

A gentle introduction to Picocli

Kotlin, CLIs and StarWars!

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Picocli : tiny library to create CLIs

"Every main method deserves picocli"

- Easy to use
- Rich command line applications
- For JVM languages

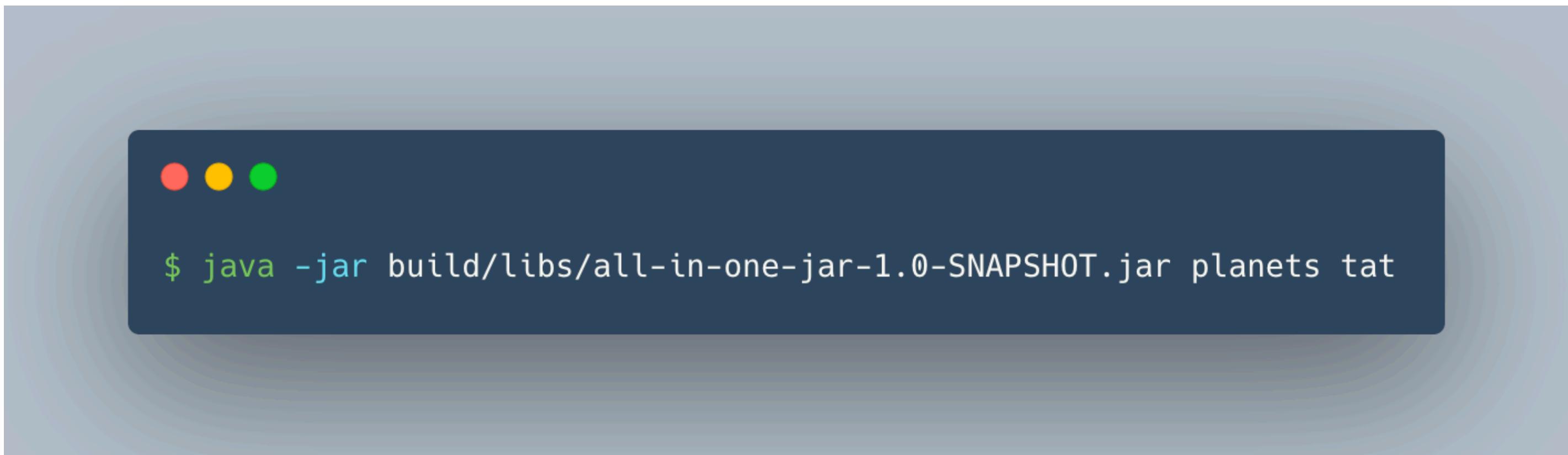


Picocli adoption



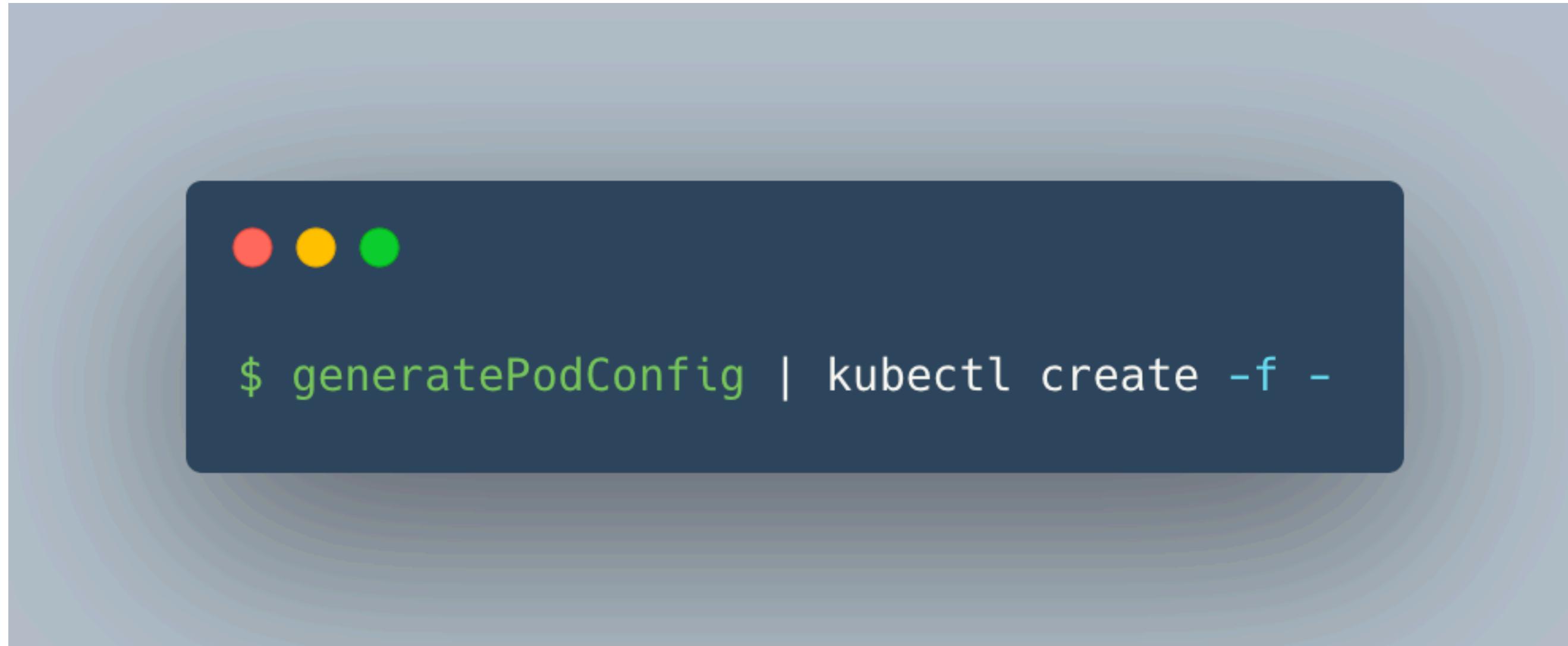
Why make a CLI?

