

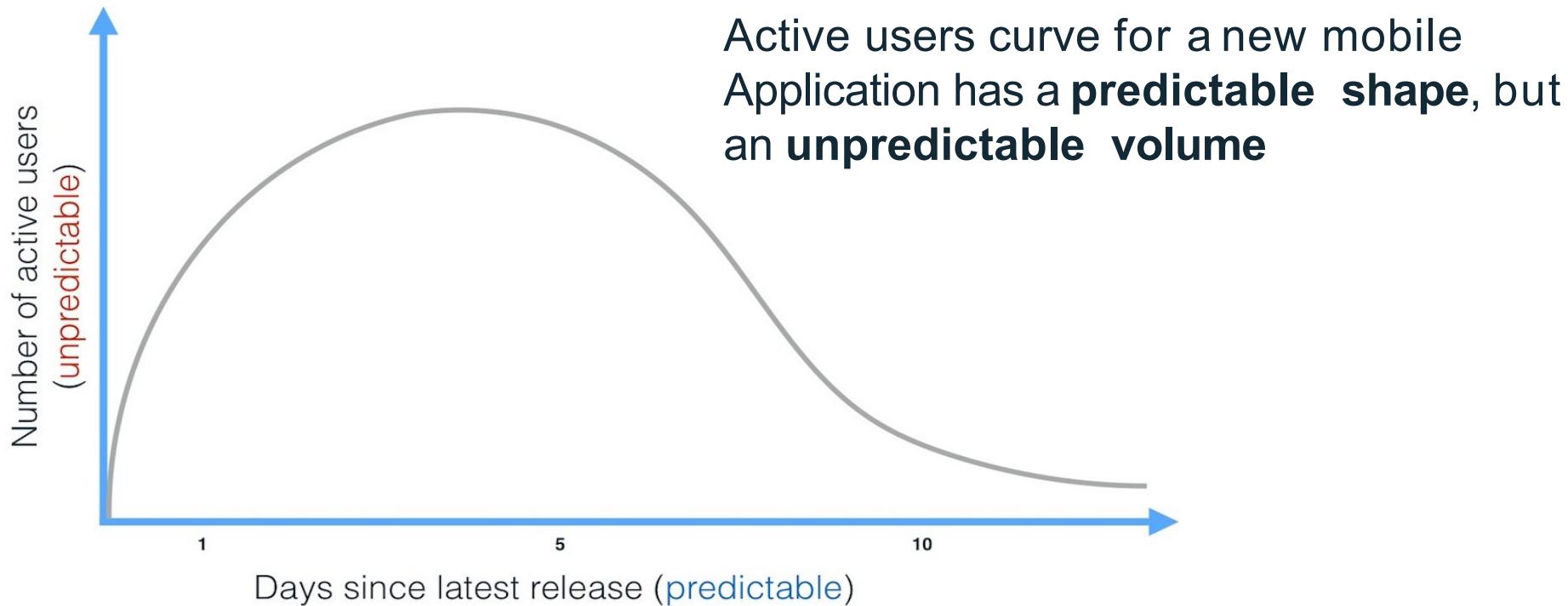
# Knative - Serverless

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Developer Advocate  
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