



cf-swagger

giving CF APIs their swagger back!

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agenda

- what is swagger?
- what part of CF could use swagger?
- CF Service Broker APIs
 - docs,
 - server, clients,
 - tests and TCK
- value of TCK survey results
- what next?

what is swagger?



- OSS API description language and tools
- describe REST APIs (in JSON/YAML)
- Use OSS tooling to generate
 - API docs
 - code artifacts, e.g., client and server stubs
- Flexible, customizable, and OSS
 - growing number of companies using

what is swagger?: interactive editor

The screenshot displays the Swagger UI interface. On the left, a dark-themed editor shows a Swagger 2.0 definition for a 'Service Broker API'. The definition includes an 'info' section with version '2.5', title 'Service Broker API', and a detailed description of the Cloud Foundry services API. It also specifies the host '127.0.0.1:8888', basePath '/v2', and a single 'http' scheme. The 'paths' section defines a 'GET /catalog' endpoint with an operationId 'catalog', a summary 'Gets services registered within the broker', and a list of tags including 'catalog'.

```
1 swagger: '2.0'
2 info:
3   version: '2.5'
4   title: Service Broker API
5   description: >
6     The Cloud Foundry services API defines the contract
7     between the Cloud
8     Controller and the service broker. The broker is expected
9     to implement
10    several HTTP (or HTTPS) endpoints underneath a URI prefix
11    . One or more
12    services can be provided by a single broker, and load
13    balancing enables
14    horizontal scalability of redundant brokers. Multiple
15    Cloud Foundry instances
16    can be supported by a single broker using different URL
17    prefixes and
18    credentials. [Learn more about the Service Broker
19    API.](http://swagger.wordnik.com)
20 host: '127.0.0.1:8888'
21 basePath: /v2
22 schemes:
23   - http
24 paths:
25   /catalog:
26     get:
27       operationId: catalog
28       summary: Gets services registered within the broker
29       tags:
30         - catalog
31       description: "The first endpoint that a broker must
32       implement is the service catalog. Cloud Controller will
33       initially fetch this endpoint from all brokers and make
```

On the right, the Swagger UI provides a user-friendly view of the API. It features a 'Service Broker API' title, a descriptive paragraph, and a 'Version 2.5' label. Below this, a 'Filter operations by a tag:' section shows two tags: 'catalog' (highlighted in red) and 'service_instances' (in blue). The 'Paths' section shows the '/catalog' endpoint with a 'GET /catalog' tab. A 'Summary' section states 'Gets services registered within the broker'. A 'Description' section explains the role of the service catalog. A 'Responses' section includes a table with columns for 'Code', 'Description', and 'Schema'. The table shows a response for '200' with a schema of 'CatalogServices { list of services'.

Service Broker API

The Cloud Foundry services API defines the contract between the Cloud Controller and the service broker. The broker is expected to implement several HTTP (or HTTPS) endpoints underneath a URI prefix. One or more services can be provided by a single broker, and load balancing enables horizontal scalability of redundant brokers. Multiple Cloud Foundry instances can be supported by a single broker using different URL prefixes and credentials. [Learn more about the Service Broker API.](http://swagger.wordnik.com)

Version 2.5

Filter operations by a tag:

catalog

service_instances

Paths

/catalog

GET /catalog

catalog

Summary

Gets services registered within the broker

Description

The first endpoint that a broker must implement is the service catalog. Cloud Controller will initially fetch this endpoint from all brokers and make adjustments to the user-facing service catalog stored in the Cloud Controller database.

