Changing the GENI AM API
My personal top two

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The two things I would change

- Make slivers individually addressable

- Use self-contained messages
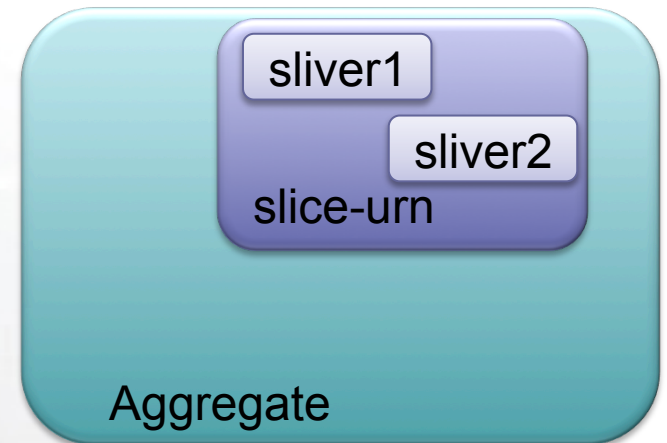
Addressable Slivers: Problem

Step 1: Make Request

```
CreateSliver(slice-urn,
             "<rspec>
                <resource1/>
                <resource2/>
             </rspec>")
```

Aggregate

Step 2: Receive Result

```
"<rspec>
   <sliver1
     resource="resource1"
     ip="192.168.100.1"/>
   <sliver2
     resource="resource2"
     ip="192.168.100.2"/>
</rspec>"
```

sliver1

sliver2

slice-urn

Aggregate

Addressable Slivers: Problem

- The slivers associated with a slice urn can only be queried, renewed, and deleted as a group

- Slivers 1 & 2 can only be operated on _together_
  - DeleteSliver(slice-urn) ✔
  - RenewSliver(slice-urn) ✔

- Slivers 1 & 2 cannot be operated on separately
  - DeleteSliver(sliver1) ✖
  - RenewSliver(sliver2) ✖

Addressable Slivers: Benefits

- Allows researchers more fine-grained control over resources

- Allows researchers to give up resources when they are no longer needed

- Allows researchers to keep individual resources longer

Addressable Slivers: Recommendation

- Allow the slice URN argument to be either a slice URN or a sliver URN in:
  - SliverStatus
  - RenewSliver
  - DeleteSliver

- Using a slice URN operates on the "sliver group"

- Using a sliver URN operates on the individual sliver

Self-contained messages: Problem

- The GENI AM API makes it difficult to have asynchronous or brokered communications with aggregates.
  - Live encryption of the connection is required to use XML-RPC over SSL

- How does XML-RPC play with Identity Providers like Shibboleth?

Self-contained messages: Benefits

- Enables easier/better logging of events

- Improves traceability

- Enables software agents/brokers

- Enables asynchronous operations

- ## Experiment with self-contained messaging.
  - Explore existing formats: ORCA, OMF, XMSG
  - Explore interaction with Shibboleth

- ## Engage the community in a policy discussion
  - Is it acceptable to send messages "in the clear"?
  - Are signed messages required for traceability?

- ## Develop a prototype

- ## Make a recommendation to the CFWG