

BPMN to Infinity and Beyond

Daniel Meyer (VP Engineering) and Jakob Freund (CEO)



Camunda BPM Enterprise Edition

- Initially offered in 2013
- Today 130 customers in 18 countries
- > 85% of customers use Camunda for core business processes
- Company revenue growth 2016: 82%



AT&T



TOTAL



UNIVERSAL MUSIC GROUP



WARNER MUSIC

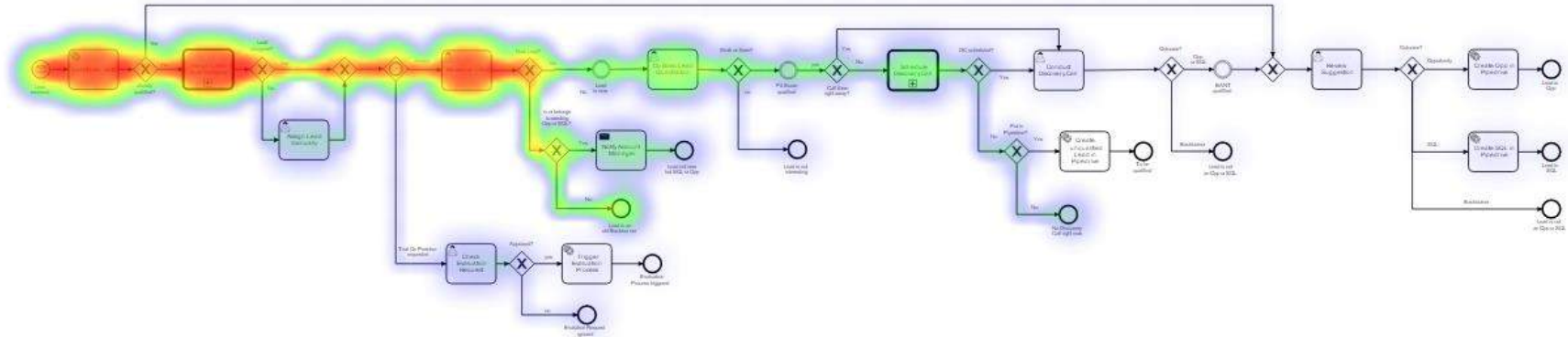


Camunda BPM does not offer

- Adaptive Case Management
- Low-code BPM
- Robotic Process Automation
- Artificial Intelligence
- Blockchain
- Cognitive Recognition Adoption
- ... and not even a full FEEL implementation (I think)!

The Case for „Workflow“

- Distribute Work
- Handle Events
- Allow Asynchronous Processing
- Provide Visibility





»In general, we may conclude that Camunda performed better and more stable for all metrics when compared with WfMS A and WfMS B.«

Micro-Benchmarking BPMN 2.0 Workflow Management Systems with Workflow Patterns,
June 2016, University of Stuttgart, Germany and University of Lugano, Switzerland



»At Google, we have different ideas about scalability.«

Senior Architect at Google discussing BPMN

Approving Calls

- Customer dials a number
- Provider checks if customer is allowed to call that number
- If positive, connection is established
- Customers of AT&T Wireless: > 110 million





Netflix Conductor

NETFLIX

The Netflix Tech Blog

Monday, December 12, 2016

Netflix Conductor : A microservices orchestrator

The Netflix Content Platform Engineering team runs a number of business processes which are driven by asynchronous orchestration of tasks executing on microservices. Some of these are long running processes spanning several days. These processes play a critical role in getting titles ready for streaming to our viewers across the globe.

A few examples of these processes are:

- Studio partner integration for content ingestion
- [IMF](#) based content ingestion from our partners
- Process of setting up new titles within Netflix
- Content ingestion, encoding, and deployment to CDN

Traditionally, some of these processes had been orchestrated in an ad-hoc manner using a combination of pub/sub, making direct REST calls, and using a database to manage the state. However, as the number of microservices grow and the complexity of the processes increases, getting visibility into these distributed workflows becomes difficult without a central orchestrator.

