going global

going global with i18n4go

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Agenda

- motivations
- goals and design points
- overview of approach
- demo
- technical details and contributing
- what next? and future work

motivations

- CF CLI rewritten in Golang is main entry to CF
- IBM Bluemix (based on CF) is worldwide PaaS
- Golang support for internationalization (i18n) is minimal
- existing i18n for Golang mainly runtime libraries
- how to convert existing and green field Golang code to i18n?
- supporting i18n requires lifecycle tooling: code, test, deployment, and maintenance

goals and design points

1. automate as much as possible

2. support both: pre- and post-facto i18n use cases

3. maintain Golang's static compile-time checks

4. keep code readable (as much as possible)

5. minimal external dependencies

6. JSON and PO resource file types

7. implement in Golang

hello world - original

```go
package main

import (
    "fmt"
)

const VERSION = "v0.0.1"

func main() {
    fmt.Println("Hello from Goffer land and i18n4go")
    fmt.Println("")
    fmt.Printf("Version %s\n", VERSION)
}

```

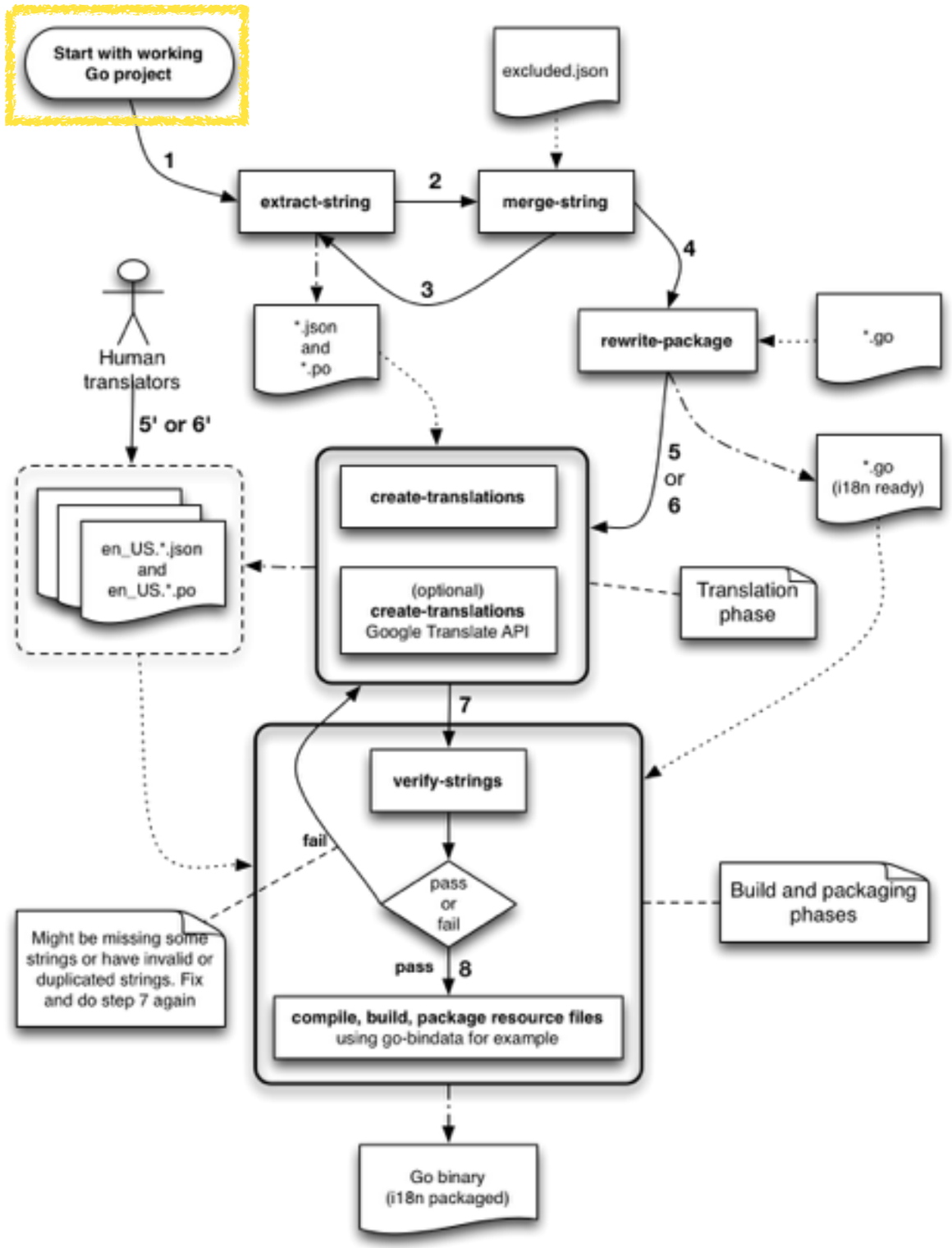
hello world - desiderata

```
1   package main
2
3   import (
4       "fmt"
5   )
6
7   const VERSION = "v0.0.1"
8
9   func main() {
10      fmt.Println(T("Hello from Goffer land and i18n4go"))
11      fmt.Println("")
12      fmt.Printf(T("Version {{.Arg0}}\n", map[string]interface{}{"Arg0": VERSION}))
13  }
14
```

