Automation for SP Transformation
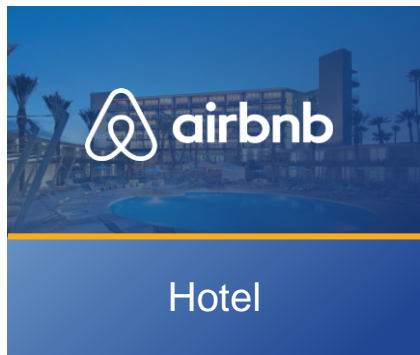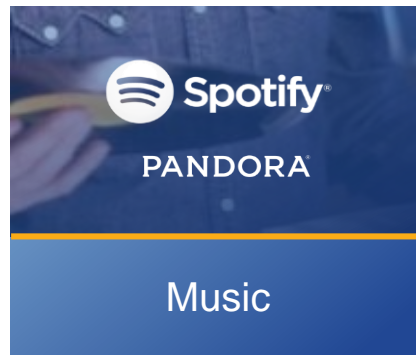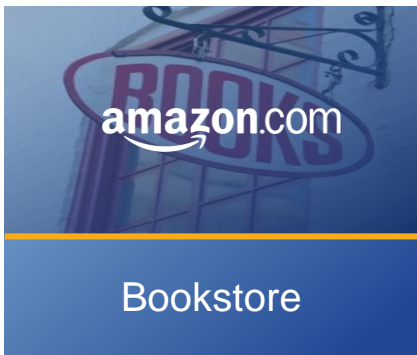
Anastassios Lilakos