We built Conductor "as an orchestration engine" to address the following requirements, take out the need for boilerplate in apps, and provide a reactive flow:

- Blueprint based. A JSON DSL based blueprint defines the execution flow.
- Tracking and management of workflows.
- Ability to pause, resume and restart processes.
- User interface to visualize process flows.
- Ability to synchronously process all the tasks when needed.
- Ability to scale to millions of concurrently running process flows.

Links

[Netflix US & Canada](#)
[Netflix America Latin](#)
[Netflix Brasil Blog](#)
[Netflix Benelux Blog](#)
[Netflix DACH Blog](#)
[Netflix France Blog](#)
[Netflix Nordic Blog](#)
[Netflix UK & Ireland](#)
[Netflix ISP Speed In](#)
[Open positions at N](#)
[Netflix Website](#)
[Facebook Netflix Pa](#)
[Netflix UI Engineeri](#)
[RSS Feed](#)

About the Netflix

This is a Netflix blog focused on technology and technology issues. We'll share our perspectives, decisions and challenges regarding the software we build and use to create the Netflix service.

Blog Archive

► 2017 (12)
▼ 2016 (55)

"[...] as the number of microservices grow and the complexity of the processes increases, getting visibility into these distributed workflows becomes difficult without a central orchestrator."



New Requirements for Workflow

Load:

Exponential Growth of Data and Transactions Quantity

Resilience:

High Availability under (almost) any Circumstances

Distribution:

Decomposition and Decentralization of Software Applications

Persistence:

Freedom of Choice for SQL DB, No-SQL DB, no DB at all



Big Data => Big Workflow

If the world's data volume is growing, what does this tell us about the world's transactions volume?

World's data volume to grow 40% per year & 50 times by 2020: Aureus

In a new infographic, Aureus shares key Big Data and analytics trends for 2015, also touching on the Internet of Things, wearables, the cloud, and more

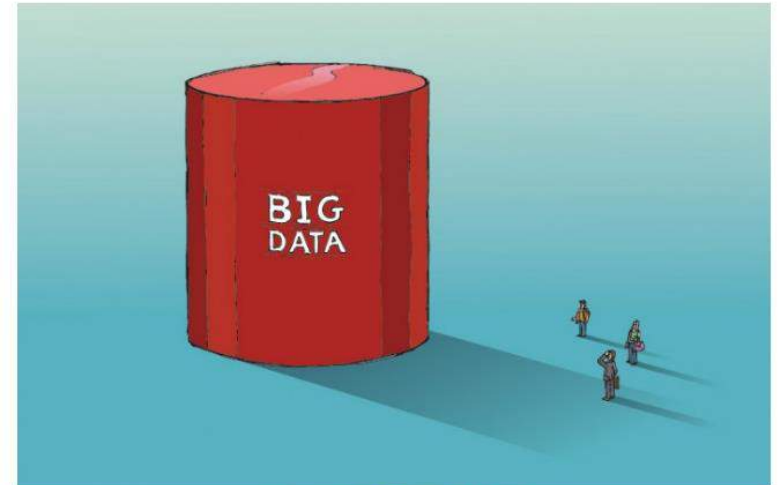


Image credit: [Scott Bedford](#) / Shutterstock

<https://e27.co/worlds-data-volume-to-grow-40-per-year-50-times-by-2020-aureus-20150115-2/>

