KubeCon | CloudNativeCon

North America 2022

BUILDING FOR THE ROAD AHEAD

DETROIT 2022

Kubernetes SIG CLI: Intro and Updates

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Who We Are

Katrina Verey
Senior Staff Software Developer
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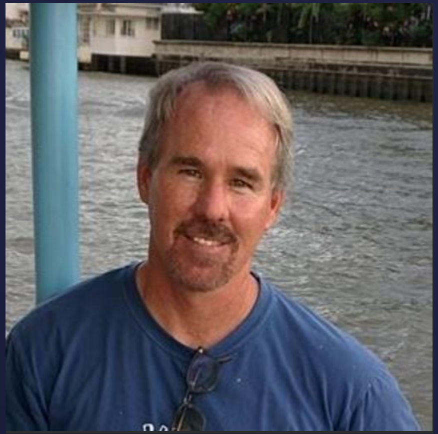
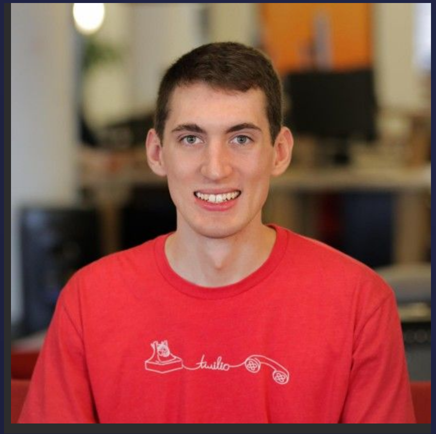


Sean Sullivan
Software Engineer
Google



Eddie Zaneski
Software Engineer
Chainguard

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What

We focus on:

- development and standardization of the **CLI framework**
- improving **user experience and usability**

https://github.com/kubernetes/community/tree/master/sig-cli#cli-special-interest-group

What

Subprojects:

- kubectl
- kustomize
- krew + krew index
- kui
- cli-runtime + cli-experimental
- krm-functions

https://github.com/kubernetes/community/tree/master/sig-cli#subprojects

Where

Slack:

#sig-cli

Mailing list:

https://groups.google.com/g/kubernetes-sig-cli

https://github.com/kubernetes/community/tree/master/sig-cli#contact

When

Biweekly meeting:

Wednesday at 06:00 PM CEST / 12:00 PM EDT / 09:00 AM PDT

Biweekly Kustomize/Kubectl bug scrubs:

Wednesday at 06:00 PM CEST / 12:00 PM EDT / 09:00 AM PDT

https://github.com/kubernetes/community/tree/master/sig-cli#meetings

SIG CLI Updates

Major changes in 1.24

- --subresource alpha flag added to get, patch, edit and replace kubectl commands (thx Nikhita Raghunath)
- Major improvements to kubectl completions (thx Marc Khouzam)
- Expose kustomize version in kubectl version (thx Katrina Verey)
- Beautify kubectl help commands (thx Chok Yip Lau)
- Increase default value of cache TTL to 6 hours (thx Manish Kumar)
- kubectl create token (thx Jordan Liggitt)
- kubectl logs will now default to the first container in a pod (thx Jian Li)
- kubectl -f works with globs (thx Daniel Rodriguez)
- Added prune flag into kubectl diff to simulate `apply --prune` (thx Arda Güçlü)
- Added label selector flag to all "kubectl rollout" commands (thx Aram Peres)
- make 'kubectl logs' default to the first container (thx Jian Li)

Major changes in 1.25

- Even more improvements to kubectl completions (thx Marc Khouzam)
- Added new --output, --types and --no-headers flags into kubectl alpha events (thx Arda Güçlü)
- kubectl diff excludes managedFields by default (thx Brian Pursley)
- new KUBECACHEDIR environment variable to override default discovery cache directory (thx Arda Güçlü)
- Added --sum flag to kubectl top pod (thx Chok Yip Lau)
- support multiple resources for kubectl rollout status (thx Philip Ottesen)
- kubectl.kubernetes.io/default-logs-container support removed (thx Paco Xu)

Enhancements

Progressing in 1.26:

- **[STABLE]** default container annotation that to be used by kubectl #2227
- **[BETA]** kubectl events #1440
- **[NEW]** OpenAPI v3 for kubectl explain #3515
- **[NEW]** Aggregated Discovery #3352

No changes in 1.26:

- **[ALPHA since 1.24]** Add subresource support to kubectl #2590
- **[BETA since 1.20]** kubectl debug #1441

