SP NFV/SDN Adoption
Introduction to the Custom Research - Approaches, Challenges and Recommendations

Ben Bekele and Sidney Kriger
SP Marketing, Business & Technology Architectures

June 7, 2017
Agenda

1. Research and key findings
2. SP Transformation Journey
3. Partner with Cisco
STL Partners Research for Cisco

- Focus on the current state of NFV/SDN implementation – key challenges hindering progress and plans for the future
- Emphasis on new virtualised business like SD-WAN
- Interviews with one or more at 14 service providers across the globe during H2 CY16
- Discussions covered two main areas:
  1. **General strategy** and approach to NFV/SDN – rationale/influences, ambitions, view of peers/competition
  2. **Virtual business services development** – is/has process changed and what are targeted services
Executive Summary of Study

Recognition of the potential

- Improve agility
- Cost savings

Early in the process

- CTOs are driving it
- Governance/ownership unclear
- Convergence around services - POCs

Major Barriers

- Culture
- Software skillsets
- Business case

Establishing Three Pathways

- Technology Evolution
- Organizational Evolution
- Service Evolution
Service providers see NFV/SDN as an opportunity to become more agile

- **Agility**: SPs want to be able to move faster to deliver innovative services to customers

- Other key drivers might be forms of agility - new services, transformation, automation, and customer focus

- Almost as many SPs indicated explicitly that cost-saving was not the object of NFV/SDN as said it was a key driver for it, suggesting they are not wholly convinced

> “Cost reduction is just a side effect”
> – Head of Group Network Architecture, Global Converged Service Provider

> “There are more opportunities with virtualised technologies. They are more modern and innovative and lead to faster delivery of services”
> – CTO, European converged operator

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**Figure 1. Key Drivers for SDN/NFV**

<table>
<thead>
<tr>
<th>Driver</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agility</td>
<td>79%</td>
</tr>
<tr>
<td>Network efficiency</td>
<td>43%</td>
</tr>
<tr>
<td>Cost savings</td>
<td>29%</td>
</tr>
<tr>
<td>Customer focus</td>
<td>29%</td>
</tr>
<tr>
<td>New revenue</td>
<td>29%</td>
</tr>
<tr>
<td>Automation</td>
<td>14%</td>
</tr>
<tr>
<td>Inevitability</td>
<td>14%</td>
</tr>
<tr>
<td>Transformation</td>
<td>14%</td>
</tr>
<tr>
<td>New Services</td>
<td>7%</td>
</tr>
</tbody>
</table>

$n=14$. Source: STL Partners research
Three pathways to NFV/SDN adoption are emerging

1. Technology Evolution
   Build scaled virtualisation of a few core functions &/or sub-systems to minimise risks, dependencies and organisational change

2. Service-led Innovation
   Focus (initially) on the customer and the services themselves, as opposed to the underlying technology.

3. Organisational Transformation
   Drive wider organisational transformation using NFV/SDN is a key catalyst -- both from a technological and cultural perspective

Figure 12: Transformation pathways adopted
Agenda

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Approaches to Transformation
Three ways to start your journey

Top 10 Challenge
• Focus on the top challenges other service providers faced
• Understand the selected strategies used by them for specific situations.

Pathway
• Select the pathway that most closely aligns with your approach to NFV/SDN implementation.
• Understand each challenge and how to overcome the challenge.

Pathway Challenge
• Identify a particular challenge that has been frustrating to you
• Understand how to overcome that challenge
Top 10 Challenges for SP Transformation

Top 10 most common challenges that service providers have encountered when implementing NFV/SDN technology.

1. Changing culture & mindset across the organization
2. Shortage of virtualization and software skills
3. Breaking down organization siloes
4. Communicating value to the customer
5. Adopting DevOps model
6. Facing regulatory challenges
7. Vendor lock-in
8. Unclear business case
9. Managing the transition from legacy networks
10. Uncertainty around how to achieve scale
Three Evolution Pathways

1. Technology Evolution
2. Service-led Innovation
3. Organisational Transformation

SP Digital Transformation
Technology Led Evolution
Automation Customer Case Study

- Accelerate *multi-device & multivendor* service offerings
- **Drive down** CapEx & OpEx
- **Automate** services end to end

Design and onboard services: -50%
Provisioning people-hours: -86%
OpEx: -40%
Time to delivery: -70%
Pathway Challenges

1. Technology Evolution
   - Change Coordination: Challenges encountered when attempting to transform

2. Service-led Innovation
   - People & Processes: Challenges involving staff, skills, internal structure, and culture
   - Strategy: Challenges around the service provider’s strategy

3. Organisational Transformation
   - Technology: Challenges with a technological nature

- Product: Challenges around developing new products
- Marketing & Sales: Challenges around selling and marketing new products to customers
- Finance, Legal & Regulatory: Challenges with a financial, legalistic, or regulatory nature
Example on How to Address Challenges: Change Coordination

**Challenge:** Disseminating cultural/mindset change across the organization
Most service providers are finding cultural change to be one of the biggest barriers to transformation in the move to a software-centric business, which will come with a greater need for service agility and innovation to respond to (changing) customer needs quickly.