overview of approach

- use @NickSnyder's go-i18n project on Github for runtime
- create tooling for
    1. extracting and merging strings from Golang programs
    2. rewriting Golang code to enable i18n translations
    3. verify strings and different i18n resources
    4. auto discover locales
- i18n4go enables all of the above and more

overview of approach (*cont.*)



hello world - program

```
package main

import (
    "fmt"
)

const VERSION = "v0.0.1"

func main() {
    fmt.Println("Hello from Goffer land and i18n4go")
    fmt.Println("")
    fmt.Printf("Version %s\n", VERSION)
}
```

hello world - extracted strings

```
[
    {
        "id": "Hello from Goffer land and i18n4go",
        "translation": "Hello from Goffer land and i18n4go",
        "modified": false
    },
    {
        "id": "Version {{.Arg0}}\n",
        "translation": "Version {{.Arg0}}\n",
        "modified": false
    }
]
```

hello world - rewritten code

```
package main

import (
    "fmt"
)

const VERSION = "v0.0.1"

func main() {
    fmt.Println(T("Hello from Goffer land and i18n4go"))
    fmt.Println("")
    fmt.Printf(T("Version {{.Arg0}}\n",
                map[string]interface{}{"Arg0": VERSION}))
}
```

hello world - i18n init code (partial)

```
…
func Init(detector Detector) goi18n.TranslateFunc {
    var T goi18n.TranslateFunc
    var err error

    var userLocale string
    userLocale, err = initWithUserLocale(detector)
    if err != nil {
        userLocale = mustLoadDefaultLocale()
    }

    T, err = goi18n.Tfunc(userLocale, DEFAULT_LOCALE)

    if err != nil {
        panic(err)
    }

    return T
}
…
```

hello world - resulting code structure

```
➜  i18n4go git:(master) ✗ tree examples/demo1-i18n
examples/demo1-i18n
├── build
├── demo1.go
├── demo1.go.en.json
├── en.all.json
├── excluded.json
├── generate-language-resources
├── i18n
│   └── resources
│       ├── de.all.json
│       ├── de_DE.all.json
│       ├── en_US.all.json
│       ├── es.all.json
│       ├── es_ES.all.json
│       ├── fr.all.json
│       ├── fr_FR.all.json
│       ├── zh.all.json
│       └── zh_Hans.all.json
├── i18n_init.go
├── i18n_resources.go
└── out
    └── demo1

3 directories, 18 files
```

demo

---

live demo

technical details

- heavy use of Golang AST package
  - `extract-strings` and `rewrite-package`
  - `go-fmt` to reformat code (that uses AST as well)
- auto `create-translations` is OK but humans way better
- need to package i18n JSON as binary, e.g., go-bindata
- `verify-strings` and `checkup` commands for maintenance

what next?

- being used for about one year now in CF CLI
- can we simplify basic workflow even more?
- support for other auto translators? e.g., Bing
- we welcome contributors…
- socialize to Golang communities, e.g., GoSF

credit: http://knowyourmeme.com/photos/522333-language