



Global Knowledge®

In-company training QNH Module 7 Angular Component Trees

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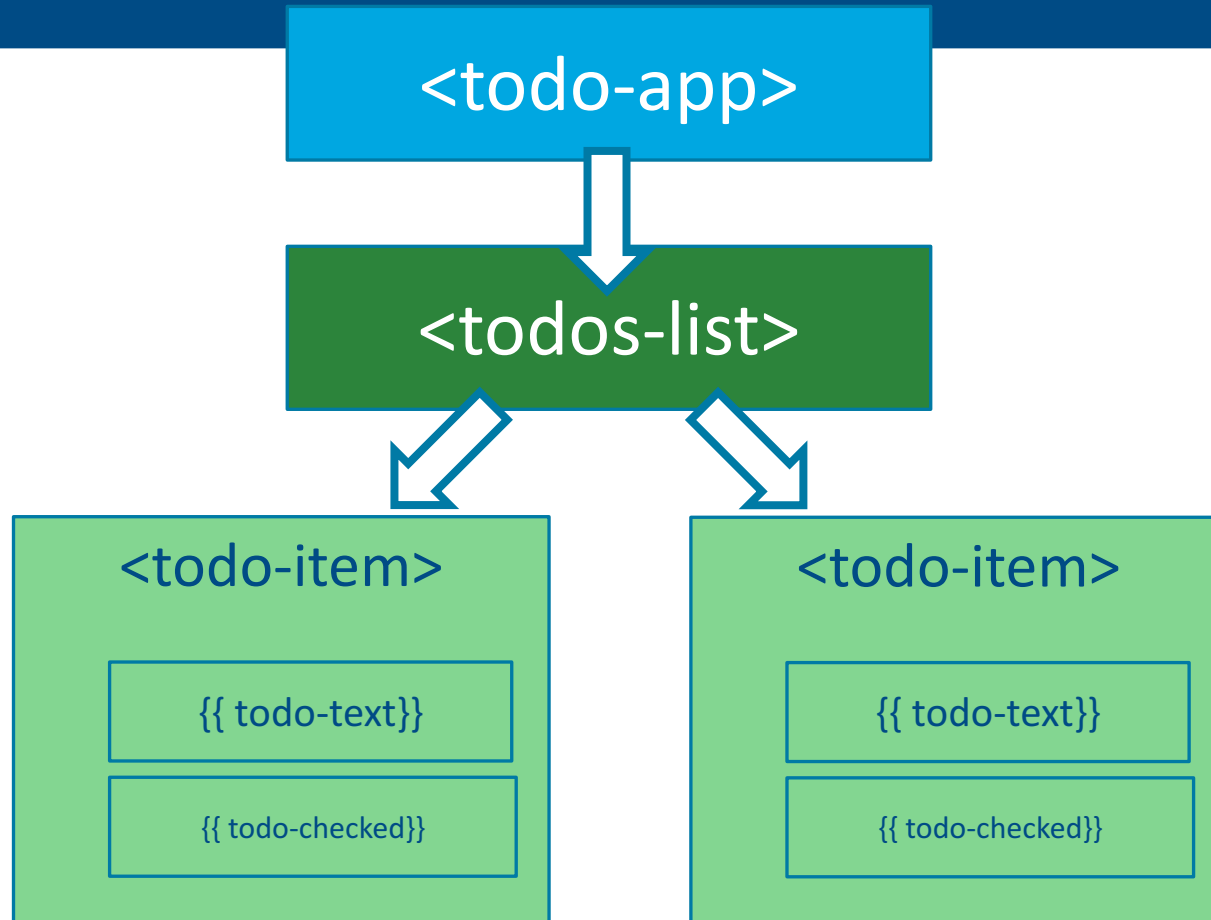
WORLDWIDE LOCATIONS

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SAUDI ARABIA SINGAPORE SPAIN SWEDEN UNITED ARAB EMIRATES UNITED KINGDOM UNITED STATES OF AMERICA

Dag 4 – Angular Next Steps

- Vervolg Observables
 - Async Pipe
 - Live API's
- Component Trees
 - Werken met `@Input()`
 - Werken met `@Output()`
 - Eigen eventing services schrijven
- Next Steps - Vooruitblik
 - Routing
 - Forms
 - Code Quality

Angular-app: Tree of components



Application as a tree of components

Meerdere components?

1. Separaat ontwikkelen, of dit door de CLI laten doen
2. Via DI invoegen in de module (of dit weer door CLI laten doen)
3. Via HTML insluiten in de `parent`-component

Herhaal deze stappen voor alle benodigde componenten

1. Detailcomponent toevoegen

```
// city.detail.ts
```

```
import { Component } from 'angular2/core';
```

```
@Component({  
  selector: 'city-detail',  
  template: `  
    <h2>City details</h2>  
    <ul class="list-group">  
      <li class="list-group-item">Naam: [naam van stad]</li>  
      <li class="list-group-item">Provincie: [provincie]</li>  
      <li class="list-group-item">Highlights: [highlights]</li>  
    </ul>  
  `,  
})  
  
export class CityDetail{  
  
}
```

Nieuwe selector

Nog in te vullen

2. Injection in Module

// Angular Modules

...

