Operators Accelerate NFV Adoption for Faster Agility and Openness

Huawei offers systems integration solutions to help operators quickly commercialize NFV

February 2016

TECHNOLOGY BUSINESS RESEARCH, INC.

Contents

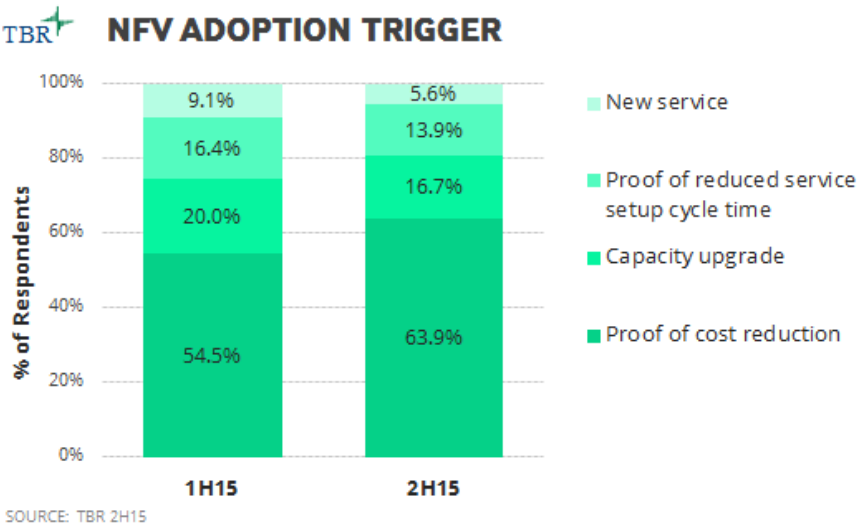
Tier 1 operators accelerate adoption of NFV to increase agility and openness while reducing operating costs

The growing need for operators to increase service agility, while reducing the cost of service, is causing them to step up the pace of NFV adoption. Tier 1 operators in particular are converting early proof-of-concept (PoC) use cases such as vEPC, vIMS and vCPE to commercial pre-deployments, or full deployments. This is leading NFV advocates to strengthen broader deployment plans by turning to advanced partnerships with suppliers.

About one-fifth of operators studied view capacity upgrades as a top trigger for NFV adoption. Operators see NFV as a way to relieve legacy networks' struggles to accommodate bandwidth demands, due to higher rates of data and video traffic, and decrease proprietary hardware required for network services.

Operators also consider faster service provisioning a main adoption trigger. NFV can reduce service rollout times from months to days, enabling adopters to offer services ahead of non-adopters.

TBR surveyed more than 50 managers and executives across the top 20 Tier 1 operators to gain insight into their NFV and SDN adoption plans and systems integration requirements.

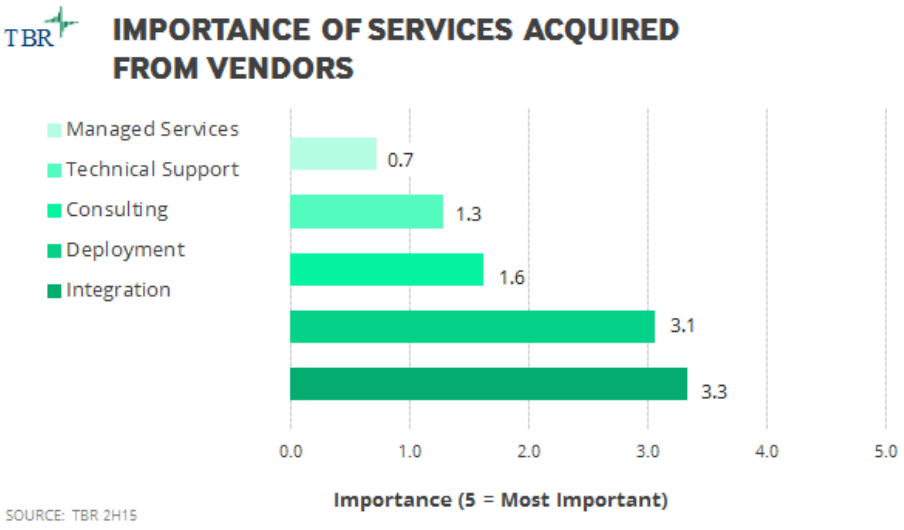


Note: Totals do not add to 100% due to rounding.

