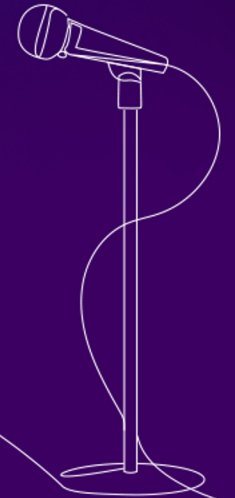




Todor Todorov

Senior Software Engineer @ Payhawk

CQRS and Event Sourcing: Because Life's Too Short for Boring Apps



DEV.BG



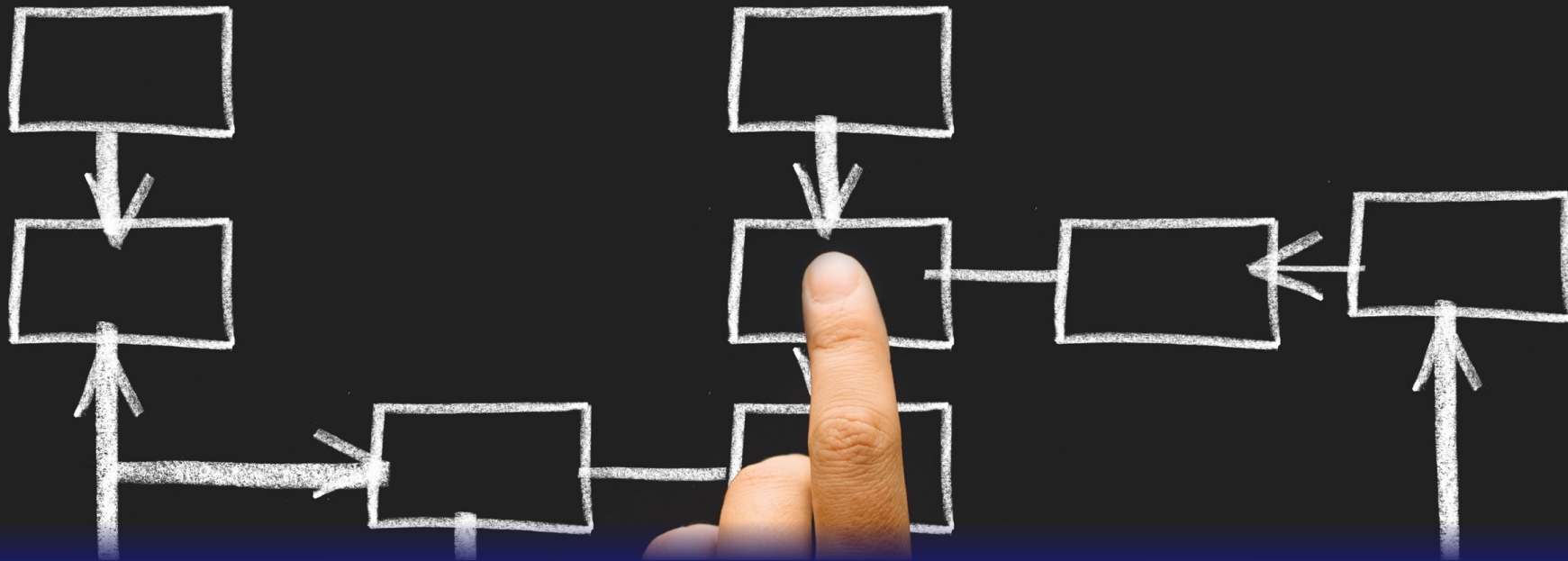
April 26th '23

```
todor@devbg:~$ whoami
```

```
⌘ Senior Software Engineer @ Payhawk;  
⌘ Clean code fanatic;  
⌘ DevOps evangelist;  
⌘ Speaker;  
⌘ Father of 3 boys;  
⌘ Karaoke enthusiast;
```



Story of a platform



Approval process



A trivial (boring) approach

Instances

🔑	Id	[guid]
	Payload	[xml]
	DateCreated	[datetime]

UserTasks

🔑	Id	[guid]
	UserId	[guid]
FK	InstanceId	[guid]
	DateCreated	[datetime]



History of instances?



... blamed
the product
manager

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We “fixed” it!

Instances		
🔑	Id	[guid]
	Payload	[xml]
	State	[enum]
	DateCreated	[datetime]
	DateModified	[datetime]

UserTasks		
🔑	Id	[guid]
	UserId	[guid]
	FK InstanceId	[guid]
	DateCreated	[datetime]



History of steps?

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... so we blamed
the product
manager
...again!!!

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We “fixed” it, again!