// Custom Components

```
import {AppComponent} from './app.component';  
import {CityDetail} from './city.detail';  
import {CityService} from './city.service';
```

Nieuwe
component

// Module declaration

```
@NgModule({  
  imports      : [BrowserModule, HttpClientModule],  
  declarations: [AppComponent, CityDetail],  
  bootstrap    : [AppComponent],  
  providers    : [CityService]  
})  
export class AppModule {  
}
```

Toevoegen aan
declarations:

3. Insluiten in HTML

```
<!-- app.html -->
```

```
<div class="row">
```

```
...
```

```
<div class="col-md-6">
```

```
...
```

```
<city-detail></city-detail>
```

```
</div>
```

```
</div>
```

Combineren met
overige HTML

4. Resultaat


Cities via een service

Mijn favoriete steden zijn :

1 - Groningen
2 - Hengelo
3 - Den Haag
4 - Enschede
5 - Heerlen
6 - Mechelen

City details

Naam: [naam van stad]
Provincie: [provincie]
Highlights: [highlights]



Nog in te vullen

Doel: details van geselecteerde city tonen in
child-component

Data flow tussen componenten

Werken met inputs en outputs

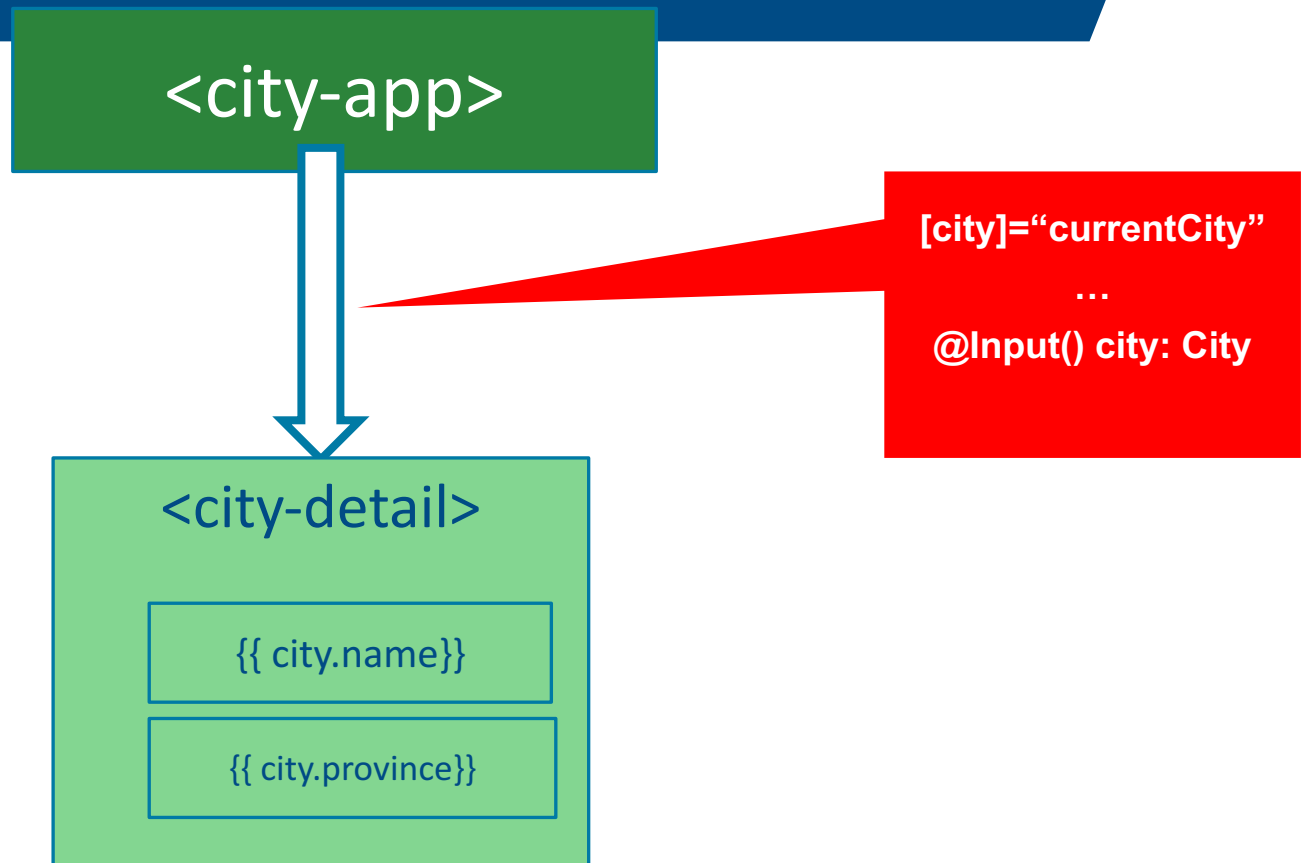


Data flow tussen components

*“Data flows in to a component via
@Input ()’s”*

*Data flows out of a component via
@Output ()’s”*

Parent-Child flow: de annotatie @Input()



Werken met @Input()

1. Service `Input` importeren in de betreffende component

2. *// city.detail.ts*

```
import { Component, Input } from '@angular/core';  
import { City } from "../city.model";
```

```
@Component({  
  ...  
})
```

```
export class CityDetail {  
  @Input() city: City;  
}
```



Input

Parent Component aanpassen voor @Input

```
<!-- app.html -->
<div class="row">
  <div class="col-md-6">
    ...
  </div>
  <div class="col-md-6">
    <div *ngIf="currentCity">
      <city-detail [city]="currentCity"></city-detail>
    </div>
  </div>
</div>
```