Responses

| Code | Description | Schema |
|------|-------------|--|
| 200 | | CatalogServices { list of services |

what is swagger?: spec details

```

1  swagger: '2.0'
2  info:
3    version: "2.5"
4    title: Service Broker API
5    description: |
6      The Cloud Foundry services API defines the contract between
7  host: localhost
8  basePath: /v2
9  schemes:
10   - http
11  paths:
12    /catalog:
13      get:
14        operationId: catalog
15        summary: Gets services registered within the broker
16        tags:
17          - catalog
18        description: |
19          The first endpoint that a broker must implement is the se
20        produces:
21          - application/json
22        responses:
23          "200":
24            description: successful operation
25            schema:
26              type: array
27              items:
28                $ref: "#/definitions/Services"
29          "400":
30            description: Invalid status value
  
```

```

32  /service_instance/{instance_id}:
33    parameters:
34      - $ref: "#/parameters/instance_id"
35    put:
36      operationId: create_service_instance
37      produces:
38        - application/json
39      consumes:
40        - application/json
41      tags:
42        - service_instance
43      description: When the broker receives a provision request f
44      summary: Provisions a service instance
45      parameters:
46        - name: service
47          required: true
48          description: Service information.
49          in: body
50          schema:
51            type: object
52            $ref: "#/definitions/Service"
53
54      responses:
55        "201":
56          description: Service instance has been created. The exp
57          schema:
58            type: object
59            $ref: "#/definitions/Dashbord_url"
60        "200":
61          description: May be returned if the service instance al
62          schema:
63            type: object
64            $ref: "#/definitions/Dashbord_url"
65        "409":
66          description: Should be returned if the requested servic
67          schema:
68            type: object
69            $ref: "#/definitions/Empty"
  
```

what is swagger? (*cont.*)

Demo 1

1. swagger editor
2. swagger description for CF service brokers
3. generated API docs

cf-swagger

1. describe all CF APIs (eventually)
 - CF services: broker APIs
 - CF Cloud Controller: v3
 - UAA APIs
2. generate API docs
3. generate API client and servers (stubs)
4. generate test suites for API servers
5. generate Test Compatibility Kits

cf-swagger: service broker APIs

- API docs
- server generation
- extending the swagger spec
- prototypes for
 - unit and integration tests generation
 - Test Compliance Kit (TCK) generation

cf-swagger: why a TCK?

- some CF APIs are “plugins” or “extensions”
 - designed to allow many (1K+) providers
 - heterogeneous supporting lots of versions
 - tests are templated-able and tedious
- TCK is meant for
 - verifying compliance level of broker
 - tell you what part of spec is not supported

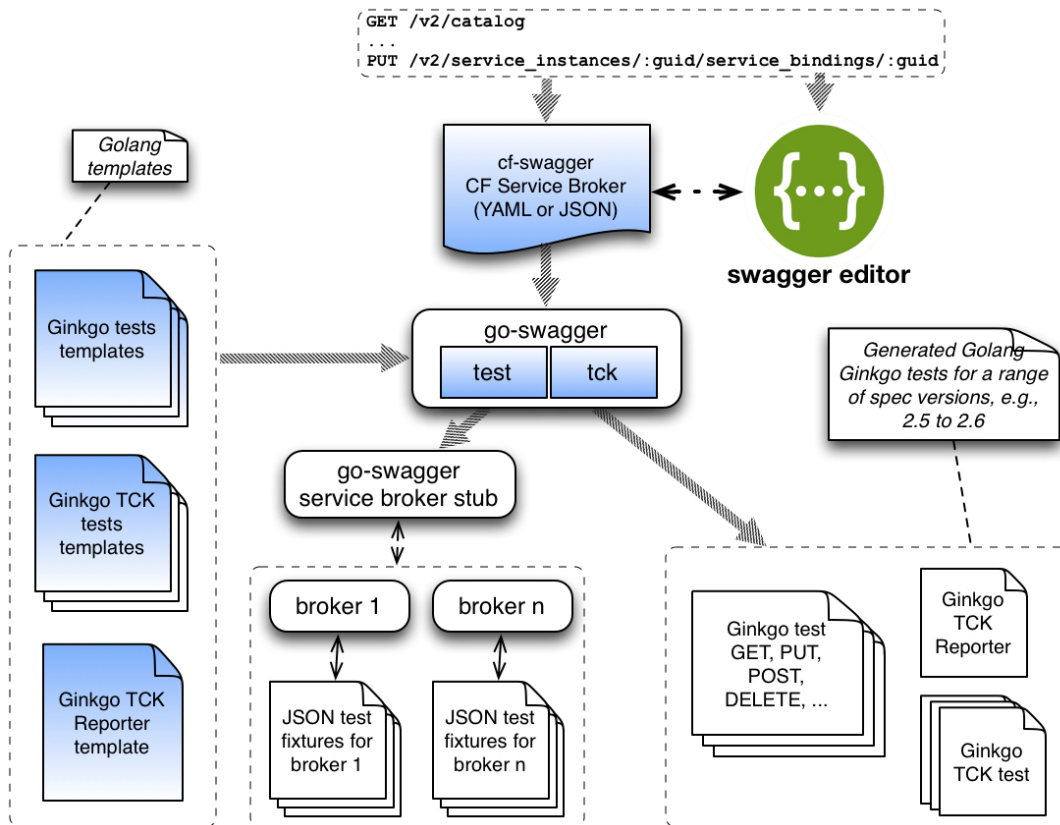
cf-swagger: spec extensions

```
167 ▼      "/service_instances/{instance_id}/service_bindings/{binding_id}": {
168 ▼          "parameters": [{
169             "$ref": "#/parameters/instance_id"
170         }, {
171             "$ref": "#/parameters/binding_id"
172 ▲         }],
173 ▼         "put": {
174             "operationId": "serviceBind",
175             "x-version": "2.6",
176             "summary": "Binds to a service",
177             "description": "When the broker receives a bind request from the Cloud Controller,
178 ▼             "produces": [
179                 "application/json"
180 ▲             ],
181 ▼             "consumes": [
182                 "application/json"
183 ▲             ],
184 ▼             "tags": [
185                 "service_instances"
186 ▲         ],
```

