Hi Promise team,

As discussed earlier we would need to define more detailed use cases and scenarios, as the system will not always work as it is described in the high level use case. I collected a set of questions to think about in order to clarify the possible scenarios we need to deal with. The actual use cases and scenarios will be uploaded to gerrit as patches so that we can follow the history of the discussion there.

Achieving the full guarantee to be able to allocate the reserved instance and corresponding resources is a long term journey, especially if immediate allocation is allowed in the system too. On the other hand the available capacity can change any time due to failures. In addition we use OpenStack as VIM, which has complex resources structures that makes it even harder to ensure that a given VM instance can be allocated in the future, when the reservation time arrives.

The base use case, **reservation for future use** is the following:

Network operators may want to reserve extra resources for future use.  Such necessity could arise from predicted congestion in telecom nodes e.g. due to local traffic spikes for concerts, natural disasters etc. In such a case, the NFVO, while sending a resource reservation request to the VIM, shall include a start time (and an end time if necessary). The start time indicates at what time the reserved resource shall be available to a designated consumer e.g. a VNF/VNFM. Here, the requirement is that the reserved resources shall be available when the start time arrives. After the start time has arrived, the reserved resources are allocated to the designated consumer(s). An explicit allocation request is needed. How actually these requested resources are held by the VIM for the period in between the arrival of the resource reservation request and the actual allocation is outside the scope of this requirement project.

General questions:

* What are the stages of the reservation feature? (To define the acceptable steps of the solution)
  + Compute
    - Allocate instance with the minimum set of required resource items (vcpu, memory) – short term target (~1 year, O-release)
    - Allocate instance with the full set of supported resource items (vcpu, memory, PCI passthrough (non-NIC case), …) – mid-term target
  + Storage
    - Short-term: volume ?
  + Network
    - Short-term: bandwidth, IP addresses, … ?
    - Long-term: delay, …
  + Short-term use case is to reserve 2 computes with some storage and a link between
* In the current resource reservation request definition how the amount maps to resource item(s)? in the current request we have an “amount” attribute in Clause 3 -> do not look at the high-level requests in Clause 3, but check Clause 5 for detailed operations.
  + Reserve based on templates/flavors. See clause <http://artifacts.opnfv.org/promise/html/05-impl.html#compute-resource-reservation>
  + Mapping to ETSI NFV is important.
* When the end time is reached is it the resource reservation component in the VIM, which terminates the allocation?
  + Two options
    - Option 1: Yes
    - Option 2: VIM when end time is reached, it may ask NFVO to terminate allocation. Option1 may still be needed as fallback solution.
  + At start time
    - Option 1: automatic allocation
    - Option 2: allocation will not automatically happen. One option: do only send notification to NFVO.
* As a long term goal, do we need priorities in the system? (To handle cases, when an instance cannot be allocated with a valid reservation)
  + What to use it for?
  + When to use it?
    - Only at reservation time?
    - Only at allocation time?
  + To be discussed later at appropriate time
* Can allocation without reservation be handled as immediate reservation (without end time)?
  + Yes, allocation without reservation is the way it is currently done in OpenStack
  + Check with OpenStack whether assuming immediate reservation would be acceptable.

VIM (OpenStack) specific questions:

* Is this the end goal?
  + reservation request = allocation request + start time + (end time) + (expiry time)?
  + Synchronize with ETSI NFV
  + The reservation\_id will be used as one means of authentication
* Do we need to support all the resource types (simple and complex) that Nova supports?
  + Short-term: only simple; mid-term: yes
* Do we need to provide all the capabilities that Nova can provide (in a step by step manner)?
  + Yes, the following should be part of short-term
    1. Affinity rules
       - Availability zones (as one means to realize affinity rules)
       - Could also be realized as server groups
    2. NUMA usage and exposure
  + Mid-term step: SR-IOV
* What stages are acceptable for an integrated solution (as a step by step manner)?
  1. No reuse of resources
     + Short-term goal
  2. Reuse resources with increased level of optimization
     + Long-term goal
* Do we need multi-site support in short- and mid-term?
  + Not needed in short-/mid-term

Please let me know your thoughts.

Thanks and Best Regards,

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