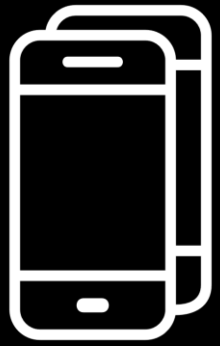
Automating Processes in Modern Architectures

@berndruecker

Some time ago...



Now!

> Software is eating the world.
>
> *Marc Andreessen, Entrepreneur & Investor*
> *2011 in „The Wall Street Journal“*

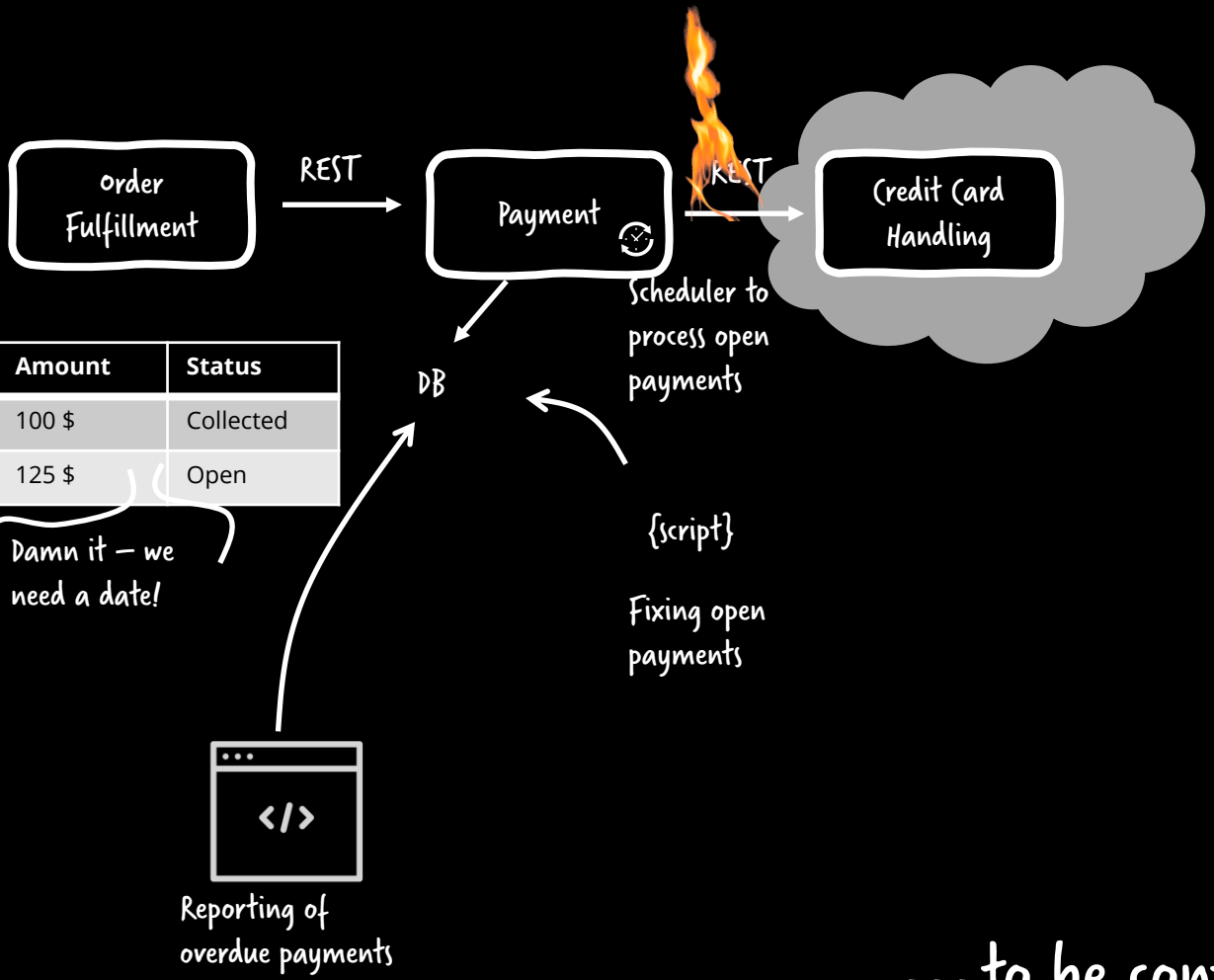
Photo by techcrunch, available under Creative Commons BY 2.0 license.

Change is the only constant

-> Agility

> "We don't know what we will need tomorrow.
> But we do know that we will need something.
> We have to be able to move quickly!
>
> CIO of a German insurance company in 2019

And you?

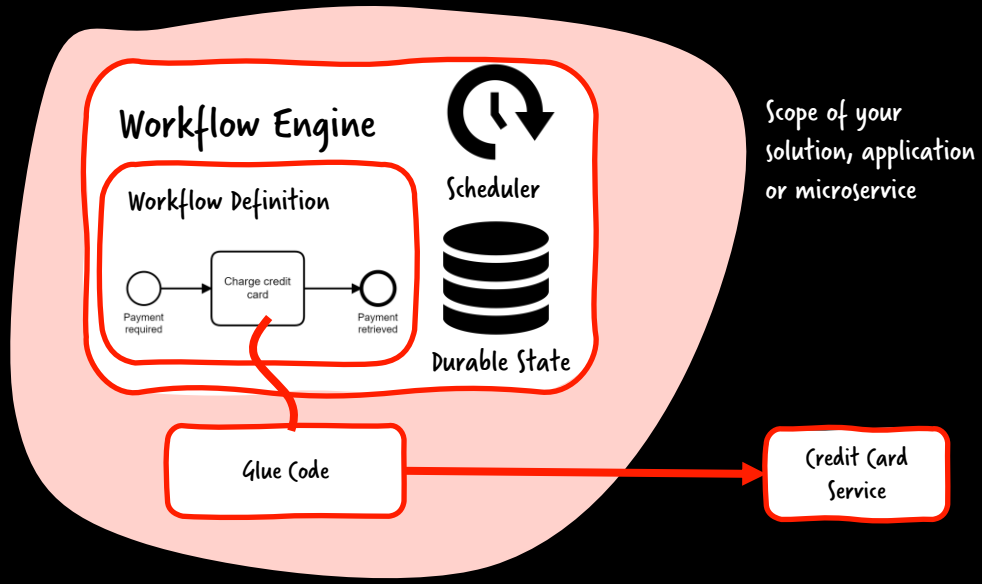


PaymentId	Amount	Status
1	100 $	Collected
2	125 $	Open

Damn it – we need a date!

...to be continued...

Using a workflow engine instead



Workflow Engine:

Is stateful

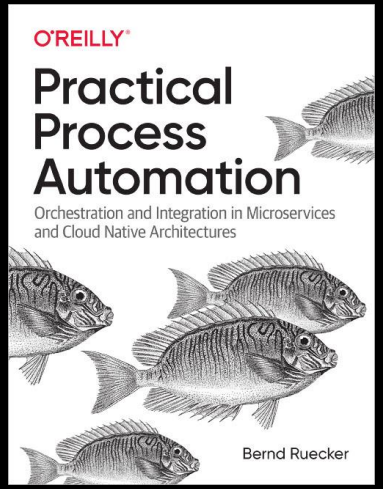
Can wait
Can retry
Can escalate
Can compensate

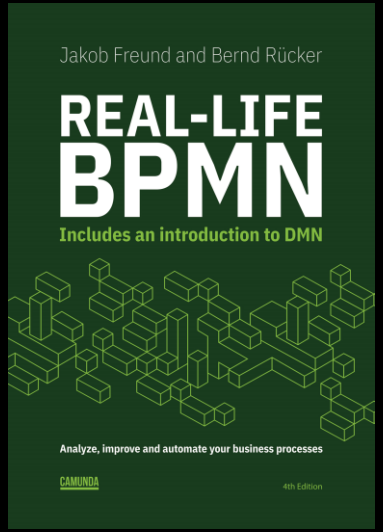
Provides visibility

Warning:
Contains Opinion

Bernd Ruecker

Co-founder and
Chief Technologist of
Camunda





mail@berndruecker.io
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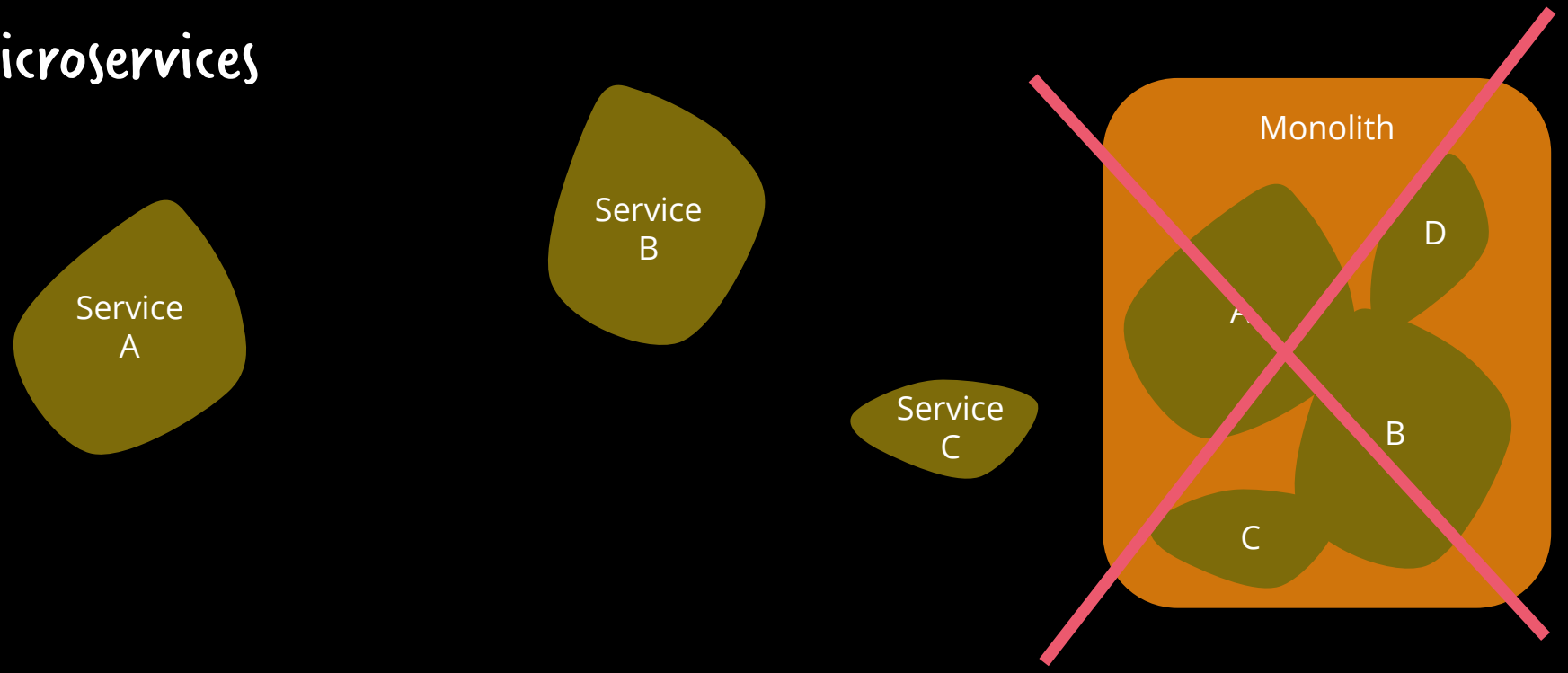
http://berndruecker.io/