- Simple interface
 - Nicer than Java call with input parameters
 - Java becomes an artifact of compilation



Why make a CLI?

- Easy to interface with other terminal tools, or scripts

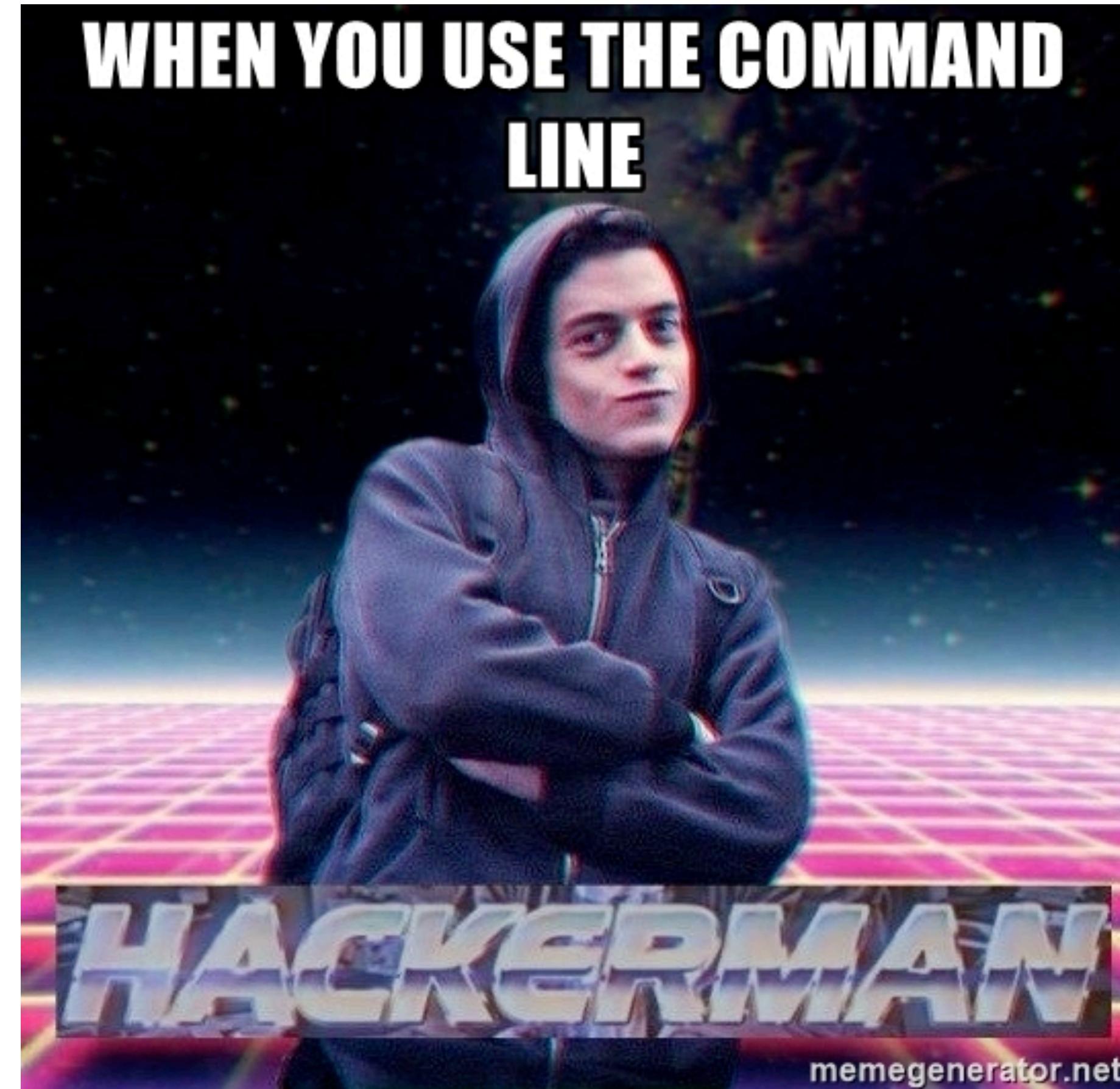


Why make a CLI?

- Nice and clear man-like help interface

Why make a CLI?

- Perpetuate stereotypes



Why make a CLI ... in Kotlin?!

- Most CLIs those days are done in Go or Rust ?
- Because my codebase is already in Kotlin
- And because I am productive in Kotlin
 - And so is my team

Arm long list of features

- Tab completion, Support for Ansi colors and styles
- **Crazy good documentation**
