Miscellaneous Developers' Topics
AM API and RSpecs
GEC 17
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- GENI Aggregate Manager API version 3 fully supported by PlanetLab, **PLE**, Omni

- AM API version 3 implementation nearly complete at ProtoGENI / InstaGENI

- AM API version 3 implementation planned at Orca/ExoGENI, FOAM, and MAX

- **Upcoming Flack** has AM API v3 support

  http://groups.geni.net/geni/wiki/GAPI_AM_API_V3

AM API v3: How soon?

- When will AM API v3 be fully implemented?

- Both Speaks For and `Update()` require v3
  - Speaks For requires typed credentials
  - Solicitation 4 tools should be using Speaks For
  - `Update()` requires implement APIv3 first, and experimenters want `Update()`
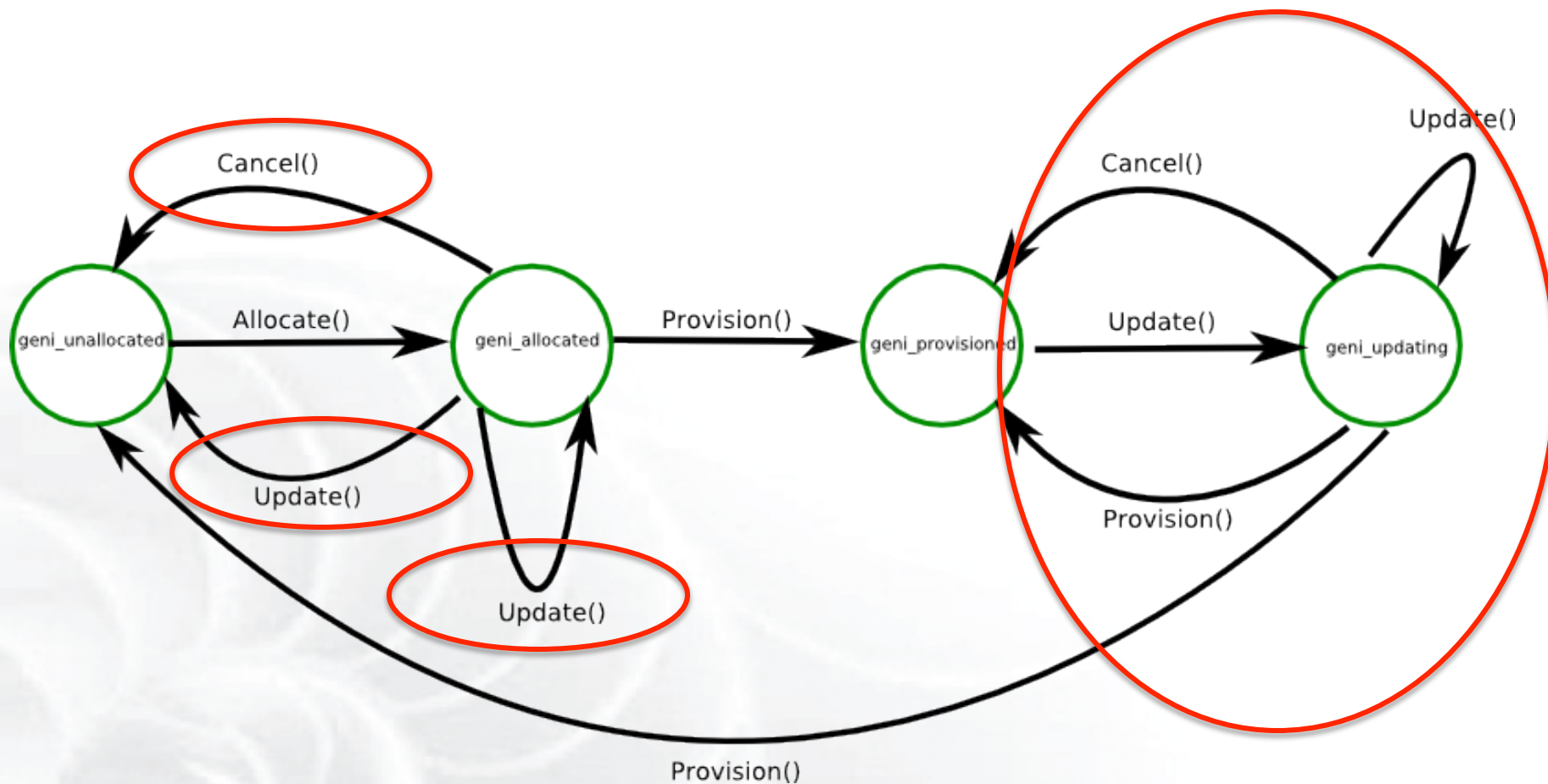- ABAC is easier with v3
  - Typed credentials

What can we do to help?