Live hacking

Microservices



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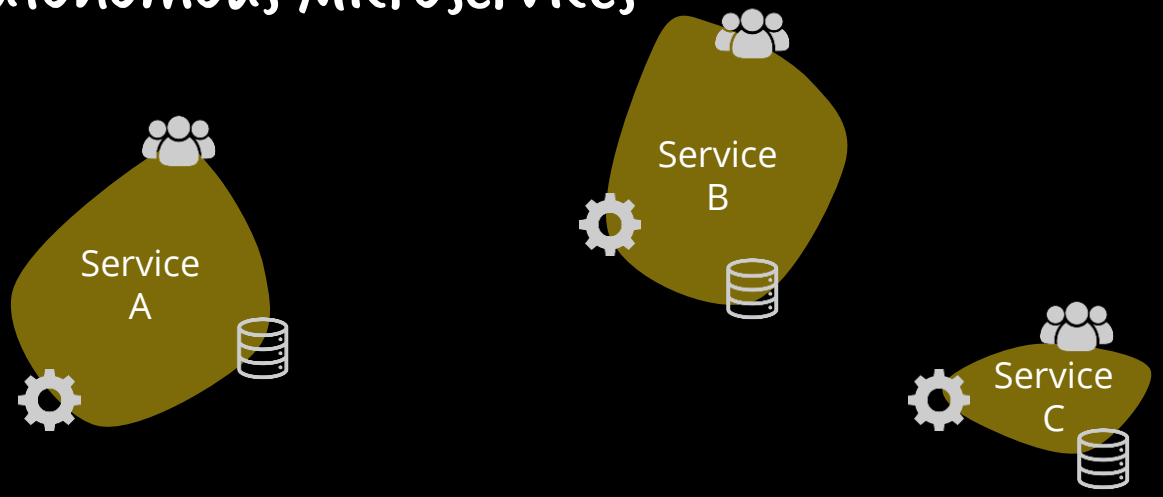
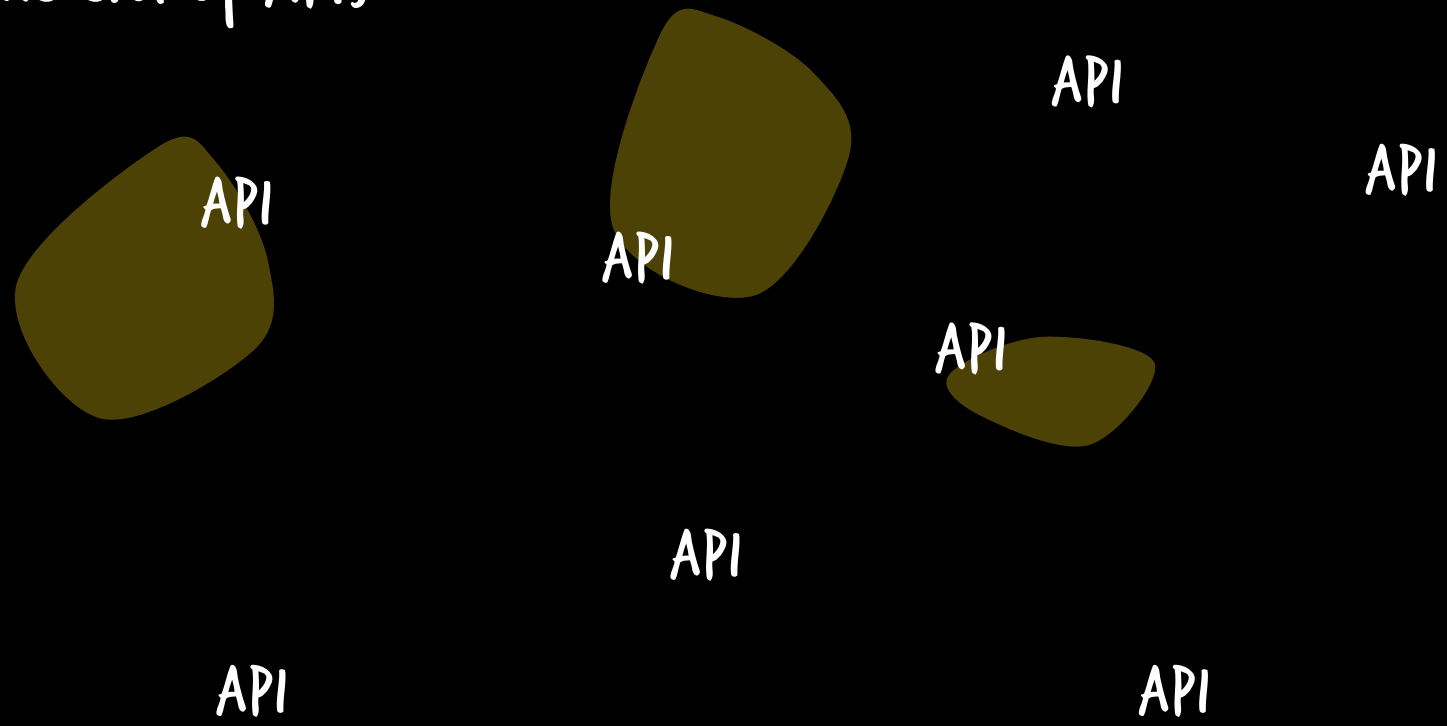
Autonomous Microservices



The era of APIs



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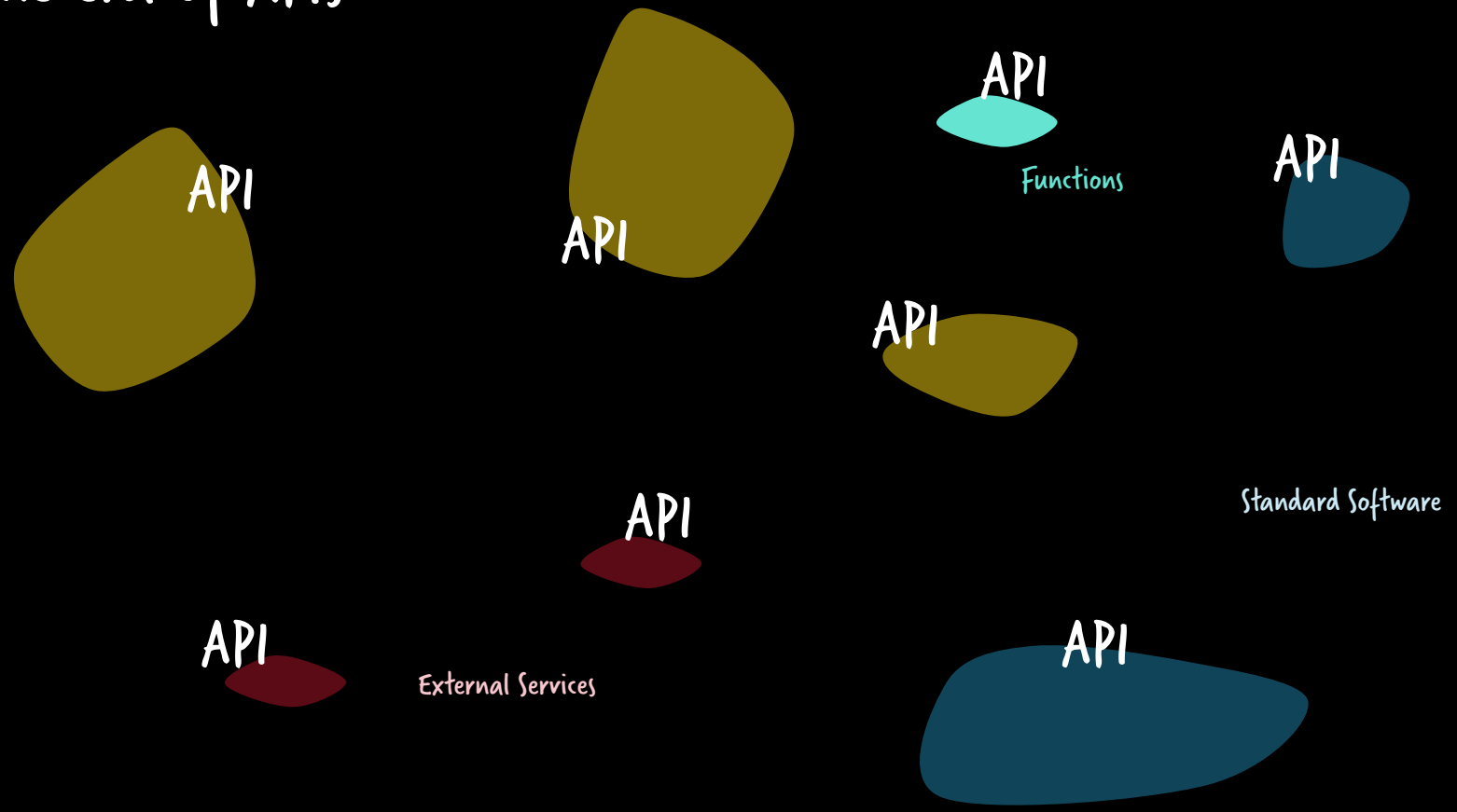

