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China 2018



Kubernetes on Supporting 1 Million Bike-Taxi Drivers in Indonesia

Giri Kuncoro and Iqbal Farabi
KubeCon + CloudNativeCon China 2018

Hello!



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Iqbal Farabi
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We're from Jakarta, Indonesia



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Ojek!



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OJEG MTC SUKASARI JALUR

JLR BEBAS TLP/WA 082116506109





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Milestone

01 Go-Jek 1.0

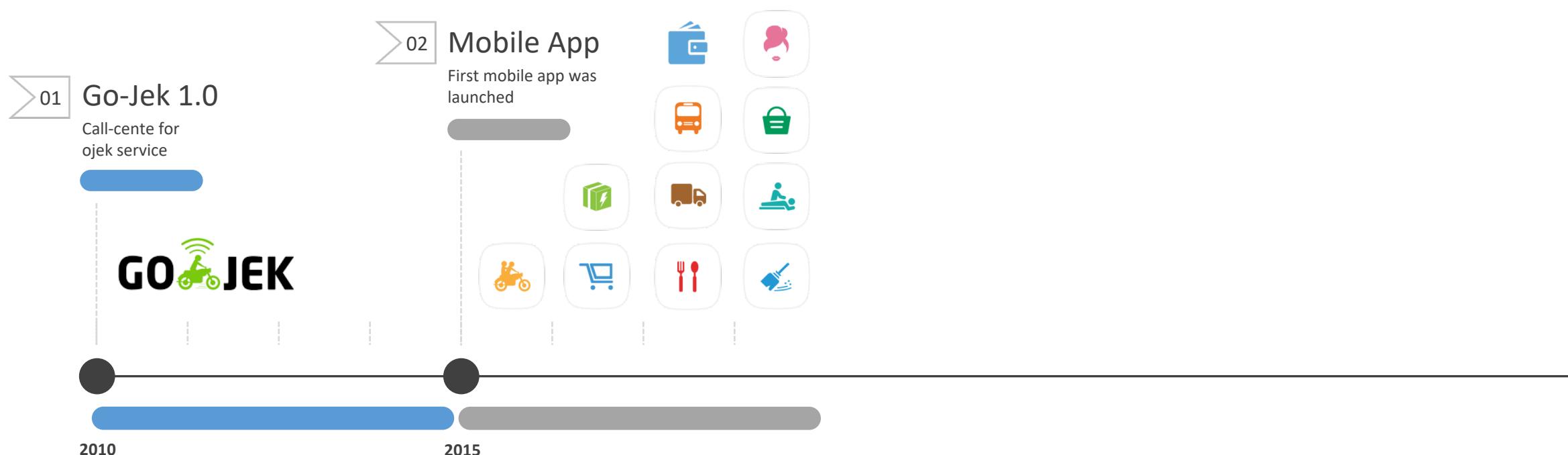
Call-center
for ojek service



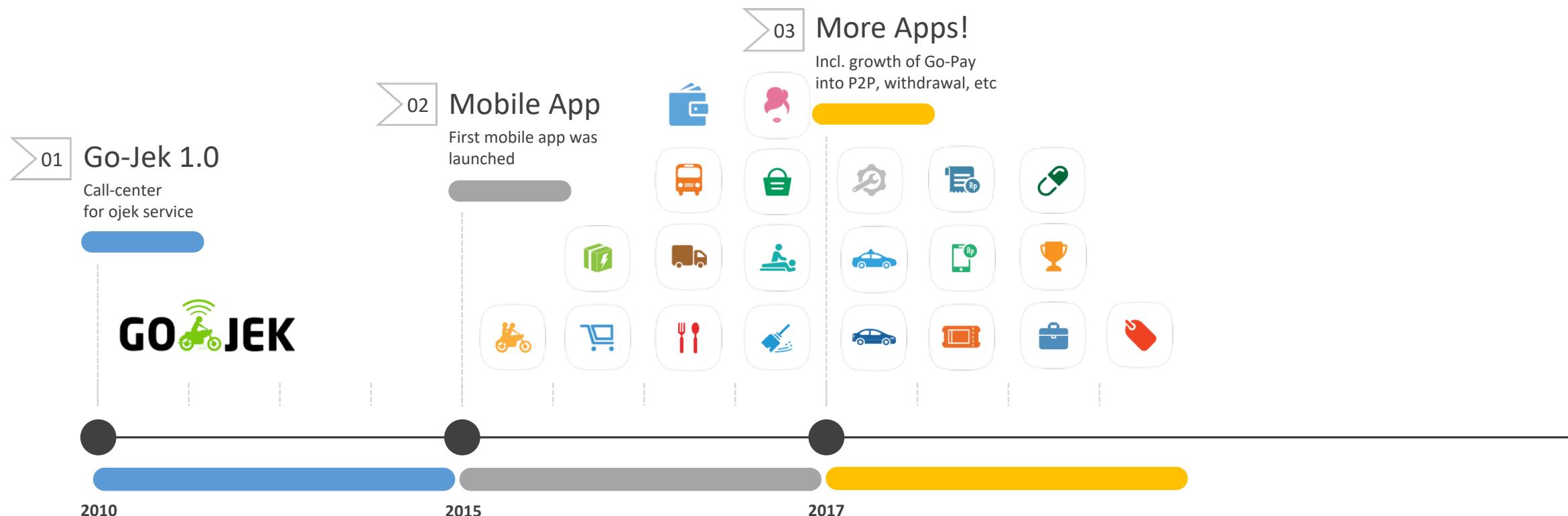
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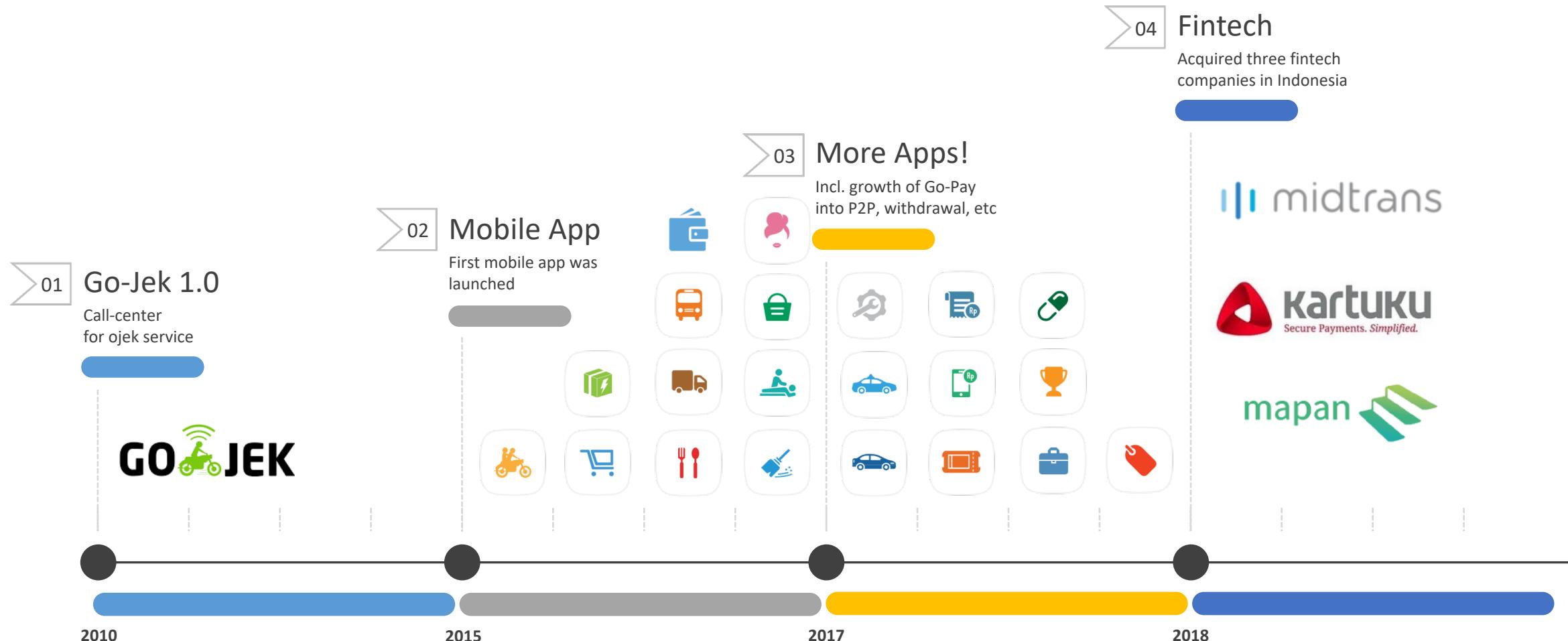
Milestone



Milestone



Milestone



**With great number of apps
comes great headache**



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a typical flow of an app in Go-Jek...

