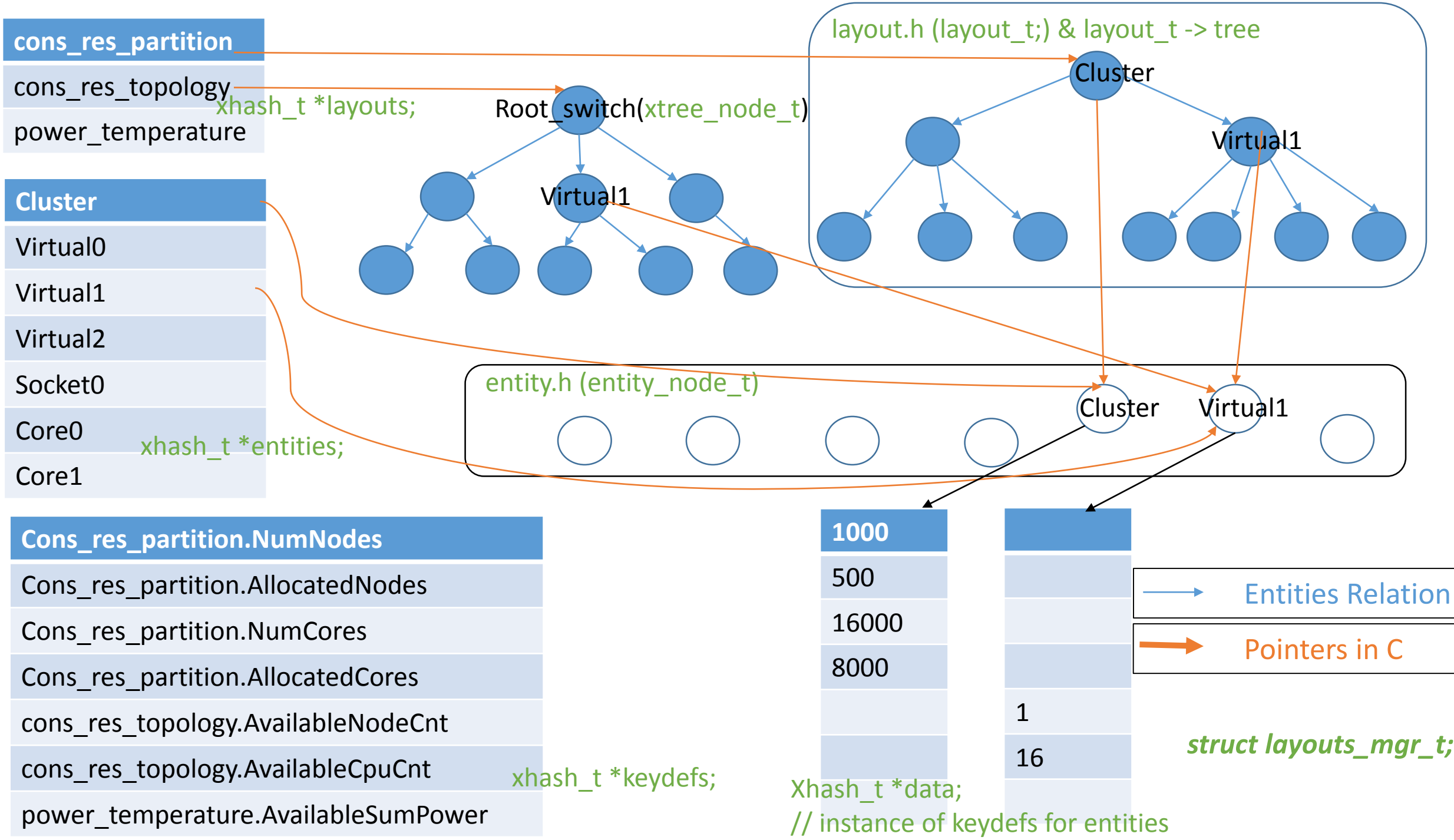
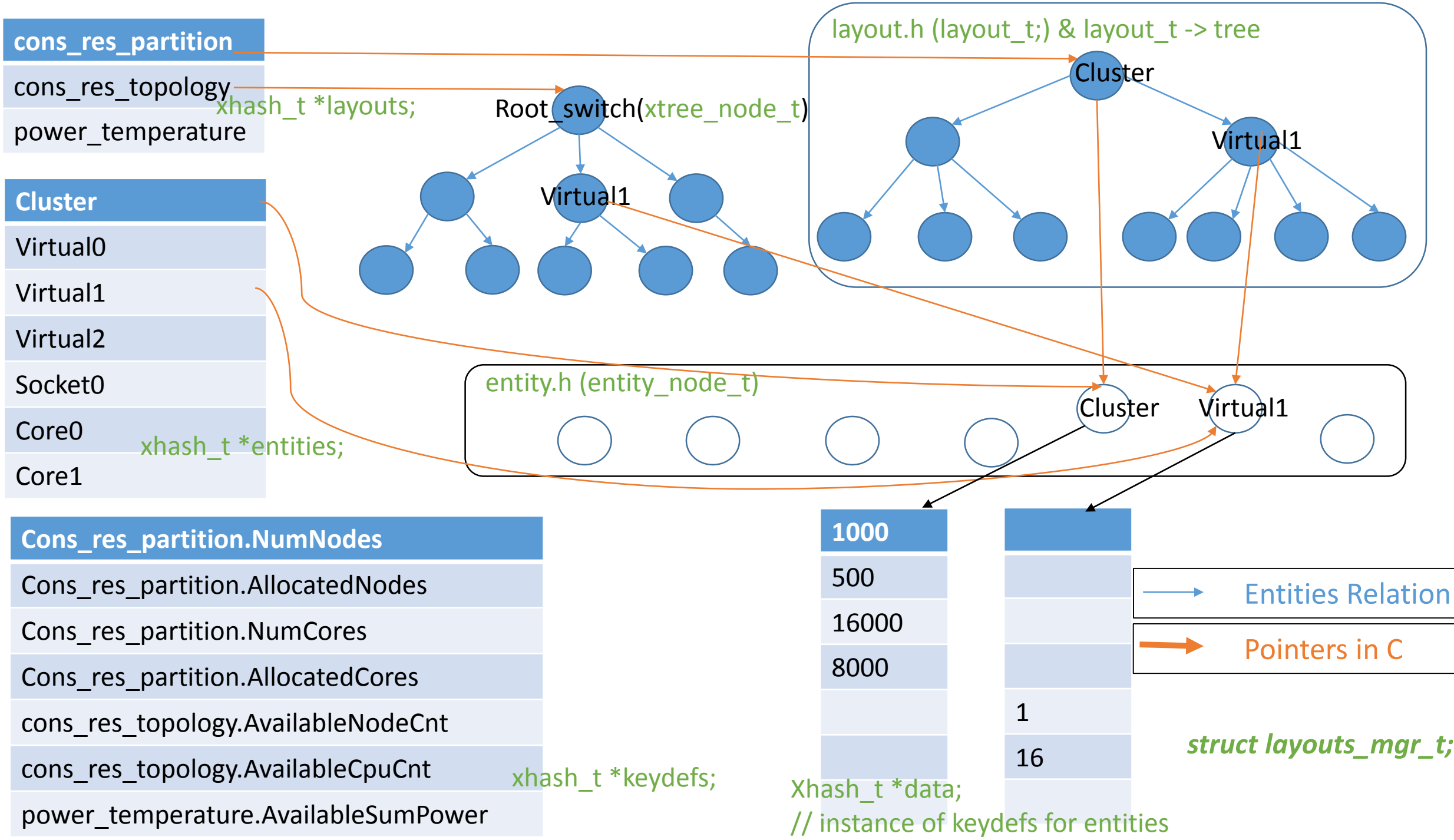

