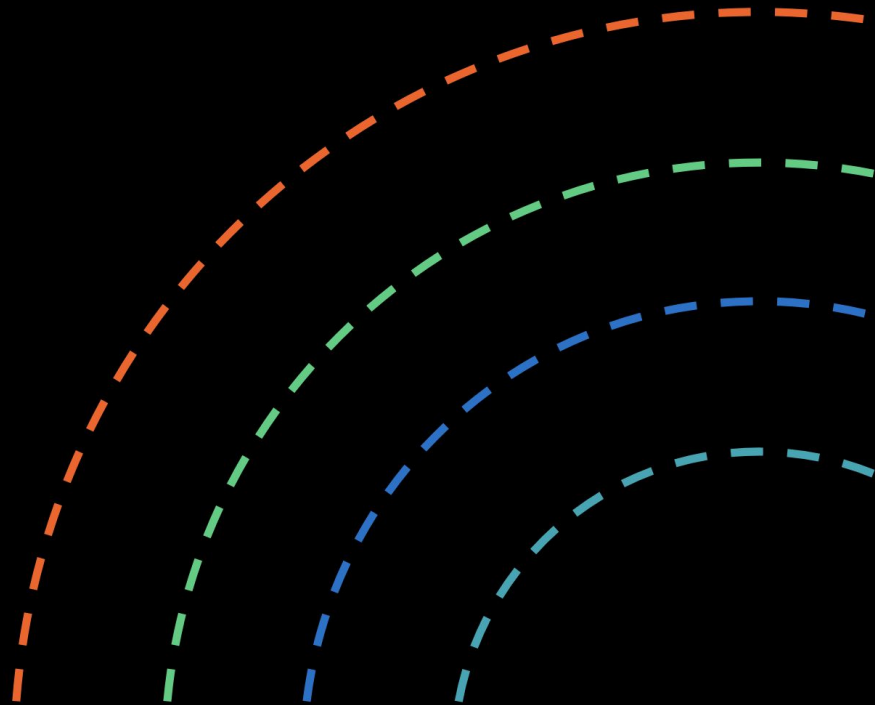


CAMUNDA

Orchestrate the Chaos:

Process automation in modern
architectures

Boulder JUG / October 21, 2024



Poll



- How many here use microservice architectures?
- Has anyone struggled to explain data flow/logic between technical and non-technical teams?
- Has anyone heard of BPMN? DMN? BPM?
- Has anyone heard of Camunda?



Who am I?



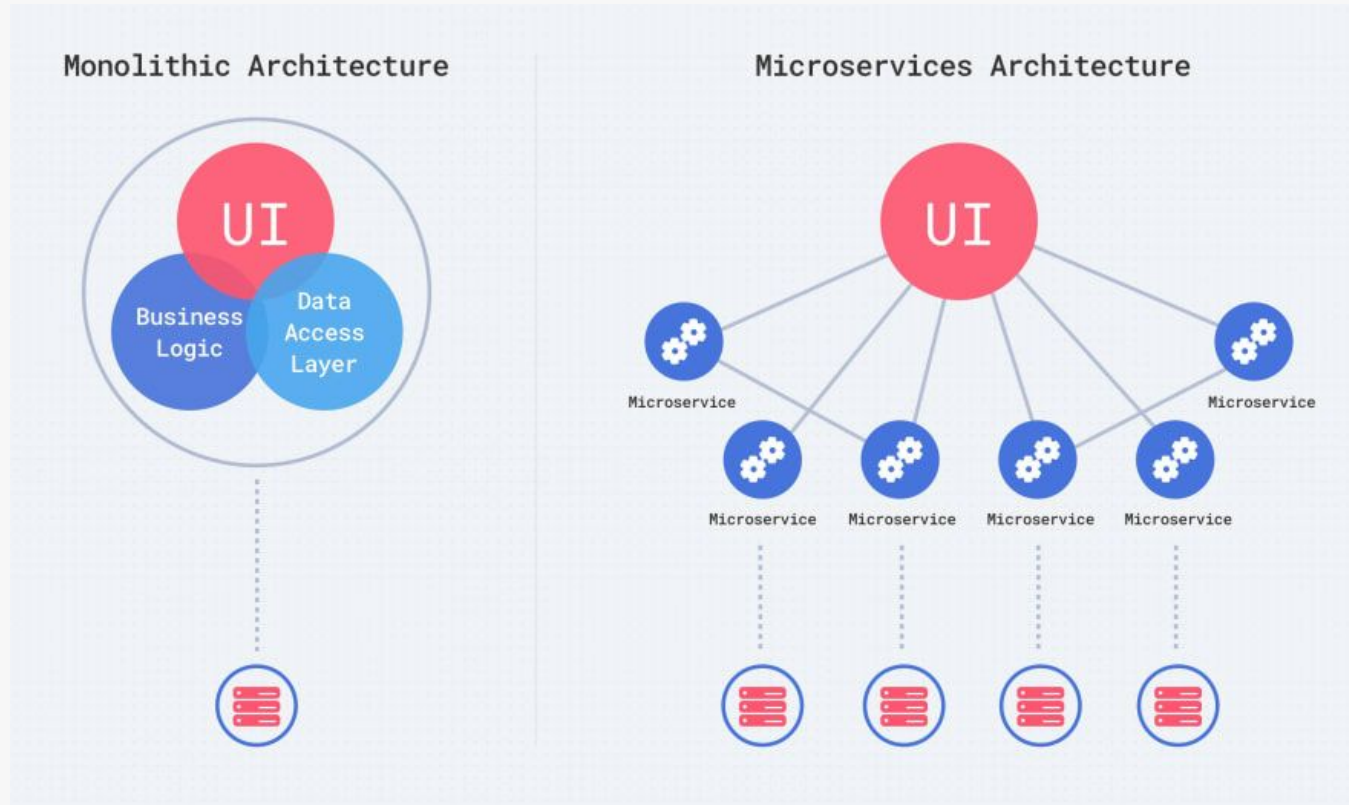
Samantha Holstine

@sholstine620

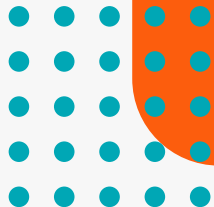
she/her

- Developer Advocate @ Camunda
- Denver, CO, United States
- Fun fact: I'm a dance fitness and studio rowing instructor in my free time

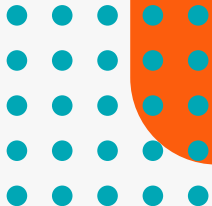
What is “Modern Software Architecture”



