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Hype or Reality! Can Network Operators Really Transform Their Business with SDN & NFV?

A Technical Paper Prepared for SCTE/ISBE by

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Introduction

With the emergence of web scale companies that can roll out OTT services overnight & cloud operators that can deliver content at minimal network cost, Communication Service Providers(CSPs) are scratching their heads to find ways to effectively compete in this digital market. One of the key emerging technologies that can help service providers effectively compete are Software Defined Networking(SDN) and Network Function Virtualization(NFV). And as the technology hype around SDN and NFV is dying down, a lot of service providers are starting to ask whether these technologies will make a difference in their business. We will address some of the ways SDN and NFV are starting to have an impact on the CSP business.

SDN is focused on automation of the network and is geared to making operations efficient. Automation of the network and use of APIs to orchestrate the service delivery process can provide significant operational efficiency. As a result, terms like DevOps and NetOps that were being thrown around by the technical standard committees are finally being translated into tangible implementations. While automation and orchestration are known to deliver value in a virtualized environment, the benefits extend well into legacy services as well. We will highlight the business value of automation & orchestration in legacy services using a service provider case study.

On the other hand, NFV initially emerged as a way to reduce Capex by virtualizing network appliances and running them on X86 platforms. It is now one of the key technologies that will help make service delivery more efficient and reduce operations cost. NFV combined with automation will also lead to new and increased revenue opportunities by enabling the SP to deliver more personalized and on demand services. By reducing the cost to deliver these services, SPs can now target wider pool of customers.

A recent quote by ATT's CEO Ralph De La Vega summarizes the value of SDN & NFV. When he was recently talking about the new Network on Demand service from ATT, he was quoted saying "And what I love about it is my revenue cycle is 90 seconds. That's a pretty good deal when you can lower capex, Opex and shorten the revenue cycle for your business. "

The paper will highlight the operational efficiencies that SPs can expect using global case studies with various operators. It will also provide insight into new market opportunities from a recent market study that was done on the SP opportunity from ITaaS – ICT services delivered on demand with zero touch.

Optimization – Operational(Ops) Efficiency

One of the values that orchestration and automation bring to the service provider is operational efficiency for both legacy and new virtualized services. The operational efficiency that SDN brings to legacy services and infrastructure has an immediate impact on the service provider's bottom line. There are two approaches to automation that service providers can pursue to deploy SDN capabilities.

One approach is service based which is focused on automating operational processes associated with services. Within each service based operations, standard network processes such as network configuration, configuration validation and service provisioning are fully automated. This approach is focused on making service based operations identified in Figure 1 more efficient. It also provides revenue uplift by improving time to revenue and eliminating service order backlogs.

Figure 1 - Service based Operations to be Automated

On average, service providers can improve these service operations by over seventy percent as shown in figure 2. This means reduced Opex, faster time to revenue and efficient operations.

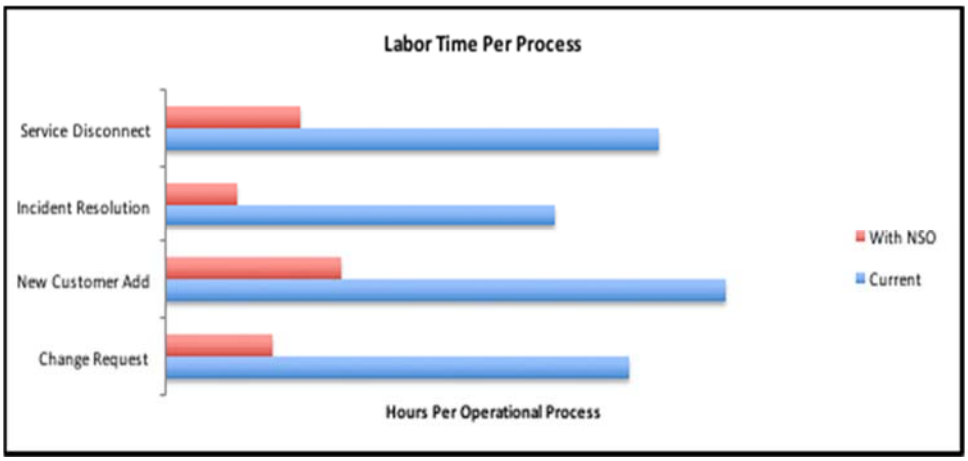

Figure 2 - Service Operations Efficiency Achieved Through Automation

A second approach to deploying SDN automation is focused on network automation. This approach focuses on a strategy to automate specific network operations shown in figure 3. The same investment made to automate service based operations is used to automate network operations based activities.