cons_res_partition
cons_res_topology
power_temperature
xhash_t *layouts;
Root_switch(xtree_node_t)
Virtual1
layout.h (layout_t;) & layout_t -> tree
Cluster
Virtual1
Cluster
Virtual0
Virtual1
Virtual2
Socket0
Core0
Core1
xhash_t *entities;
entity.h (entity_node_t)
Cluster
Virtual1
Cons_res_partition.NumNodes
Cons_res_partition.AllocatedNodes
Cons_res_partition.NumCores
Cons_res_partition.AllocatedCores
cons_res_topology.AvailableNodeCnt
cons_res_topology.AvailableCpuCnt
power_temperature.AvailableSumPower
xhash_t *keydefs;
1000
500
16000
8000
1
16
Xhash_t *data;
// instance of keydefs for entities
Entities Relation
Pointers in C
struct layouts_mgr_t;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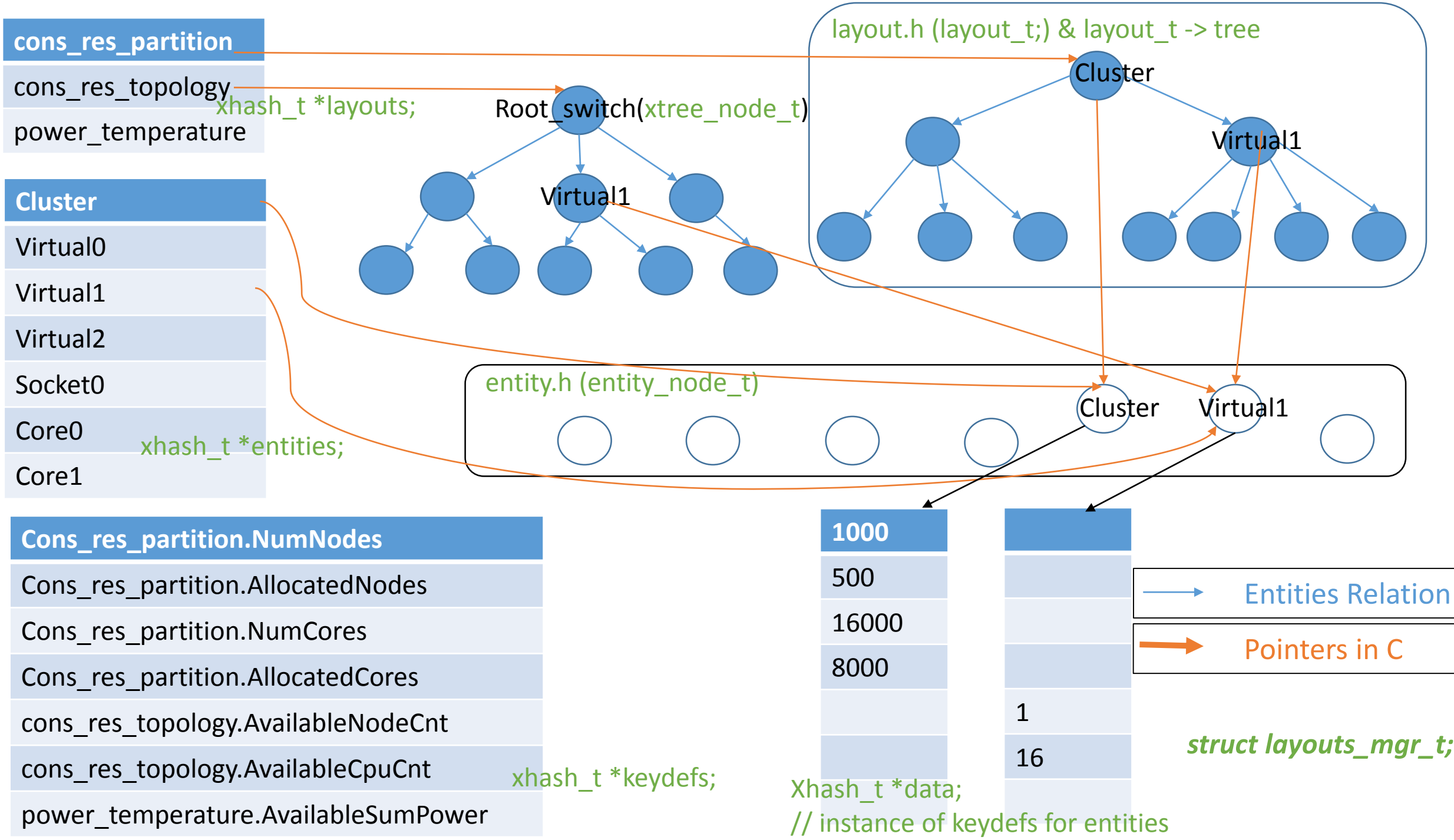
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16000
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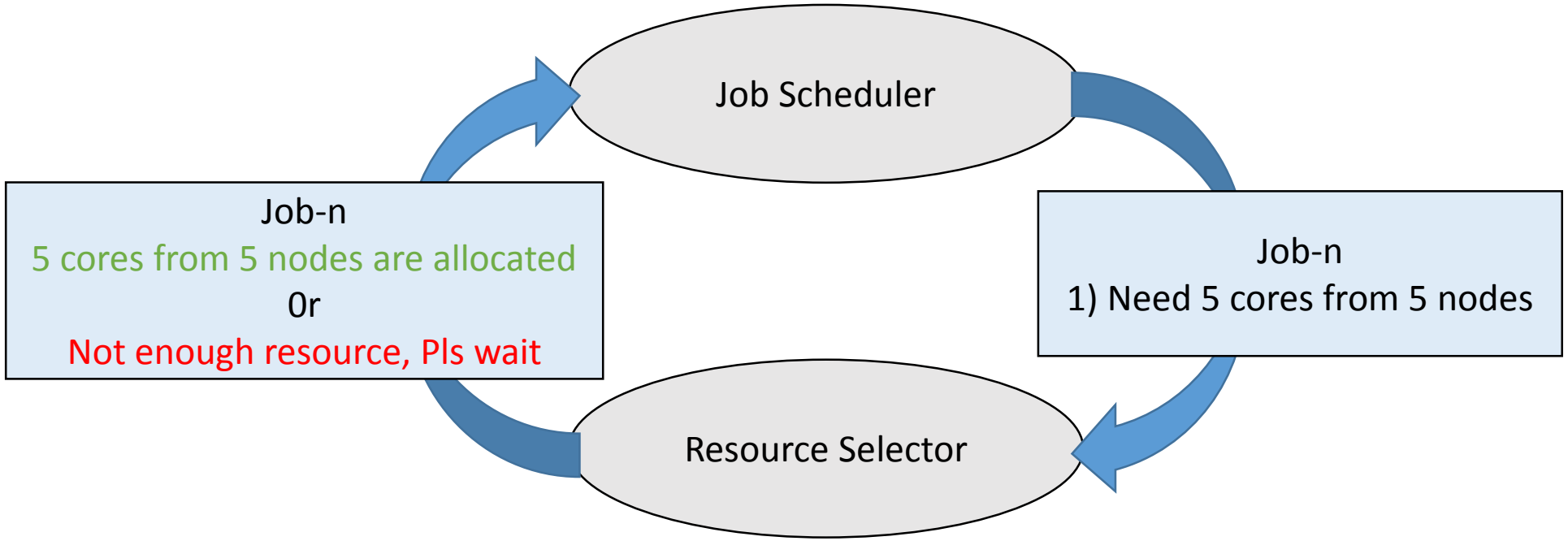
1
16
Xhash_t *data;
// instance of keydefs for entities
Entities Relation
Pointers in C
struct layouts_mgr_t;