- Multi-platform (Windows, Linux, ...)
- Auto generation of man documentation
- Annotation based, or programmatic APIs
- Kotlin, Groovy, ... support
- Support for native image compilation ([GraalVM](#))

Demo time!

- Freebies! (Version, help)
- Options and Parameters
- Subcommands
- Programmatic API, because why not?
- (Pagination)
- Native compilation

May the Star Wars API be with us

SWAPI

The Star Wars API
(what happened to swapi.co?)

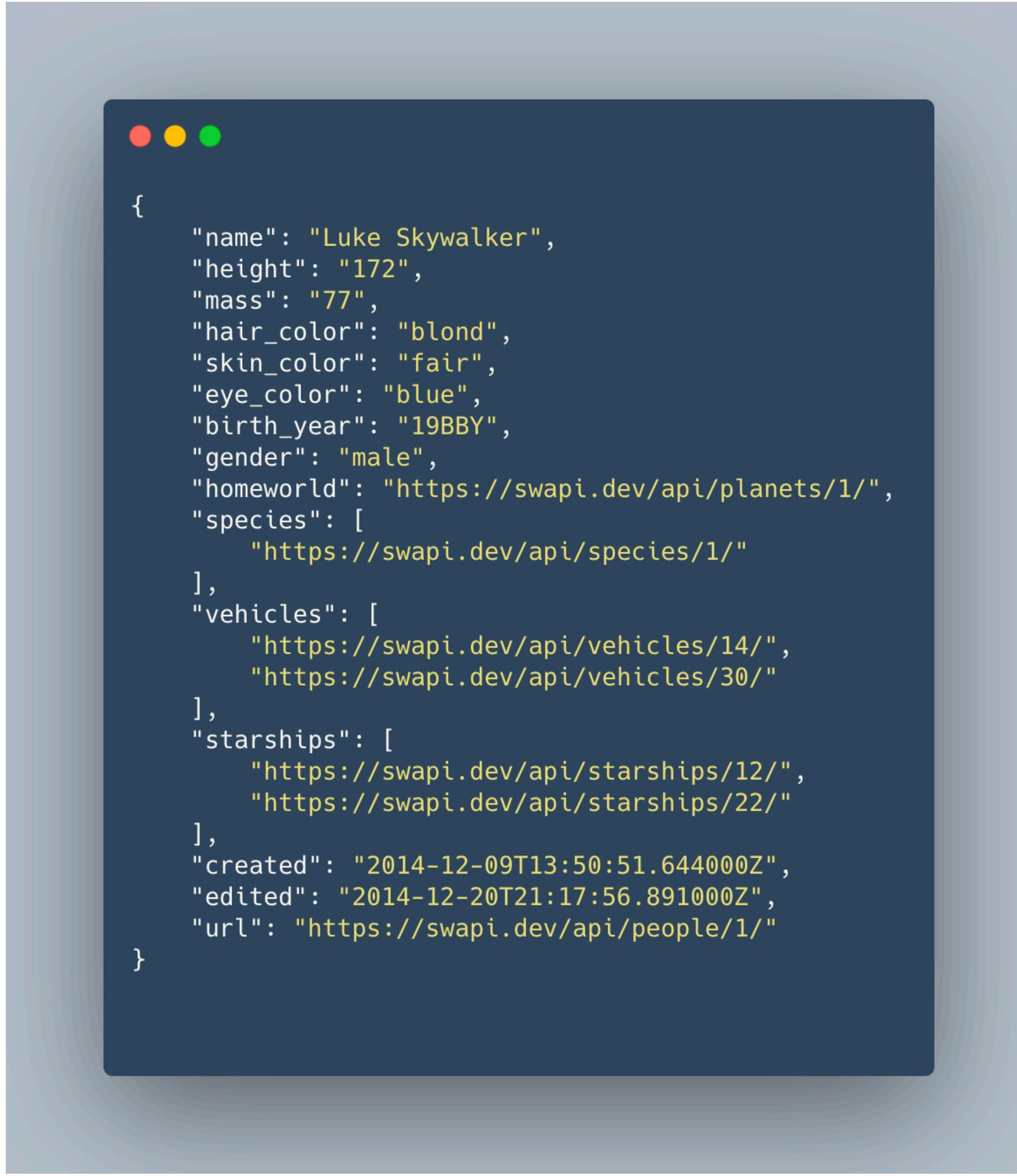
All the Star Wars data you've ever wanted:
Planets, Spaceships, Vehicles, People, Films and Species
From all **SEVEN** Star Wars films
Now with The Force Awakens data!

