The reality of cost reduction

As with any new technology introduction, the decision to deploy Network Functions Virtualization (NFV) by Communications Service Providers (CSPs) will be guided by a realistic business case and not just marketing promises. Fortunately, cost savings can be estimated. And these savings open a new world of opportunity for providers to drive innovation.

A framework for decision-making

Several things have to be considered when deploying NFV, including accrued cost savings, business models, and architectural options. Cost must be considered over a full five-year lifecycle that would include both capital expense (CAPEX) as well as operating expense (OPEX). CAPEX (hardware and software licenses) reductions may become apparent immediately, while OPEX (installation, support, and power) will improve over time.

Of course, there are additional savings from not having to add new discrete network elements when you want to introduce new services. There may be up to a 25% savings from avoiding training, configuration, and shipping costs.

Further, NFV helps CSPs avoid the traditional stair-step CAPEX needed to provision capacity in advance of expected demand. Instead, it follows a cloud utility-based business model where capacity is easily and cost-effectively added when you need it. An NFV deployment decision is not strictly related to a product replacement strategy but covers an architectural approach. It may be beneficial to deploy software functionality either on customer premises or consolidate it at network edge.

vCPE reduces costs up to 24%

The cost benefits of NFV can be illustrated with a virtual customer premises equipment (vCPE) use case, which includes set-top boxes and ADSL routers. Assumptions regarding the costs of virtual and physical appliances, servers, labor costs, and power consumption have been made.

As the cost model (Table 1) on the next page shows, a small NFV deployment can reduce costs from $34,015 to $27,828, or about 18%. Even with increased software costs, the reduction in hardware, installation, configuration, and power costs more than compensate.

The results for a larger NFV deployment are even more dramatic. Total costs can be reduced from $18,935 to $14,435, or 24%. And in both cases, there will be additional benefits over time from new revenue opportunities that are not considered in this analysis.

Table 1. Virtual routing cost model comparison

Options	2	2a	2b	3	3a	3b
Branch size	Small	Small	Small	Large	Large	Large
Router type	HW	HW	SW	HW	HW	SW
Branch services	WAN accelerator, Caching, SBC	WAN accelerator, Caching, SBC	WAN accelerator, Caching, SBC	WAN accelerator, Caching, SBC	WAN accelerator, Caching, SBC	WAN accelerator, Caching, SBC
HW required	MSR930 3 Appliances	MSR930 Server	Server	MSR3012 3 Appliances	MSR3012 OAPv2	Server
SW required	Included	Services vApps	VSR1001 + Services vApps	Included	Services vApps	VSR1008 + Services vApps
HW cost (in USD)	$11,100	$2,100	$1,500	$21,500	$6,000	$2,500
SW cost (in USD)	$0	$7,500	$8,000	$0	$15,000	$16,250
Installation/configuration time (hr)	14	4.75	3	14	2.75	3
Installation/configuration costs (in USD)	$1,400	$475	$300	$1,400	$275	$300
Support costs (3 yr. in USD)	$4,995	$4,320	$4,275	$9,675	$9,450	$8,438
Power costs (3 yr. in USD)	$1,440	$720	$360	$1,440	$360	$360
Total costs (in USD)	$18,935	$15,115	**$14,435**	$34,015	$31,085	**$27,848**

Type small virtual appliance—$2,500	Small server—$1,500	Remote SW configuration hours—0.25	Hours of use/year—4000
Type small H/W appliance—$3,500	Larger server—$2,500	Installation labor/hr—$100	Power cost/kWh—$0.1
Type large virtual appliance—$5,000	Basic HW install hours—2	Support cost/year—15%	
Type large H/W appliance—$6,500	Local SW configuration hours—2	Power consumption/box (kW)—0.3	

Proof of concept: Save $66.4 million per year

As illustrated, the vCPE solution benefits are enormous both in cost savings and in the speed with which new, innovative services can be introduced. Hewlett Packard Enterprise is working with CSP clients to prove NFV concepts in actual trials.

For example, "Carrier X," a large conglomerate, has identified NFV as one of its five strategic programs, with an approved plan to deploy up to five million vCPEs worldwide. By virtualizing most of the network functions on residential broadband CPEs and set-top boxes, the company conservatively estimates $66.4 million in savings per year.

A foundation for a new era of innovation

NFV solutions from Hewlett Packard Enterprise mark the beginning of a new method of delivering network capabilities that exponentially change the economics of CSPs. This helps create a new foundation for a level of massive industry innovation never before experienced.

Learn more at
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