Figure 3 - Network Operations that can be automated

The automation of network operations is achieved by deploying technologies such as Netconf and Yang for device, network and service management. This means operators will move to a data-model model driven device and service management and away from using SNMP and CLI based network management and configuration.

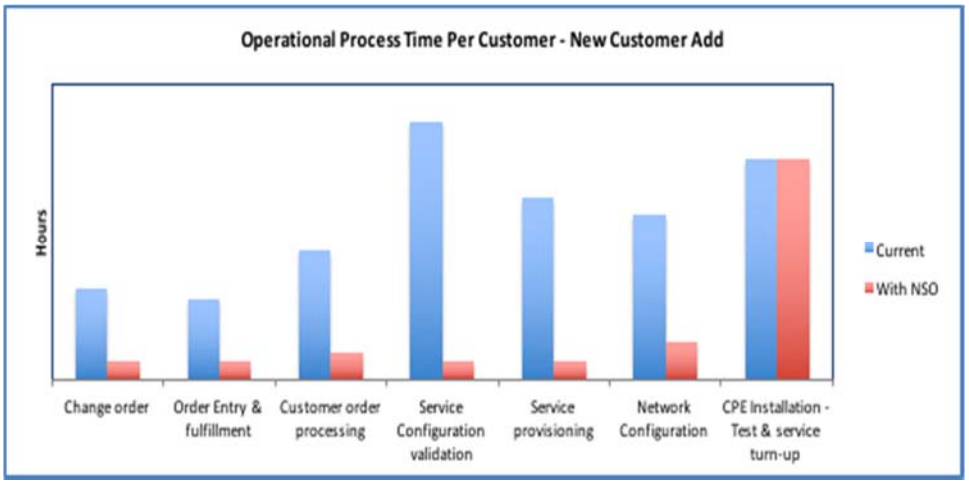

Figure 4 - Operational Sub-Process efficiency through Automation & Orchestration

The processes associated with service configuration, validation and provisioning improve significantly. Customer facing processes such as service ordering and processing are also automated using portals with the north bound APIs such as REST from the orchestration platform.

Therefore, by implementing SDN based automation, every process of legacy services ranging from order entry to service activation is improved. On average, service providers can save anywhere from $3-5 in Opex for every $1 dollar invested in automation as show in figure 3. On Average, SPs see an 85-600% ROI depending on the number of services and operations automated. As SDN is coupled with NFV, it will lead to a portal based, on demand and zero touch provisioned service which will mean a 90 second revenue cycle in line with the quote by ATT CEO, Ralph De La Vega.

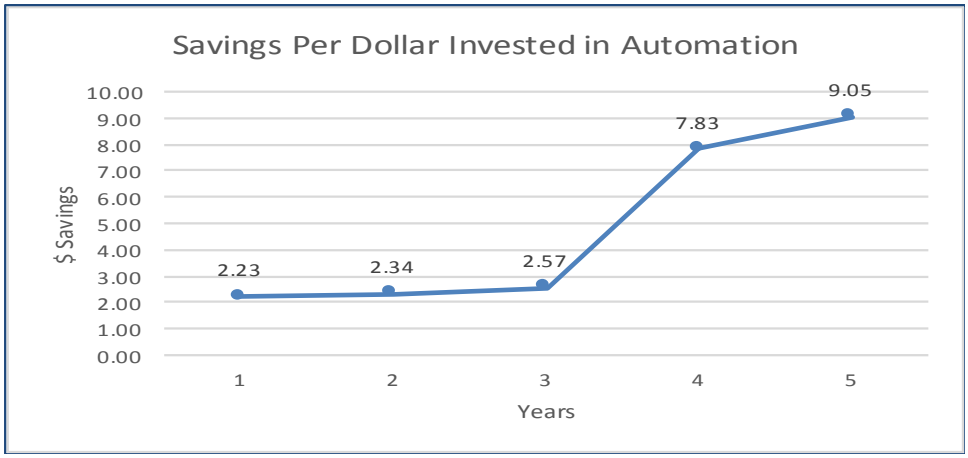

Figure 5 - Expected Opex savings for every dollar invested in Automation

Monetization – New Revenue

Delivering ITaaS

As stated earlier, one of the key values of SDN and NFV is being able to deliver services on demand with zero touch at a lower cost. The lower cost comes with the use of virtual instances of the services instead of dedicated appliances. As we move to on demand and virtualized ways of delivering services with zero touch, one of the key areas that can be transformed is ICT (Information and Communications Technology) services. The ability to deliver ICT services on demand with zero touch will be one key opportunity for service providers. We will refer to that opportunity as ITaaS. ITaaS is one area where Cable & Telco operators have the largest opportunity. A recently conducted global ITaaS study with over 350+ SMLBs and 20+ service providers identified what type of new revenue opportunities Telco and Cable operators can expect in the ICT market. The study identified the revenue opportunities by region and the shift in SMLB buying behavior ITaaS will bring to enable operators to capture this market. This is a direct effect of SDN and NFV adoption by service providers. The study also identified some of the immediate opportunities from ITaaS such as Cloud VPN & the impact of these cloud based models to existing on premise services such as MPLS and L2VPN services.