Systems integration critical to NFV success

As adoption increases, operators become more aware of the complexity of integrating NFV's different aspects, especially legacy networks and end-to-end business processes. In addition, interoperability across different NFV vendors is a major challenge, with limited solutions offered by open-source alternatives. To solve these issues, operators require a system integrator with strong knowledge of telecom and IT business to design, deploy, test and operationalize NFV implementations.

Integration tops the list of most important requirements for operators, replacing traditional deployment or installation functions. The distributed nature of NFV, its heavy reliance on software and the relative immaturity of the technology make meeting systems integration requirements critical to success.



Operators report NFV systems integrators (SIs) need to possess information and communications technology qualifications for planning, designing and implementing the network, and they must be well-versed in the protocols and frameworks of NFV. An understanding of the core requirements of legacy systems and the ability to implement in a multivendor environment are critical requirements for SIs.

Beyond the key SI function and open-source expertise, operators demand performance capabilities that transform as network performance evolves.

“System integration services can offer us many benefits and insights on some of the key aspects of the network infrastructure,” said a Tier 1 operations director. “The values that we look for while acquiring such services would be that they consolidate our network systems and enhance their efficiency, transform the network seamlessly without disrupting current services, and organize the network functions in a way that would ease the introduction of new services.”

Many vendors suggest achieving such transformational objectives while minimizing complexity requires a single prime-integrator approach. The prime integrator develops a road map that complies with the operator’s performance goals and makes sure subcontractors meet the requirements and time line. The subcontractors may perform systems integration around their specific part of the solution, but the prime SI is responsible for integrating the complete network.

The majority of operators surveyed believe the prime-integrator approach is the most effective, especially in the early days of NFV implementation. Examples of operators that chose prime integrators are AT&T (Ericsson) and Ooredoo (Huawei).

"We have a single supplier for NFV systems integration, as it reduces operational costs and enables us to utilize our resources more efficiently," said a Tier 1 CTO. "It also simplifies negotiation, reduces the issues and provides faster deployment of solutions. And training of personnel becomes easier. A single vendor is able to offer more growth opportunities, and they tend to take more responsibility for the work, which might not be the case when there are multiple independent vendors."

Huawei gaining traction in NFV SI

Huawei is staking a leading position in this market with more than 50 commercial NFV projects in 2015. Commercial projects include Vodafone in Italy and Ooredoo in Qatar and Kuwait.

"Huawei has been able to successfully provide a network infrastructure and prime integration services that support NFV technologies," said a Tier 1 CTO.

Huawei's implementation capabilities match the key criteria of operators who value proven deployments over open-source compliance. These cases, along with Huawei's competency across legacy networks, NFV and IT data centers, provide a strong base for success. With these attributes and Huawei's large installed base, the company stands to gain more traction from operators moving to NFV.

Huawei NFV SI solutions

Huawei provides three solutions to help operators quickly commercialize their NFV and cloud operations using NFV systems integration. The solutions are as follows:

1. NFV Solution Broker Service which provides operators' support for network transformation design.
    - The NFV Solution Broker Service provides a six-step top down design method to define the process of transforming the network to NFV while ensuring that the services, applications and technologies are well integrated. The steps are as follows:
    - Understand the operator's strategy and vision.
    - Confirm the scope, assumptions and constraints of the projects.
    - Analyze the "as is" state of the network and developing a view of the "to be" state.
    - Create an architecture solution design for the new vision.
    - Build an evolution strategy and plan.
    - Deliver a proposed solution.
2. NFV Network Readiness Service which includes integration across the NFVI, MANO, VNF and legacy systems as well as an end-to-end planning, analysis, design, build, test, deploy and transfer implementation approach. Readiness includes:

- NFVI Integration, including COTS and Cloud OS integration
- MANO Integration including VM, VNF and Orchestrator integration with MANO
- VNF Integration for vertical and horizontal functions
- Legacy Integration for OSS/BB and the existing network