Instances		
🔑 Id		[guid]
Payload		[xml]
State		[enum]
DateCreated		[datetime]
DateModified		[datetime]

UserTasks		
🔑 Id		[guid]
UserId		[guid]
FK InstanceId		[guid]
DateCreated		[datetime]

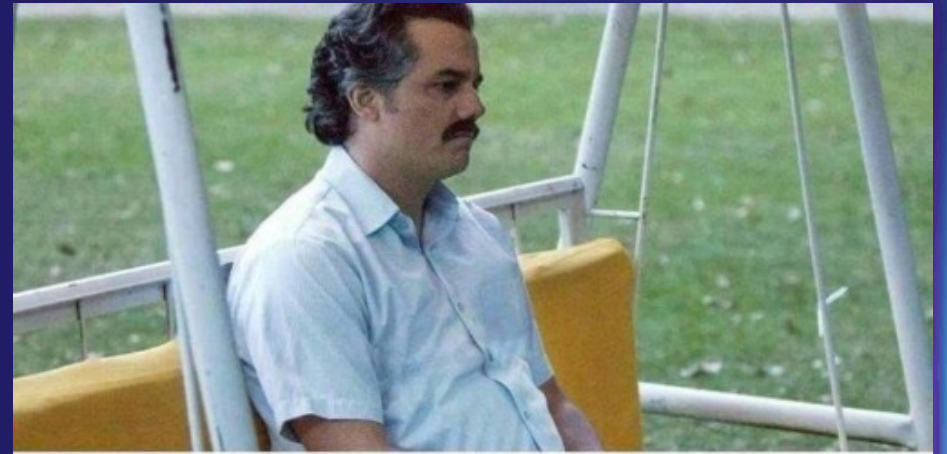
HistoryDetails		
🔑 Id		[guid]
Data		[xml]
FK InstanceId		[guid]
DateCreated		[datetime]

What happened?

- 🐷 Instances & Tasks => very big
- 🐌 GetTasks => very slow
- 🚧 Fix process => manual work
- 🔪 New features => more time
- 💀 Debug issues => heroism
- 🧩 DB migrations: Complex
Fragile
Downtime



Our team, looking at our platform





CQRS? Event Sourcing?



Command Query Responsibility Segregation

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Separated Read & Write Side

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working
conference

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We read way more
than we write

