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OVP Automation - DevOps

Agile Test Automation in VNF based Network Service Industry

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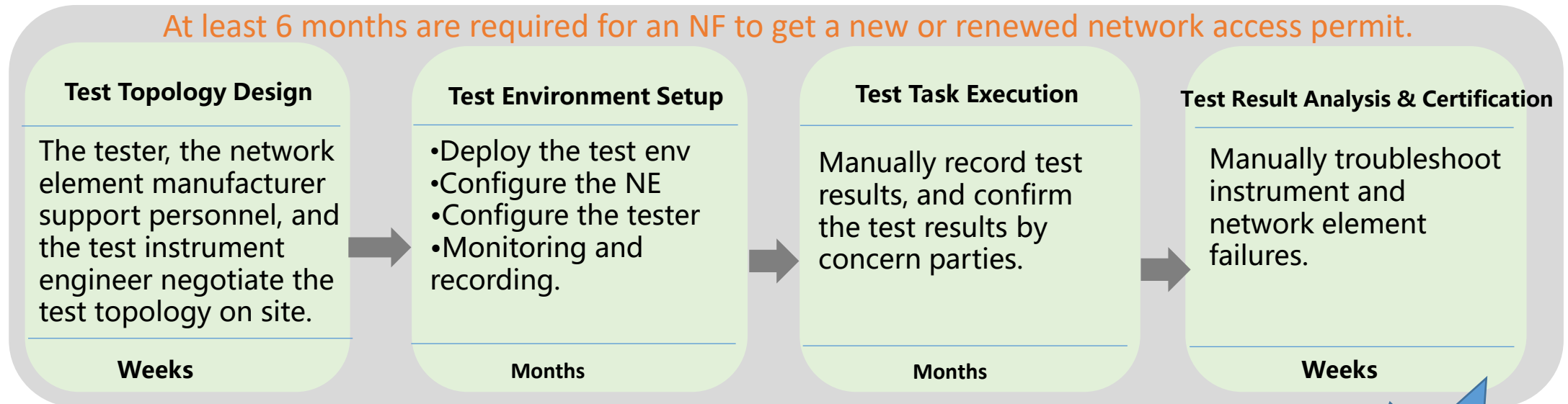
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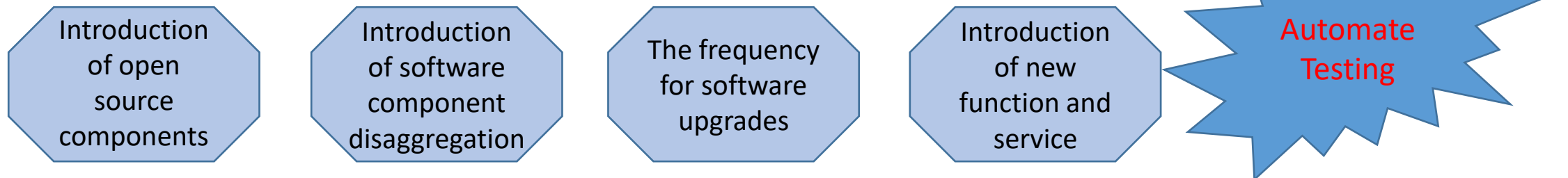
NFV Testing: Reality



- The NFV testing process is usually divided into four steps: test topology design, test environment setup, task execution and result analysis and certification.



