EXTENSION DEVELOPMENT

PROJECT FLOGO

EXTENSIONS

- Written in Go lang
- Interfaces are part of the core library “flogo-lib”
- Simple Interfaces
- Stubs generated by flogo CLI tool

EXTENSION POINTS – ACTIVITY

- An Activity is step in Flow
- Used to do a specific task in a Flow; examples:
  - Interact with external systems, i.e. send an message
  - Log an event
- Typically executed when its dependencies have been completed
- Example Activities: Log, REST Invoke, MQTT

EXTENSION POINTS – TRIGGER

- A Trigger is used to start a Flow
- Typically event based
- Examples: Timer, REST, MQTT

ACTIVITY

- Use “flogo” CLI to create stub
- Configure metadata
- Implement “Activity” interface
- Publish to GIT repository

ACTIVITY – CREATE STUB

- Setup tools
  - make sure Go is installed
  - install gb tool (used for building Go project)
    - go get github.com/constabulary/gb/...
  - install flogo CLI
    - go get github.com/TIBCOSoftware/flogo-cli/...
- Create stub
  - flogo activity create myactivity
- Start editing
  - cd myactivity/src/rt

ACTIVITY – METADATA

- Describes the Activity
- Inputs/Outputs
  - Attribute: name, value, required
- located in activity.json, activity_metadata.go
  - currently needs to be synchronized manually
  - soon should have ‘flogo activity sync’ command
- Used by Web to generate configuration UIs

ACTIVITY - METADATA EXAMPLE

```
{
  "name": "tibco-log",
  "version": "0.0.1",
  "title": "Log Activity",
  "description": "Simple Log Activity",
  "inputs":[
    {
      "name": "message",
      "type": "string",
      "value": ""
    },
    {
      "name": "flowInfo",
      "type": "boolean",
      "value": "false"
    },
    {
      "name": "addToFlow",
      "type": "boolean",
      "value": "false"
    }
  ],
  "outputs": [
    {
      "name": "message",
      "type": "string"
    }
  ]
}
```

ACTIVITY - INTERFACE

```
// Activity is an interface for defining a custom Task Execution

type Activity interface {

    // Eval is called when an Activity is being evaluated.  Returning true indicates
    // that the task is done.
    Eval(context Context) (done bool, evalError *Error)

    // ActivityMetadata returns the metadata of the activity

    Metadata() *Metadata
}
```

ACTIVITY – SUPPORT INTERFACE

```
// Context describes the execution context for an Activity.
// It provides access to attributes, task and Flow information.
type Context interface {

    // FlowInstanceID returns the ID of the Flow Instance
    FlowInstanceID() string

    // FlowName returns the name of the Flow
    FlowName() string

    // TaskName returns the name of the Task the Activity is currently executing
    TaskName() string

    // GetInput gets the value of the specified input attribute
    GetInput(name string) interface{}

    // SetOutput sets the value of the specified output attribute
    SetOutput(name string, value interface{})
}
```

TRIGGER

- Use “flogo” CLI to create stub
- Configure metadata
- Implement “Trigger” interface
- Publish to GIT repository

TRIGGER – METADATA

- Describes the TRIGGER
- Settings - Global Trigger configuration
- Outputs - Outputs created by the Trigger
- Endpoint - Describes a particular endpoint
- located in trigger.json, trigger_metadata.go
- Used by Web to generate configuration UIs

TRIGGER – METADATA EXAMPLE

```
{
  "name": "tibco-coap",
  "version": "0.0.1",
  "title": "CoAP Trigger",
  "description": "Simple CoAP Trigger”,
  "settings": [
    {
      "name": “port", "type": “integer", "required": true
    }
  ],
  "outputs": [

    { "name": “queryParams", "type": “params" },
    { "name": “payload", "type": “string" }
  ],
  "endpoint": {
    "settings": [

      { "name": “method", "type": “string", "required" : true },
      { "name": “path", "type": “string", "required" : true },
      { "name": “autoIdReply", "type": “boolean" }
    ]
  }
}
```

TRIGGER - INTERFACE

```
// Trigger is object that triggers/starts flow instances and
// is managed by an engine

type Trigger interface {

    util.Managed

    // TriggerMetadata returns the metadata of the trigger
    Metadata() *Metadata


    // Init sets up the trigger, it is called before Start()
    Init(starter flowinst.Starter, config *Config)
}
```

TRIGGER – CREATE STUB

- Make sure flogo CLI is installed
- Create stub
  - flogo trigger create my trigger
- Start editing
  - cd mytrigger/src/rt

