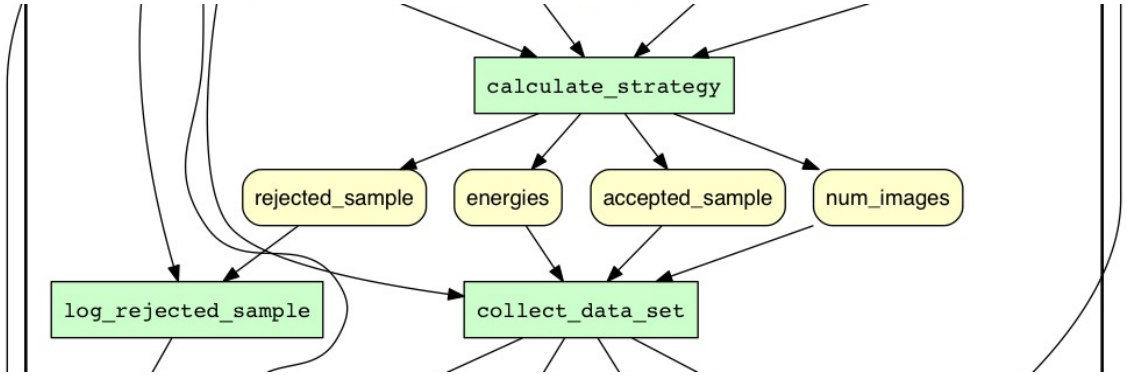
SPARQL

By Linh Hoang

SPARQL PROPERTY PATH

- The following types of property paths provided in SPARQL when dealing with triple data:
  - Predicate alternatives: (p1 | p2 | … | p*n*) where p*i* is a property URI
  - Predicate sequences: (p1 / p2 / … / p*n*) where p*i* is a property URI
  - Reverse paths : (^ p) where p is a predicate URI
  - Complex paths: p+, p*, p{0, *n*} where p could be an alternative, sequence, reverse path, or property URI



("Query 11: What program blocks are immediately downstream of calculate_strategy?");

"Calculate_strategy" program

P1:hasOutPort

"Energies_port" (ID: <simulate_data_collection/calculate_strategy#energies_port>)

P1:connectsTo

"Energies_channel" (ID: <simulate_data_collection#energies_channel>)

