

Angular optimization: tips and tricks

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> whoami



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Introduction to
IZMjs



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43:10 / 53:15



Introduction to IZMjs - Mohammed Idrissi



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**Audience
Context**

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Audience

Angular dev with at least 6 months of exp

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Context



3rd

Bundle size
General performance
Change detection



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Bundle size

The smaller the better



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Bundle size

Lazy loadi your routes (hadi blaa manhdro 3liha)

```
//To lazy load Angular modules, use loadChildren (instead of component) in your AppRoutingModule routes configuration as follows.  
  
const routes: Routes = [  
  {  
    path: 'items',  
    loadChildren: () => import('./items/items.module').then(m => m.ModuleDialk)  
  }  
];
```

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Bundle size

Know what to import and where to import it



```
import * as _ from 'lodash'; ❌
```

```
import { map, uniq, tail, times } from "lodash"; ✅
```

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Bundle size

Avoid shared module!

```
@NgModule({  
  declarations: [ bzfdialComponents ],  
  imports: [ bzfdialComponents3awdTani ],  
  exports: [ bzfdialComponents ]  
})  
export class SharedModule { }
```

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Bundle size

use interface instead of classes

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Bundle size

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AOT & IVY

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Bundle size

Avoid CommonJS, use ES modules instead

```
import { map, uniq, tail, times } from "lodash"; ❌  
  
import { map, uniq, tail, times } from "lodash-es"; ✅
```

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Bundle size

Compress your bundle,
Gzip & brotli

	polyfills.js Type: JavaScript Source File	Date modified: 5/31/2022 11:53 PM Size: 33.0 KB
	runtime.gz Type: WinRAR archive	Date modified: 5/31/2022 11:53 PM Size: 1.55 KB
	runtime.js Type: JavaScript Source File	Date modified: 5/31/2022 11:53 PM Size: 2.99 KB
	safety-worker.js Type: JavaScript Source File	Date modified: 10/26/1985 8:15 AM Size: 746 bytes
	styles.css Type: CSS Source File	Date modified: 6/1/2022 10:03 PM Size: 209 KB
	styles.gz Type: WinRAR archive	Date modified: 6/1/2022 10:03 PM Size: 27.4 KB

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Bundle size

Khwi 3lia dak app module

```
@NgModule({
  declarations: [
    AppComponent
  ],
  imports: [
    ✓ ImportsLLiDaroriyine,
    ✗ HttpaAnaBaghiNimporti
  ],
  providers: [],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

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General performance

Preconnect critical resources



index.html