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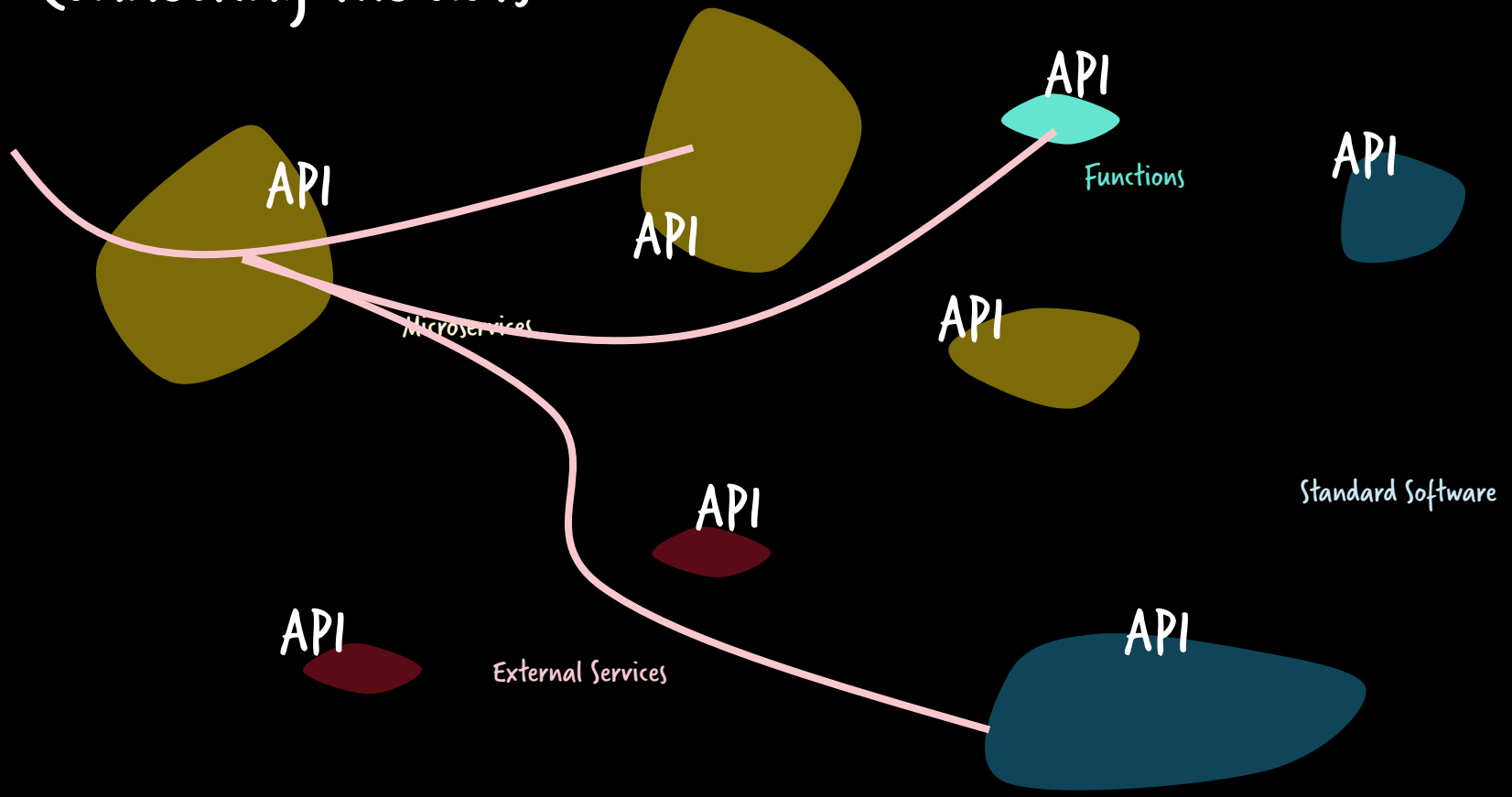
Connecting the dots...



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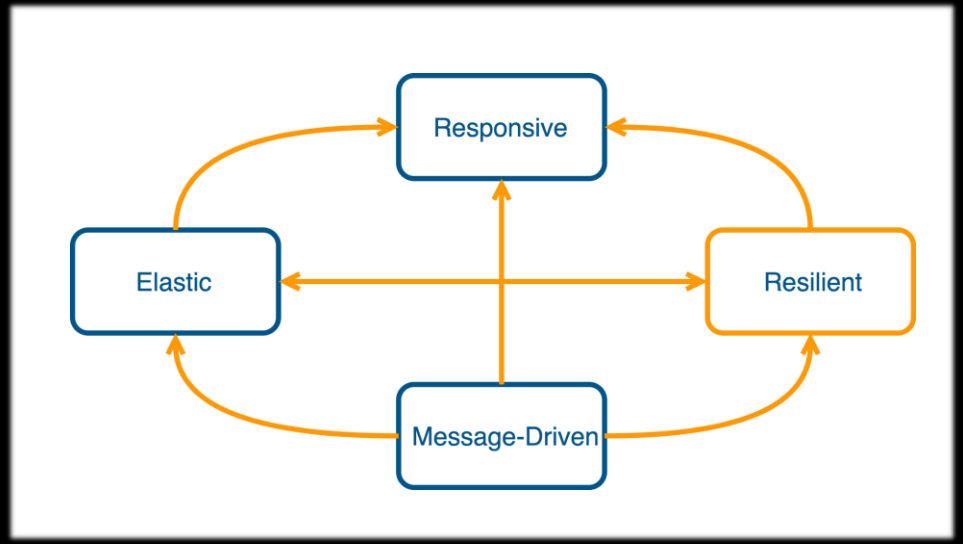
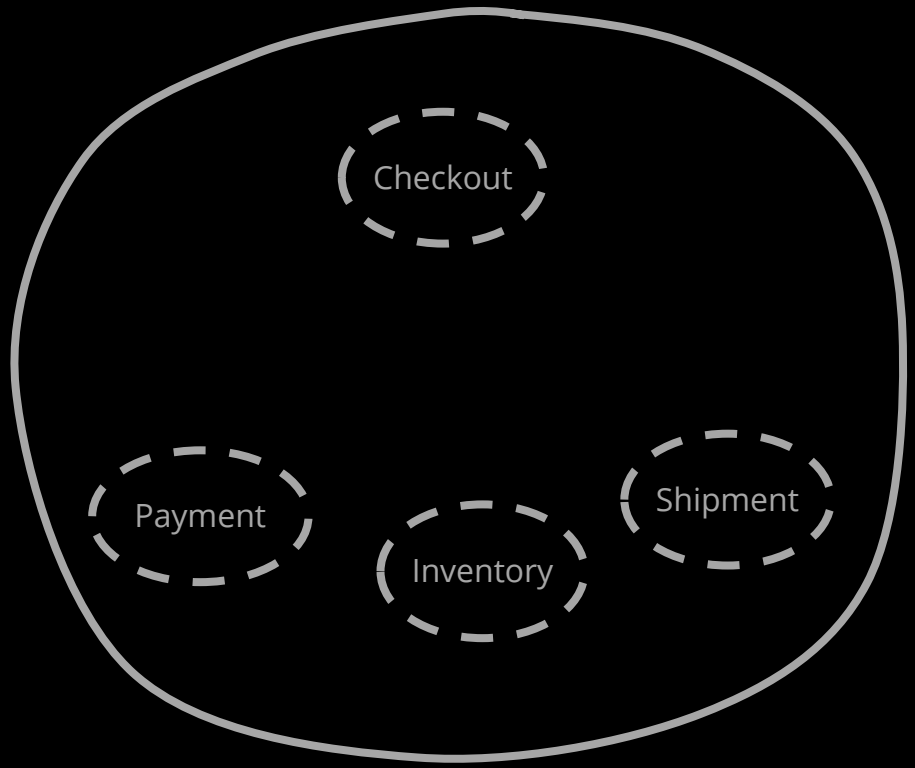
Going hipster!