SDN and NFV technology allows the delivery of truly transformative experiences to customers, enabling businesses to tranform and strengthen their brands in ways never before possible. Businesses expect similar flexibility to personalize the various IT services and products consumed in their businesses the way that Amazon and Netflix have been able to provide personalized consumer services. More so if such personalization delivers efficiency, improves business processes, provides business agility and lowers service costs. The consumerization of IT continues, and will increasingly transform how businesses view IT service providers' brands.

The survey of 350 businesses across 11 countries in NA, LATAM, WE, CEE, MEA and APAC underscored the power of such transformative experiences on buyers' behavior, and as a result; on overall market expansion. Over 70% of the firms surveyed were highly desirous of the various personalization benefits that "SDN/NFV enabled networks" as shown in figure 6. The ability to deliver services on demand, simplify the provisioning and scale dynamically were seen as key benefits of the technology.

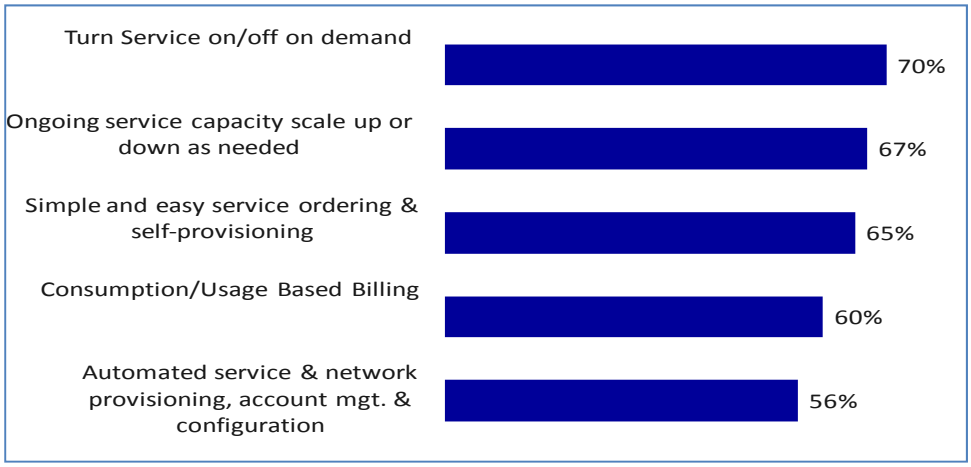

Figure 6 - Services Personalization Is Highly Desired Globally

Fueled by increased adoption of ICT services and expansion of existing ones, the injection of ITaaS is conservatively expected to provide an uplift of 15% over present market forecast levels. This uplift will add an incremental $47 billion to total spending by 2019.

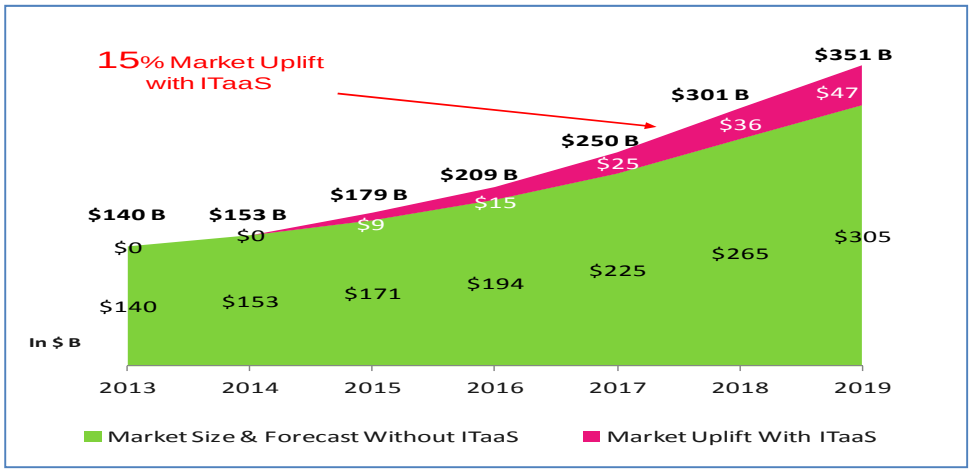

Figure 7- Global Service Provider (SP) ITaaS Uplift Driven from Market Expansion AND Solution Switching

The service provider opportunity if further improved by the 30-70% of businesses across various regions who are willing to switch service providers to gain access to the ITaaS benefits and user experiences stemming from SDN/NFV. This willingness to switch is shown in figure 8.