Aanpassing –
custom attribute

Parent Component Class uitbreiden

```
export class AppComponent {  
    // Properties voor de component/class  
    public cities:City[];  
    public currentCity:City;  
  
    ...  
  
    getCity(city) {  
        this.currentCity = city;  
    }  
  
    clearCity() {  
        this.currentCity = null;  
    }  
  
    ...  
}
```

Resultaat

Cities via een service

Mijn favoriete steden zijn :

1 - Groningen

2 - Hengelo

3 - Den Haag

4 - Enschede

5 - Heerlen

6 - Mechelen

Clear

City details

Naam: Enschede

Provincie: Grote Markt

Highlights: Twentse Welle museum



Checkpoint

Componenten kunnen binnen componenten worden opgenomen

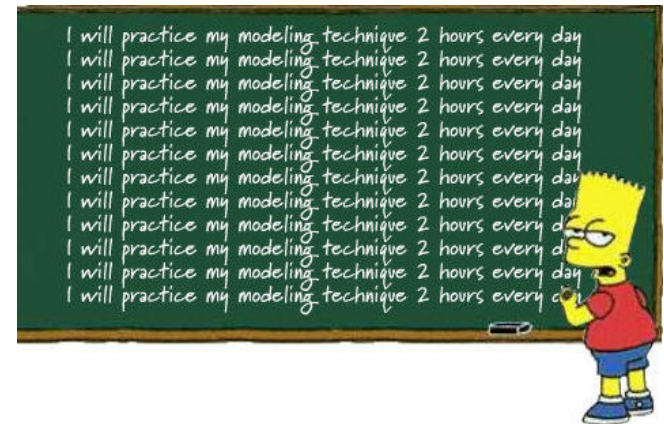
Breidt de HTML van de Parent Component uit met declaratie van de Child Component

Denk er aan Child Component te importeren

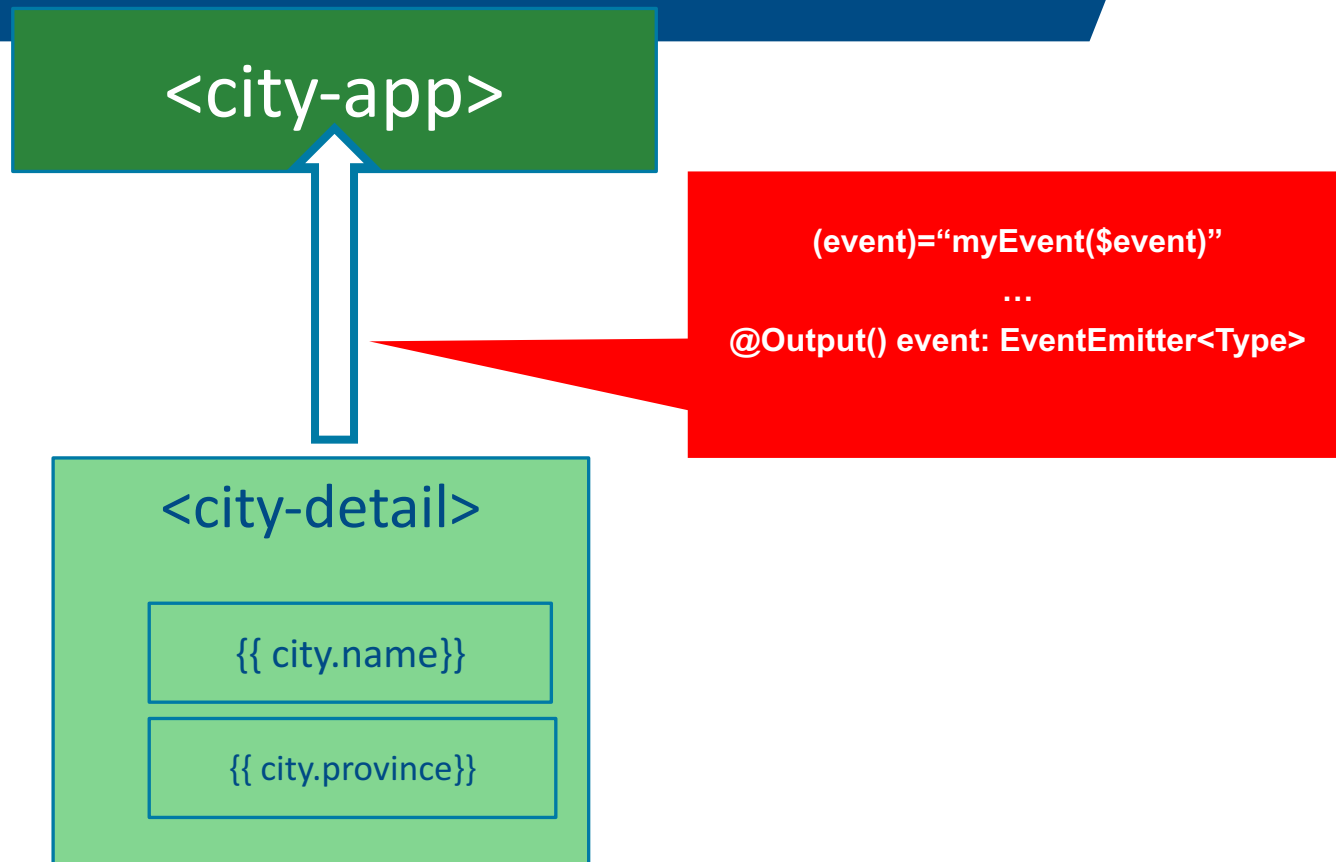
Data flow naar Child Component : werken met `@Input()` en

`[propName]="data"`

Oefening....



