CLI DeepDive - Kubectl Plugins

Maciej Szulik, Juan Vallejo – Red Hat
@soltysh @jvallejo

kubernetes

Plugins are now beta!

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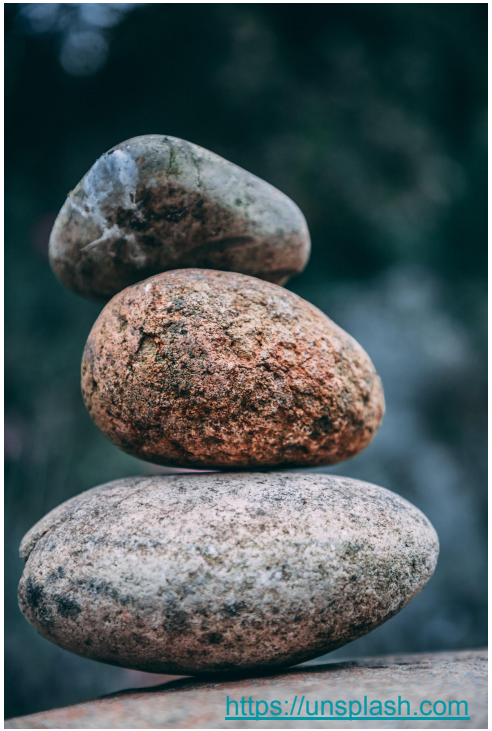
Improvements



UX

Discoverability

“Extending” built-ins

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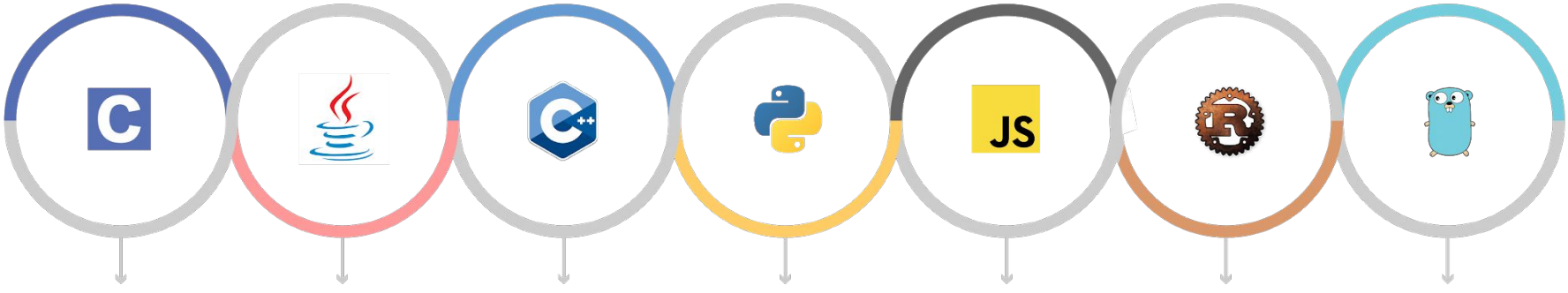
Any binary

```
PATH + kubectl-*
```

Any language



k8s.io/cli-runtime

kubernetes

CLI Runtime - features

Same core utils that **kubectl** commands use

Reading configuration

Clients to talk to API server

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CLI Runtime - advantages

Bind flags (printing, config, etc.)

Printing utilities (json, yaml, etc.)

Set of polymorphic helpers

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Naming structure

kubernetes/enhancements/keps/sig-cli/0024-kubectl-plugins.md

Naming structure

```
kubectl-foo-bar
kubectl-login
kubectl-my_plugin
```

```
kubectl foo bar
kubectl login
kubectl my-plugin
```

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Name conflicts & path order

```
PATH=/usr/bin/plugins:/usr/bin/moreplugins
```

1. /bin/plugins/**kubectl-foo** 👍
2. ~~/bin/moreplugins/**kubectl-foo**~~

Name conflicts & greedy matching

```
PATH=/usr/bin/plugins:/usr/bin/moreplugins
```

```
$ kubectl foo bar baz
```

1. "***baz***" becomes arg
2. /bin/moreplugins**/kubectl-foo-bar** 👍
3. ~~**/bin/plugins/kubectl-foo**~~

Sample plugin

```
func main() {
	flags := pflag.NewFlagSet("kubectl-ns", pflag.ExitOnError)
	pflag.CommandLine = flags

	root := cmd.NewCmdNamespace(genericclioptions.IOStreams{In: os.Stdin, Out: os.Stdout, ErrOut: os.Stderr})
	if err := root.Execute(); err != nil {
		os.Exit(1)
	}
}
```

k8s.io/sample-cli-plugin

kubernetes

Sample plugin - anatomy

Key Imports

```
        "k8s.io/client-go/tools/clientcmd"
        "k8s.io/client-go/tools/clientcmd/api"

        "k8s.io/cli-runtime/pkg/genericclioptions"
)
```

KUBECONFIG manipulation

KUBECONFIG types

Generic helpers

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Sample plugin - anatomy

Bind Config Flags

```
&NamespaceOptions{
 configFlags: genericclioptions.NewConfigFlags(),
```

```
 o.configFlags.AddFlags(cmd.Flags())

 return cmd
```

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Sample plugin - anatomy

Obtain KUBECONFIG data

```
var err error
o.rawConfig, err = o.configFlags.ToRawKubeConfigLoader().RawConfig()
if err != nil {
        return err
}
```

Old plugins?

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