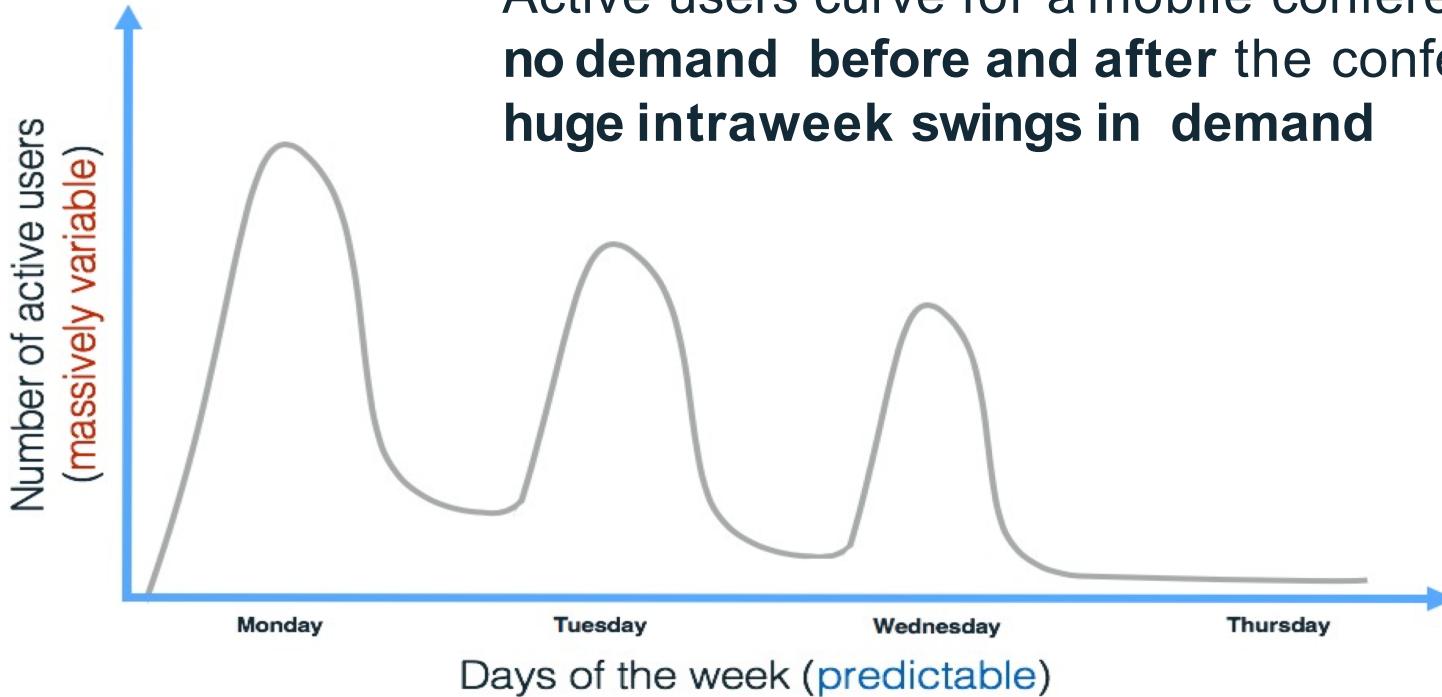
# Agenda

- Understand Workloads
- Serverless Computing ?
- What is Serverless?
- Serverless vs Functions as a Service
- Knative
- Knative Components Architecture
- Demo