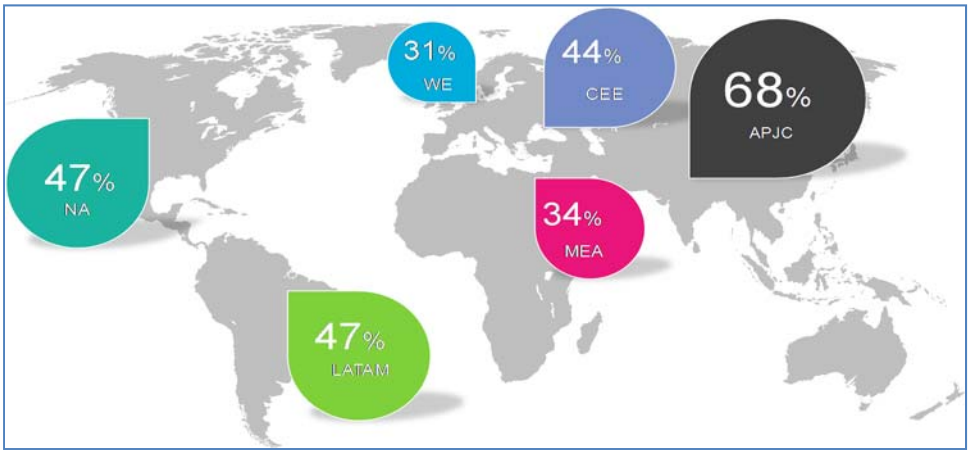

Figure 8 - Willingness of Businesses to Switch to a provider ITaaS services

By leveraing direct sales and using strong channel partnerships, service providers can expand their market share/Revenue accrued to them from15% to over 46% as shwon in figure 9. By using open API's enabled by SDN and NFV, service providers can extend their service through channel partners to offer interoperability with third party services, thus enhancing and enriching the overall service value proposition.

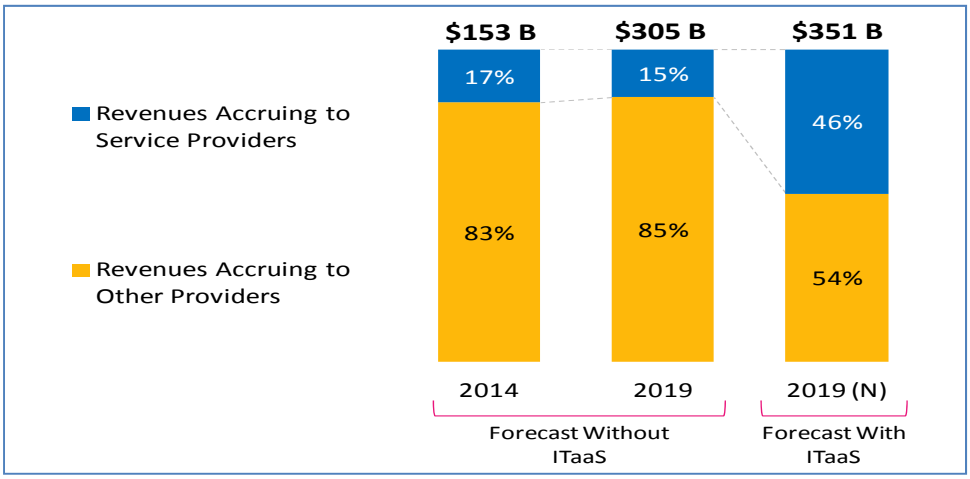

Figure 9 - SP Market Share Expansion by Selling Direct and Through Channels

Conclusions

While the initial value of automation is evident for legacy services and infrastructure, the true competitive value of SDN and NFV will be realized as operators move to a more virtualized and automated delivery of their services. Service providers can start with SDN to automate their existing legacy services and network infrastructure. They can then start using NFV to virtualize core network components and applications and use that same SDN platform to automate the delivery of new services. This will lead to significant improvement in operational efficiency while also gearing the service provider to the delivery of more flexible and personalized services. It will also mean increased revenue from both business and residential customers giving service providers a tool to effectively compete in this digital economy.

Abbreviations

SDN	Software Defined Networking
NFV	Network Function Virtualization
ITaaS	Information Technology As A Service
OTT	Over the Top Service Provider
CSP	Communication Service Provider
SP	Service Provider
SCTE	Society of Cable Telecommunications Engineers
ISBE	International Society of Broadband Experts

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