**Modern architecture designs
are great at optimizing
resource usage ...**



**... now diagram the
business logic / data
flow ...**



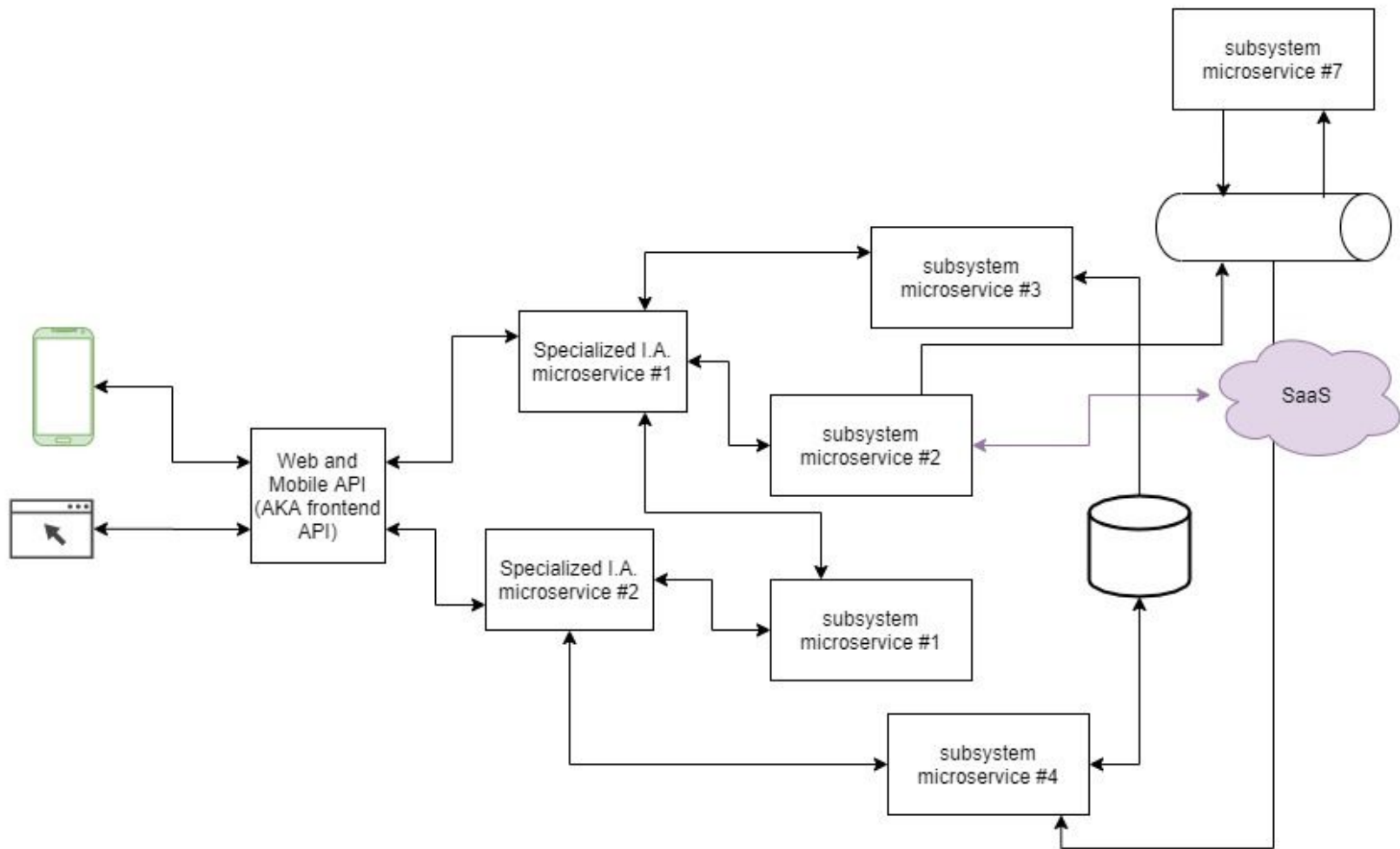




Image: ("Microservices" - KRAZAM) <https://www.youtube.com/watch?v=y8OnoxKotPQ>

Hard problems to solve



Documentation

Data flow diagrams look like spaghetti



Timers

Alerts, stuck/idle processes, notifications



Interrupting messages

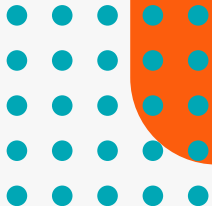
Your application is already executing code, but something has changed and you need to interrupt it and handle it differently



Changes to business logic

All your services are running nicely together, but now a new service is added that integrates with other existing services ...

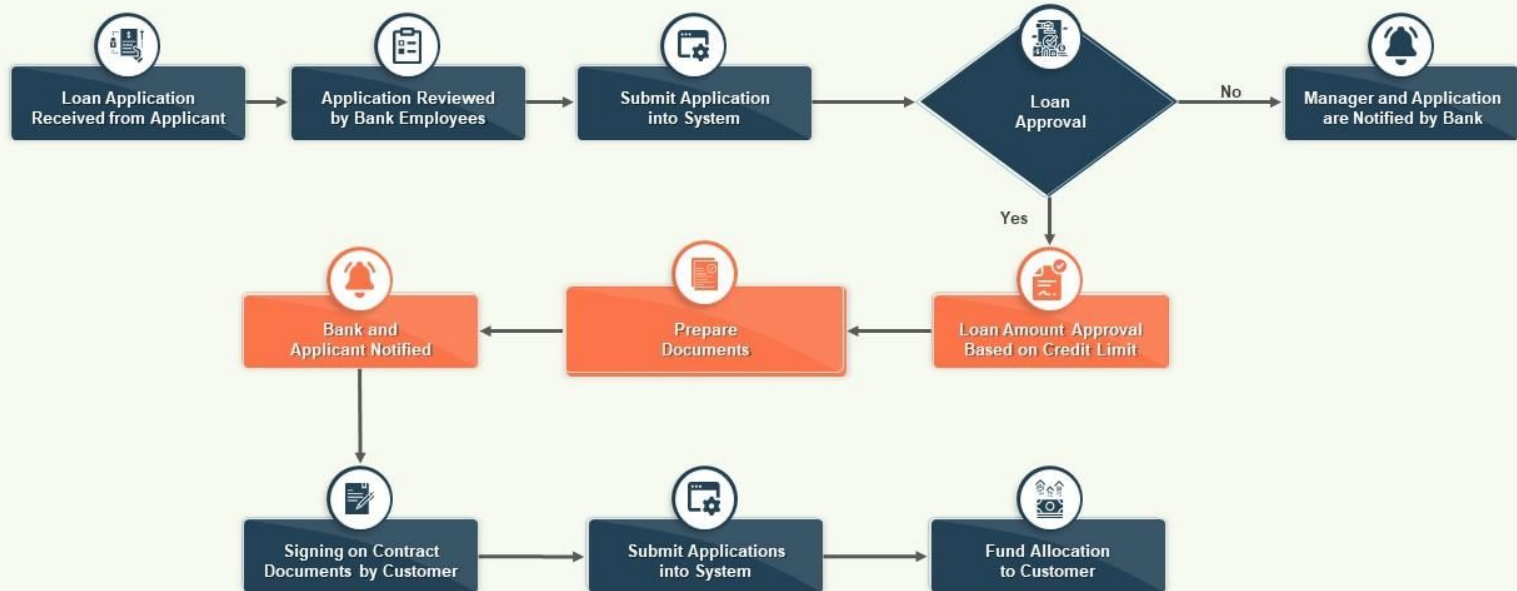
**Forget services and
infrastructure. Let's think
about it in terms of *processes***



“...a collection of related, structured activities or tasks performed by people or equipment”

Bank Loan Application Approval Process Flow

This slide showcases workflow for bank loan approval process. It also includes process steps such as receiving application, application review, application submission, credit limit evaluation, etc.



Real World Scenario

Truck Permits

A local municipality needs to issue permits to trucking companies:

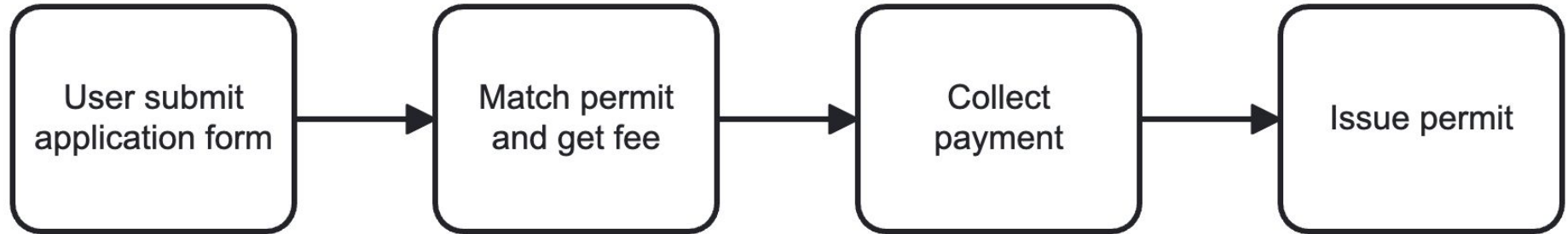
- Trucking company fills out a form
- A price is determined for the permit
- The company pays for the permit
- The permit is issued



Truck Permits

A local municipality needs to issue permits to trucking companies:

- Trucking company fills out a form
-> **UserForm microservice**
- A price is determined for the permit
-> **PermitMatch microservice**
- The company pays for the permit
-> **Payments microservice**
- The permit is issued
-> **IssuePermit microservice**



New requirement!

