The Network Function Virtualization (NFV) Revolution

Oren Marmur
Head of NFV Product Portfolio
Lessons in Efficiency and Agility

For an average service provider the time it takes to launch a new service is about **9–18 months**.

Amazon service-launch-frequency is **11 seconds**.

For an average service provider the number of servers per admin is **<100 servers**.

Number of servers per admin at cloud data center is **~15,000**.
NFV has become a key part of a network operator evolution strategies.

Beyond 2020, we expect NFV growth as a percentage of total capex to be more explosive.

Source: Gartner; Forecast Analysis: Communications Service Provider Operational Technology, Worldwide, 3Q16 Update; Sept. 2016
Network Functions Virtualization—What Is It All About?

**Physical Network**

- A
- B
- C
- D
- E
- F
- G
- H
- I
- J

**Future Virtual Network**

- NFV Control Plane
- NFV Applications
- Data Center
- Internet
- Standard high volume servers

**Service Agility**
- Deliver services in **seconds/minutes**—NOT weeks/months
- Design and launch new services in **weeks**—NOT 9–18 months

**Operational Efficiency**
- On-demand service selection and delivery
- Automation of network operations

**Cost Reduction**
- Standard hardware
- High resource utilization
- Multiple vendors
2016—a Year of Progress for Amdocs and NFV

Trials and Market Development

- Live NFV Showcase
- Most Innovative NFV Product Strategy
- Amdocs—integrator and co-creator for ECOMP
- Ground-breaking NFV initiative

Moving into Commercial Services

- Vendor of the Year 2016
- Ongoing NFV projects with leading operators
Market Dynamics

Web-scale companies disrupting the market

Google  Amazon  Microsoft  Facebook

Service Agility  Accelerate Innovation  Customized Solutions  Customer Experience

Long service introduction cycles  High cost of service innovation  Complex service operations processes  Demand for better user experience

Communications Service Providers

at&t  Bell  vodafone  COMCAST  Singtel  Telefonica  orange
The NFV Promise – Agility and New Monetization Layers

**Monetization Layers**

- **Value Added Services / Applications**
  - IPTV
  - Cloud Hosting
  - PBX
  - Firewall / Security
  - VPN / QoS
  - Capacity
  - Connectivity

**Network and Service Agility**

- Antivirus
- Cybersecurity
- Firewall
- Pipe

**Customer**

- Internet
- IPTV
- vFW
- bVoIP
- vRouter
- Skype for Business
- Cloud Backup

**Telco**

- Antivirus
- Cybersecurity
- Firewall
- Pipe

**Web Companies**

- VNF Vendors
- OTT
- Cloud Brokers
- Cloud Backup
- Skype for Business
- IPTV
The Network Virtualization Stack

Service IT stack
- Fulfillment
- OSS
- Assurance

NFV Control Plane

NFV Applications
- NFV Applications

Virtualization Infra
- Cloud Mgmt.
- Hypervisor
- Hardware
- Data Center Mgmt.

Data Center
(Telco Private Cloud)

Service Driven NFV
- Service onboarding & design automation
- E-2-E service & network orchestration
- Real-time monitoring & assurance

Service agility & vendor neutrality

Amdocs NFV Partner Program
- 40+ partners, gaining market traction

Amdocs NFV Partner Program

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Vodafone Live NFV Showcase—Use Case 1

UC1

New site connectivity in under a minute

Spaín Branches
Red Ocean

Customer Premise 1
CPE
Customer Premise 2
CPE

PE

PE

PE

PE

vFW

DCGW

Public Internet

HQ

CPE

London
Red Ocean

UK
Newbury Main DC

Billing
CRM
Catalog
Service Design

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Vodafone Live NFV Showcase—Use Case 2

Automatic network scale out

UC2

Billing
CRM
Catalog
Service Design

Spain Branches
Red Ocean

Customer Premise 1
CPE

Customer Premise 2
CPE

Spain

PE
L3 VPN

PE

Public Internet

UK London
Red Ocean

UK
Newbury Main DC
vFW
vFW

DCGW

vFW

vFW

Amdocs
Network Cloud Service Orchestrator

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Vodafone Live NFV Showcase—Use Case 3

UC3

Automatic cyber attack mitigation

Amdocs
Network Cloud Service Orchestrator

Billing
CRM
Catalog
Service Design

Billing
CRM
Catalog
Service Design

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Key Takeaways

NFV represents a revolution in the Telecom Networking market

- Spending to shift from proprietary hardware to software applications and orchestration
- New addressable market opportunity—significant upside potential for Amdocs

NFV addresses the key pain points of CSPs today

- Service agility
- Simplified network operations

Amdocs delivers a unique service driven approach to NFV

- Open and vendor-agnostic network orchestration layer
- Leverages existing Amdocs assets and expertise in the BSS and OSS space
- Proven track record in delivering telco-grade software solutions
Thank you