

Driving Business Transformation Through Converged Platform and Services

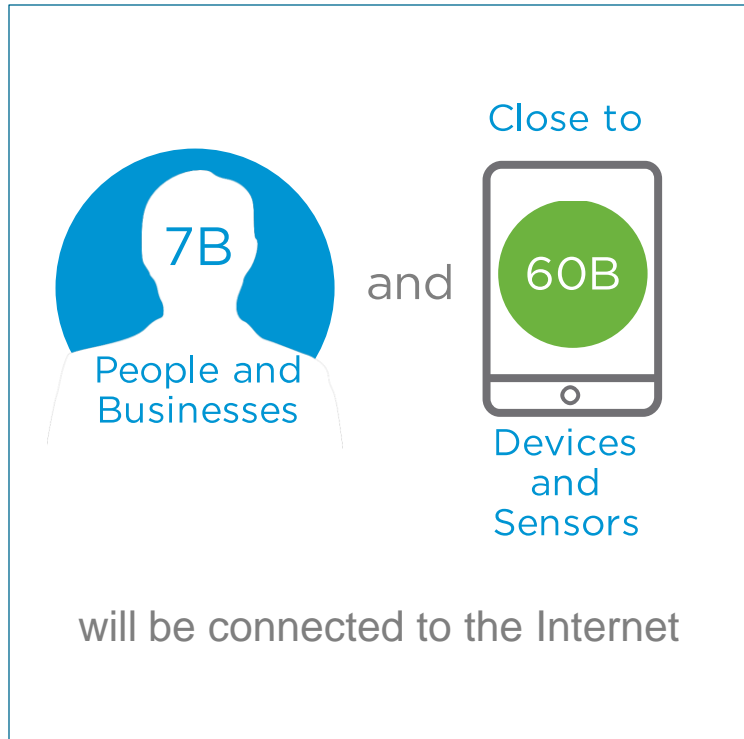
Anant Deshmukh
Staff Engineer, VMware India

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2020 – A World in Transformation