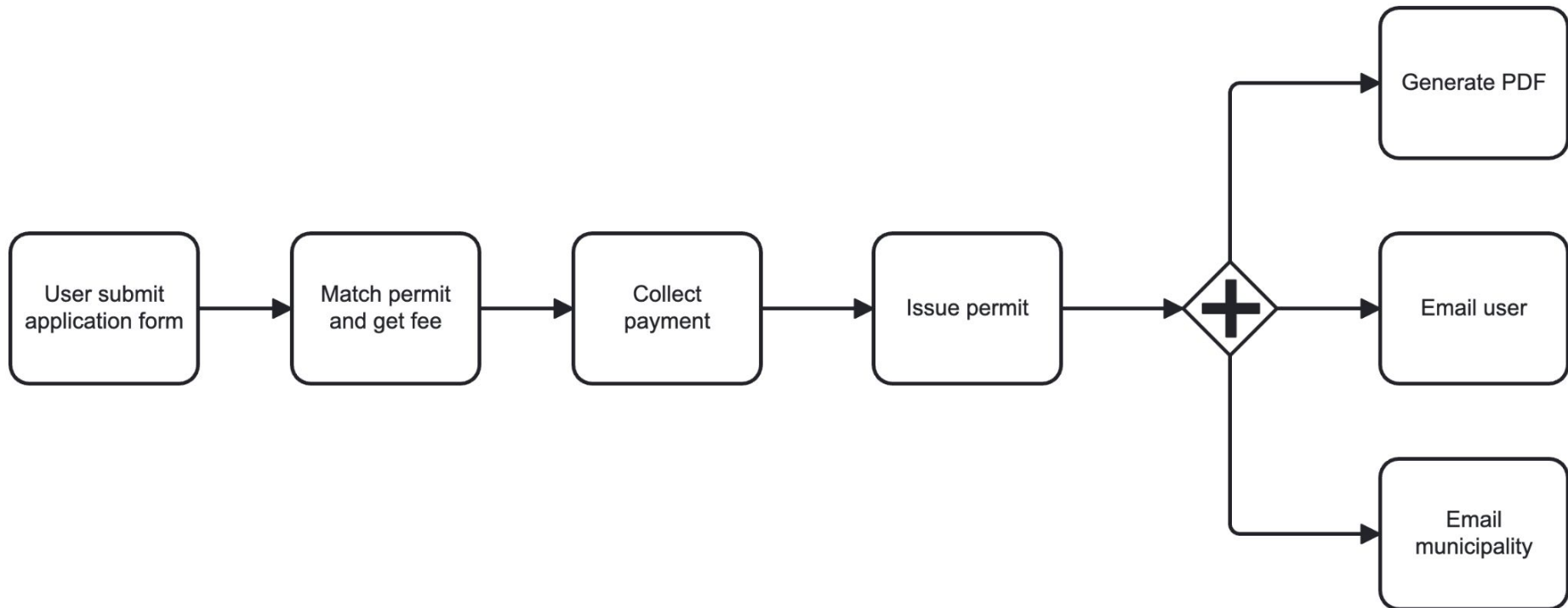


“We need the permit turned into a PDF, and email notifications to the user and to us”

Truck Permits

A local municipality needs to issue permits to trucking companies:

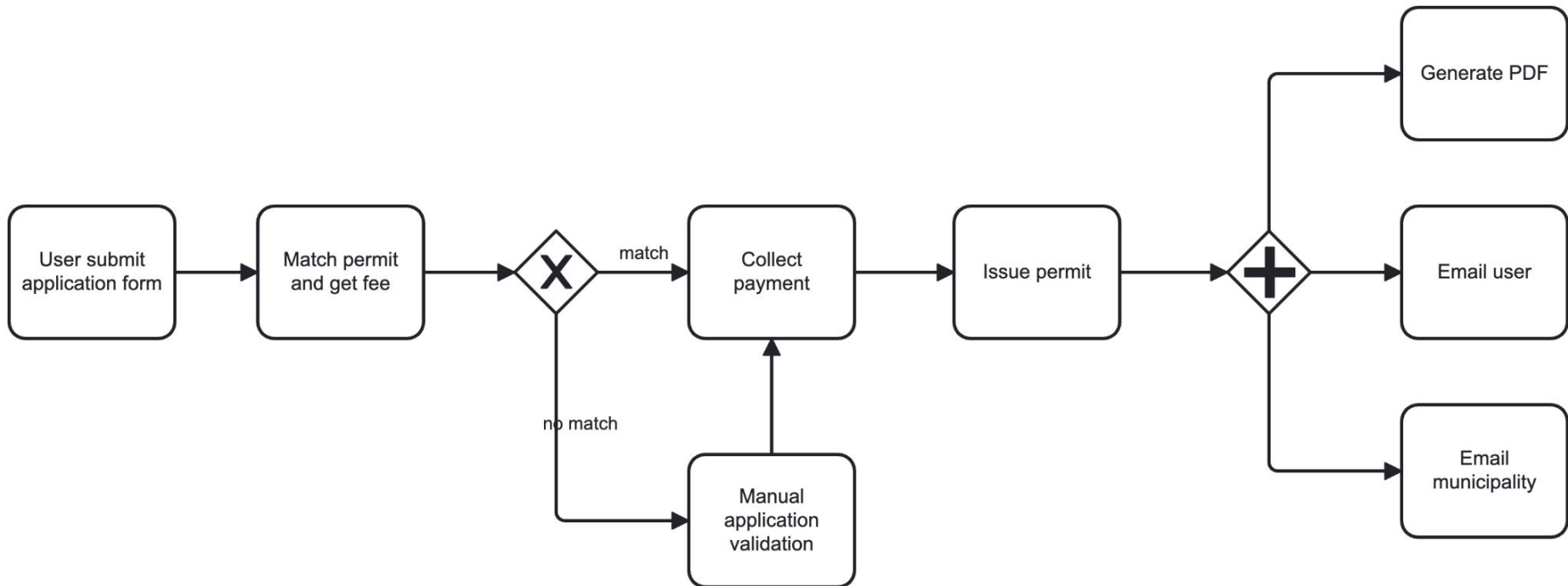
- Trucking company fills out a form
-> **UserForm microservice**
- A price is determined for the permit
-> **PermitMatch microservice**
- The company pays for the permit
-> **Payments microservice**
- The permit is issued
-> **IssuePermit microservice**
-> **PDF microservice**
-> **Email microservice**



New requirement!



“A user tried to fill in the form, but it didn’t match a permit!”

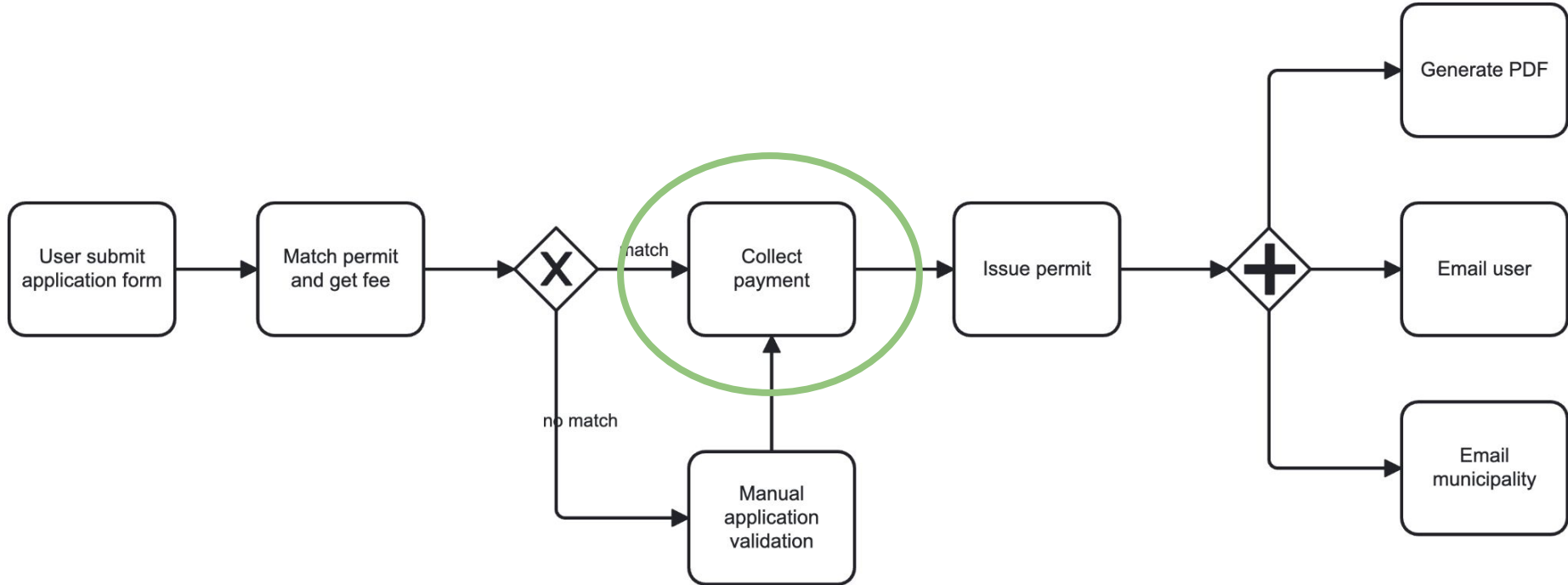


New requirement!



“If they don’t pay in X days,
the permit needs to be
canceled!”

How might you solve this?