Child-Parent flow: de annotatie @Output ()



Werkwijze – idem, maar dan andersom

1. `Service Output` importeren in de betreffende component
2. Annotatie `@Output()` gebruiken in de class definition
3. `EventEmitter` definiëren en optioneel Type Annotation

*“With @Output,
data flows up the Component Chain”*

Een rating geven aan Cities

```
// city.detail.ts
import { Component, Input, Output, EventEmitter } from '@angular/core';

@Component({
  ...
  template: `
    <h2>City details
      <button (click)="rate(1)">+1</button>
      <button (click)="rate(-1)">-1</button>
    </h2>
  `
  ...
})

export class CityDetail {
  @Input() city: City;
  @Output() rating: EventEmitter<number> = new EventEmitter<number>();

  rate(num) {
    console.log('rating voor ', this.city.name, ': ', num);
    this.rating.emit(num);
  }
}
```

Imports

Bind custom
events to DOM

Define & handle
custom
@Output event

Parent Component voorbereiden op ontvangen custom event

```
// app.component.ts
```

```
// increase or decrease rating on Event Emitted
```

```
updateRating(rating){  
    this.currentCity.rating += rating;  
}
```

```
<!-- app.html -->
```

```
<div *ngIf="currentCity">  
    <city-detail [city]="currentCity" (rating)="updateRating($event)">  
    </city-detail>  
</div>
```



handle custom
event

Rating tonen in HTML

```
<li *ngFor="#city of cities"  
    class="list-group-item" (click)="getCity(city)">  
    {{ city.id }} - {{ city.name }} ({{i}})  
    <span class="badge">{{city.rating}}</span>  
</li>
```



Rating

Resultaat

Cities via een service

Mijn favoriete steden zijn :

1 - Groningen	0
2 - Hengelo	0
3 - Den Haag	-3
4 - Enschede	0
5 - Heerlen	2
6 - Mechelen	5