Try it now!

<https://swapi.dev/api/> [people/1/](https://swapi.dev/api/people/1/) request

Need a hint? try *people/1/* or *planets/3/* or *starships/9/*

May the Star Wars API be with us



```
{  
    "name": "Luke Skywalker",  
    "height": "172",  
    "mass": "77",  
    "hair_color": "blond",  
    "skin_color": "fair",  
    "eye_color": "blue",  
    "birth_year": "19BBY",  
    "gender": "male",  
    "homeworld": "https://swapi.dev/api/planets/1/",  
    "species": [  
        "https://swapi.dev/api/species/1/"  
    ],  
    "vehicles": [  
        "https://swapi.dev/api/vehicles/14/",  
        "https://swapi.dev/api/vehicles/30/"  
    ],  
    "starships": [  
        "https://swapi.dev/api/starships/12/",  
        "https://swapi.dev/api/starships/22/"  
    ],  
    "created": "2014-12-09T13:50:51.644000Z",  
    "edited": "2014-12-20T21:17:56.891000Z",  
    "url": "https://swapi.dev/api/people/1/"  
}
```

Demo Time !



Are we really doing this?!

Some CLI best practices

- “A User Interface is like a joke, if you have to explain it it’s not that great” - Martin LeBlanc
- I don’t want to read the code

```
➔ swacli git:(main) ✘ gh repo
Work with GitHub repositories

USAGE
  gh repo <command> [flags]

CORE COMMANDS
  clone:      Clone a repository locally
  create:     Create a new repository
  fork:       Create a fork of a repository
  list:       List repositories owned by user or organization
  view:       View a repository

INHERITED FLAGS
  --help      Show help for command

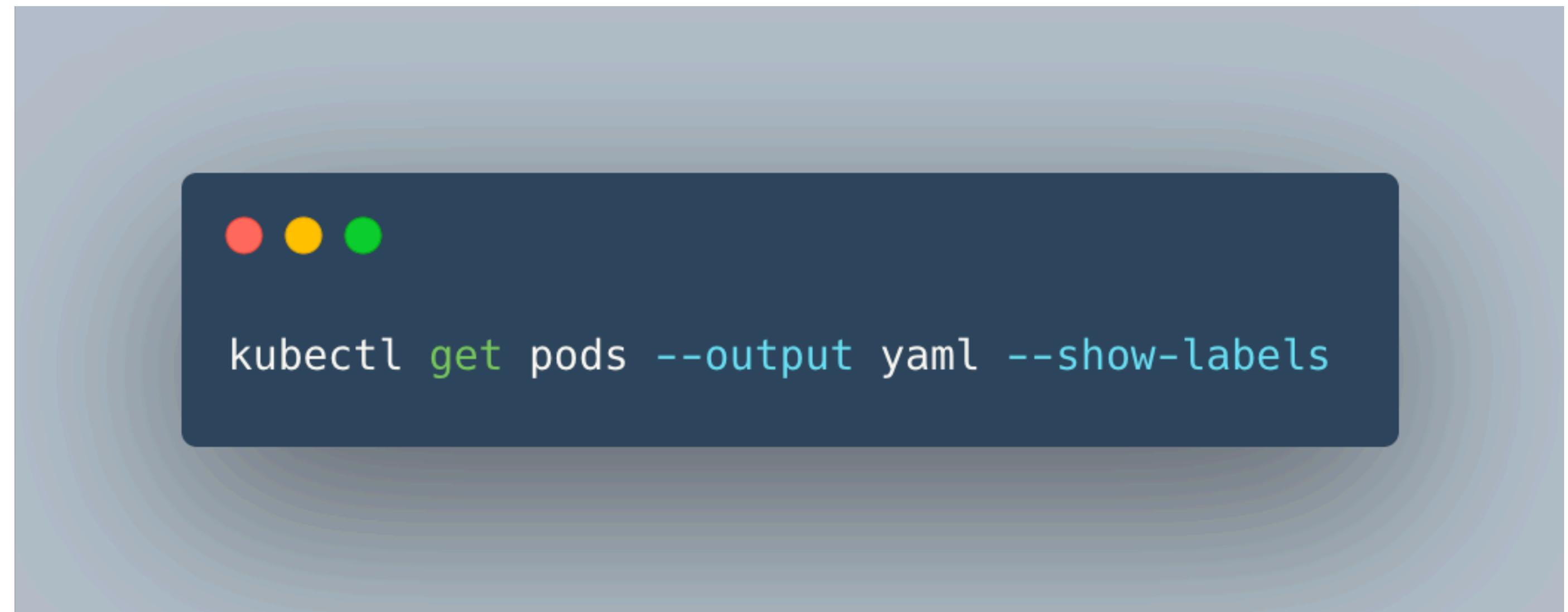
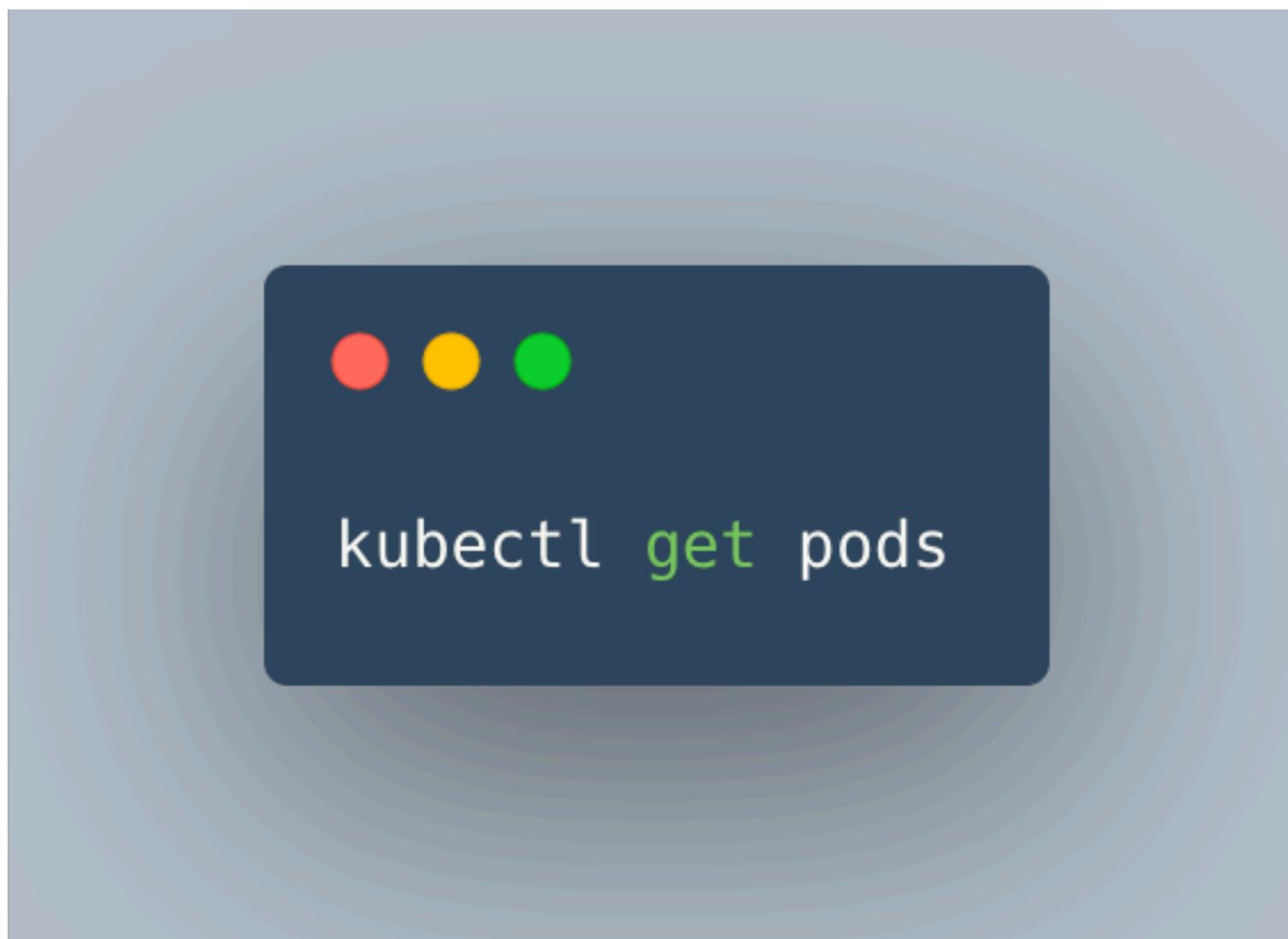
ARGUMENTS
  A repository can be supplied as an argument in any of the following formats:
  - "OWNER/REPO"
  - by URL, e.g. "https://github.com/OWNER/REPO"

EXAMPLES
  $ gh repo create
  $ gh repo clone cli/cli
  $ gh repo view --web

LEARN MORE
  Use 'gh <command> <subcommand> --help' for more information about a command.
  Read the manual at https://cli.github.com/manual
```

