ANTI-PATTERNS FOR
KUBERNETES OPERATORS

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Senior Principal Software Engineer, OpenShift
WHAT IS AN OPERATOR?

A method of packaging, deploying and managing a Kubernetes application.
WHAT IS A KUBERNETES APPLICATION?

An application that is both deployed on Kubernetes and managed using the Kubernetes APIs and kubectl tooling.
In 4.0, most of the infrastructure that makes up the OpenShift platform runs on the cluster

- Kube/OpenShift API servers
- Kube/OpenShift controller managers
- Scheduler
- SDN
- Registry
- Web console
- Prometheus
- Etc...

OPENSHIFT PLATFORM = KUBERNETES APPS
A lot of them!
SO WE WROTE A LOT OF OPERATORS

... and if you want to know more about what we did go to

OpenShift 4.0 and Operators - Michal Fojtik & Marek Jelen @ 2:00 in C228
THE ANTI-PATTERNS

or... what we learned after writing a LOT of operators
DON’T

ASSUME SOMEONE ELSE’S OPERATOR PATTERNS ARE RIGHT FOR YOU (OR YOUR SOFTWARE)
INSTEAD

REMEMBER YOU KNOW HOW TO OPERATE YOUR SOFTWARE
Many different kinds of applications make up the OpenShift platform

- Self-hosted Kubernetes API server
- Stateful apps like Prometheus and etcd
- Simple stateless apps like web console
AVOID ANALYSIS PARALYSIS
INSTEAD

JUST START WRITING IT
START SMALL
Build up to the full operational complexity of your application

- Installing your application on Kubernetes
- Rolling out configuration changes and updates
- Maintenance - backups, pruning, rotation
AVOID

TOO MUCH CONFIGURATION
INSTEAD
HIDE COMPLEXITY FROM USERS
POD TEMPLATES ARE COMPLEX

As the application author, you know the ideal options for running your application on Kubernetes.
DON’T
MAKE ASSUMPTIONS ABOUT CLUSTER TOPOLOGY
INSTEAD

RELY ON CLUSTER DEFAULTS

*WHEN YOU CAN
WHAT KIND OF DEFAULTS?

The ones the cluster admin can control.

NODE TYPES / MACHINE SETS

STORAGE CLASS
BUT IF YOU NEED SOMETHING SPECIAL

Ask for what you need and let the cluster do the work.

Operator should deploy the application with required restrictions

- Resource constraints - gpu, hugepages
- Storage access modes

Let the cluster admin configure your operator to

- Steer your app workloads with node selectors
- Pick a different storage class, for better performance
DON’T

MAKE COMPUTERS AND HUMANS FIGHT OVER THE SAME CONFIG
INSTEAD
SEPARATE USER-PROVIDED CONFIG
THANK YOU

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For help getting started, visit http://brand.redhat.com/applications/presentations

For more information on how to use this template within Google Slides, view this step-by-step guide.
# BRAND COLORS

Use ONLY the colors outlined below in your presentation.

## CORPORATE

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<thead>
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<th>Color Code</th>
<th>Hex Color</th>
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## SECONDARY

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## ACCENT (Use these colors sparingly.)

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When creating charts, graphs, and tables use the corporate and secondary color palettes with no more than one accent color.
ICONS

Red Hat icons use simplicity to explain complex ideas and key concepts. Icons can be used alone, with a polished fill, or on a round button.

To download, visit: http://brand.redhat.com/elements/icons.
TIMELINE

Use these elements when creating a timeline. Copy and paste these graphics to your slide before changing the size and content of the elements.
CHART ELEMENTS

Use these elements when creating charts. Copy and paste these graphics to your slide before changing the size and content of the elements.
TABLES

Using the table tool in Google Slides, you can create basic tables for your presentation. Make sure to use only corporate and secondary colors.

Sample chart template

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Sample chart template

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CODE SNIPPET

When referencing code snippets, use the template below. Resize the snippet box to the appropriate size for your text.

Type code snippet here
INSERT DIVIDER COPY
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AGENDA

Date and/or title of event

8:00AM—9:00AM
NAME OF TOPIC

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INSERT GRAPHIC HERE

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Insert customer summary. Include product software. Do not exceed 40 words.

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THANK YOU

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