- `Update()` was adopted at GEC15, Aggregates may implement in v3

- Other small changes also adopted, may be implemented in v3

- Is it time to finalize AM API v4?

- **Experimenters need some `Update()` soon**
  - To change SSH keys
  - 'Grow my slice'
  - To support Solicitation 4 tools
  - **Can parts of `Update()` be implemented sooner?**

  http://groups.geni.net/geni/wiki/
  GAPI_AM_API_DRAFT#ChangeSetC:Update

Review: Update()

- `Update(urns[], creds[], rspec, options)`
  - "Make the slivers named by `urn`s look as described by the given request `rspec`"
  - Immediately changes `allocated` or `updating` slivers
  - `Provisioned` slivers become `updating` and the change must be committed using `Provision()`
  - `rspec` is a complete request RSpec for all slivers in the `urns` argument. New resources means '*please allocate*', removed resources means '*please delete*', and changes are modification requests.
  - Slivers not in the `urns` list and not in the `rspec` are unchanged

Note new methods `Update()` and `Cancel()`, and new state `geni_updating`

`Update()`: State Guarantee RSpec Extension

- New optional RSpec extension for manifests
- Describes any guarantees the aggregate provides about state preservations when applying an `Update()`
  - `geni_none`: No guarantee at all
  - `geni_persistent_state`: Persistent state will be saved (i.e. on disk)
  - `geni_dynamic_state`: Dynamic state will be saved, but there may be packet loss or service restarts
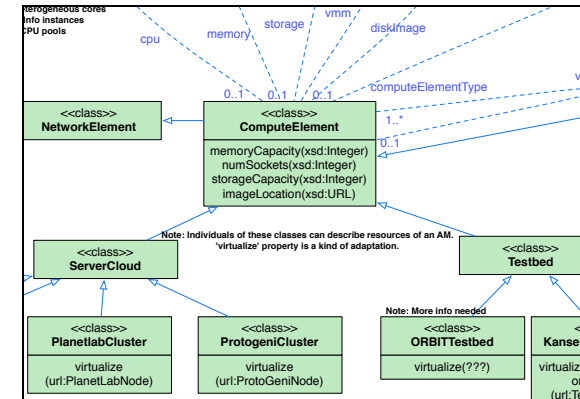 - `geni_no_disruption`: No perturbation at all

http://www.geni.net/resources/rspec/ext/preserve/1/manifest.xsd

- The `rspec` argument to `Update()` is a full request, but includes `sliver_id`s.

- The argument is a mix of things from a previous manifest and new requests.

- Currently requests may not include `sliver_id`s and some manifest elements.

- **We agreed to fix this**.

- GENI v3 RSpec format adopted at GEC10

- No changes to base in a long time

- Various RSpec extensions have been added & used to support stitching, shared VLANs, OpenFlow, post boot scripts, Flack, etc.

