COMPETE IN AN
ERA OF SMART

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ng4T - next generation Telecommunication Technology Testing Tools

Martin Mc Donald, CMO, February 2014

ng4T GmbH Telecommunication Technology Testing Tools

IBM

Client business challenge

- Telecommunication Equipment Manufacturers deployed proprietary solutions with ASICs, DSPs and Network Processors for communication processing, while using a variety of RISC architectures.
- This has led to significant complexity in the overall platform architecture of a typical Communications Infrastructure restricting flexibility and velocity of new network and service introductions.
- Telecommunications Industry is actively exploring the use of Virtualized Networks on standard high volume servers to drive down Total Cost of Ownership and increase flexibility, service velocity and scalability of network functions.
- The new architectures, e.g. NFV and SDN, introduce requirements on dynamic deployment and runtime management of both the virtualized network elements and network services based on the virtualized network infrastructure connecting them.
- These “networks in a cloud” introduce new challenges to testing as the technologies enable the service provider to roll-out new network functions very rapidly. Thus the complexity of networks as well as the sheer number of to-be-managed network functions and services increases greatly. The ability to test new virtual function deployments needs to adapt to this large growth.

ng4T-IBM solution value proposition

- ng4T and IBM provide a unique integrated virtual network and virtual testing solution
- The virtual network is enhanced by a virtual tester vTester
- The tester runs in the same virtualized environment as the virtual network elements and services and is controlled by the same management and orchestration.
- IBM Smart Cloud Orchestrator (NFV-MANO Orchestration System) and the Business Process Manager (BPM) provides the tools to define and execute workflows.
- The Orchestration and Management integrates automatic tests with vTesters into the workflows. vTesters can be automatically instantiated and parameterized with data and meta data of the network, the network elements and services..
- The vTester can use varying degrees of network information for various test levels (sanity tests, integration tests,...) and can also be controlled from a single Network Test Center which inputs various parameters to each vTester, including the number of client devices to simulate, traffic patterns, etc.
- Technologies like virtual networks and routing policies allow for a high degree of automation to deploy and execute tests and based on the test results take appropriate actions like removing the test-VM and switching the new virtual network function into the production traffic path.

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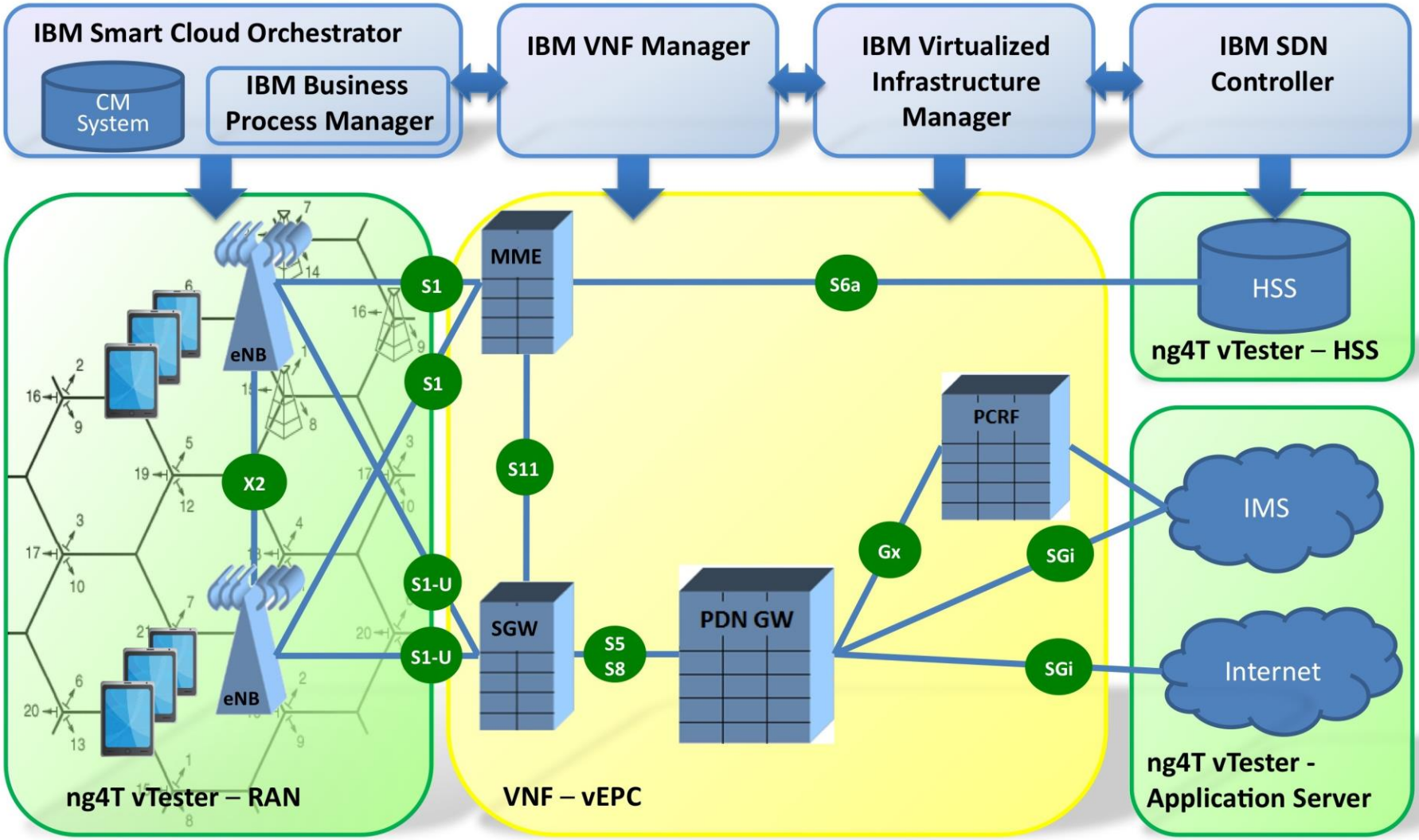
Use Case: Virtual EPC Instantiation

- By Operator intervention or by an automatic event like high network load a workflow to create a new VNF (vEPC) instance is triggered
- On IBM Smart Cloud Orchestrator and BPM level a workflow is executed to create and orchestrate a new VNF in the Service Provider (SP) network
- The workflow creates the VNF in the SP Data Center Compute Node and stores the VNF profile/provisioning parameters
- Upon a VNF test flag stored in the BPM model the BPM workflow identifies if the VNF needs to be tested before it is brought into the production system
- In this case the SCO/BPM workflow creates the suited vTester profiled with the VNF provisioning parameters and specifies the test category to be performed (sanity test, quick, check, live testing, load testing)
- The vTester is emulating existing network functions connected to the new VNF isolated from the operational network
- Depending on the test category the vTester is started and the test results are delivers back to the Orchestration System
- Upon manual or automatic evaluation of the test results the VNF will be set to ‚operational' and connected into the operational network.

ng4T-IBM solution



Client successes

- ng4T testers are designed and optimized for Commercial Off The Shelve Hardware and virtual machines and are in use all over the World
- ng4T testers are used by some of the biggest players in the upcoming NFV and SDN market.
- ng4T testers provide safety, functionality, full state machines and 24/7 operation used by Operators in Live Networks.
- ng4T has several partnerships and cooperations with leading industry partners around the NFV evaluation and implementation.
- ng4T is used broadly in classic specialized Hardware base Network testing and is taking that experience into the partially or fully virtualized network trials and evaluations.

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