent) star: StarComponent;
```

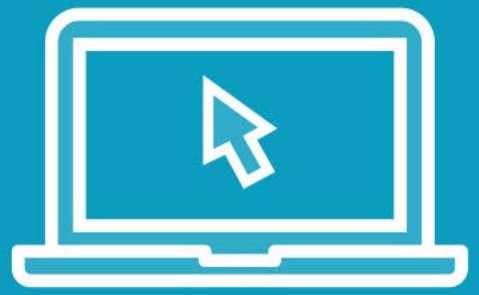
```
<pm-star [rating]='product.starRating'></pm-star>
```

Template Reference Variable

```
@ViewChild('divElementVar') divElementRef: ElementRef;
```

```
<div #divElementVar>{{pageTitle}}</div>
```

Demo



ViewChild and
Accessing the Native Html Element

Considerations When Using nativeElement

Using nativeElement -> directly accessing the DOM

Tightly coupled to the browser

May not be able to use server-side rendering or web workers

```
if (this.filterElementRef.nativeElement) {
   this.filterElementRef.nativeElement.focus();
}
```

ViewChildren

```
@ViewChildren('divElementVar')
divElementRefs: QueryList<ElementRef>;
```

Differences:

- Returns a QueryList of element or directive references
- Tracks changes in the DOM

```
this.divElementRefs.changes.subscribe(() => {
    // Code here
})
```

ViewChildren

Angular Directive

```
@ViewChildren(NgModel) inputs: QueryList<NgModel>;
```

Custom Directive / Child Component

```
@ViewChildren(StarComponent) stars: QueryList<StarComponent>;
```

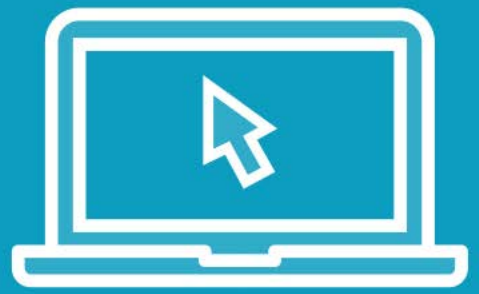
Template Reference Variable

```
@ViewChildren('divElementVar')
divElementRefs: QueryList<ElementRef>;
```

Template Reference Variables

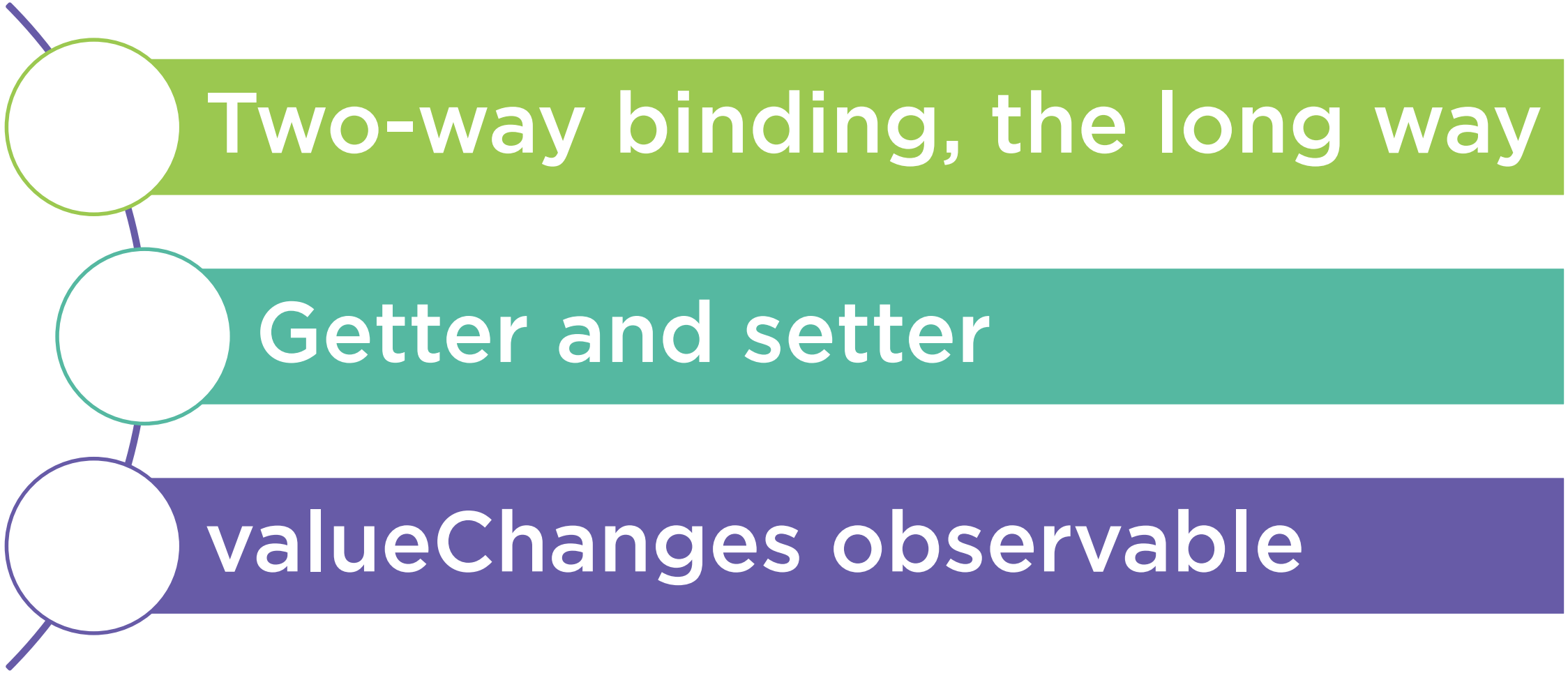
```
@ViewChildren('filterElement, nameElement')
divElementRefs: QueryList<ElementRef>;
```

Demo



ViewChildren

Notifying the Component of User Changes



ViewChild and Angular Forms

Template