Introducing BPMN

*Business
Process
Model and
Notation*



Maintained spec

ISO/IEC 19510 spec
maintained by OMG
(Object Management
Group)



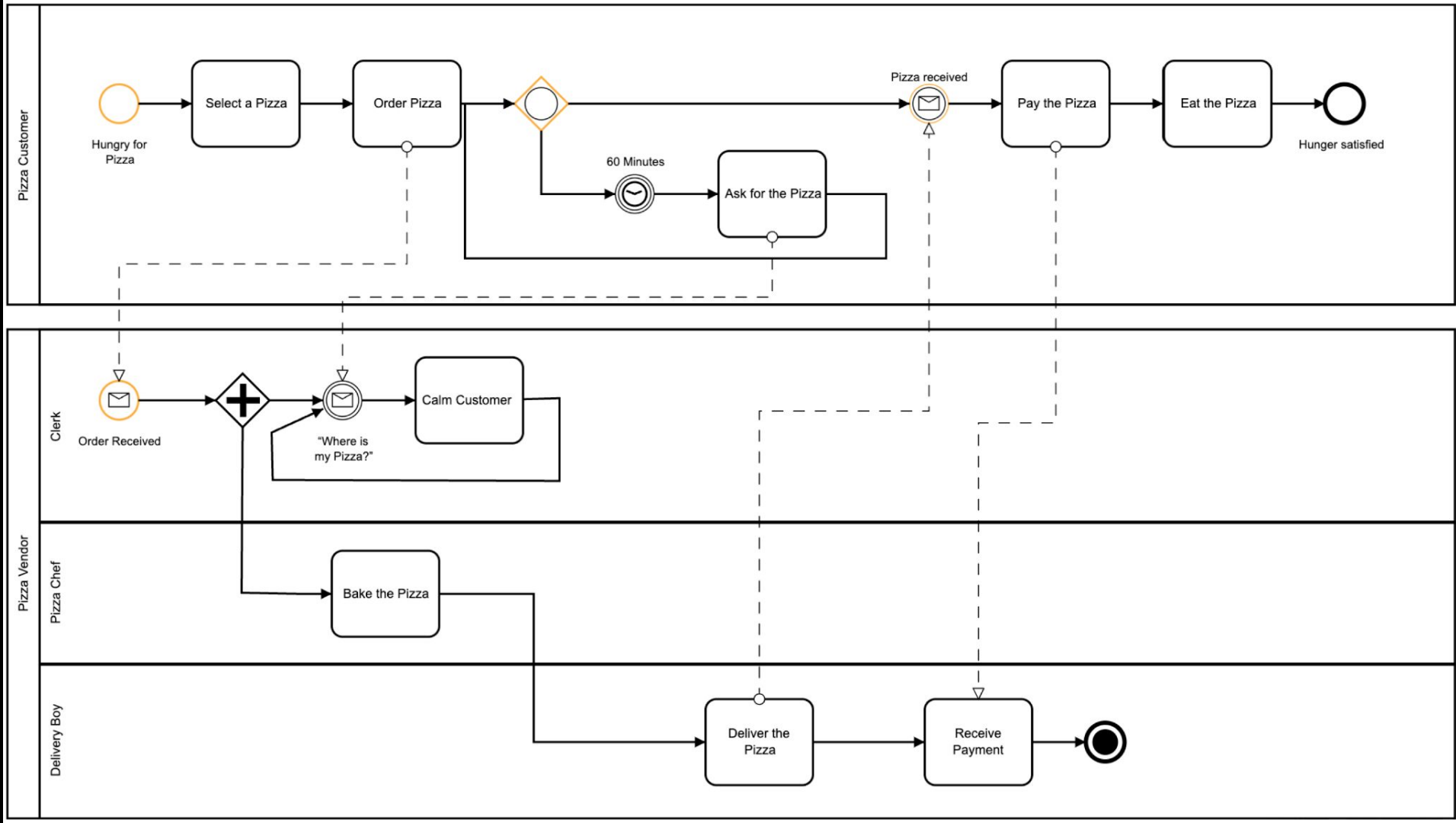
Visualization

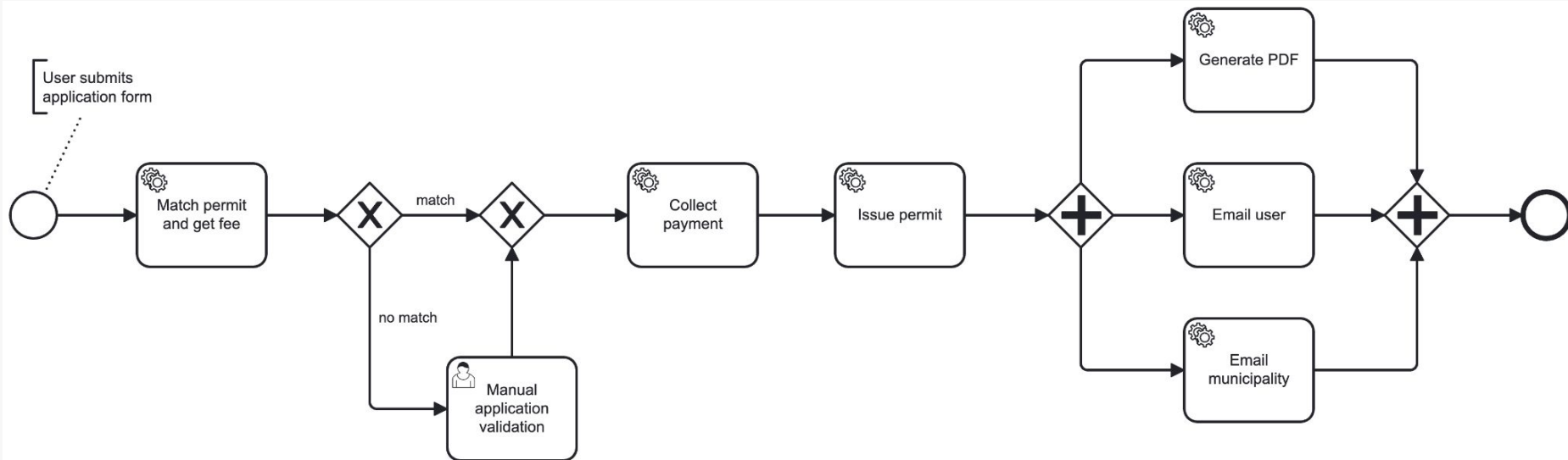
Easily understand
complex processes;
no more spaghetti!



Bridge communication

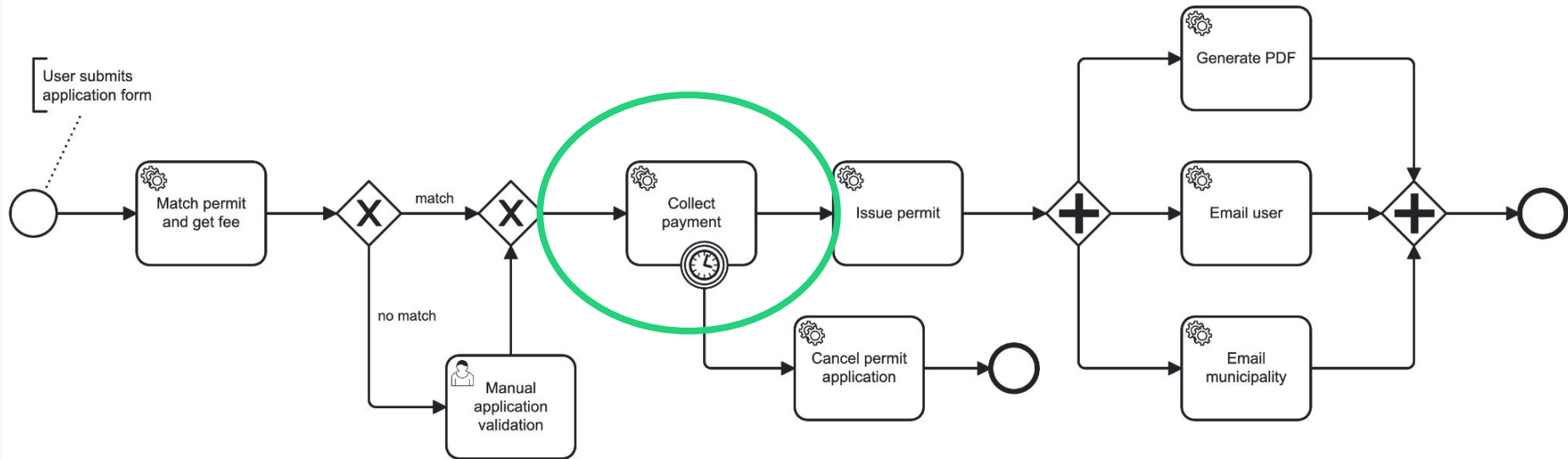
Simplify discussions
with stakeholders;
unify design and
implementation



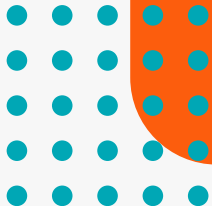


Remember this?

