LF NETWORKING

LFN Developer & Testing Forum

Anuket: CI/CD practice in large scale de-coupled NFV resource deployment

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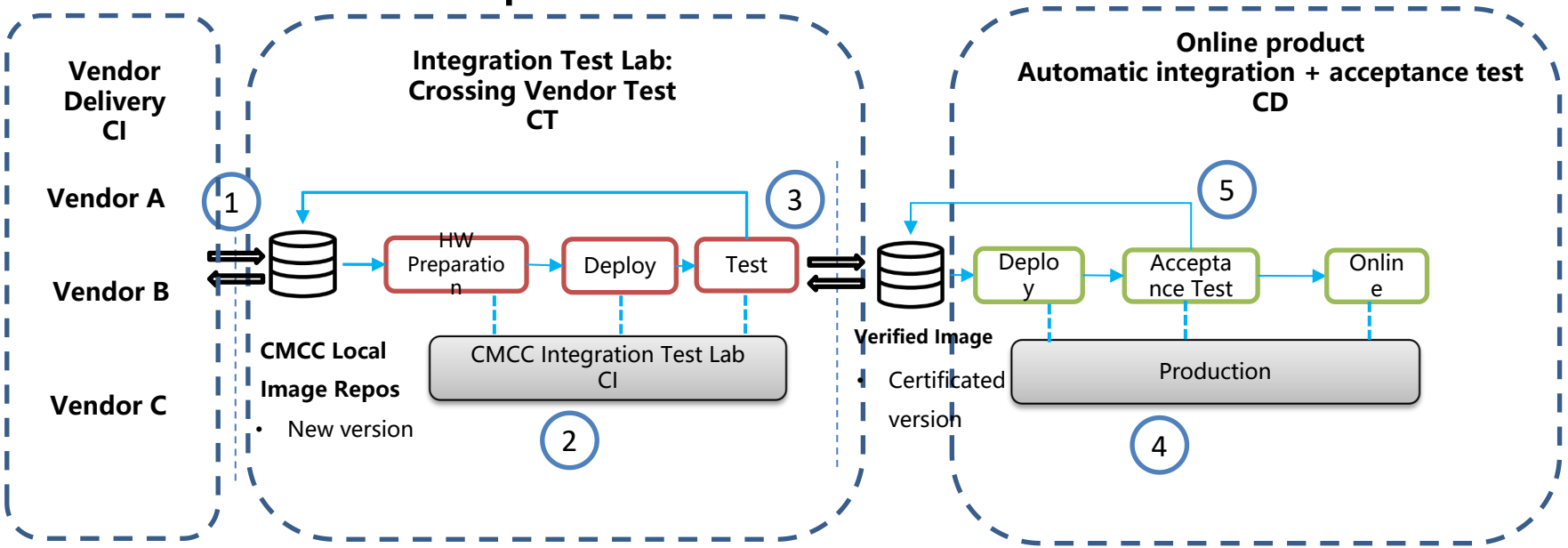
- how to make CI/CD possible accross vendors
  - standardize NFVI design and deployment config file LLD(PDF) definition
  - generalize the integration procedure accross different VIM and storage vendor
  - common procedure plus adaptation in cicd for different vendors.
- gains from CI/CD trial in two sites of China Mobile.
- work to do in next step(network conf, vim/storage integration)
- appendix: case demo for one NFVI deployment

Challenges for NFV implementation and testing

- multi-vendor hardware and software
- automation tools for different vendor can’t work seamlessly
- huge workload and errors happen for cross-vendor integration
- too much time costing back and forth between network&hardware configuration and deployment.

CI/CD approach to solve NFV implementation problem

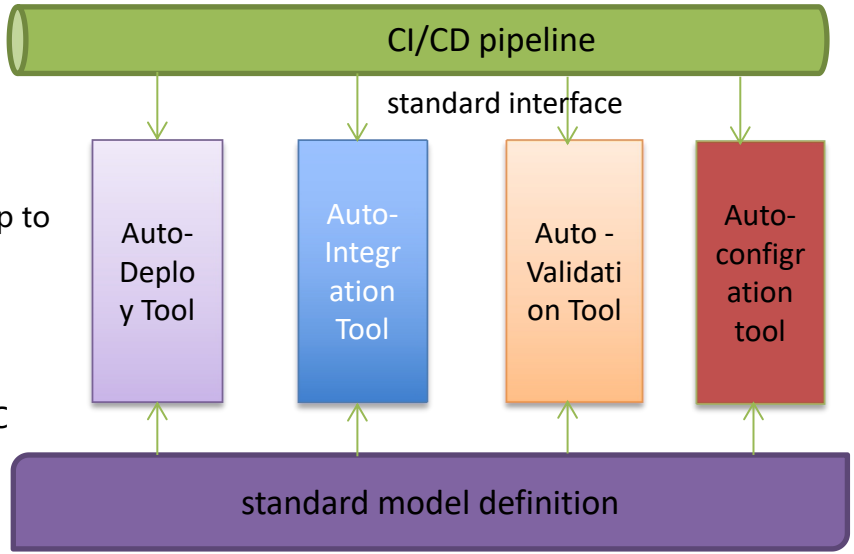
- end to end CI-CT-CD pipeline between vendor and operator.