Sales Manager – South Service Provider

November 2017

Digitisation Changing Businesses and Industries

Bookstore

Taxi

Music

Hotel

Print Advertising

Car

Point-of-Sale

The Mobile Landscape Keeps Growing

By 2021

Mobile Momentum Metrics

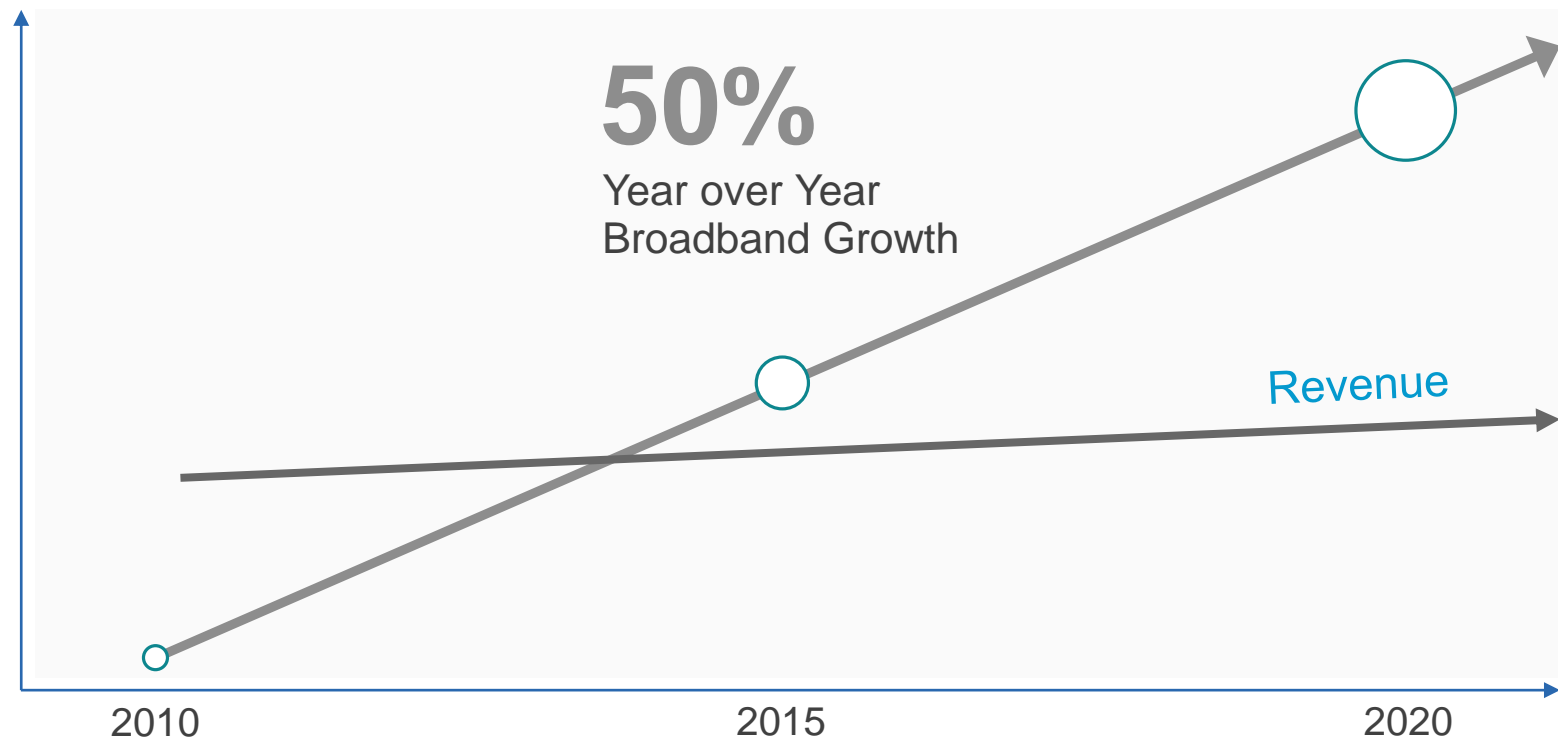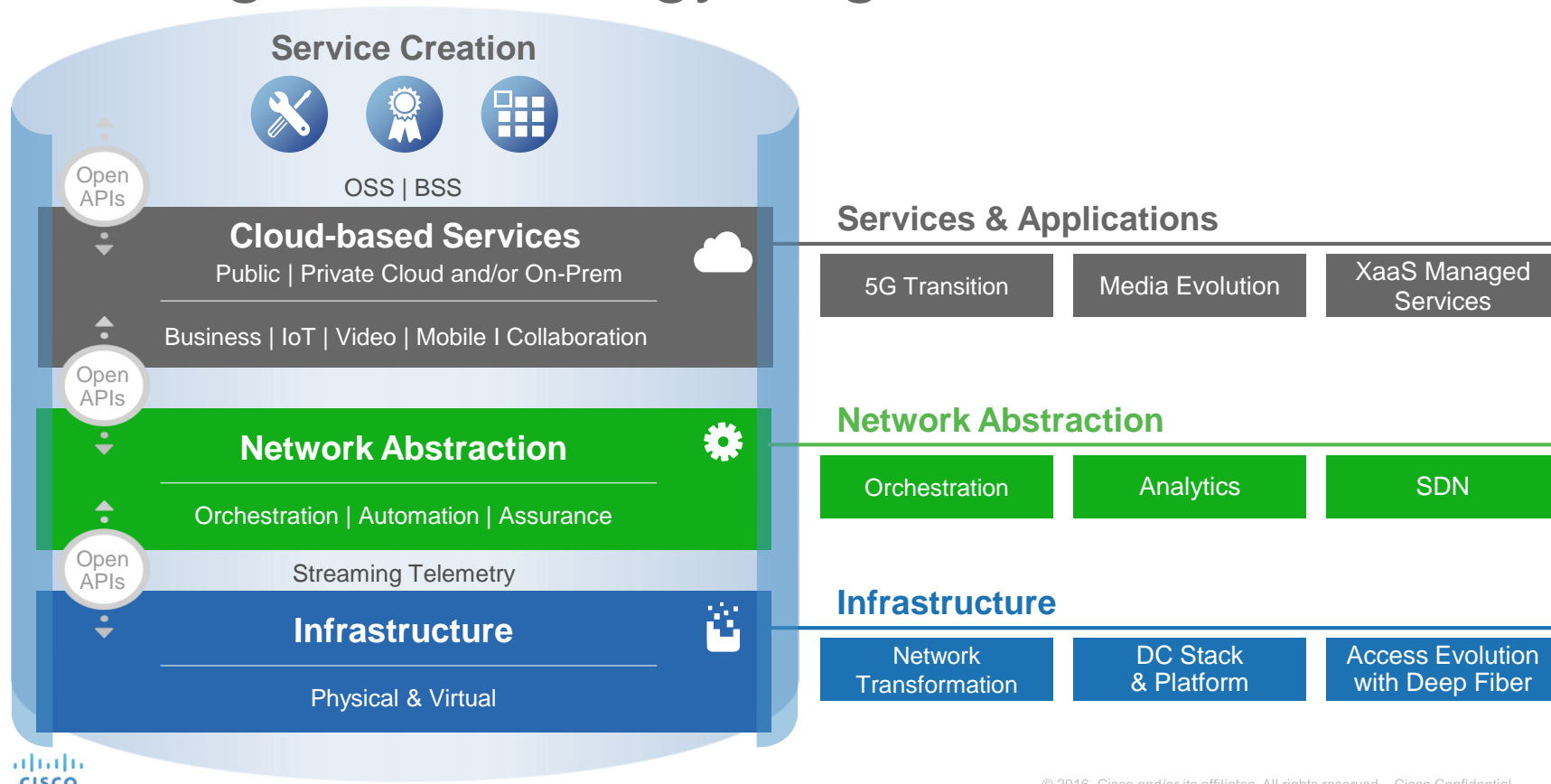|	2016	2021
More Users	4.9 Billion	5.5 Billion
More Connections	8 Billion	12 Billion
Faster Speeds	6.8 Mbps	20.4 Mbps
More Video	60% of Traffic	78% of Traffic