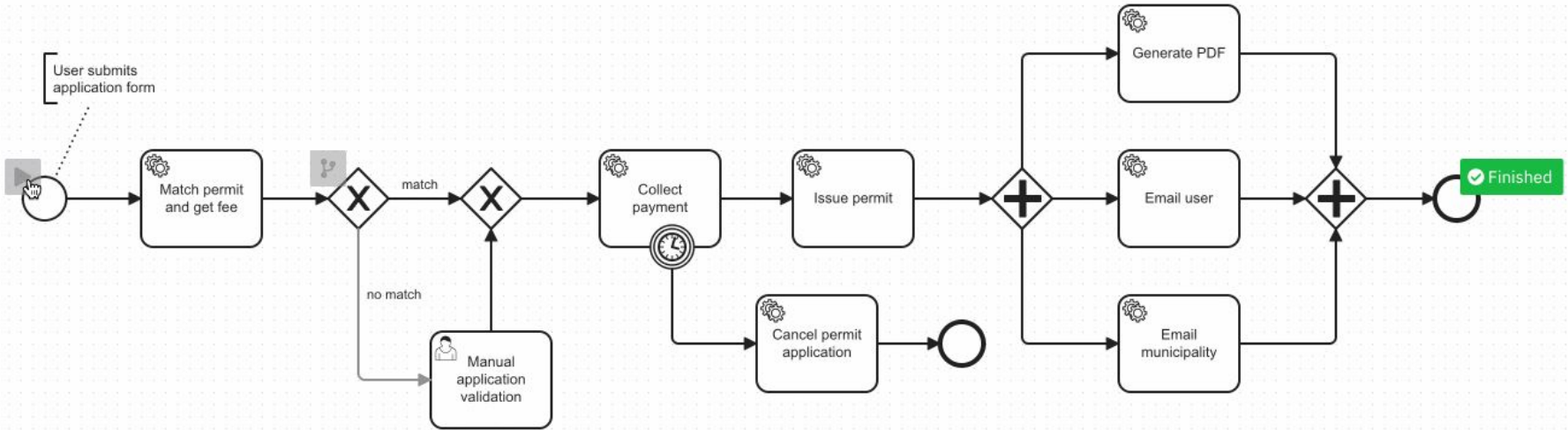
“If they don’t pay in X days,
the permit needs to be
canceled!”



**... That's great, dude, but
that's just a diagram.**



... or is it?!



BPMN Engines

(Workflow Management Systems)

Many options to choose from



| Vendor | Tool | BPMN 2.0 | Import | Export | Roundtrip | Demo Participation | Last Test Submission | A Results Submitted | B Results Submitted | C Results Submitted | Schema-valid | Website |
|--------------------------------|---|----------|--------|--------|-----------|--|----------------------|---------------------|---------------------|---------------------|--------------|---------|
| Camunda | bpnm.io (Camunda Modeler) 11.5.0 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2022, 2020, 2019, 2018, 2017, 2016, 2015, 2014, 2013 | 📅 2023 | 🟢 24/24 | 🟢 8/8 | 🟢 24/24 | 🟢 14/14 | 🔗 |
| BOC Group | ADONIS 14.0 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2022, 2020, 2019, 2018, 2017, 2016, 2015, 2014, 2013 | 📅 2023 | 🟢 24/24 | 🟢 8/8 | 🟢 24/24 | 🟢 14/14 | 🔗 |
| Software AG | ARIS 10.0.22 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2022, 2020, 2019, 2018 | 📅 2023 | 🟢 24/24 | 🟢 8/8 | 🟢 24/24 | 🟢 14/14 | 🔗 |
| Esteco S.p.A. | Cardanit (prev. BeeBPM) 4.9.1 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2022, 2020, 2019, 2018, 2017, 2016 | 📅 2023 | 🟡 16/24 | 🔴 0/8 | 🟢 24/24 | 🟡 6/10 | 🔗 |
| Trisotech | Trisotech Workflow Modeler 10.15.3 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2022, 2020, 2019, 2018, 2017, 2016, 2015, 2014, 2013 | 📅 2022 | 🟢 24/24 | 🟢 8/8 | 🟢 24/24 | 🟢 14/14 | 🔗 |
| MID GmbH | MID Innovator 15.1.1.11026 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2022 | 📅 2022 | 🟢 24/24 | 🟢 8/8 | 🟢 24/24 | 🟢 14/14 | 🔗 |
| OMNINET | OMNITRACKER BPMN 12.3 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2022, 2020 | 📅 2022 | 🟢 24/24 | 🟢 8/8 | 🟢 24/24 | 🟢 14/14 | 🔗 |
| viadeo Unternehmensberatung AG | BPMN-Modeler for Confluence Enterprise 3.19.0 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2022, 2020 | 📅 2022 | 🟡 22/24 | 🟢 8/8 | 🟢 24/24 | 🟢 14/14 | 🔗 |
| MID GmbH | MID bpanda 2019.05.0.8393 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2022 | 📅 2019 | 🟢 24/24 | 🟢 8/8 | 🟡 16/24 | 🟡 11/11 | 🔗 |
| KnowProcess Limited | KnowProcess 3.0.0-beta-1 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2022, 2020, 2019, 2018, 2017, 2016, 2015, 2014, 2013 | 📅 2018 | 🟡 4/24 | 🟡 2/8 | 🟡 3/24 | 🔴 0/0 | 🔗 |
| Signavio GmbH | Signavio Process Editor 10.0.0 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2022, 2020, 2019, 2018, 2017, 2016, 2015, 2014, 2013 | 📅 2016 | 🟢 24/24 | 🟢 8/8 | 🟡 16/24 | 🟡 11/13 | 🔗 |
| ITESOFT | W4 BPMN+ Composer V.10.4 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2020, 2019, 2018, 2017, 2016, 2015, 2014, 2013 | 📅 2019 | 🟢 24/24 | 🟢 8/8 | 🟡 20/24 | 🟡 13/13 | 🔗 |
| CaseAgile | Enterprise Explorer 1.0.0 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2020, 2019, 2018, 2017 | 📅 2019 | 🟢 24/24 | 🟡 6/8 | 🟡 22/24 | 🟡 9/12 | 🔗 |
| Boris Zinchenko | BPMN View 1.0.7 | ✔ | ✔ Diff | 🔴 | 🔴 Details | 📅 2019, 2018, 2017 | 📅 2019 | 🟡 6/24 | 🟡 2/8 | 🟡 5/24 | 🔴 0/0 | 🔗 |
| Sparx | Enterprise Architect 12.0.1207 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2019, 2018, 2015 | 📅 2015 | 🟡 10/24 | 🟡 4/8 | 🔴 0/24 | 🟡 7/7 | 🔗 |
| W4 Software | W4 BPMN+ Composer V.9.4 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2017, 2016, 2015, 2014, 2013 | 📅 2016 | 🟢 24/24 | 🟢 8/8 | 🟡 16/24 | 🟡 11/11 | 🔗 |
| itp-commerce | itp-commerce Process Modeler for MS Visio 6 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2017, 2016, 2015, 2014, 2013 | 📅 2015 | 🟡 20/24 | 🟢 8/8 | 🟡 2/24 | 🟢 8/8 | 🔗 |
| Camunda | Camunda Eclipse Plugin 3.0.0 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2016, 2015, 2014, 2013 | 📅 2016 | 🟡 20/24 | 🟢 8/8 | 🟡 16/24 | 🟡 11/11 | 🔗 |
| ModelFoundry Pty. Ltd. | ModelFoundry 1.1.1 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2016 | 📅 2016 | 🟡 12/24 | 🟡 4/8 | 🟡 8/24 | 🟡 2/11 | 🔗 |
| Trisotech | Trisotech BPMN Visio Add In 5.0.1 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2016, 2015, 2014, 2013 | 📅 2015 | 🟡 20/24 | 🟢 8/8 | 🟡 16/24 | 🟡 11/11 | 🔗 |
| MODELISOFT / SOFTEAM | Modelio 3.5 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2016 | 📅 2015 | 🟡 18/24 | 🟢 8/8 | 🟡 16/24 | 🔴 0/10 | 🔗 |
| Yaoqiang, Inc. | Yaoqiang BPMN Editor 4.0 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2016, 2015, 2014, 2013 | 📅 2015 | 🟢 24/24 | 🟢 8/8 | 🟡 4/24 | 🟢 8/8 | 🔗 |
| GenMyModel | GenMyModel 0.47 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2015 | 📅 2015 | 🟡 16/24 | 🟢 8/8 | 🟡 16/24 | 🟡 7/8 | 🔗 |
| Alfresco | Activiti Designer 5.14.1 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2014 | 📅 2014 | 🟡 12/24 | 🔴 0/8 | 🔴 0/24 | 🟢 3/3 | 🔗 |
| IBM | IBM BlueWorks Live April 2014 | ✔ | ✔ Diff | ✔ Diff | 🔴 Details | 📅 2014 | 📅 2014 | 🟡 8/24 | 🔴 0/8 | 🔴 0/24 | 🟡 2/2 | 🔗 |
| Oracle | Oracle BPM Studio 12.1.3 | ✔ | ✔ Diff | 🔴 | 🔴 Details | 📅 2014 | 📅 2014 | 🟡 3/24 | 🔴 0/8 | 🔴 0/24 | 🔴 0/0 | 🔗 |
| GBTEC Software + Consulting AG | BIC Cloud Design 6.2.0 | ✔ | ✔ Diff | ✔ Diff | ✔ Details | 📅 2020 | 📅 2020 | 🟢 24/24 | 🟡 7/8 | 🟡 20/24 | 🟡 11/12 | 🔗 |
| Bonitasoft | Bonita BPM 7.2.3 | ✔ | ✔ Diff | 🔴 | 🔴 Details | 📅 2016 | 📅 2016 | 🟡 21/24 | 🟡 6/8 | 🟡 14/24 | 🟡 3/11 | 🔗 |