- Complexity involved after the introduction of NFV

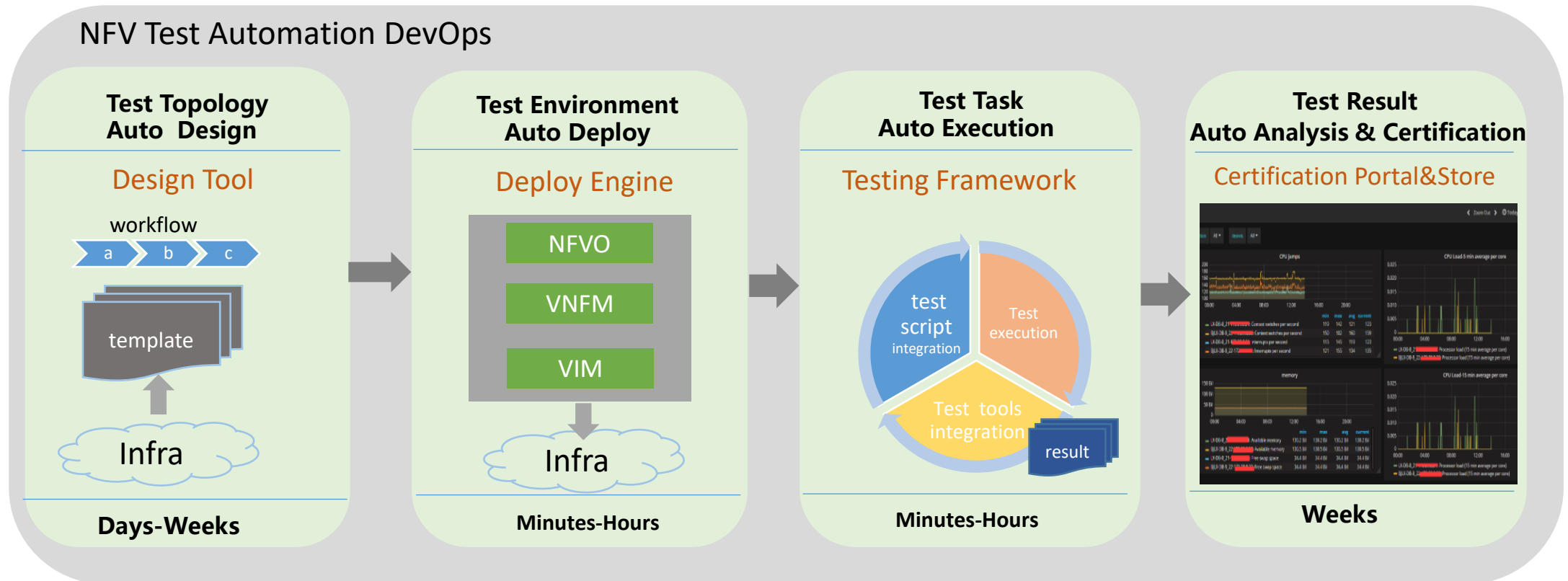


NFV Testing: Vision



Objectives :

1. Common NFV automated test platform
2. Self-service certification NFV stores
3. Open ecosystem of 5G + AI and 5G + edge