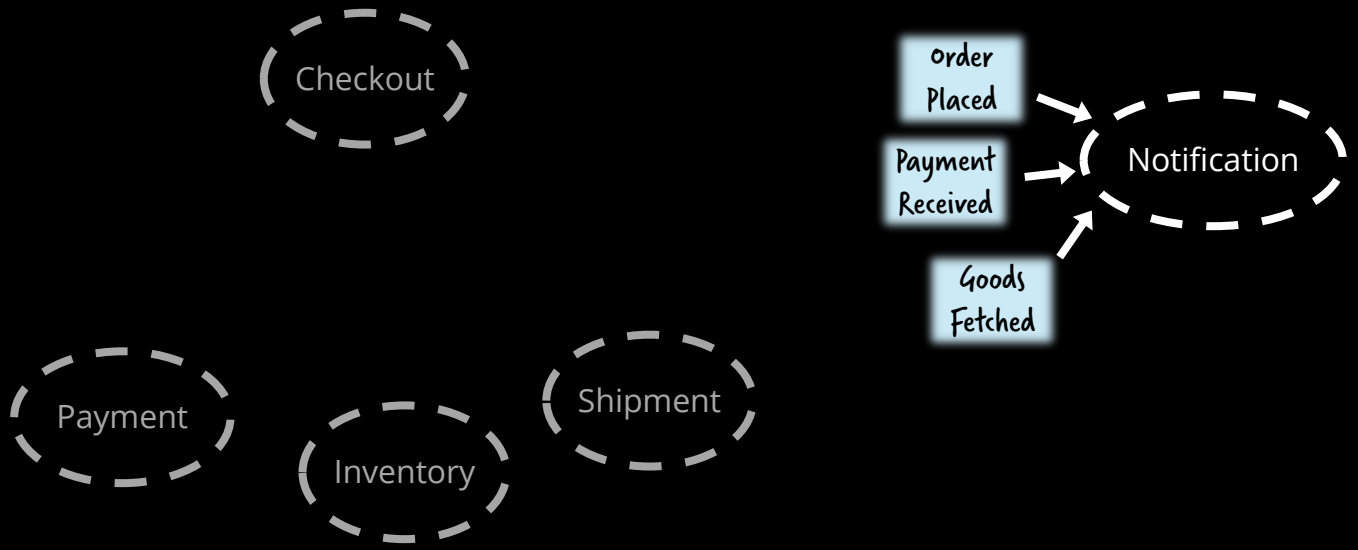


https://www.reactivemanifesto.org/

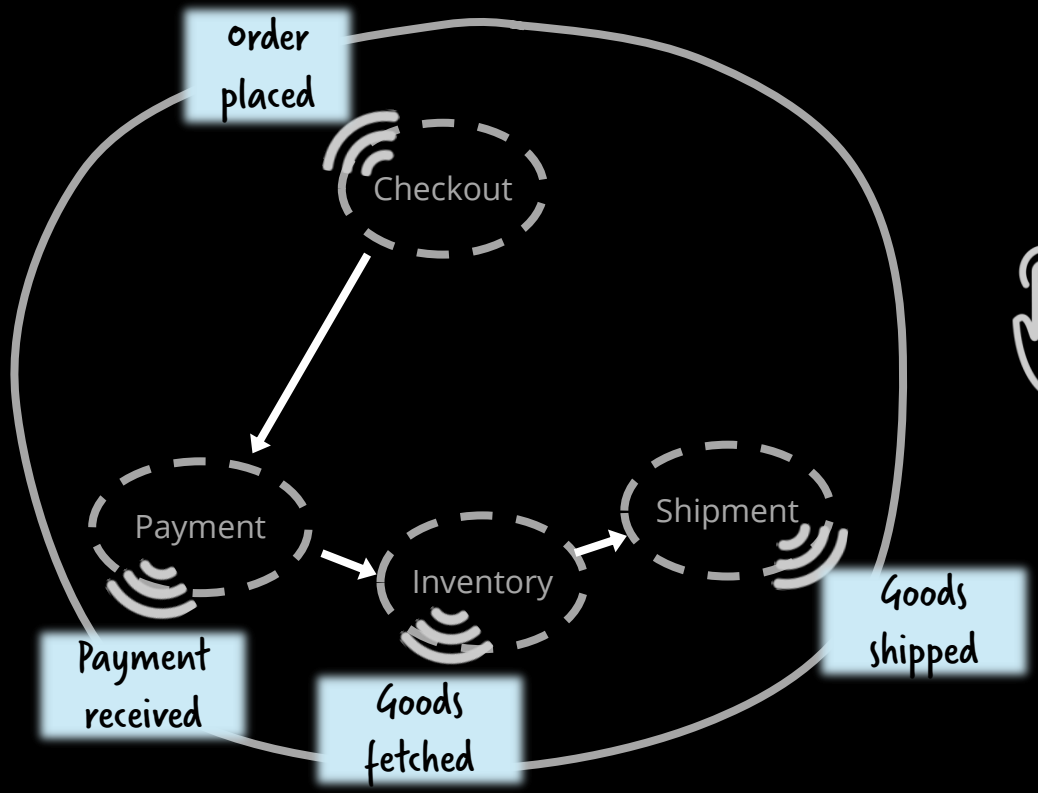
Example



Event-driven architecture



Peer-to-peer event chains



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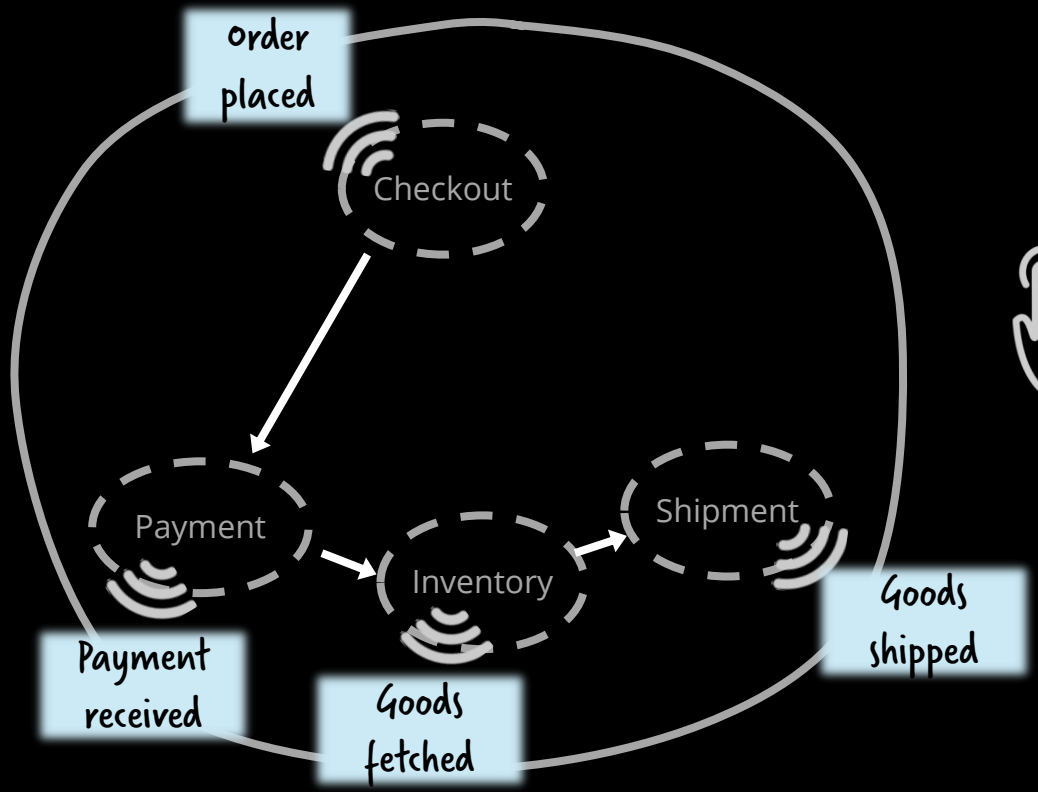

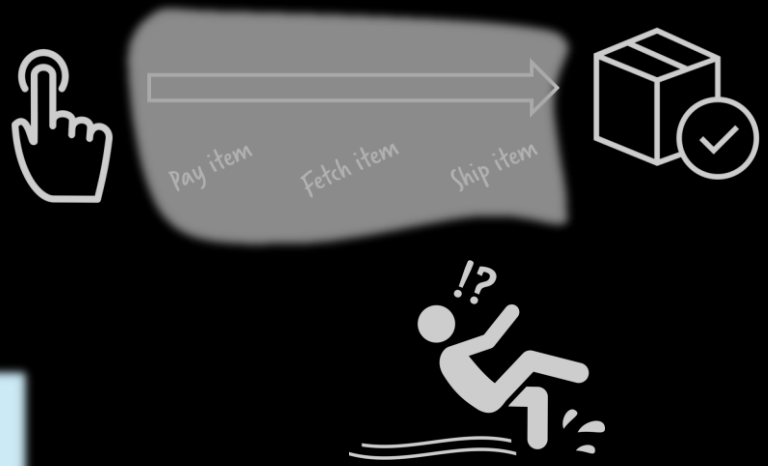

The danger is that it's very easy to make nicely decoupled systems with event notification, without realizing that you're losing sight of that larger-scale flow, and thus set yourself up for trouble in future years.

https://martinfowler.com/articles/201701-event-driven.html

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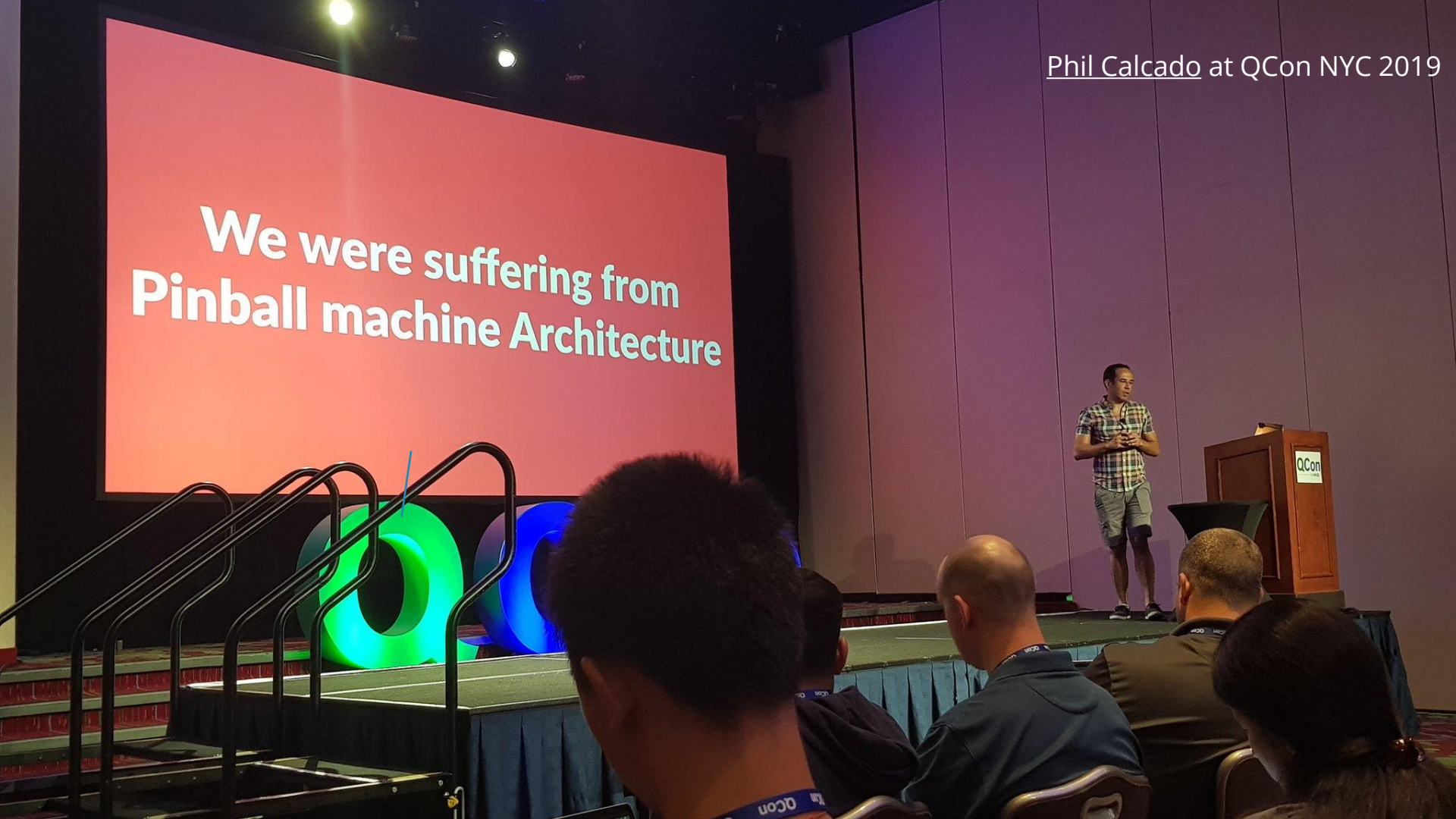
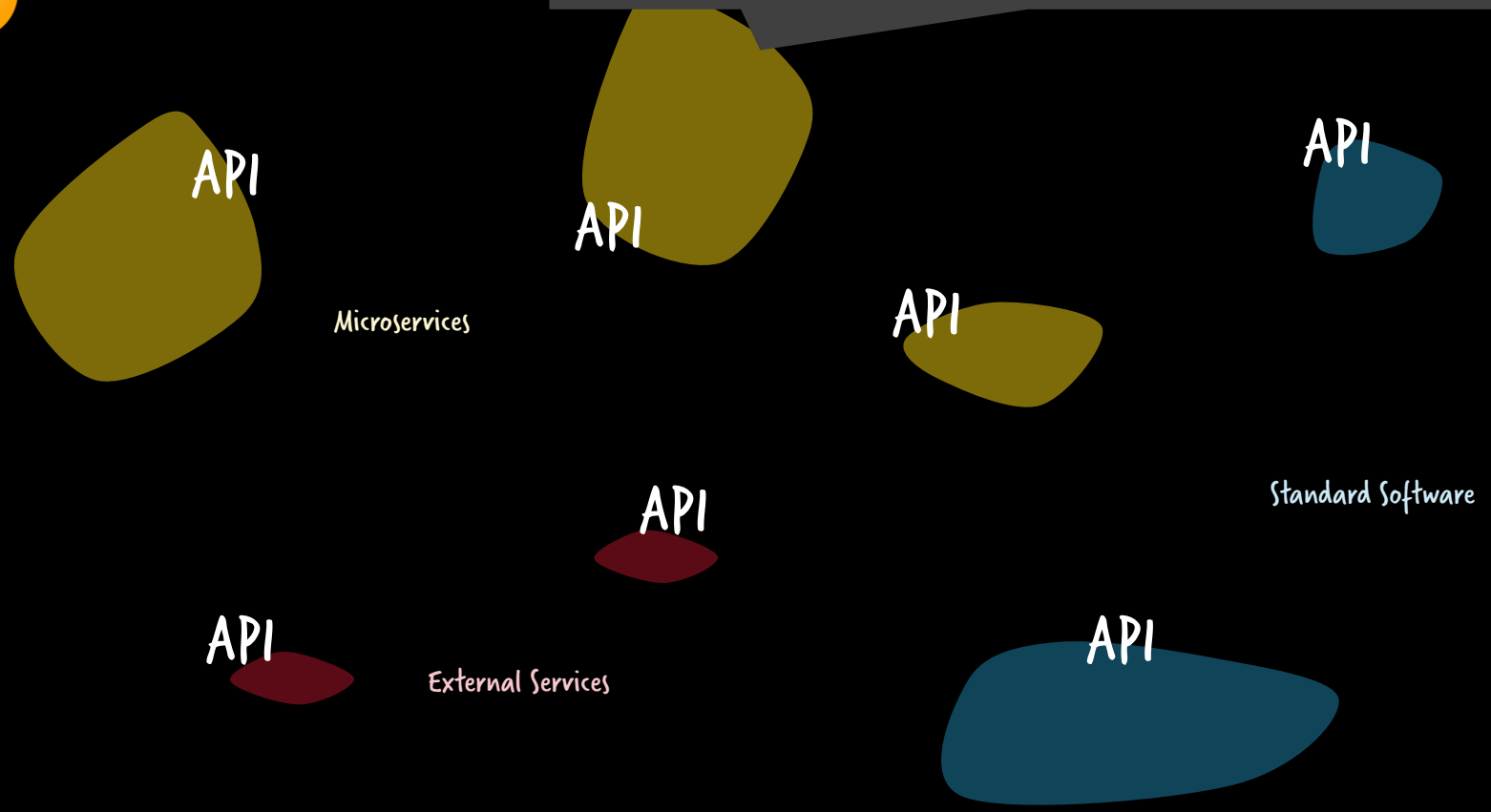