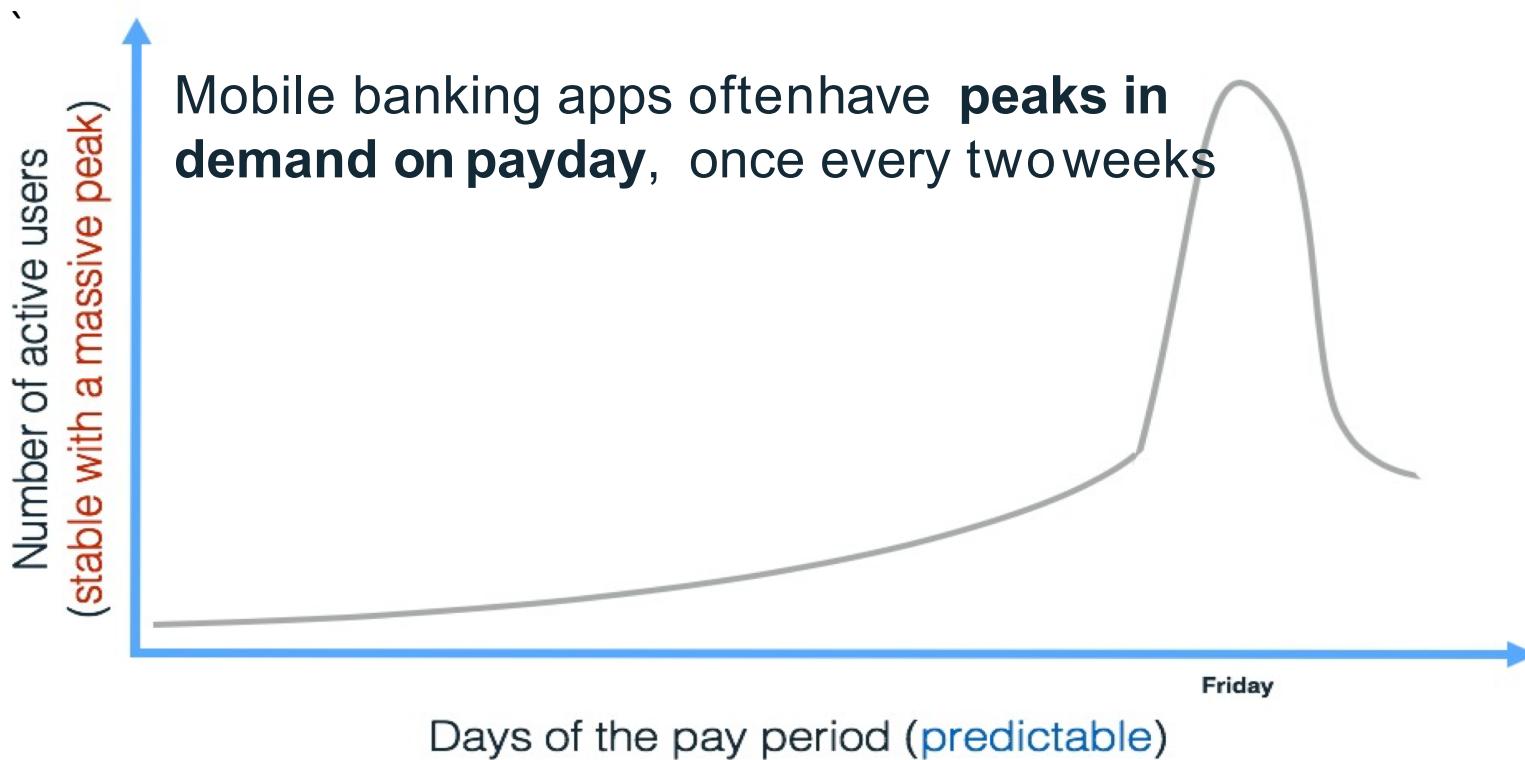
# Workload – New Mobile App



# Workload – Intermittent Load



# Workload – Peaks in Demand



# Serverless computing

*“Serverless computing refers to the concept of building and running applications that do not require server management.*

*It describes a finer-grained deployment model where applications, bundled as one or more functions, are uploaded to a platform and then executed, scaled, and billed in response to the exact demand needed at the moment.”*

— Cloud Native Computing Foundation

<https://www.cncf.io/blog/2018/02/14/cncf-takes-first-step-towards-serverless-computing>

It is serverless the same way  
WiFi is wireless.



# What is Serverless?

That's simple: It's computing without a server.

It's magic. Actually, no; that's not true.

