

HPA Score - Objective Function

Problem statement :

- Best site selection with respect to compute profiles: R2 has ability to select the best compute flavor on per site basis. That is, HPA constraint plugin on per input candidate site, checks whether there is any matching compute profile. If there is one, it stops searching on rest of candidates. In R3, intention is to search through all input candidate sites, get the best compute profile in each site and select the site whose compute profile (combined) score is highest.

Solution Proposal:

Using a weighted sum approach, we will minimize multiple objective functions. Weights for each of the objective function is operator provided and will be obtained through policy. The goal is to minimize the weighted sum of all the objective functions specified in the homing template.

For eg:

Goal is to minimize $F(x) = \sum_i w_i f_i(x)$

where $i = 1$ to N indicates number of objective functions.

w_i is the operator supplied weight of the objective function $f_i(x)$

Challenge with this approach - 1) Weight is user supplied, 2) For supporting multiple dimensions we would need a function to normalize the unit across dimensions.

hpa_score as objective function

- hpa_score is calculated for each vnfc by adding the score parameter from hpa policy.
- If there are multiple VNFC's per VNF then the score of the best flavor selected is cumulatively added and stored as candidate[hpa_score].
- Translator should be able to identify hpa_score objective function from homing template.
- A new objective function needs to be created in solver module. Objective function is computed using the candidate[hpa_score] parameter.