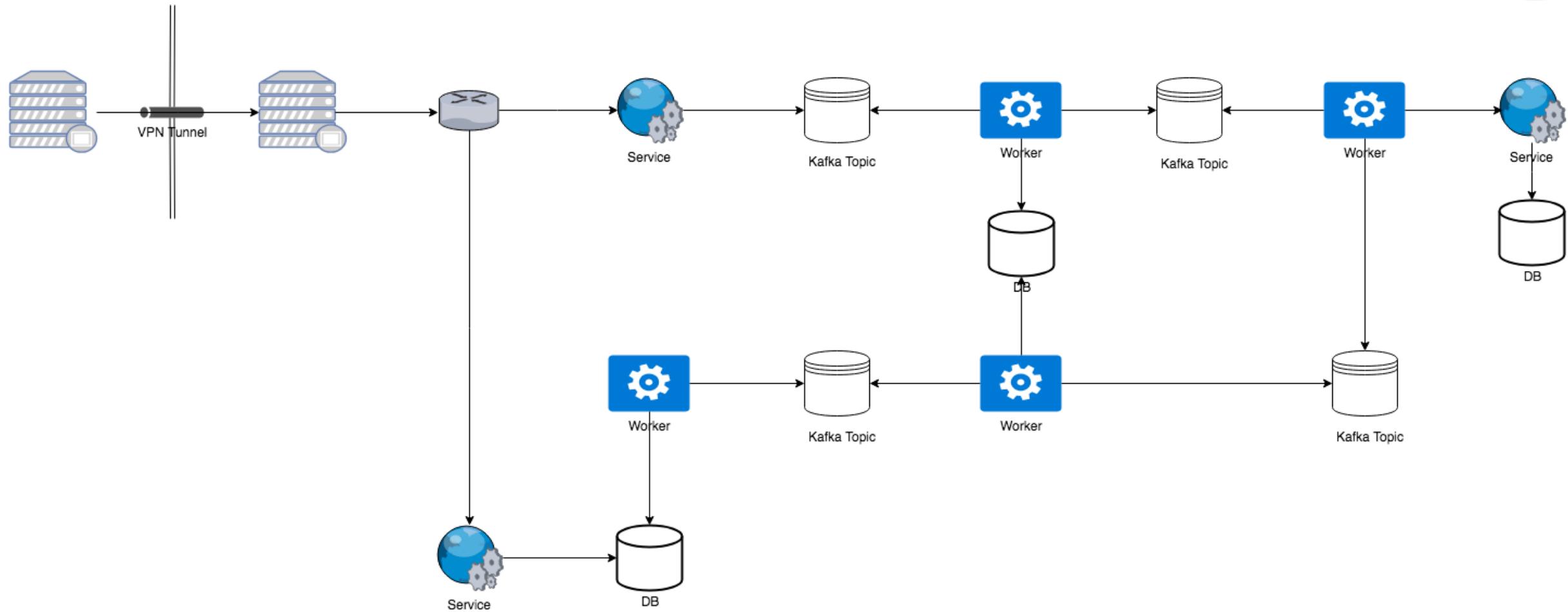


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AUTOMATE EVERYTHING



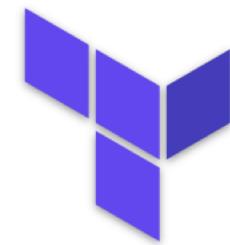
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Infrastructure as Code



Started in the beginning of 2016, we now have Terraform modules, Chef cookbook, and Ansible playbook for most of infrastructure use cases within Go-Jek group environment.



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We went from 3 VMs in 2015
to 10,000+ VMs today



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A large cargo ship is shown from a low angle, sailing on a bright blue sea under a clear sky. The ship's hull is dark green, and its deck is covered with thousands of shipping containers stacked in multiple layers. The containers are a vibrant mix of colors, including red, blue, green, yellow, and white. The ship's superstructure, with its masts and cranes, is visible at the top. The overall scene conveys a sense of global trade and industrial activity.

Our Journey to The Land of Containers



Project X

By the end of 2016, we started our Kubernetes journey by developing a deployment tool called Project X. The goal is to create a tool that is easy to use and scheduler agnostic.