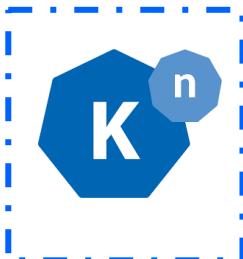
Don't pay for it if no-one uses it

Don't need to worry about scaling

Don't need to provision and manage servers

# Serverless on K8s

- Vendor-agnostic standards
- Serverless frameworks that rely on Kubernetes
- Extend your k8s deployment with these Kubernetes native frameworks (Knative Serving, Build , Eventing)
- Scales to zero
- No Server Management
- Ease of use



fission

Kubeless

# Functions as a Service

- Vendor-specific standards
- Developer need not be concerned with server “stuff.”  
No need to fuss over RAM usage and scaling and so on.  
Simply (now that is a loaded word, “simply”) deploy  
your code and it works.
- Build and runs functions, Atomic size





# What is Knative?

Kubernetes is a powerful tool for managing complex collections of software containers

But the platform has configuration and management needs of its own

## **Knative**

- An extension of Kubernetes
- Hides many of above tasks from you
- adds serverless capabilities

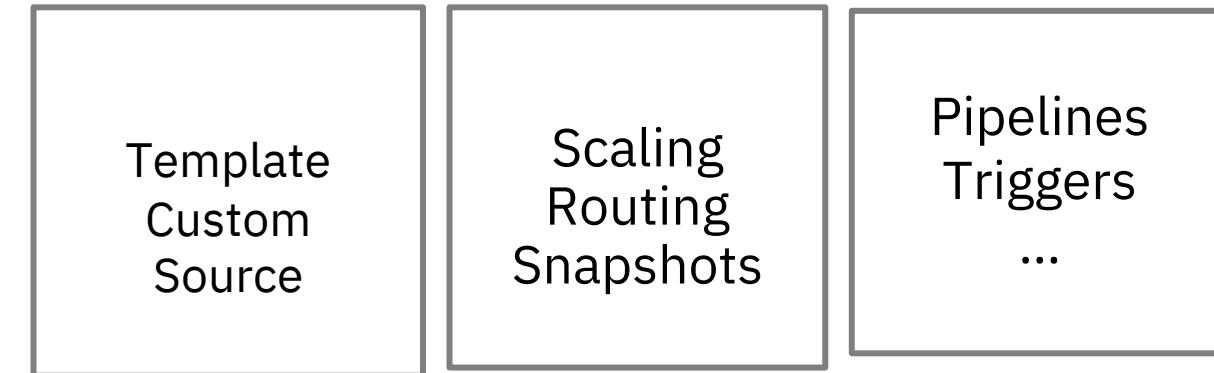
**Knative** runs on top of the Kubernetes container orchestration system, which controls large numbers of containers in a production environment.

# Knative?

- Open source **project** started by Google
- **Serverless** computing on Kubernetes
- Set of loosely coupled primitives for all
- Makes using Kubernetes **easier** for Dev & Ops
- **Autoscaling**, from zero to  $\infty$
- Advanced techniques like **Blue/Green** deployments, eventing system



# Knative Components Architecture



Primitives

Build

Serving

Eventing

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K  
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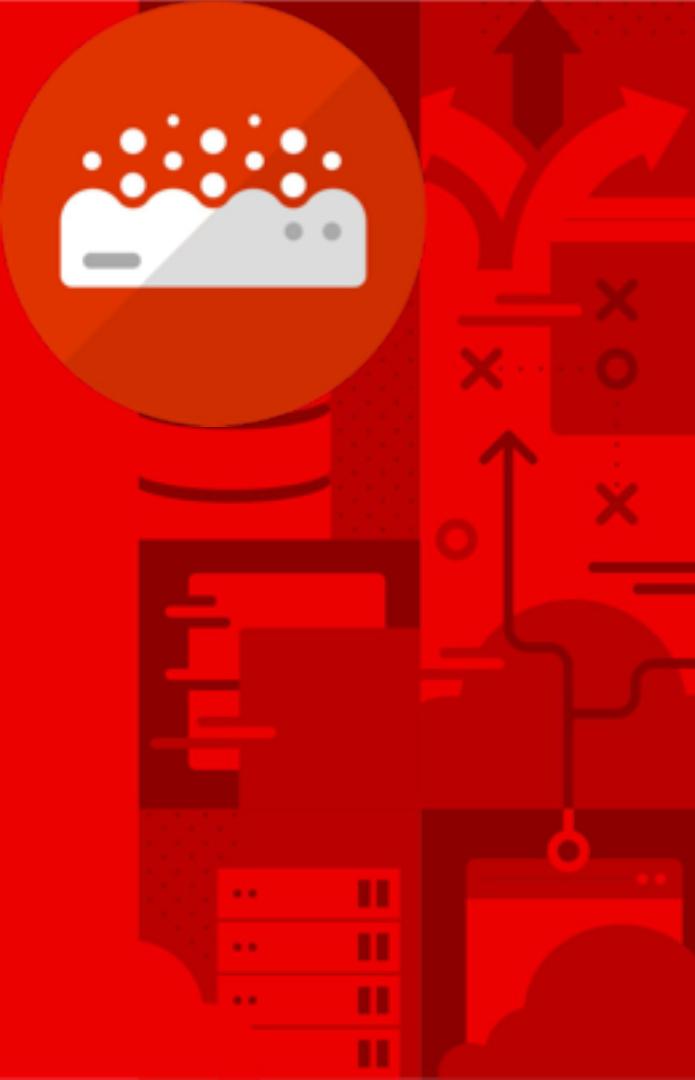
Platform