Phil Calcado at QCon NYC 2019

„What the hell just happened?"



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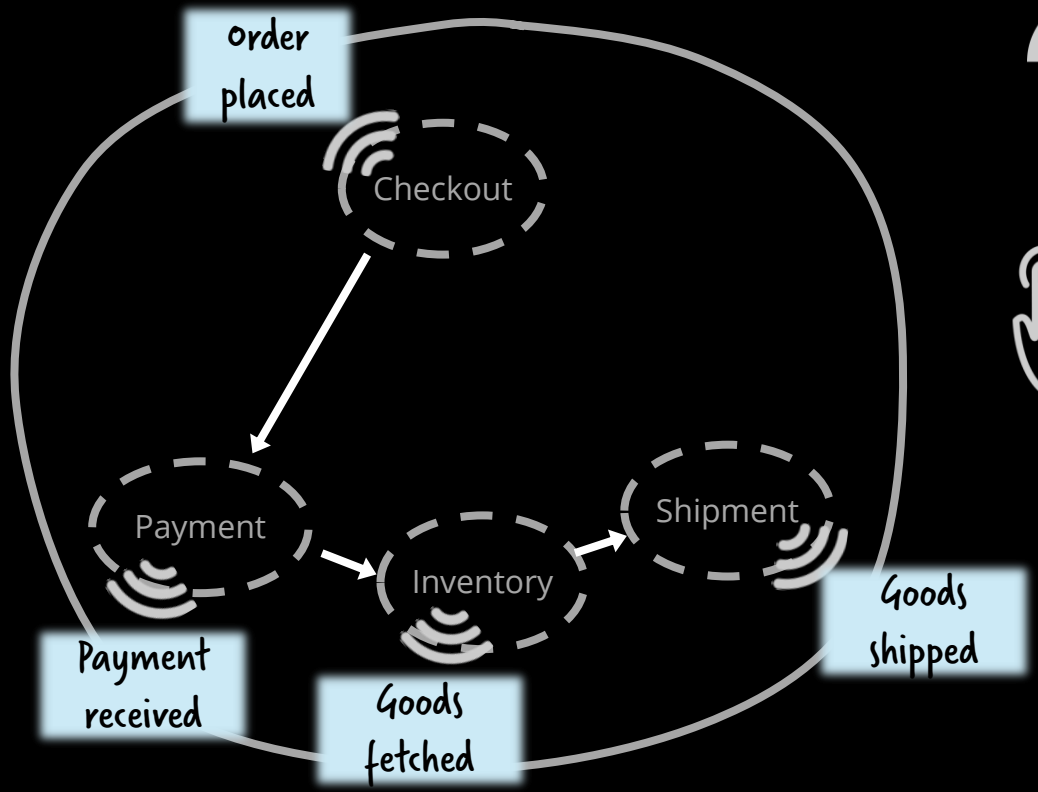
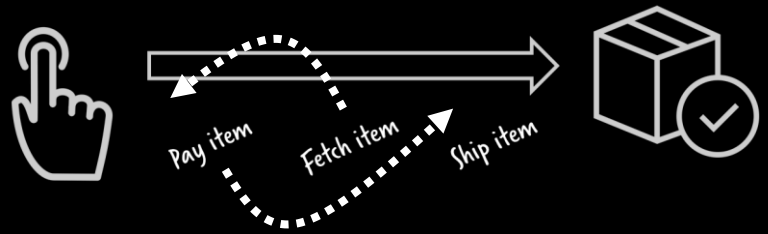
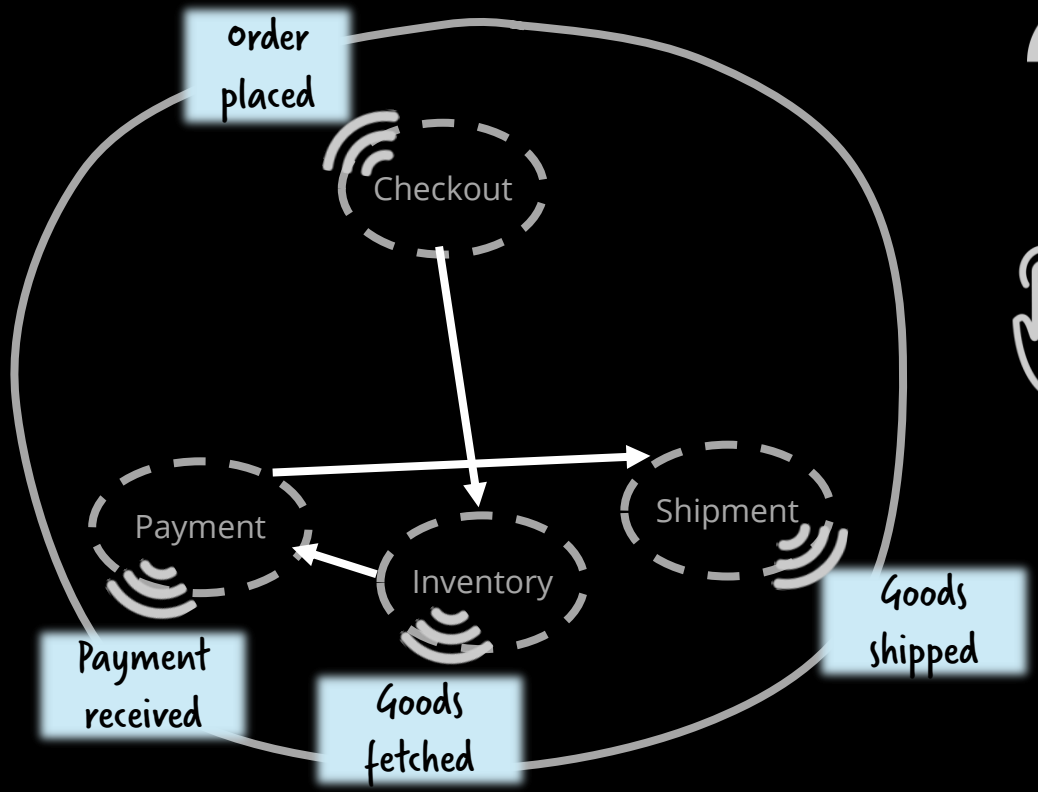
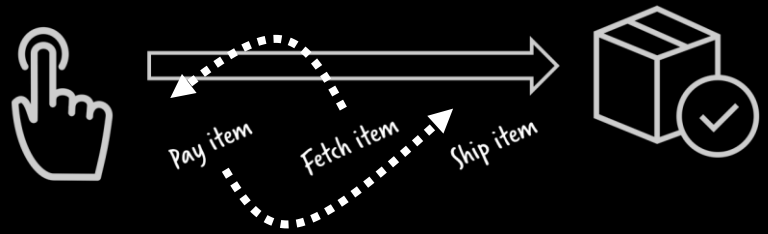
Peer-to-peer event chains





