ERICSSON

RECURSIVE MONITORING LANGUAGE IN NETWORK FUNCTION VIRTUALIZATION (NFV) INFRASTRUCTURE

DRAFT-CAI-NFVRG-RECURSIVE-MONITOR-00

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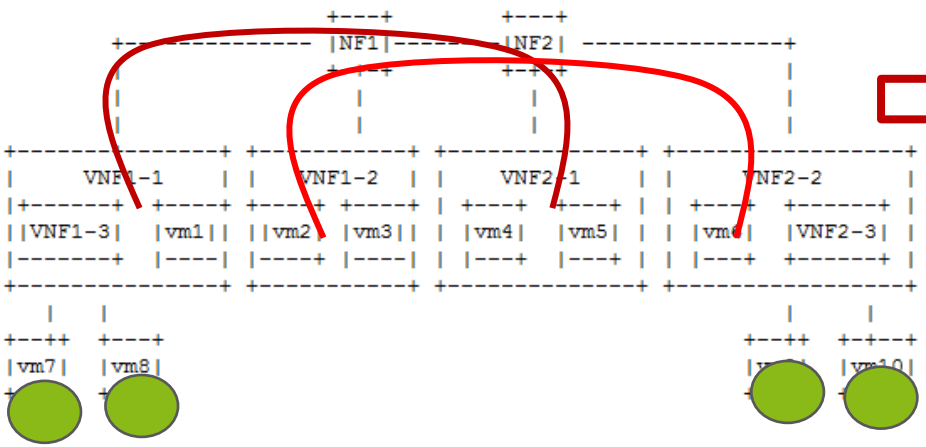
OVERVIEW

- Motivation:
  - provides an automatic way to decompose/aggregate monitoring data in different infrastructure layers
  - provide a way for developers and operators to easily access monitoring data collected from resources in a software-defined telecom infrastructure that contains a hierarchy of abstraction levels
- Solution proposal:
  - Define a query language based on an extended Datalog syntax
  - Include pre-defined templates for initial metrics examples

EXAMPLE

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F1: sub(NF1, VNF1-3, vm1, vm2, vm3), sub(NF2, vm4, vm5, vm6, VNF1-3),
sub(VNF1-3, vm7, vm8), sub(VNF1-3, vm9, vm10)
F2: node(NF1, NF2, VNF1-3, vm1, vm2, vm3, vm4, vm5, vm6, VNF1-3,
vm7, vm8, vm9, vm10)
F3: link(NF1, NF2), link (VNF1-3, vm1), link(vm2, vm3), link(vm3, vm4),
link(vm4,vm5), link(vm5,vm6), link(vm6, VNF1-3), link(vm7, vm8),
link(vm9, vm10)
R1: child(X,Y) <= sub(X,Z), child(Z,Y)
R2: child(X,Y) <= sub(X,Y)
R3: leaf(X,Y) <= child(X,Y), ~sub(Y,Z)
R4: in_leaf(X, Y) <= leaf(X, Y) & ~link(M, Y)
R5: out_leaf(X, Y) <= leaf(X, Y) & ~link(Y, M)
R6: e2e_delay(S,D,P) <= link(S,D), P == f_e2e_delay(in_leaf(S,Y),
out_leaf(D,Z))
query(e2e_delay, NF1, NF2)
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F1: sub(NF1, VNF1-3, vm1, vm2, vm3), sub(NF2, vm4, vm5, vm6, VNF1-3),
sub(VNF1-3, vm7, vm8), sub(VNF1-3, vm9, vm10)
F2: node(NF1, NF2, VNF1-3, vm1, vm2, vm3, vm4, vm5, vm6, VNF1-3, vm7,
vm8, vm9, vm10)
R1: child(X,Y) <= sub(X,Z), child(Z,Y)
R2: child(X,Y) <= sub(X,Y)
R3: leaf(X,Y) <= child(X,Y), ~sub(Y,Z)
R4: max_cpu(X,C) <= leaf(X,Y), C == f_max_cpu(leaf(X,Y))
R5: mean_cpu(X,C) <= leaf(X,Y), C == f_mean_cpu(leaf(X,Y))
Query(max_cpu, NF1)
```