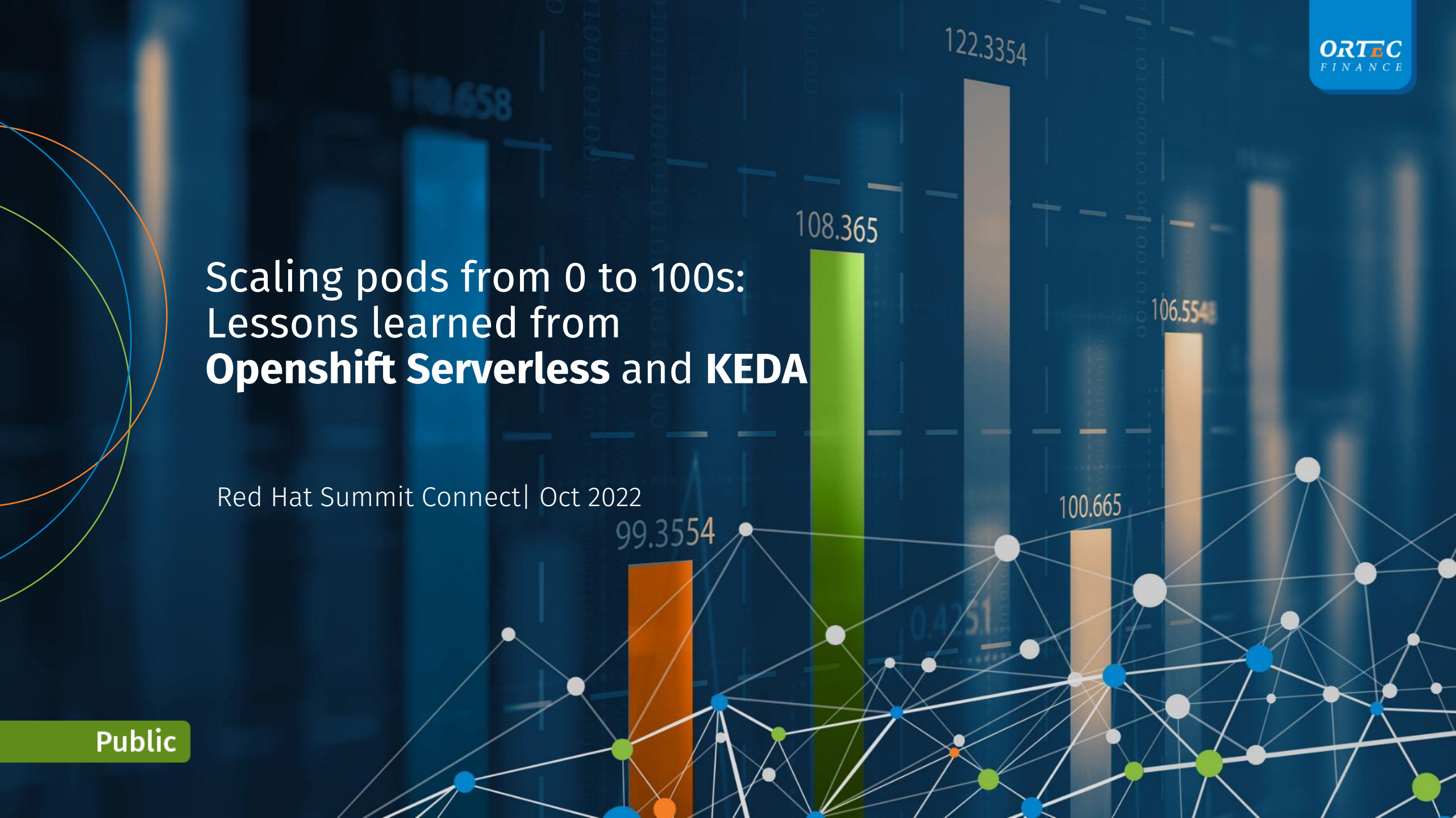


Scaling pods from 0 to 100s: Lessons learned from **OpenShift Serverless** and **KEDA**