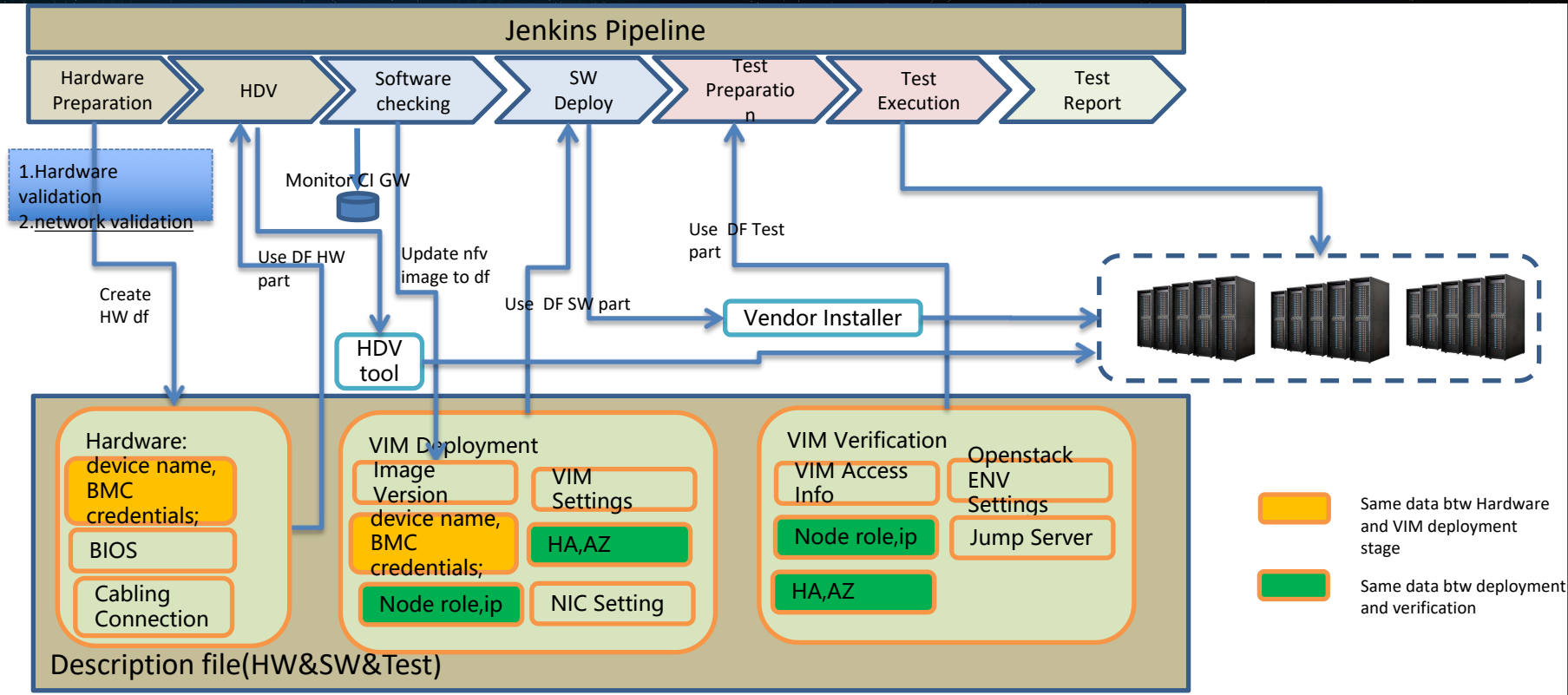
how to make CICD possible?

