Workflow-as-a-Service

https://wiki.openstack.org/wiki/Convection
https://etherpad.openstack.org/Convection

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What is Convection?

open source

- workflow service PROPOSAL
  - providing task and state management

which enables

- cloud applications to run
  - complex multi-step workflows

Why the name Convection?

WFaaS (yawn)

convection *conveys,* definition:

"moving in a continuous stream"

task flows

analogous to Heat/air flow

in convection ovens

Workflow Use Cases

Batch Jobs

- sequence(s) of tasks with Start and End
  - e.g. encode/decode video

Long Running Jobs

- persistent job remaining until terminated
  - e.g. auto-scale policy, or BPM
- job run for specified duration
  - e.g. two day automated stress test

Why talk about this now?

Assertions/Predictions:

- Heat will want a Workflow
  - redoing coding work is bad
    - cloud API users want Workflow
      - other services will use Workflow

Workflow is not orchestration

Orchestration above Workflow

- e.g. Heat

Workflow above Orchestration

- Meta-flow

- The Dream:
  - flexible cloud
    - build anything

Why workflow for Heat?

Heat (today)

- accepts mixed declarative/imperative input
  - with relatively simple relationships
    - and largely linear task execution

Heat (future)

- separated declarative/imperative input
  - simple and complex relationships
    - asynchronous/simultaneous tasks

Workflow solves

job status management

job execution management

task execution management

task dependency management

task state management

I can imagine…

<insert service names here> using Workflow

"top" command for your cloud

list running workloads

display resource (worker) utilization

kill/restart

If…

we end up wanting a Workflow in Heat

- build it so it can be spun into separate service
  - abstractions for jobs/tasks

we want to build Convection

- build it so other services could consume it
  - and enable custom workflows

Let's discuss

Do others want this?

Are you willing/able to help?

What would be next steps?

Interested?

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Workflow Types

Just-in-Sequence

(static)

Just-in-Time

(dynamic)

Both provide for a deterministic Flow Order