Red Hat Summit Connect| Oct 2022

Public



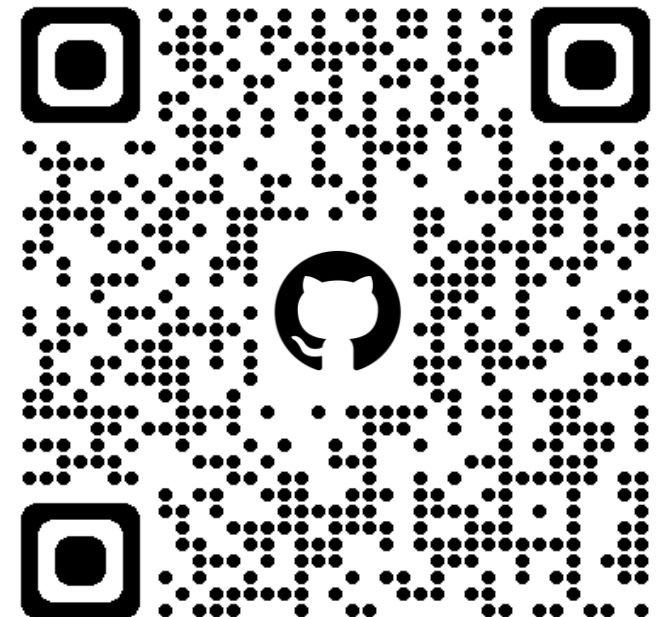
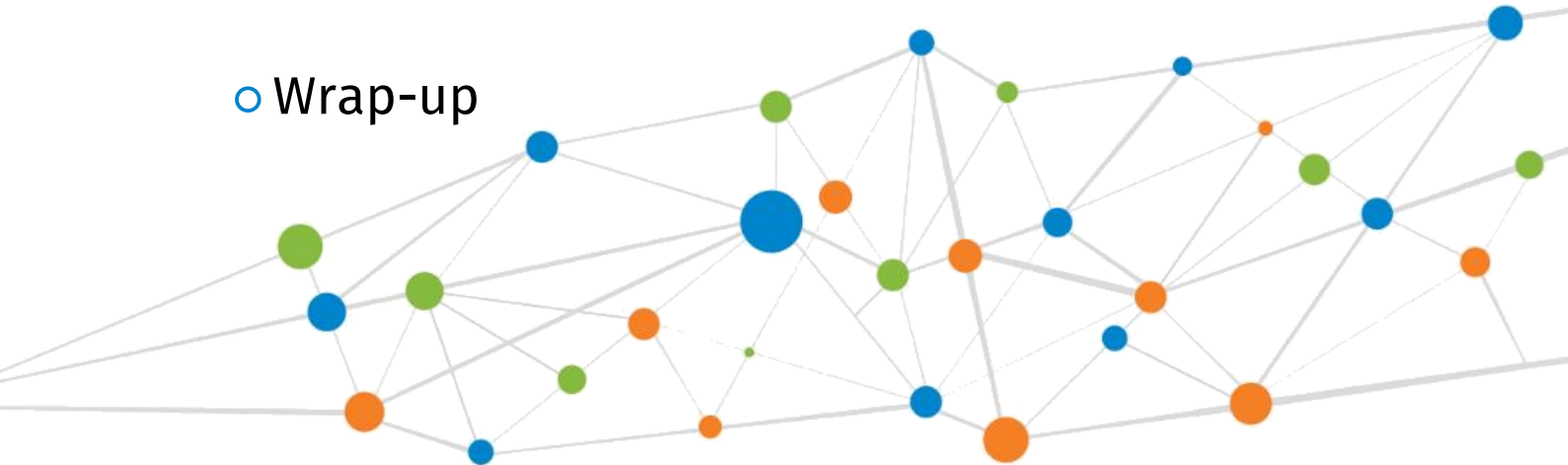


Scaling pods from 0 to 100s

Lessons learned from Openshift Serverless and KEDA

Agenda:

- Context – What type of workloads are we talking about?
- Openshift Serverless + Demo
- KEDA + Demo
- Wrap-up



What we do & who we are

We enable people to manage the complexity of investment decision making

Ortec Finance is a global technology and solutions provider



Global client base



North America

OMERS

THE
WORLD
BANK

OPTrust

HOOPP
Healthcare of Ontario
Pension Plan



UNIVERSITY
OF
CALIFORNIA

Office of the
Chief Investment
Officer

Europe

BT PENSION
SCHEME

USS

AP
FJÄRDE AP-FONDEN

Andra AP-fonden
Second Swedish National Pension Fund - APF

G.S.R.
de nederlandse
verzekerings
maatschappij
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verzekeringen

SEB

apg

ST. JAMES'S PLACE
WEALTH MANAGEMENT

KEVA

PGGM

ING

pensionskasse
STADT ZÜRICH

Investment Data Services
A company of Allianz

achmea
Investment Management

ABB

ROBECO
The Investment Engineers

elo

CERN

ABN·AMRO

PGB
pensioendiensten

AEGON

Pensioenfond
Rail & OV

Asia

Korea Fixed Income Research Institute
한국채권연구원

income
made different

Pacific

QIC

APF

cbus

futurefund
Australia's Sovereign Wealth Fund
Super

NEW ZEALAND
SUPERANNUATION
FUND

AustralianSuper

ORTFC
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Our Cloud-Native Journey

