UNIVERSITÄT PADERBORN

UPB — Computer Networks Group

MANO Scalability Experiments

Initial Results

Overview

Testbed Setup

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- ○ **python-mano-wrappers:** Automate the MANO workflow
- ○ **Google Charts:** Easy graphs
- ○ **Flask + JS:** UI for graphs, Sorted tables

Results
OSM

OSM

- o Experiment Parameters
  - o Different NSDs and VNFs (cirros, stress)
  - o Multiple NSDs with varying VNFD.
  - o Observation time
  - o ...

OSM Top 5 (CPU AVG)

Service	CPU
mon	30.71
ro	5.55
nbi	4.17
lcm	3.21
pol	0.52

*Results from cirros vnf with 10 instances over 10 mins

OSM Top 5 (Memory AVG)

Service	Memory (mb)
ro-db	204
light-ui	168
mon	105
ro	87
nbi	68

*Results from cirros vnf with 10 instances over 10 mins

Results
Pishahang

Pishahang

- o Experiment Parameters
    - o Different NSDs and VNFs (cirros, stress)
    - o Multiple NSDs with 1 VNFD
    - o ...

Pishahang Top 5 (CPU AVG)

Service	CPU
servicelifecyclemanagement	3.47
specificmanagerregistry	3.42
functionlifecyclemanagement	2.86
placementplugin	1.78
pluginmanager	1.75

*Results from cirros vnf with 10 instances over 10 mins

Pishahang Top 5 (Memory AVG)

Service	Memory (mb)
son-sp-infrabstract	1075
son-keycloak	519
son-monitor-influxdb	161
wim-adaptor	113
son-gtksrv	105

*Results from cirros vnf with 10 instances over 10 mins

Scaling Plugin

Plugin Implementation

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- o Pishahang plugin to add/remove child MANO instance
- o Monitor system load, take action based on warning and critical load values
- o NSD/VNFD* for MANO instance stored as part of the plugin
- o **Workflow:** Instantiate NS* – Wait for instantiation – Fetch IP – Add to list available for placementplugin