```
<input type='text'
       [(ngModel)]='listFilter' />
```

Component

```
@ViewChild(NgModel) filterInput: NgModel;
```

```
this.filterInput.valueChanges.subscribe(
   () => this.performFilter(this.listFilter)
);
```

Angular Forms

Template-driven

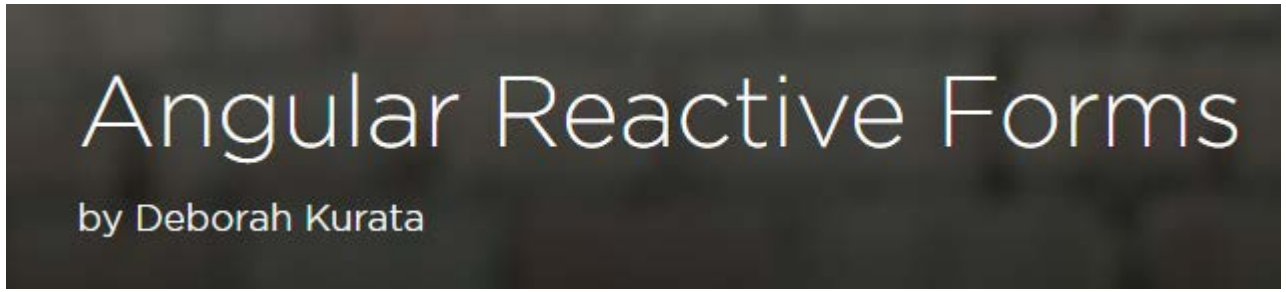
- Angular creates the form data structures
- Based on info in the template
- Access reference with ViewChild

Reactive

- We create the form data structures
- Defined in the component class
- No need for ViewChild

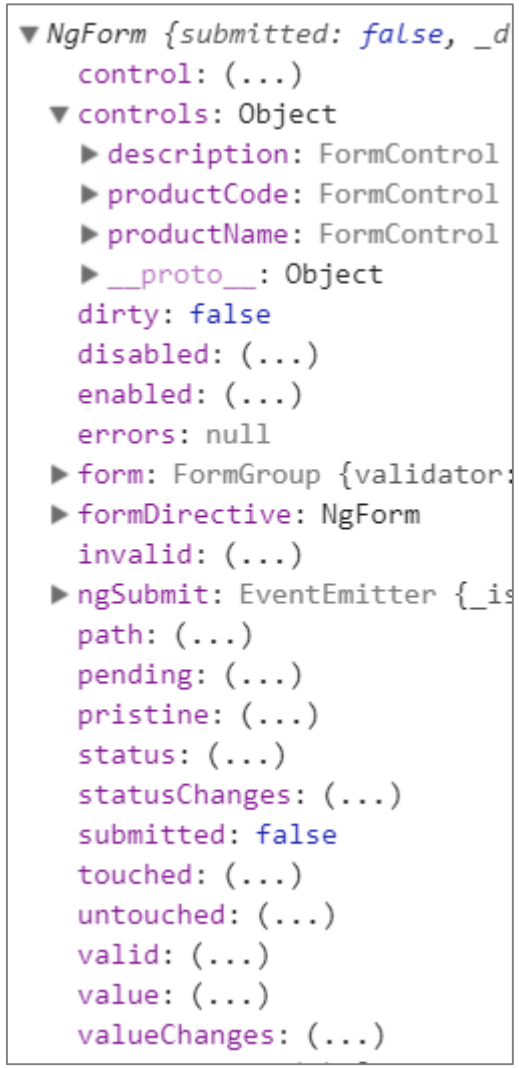
```
this.filterInput.valueChanges.subscribe(
    () => this.performFilter(this.listFilter)
);
```

For More Information

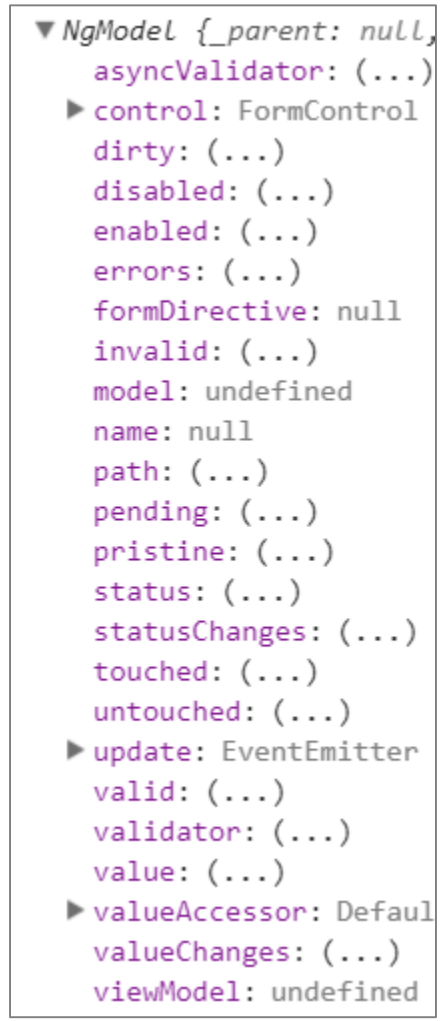


Template-driven Forms / No Form

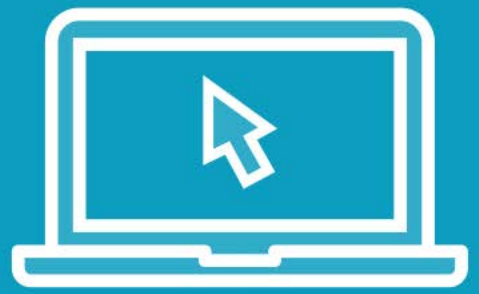
```
<form (ngSubmit)="saveProduct()">
```