cf-swagger: spec extensions (*cont.*)

```
129 ▼      "delete": {  
130          "operationId": "deprovisionServiceInstance",  
131          "x-test-dependencies": "createServiceInstance"  
132          "summary": "Deprovisions a service instance.",  
133          "description": "When a broker receives a deprovision request  
134 ▼          "produces": [  
135              "application/json"  
136 ▲          ],  
137 ▼          "tags": [  
138              "service_instances"  
139 ▲          ],|
```

cf-swagger: high-level overview



cf-swagger (*cont.*)

Demo 2

1. swagger spec extension for test and TCK
2. go-swagger test command
3. go-swagger tck command
4. running tests with real broker

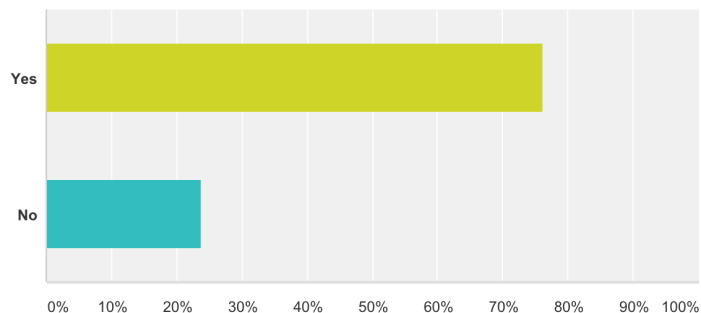
existing solutions?

- Bluemix: *servicebrokertest*
manually created
stuck at v2.3 of spec
- Others?
CATs services tests
manual, indirectly with CF CLI

survey results: test strategy

Do you currently test CF Service Brokers?