- birdview of NFVI Automation implementation

- **pipelines:**
  - manage the pipelines by Jenkins
  - standardize the pipeline procedure and adaptation implementation to support different vendors
- **Automatic tools:**
  - deploy tool&api: provided by vendor
  - integration tool: VIM vendor manage in whole, CMCC help to define the precedure and the exchange data model.
  - validation tool : CMCC AUTO tool suite(note: a dedicated CIRV-HDV session plan in LFN Events)
  - network configuration tool: provided by vendor or CMCC
- **standard model:**
  - defining a standard model to mitigate the interoperation complex in multi vendors case.(note: another session about PDF2.0 plan in LFN Events)

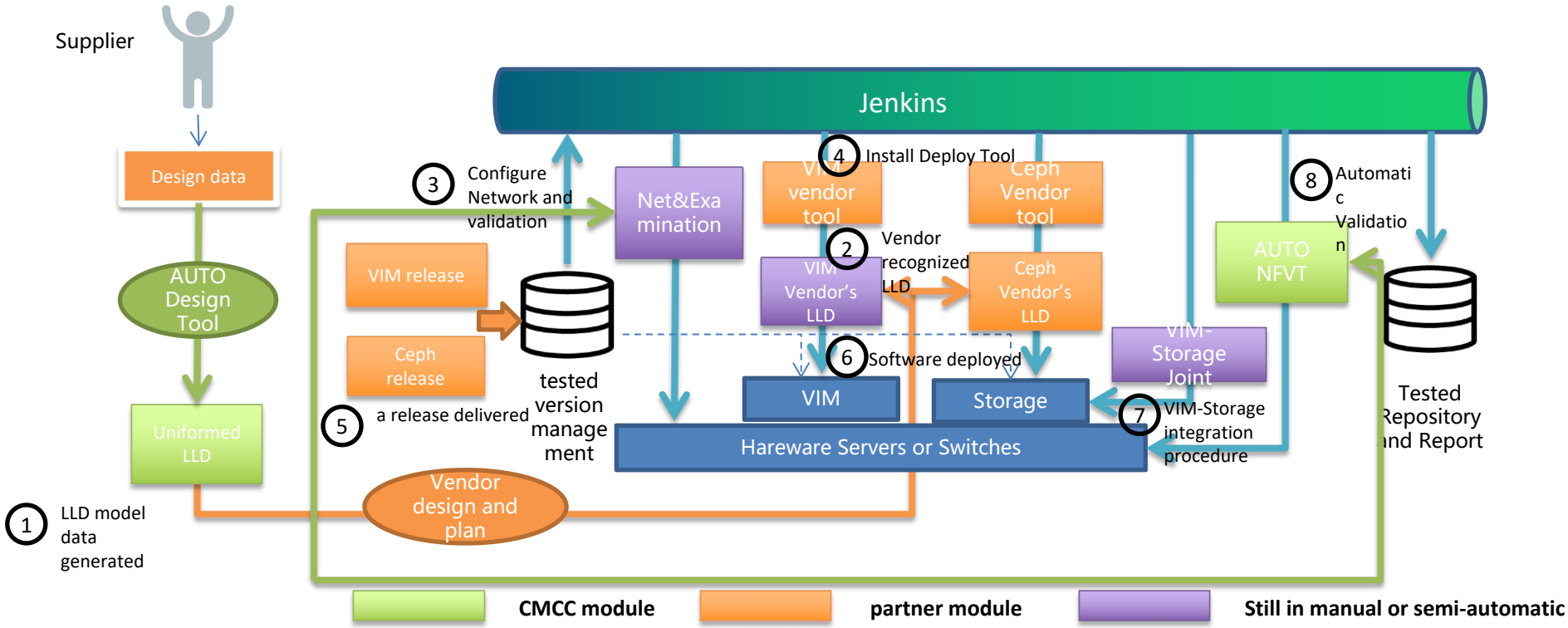


CI implementation within Integration Lab



Description file defines **entire** information of all stage **end to end**, HW, SW, Test

Detail process:(VIM+Storage)



CICD trials in Lab and Province

stage	test dimension	VIM	Storage	test
Lab deployment	15 nodes for VIM, 3 nodes for storage	Vendor A	Vendor M	• automatically deployment and vim&storage • integration(driver,certificates,ceph.conf) • standardize the integration procedure accross vendors.
	15 nodes for VIM, 3 nodes for storage	Vendor B	Vendor M	
	5 nodes for VIM only	Vendor C	N/A	
Province trial：Sichuan and GuangDong	**122** nodes for VIM, **36** nodes for storage	Vendor A	Vendor N	• “copy&paste” the cicd pipeline from lab to real deployment. • validate the stability for cicd impl • find the key factors in practical deployment.(automatical network configuration, automatical the vim and storage integration)
	68 nodes for VIM only	Vendor C	N/A	

metrics - four vendors involved

Quick Deployment	Frequently Test	VIM-Storage Integration	Replication with parameters
• deploy Could in 5 hours • deploy Storage in 30 minutes	• 166 rounds regession test • 1922 times execution	• define standard integration procedure accross VIM and storage vendor.	• CI/CD extend to 3 more resource pool deployment in 10 days