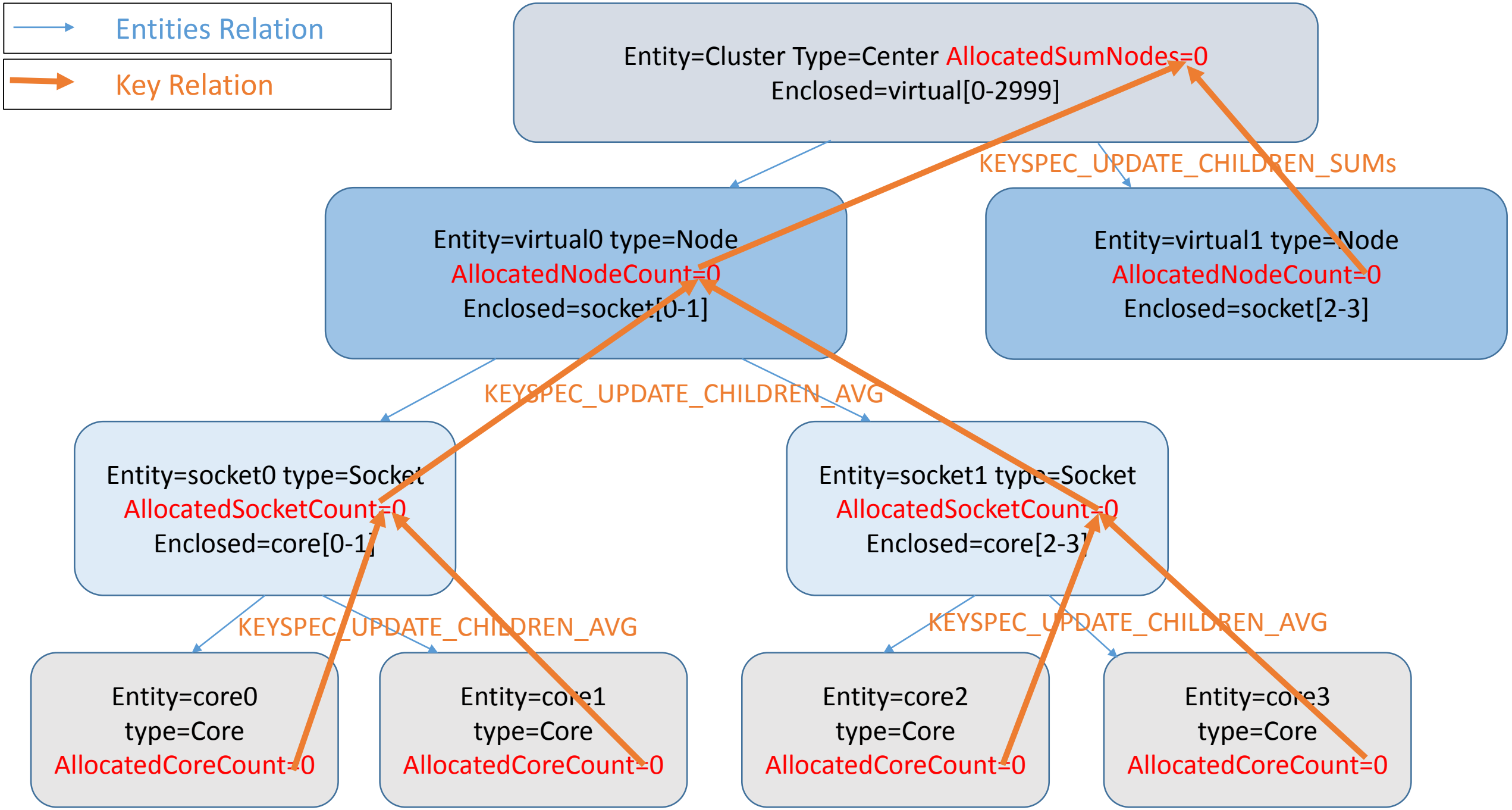
Job management
1) Specifying Job details
2) Assign job's priority
3) Job Queue management