**Activity:** Engage workforce (across the organization) in internal activities

**Description of Activity:**
- The rationale behind NFV and SDN, as well as the implications and changes that will happen as a result will need to be known throughout the organization, therefore it is vital that this education of the workforce (of all management levels) is done through internal activities. These could include, for example: seminars, workshops and presentations.
- These internal activities should focus on both the technical aspects, for those relevant teams, but also the commercial side.
- It is important that these sessions are interactive to identify potential challenges that may arise.

**Owner:** NFV/SDN team  
**Timeframe:** 12-18 months  
**Level of Change:** Basic

**Desired Outcome:**
- A more unified approach to NFV and SDN as the whole company is more informed behind the organization’s aims and ambitions, as well as the driving rationale.
- By engaging the workforce, the organization’s culture will naturally change more organically.

**Future Considerations:**
- These sessions are likely to reveal challenges that were not considered by the team responsible for NFV/SDN and/or the senior management. The team will need to be prepared to respond to these in order to maintain motivation amongst the workforce.

**Related Activities:**
- Demonstrate the benefits of NFV/SDN through a proven and tested example
- Learn from others’ experiences in changing organizational culture by engaging in external activities
- Commission a series of internal workshops focused on transformation
- Engage workforce (across the organization) in internal activities
- Become an active member of industry organizations

**Relevant Pathways:**

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Agenda

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2. SP Transformation Journey
3. Partner with Cisco
Partner with Cisco for Success

- SP advisory services
- Cisco validated designs
- Customer journeys
- Business case development
SP Advisory Services

Key Activities

- Advisory sessions
- Strategy sessions
- SP Transformation Strategy service
- SP Transformation Readiness Assessment service

Our Services Framework

- Advise
- Strategize | Assess | Design
- Implement
- Validate | Migrate | Integrate
- Optimize
- Analyze | Recommend | Remediate
Cisco Validated Design
VNF On-boarding Framework Strategy

- **Cisco Silver**
  - Foundation Testing & VNF Integration

- **Cisco Gold**
  - Advanced Testing & Service Chain Integration

- **Cisco Platinum**
  - Custom Testing Scale & Performance

- **System Integrator Partners**
  - VNF Interoperability Testing

- **Cisco NFV Ecosystem**
  - VNF Vendor Testing - Cisco dCloud
  - Cisco and Intel NFV Quick Start Labs

- **Industry VNF Interoperability Initiatives**
  - Open Platform for NFV (OPNFV)
  - NFV Interoperability Testing Initiative (ITI): Cisco, Ericsson, Huawei, and Nokia
  - NIA-EANTC NFV Interoperability Test
  - ETSI NFV “Plugtests”
SP Customer Journeys to Business Outcomes

<table>
<thead>
<tr>
<th>Mass-Scale Networking</th>
<th>Automation</th>
<th>Applications B to C</th>
<th>Enterprise B to B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco is your best partner for building your large scale network needs. Partner for network innovation.</td>
<td>Cisco will help you end-to-end with your automation journey – from first steps with configuration management to advanced steps of predictive network and application analysis. (Move from point products to customer journey) We lay out a simple step journey to automation for you – including custom automation and services.</td>
<td>Cisco is your partner for B to C video applications and technology solutions. We are your cloud video and video security partner.</td>
<td>Cisco is a very successful Enterprise company that has a large enterprise offering of products, sold through partners. Cisco can help you grow revenues in Enterprise services and IoT. Cisco can help with your revenue growth as an Enterprise go-to-market partner</td>
</tr>
</tbody>
</table>
Quantifying the Business Impact of Automation

50–70% of network & service operations can be automated

70%
Operational efficiency

30%
Revenue uplift & faster GTM

40%
Improve customer satisfaction

Maintenance window
Time spent
112 Today
11
With automation

New customer on-boarding
Time spent
164
8
With automation

Incident resolution
Time spent
10.7
5.1
With automation

Source: Cisco BTA
### Analyze Processes and Operations: Avoid OpEx & Increase Efficiency