TRIGGER – SUPPORT INTERFACES

```
// Managed is an interface that is implemented by an object that needs to be
// managed via start/stop
type Managed interface {

    // Start starts the managed object
    Start() error

    // Stop stops the managed object
    Stop()
}
```

```
// Starter interface is used to start flow instances, used by Triggers
// to start instances
type Starter interface {

    // StartFlowInstance starts a flow instance using the provided information
    StartFlowInstance(flowURI string, startAttrs []*data.Attribute, replyHandler ReplyHandler,
                      execOptions *ExecOptions) (instanceID string, startError error)
}


// ReplyHandler is used to reply back to whoever started the flow instance
type ReplyHandler interface {

    // Reply is used to reply with the results of the instance execution
    Reply(replyData map[string]string)
}
```

FLOGO RESOURCES

- Flogo CLI
  - https://github.com/TIBCOSoftware/flogo-cli
- Activity and Trigger Examples
  - https://github.com/TIBCOSoftware/flogo-contrib
- Flogo Core Library
  - https://github.com/TIBCOSoftware/flogo-lib
  - Extension interfaces located under core/ext

INTERNAL TECHNICAL PREVIEW AVAILABLE

- Fill up Formvine request for Internal Technical Preview
  - https://formvine.tibco.com/fv/r/3555430693/5446

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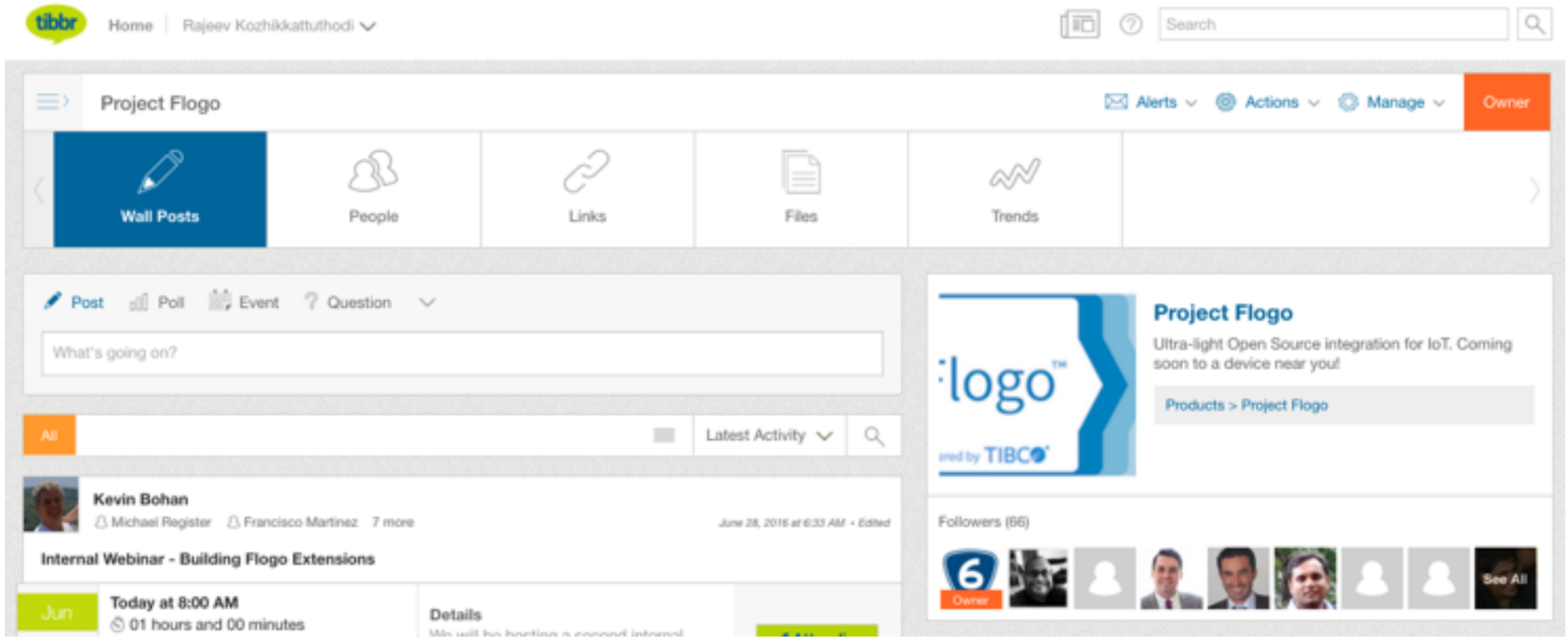

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