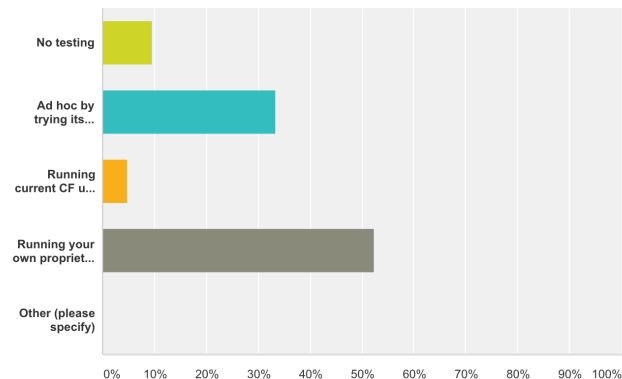
Answered: 21 Skipped: 16



| Answer Choices | Responses |
|----------------|-----------|
| ▼ Yes | 76.19% 16 |
| ▼ No | 23.81% 5 |
| Total | 21 |

How would you test a new CF Service Broker?

Answered: 21 Skipped: 16

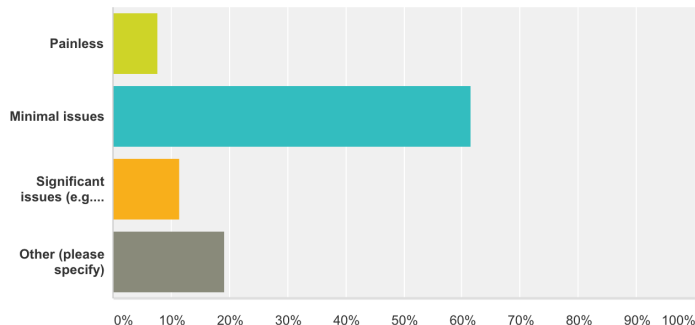


| Answer Choices | Responses |
|---|-----------|
| ▼ No testing | 9.52% 2 |
| ▼ Ad hoc by trying its services | 33.33% 7 |
| ▼ Running current CF unit and integration tests (CATS or modified versions thereof) | 4.76% 1 |
| ▼ Running your own proprietary tests | 52.38% 11 |
| ▼ Other (please specify) | 0.00% 0 |
| Total | 21 |

survey results: pain & TCK value

What pain and issues (if any) have you experience when deploying and using a new service broker?

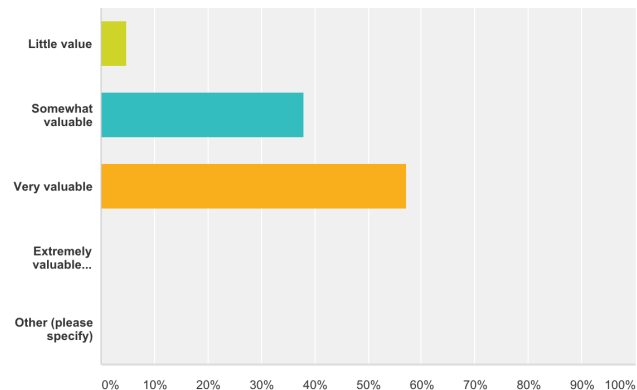
Answered: 26 Skipped: 11



| Answer Choices | Responses |
|--|-----------|
| ▼ Painless | 7.69% 2 |
| ▼ Minimal issues | 61.54% 16 |
| ▼ Significant issues (e.g., requiring redeploying apps and services) | 11.54% 3 |
| ▼ Other (please specify) Responses | 19.23% 5 |
| Total | 26 |

How valuable do you think would be a compliance test suite for CF service brokers? (e.g., verifying compliance to v2.6 of the spec)

Answered: 21 Skipped: 16



| Answer Choices | Responses |
|--|-----------|
| ▼ Little value | 4.76% 1 |
| ▼ Somewhat valuable | 38.10% 8 |
| ▼ Very valuable | 57.14% 12 |
| ▼ Extremely valuable (willing to pay \$ to use it) | 0.00% 0 |
| ▼ Other (please specify) Responses | 0.00% 0 |
| Total | 21 |

what next?