#### Operating Cost

<table>
<thead>
<tr>
<th>Operation</th>
<th>% of Service op cost</th>
<th>Op cost reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New Customer Add</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer* order</td>
<td>7%</td>
<td>80%</td>
</tr>
<tr>
<td>Order entry*</td>
<td>6%</td>
<td>77%</td>
</tr>
<tr>
<td>Order processing</td>
<td>10%</td>
<td>80%</td>
</tr>
<tr>
<td>Config validation</td>
<td>20%</td>
<td>93%</td>
</tr>
<tr>
<td>Service provisioning</td>
<td>14%</td>
<td>90%</td>
</tr>
<tr>
<td>Network configuration</td>
<td>13%</td>
<td>78%</td>
</tr>
<tr>
<td>CPE install - TTU</td>
<td>29%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Incident Resolution</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trouble call*</td>
<td>12%</td>
<td>80%</td>
</tr>
<tr>
<td>Ticket generation*</td>
<td>8%</td>
<td>71%</td>
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<tr>
<td>Troubleshooting</td>
<td>15%</td>
<td>53%</td>
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<tr>
<td>Config validation</td>
<td>37%</td>
<td>94%</td>
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<tr>
<td>Reprovisioning</td>
<td>23%</td>
<td>90%</td>
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<tr>
<td>Resolution verification</td>
<td>5%</td>
<td>50%</td>
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<tr>
<td><strong>Change Request</strong></td>
<td></td>
<td></td>
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<tr>
<td>Change order*</td>
<td>5%</td>
<td>67%</td>
</tr>
<tr>
<td>Order entry*</td>
<td>5%</td>
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<tr>
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<td>86%</td>
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<tr>
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<td>93%</td>
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<tr>
<td>Network configuration</td>
<td>14%</td>
<td>78%</td>
</tr>
<tr>
<td>CPE install - TTU</td>
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<td>0%</td>
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<tr>
<td><strong>Service Disconnect</strong></td>
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<td>67%</td>
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<tr>
<td>Order entry</td>
<td>6%</td>
<td>67%</td>
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<tr>
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<td>13%</td>
<td>86%</td>
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<tr>
<td>Config removal validation</td>
<td>26%</td>
<td>93%</td>
</tr>
<tr>
<td>Service de-provisioning</td>
<td>19%</td>
<td>90%</td>
</tr>
<tr>
<td>Network configuration</td>
<td>17%</td>
<td>78%</td>
</tr>
<tr>
<td>CPE decommission</td>
<td>15%</td>
<td>0%</td>
</tr>
</tbody>
</table>

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*Northbound API for portal and service order entry provides additional benefits

**Source:** Cisco BTA

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Business Case Development: How Automation Can Improve SP Operations?

**Tier 1 SP** 71% improvement in operations efficiency*

- **Service disconnect**: Today - 13.5 Hours, With Cisco Automation tool - 3.7 Hours
- **Incident resolution**: Today - 10.7 Hours, With Cisco Automation tool - 2.0 Hours
- **Change request**: Today - 16.5 Hours, With Cisco Automation tool - 6.7 Hours

- **Maintenance window**: 16.1 to 2.6
- **New customer add**: 17.4 to 6.8

97K average transactions / year

* A Tier 1 customer case study based on joint calculation made with SP team and Cisco NSO team using real operations data

Source: Cisco BTA
Focus on Business Outcomes
Improved Labor Productivity & Network Efficiency

+70%
IT & Operations Staff Efficiency

74%
Efficiency in network operations

* A Tier 1 SP 5 year summary for two business services
Additional Outcomes
Improved Product & Development Lifecycle

61%
Faster Customer On-Boarding

95%
Efficient SW development cycle

70%
Improvement in MTTR

Download operational benchmarks for SP operations

* A Tier 1 SP 5 year summary for two business services
## Identify Business Impacts
### 64% More Efficient Labor Force

### People-hours by department

<table>
<thead>
<tr>
<th>Department</th>
<th>People-hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSR</td>
<td>1.72 M</td>
</tr>
<tr>
<td>Field Tech.</td>
<td>4.94 M</td>
</tr>
<tr>
<td>Engineer</td>
<td>986 K</td>
</tr>
<tr>
<td>NOC</td>
<td>20.9 K</td>
</tr>
</tbody>
</table>

7.66 M total people-hours*

### People-hour savings by department

<table>
<thead>
<tr>
<th>Department</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSR</td>
<td>78%</td>
</tr>
<tr>
<td>Field Tech.</td>
<td>56%</td>
</tr>
<tr>
<td>Engineer</td>
<td>78%</td>
</tr>
<tr>
<td>NOC</td>
<td>74%</td>
</tr>
</tbody>
</table>

64% people-hour savings

*Over 5 years

Source: Cisco BTA

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Summary

This is our situation. What do we do next?

• **Download the report!**

• Connect with Cisco for deeper dive into the research and how you can use it in your SDN & NFV adoption

• Learn more about our Strategy & Advisory Services