CSIT TOI

CSIT VIRL functional tests

Jan Gelety

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CSIT Functional tests

- Functional tests hierarchy
- Functional test structure
- Functional test jobs and execution

Functional tests hierarchy

- NSH_SFC tests
- TLDK tests
- VPP tests

```
csit/tests
├── nsh_sfc
│   └── func
│       ├── classifier
│       ├── proxy
│       └── sff
├── tldk
│   └── func
│       ├── ipv4
│       └── ipv6
└── vpp
    └── func
        ├── crypto
        ├── honeycomb
        ├── interfaces
        ├── ip4
        ├── ip4_tunnels
        ├── ip6
        ├── ip6_tunnels
        ├── l2bd
        ├── l2xc
        ├── telemetry
        └── vm_vhost
```

Functional test structure 1/3

- Global settings
  - Unique per test group
  - Applies in sub-tree
  - Contains global suite setup and/or teardown
  - Possibility to define global variables

```
csit/tests
├── nsh_sfc
│   └── func
│       ├── classifier
│       ├── proxy
│       ├── sff
│       └── __init__.robot
├── tldk
│   └── func
│       ├── ipv4
│       ├── ipv6
│       └── __init__.robot
└── vpp
    └── func
        ├── crypto
        ├── honeycomb
        │   └── __init__.robot
        ├── interfaces
        ├── ip4
        ├── ip4_tunnels
        ├── ip6
        ├── ip6_tunnels
        ├── l2bd
        ├── l2xc
        ├── telemetry
        ├── vm_vhost
        └── __init__.robot
```

Functional test structure 2/3

- Settings
  - Library | Library | resources.libraries.python.Trace
  - Resource | Resource | resources/libraries/robot/crypto/ipsec.robot
  - Force Tags | Force Tags | 3_NODE_SINGLE_LINK_TOPO | VM_ENV | IPSEC_SW
  - Suite/Test Setup/Teardown
    | Test Setup | Set up IPSec SW device functional test | IPv4
    | Test Teardown | Tear down IPSec SW device functional test
  - Documentation
    - Topology
    - Encapsulation
    - Configuration
    - Verification
    - Reference

Example: https://git.fd.io/csit/tree/tests/vpp/func/crypto/sw_device/eth2p-ethip4ipsectnlsw-ip4base-func.robot

Functional test structure 3/3

- Variables
  - Suite variables common for all tests in the test suite
- Test Cases
  - Documentation (topology, encapsulation, configuration, verification, reference)
  - Tags
  - Test case
    - Behavior-driven tests
    - Data-driven tests when applicable
- Keywords
  - Unique keywords for the test suite

Example: https://git.fd.io/csit/tree/tests/vpp/func/ip4_tunnels/softwire/eth2p-ethip4--ethip6ip4-ip4base--ip6base-swiremape-func.robot

Traffic Generator

- Scapy
  - Create packet on Tx side
  - Check packet on Rx side
- Traffic scripts
  - Located in csit/resources/traffic_scripts
  - Executed on TG node

URL: http://www.secdev.org/projects/scapy/

Example: https://git.fd.io/csit/tree/resources/traffic_scripts/send_ip_icmp.py

Functional test jobs and execution 1/2

- Executed against VIRL URL: https://docs.fd.io/csit/rls1710/report/vpp_functional_tests/test_environment.html
- Two groups of jobs
  - CSIT-VPP
    - per CSIT patch: https://wiki.fd.io/view/CSIT/Jobs#CSIT_Jenkins_Verify_Jobs:_Verify_a_CSIT_patch_using_a_validated_VPP_image
    - periodic CSIT jobs: https://wiki.fd.io/view/CSIT/Jobs#CSIT_Jenkins_Periodic_Jobs:_Periodically_verify_VPP_branch_and_CSIT_branch
  - VPP-CSIT
    - per VPP patch: https://wiki.fd.io/view/CSIT/Jobs#VPP_Jenkins_Verify_Jobs:_Verify_a_VPP_patch_using_an_operational_CSIT_branch
- Triggers
  - Automatic
    - Event triggers
    - Timed trigger
  - Manual
    - Gerrit comment triggers

Functional test jobs and execution 2/2

- CSIT jobs are defined in yaml file under ci-management project:
  https://git.fd.io/ci-management/tree/jjb/csit/csit.yaml
- Every job has defined shell script there – CSIT func example:
  https://git.fd.io/ci-management/tree/jjb/csit/include-raw-csit-vpp-functional-virl.sh
- It points to corresponding bootstrap script under CSIT project – bootstrap.sh in case of CSIT functional tests:
  https://git.fd.io/csit/tree/bootstrap.sh
- bootstrap.sh is configured to run tests in paralell sessions based on variable TEST_GROUPS

```
TEST_GROUPS=("crypto,ip4_tunnels.softwire,ip4_tunnels.vxlan"
"ip4,ip4_tunnels.gre,ip4_tunnels.lisp,ip6_tunnels.vxlan,ip6_tunnels.lisp,vm_vhost.ip4,vm_vhost.ip6"
"interfaces,ip6,l2bd,l2xc,vm_vhost.l2bd,vm_vhost.l2xc,telemetry")
```