Peer-to-peer event chains





Choreography

What we wanted

vs. what we got

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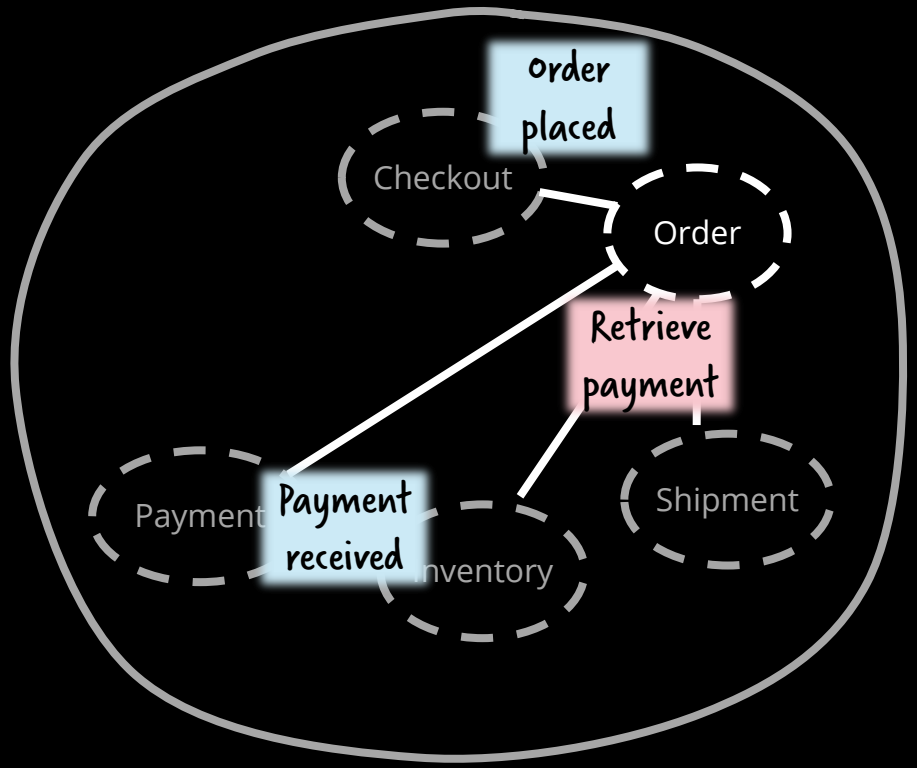
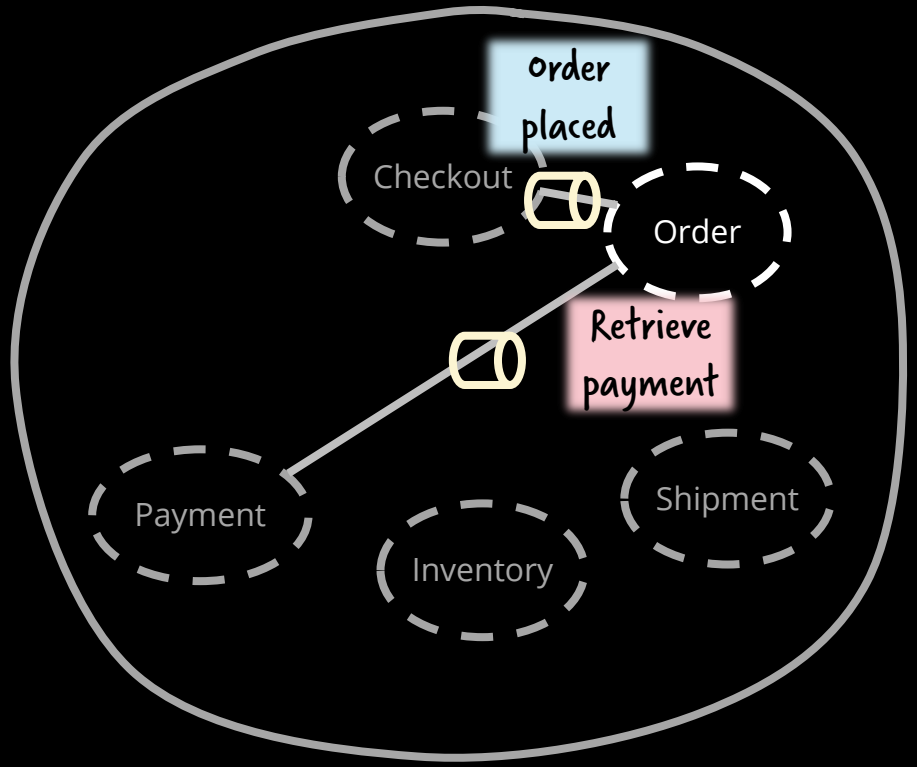
Extract the end-to-end responsibility



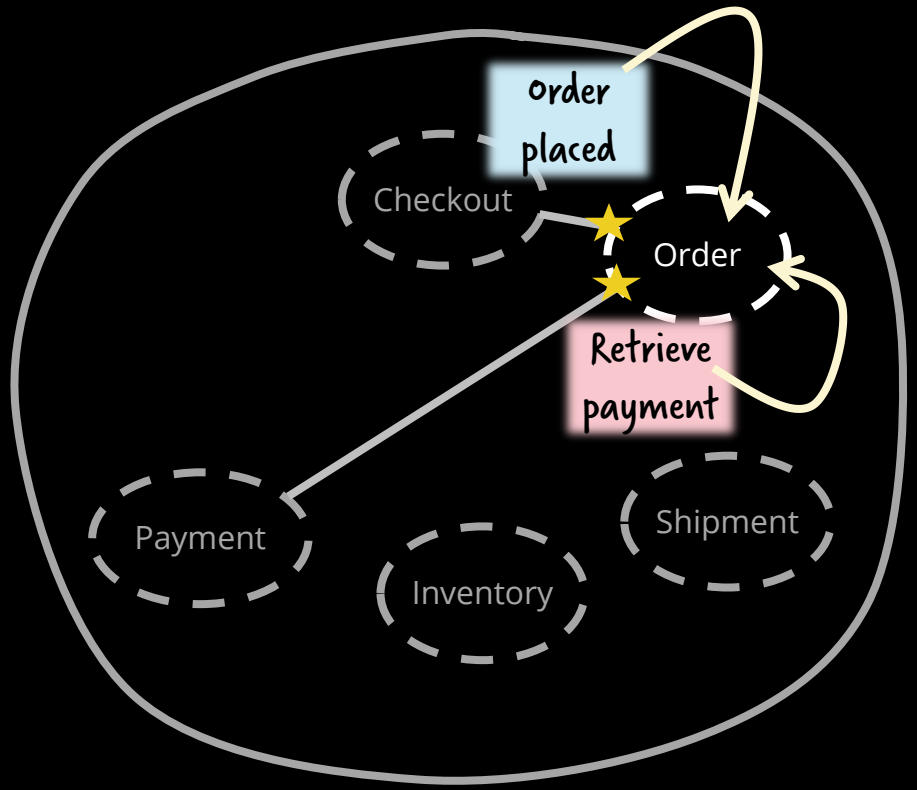
***Commands** have an intent about what needs to happen in the future

It is about where to decide about the coupling!



It can still be messaging!

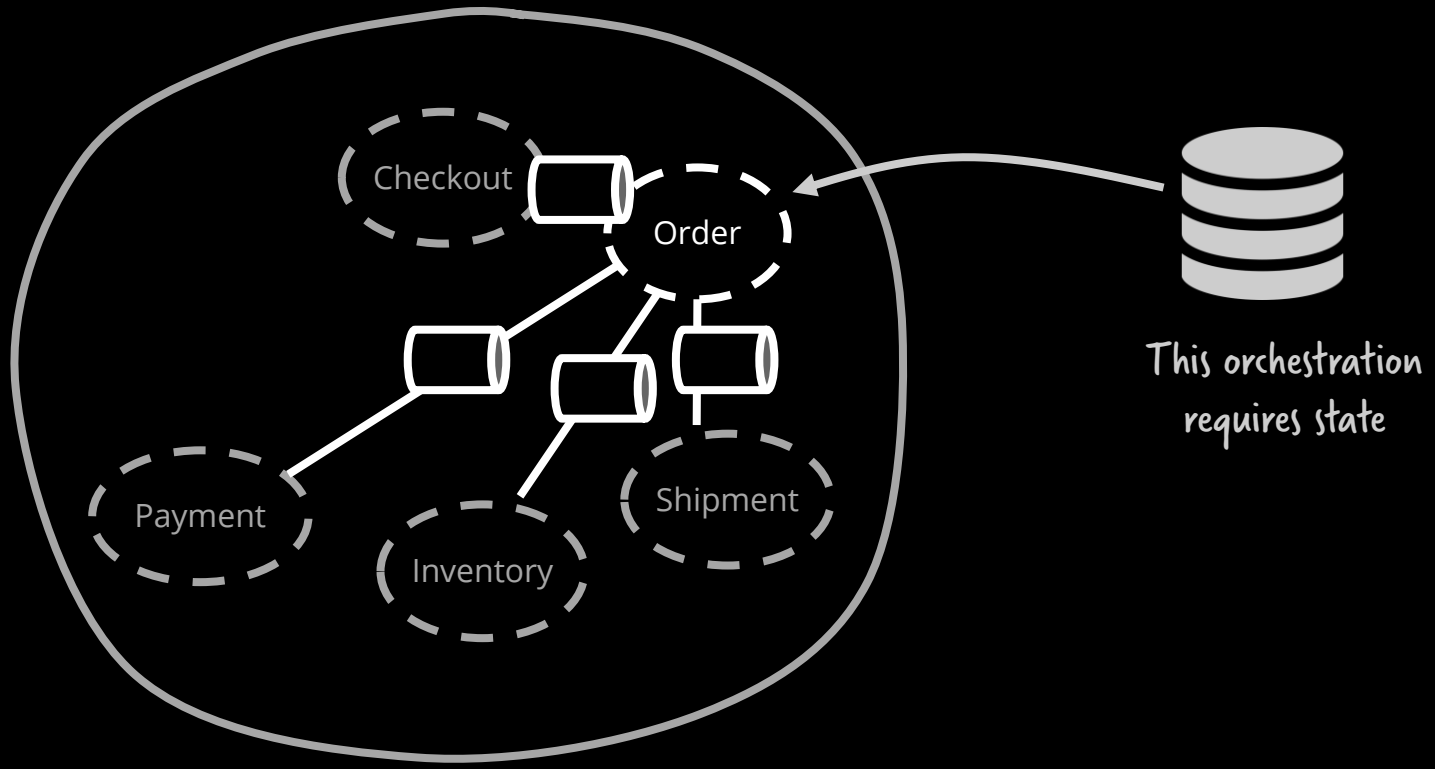
It is about where to decide about the coupling!