<https://bpmn-miwig.github.io/bpmn-miwig-tools/>



Camunda - The Universal Process Orchestrator

Orchestrate

Complex process flows across people, systems and devices.

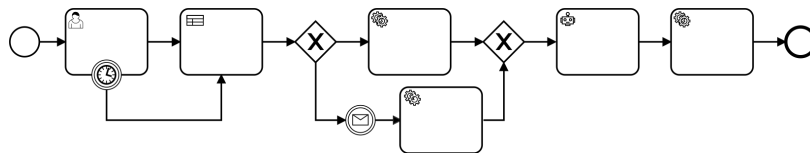
Automate

Any process, anywhere.

Transform

Your organization toward a digital future.

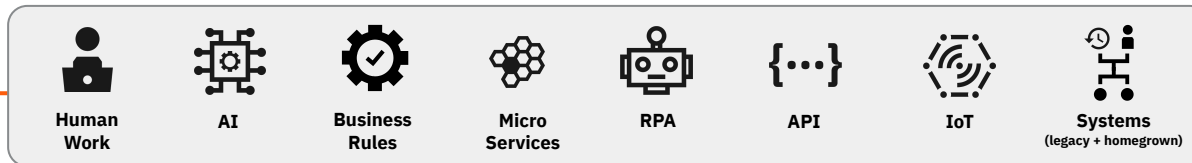
Collaborate



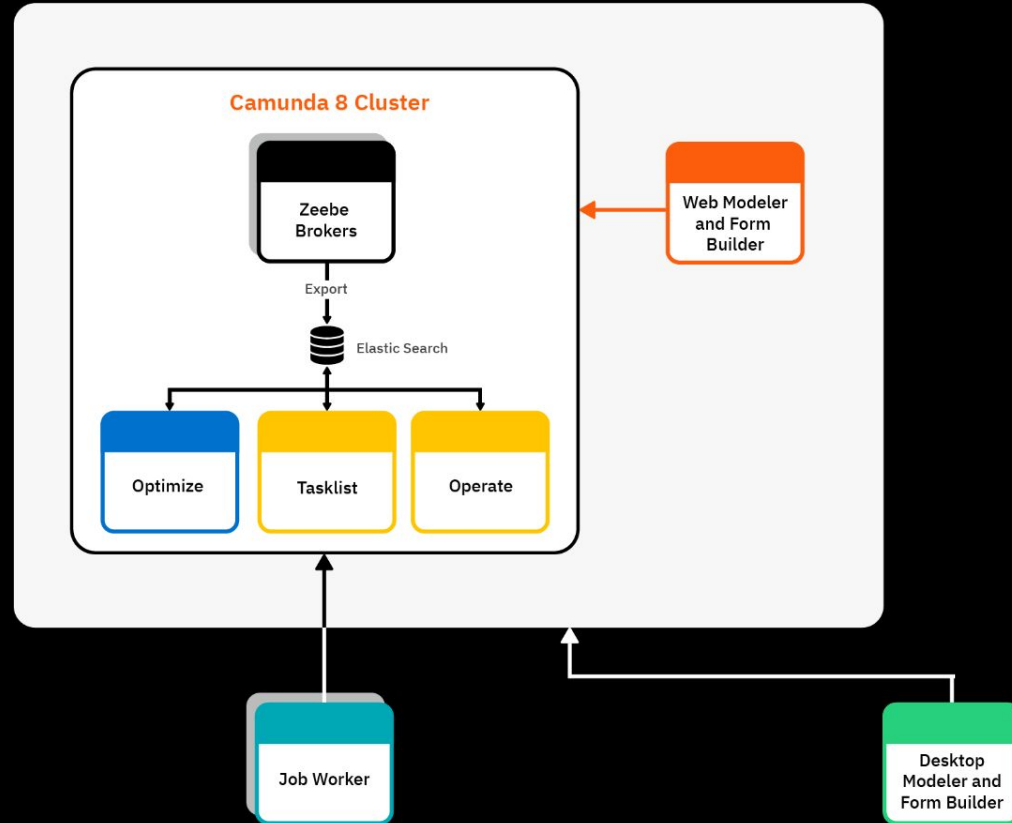
Flexibility



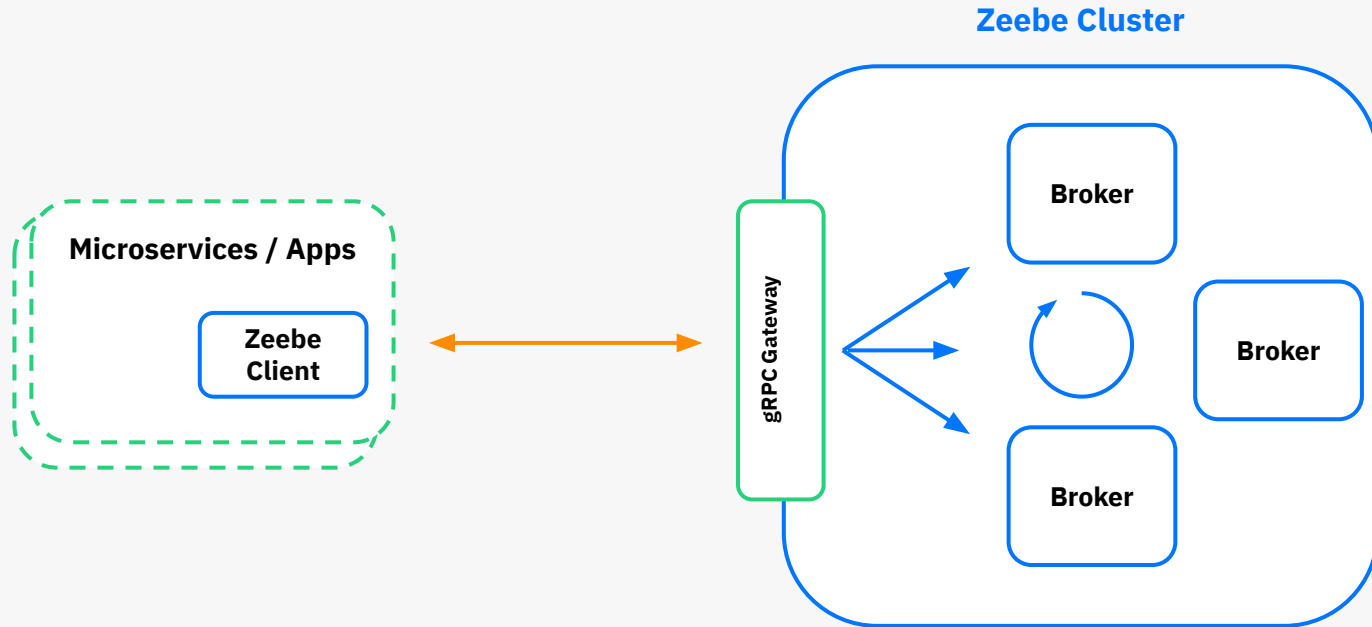
All Endpoints

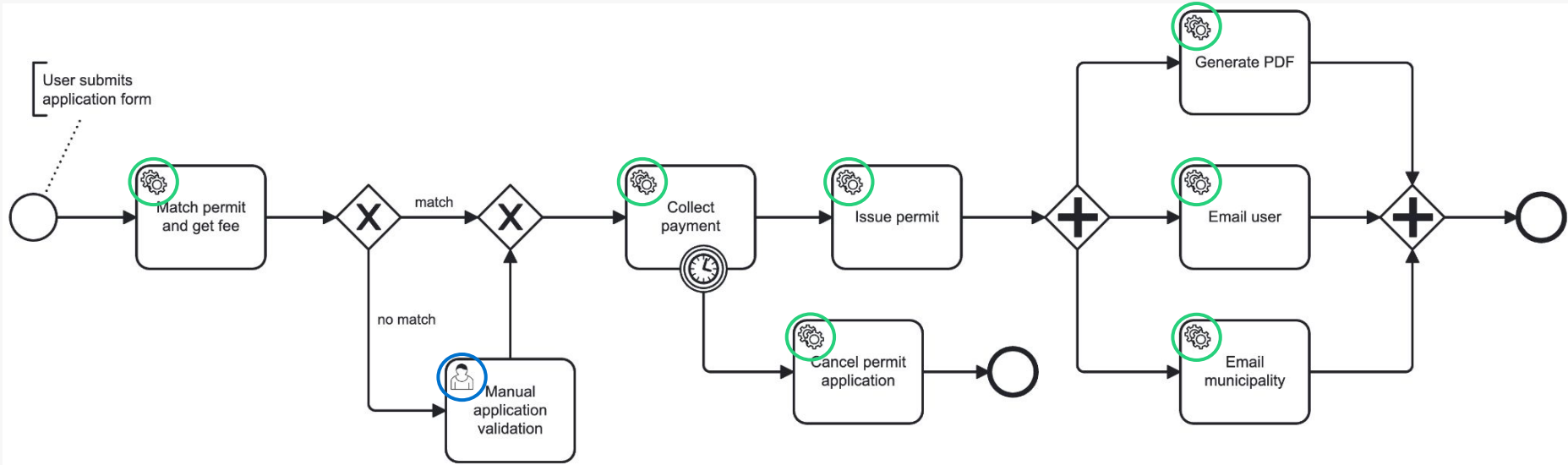


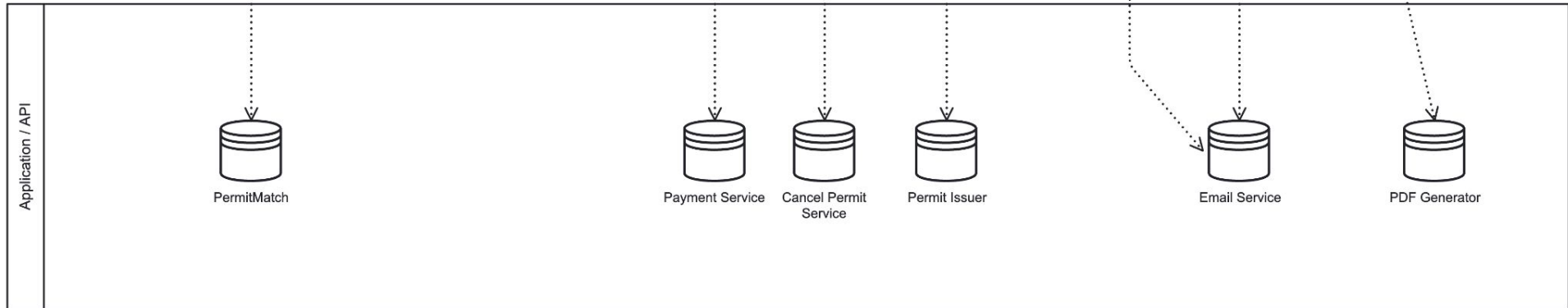
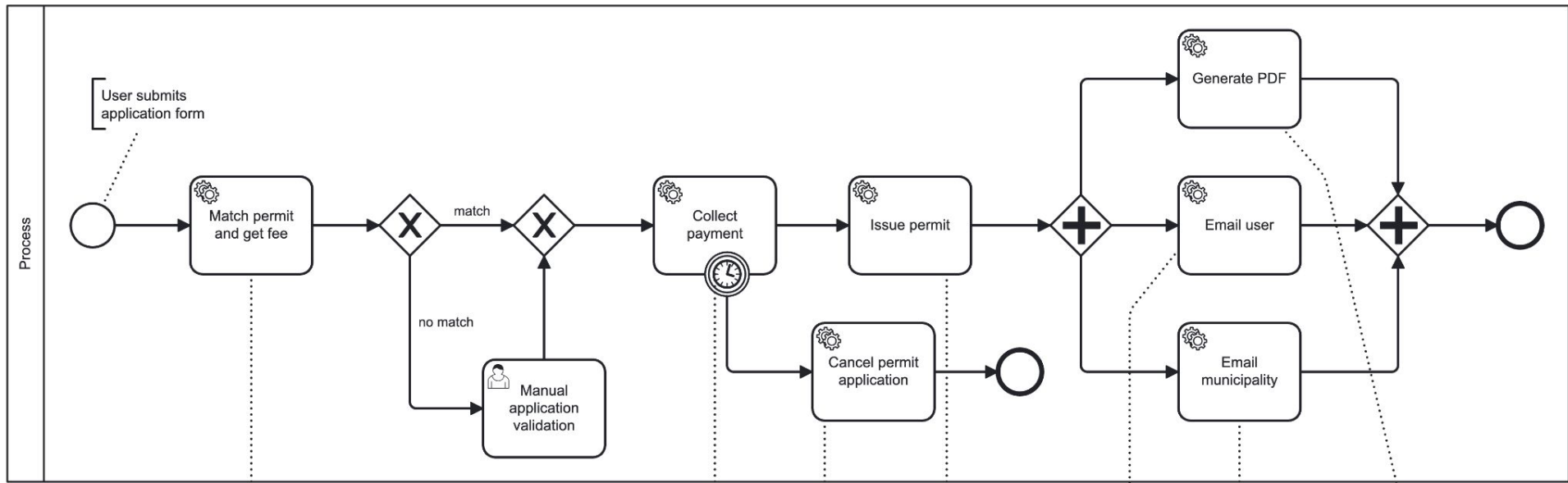
Camunda Platform 8