gains from CI/CD trial in China Mobile

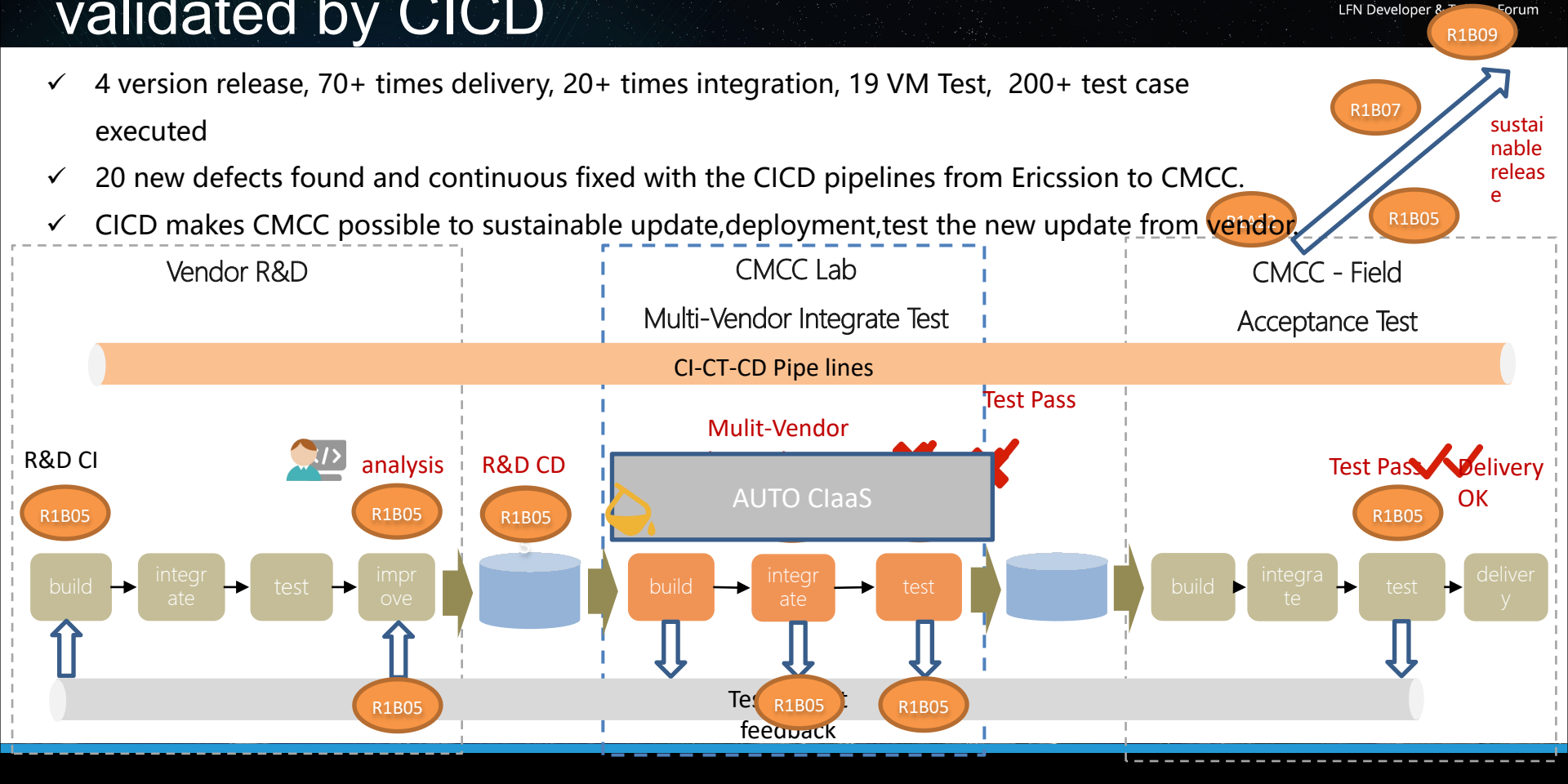
- quicker for deployment and test, make daily deployment&test possible.
- easy to setup test envirement by CICD facility in trial of future
- ability of covering all test cases from de-couple scenario before on site deployment in lab.
- reduce the time cost to deploy large scale NFVI construction.

CI/CD next step

- calling on Anuket could clarify a standard VIM-Storage integration procedure to mitigate complex and effort in heterogeneous deployment.
- shape and develop the NFVI network configuration&checking tool based on Anuket community.
- commit enhanced PDF model to PDF 2.0

Appendix -case demo: 4 deliveries sustainable validated by CICD

- ✓ 4 version release, 70+ times delivery, 20+ times integration, 19 VM Test, 200+ test case executed
- ✓ 20 new defects found and continuous fixed with the CICD pipelines from Ericssion to CMCC.
- ✓ CICD makes CMCC possible to sustainable update,deployment,test the new update from vendor.

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Thank you!