```
<link rel="preconnect" href="https://api.tfa7a.com">
```

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General performance

Lazy loadi les images, ay haja jat 3la balk

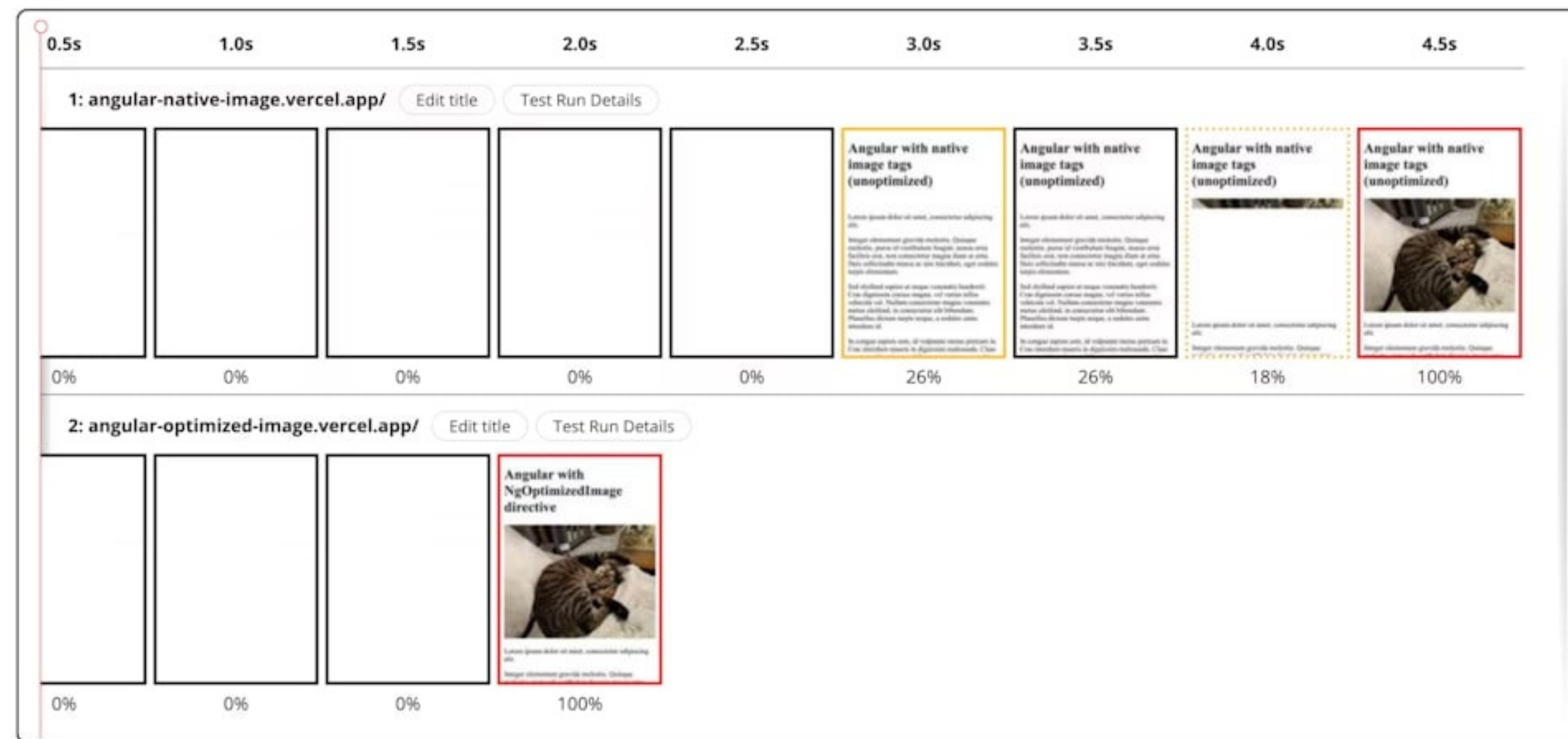
```
index.html

import { NgOptimizedImage } from '@angular/common';

@Component({
  standalone: true,
  imports: [NgOptimizedImage],
  template: `
    <img rawSrc="https://sitedialtsawer.com/200/300"
    width="200" height="300" />
  `,
})
export class LoginPageComponent {}
```

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General performance



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General performance

Don't lazy-load the default route



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General performance



SSR

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General performance

Li 7ell chi bab yseddo (subscriptions)



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General performance

Pure pipes



index.html

```
@Pipe({name: 'pipeExample'})  
export class ExponentialStrengthPipe implements  
PipeTransform {  
  transform(value: number): number {  
    return `chi haja pure ${value}`;  
  }  
}
```


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General performance



Cache
http calls, memo decorator ...

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General performance

PWA

talk dial Rabyâ Raghîb



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General performance

matConsole.logguich f prod

```
main.ts

if (environment.production) {
  window.console.log = () => { }
  window.console.warn = () => { }
  window.console.error = () => { }
  window.console.time = () => { }
  window.console.timeEnd = () => { }
}
```

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General performance

Only render what's visible..
(use virtual scroll for example)



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General performance

Schedule app initialization into a new task to reduce Total Blocking Time (TTB)



component.ts

```
// Schedule app bootstrap to reduce Total Blocking Time (TTB)
setTimeout(() =>
  platformBrowserDynamic().bootstrapModule(AppModule)
);
```

Hal ta3lam ?

You can use SVG files as templates in your Angular applications. When you use an SVG as the template, you are able to use directives and bindings just like with HTML templates. Use these features to dynamically generate interactive graphics.

```
graph TD; A[CD] --> B[CD]; A --> C[CD]; B --> D[CD]; B --> E[CD]; C --> F[CD]; C --> G[CD]; D --> H[CD]; E --> I[CD]; F --> J[CD]; G --> K[CD];
```

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Change detection

OnPush