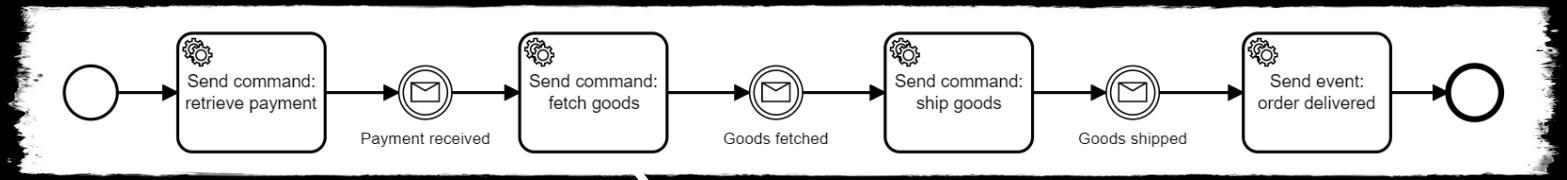


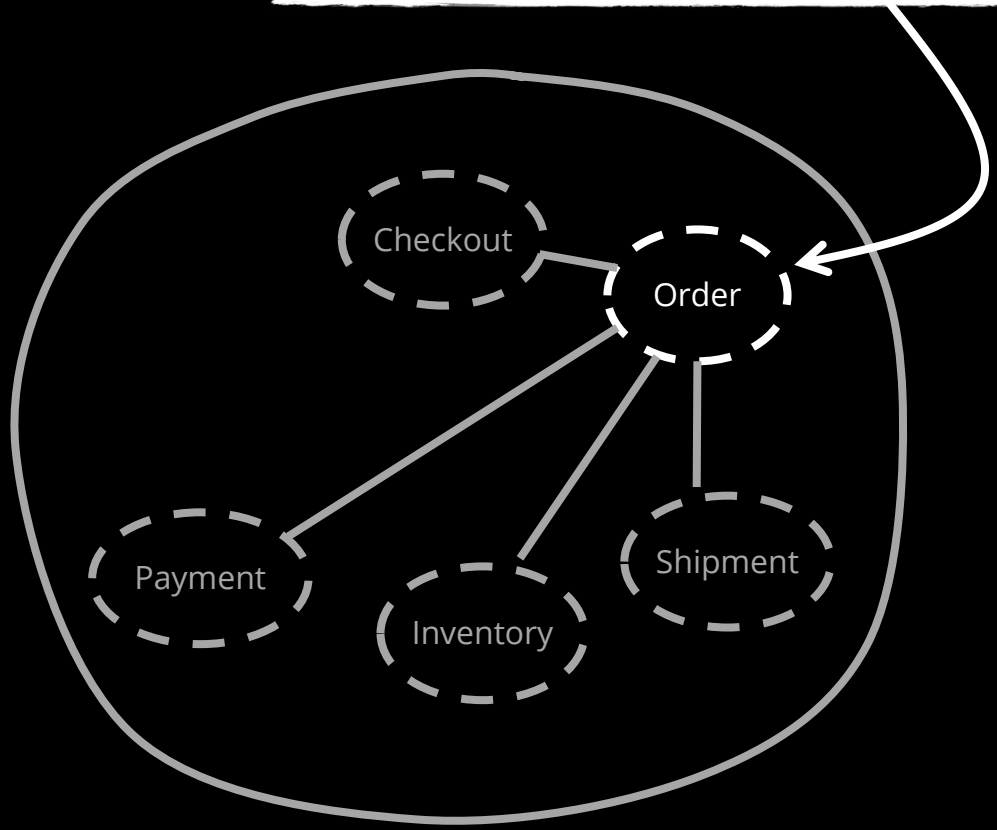
Order decides

- to listen to the event
- to issue the command

Stateful orchestration







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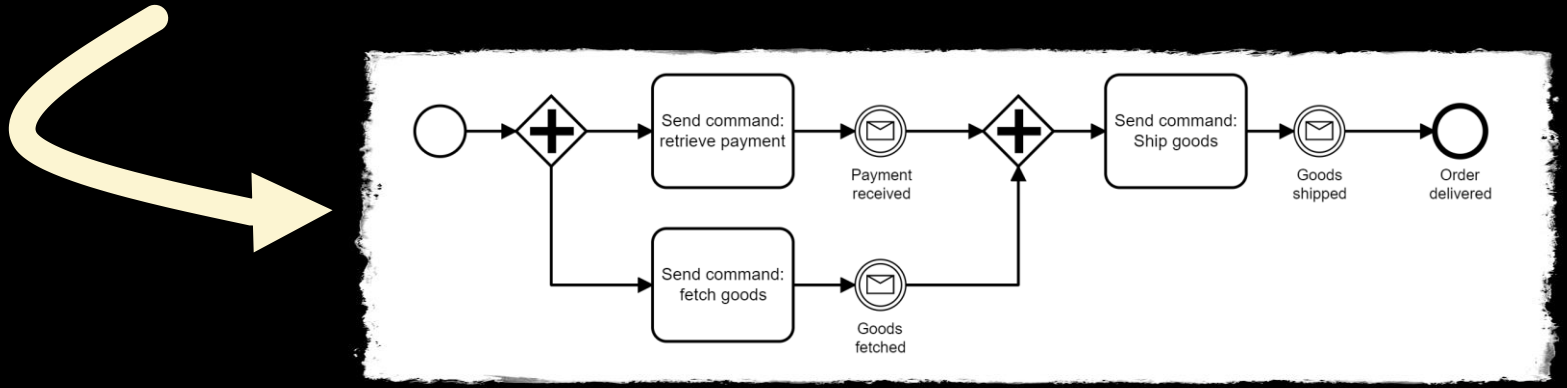
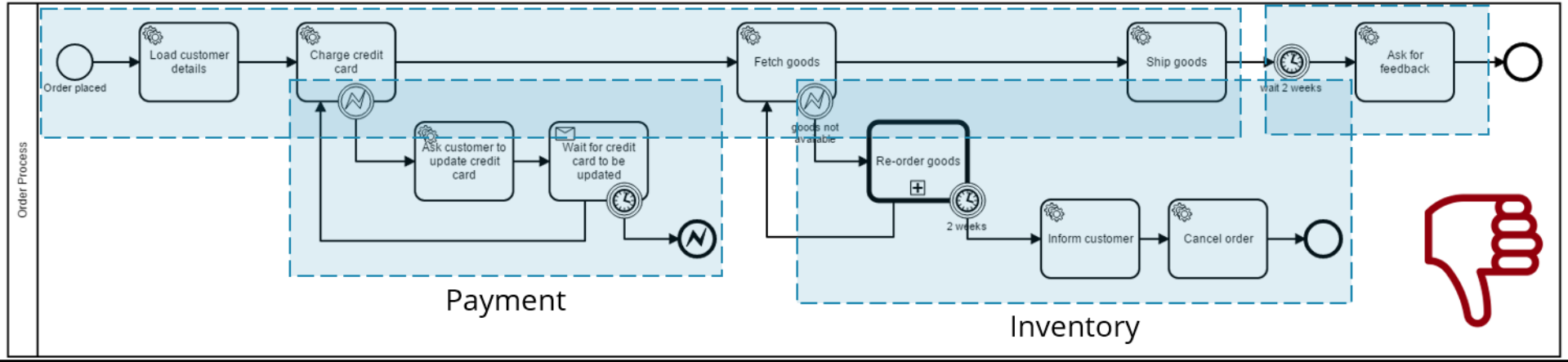
Now it is easy to change the flow

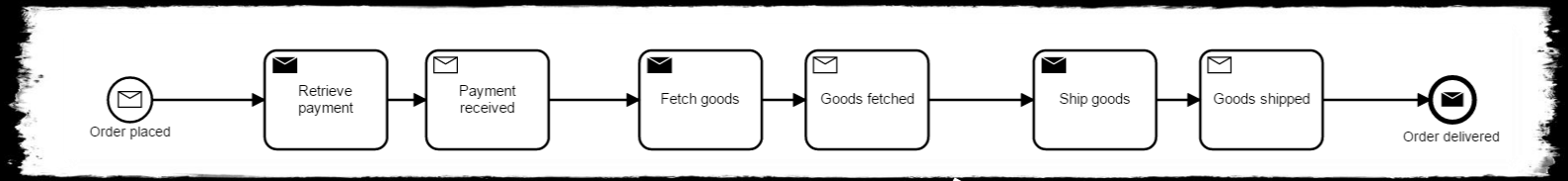


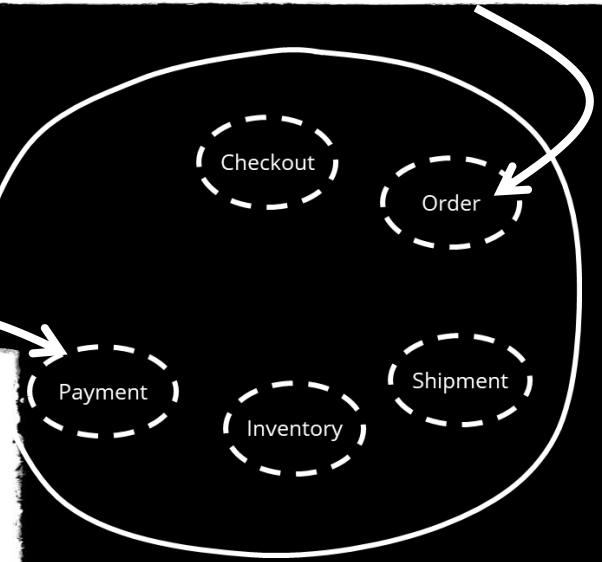
No BPM(N) monoliths

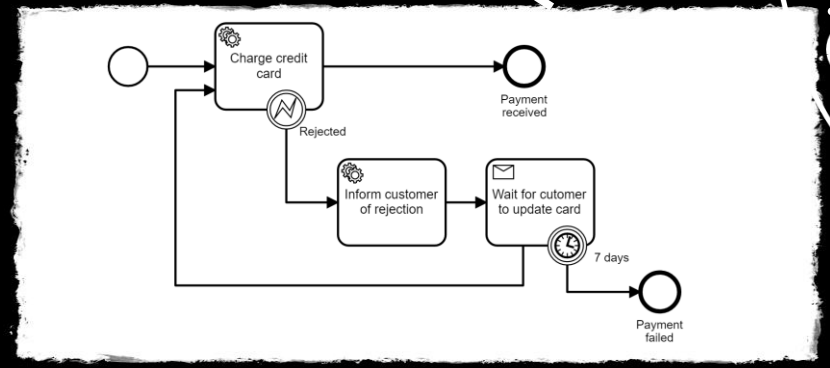


https://blog.bernd-ruecker.com/avoiding-the-bpm-monolith-when-using-bounded-contexts-d86be6308d8

Workflows live inside service boundaries



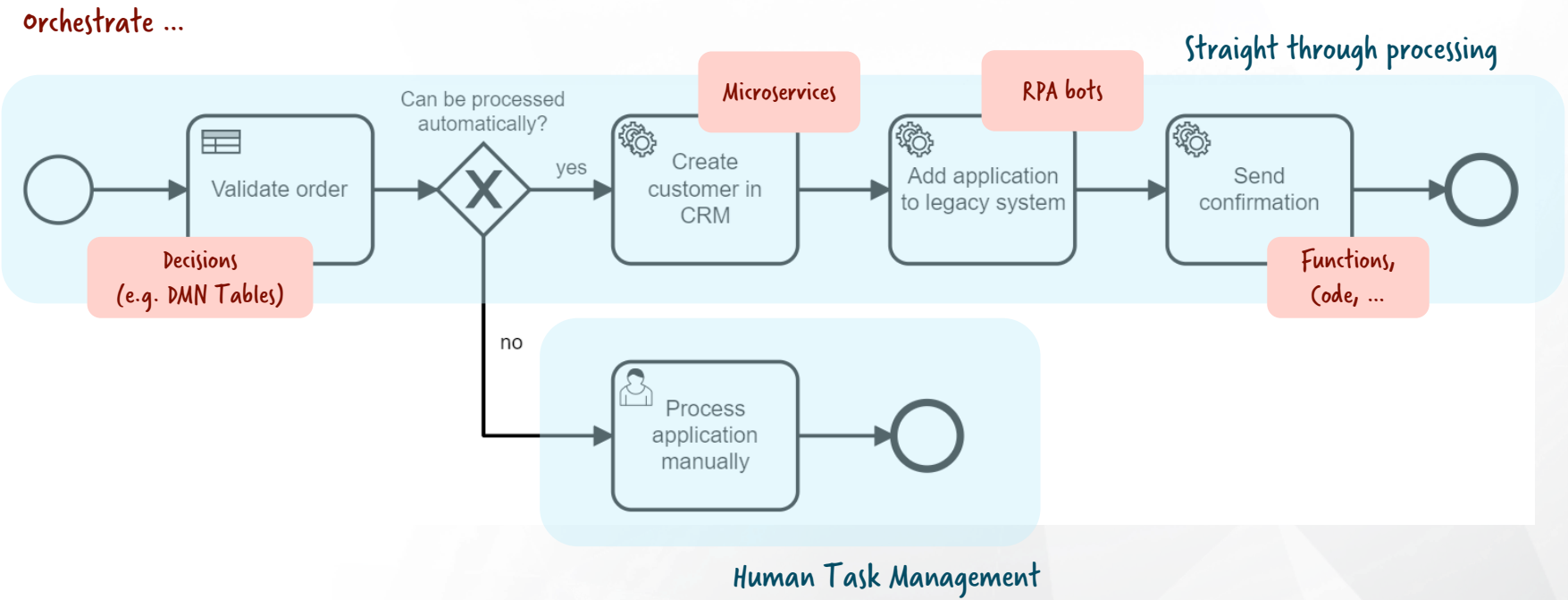




Summary

- Use a workflow engine to automate long running processes
- Visibility is vital for business agility
- Event-driven choreography is not a magic cure
- orchestration
  - Helps to avoid chaos
  - Can be handled within one service (decentral)
  - Does not mean synchronous communication