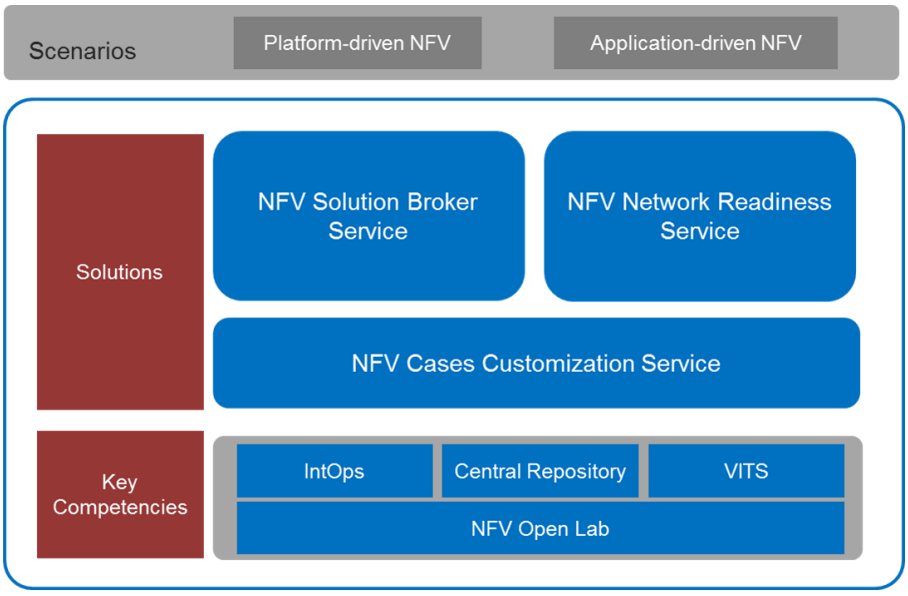
Readiness also includes integration services for high availability requirements, such as co-existing physical and virtual network functions, migration, multi-VNF and Carrier Grade high availability design; Compatibility, Assessment, Performance and Security services; and Optimization services for VoLTE, PCRF Policy, Data Traffic and CPE.

3. **NFV Cases Customization Service** which includes developing particular NFV case implementations such Test as a Service (including project pre-integration, new service innovation and multivendor compatibility verification), VNF Lifecycle Management (including on boarding, auto scale out/in, fault performance termination) and NFV major event use cases (including traffic prediction, resource deployment, capacity expansion and business precision).

Huawei delivers these solutions within the framework of an agile integration delivery (IntOps) to shorten the time to market lifecycle. In addition, the company has developed the VITS (Virtualization Integration Tool Suite) platform for supporting efficient integration. The tool is based on a cloud model of continuous integration and continuous delivery.

Huawei demonstrates its solutions and tools, as well as consults with operators and partners at its NFV open lab in Xi'an, China, dedicated to developing multivendor integration verification capabilities and building an open ecosystem lab. Key partners include VMware, Openstack, Red Hat, Wind River, Ubuntu, Dell and HPE.

Huawei NFV Integration Services



VITS: Virtualization Integration Tool Suite
IntOps: Integration + Operations (Agile Delivery Method)
Source: Huawei

Ooredoo selects Huawei for Prime System Integrator

An example of Huawei's role with operators is demonstrated through its work with Ooredoo Group which has engaged Huawei to lead NFV systems integration projects as part of a company-wide transformation program called UNIFY, with the first operating companies executing projects in Qatar and Kuwait. Ooredoo partnered with Huawei to be the Prime System Integrator (PSI) with the task of orchestrating and integrating multiple vendors' systems into one functional and cohesive NFV infrastructure, including vIMS implementations to support VoLTE in the two countries.

Qatar

VoLTE + VoBB

Kuwait

VoLTE

Huawei is a leading short list supplier for NFV SI

TBR believes that operator' requirements for NFV systems integration will increase as they scale their implementations throughout the network. They will require an overall systems integrator who can make sure projects are implemented efficiently within each domain as well as create a streamlined end to end operations environment. Huawei has strengthened its capabilities as an NFV SI and is proving its commitment with continued investment. Operators in the early stages of NFV will continue to have Huawei on the short list as a company capable of meeting their requirements.

About TBR

Technology Business Research, Inc. is a leading independent technology market research and consulting firm specializing in the business and financial analyses of hardware, software, professional services, telecom and enterprise network vendors, and operators.

Serving a global clientele, TBR provides timely and actionable market research and business intelligence in formats that are tailored to clients' needs. Our analysts are available to further address client-specific issues or information needs on an inquiry or proprietary consulting basis.

For more information

TBR has been empowering corporate decision makers since 1996.

For more information, visit www.tbri.com.