Source: Cisco VNI Global Mobile Data Traffic Forecast, 2016–2021

CISCO

Broadband Growth vs. Revenue Growth

50%

Year over Year
Broadband Growth

Revenue

2010

2015

2020

Strategic Technology/Organization Transition

Service Creation

OSS | BSS

Cloud-based Services
Public | Private Cloud and/or On-Prem

Business | IoT | Video | Mobile I Collaboration

Open APIs

Network Abstraction
Orchestration | Automation | Assurance

Streaming Telemetry

Open APIs

Infrastructure
Physical & Virtual

Open APIs

Services & Applications

5G Transition	Media Evolution	XaaS Managed Services

Network Abstraction

Orchestration	Analytics	SDN

Infrastructure

Network Transformation	DC Stack & Platform	Access Evolution with Deep Fiber

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The Four Pillars of Orchestration

1 Orchestration Across Multiple Domains

2 State Convergence

3 Orchestrated Assurance

4 Data Models and Data Model Mapping
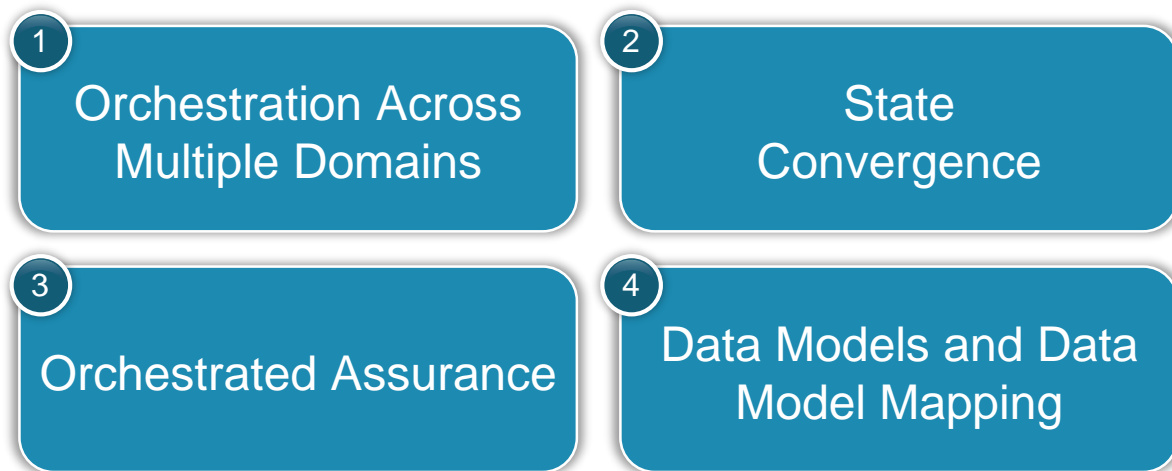
Foundation for Full Lifecycle Service Automation