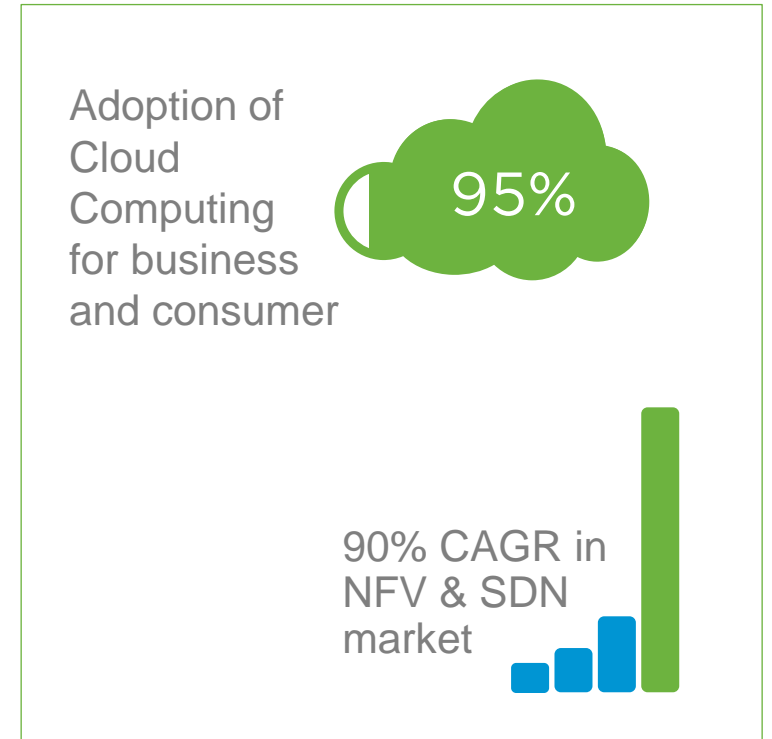
New Connected Ecosystem



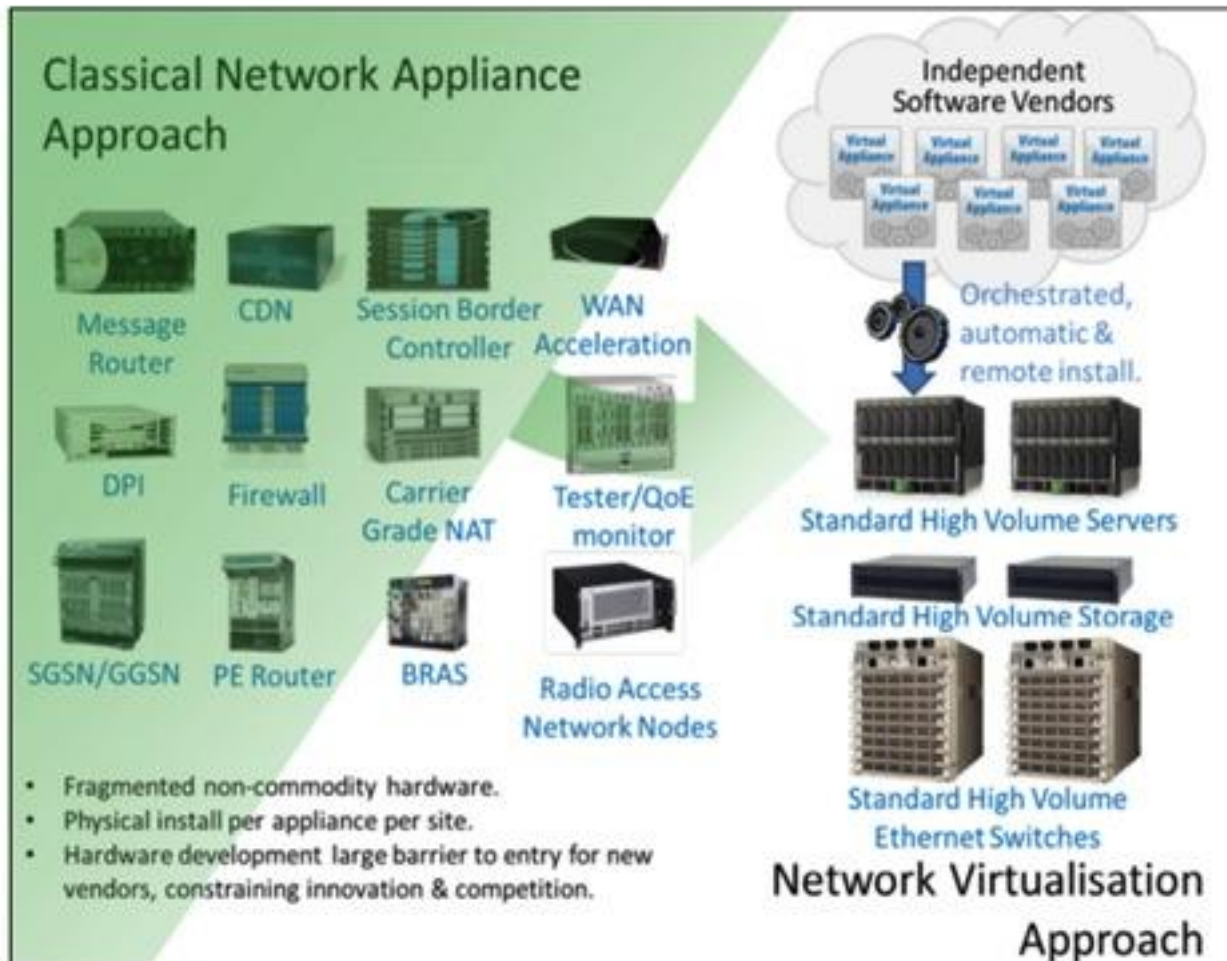
New Business Models



New Networks & Clouds



NFV



Source: ETSI

Streamlining CapEX

- Minimize fixed function / purpose built platforms
- New virtualization based infrastructure hosting multiple “multi-vendor” services
- Equipment can be reused, and repurposed for new service

Faster Service Delivery (Time-to-Market)