- We like Managed over DIY:
 - OpenShift is a very mature, battle-tested, enterprise-level Kubernetes toolkit. It's a 'batteries-included' platform
 - We leverage opinionated Red Hat stack (e.g. prefer supported operators)
- We don't lift and shift. – Modernize Apps first
- Migrating Legacy Microsoft HPC workloads this year

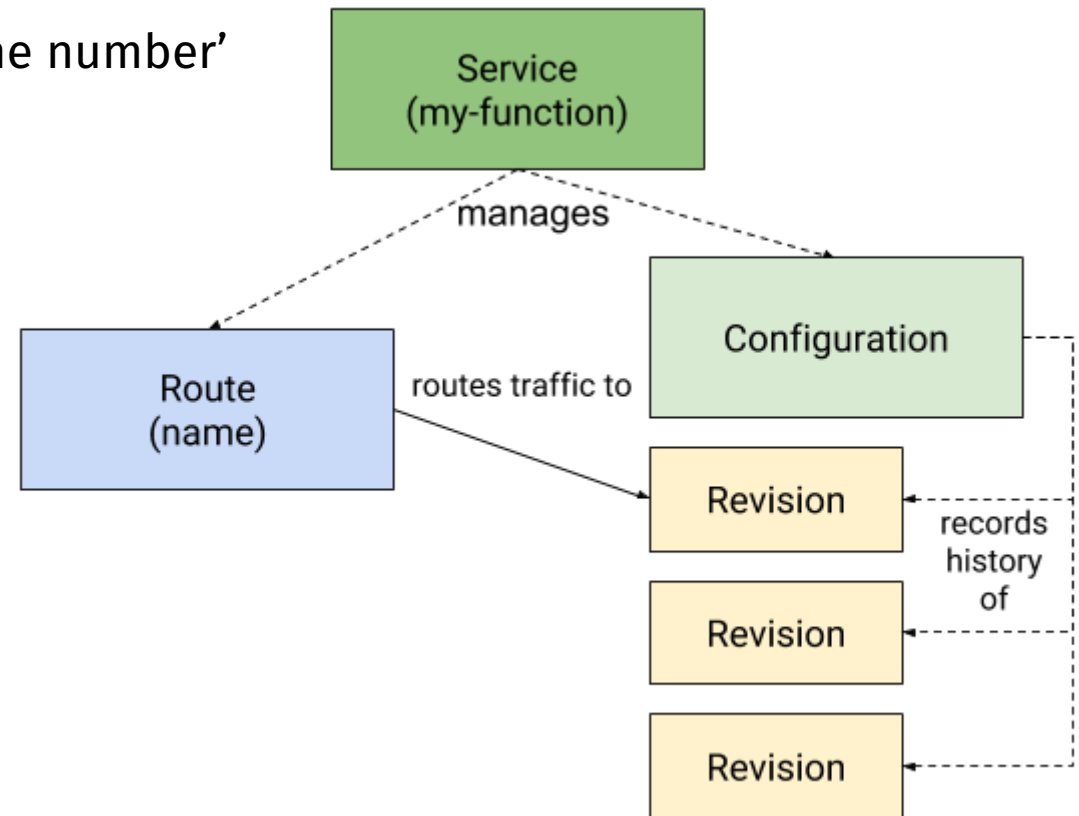


Openshift Serverless

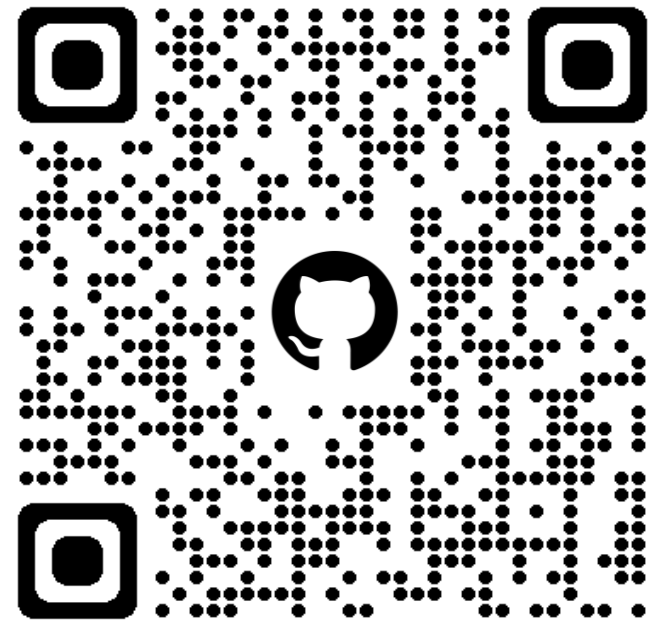
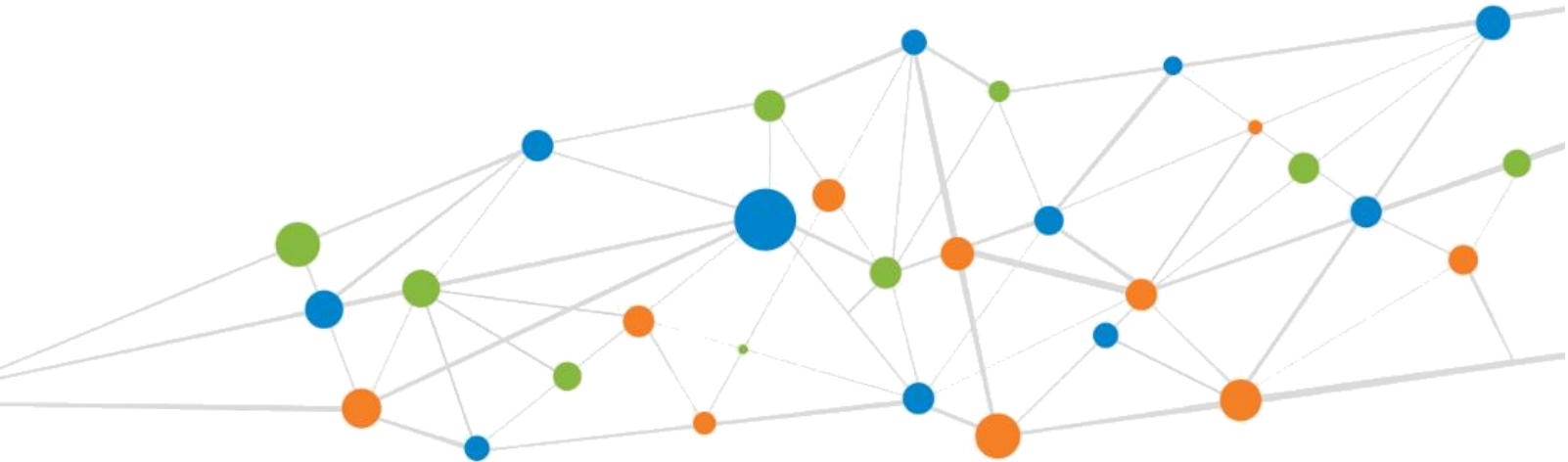
The ability to scale to zero – “Some people call this Serverless”

- Benchmark:

- dotnet core implementation of naive ‘highest prime number’
- We kept it synchronous (no Knative Eventing)
- Node selectors enabled