```
component.ts

@Component({
  selector: 'app-sample',
  templateUrl: './sample.component.html',
  styleUrls: ['./sample.component.scss'],
  changeDetection: ChangeDetectionStrategy.OnPush
})
export class SampleComponent implements OnInit {

  constructor() { }

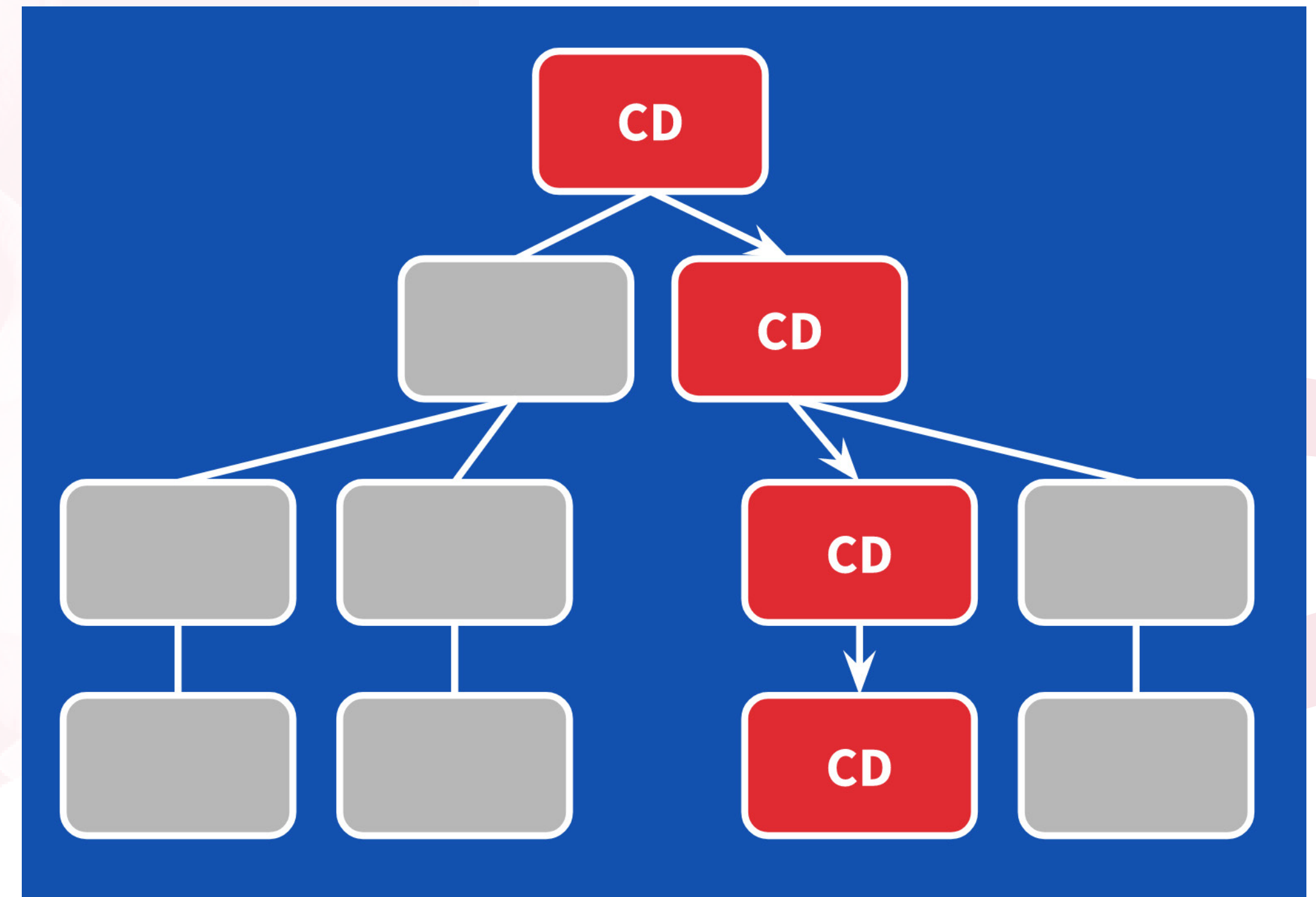
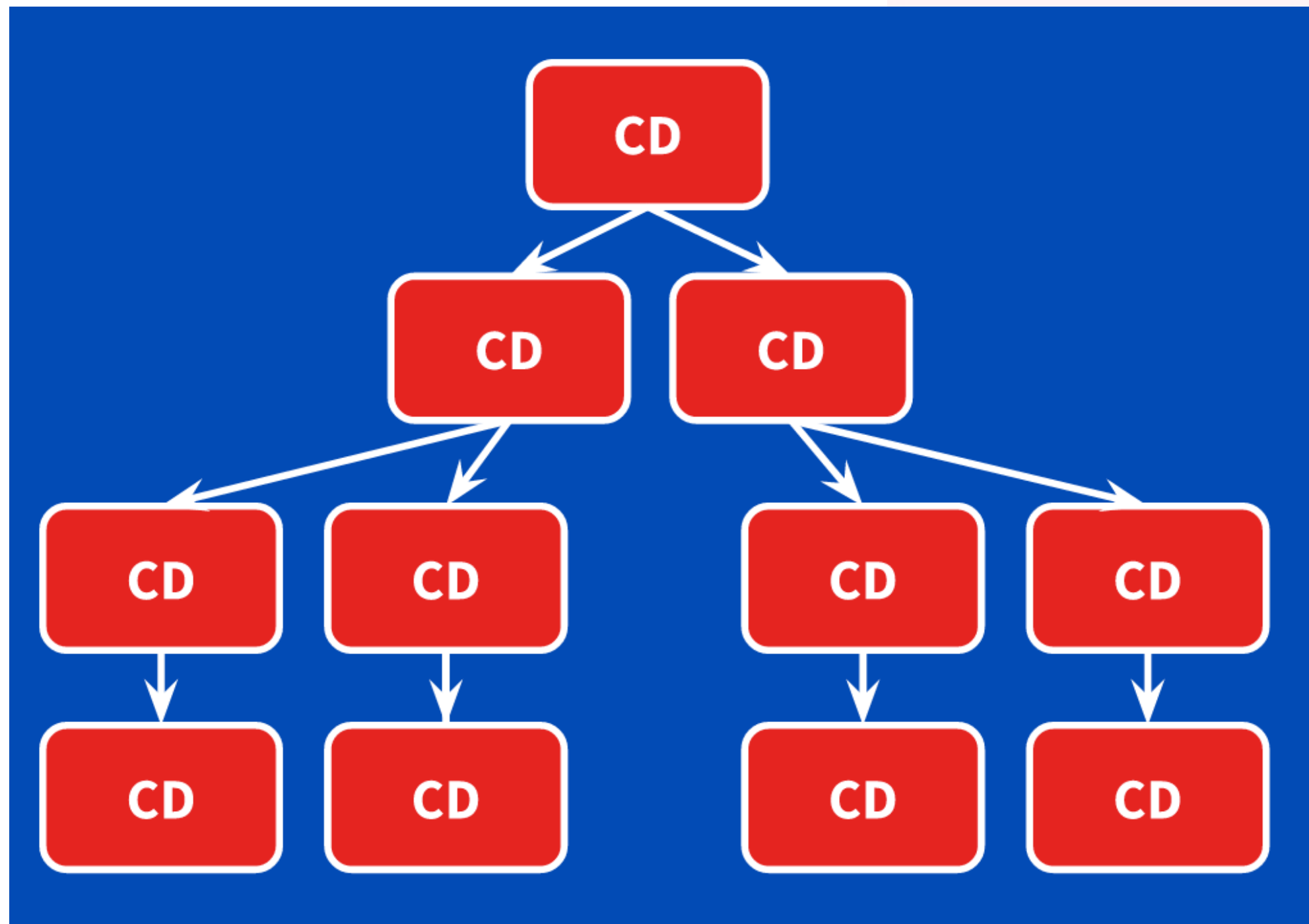
  ngOnInit(): void {
  }

}
```


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Change detection

OnPush



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Change detection

Component fiha 5k loc blach!



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Change detection



component.ts

```
platformBrowserDynamic()  
  .bootstrapModule(AppModule, { ngZoneEventCoalescing: true })
```

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Change detection

detach, then reattach

```
component.ts

constructor(private cdr: ChangeDetectorRef) {}

ngOnInit(): void {}

detachCdr() {
  this.cdr.detach();
}

attachCdr() {
  this.cdr.reattach();
}
```

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Change detection

run outside zone



component.ts

```
constructor(private zone: NgZone) {}  
  
mouseDown(event) {  
  
  this.zone.runOutsideAngular(() => {  
    this.lkhedmaLkhedmaLkhedma()  
  });  
}
```

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Change detection

Use a web worker for heavy computation



Khatima



Lkholasa



Khatima

Q&A



Bonus



rxAngular

RxAngular offers a comprehensive toolset for handling fully reactive Angular applications with the main focus on runtime performance and template rendering.