Clear

City details

+1

-1

Naam: Den Haag

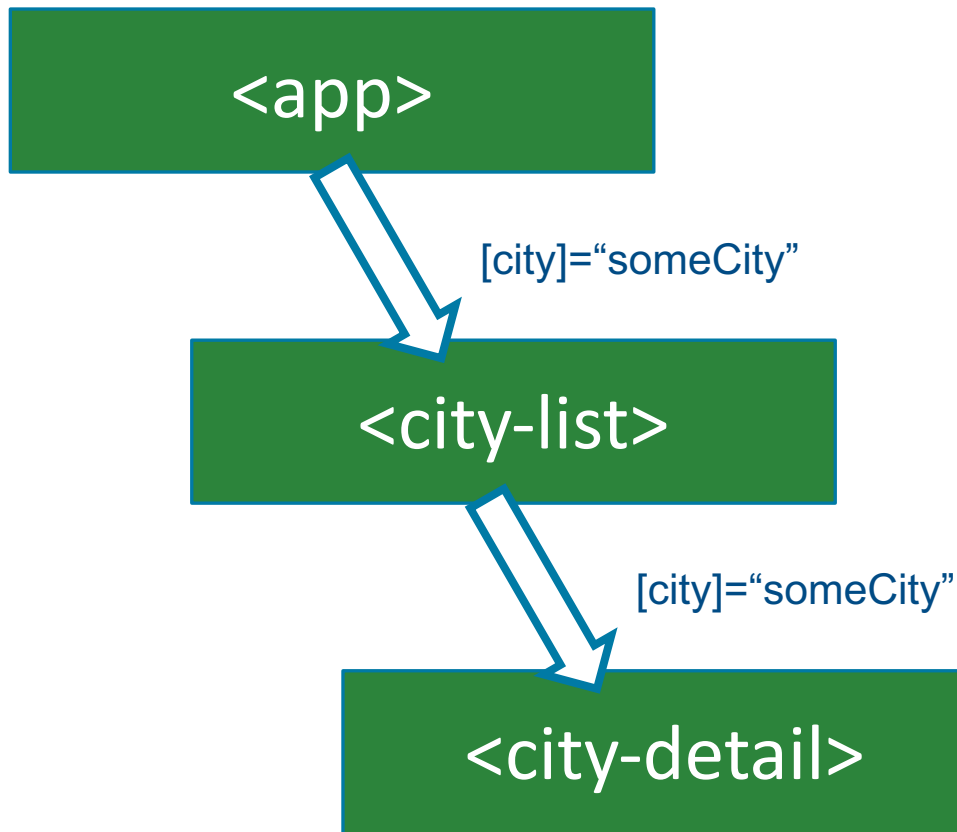
Provincie: Zuid-Holland

Highlights: Binnenhof

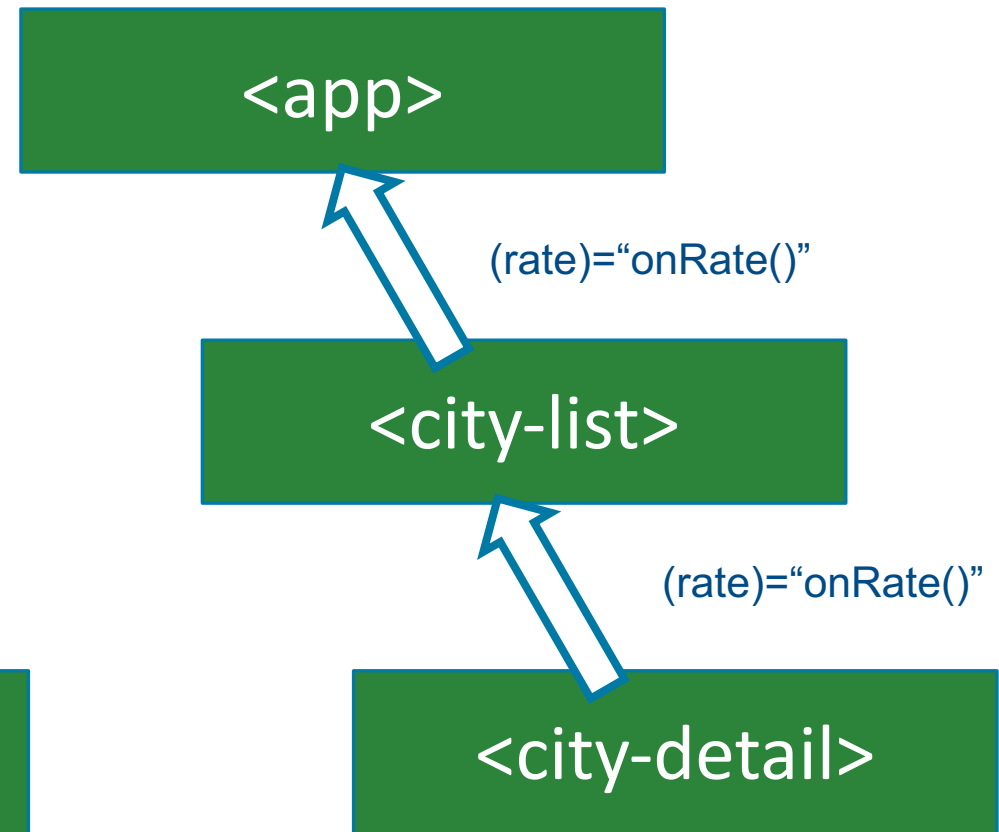


Samenvatting

Parent → Child



Child → Parent



Checkpoint

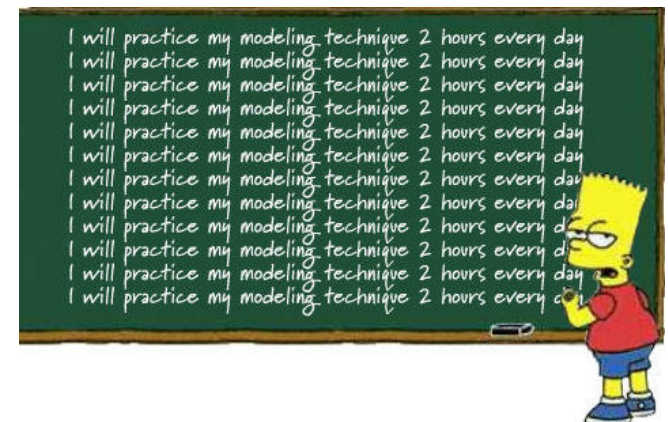
Data flow naar Parent Component : werken met `@Output()` en

```
(eventName)="eventHandler($event)"
```

Je kunt allerlei typen Events meegeven

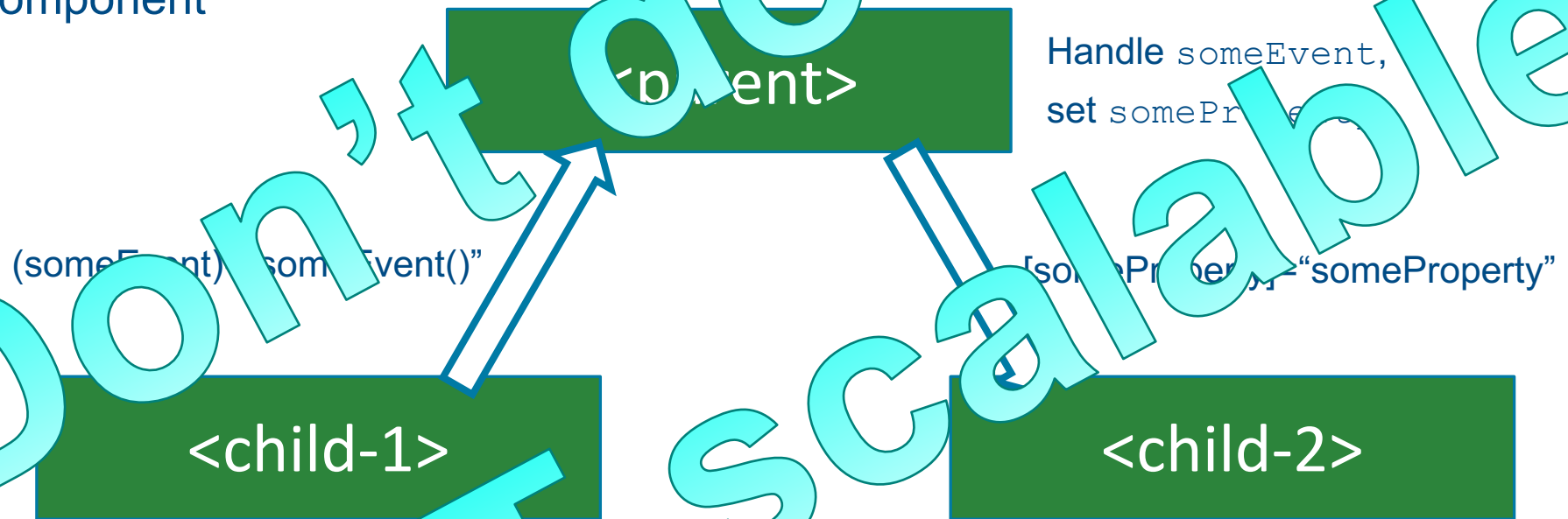
Meer info: <http://victorsavkin.com/post/118372404541/the-core-concepts-of-angular-2>

Oefening....