```
<input type='text'
       [(ngModel)]='listFilter' />
```



Demo



ViewChild and Angular Forms

ViewChild and *ngIf

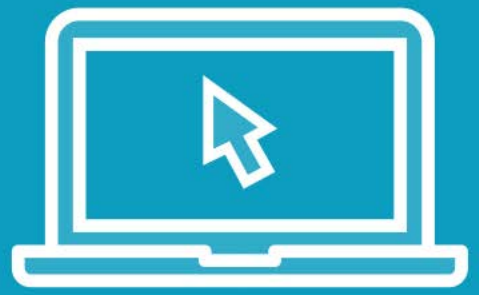
```
<div *ngIf='products'>
  <div>Filter by:</div>
  <div>
    <input type='text' [(ngModel)]='listFilter' />
  </div>
</div>
```

```
@ViewChild(NgModel) filterInput: NgModel;
```

```
ngAfterViewInit(): void {
   this.filterInput.valueChanges.subscribe(
      () => this.performFilter(this.listFilter)
   );
}
```

```
@ViewChild(NgModel)
set filterInput(value: NgModel) {
   this._filterInput = value;
}
```

Demo



ViewChild and ngIf

Guidelines & Summary: ViewChild and ViewChildren

ViewChild/ViewChildren: Html Element

```
@ViewChild('divElementVar') divElementRef: ElementRef;
```

Plus:

- Provides a nativeElement property
- Access any Html element properties
- Call any Html element methods

Caveats:

- ViewChild reference not reliably available until AfterViewInit
- ViewChild reference not available if the element is not in the DOM
- Does not work with server-side rendering or web workers