Zeebe Architecture



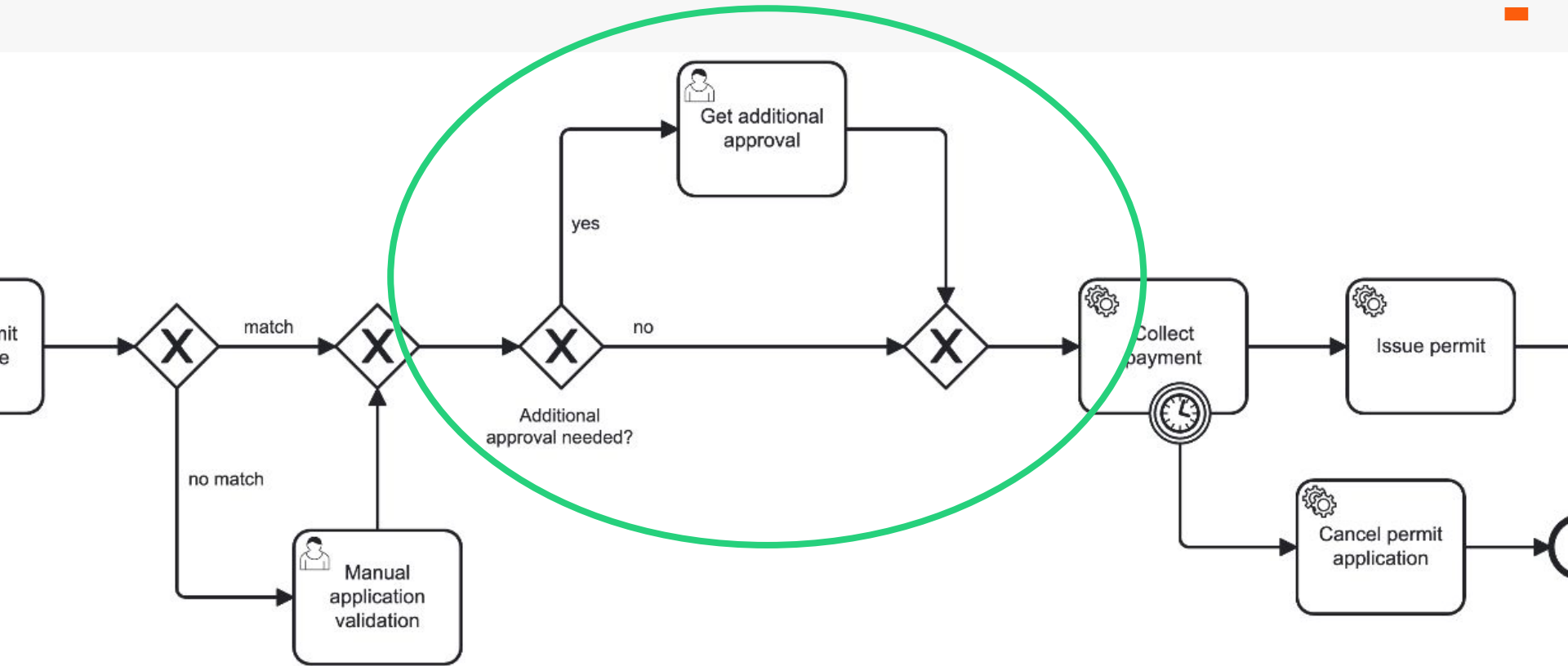


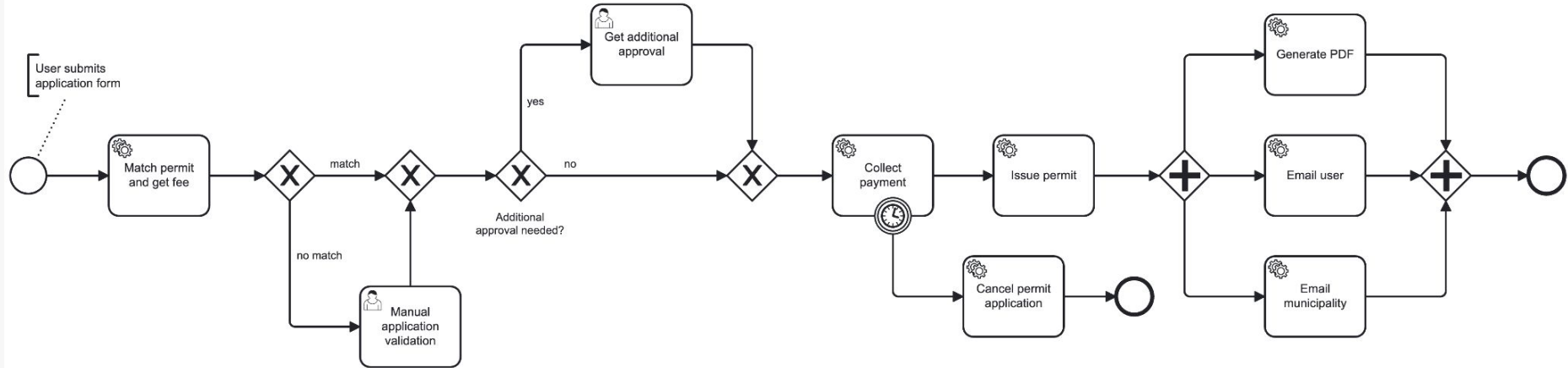


The state of a process is managed by the workflow engine, not the application. The data is managed by the application, not the engine.

New requirement!

“For some permits, they need additional approval before collecting payment.”



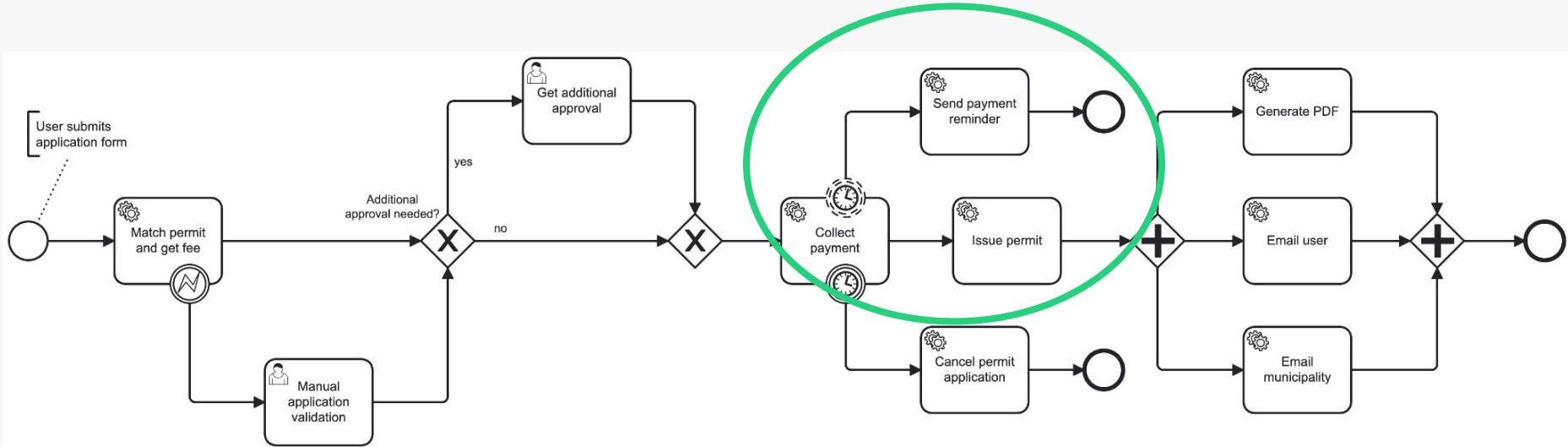


New requirement!

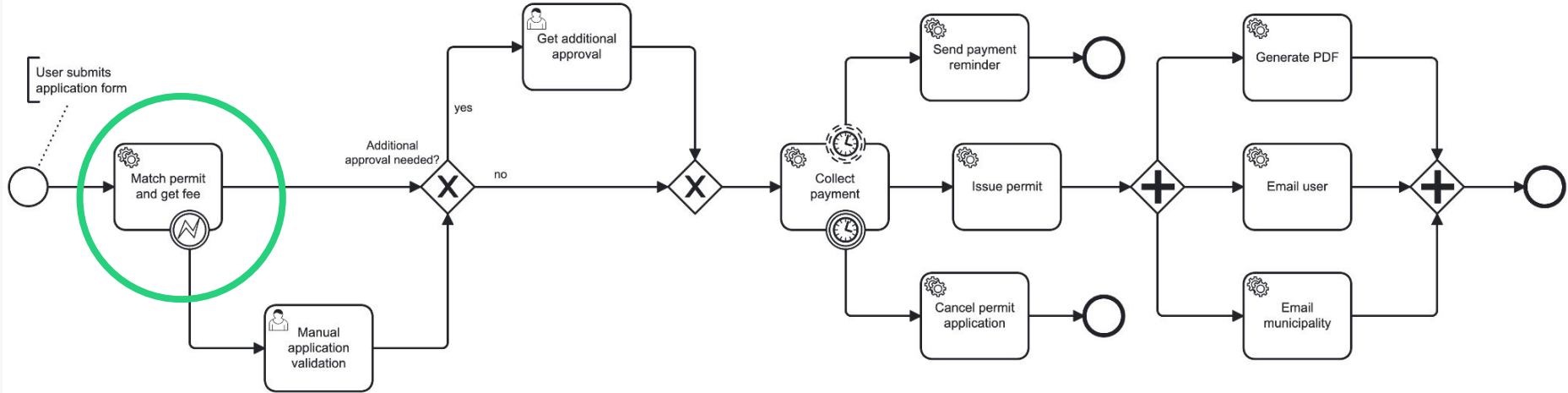


“Oh, and we should probably send a payment reminder before we cancel the permit.”

Errors and reminders



Errors and reminders



That was easy!

Let's review

1

BPMN

Open spec that defines processes in an organized, understandable way

2

BPMN Engines

Execute the process as drawn, connecting tasks to external services. State of each process is controlled by the engine, not the application.

3

Simplified management

Easily add additional tasks without changing existing application; engines provide management tools to monitor performance etc.



Resources

- Camunda Academy – free courses on BPMN and Camunda:
<https://academy.camunda.com/>
- BPMN 2.0 documentation:
<https://docs.camunda.io/docs/components/modeler/bpmn/bpmn-primer/>
- Camunda Code Studio on YouTube:
<https://www.youtube.com/watch?v=fv3wPccIpL8>
- Camunda Forum:
<https://forum.camunda.io/>





**CAMUNDA
CON 2024**

THE PROCESS ORCHESTRATION CONFERENCE

Join us in New York City or Online October 16-17

Questions?