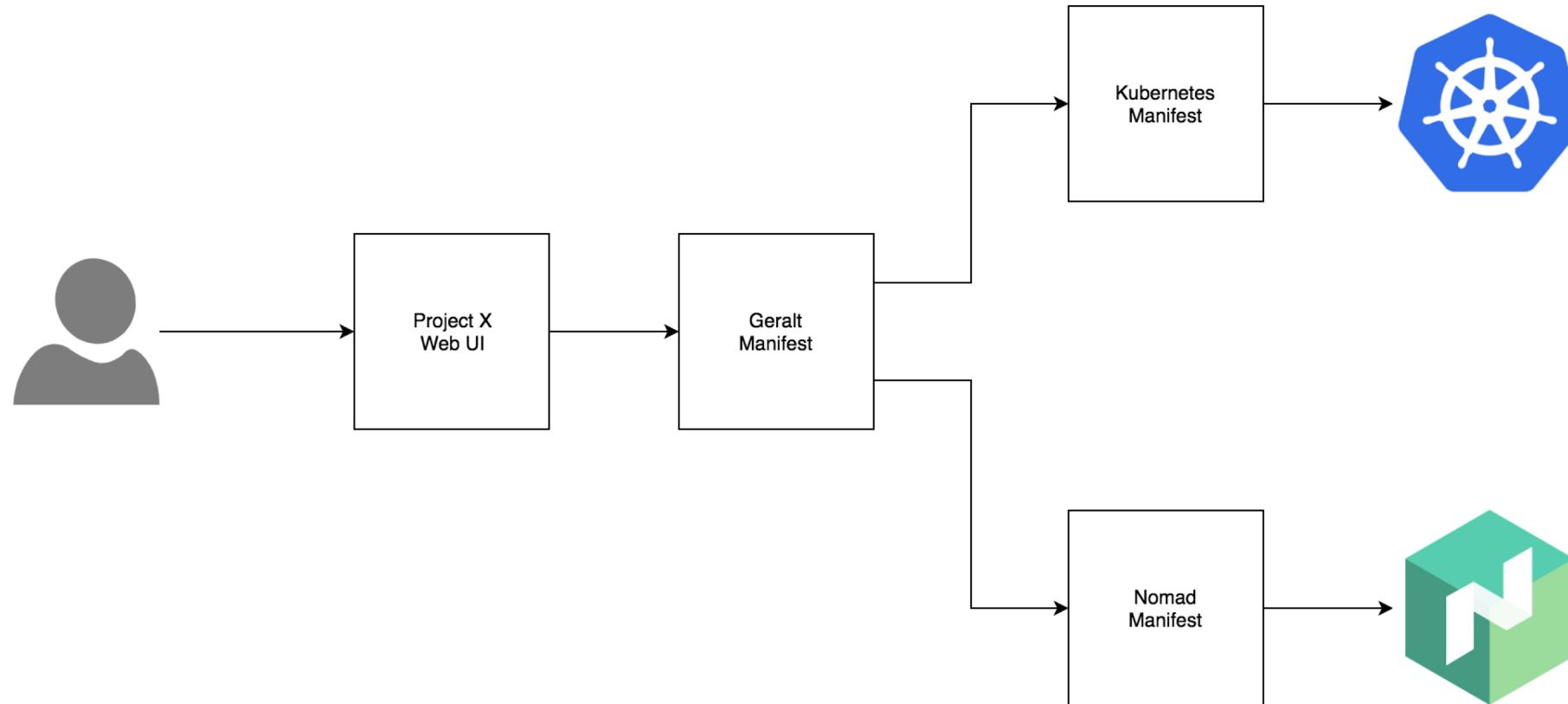


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Technical Issues

Not Well-Designed Abstraction

- Trying to make a scheduler-agnostic deployment tool is hard and can lead to abstraction that's awkward for one or more scheduler

Not Easily Extendable

- As the consequence of the first issue, it was hard for us to extend Project X to keep up with new features released in Kubernetes or Nomad.

Blackbox

- Because we hid complexity from our product engineers, it was hard for them to figure out what went wrong when they had issues with their deployments.



Non-Technical Issues

Centralized and Siloed

- We're not saying that centralized effort is bad when creating initiative to migrate your organization to Kubernetes. In our experience, with only one team working on it, the knowledge becomes siloed within that team only.