```
if (this.filterElementRef.nativeElement) {
   this.filterElementRef.nativeElement.focus();
}
```

ViewChild/ViewChildren: Angular Directive

```
@ViewChild(NgModel) filterInput: NgModel;
```

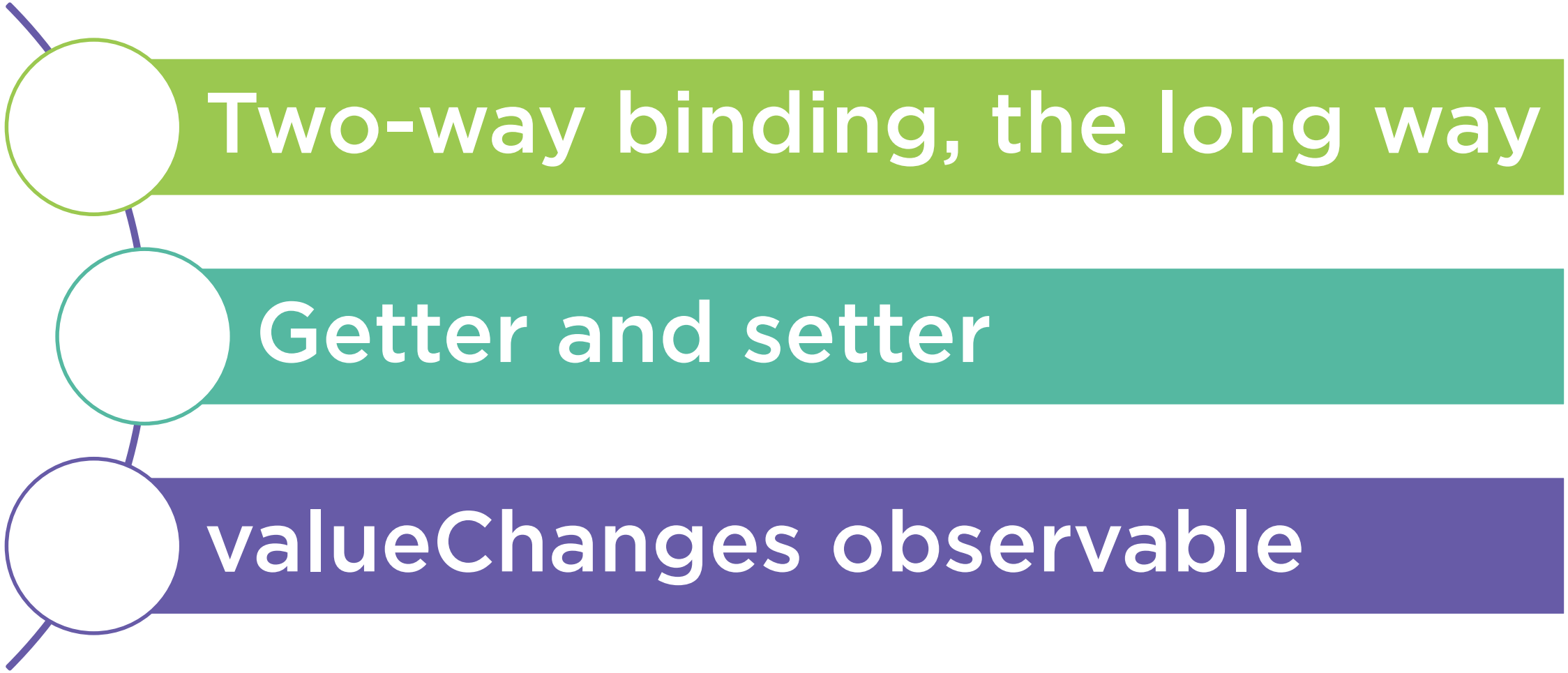
Plus:

- Provides reference to the directive's data structures
- Access any properties

Caveats:

- ViewChild reference not reliably available until AfterViewInit
- ViewChild reference not available if the element is not in the DOM
- NgForm and NgModel data structures are read-only

Notifying the Component of User Changes



Subscribe to the valueChanges Observable

```
@ViewChild(NgModel) filterInput: NgModel;
```

```
this.filterInput.valueChanges.subscribe(
   () => this.performFilter(this.listFilter)
);
```

Plus:

- Favor this technique if using other NgModel information

Caveats:

- Watch out for ngIf
- Reference not reliably available until AfterViewInit

Summary

ViewChild

ViewChildren

ViewChild and Angular Forms

- valueChanges Observable

ViewChild and ngIf

Component Communication