Recap: Workflow engines orchestrate anything



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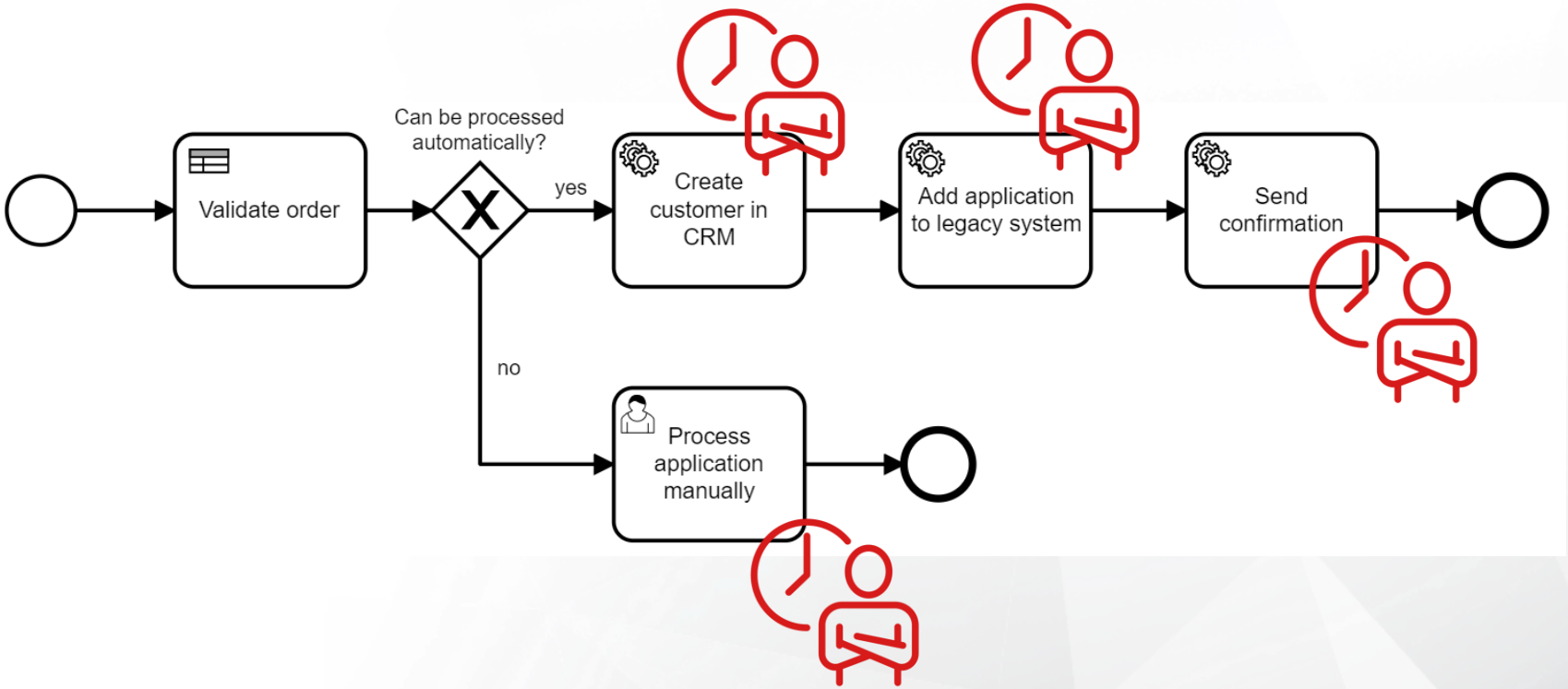
Recap: The challenge are long running tasks = waiting



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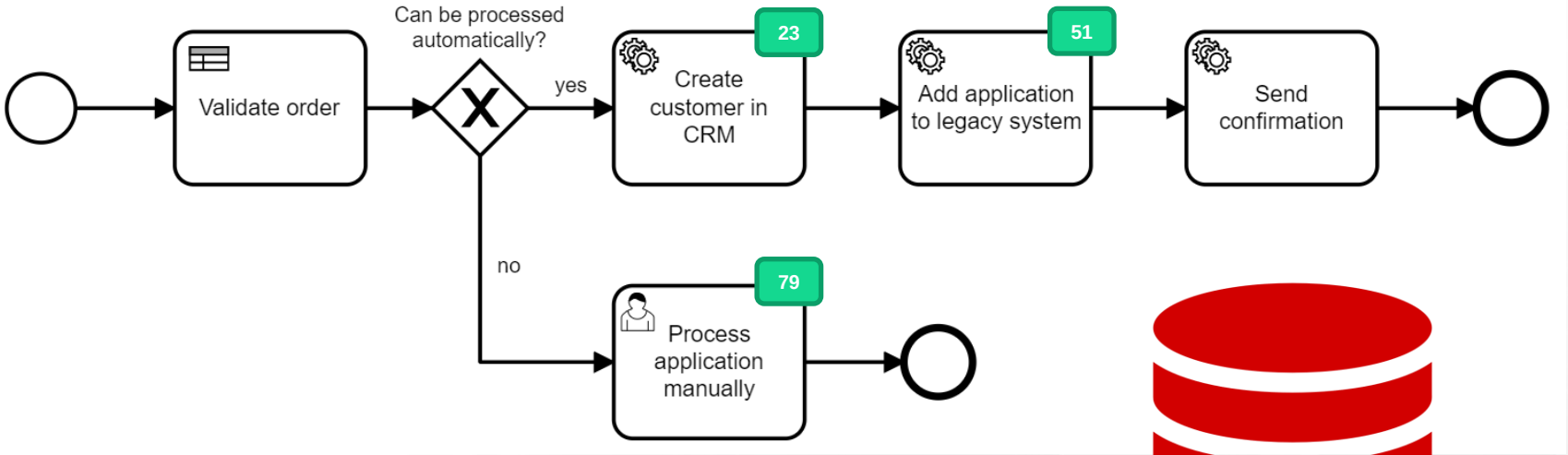
Recap: A workflow engine persists state



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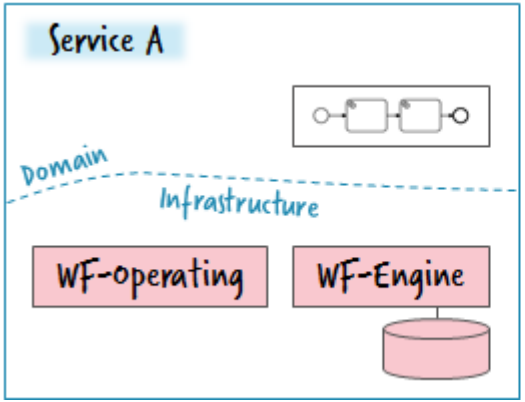
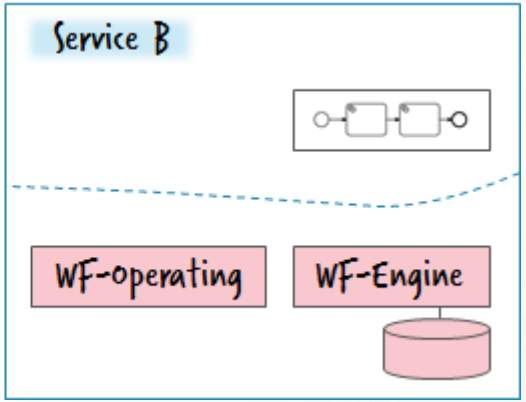
Recap: A workflow engine can be operated decentralized





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Many use cases (real-life examples)

Industry	Pilot	Lighthouse	Broadscale	Sample Clients
Cross-Industry	Approvals Employee Onboarding Credit Check	Microservices Orchestration Centralized Workflow Platform High Throughput	E2E Process Automation Legacy BPM Replacement Cloud Native Applications IT Service Orchestration	Red Bull, 24 FITNESS, Ministry of Justice
Banking & Finance	Asset Management	Customer Onboarding Loan Origination & Decisioning ATM Provisioning	Enterprise Platform Development Trading Risk Management / Fraud Detection	Santander, DAB BNP PARIBAS, NatWest, BlueStep Bank
Insurance	Audit	Customer Onboarding Claim Service & Settlement Policy Underwriting & Contracts	Integrated KYC Core System Automation Risk Management / Fraud Detection	GENERALI, AXA, TRANSAMERICA, ING, Allianz
Telecommunication	Online Systems Integration	New Product Delivery Cell Tower Provisioning Order Management	Contracting, Upgrading, Termination OSS & BSS Open Network Automation Platform (ONAP)	AT&T, T-Mobile, orange, amdocs, O2
Media & Entertainment	Website Content Delivery System Process Fallout	Subscription Management Licensing Content Distribution	Digital Supply Chain New Product Development Fraud Management	WARNER MUSIC, UNIVERSAL, UNIVERSAL MUSIC GROUP, The Telegraph, viacom
Manufacturing & High Tech	Application prototype	Order Execution Payments Servicing Research & Development	Embedded Workflow Automation Customer Service Supply Chain	Lufthansa Technik, FUJITSU, AUTODESK, intuit, CAMUNDA

And now?

- Visit the virtual camunda booth
- Discuss with us in slack (#camunda)
- More:
  - https://docs.camunda.org/get-started/
  - http://berndruecker.io/

Thank you!
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Contact: mail@berndruecker.io
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Blog: https://medium.com/berndruecker

Code: https://github.com/berndruecker

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https://thenewstack.io/5-workflow-automation-use-cases-you-might-not-have-considered/