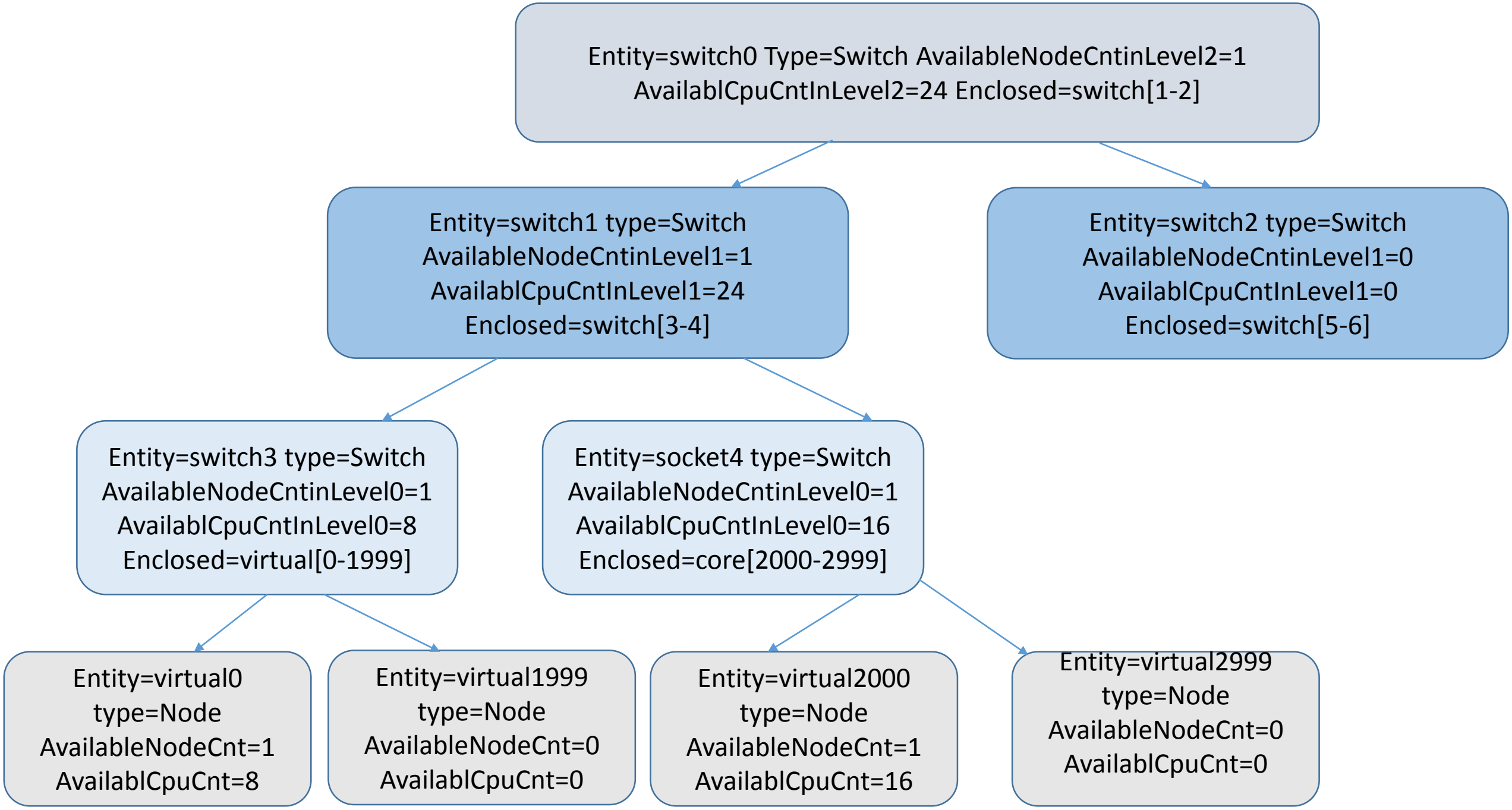
Job Selection Algorithm
(FIFO, Backfill, Fairshare, Auction, Intelligent Machine Learning)