The future of process automation is

~~RPA, Low Code, ACM, ...~~

BIG WORKFLOW

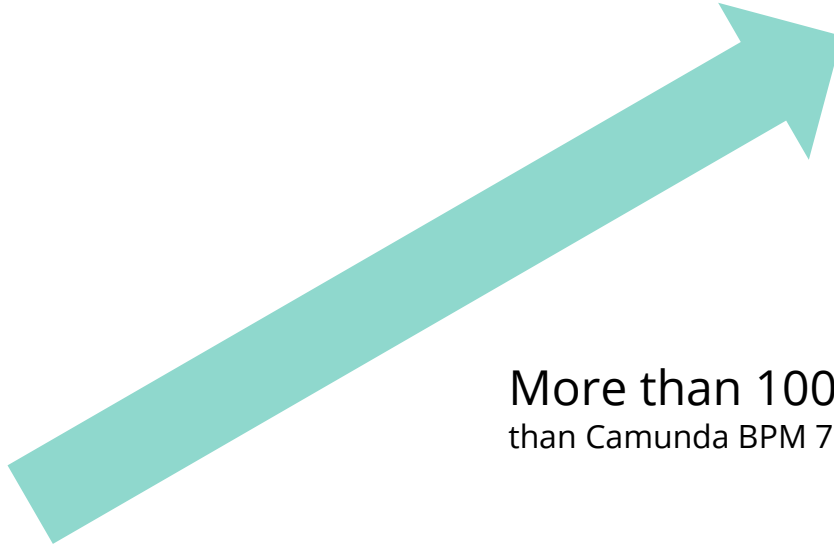
Introducing Camunda's TNGP

- The first ever „Big Workflow System“
- Re-designed and written from scratch
- Leap in workflow engine core technology



