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LFN Developer & Testing Forum

Anuket: CIRV-HDV Hardware Delivery Validation Tool Implementation

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What is HDV?

- HDV (hardware Delivery Validation) is sub project under CIRV.

- HDV is designed for large scale hardware validation which is needed at the very beginning of NFVI cloud deployment.

- It's required that the hardware should support redfish interface.

- It is a tool implementation for request runner and response comparator, with configurable parameters.

- CIRV-HDV wiki

Value of HDV

- When to use it
  - a batch of servers with same model need to inspect.
- How to use it
  - make the case.yml template for the server model, including checkpoint value.
  - HDV helps to check each server and generate a report.(redfish only)

HDV role in NFVI Automation

In the NFVI Automation framework, there are a bunch of automatical tools of configuration, validation, deployment, integration.

HDV is one of Automation validation tool, which is used for hardware validation based on the standard PDF defintion, key step of E2E CI/CD procedure.
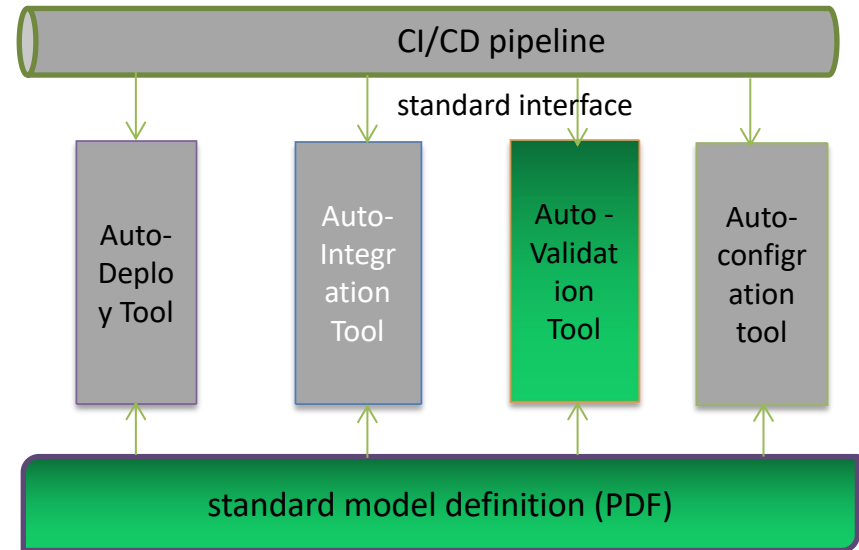
PDF2.0 originating from CNTT-RI

- Description file have been contributed into community
  - Installer PDF definition

    https://github.com/cntt-n/CNTT/blob/master/doc/ref_impl/cntt-ri/chapters/chapter06.md
  - HDV PDF definition

    https://github.com/cntt-n/CNTT/blob/master/doc/ref_impl/cntt-ri/chapters/chapter05.md
- Proposed in yaml or json format
  - note: A dedicated PDF definition session would be introduced in this LFN Events.
- PDF is also used by CIRV-SDV project.

HDV toolset Framework

- Hardware validation implemented in Redfish interface in centralized way
- define the common check point template for vendors in redfish interface
- checking of asset /component/sensor/power/remote access etc.
- HDV engine create the real check point case set based on PDF to validate hardware case by case, and generate a report
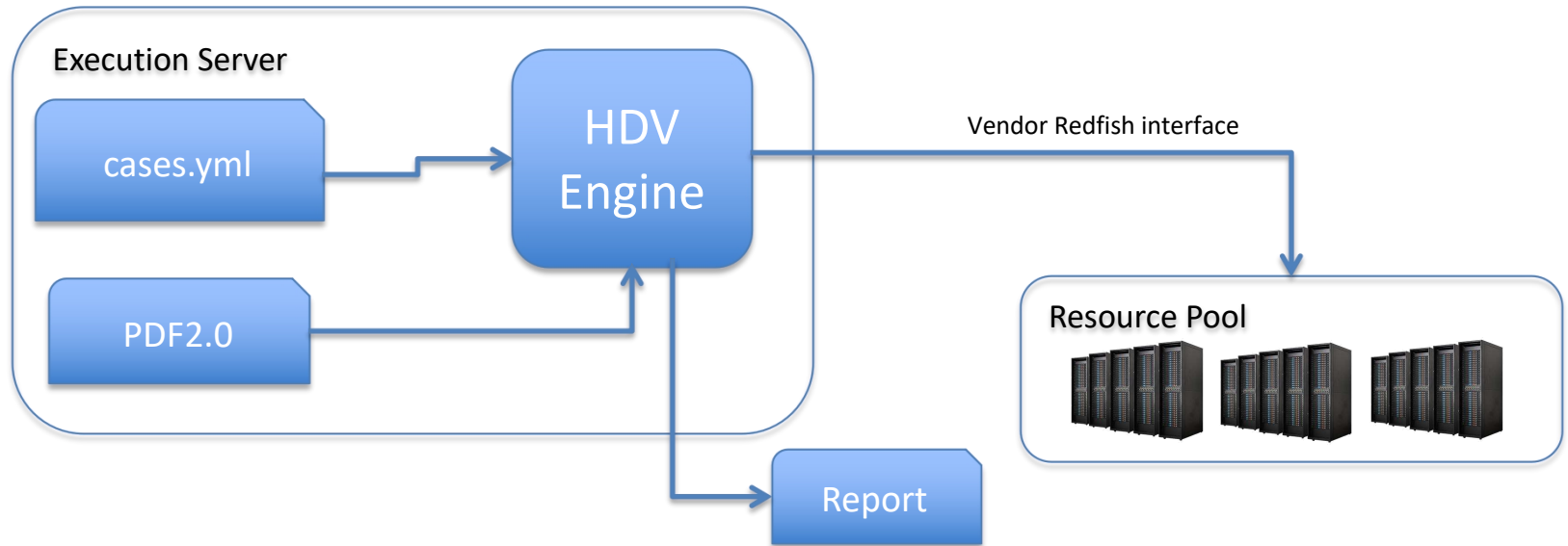
some HDV cases