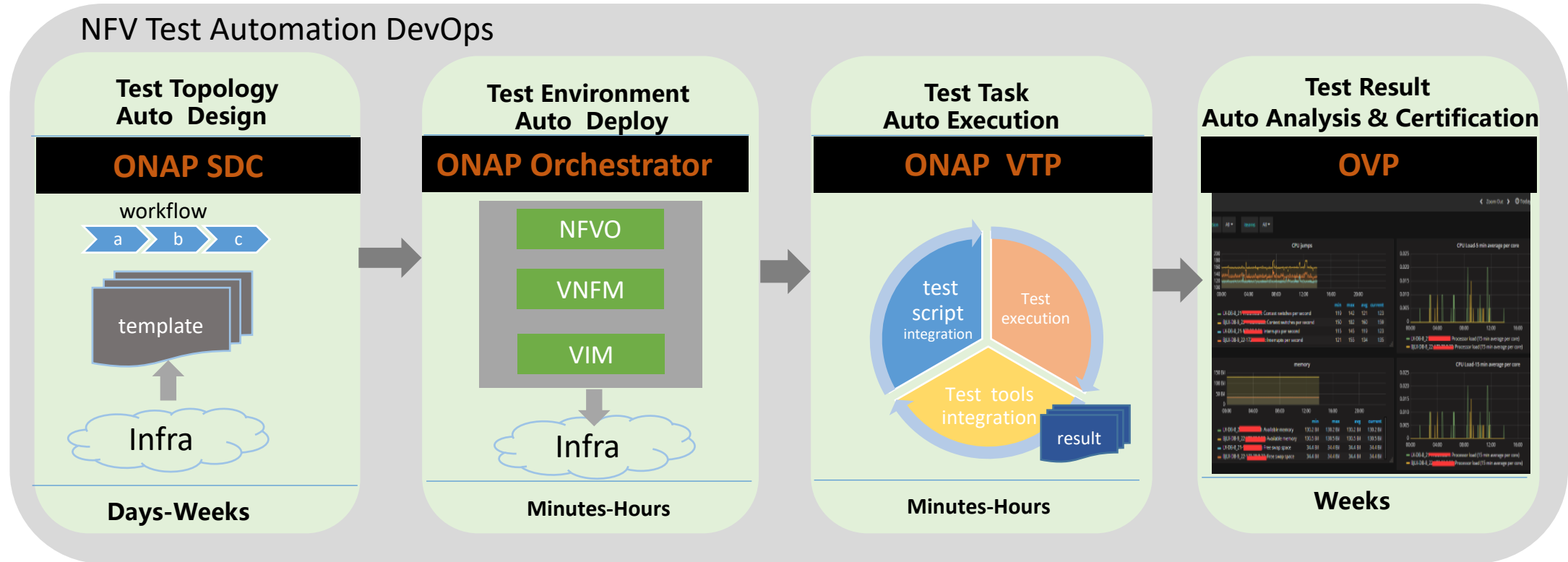


NFV Testing: Automation with OVP+ONAP



Function mapping with ONAP components

- Test Topology Design - ONAP SDC
- Test Environment Deploy - ONAP Orchestrator(SO、VF-C、APPC, etc)
- Test Task Execution - ONAP VTP(VNFSDK, VVP, CLI)
- Test Result Certificate - OPNFV OVP



Role-based VNF Testing Workflow

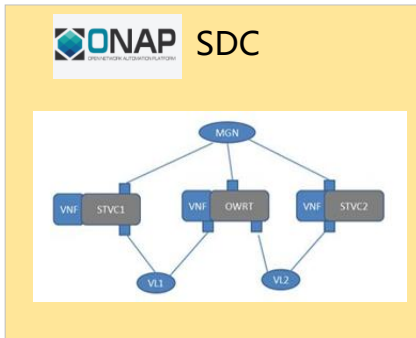


Step1 Test topology design



Test Designer

Test designer either uses the existing test case models from VTP or create new test cases model and uses them for creating test flow, finally upload them to VTP with NS ID tag

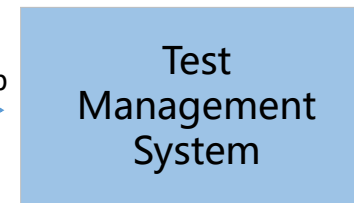


Test Executor

Execute test job

Step3 Test Case Execution

- Test env/tools/objects registration
- Test specification definition
- Test job management