Enhancements

Unimplemented proposals not progressing in 1.26:

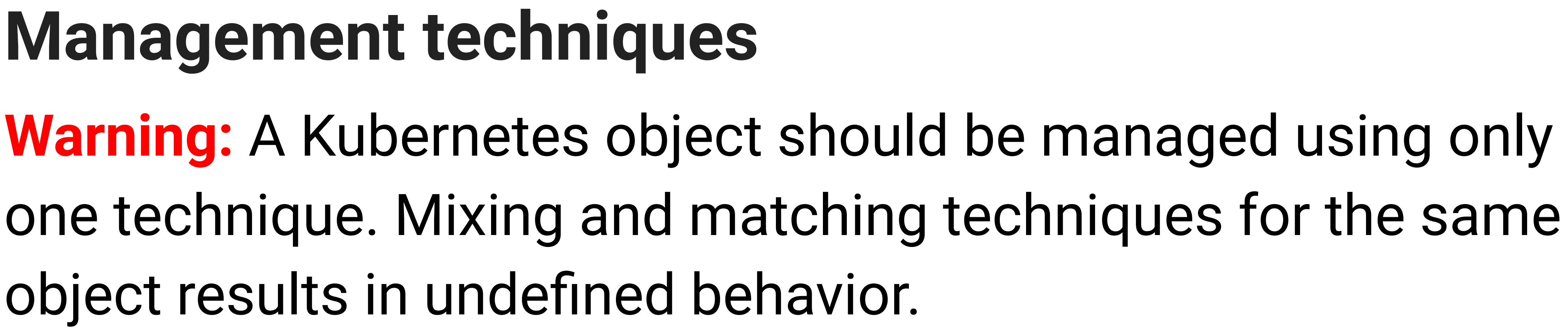
- Split stdout and stderr log stream of container #3288
- Separate kubectl user preferences from cluster configs #3104
- Kustomize Plugin Graduation #2953
- Kustomize KRM Plugin Catalog #2906
- Kustomize Plugin Composition API #2299
- kubectl return code normalization #2551

Top of mind

- Ongoing SIG CLI group contributor ladder cohort for reviewers
- Project reliability (Reliability Bar KEP, Open letter)
- Kustomize documentation revamp
- New contributors!

PSA: Declarative vs. Imperative workflows

Object management techniques

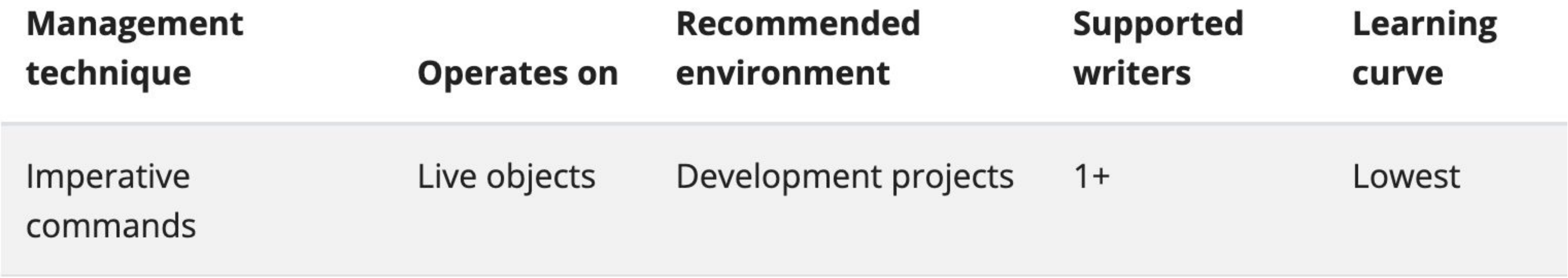


Management techniques

Warning: A Kubernetes object should be managed using only one technique. Mixing and matching techniques for the same object results in undefined behavior.