CISCO

Cisco Orchestration Architecture
High Level View

CFS

| Order Managers |
| OSS |

RFS

| Network Service Orchestrator (NSO) |

Infrastructure

| Configuration-based Provisioning | Multi-layer WAN SDN | DC & NFV Controller |

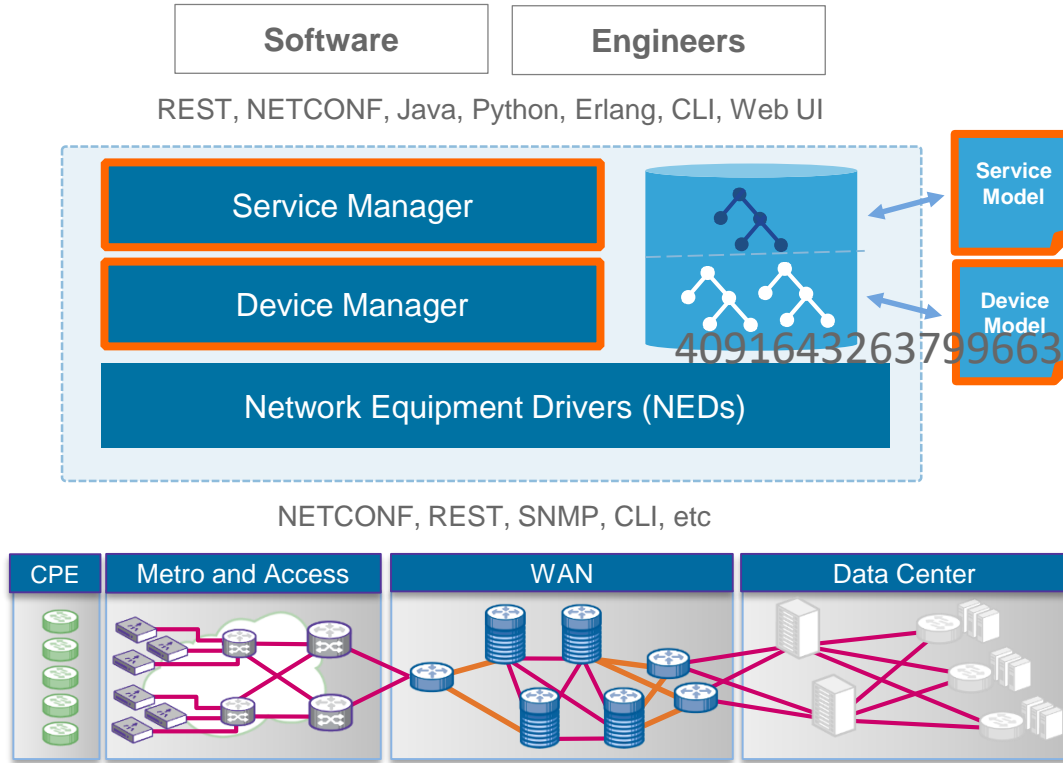| CPE | Metro and Access | WAN | Data Center |
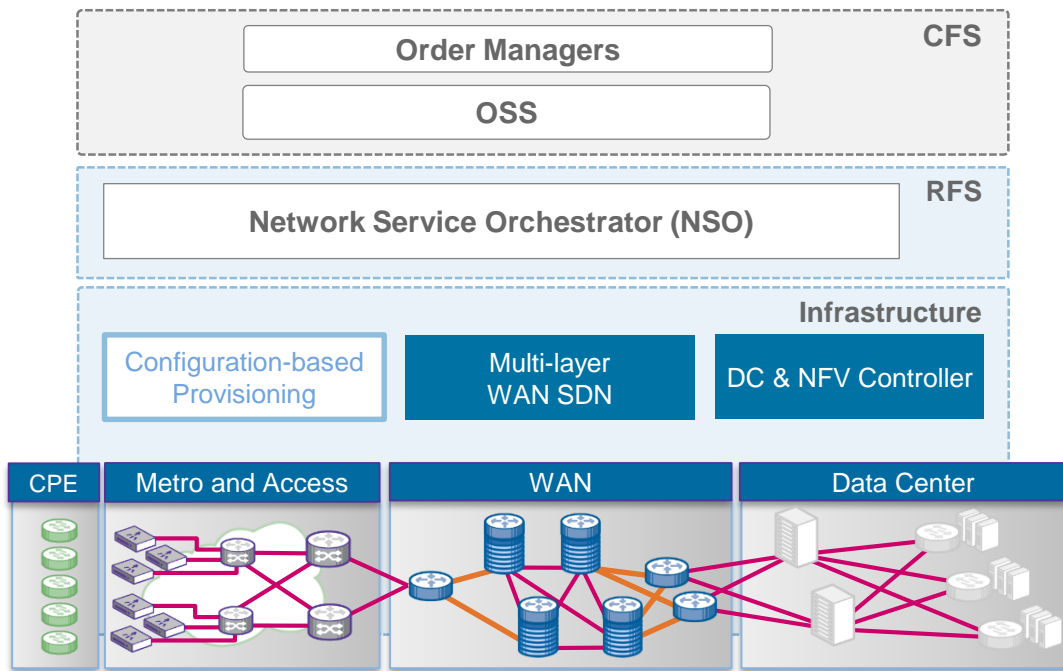
- Model-driven end-to-end service lifecycle and customer experience in focus