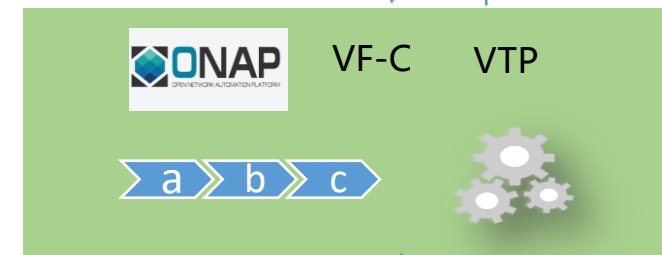


Upload VNF passed the test to VNF store

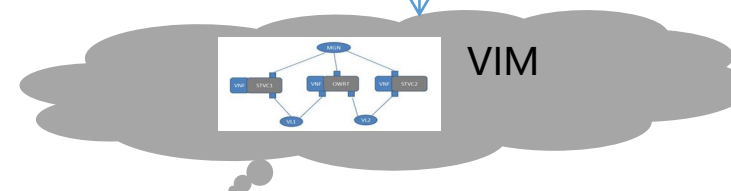


Test execution

Report test result



3rd party test instrument



Step2 Test Case Model Definition and Development



Test Case Developer

Test developer implements the required test cases based model designed by test designer. And maintain it with VTP

```

class TestCaseModel:
    def __init__(self, labserver_ip,
                 dut_left_ip, dut_right_ip):
        self.labserver_ip = labserver_ip
        self.west_stcv = {
            "mgmt_ip": stcv_west_mgmt_ip,
            "test_port_ip": stcv_west_test_port_ip,
            "gw_ip": dut_left_ip,
            "port_location": "/" + stcv_west_mgmt_ip + "/1/1",
            "result": None
        }
        self.east_stcv = {
            "mgmt_ip": stcv_east_mgmt_ip,
            "test_port_ip": stcv_east_test_port_ip,
            "gw_ip": dut_right_ip,
            "port_location": "/" + stcv_east_mgmt_ip + "/1/1",
            "result": None
        }
    
```

Upload test topology to orchestrator

Import Test Case to VTP

Demo: Role-based VNF Testing Workflow



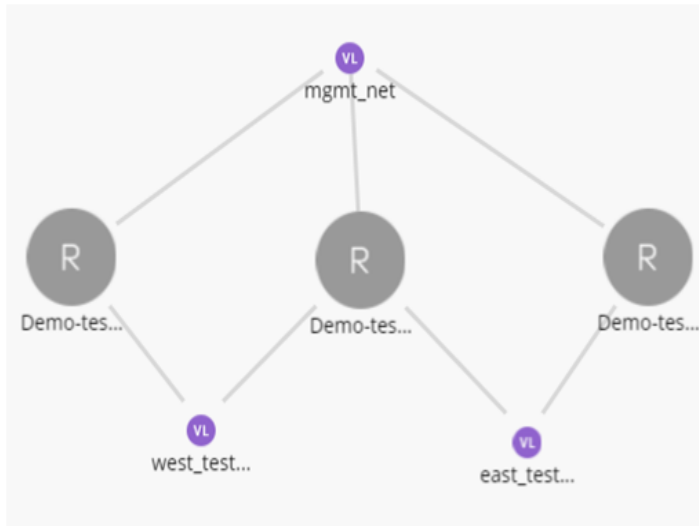
SUT : Open source VNF - Openwrt

Test Instrument : Spirent virtual STCv

Step1



Test Designer



Step2



Test Case Developer

```
try:
onap.setup_cloud_and_subscription()
job_id = onap.create_vnf() # onboard vnf.onboard ns.create ns, instantiate ns
ns = onap_api(conf, onap.ns_instance_id, job_id,onap.tenant_id)
ns.get_vnfs_info()
testresult = onap.traffic_test(labserver=conf['instrument']['instrument_mgs']['mnt_address'],
username = conf['instrument']['instrument_mgs']['username'],
stcv1_mgmtip=ns._stcv_west_ip,
stcv1_testip=ns._stcv_west_test_port_ip,
stcv2_mgmtip=ns._stcv_east_ip,
stcv2_testip=ns._stcv_east_test_port_ip,
dut_leftip=ns._dut_left_ip,
dut_rightip=ns._dut_right_ip)
except Exception as e:
logger.debug('----- Exception Happened! -----')
print(e)
print('traceback.print_exc():')
traceback.print_exc()
finally:
#puase = input('stop here before cleanup: ')
onap.cleanup()
print ('Done')
```

Step3



Test Executor

ID	Job Name	SUT Name	Job Description	Action
44096927609579064	Test-compliance-027	VNF1-Compliance	Test-compliance-027	Start Edit Delete Download More
44066838390267712	test-func-03	OpenWRT	test functional 03	Start Edit Delete Download More
440667302781468672	DNS compliance test	Ebupt-DNS	DNS compliance test	Start Edit Delete Download More
440655203050307136	validation-test001	VNF1-Compliance	validation-test001	Start Edit Delete Download More
440314963365150720	test-func-02	OpenWRT	functional test 02	Start Edit Delete Download More



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Thank You 😊

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