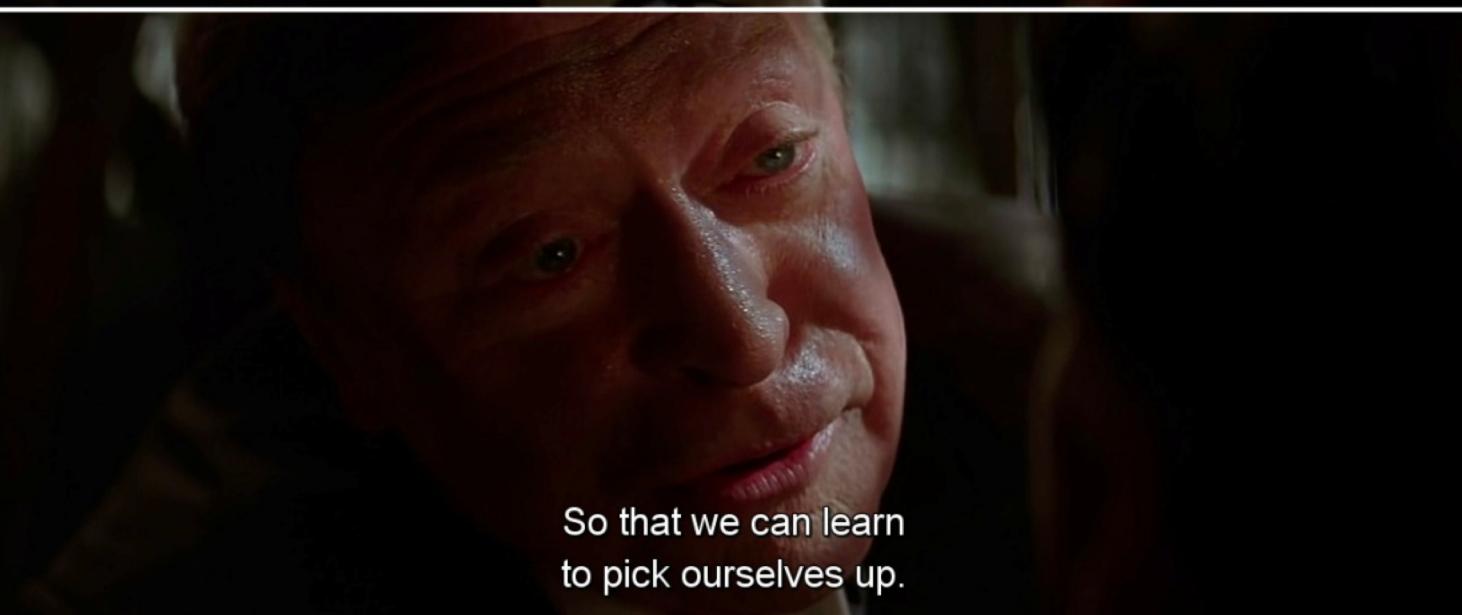
Start with a Bang!

- Instead of starting with onboarding small number of teams, we went with the whole organization. When issues happened, we did not have the bandwidth to work on all of them at once.





Why do we fall, sir?



So that we can learn
to pick ourselves up.

Multiple Approaches



Improve Project X

- Focus on Kubernetes only
- Design better abstractions
- Work with small number of teams at a time



Project X was used as deployment tool for Go-Jek International Expansion Projects

Faster Setup Time

- Setting up the whole Go-Viet infrastructure only took four days.

Cookie Cutter Model

- Repeatable/imutable nature of containerizing helps us to replicate our MVP launch strategy for different geographies.

Scalable

- Scaling based on business growth is very easy.

Faster MTTR

- In the case of traffic spike, for instance, we can spin up new containers much more quickly than setting up new VMs.



Project X was used as deployment tool for Go-Jek International Expansion Projects

Higher Uptime

- High availability DBs lead to fewer outage

Efficiency

- System resources like CPU, memory, etc. are more effectively utilized in container world than in VMs.

Easy Configuration

- Automatic service discovery allows engineers to not maintain any configuration for multi-data center deployments.

Cost-effective

- Save 60% infrastructure cost per year per country.





Whiterabbit

Kubernetes custom resources to support sharding with
Kubernetes namespaces.



Barito Log

Open source on-demand logging infrastructure platform.
Visit: <https://github.com/BaritoLog/>.