- Seamless integration with existing and future OSS/BSS environment

- Loosely-coupled and modular architecture leveraging open APIs and standard protocols

- Orchestration across multi-domain and multi-layer for centralized policy and services across entire network

cisco

NSO Main Feature
#1 Model-based Architecture

Software	Engineers

REST, NETCONF, Java, Python, Erlang, CLI, Web UI

Service Manager

Device Manager

Network Equipment Drivers (NEDs)

Service Model

Device Model

NETCONF, REST, SNMP, CLI, etc

CPE	Metro and Access	WAN	Data Center

- No hard-coded assumptions about:
  - Network services
  - Network architecture
  - Network devices
- Instead:
  - Data models written in YANG (RFC 6020)

CISCO

The Intangible Benefits

Intangible Benefits

Organizational Expertise

Network Integrity

Service Assurance

Increased Collaboration

Tangible Benefits - OpEx & Time to X Savings

Service Automation

Change Request from Existing Customers

Add New Customers

Service Disconnect

Incident Resolution

Introduction of New Service or Capabilities

Time to Revenue Gain

Network Automation

Maintenance Window (MOP)

ACL Management

Device Migration

Config Audit/Validation

Network Refresh/Regional Rollouts

Device Provisioning

Business Impact of Automation

Improve OpEx & Reduce IT Investment

Network and Service Operations

- Time to deployment
- Time to activation

IT Investment

- BSS/OSS update
- Integration

Improve Revenue & Avoid Costs

Revenue Uplift

- FTTR*
- Churn Reduction

Cost Avoidance

- 3rd party Fees
- Truck Rolls

*Faster time to revenue

CISCO

Hybrid Approach To Automation & Orchestration

Start with Operation Efficiency for Legacy and Expand into Virtual Services Monetization