  - Stitching extension changed in March

  - State guarantees and shared VLAN extensions changed in October

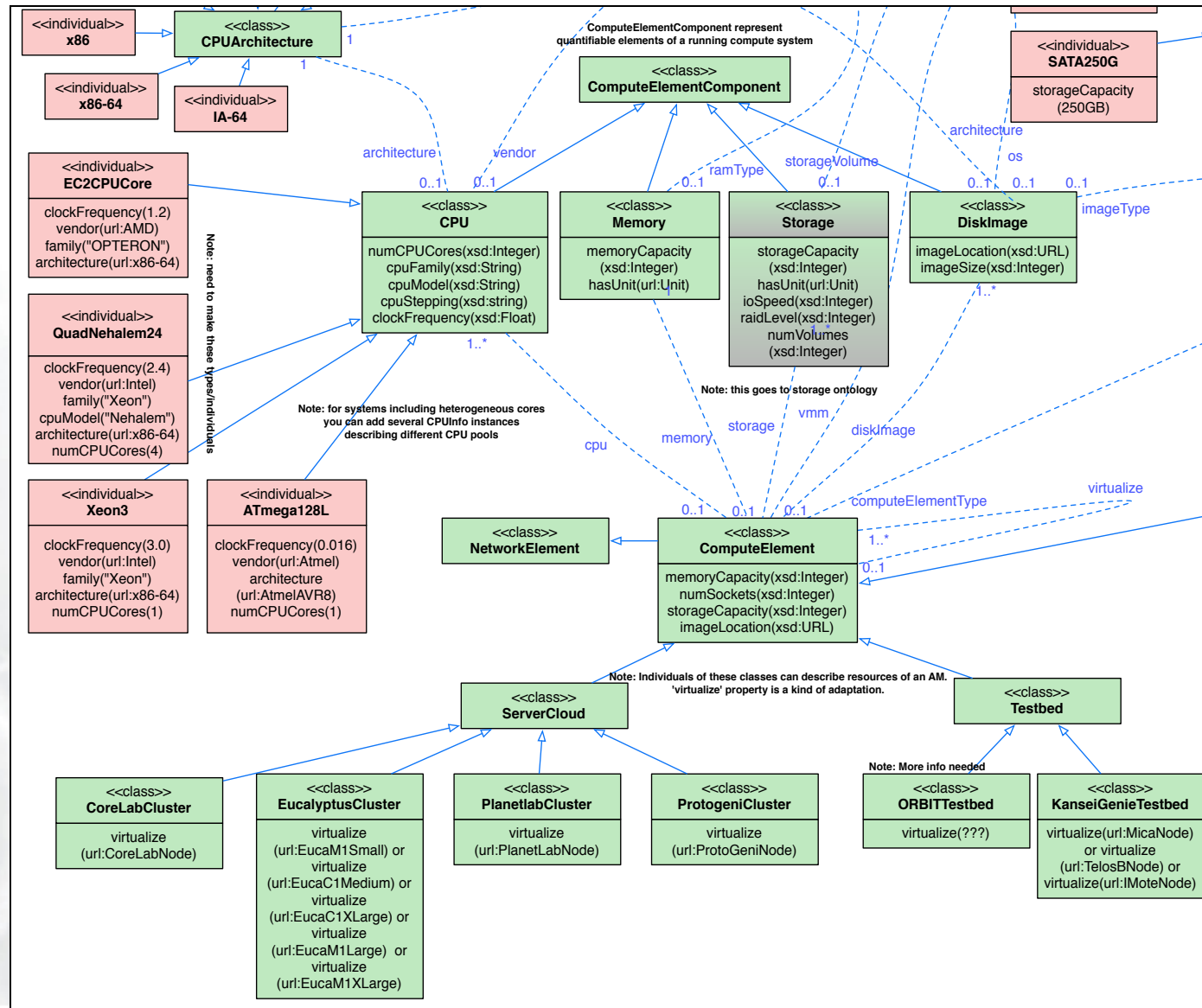 - www.geni.net/resources/rspec/ext/

openflow/
opstate/
postBootScript/
preserve/
shared-vlan/
user/

RSpec Discussion Points

- Implement the compute ontology?
  - http://groups.geni.net/geni/wiki/GEC11RSpec

- Refactor to better support non-compute and non-wired-link aggregates?

- Refactor so schema enforces field structures?

- New extensions?

- Changes to support `Update()`
  - Make manifest a request extension

- Define nodes in terms of their properties

- Not arbitrary `sliver_type` and `hardware_type` labels

- ## Omni/gcf 2.3.3 released
  - Stitcher.py – demo tomorrow
  - 'get_ch_version': call `GetVersion` at Clearinghouses
  - `omni_config` change for talking to GENI Portal
  - Better GENI Portal support
  - Usability improvements

  Update to the latest Omni/gcf!

- ## Omni/gcf 2.4 is in testing
  - RSpec nicknames
  - GCF CH can be multi-threaded
  - Stitcher supports stitching to ExoGENI

Discuss

- AM API v3
- `Update()`
- `Update()` RSpec changes
- Other RSpec changes