case name	
get|set asset code	
check main board name	
check CPU amount/CPU info/cpu temperature	
check memory info	
set|get host name	
check model/serial number/manufacture	
check BIOS version	
check RAID information,driver,fans	
check power account	
disable/enable PXE	
check|set,ipv4,ipv6, boot order	

prepare test case&extend to large scale

- A default set of case yaml have been committed in the project.
- To extend a customer one, user should write the expected result in yaml format according to their hardware specification, case by case.

```
...
case_name: check CPU info
case_sn: 12
enabled: true
expected_code: 200
expected_result:
    count: 2
    Manufacturer: Intel(R) Corporation
    MaxSpeedMHz: 2300
    Model: "Intel(R) Xeon(R) Gold 5218N CPU @ 2.30GHz"
    ProcessorArchitecture: ["x86", "IA-64", "ARM", "MIPS", "OEM"]
    Socket: [1, 2]
    Status:
    Health: OK
    State: Enabled
    TotalCores: 16
    TotalThreads: 32
group: compoment management
header: null
method: GET
request_body: null
url: /redfish/v1/Systems/{system_id}/Processors/{cpu_id}/
...
```


templating on one server → HDV → **checking on a large batch of servers to check** ...
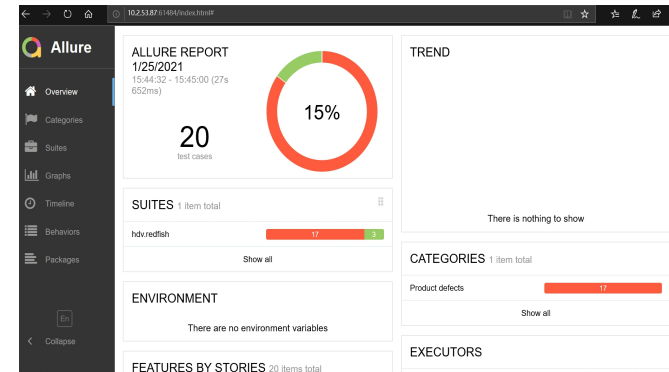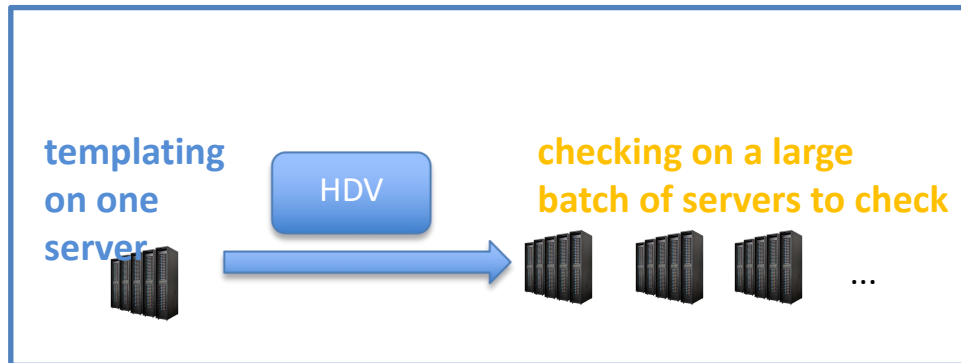
- refactor hdv code to make all test case into one configuration file.
  - merge depends.yaml and cases.yaml,
  - supported case enable/disable flag
- support PDF2.0 definition
- pytest framework introduced with friendly GUI
- extend to support HPE server case yml files
- document
  - https://opnfv-cirv-hdv.readthedocs.io/en/latest/

CIRV-HDV plan 2021

- CIRV-HDV would support PDF update in Anuket in 2021.
- initiate a new CIRV-NET project in Anuket or extend scope of CIRV-HDV to support:
  - automatically network validation on switches(TOR,EOR), including vlan, M-LAG,route,VPN,SNMP,NTP, device and port naming rule etc, all of which are necessary in the construction of NFVI.

  note: A dedicated Anuket session about network configuration plan in this LFN events.

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Thank you!