Optimization

**OpEx Efficiency
Time to Market
Time to Revenue**

Monetization

**New On Demand Services
Dynamic Scale up and down
Lower Opex and Capex**

Phase 1

Phase 2

Orchestration and Automation

Legacy Services

Virtual Services

Physical Network Elements
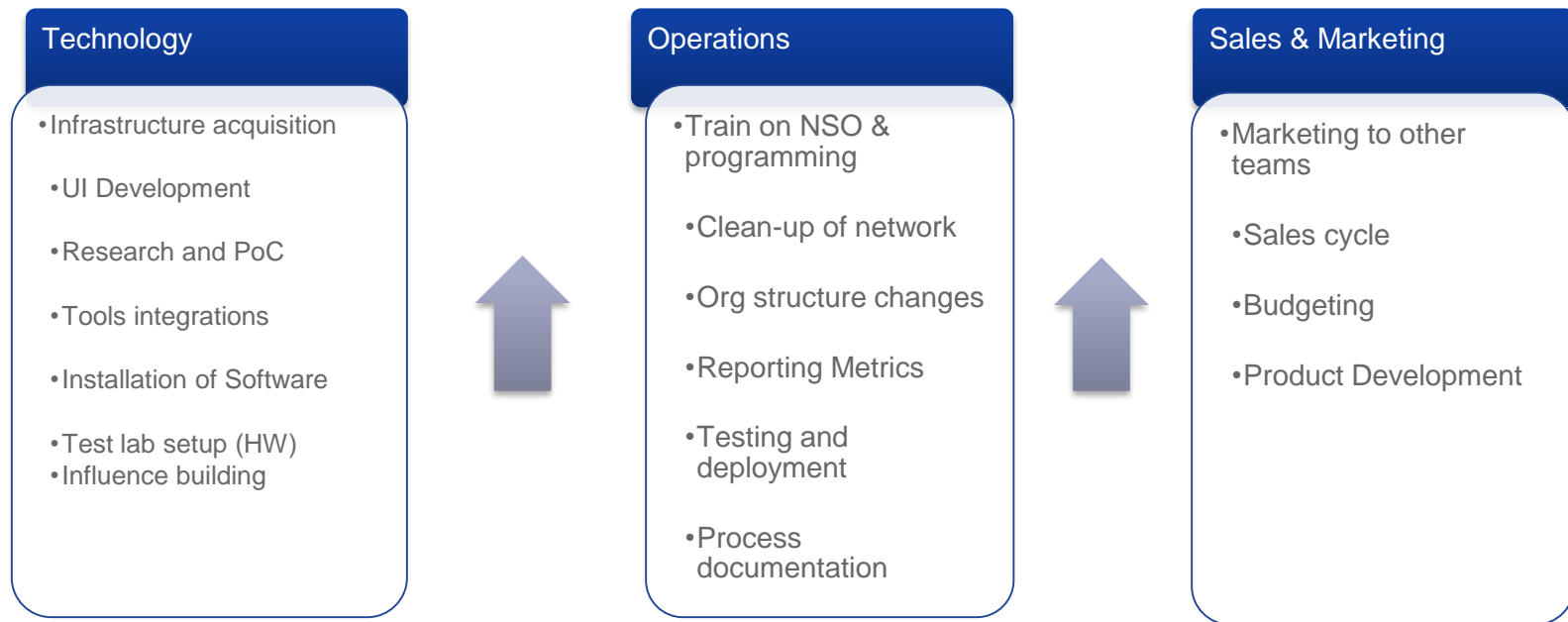
Virtual Network Elements

Long Term Automation Journey

Alignment for full, end-to-end automation to take root:

Technology

- Infrastructure acquisition
- UI Development
- Research and PoC
- Tools integrations
- Installation of Software
- Test lab setup (HW)
- Influence building

Operations

- Train on NSO & programming
- Clean-up of network
- Org structure changes
- Reporting Metrics
- Testing and deployment
- Process documentation

Sales & Marketing

- Marketing to other teams
- Sales cycle
- Budgeting
- Product Development

Parallel execution will lead to success in reasonable time frames