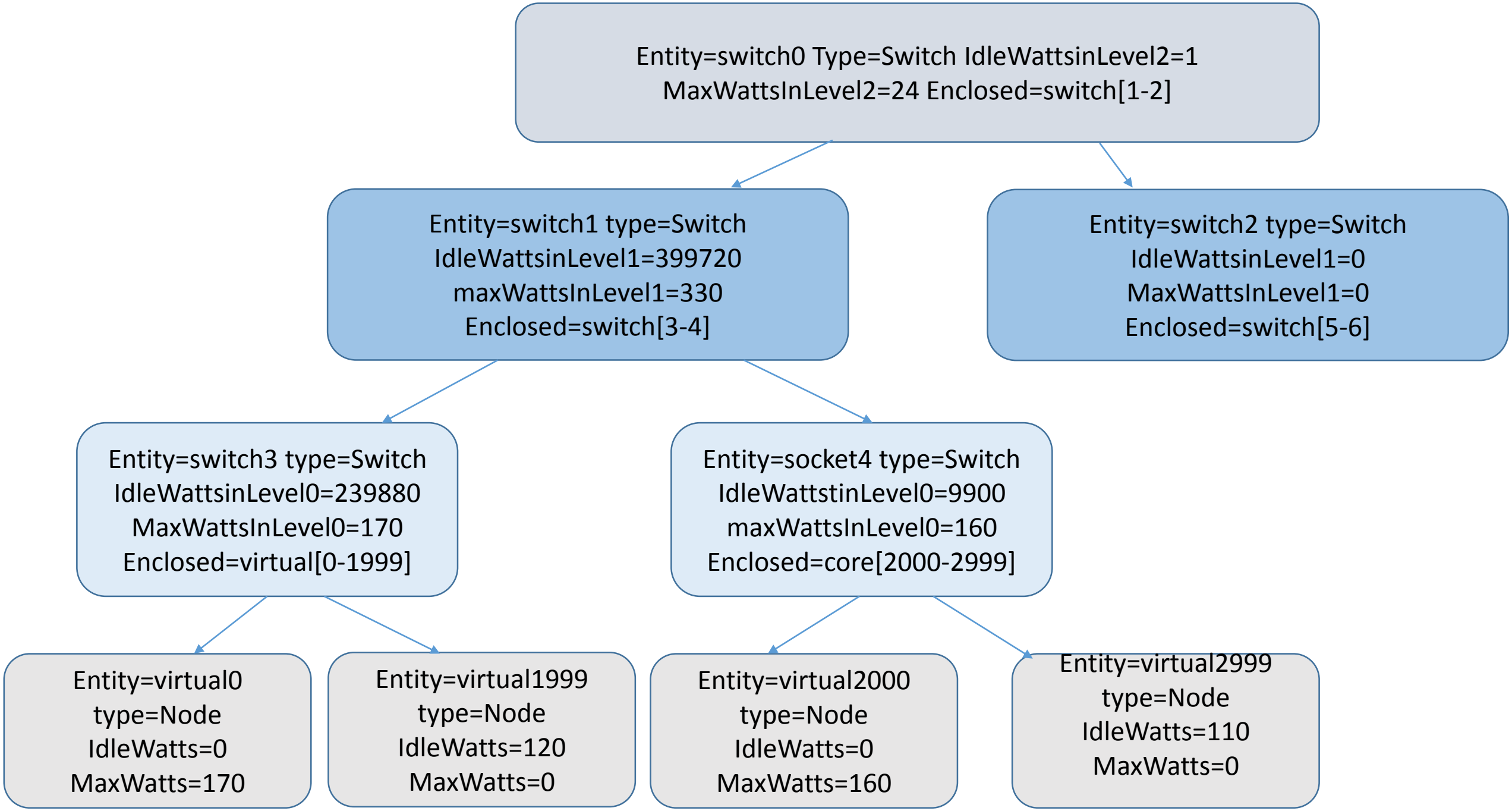


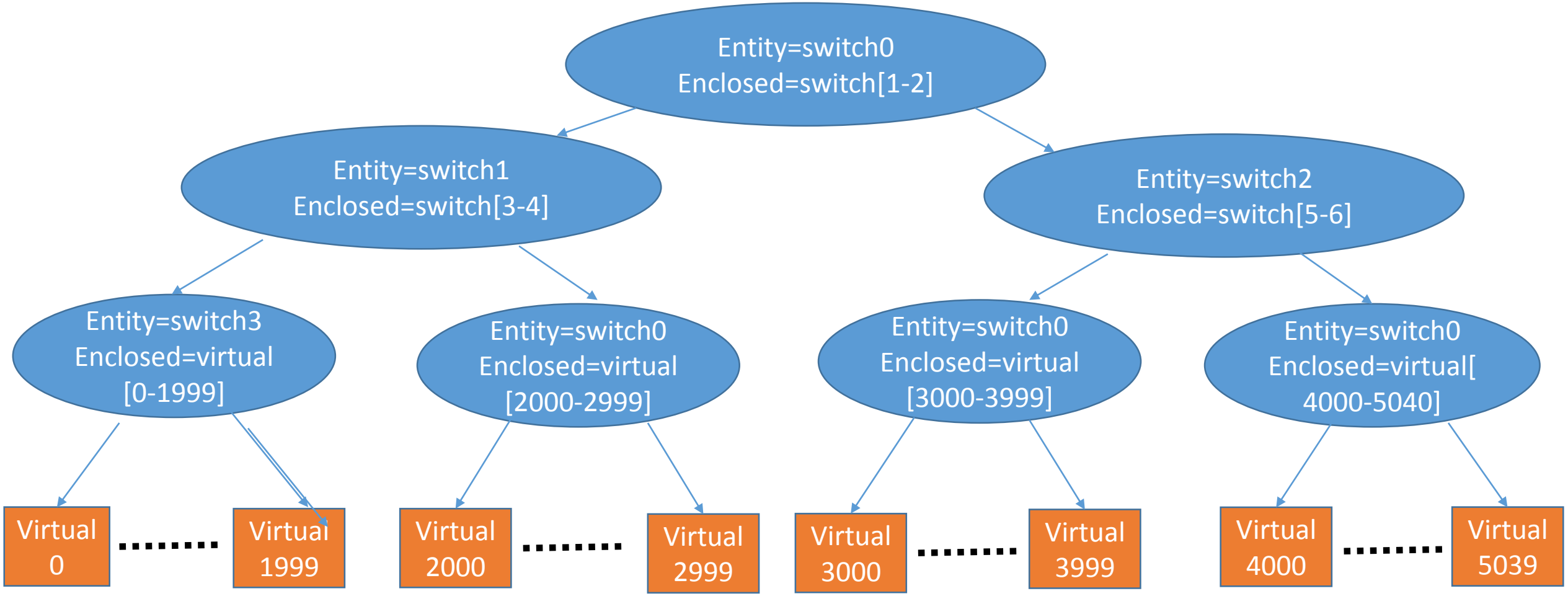
Resource management (Linear or hierarchically , Data Management by DBMS or Specific implementation using Struct in C)

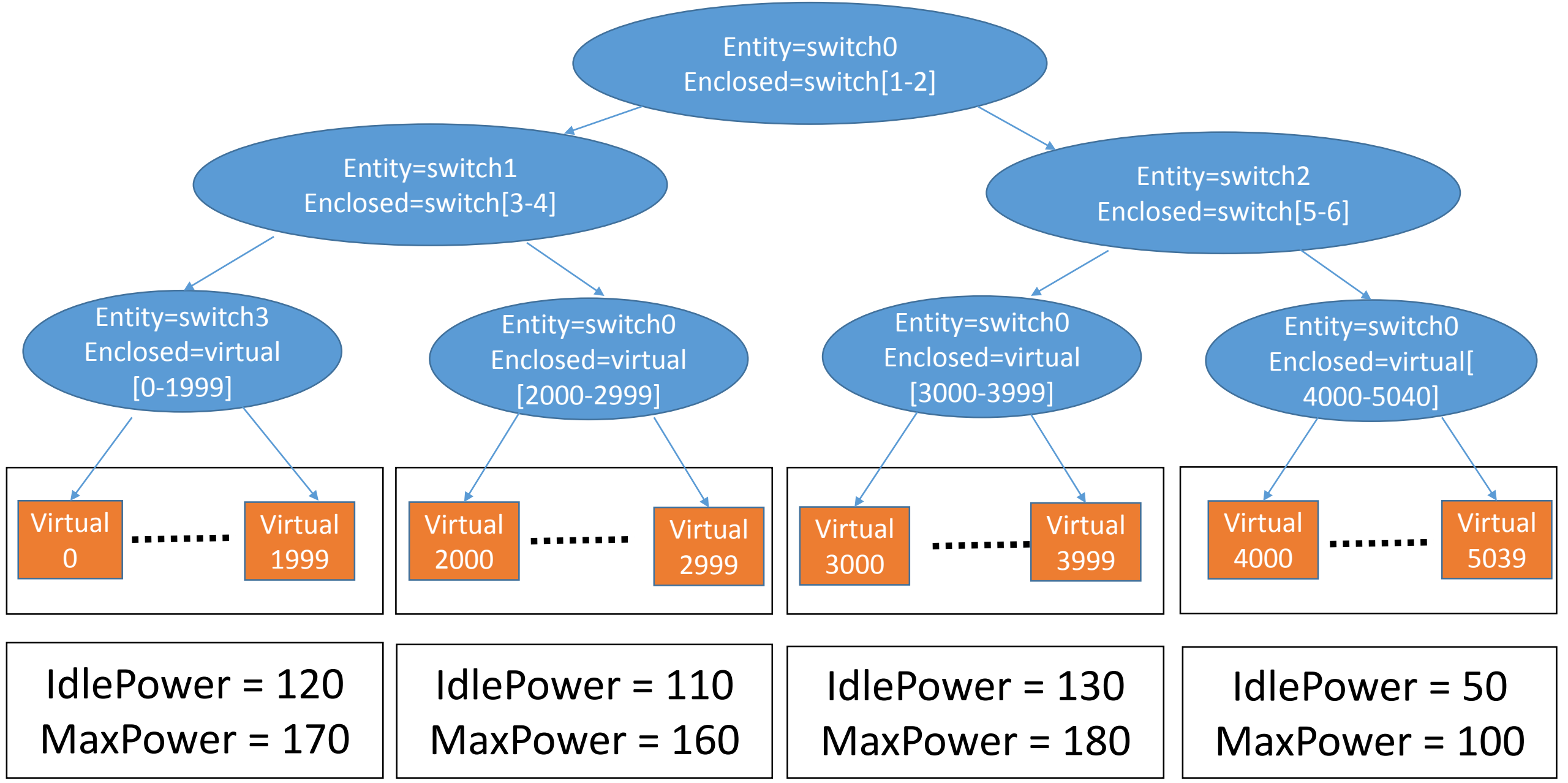
Resource Selection Algorithm
(First-Fit, Best-Fit, Intelligent Machine Learning)