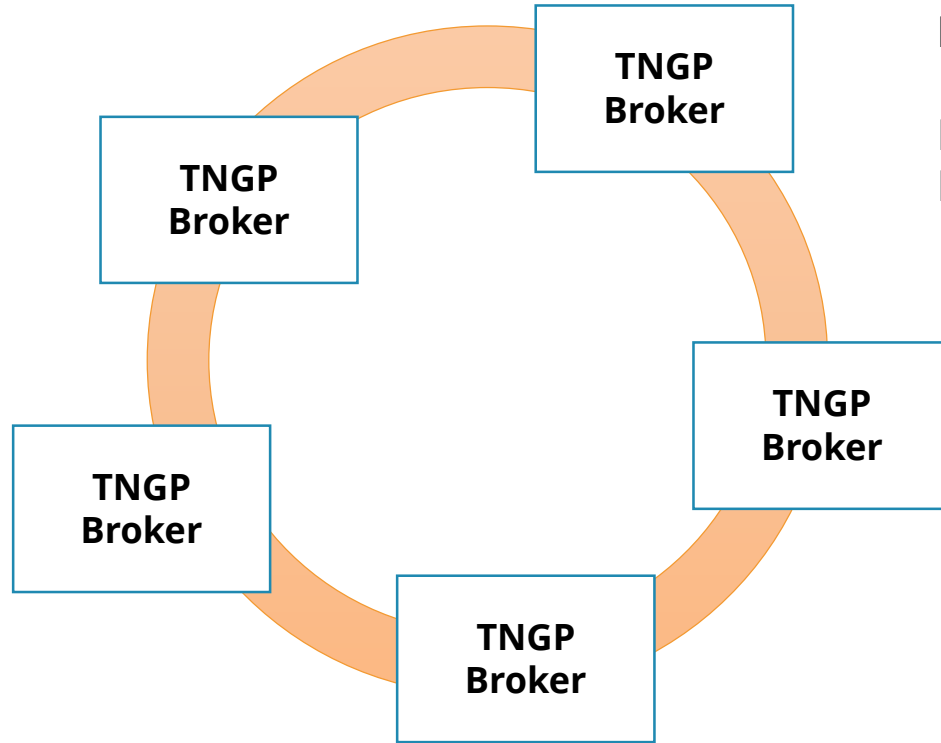


TNGP = High Throughput



More than 100x faster
than Camunda BPM 7 on a single Machine

TNGP = Distributed System

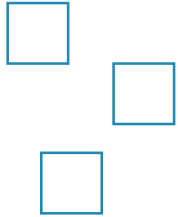


Peer to Peer

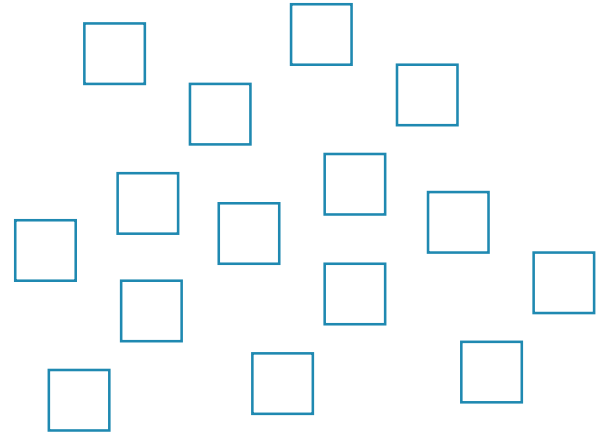
No single point of failure
No single choking point