DEMO

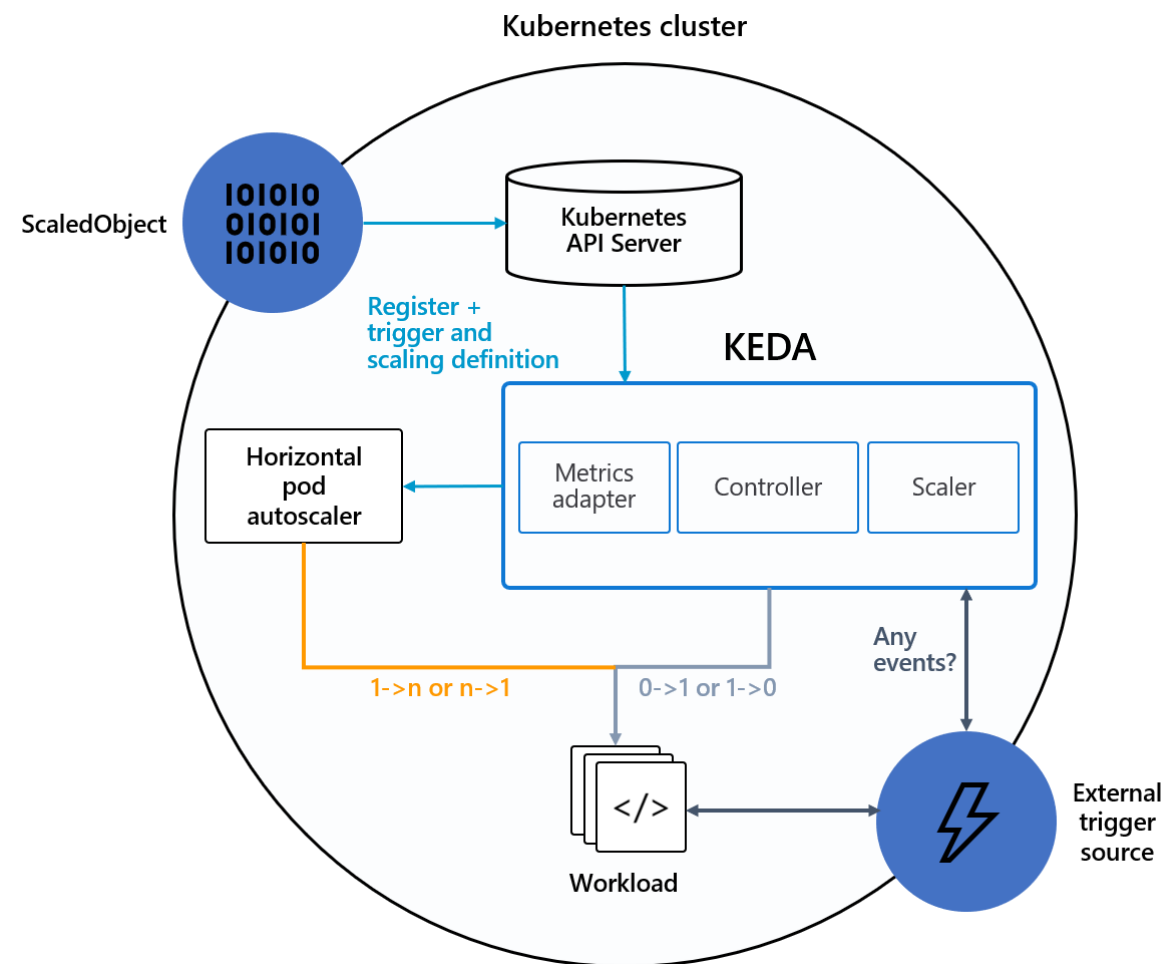


KEDA

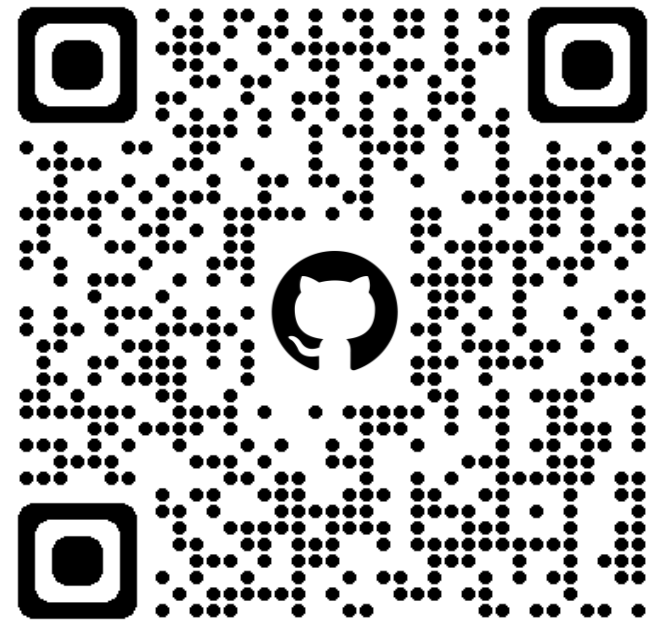
Kubernetes Event Driven Autoscaler

○ Benchmark:

- Same prime number algo
- Async; Producer / Consumer set up
- No Kafka, but AMQ Broker



DEMO





- Operates on standard k8s resources
- Can scale existing deployed apps
- Pull based approach
- Doesn't manage data delivery
- K8s Horizontal Pod Autoscaler (HPA)
- Focus is on event driven autoscaling



- Operates on Knative Service
- Existing apps must be converted
- Push based approach
- Manages data delivery (Eventing)
- Knative Autoscaler
- Demand-based autoscaling (HTTP)



Wrap-up

- For (long) parallel multiproces computations we prefer the **KEDA** setup
 - + Operates on standard K8 resources
 - + Can scale existing apps
 - + Tweakable autoscaling (e.g. deal with cold starts)
 - Not all community KEDA scalers not production ready (EDA for Prometheus is shipped in 4.11)
- For (short) multithreaded Compute we want to investigate **Openshift Serverless** further:
 - + Simplified deployment syntax
 - + Also includes traffic distribution
 - Async support requires rigorous design
 - Not designed for long running tasks (e.g. Kourier time-outs in 300s)

Contact me



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