Continuous code delivery and integration

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Requires: a build server; automating builds.

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Requires: automating deploying to an environment.

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Requires: continuous integration, continuous delivery.

Build tools, testing tools

- Travis CI
- Jenkins
- . . . many, many others

Deployment tools, orchestration tools

- Salt
- Puppet, Chef, etc
- Fabric, Capistrano, etc
- . . . many, many others

Where Salt fits

Salt does not dictate your infrastructure.

> *"Don’t get set into one form, adapt it and build your own, and let it grow, be like water. Empty your mind, be formless, shapeless — like water. Now you put water in a cup, it becomes the cup; You put water into a bottle it becomes the bottle; You put it in a teapot it becomes the teapot. Now water can flow or it can crash. Be water, my friend."*
>
> *—Bruce Lee*

Quick overview

- Hosted service
- GitHub integration

Getting started

- Add `.travis.yml`
- Enable GitHub hook

Demo!

- testrepo

Quick overview

- Open source
- Self-contained

Getting started

- Install Java
- Install Jenkins; start service
- Configure / secure the install
- Enable / configure any plugins
- Add a project

Demo!

- testrepo

Salt Events and the Salt Reactor

- Send events from minions.
- Send events from external services.
- Trigger operations throughout your infrastructure.

Firing events from minions

```
salt-call event.fire_master \
    '{"foo": "Foo!", "bar": "Bar!"}' \
    'myapp/myevent/somevalue'
```

Firing events external services

```
curl -sS https://netapi.example.com:8000\
/hook/myapp/myevent/somevalue \
    -d foo='Foo!' -d bar='Bar!'
```

Watching the event bus

```
salt-run state.event count=-1
```

Listening to events with the Salt Reactor

```
/etc/salt/master.d/react_myapp.conf:
    reactor:
      - 'myapp/myevent/somevalue':
        - /srv/salt/react_myapp.sls
```

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    reactor:
      - 'myapp/myevent/somevalue':
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/srv/salt/react_myapp.sls:
    deploy_myapp:
      cmd.state.highstate:
        - tgt: 'web*'
        - arg:
          - 'pillar={{ data|yaml }}'
```

Debugging the Salt Reactor

```
salt-master -l debug
```

Step 1: post_recieve Git hook

```
#!/bin/bash
newrev=$(git rev-parse $2)

salt-call event.fire_master \
    "{\"newrev\": \"$newrev\"}" \
    "myapp/git/push"
```

Step 2: React to the push event

```
/etc/salt/master.d/react_git_push.conf:
    reactor:
      - 'myapp/git/push':
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    reactor:
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/srv/salt/react_git_push.sls:
    test_myapp:
      cmd.state.sls:
        - tgt: 'buildserver'
        - arg:
          - run_tests
          - 'pillar={{ data|yaml }}'
```

Step 3: Run the test suite

/srv/salt/run_tests.sls:

```
run_tests:
  cmd:
    - run
    - name: python -m unittest tests
    - cwd: /path/to/testrepo

deploy_stage:
  module:
    - wait
    - name: event.fire_master
    - data:
        newrev:
        {{ salt['pillar.get']('data:newrev') }}
    - tag: myapp/tests/pass
    - watch:
      - cmd: run_tests
```

Step 4: React to the test event

```
/etc/salt/master.d/react_tests_pass.conf:
    reactor:
      - 'myapp/tests/pass':
        - /srv/salt/react_tests_pass.sls
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Step 4: React to the test event

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/etc/salt/master.d/react_tests_pass.conf:
    reactor:
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/srv/salt/react_tests_pass.sls:
    deploy_myapp:
      cmd.state.sls:
        - tgt: 'web*'
        - arg:
          - deploy_myapp
          - 'pillar={{ data|yaml }}'
```

Step 5: Deploy the new code to stage

/srv/salt/deploy_myapp.sls:

```
myapp:
  git:
    - latest
    - name: git@github.com/myorg/myapp
    - target: /var/www/myapp
    - rev: {{ salt['pillar.get']('data:newrev') }}
    - watch_in:
      - service: apache

apache:
  service:
    - running
    - name: httpd
```