GET

POST

330k

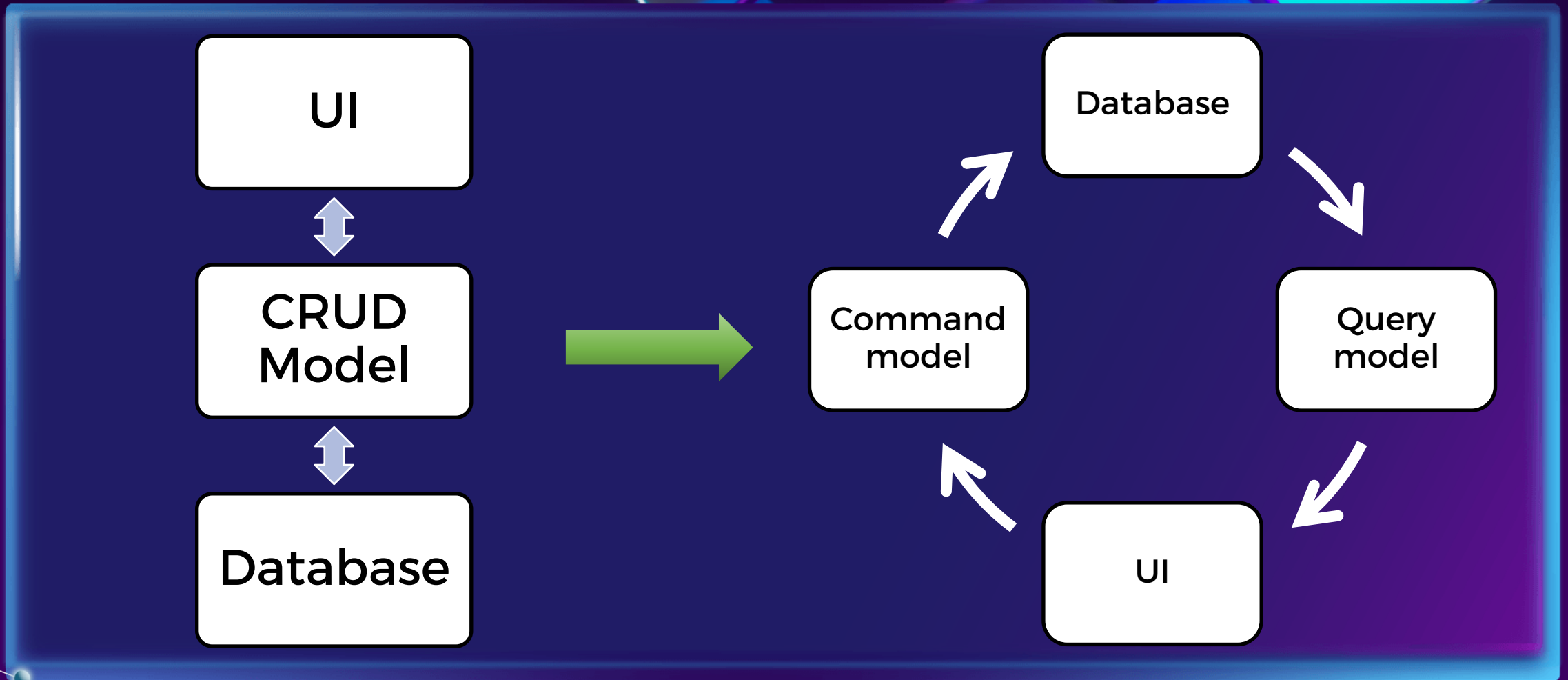
30k

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Event Sourcing


A petition example



- **State:** Finished
- **Title:** “My new petition”
- **StartDate:** 08/05/2018
- **SignedCount:** 1
- **Singers:**
[“Todor Todorov”]
- **FinishDate:** 09/05/2018

•**State:** Finished
•**Title:** "My new petition"
•**StartDate:** 08/05/2018
•**SignedCount:** 1
•**Singers:**
["Todor Todorov"]
•**FinishDate:** 09/05/2018

Petition

 Id	[guid]
State	[string]
Title	[string]
StartDate	[datetime]
FinishDate	[datetime]

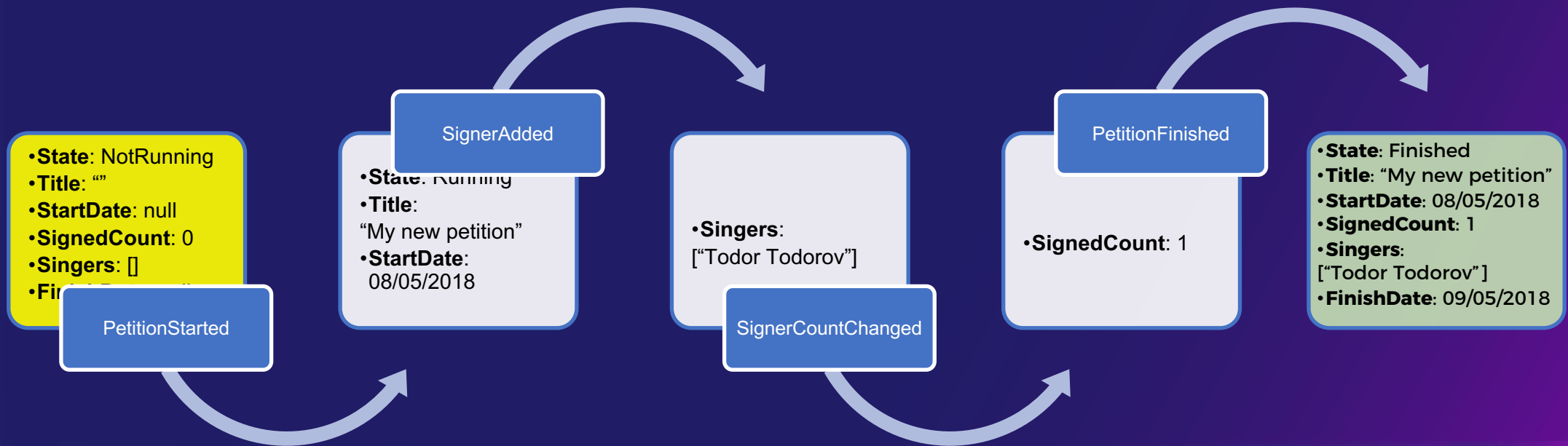
Signers

 Id	[guid]
Name	[string]
Email	[string]

PetitionSigners

 SignerId	[guid]
 PetitionId	[string]

The Aggregate





DEMO

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conference

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CQRS & Event sourcing: The good



- ⌘ Auditing
- ⌘ Apply new logic to existing data
- ⌘ Easy in-place migrations
- ⌘ Replay production issues
- ⌘ Scale read & write independently

CQRS & Event sourcing: The bad



- 💀 Eventual consistency
- 💀 More models to handle
- 💀 Requires a mindset shift
- 💀 Some custom tooling might be needed

GetTasks request in seconds

CQRS

0,16

CRUD

6,79

Thank you! (●'◡'●)

Where to find me:

Todor Todorov

- 🏠 todorov.bg
- 🐦 twitter.com/totollygeek
- in linkedin.com/in/totollygeek
- 🐱 github.com/totollygeek