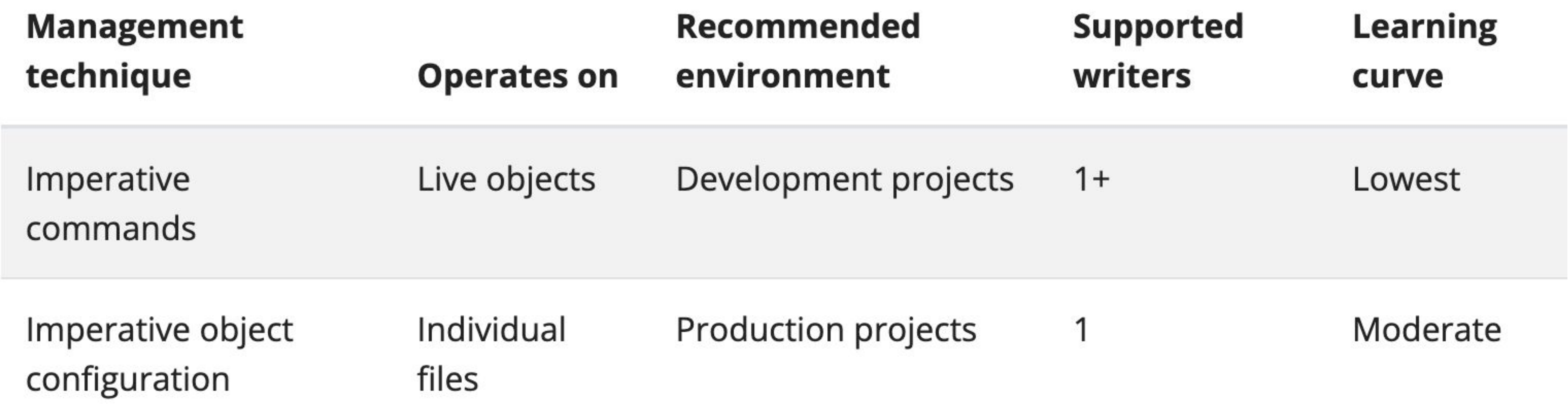
https://kubernetes.io/docs/concepts/overview/working-with-objects/object-management/

Object management techniques



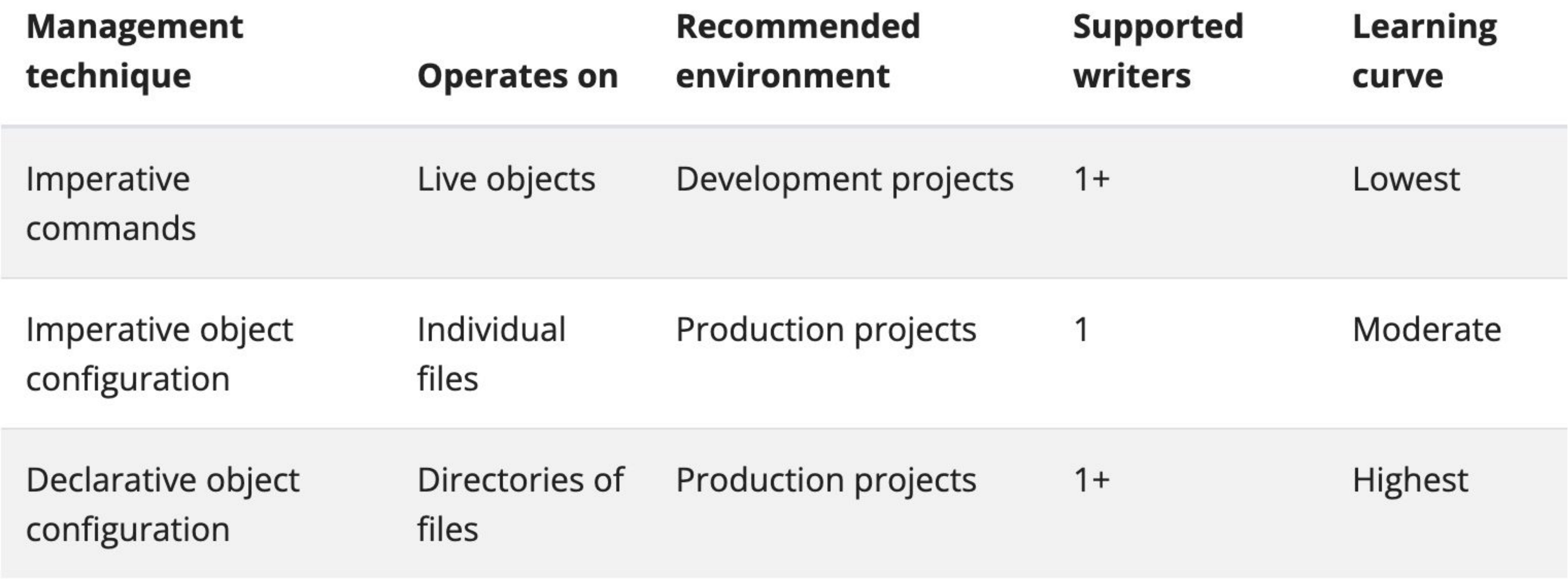
Management technique	Operates on	Recommended environment	Supported writers	Learning curve
Imperative commands	Live objects	Development projects	1+	Lowest