P1:connectsTo

"Energies_port" <ID: simulate_data_collection/collect_data_set#energies_port>

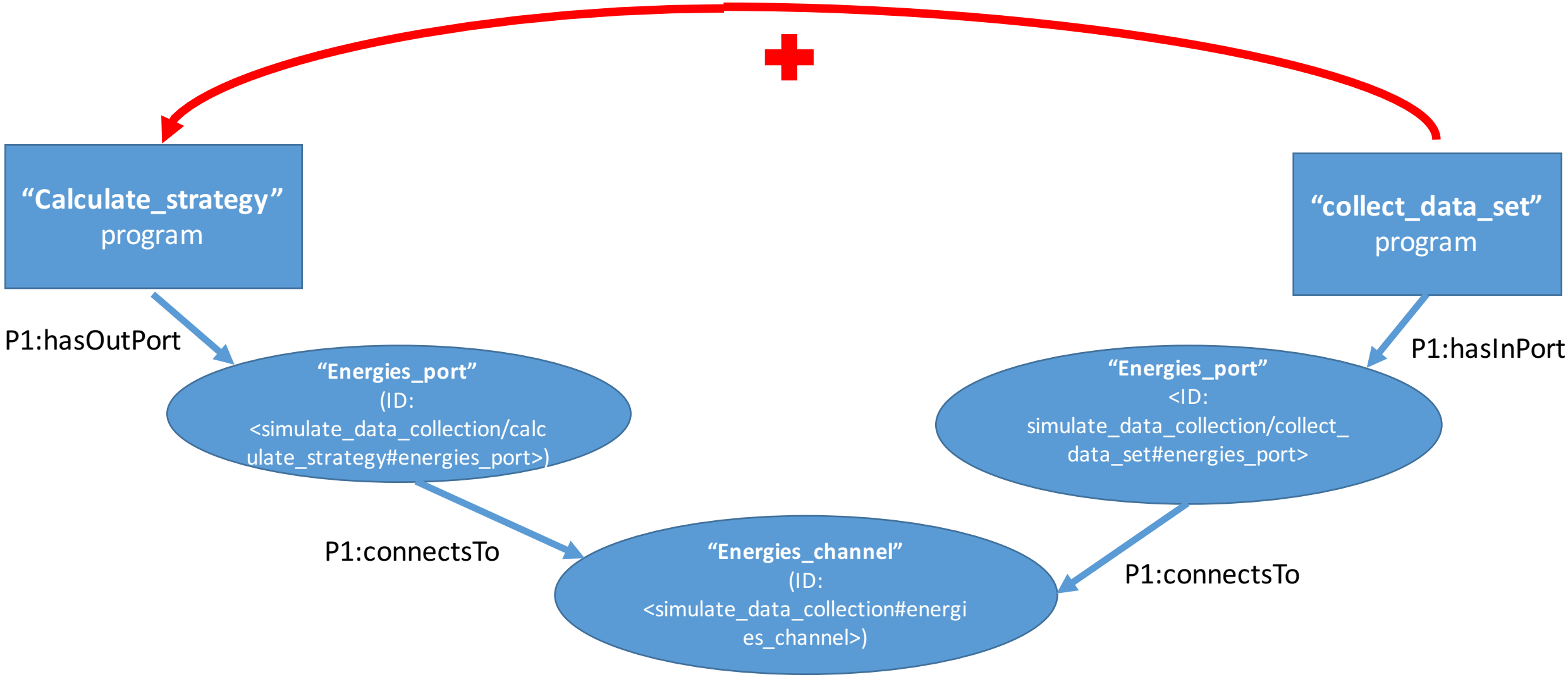
P1:hasInPort

"collect_data_set" program

```
?program    (p1:hasOutPort/p1:connectsTo/^p1:connectsTo/^p1:hasInPort)    ?down_program .
```

```
SPARQL BASE         <http://yesworkflow.org/0000000000/>
PREFIX rdf:  <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl:  <http://www.w3.org/2002/07/owl#>
PREFIX p1:   <http://dataone.org/ns/provone#>
PREFIX yw:   <http://yesworkflow.org/ns/yesworkflow>

SELECT DISTINCT ?down_program_name   #Get the direct downstream program name
WHERE
 {    #get the program with name "calculate_strategy" and put into ?program variable
      ?program       rdf:type             p1:Program ;
                     rdfs:label           "calculate_strategy" .

      #get all of the programs immediately connect to ?program (via ?hasOutPort, hasInPort, hasDefaultParam relationsips)
      #put these programs into ?down_program variable
      ?program       (p1:hasOutPort/p1:connectsTo/^p1:connectsTo/^p1:hasInPort)   ?down_program .

      #get names of the down programs
      ?down_program    rdf:type             p1:Program ;
                       rdfs:label           ?down_program_name .

 } ORDER BY ?down_program_name;
```

How about recursive query: What program blocks are downstream of calculate_strategy?");




```
?program      (p1:hasOutPort/p1:connectsTo/^p1:connectsTo/^p1:hasInPort)+   ?down_program .
```

```
SPARQL BASE         <http://yesworkflow.org/0000000000/>
PREFIX rdf:  <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl:  <http://www.w3.org/2002/07/owl#>
PREFIX p1:   <http://dataone.org/ns/provone#>
PREFIX yw:   <http://yesworkflow.org/ns/yesworkflow>

SELECT DISTINCT ?down_program_name
WHERE
 {    ?program       rdf:type            p1:Program ;
                     rdfs:label          "calculate_strategy" .

    ?program       (p1:hasOutPort/p1:connectsTo/^p1:connectsTo/^p1:hasInPort)+   ?down_program .

      ?down_program    rdf:type            p1:Program ;
                       rdfs:label            ?down_program_name .

 } ORDER BY ?down_program_name;
```