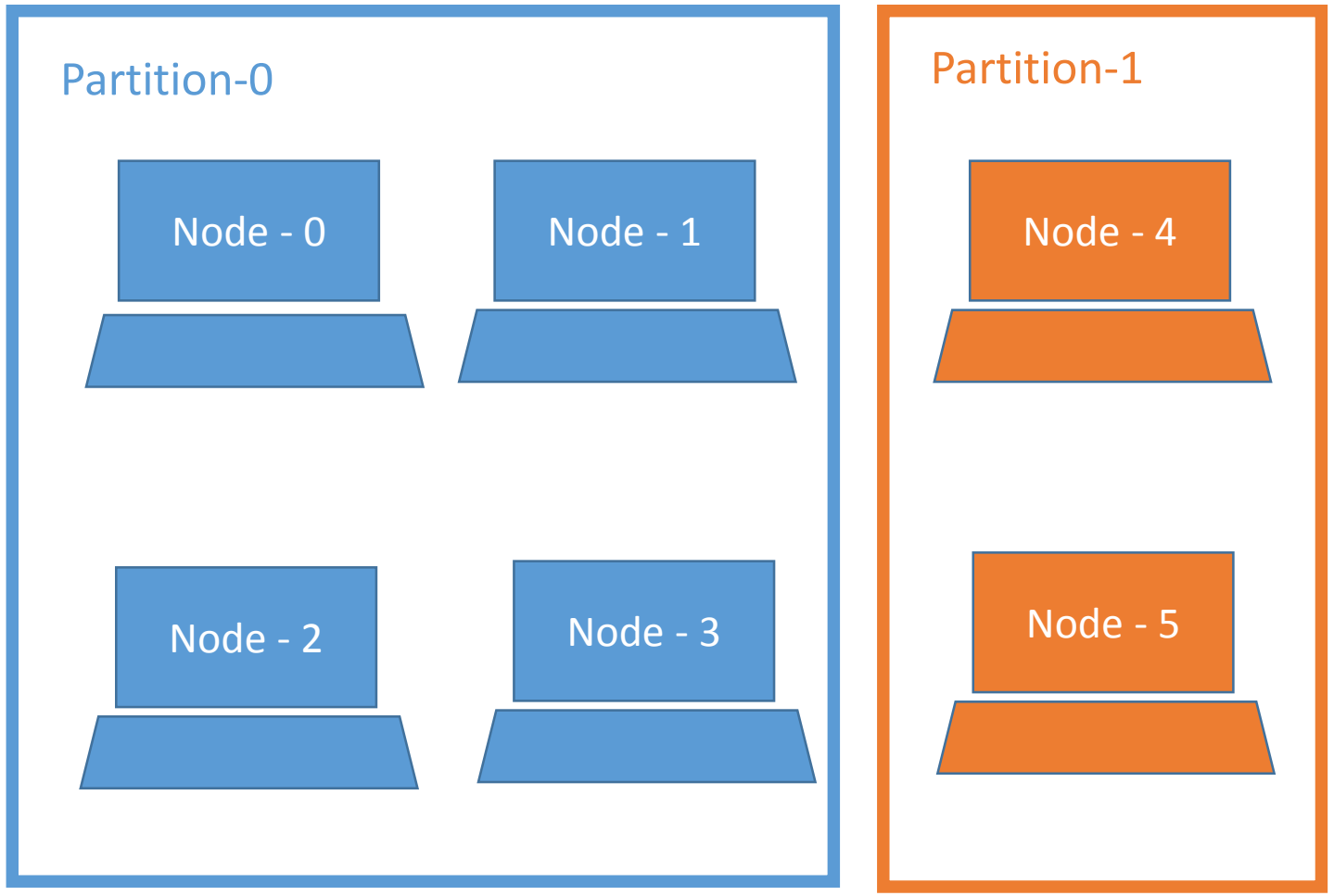

Entities Relation
Key Relation
Entity=Cluster Type=Center AllocatedSumNodes=0
Enclosed=virtual[0-2999]
KEYSPEC_UPDATE_CHILDREN_SUMs
Entity=virtual0 type=Node
AllocatedNodeCount=0
Enclosed=socket[0-1]
Entity=virtual1 type=Node
AllocatedNodeCount=0
Enclosed=socket[2-3]
KEYSPEC_UPDATE_CHILDREN_AVG
Entity=socket0 type=Socket
AllocatedSocketCount=0
Enclosed=core[0-1]
Entity=socket1 type=Socket
AllocatedSocketCount=0
Enclosed=core[2-3]
KEYSPEC_UPDATE_CHILDREN_AVG
KEYSPEC_UPDATE_CHILDREN_AVG
Entity=core0
type=Core
AllocatedCoreCount=0
Entity=core1
type=Core
AllocatedCoreCount=0
Entity=core2
type=Core
AllocatedCoreCount=0
Entity=core3
type=Core
AllocatedCoreCount=0