Communicatie tussen siblings

via `Output()` van een `childcomponent`, naar een `@Output()` van andere `childcomponent`

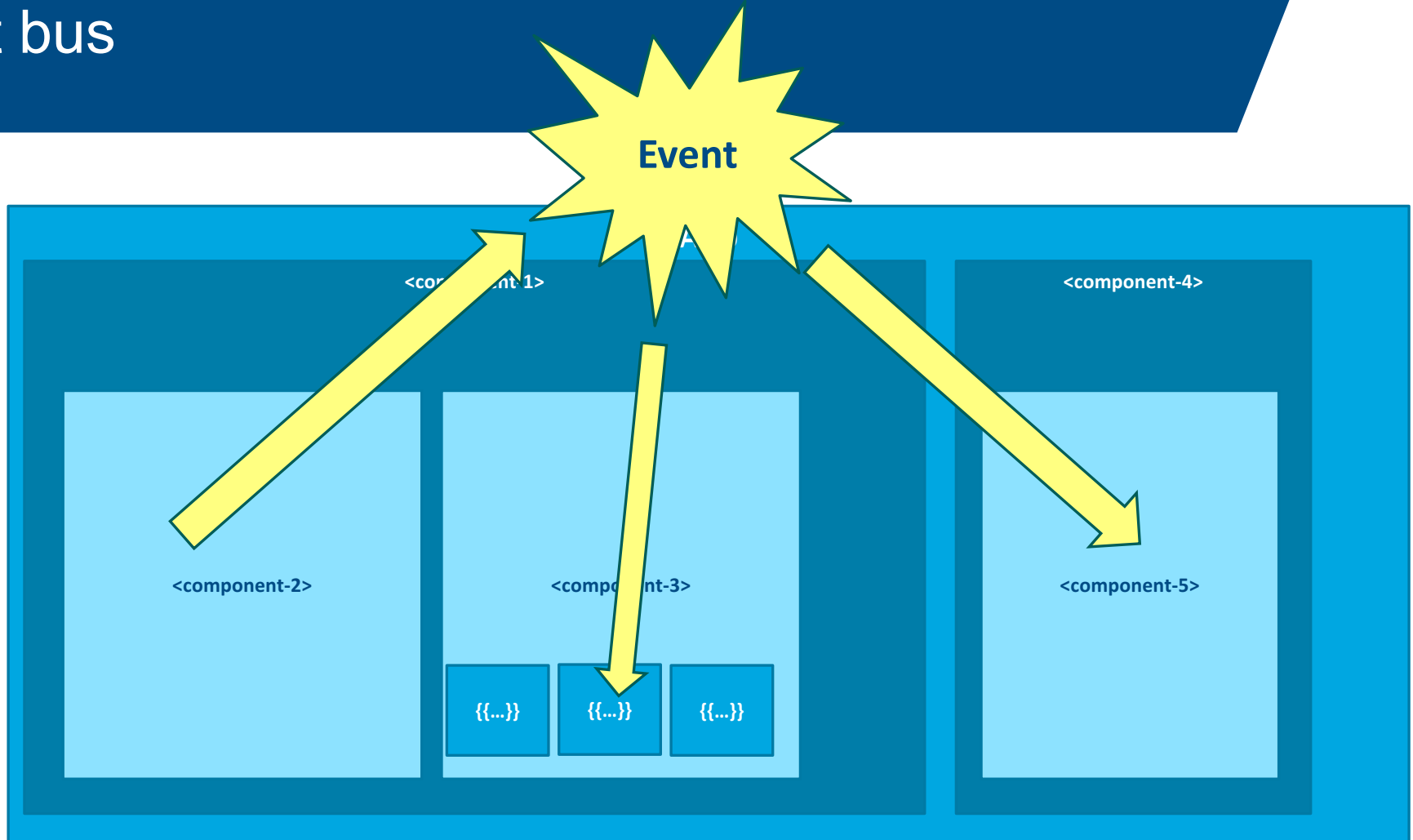


Mooiere oplossing – Pub/Sub-systeem met Observables

<http://www.syntaxsuccess.com/viewarticle/pub-sub-in-angular-2.0>

“Custom events,
gebruik een event bus”

Event bus



Opties

Uit RxJs-bibliotheek, werken met:

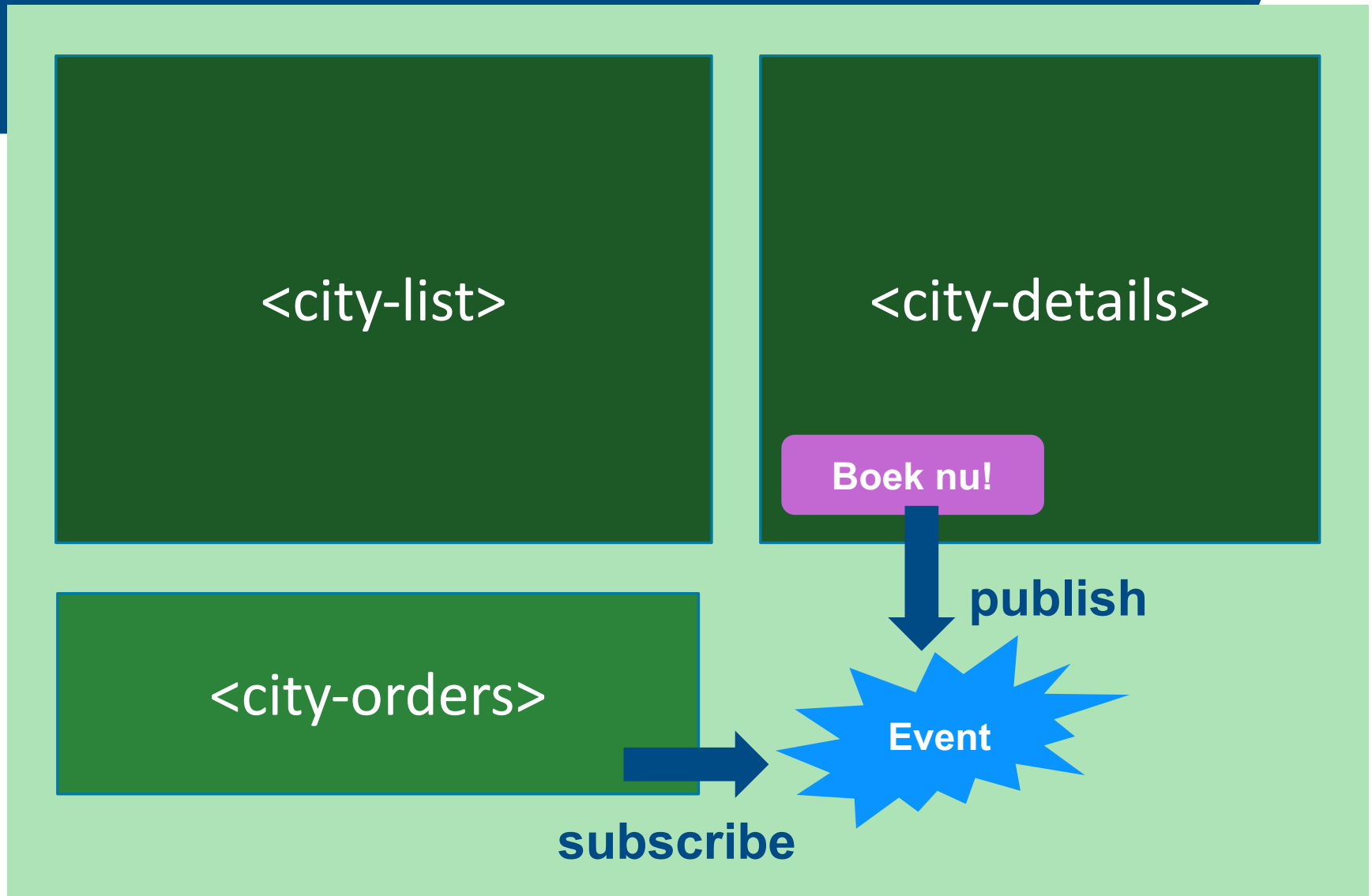
`EventEmitter()`

`Observable()`

`Observer()`

`Subject()` (zowel `Observable` als `Observer`)

“Publish en Subscribe” – PubSub systeem



PubSub-service maken

Stap 1 – Publicatie service maken

Stap 2 – ‘Producer’, of ‘Publish’ – component maken

Stap 3 – subscriber-component maken, of toevoegen aan bestaande component.

1. OrderService

```
// order.service.ts
```

```
import {Subject} from "rxjs/Subject";  
import {Injectable} from "@angular/core";  
import {City} from "../model/city.model";
```

```
@Injectable()  
export class OrderService {  
    Stream:Subject<City>;  
  
    constructor() {  
        this.Stream = new Subject<City>();  
    }  
}
```

2. Producer component ('boek nu'-knop)

In de HTML:

```
<h2>Prijs voor een weekendje weg:
{{ city.price | currency:'EUR':true:'1.2' }}
<button class="btn btn-lg btn-info"
  (click)="order(city)">Boek nu!</button>
</h2>
```

In de class:

```
// Order plaatsen. Event emitten voor deze stad.
// Dit gaan opvangen in city.orders.ts
order(city) {
  console.log(`Stedentripje geboekt voor: ${this.city.name}`);
  this.orderService.Stream.next(city);
}
```


