Logging in Go

An Introduction to Structured Logging

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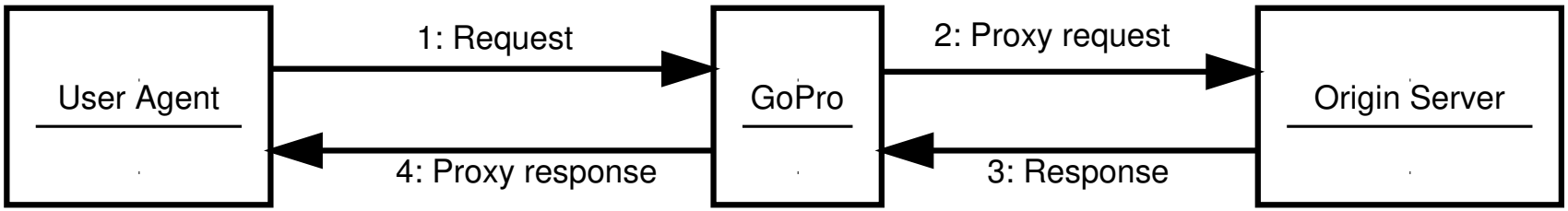
Overview

Scenario: Go Proxy (GoPro)



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- Proxy request to the *origin server*
- Proxy response from the origin server to the user agent

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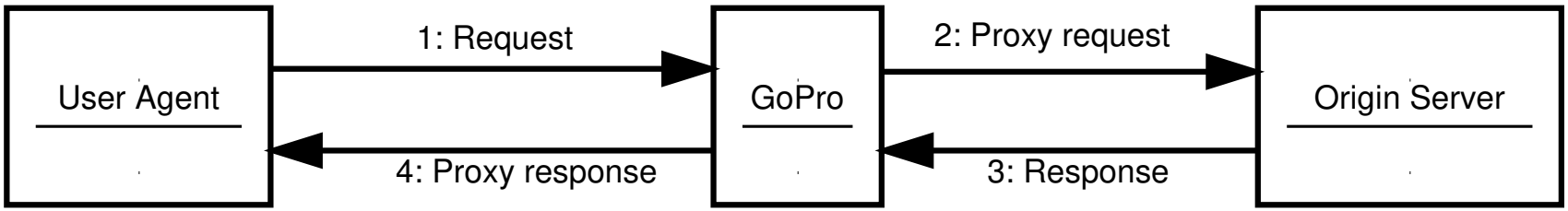

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Why this scenario?

- A good model for the Ad Server
- Easy — won't get in the way

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- Demerits: Level of abstraction Easy of parsing Log design Avoid missing log details Production readiness

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Default Logger

- Approach: Use log package; simple, sensible, basic
- Fatal log-level considered bad?
- Documentation: [Online.] golang.org/pkg/log/
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- Merits: Simplicity Production readiness
- Demerits: Level of abstraction (effectively only two levels) Easy of parsing Log design
- Avoid missing log details (support for adding some details to each log)

Overview

Levelled Logging

- Purpose: Ameliorate problem of level of abstraction
- Approach: Define levels of severity; add logs at appropriate level (after due consideration)
- Common Functions:
  - `{Debug, Info, Warn, Error, Fatal, Error} X {, f, ln}`
  - `func SetLevel(int)`
- glog package
- Documentation: [Online.] godoc.org/github.com/golang/glog
- Repository: [Online.] github.com/golang/glog

- Merits: Level of abstraction | Production readiness
- Demerits: Easy of parsing | Log design | Avoid missing log details | Simplicity

Overview

Structured Logging

structure *(noun)*: a complex entity constructed of many parts.

- Thinking of logs as a structure; designing this structure and it's parts
- An example

Logrus package: Overview

- Approach: Design "parts/fields" of each log; use Logrus package
- Documentation: [Online.] godoc.org/github.com/sirupsen/logrus
- Repository (and tutorial): [Online.] github.com/sirupsen/logrus
- Demo: Branch logrus

Code and Demo

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- Can I manage stats and other Time Series Data? {deep analysis}
- Can I find out the most frequent requests from user agent? {business queries}

Logrus package: Merits and Demerits

- Merits: Level of abstraction, Easy of parsing, Good log design, Avoid missing log details, Production readiness
- Demerits: Simplicity?, Ugly?

Overview

Ad Server

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Conclusion

- Design logs as if they were composed of several fields.
- The logrus package provides structured, levelled and pluggable logging in Go.
- This presentation and GoPro code is available online at github.com/sarkutz/talk-go-logging


Thank You!