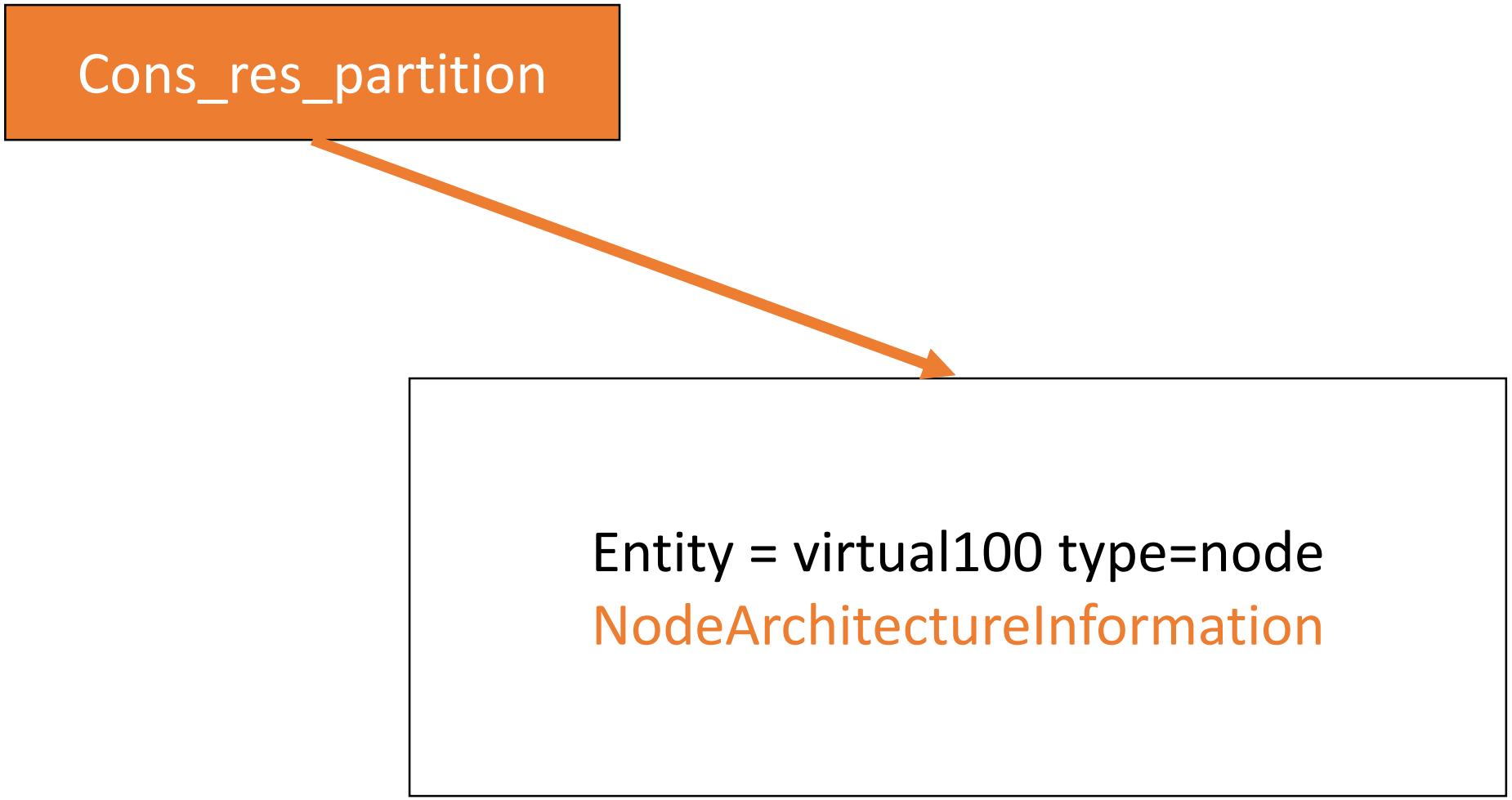

Entity=switch0 Type=Switch AvailableNodeCntinLevel2=1 AvailablCpuCntInLevel2=24 Enclosed=switch[1-2]
Entity=switch1 type=Switch AvailableNodeCntinLevel1=1 AvailablCpuCntInLevel1=24 Enclosed=switch[3-4]
Entity=switch2 type=Switch AvailableNodeCntinLevel1=0 AvailablCpuCntInLevel1=0 Enclosed=switch[5-6]
Entity=switch3 type=Switch AvailableNodeCntinLevel0=1 AvailablCpuCntInLevel0=8 Enclosed=virtual[0-1999]
Entity=socket4 type=Switch AvailableNodeCntinLevel0=1 AvailablCpuCntInLevel0=16 Enclosed=core[2000-2999]
Entity=virtual0 type=Node AvailableNodeCnt=1 AvailablCpuCnt=8
Entity=virtual1999 type=Node AvailableNodeCnt=0 AvailablCpuCnt=0
Entity=virtual2000 type=Node AvailableNodeCnt=1 AvailablCpuCnt=16
Entity=virtual2999 type=Node AvailableNodeCnt=0 AvailablCpuCnt=0