Kubernetes

# Interesting Capabilities

- Scale-to-zero: No pod == no memory
- Scale-from-zero: Traffic spike starts N pods
- Configurations & Revisions - built-in Blue/Green
- In-Cluster Image Building (Tekton)
- Traffic splitting
- Eventing System



# Demo

# Openshift Serverless

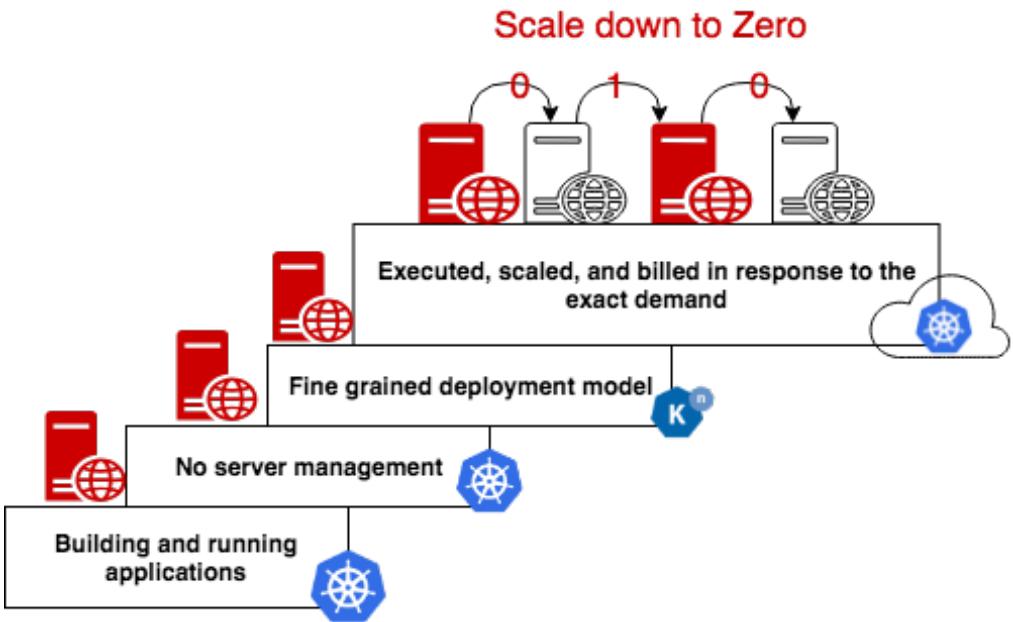
## Pre-req

- Install as Serverless Operator
- Configure Knative Serving
- Configure Knative Eventing

Now you are ready to deploy Serverless Applications

- GitRepo
- Image

# Summary





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