Some CLI best practices

- Use sensible defaults
 - Return format, location, ...



Some CLI best practices

- Don't break 'game' design
 - -i, -O, -r, ...



Do try Native Compilation!

```
→ swacli git:(main) ✘ time java -jar build/libs/all-in-one-jar-1.0-SNAPSHOT.jar planets tat
🚀 Found 1 total results for that query 🚀
Showing 1 results

❶ Tatooine

Climate : arid
Diameter (km) : 10465
Gravity : 1 standard
Orbital period : 304

java -jar build/libs/all-in-one-jar-1.0-SNAPSHOT.jar planets tat 1.84s user 0.10s system 213% cpu 0.907 total
```

```
→ swacli git:(main) ✘ time sw planets tat
🚀 Found 1 total results for that query 🚀
Showing 1 results

❶ Tatooine

Climate : arid
Diameter (km) : 10465
Gravity : 1 standard
Orbital period : 304

sw planets tat 0.03s user 0.02s system 34% cpu 0.121 total
```

```
→ libs git:(main) ✘ ls -lah
total 83312
drwxr-xr-x  5 jlengrand  staff   160B Jun 25 15:14 .
drwxr-xr-x  7 jlengrand  staff   224B Jun 25 15:08 ..
-rw-r--r--  1 jlengrand  staff  2.9M Jun 25 15:11 all-in-one-jar-1.0-SNAPSHOT.jar
-rwxr-xr-x  1 jlengrand  staff  38M Jun 25 15:14 sw
-rw-r--r--  1 jlengrand  staff   17B Jun 25 15:14 sw.build_artifacts.txt
```

Conclusion

- Find a project that you reuse often
 - Performance tests
 - Upload to a server
 - ...
- Or that other people will use
- Try native compilation (1.6s -> 0.03s)
- Have fun!

Resources

- [PicoCLI website](#)
- [SwaCLI project on GitHub](#)
- [Quarkus Picocli guide](#)
- [Contact me :\)](#)

Thanks!

See you soon on Matrix or
[@jlengrand!](#)