Object management techniques



Management technique	Operates on	Recommended environment	Supported writers	Learning curve
Imperative commands	Live objects	Development projects	1+	Lowest
Imperative object configuration	Individual files	Production projects	1	Moderate

Object management techniques



Management technique	Operates on	Recommended environment	Supported writers	Learning curve
Imperative commands	Live objects	Development projects	1+	Lowest
Imperative object configuration	Individual files	Production projects	1	Moderate
Declarative object configuration	Directories of files	Production projects	1+	Highest

Object management techniques

Declarative commands

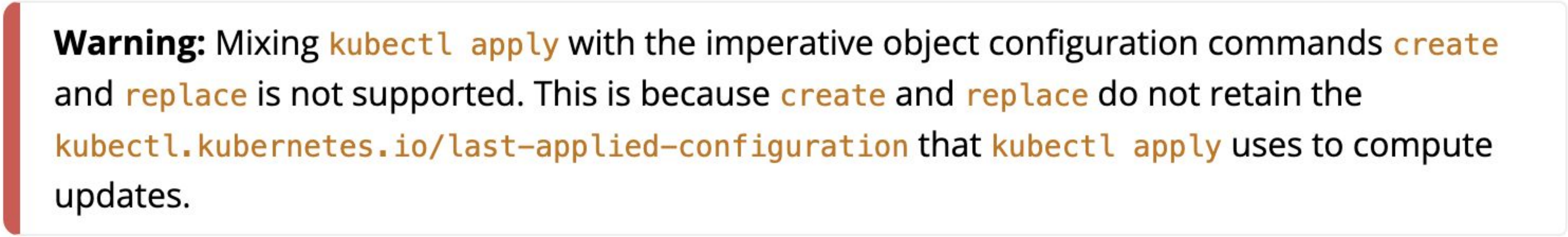
- `kubectl apply`

Object management techniques

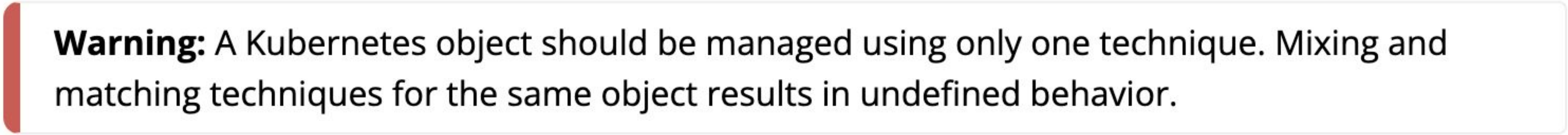
Imperative commands

- `kubectl create`
- `kubectl run`
- `kubectl expose`
- `kubectl autoscale`
- `kubectl replace`
- `kubectl rollout undo`
- `kubectl edit`
- `kubectl set`
- `kubectl patch`
- `kubectl scale`
- …

Object management techniques



Warning: Mixing `kubectl apply` with the imperative object configuration commands `create` and `replace` is not supported. This is because `create` and `replace` do not retain the `kubectl.kubernetes.io/last-applied-configuration` that `kubectl apply` uses to compute updates.



Warning: A Kubernetes object should be managed using only one technique. Mixing and matching techniques for the same object results in undefined behavior.

Please use apply

https://kubernetes.io/docs/tasks/manage-kubernetes-objects/declarative-config/

Intro to kuberc:
kubectl user preferences

kuberc

Goals:

- Maintain kubectl's strong guarantees on backwards compatibility
- Opt in to new behaviors that may be considered breaking changes
- Use these per-client (device) preferences across contexts

kuberc

Use cases:

- delete confirmation on by default
- colored output on by default
- define kubectl command aliases
- define kubectl default flags for commands
- … and many more - **your input is appreciated**

https://github.com/kubernetes/enhancements/issues/3104

kuberc

```
apiVersion: v1alpha1
kind: Preferences
command:
 aliases:
 - alias: getdbprod
   command: get pods -l what=database --namespace us-2-production
 overrides:
 - command: apply
   flags:
   - name: server-side
     default: "true"
 - command: delete
   flags:
   - name: confirm
     default: "true"
 - command: "*"
   flags:
   - name: exec-auth-allowlist
     default: /var/kubectl/exec/...
```

Q&A time!

Please scan the QR Code above to leave feedback on this session