TCK

- complete and harden the code generation
- submit code-generation changes to go-swagger

explore describing other CF APIs

- CC v3 (?)
- UAA, CF-Abacus

socialize with CF community: *dW Open* and *cf-swagger* incubators?

thank you
QAs

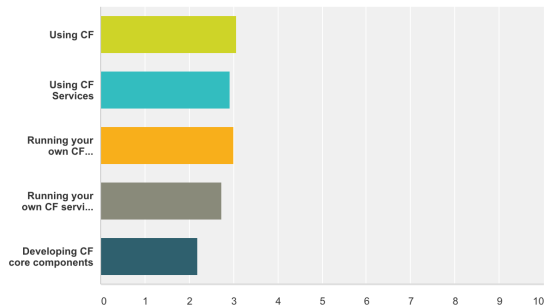
<https://github.com/maximilien/cf-swagger>

backup

survey results: CF role & familiarity

How familiar are you with Cloud Foundry (CF)?

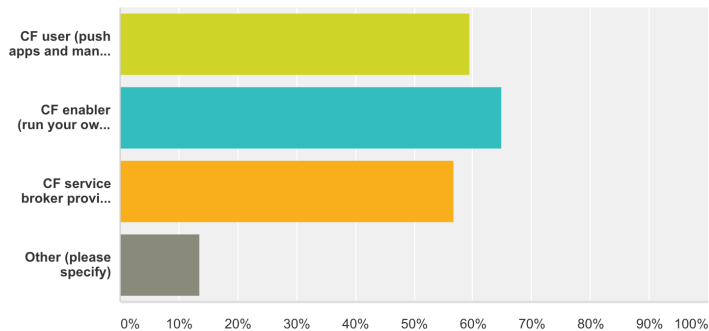
Answered: 36 Skipped: 1



| | Not familiar at all | Somewhat familiar | Very familiar | Expert (I wrote the book) | Total | Weighted Average |
|------------------------------------|---------------------|-------------------|---------------|---------------------------|-------|------------------|
| Using CF | 2.78% 1 | 8.33% 3 | 69.44% 25 | 19.44% 7 | 36 | 3.06 |
| Using CF Services | 2.78% 1 | 22.22% 8 | 55.56% 20 | 19.44% 7 | 36 | 2.92 |
| Running your own CF environment | 2.78% 1 | 19.44% 7 | 52.78% 19 | 25.00% 9 | 36 | 3.00 |
| Running your own CF service broker | 14.29% 5 | 20.00% 7 | 42.86% 15 | 22.86% 8 | 35 | 2.74 |
| Developing CF core components | 27.78% 10 | 38.89% 14 | 19.44% 7 | 13.89% 5 | 36 | 2.19 |

What role do you play in the Cloud Foundry (CF) ecosystem?

Answered: 37 Skipped: 0



| Answer Choices | Responses |
|--|--------------|
| CF user (push apps and manage them) | 59.46% 22 |
| CF enabler (run your own CF installation) | 64.86% 24 |
| CF service broker provider (e.g., you have service brokers in any of the current CF installations) | 56.76% 21 |
| Other (please specify) Responses | 13.51% 5 |
| Total Respondents: 37 | |

survey results: detail on pain

Can you elaborate on the answer to question 3 (previous question)?

Answered: 11 Skipped: 26

Responses (11) | Text Analysis | My Categories

Categorize as... | Filter by Category | Search responses

Showing 11 responses

When deploying apps that are service brokers, it's possible to delete the app, making it impossible to delete apps that had an instance from that service broker. Defensive checking against that would be useful.

9/16/2015 2:19 AM [View respondent's answers](#)

not much at the moment

9/15/2015 8:20 PM [View respondent's answers](#)

differecult to decide use which kind of runtime when create an new service instance, for example, use VM, or use Docker container, or just always return the same one.

9/15/2015 7:58 PM [View respondent's answers](#)

Working with partners that integrate with brokers, constant changes to API make integration deals hard to do.

9/15/2015 10:50 AM [View respondent's answers](#)

Automating broker registration without BOSH errands.

9/15/2015 10:43 AM [View respondent's answers](#)

We created a home grown framework to make it painless.

9/11/2015 8:25 AM [View respondent's answers](#)

No pain, as I understand the "philosophy" of it. Minimal issues: Typical bugs related to service broker development