

## Service Provider Perspectives on NFV Business Cases and Plans

By Grant F. Lenahan

Operators and enterprises are looking to the cloud to deliver advanced and flexible services more efficiently. At the same time, demand for managed quality, especially by enterprises for mission critical applications, is driving users toward more stringent service-level agreements and proactive management. Finally, operators understand that neither “one size” nor “one quality level” fits all their customers and applications. This demands a menu of capacity, availability and other qualities — each matched to various needs and willingness to pay. Cloud and Network Functions Virtualization (NFV) promise to deliver on this wish list and, in fact, may offer even more benefits over time.



NFV is playing a major role, letting operators take advantage of benefits that include:

- Cost savings from improved logistics (e.g., remote management versus truck rolls), automation and increased productivity;
- Reduced OpEx and CapEx costs from using standardized versus dedicated hardware and by vastly reducing configurations;
- Rapid introduction of new services;
- Simplified quality, reliability, performance and security management; and
- Opportunities for previously impractical operations such as “auto scale”, “auto-restore” or “auto move” in response to myriad loads and threats.

With NFV, network node functions are virtualized and can be instantiated on any data center or complying host platform — anywhere in the operator’s network or even at a consumer or enterprise customer’s premises. The functions can then be interconnected (or “chained”) to create higher-level communication services. NFV enables applications to share network resources intelligently and allows operators to orchestrate them efficiently for cost, reliability and performance reasons, and to meet SLA guarantees that are becoming key attributes of product offers.

To assess the current state of NFV business cases and planning, *Heavy Reading* and Ericsson worked together recently to survey and interview leading communications service providers.

### The Survey

The *Heavy Reading* survey was fielded to 84 qualified respondents from 55 service providers. The majority of responses came from tier one and tier two converged service providers in developed markets that included North America, Europe and Asia Pacific. These operators represent leading-edge thinking on NFV, are most visible in NFV initiatives and are typically two years ahead of tier three, tier four and pure-play mobile operator network strategies.

Almost half of the respondents are responsible for defining their company’s initial NFV business case. They are in corporate management, such as the office of the CTO, or R&D, affirming that NFV is still in its early stages. Most of the remaining respondents are in network planning, engineering and operations, and are typically validating the business case in field trials or pilots.

### Progress Towards A Strong NFV Business Case

Two-thirds of respondents have strong insights into what an NFV business case would look like. Nearly half (44 percent) have already developed, or are in the middle of developing, a business case, with a further fifth of the sample starting to do so. Only five respondents say they are not yet ready to look at a business case.

### Most Important Benefits of NFV

The recipients were asked to rank the three most important potential benefits of NFV to their company. At this stage of NFV implementation, operators are most concerned

## NOT FOR DISTRIBUTION OR REPRODUCTION

with being able to launch functions quickly wherever they are needed in the network, not to migrate them from location to location.

For this, operators need a consistent Commercial Off-the-Shelf (COTS)-based Network Functions Virtualization Infrastructure (NFVI) into which they can drop or remove functions and reuse the NFVI. Because the functions are virtualized in software, there is no need for long hardware procurement cycles or truck rolls, offering flexibility and time-to-market business benefits.

There is a distinct desire among respondents to reduce costs and use cost as one of the top factors in determining where Virtual Network Functions (VNFs) should run in their infrastructures. As one of the interviewees in an operator's office of the CTO explained, "There is a clear business case today for cutting operational cost by as much as 50 percent through automation. We have very encouraging figures from other parts of the business which have investigated this and they are much better than our original projections."

The third most important cited benefit of NFV was lowering the cost of network management through greater automation.

### **Business Metrics**

The most advanced operators investigating NFV understand the importance of business metrics. Nearly half of the sample (48 percent) plan to incorporate business metrics (typically coarse-grained) in their business cases and use them to determine where to instantiate or move VNFs. The current interest leans toward VNF instantiation rather than dynamic migration. The other half of the respondents are taking a wait-and-see approach – but they know they must watch closely.

Respondents ranked the following business benefits highly: just in time network planning and provisioning; improved financial control of network operations; proactive, cost-driven network management; and cost savings from improved energy efficiency.

### **Policy-Driven Cloud Orchestration**

Cloud management is needed to automate and orchestrate provisioning processes, as well as virtual and traditional network functions, across domains while providing consistent levels of quality. It is important to recognize that next generation "cloud" services may be made up of components from various technology domains — at the minimum cloud and SDN, but often including other technologies as well. Product offers, with non-technology attributes, must also be managed. Consequently, orchestration is of necessity a multi-layer process: an end-to-end product and service layer that must orchestrate across multiple domains, with rich orchestration environments at the network and service layers. This results in a cohesive, flexible and extensible approach that delivers agility to all processes in the critical path, all the way from the technology up to the product.

Respondents leading the market show a marked inclination to use policy-driven cloud orchestration systems and are enthusiastic about automation. Nearly half of the sample (48 percent) expects to use policy-driven placement, with the number rising to 56 percent for those who have already developed an NFV business case. The qualitative interviewees pointed out that the formulation of VNF placement criteria in general is still in its early days, let alone using policies to drive their implementation.

Over half of the sample (53 percent) said they would trust the automation in a cloud orchestration system to implement policies. This level of trust is even higher in respondents that already have an NFV business case, with 65 percent saying that a high level of operational automation is important to their NFV business case. The relatively small number (24 percent) of respondents who would always want human involvement in such decisions suggests strong buy-in overall to the goals of cloud-based NFV.

### **View of NFV Infrastructure Technologies**

Respondents are divided in their views on how ready infrastructure technology is to support NFV. Only 10 percent of respondents feel they have all of the infrastructure technologies in place to support NFV, but nearly one-third believe they have most of them. A further 40 percent, the largest group, feel that NFVI technologies are immature and only have access to some of them at this stage. Nearly one-fifth of the sample believe it is too early in the market to select NFV technologies.

Of the respondents that have already developed a business case, 35 percent said they had all the infrastructure technologies they need and percent said they had most of them, so over three quarters of this subgroup appear to be advanced in their specification and procurement of NFV infrastructure technologies.

### **Conclusions**

Service provider interest in NFV and progress toward its implementation has

## **NOT FOR DISTRIBUTION OR REPRODUCTION**

progressed rapidly since the concept was first introduced in an ETSI white paper in October 2012. The vision of quickly realizing revenues from new services, as well as cost savings from more efficient operations, has resonated strongly with the industry.

The *Heavy Reading* and Ericsson study has shown a strong degree of understanding of the importance of business metrics among the most advanced operators investigating NFV, namely large tier ones, many of which were early members of ETSI NFV. There is a distinct appetite among respondents to reduce costs and to use cost as one of the top factors in determining where VNFs should be deployed in infrastructures. Respondents leading the market show a marked inclination to use policy-driven cloud orchestration systems in the future and are enthusiastic about automation.

We are still early in the lifecycle, but it is clear that service providers widely anticipate achieving substantial cost savings from NFV and cloud and increasing revenues from the rapid introduction of new services. The industry has already come so far, so quickly; and, if this survey is any indication, it remains full-steam ahead!

## NOT FOR DISTRIBUTION OR REPRODUCTION