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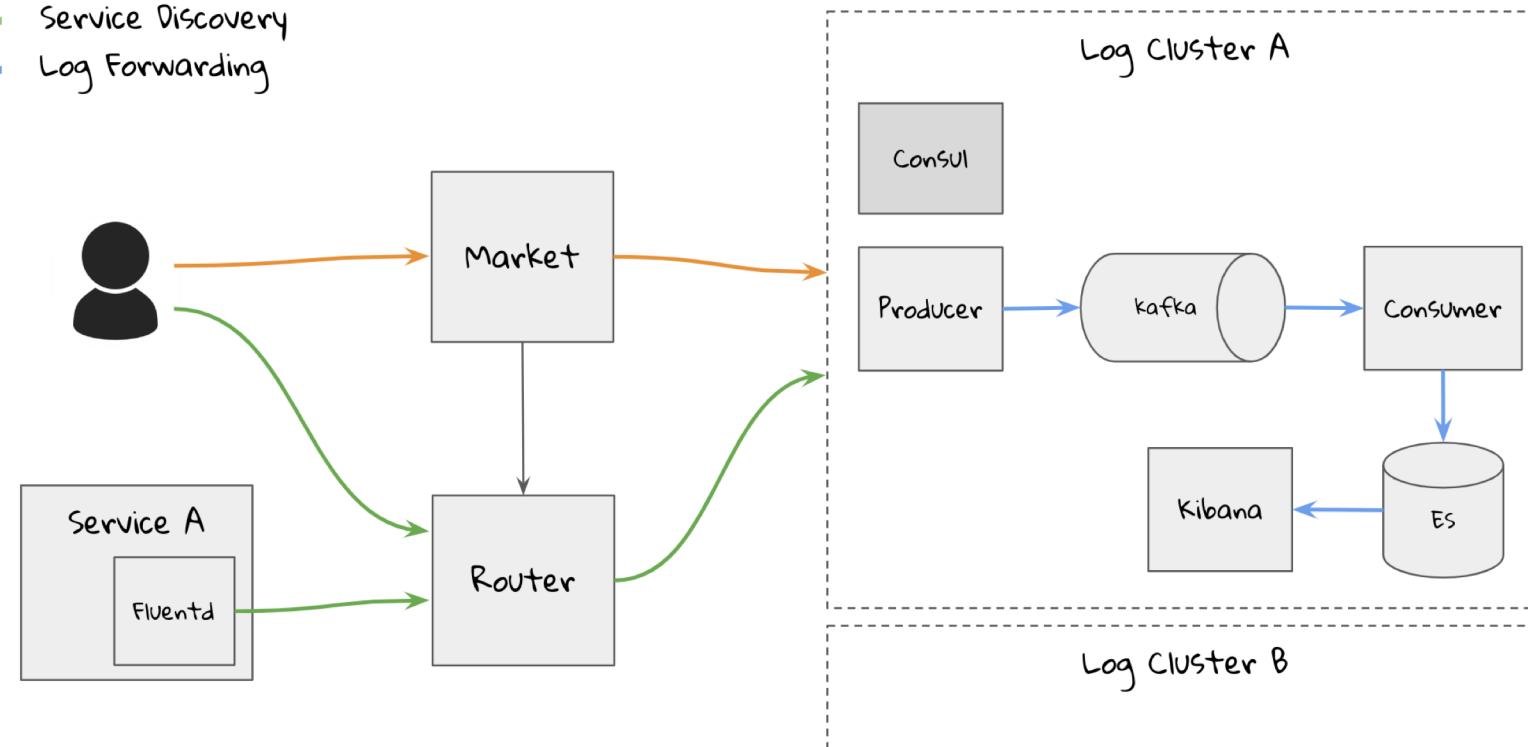


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Barito Overview

- Provisioning
- Service Discovery
- Log Forwarding



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Cloud Native

SATURDAYS

Cloud Native Saturdays

Internal knowledge-sharing sessions held regularly to discuss in depth about cloud native technologies.

Aimed to get more people within our organization to understand better about the inner working of cloud native tech stack.



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What's Next?



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Stateful Apps



Visit:

<https://github.com/gojektech/charts/tree/master/incubator/stolon>



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Credits

Vijay Dhama – Go-Jek System Team

Prashant Mittal – Go-Jek Lambda Team

Irfan Shah – Go-Jek Atlas Team

Sumit Gupta – Go-Jek International Expansion Team

Willem Pienaar – Go-Jek Data Science Team

Arief Hermansyah – Go-Jek Data Science Team

Shani Pribadi – Go-Jek Business Intelligence Team

Sourabh Gupta – Go-Jek International Expansion Team

Giovanni Sakti – Go-Jek System Team

Himani Agrawal – Go-Jek System Team



Q & A



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谢谢



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