Scale Elastically



3 Nodes



300 Nodes



Cloud Native



kubernetes



MESOSPHERE

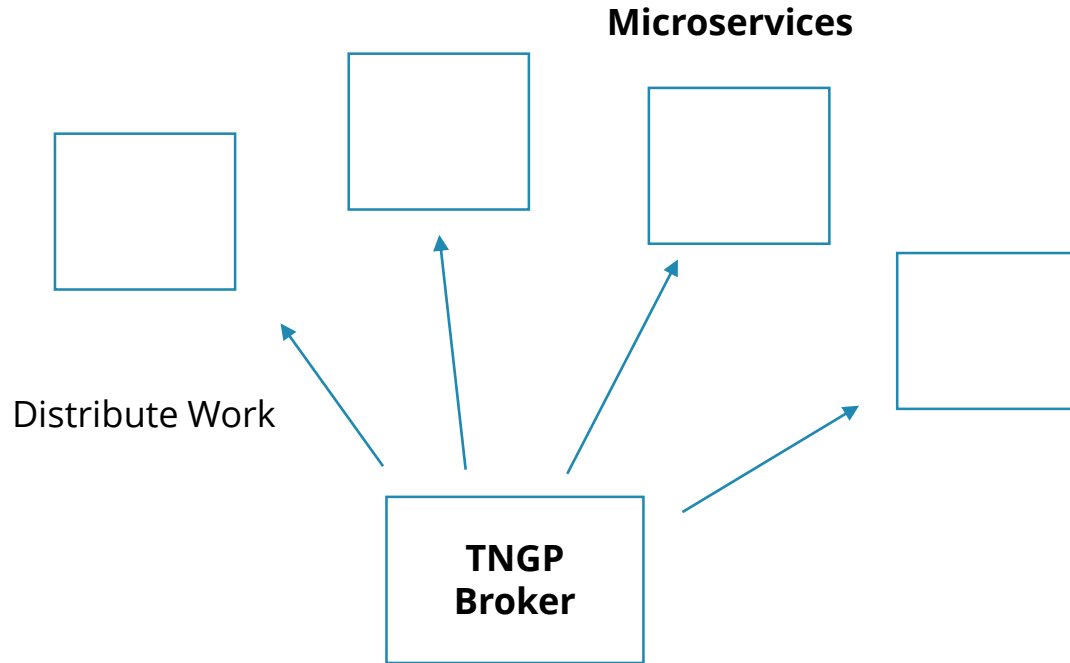


docker

```
$ docker service scale tngp=10
```

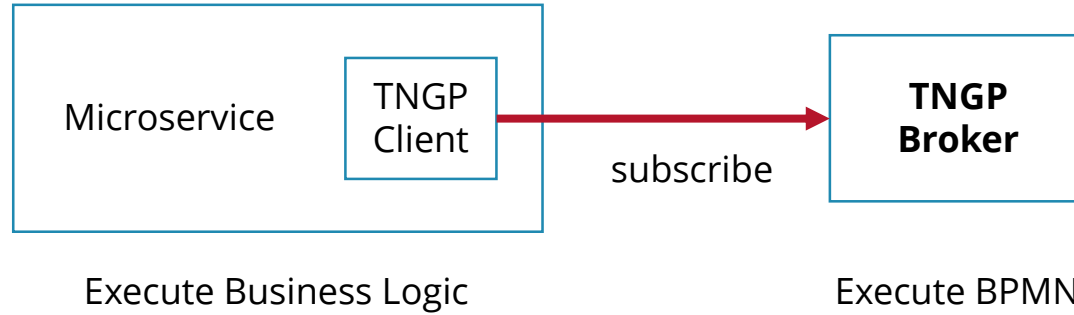



Orchestration of Microservices



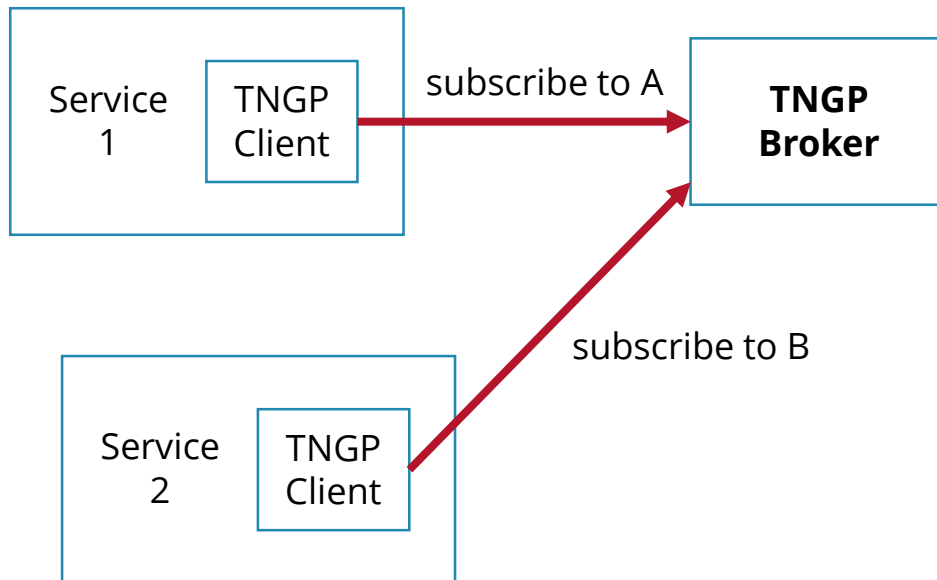
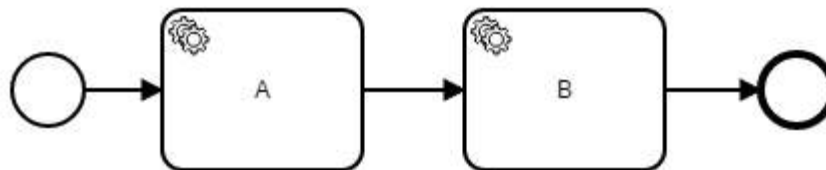


Publish / Subscribe



Inspiration: Messaging Systems!

Publish / Subscribe





Roadmap

- Currently: Private Beta with selected Users / Customers
- Release Date: July 15th 2017
- **Open Source** (Broker: AGPL, Clients: ASL 2.0)
- Scope
 - Broker + Java Client
 - Full Elastic Scalability & Fault Tolerance
 - BPMN Workflows

The screenshot shows the GitHub organization page for 'camunda-tngp'. The organization's profile includes a logo (a red and white checkerboard pattern) and the name 'camunda-tngp'. Below the profile, there are navigation tabs for 'Repositories', 'People (28)', 'Teams (2)', 'Projects (0)', and 'Settings'. A search bar for repositories is visible, along with filters for 'Type: All' and 'Language: All'. The main content area displays a list of repositories, with the first one being 'camunda-tngp' (Private), described as a 'High-throughput, distributed Workflow System'. It shows 1 star and 1 fork, and was updated 3 days ago. The second repository is 'logstreams' (Private), described as a 'Persistent append-only Log', updated 4 days ago. On the right side, there are sections for 'Top languages' (Java, Shell, Lua) and 'People' (28), showing a grid of user avatars.