3. Subscriber component

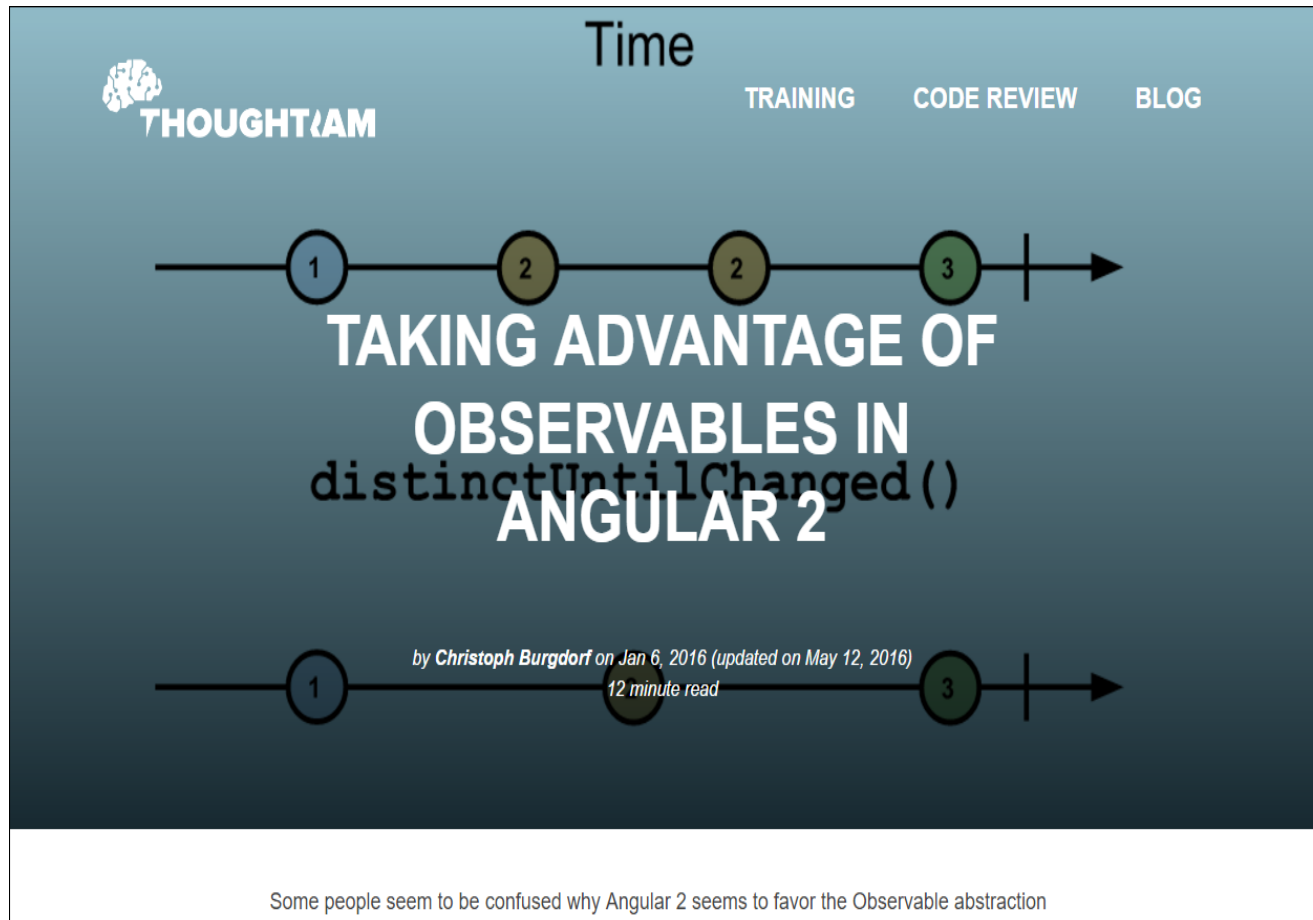
```
//city.orders.ts - Een soort 'winkelmandje',  
// bijhouden welke stedentripjes zijn geboekt.
```

```
import ...
```

```
@Component({  
  selector: 'city-orders',  
  template: `  
    <div *ngIf="currentOrders.length > 0">  
      ...  
    </div>  
  `})
```

```
export class CityOrders {  
  ...  
  ngOnInit() {  
    this.orderService.Stream  
      .subscribe(  
        (city:City) => this.processOrder(city),  
        (err)=>console.log('Error bij verwerken City-order'),  
        ()=>console.log('Complete...')  
      )  
  }  
  ...  
}
```

Meer over Observables



<http://blog.thoughttram.io/angular/2016/01/06/taking-advantage-of-observables-in-angular2.html>



My name is [Cory Rylan](#), Senior Front End Engineer at [Vintage Software](#) and [Angular Boot Camp](#) instructor. I specialize in creating fast, scalable, and responsive web applications.

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Angular 2 Observable Data Services

Nov 17, 2015

Updated May 6, 2016 - 8 min read

Angular 2 brings many new concepts that can improve our JavaScript applications. The first new concept to Angular is the use of Observables. Observables are a proposed feature for ES2016 (ES7). I won't go in depth into Observables but will just cover some of the high level concepts. If you want an introduction to Observables check out my screen cast.

INTRO TO RXJS OBSERVABLES AND ANGULAR 2

The rest of this post will cover more data and application state management in an Angular 2 application. At the time of this writing Angular is on version [Beta 1](#). This post has been updated as of [Beta 15](#). The syntax of how Observables and their

<https://coryrylan.com/blog/angular-2-observable-data-services>

Check out my [Angular 2.0 article series](#)



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Observables In Angular 2.0

Author: [Torgeir Helgevold](#)

Published: Wed Jan 06 2016

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The RxJs community has presented the idea that any series of events can be modeled as one or many asynchronous or synchronous arrays. In the following post I want to explore this by modeling a series of different user inputs as Observables.

I am still learning about Observables and their potential, but I figured it would be interesting to implement a custom text editor, from scratch, using Observables to represent keyboard and mouse events.

Building a perfect text editor is not really the point here, but I want to see if there is any added value from looking at input sequences as Observables. The first step when building a text editor is identifying which input events to support. In my sample I have decided to focus on adding the ability to input and delete characters. Currently I have limited the input

<http://www.syntaxsuccess.com/viewarticle/observables-in-angular-2.0>