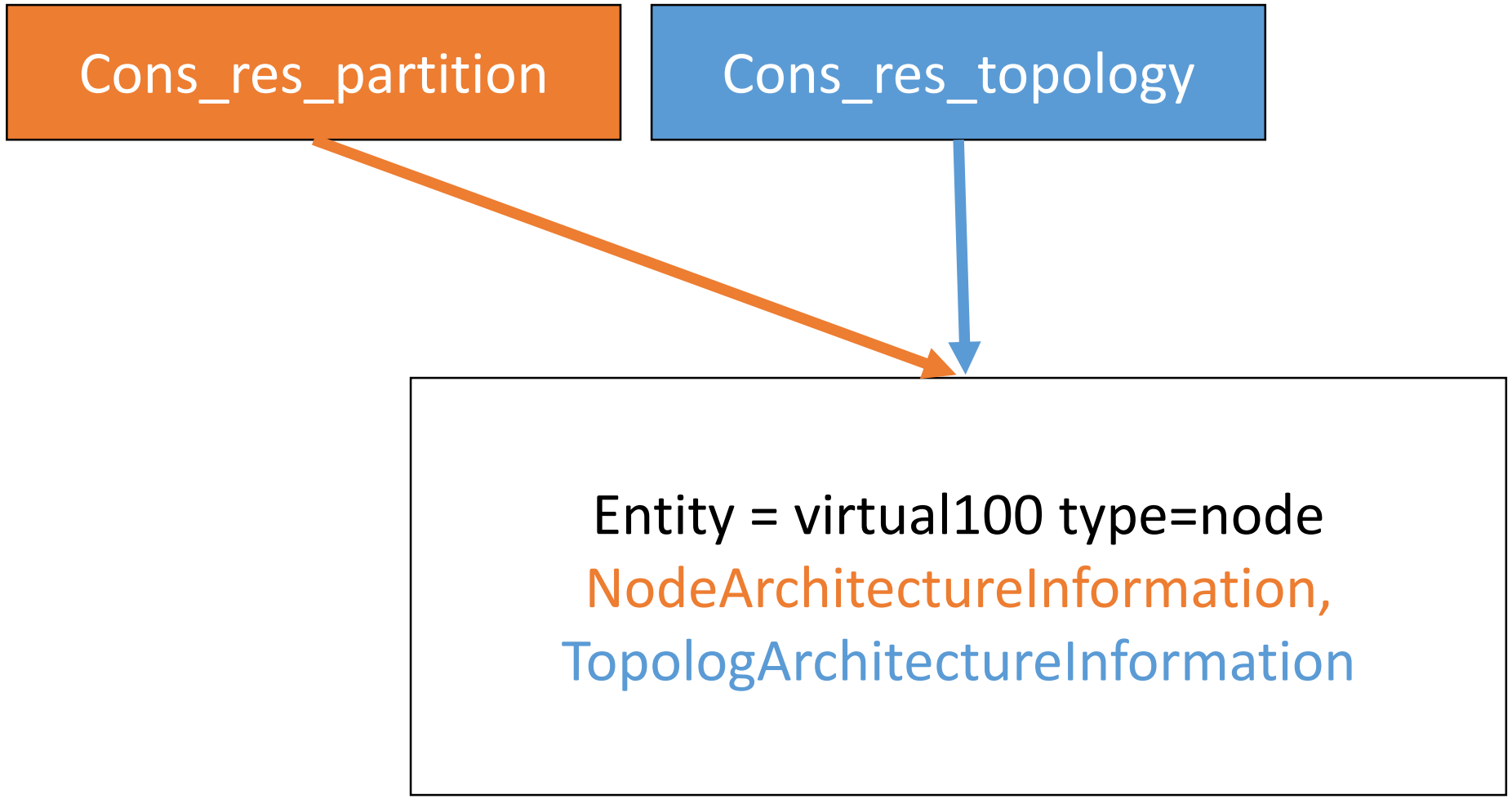

Entity=switch0 Type=Switch IdleWattsinLevel2=1
MaxWattsInLevel2=24 Enclosed=switch[1-2]
Entity=switch1 type=Switch
IdleWattsinLevel1=399720
maxWattsInLevel1=330
Enclosed=switch[3-4]
Entity=switch2 type=Switch
IdleWattsinLevel1=0
MaxWattsInLevel1=0
Enclosed=switch[5-6]
Entity=switch3 type=Switch
IdleWattsinLevel0=239880
MaxWattsInLevel0=170
Enclosed=virtual[0-1999]
Entity=socket4 type=Switch
IdleWattstinLevel0=9900
maxWattsInLevel0=160
Enclosed=core[2000-2999]
Entity=virtual0
type=Node
IdleWatts=0
MaxWatts=170
Entity=virtual1999
type=Node
IdleWatts=120
MaxWatts=0
Entity=virtual2000
type=Node
IdleWatts=0
MaxWatts=160
Entity=virtual2999
type=Node
IdleWatts=110
MaxWatts=0

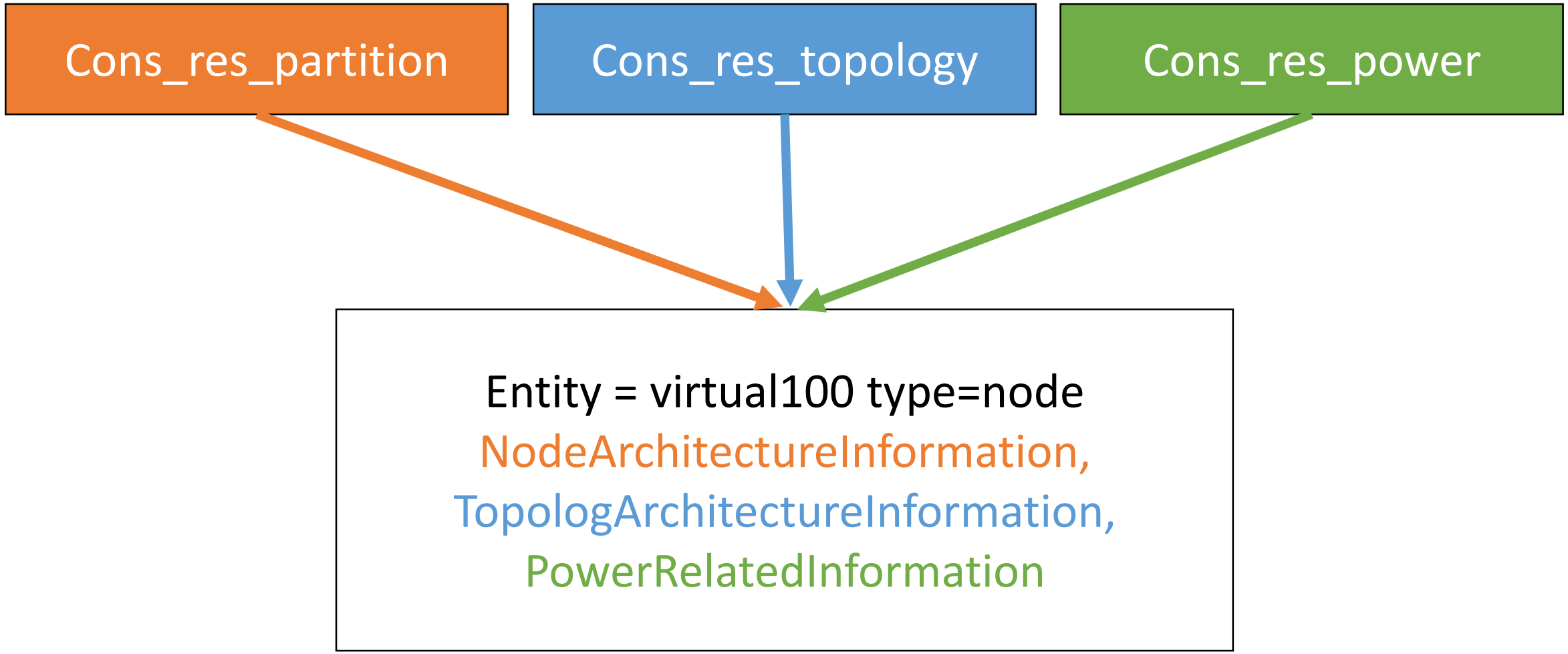

Entity=switch0
Enclosed=switch[1-2]
Entity=switch1
Enclosed=switch[3-4]
Entity=switch2
Enclosed=switch[5-6]
Entity=switch3
Enclosed=virtual
[0-1999]
Entity=switch0
Enclosed=virtual
[2000-2999]
Entity=switch0
Enclosed=virtual
[3000-3999]
Entity=switch0
Enclosed=virtual[
4000-5040]
Virtual
0
Virtual
1999
Virtual
2000
Virtual
2999
Virtual
3000
Virtual
3999
Virtual
4000
Virtual
5039


Entity=switch0
Enclosed=switch[1-2]
Entity=switch1
Enclosed=switch[3-4]
Entity=switch2
Enclosed=switch[5-6]
Entity=switch3
Enclosed=virtual
[0-1999]
Entity=switch0
Enclosed=virtual
[2000-2999]
Entity=switch0
Enclosed=virtual
[3000-3999]
Entity=switch0
Enclosed=virtual[
4000-5040]
Virtual
0
Virtual
1999
Virtual
2000
Virtual
2999
Virtual
3000
Virtual
3999
Virtual
4000
Virtual
5039
IdlePower = 120
MaxPower = 170
IdlePower = 110
MaxPower = 160
IdlePower = 130
MaxPower = 180
IdlePower = 50
MaxPower = 100


Partition-0
Node - 0
Node - 1
Node - 2
Node - 3
Partition-1
Node - 4
Node - 5


Cons_res_partition
Entity = virtual100 type=node
NodeArchitectureInformation


Cons_res_partition
Cons_res_topology
Entity = virtual100 type=node
NodeArchitectureInformation,
TopologArchitectureInformation


Cons_res_partition
Cons_res_topology
Cons_res_power
Entity = virtual100 type=node
NodeArchitectureInformation,
TopologArchitectureInformation,
PowerRelatedInformation