- Services (applications) centric network

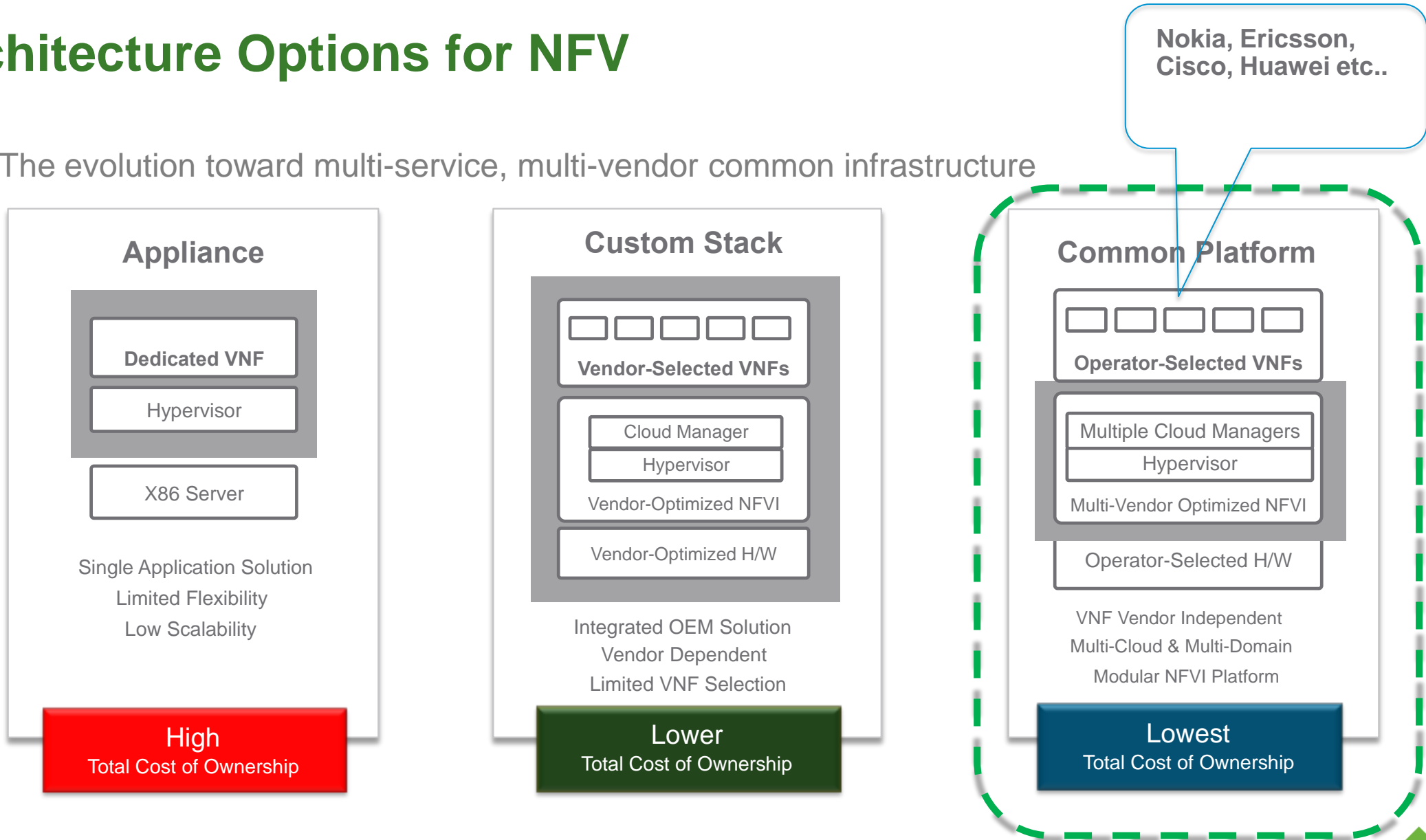
Scalability

- Simpler to scale up / out
- Lower costs versus purchasing fixed function platforms

Proprietary Hardware and Software Appliance → Virtual Network Functions (VNF)

Architecture Options for NFV

The evolution toward multi-service, multi-vendor common infrastructure



VMware vision for Cross-Cloud

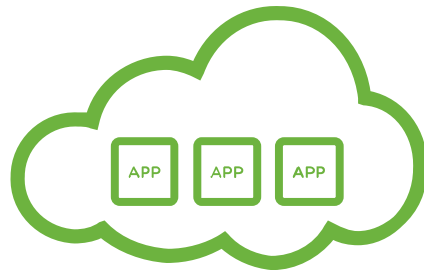
Management | Automation | Networking | Security | Policy | Governance

Managed
Cloud



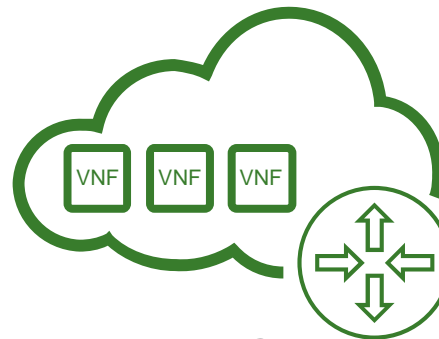
- Hosting
- Commercial Services

IT Cloud
(SDDC)



- IT Applications
- Care
- Operations
- Analytics
- Sales/Marketing
- DWH

Operator
Services Cloud (NFV)



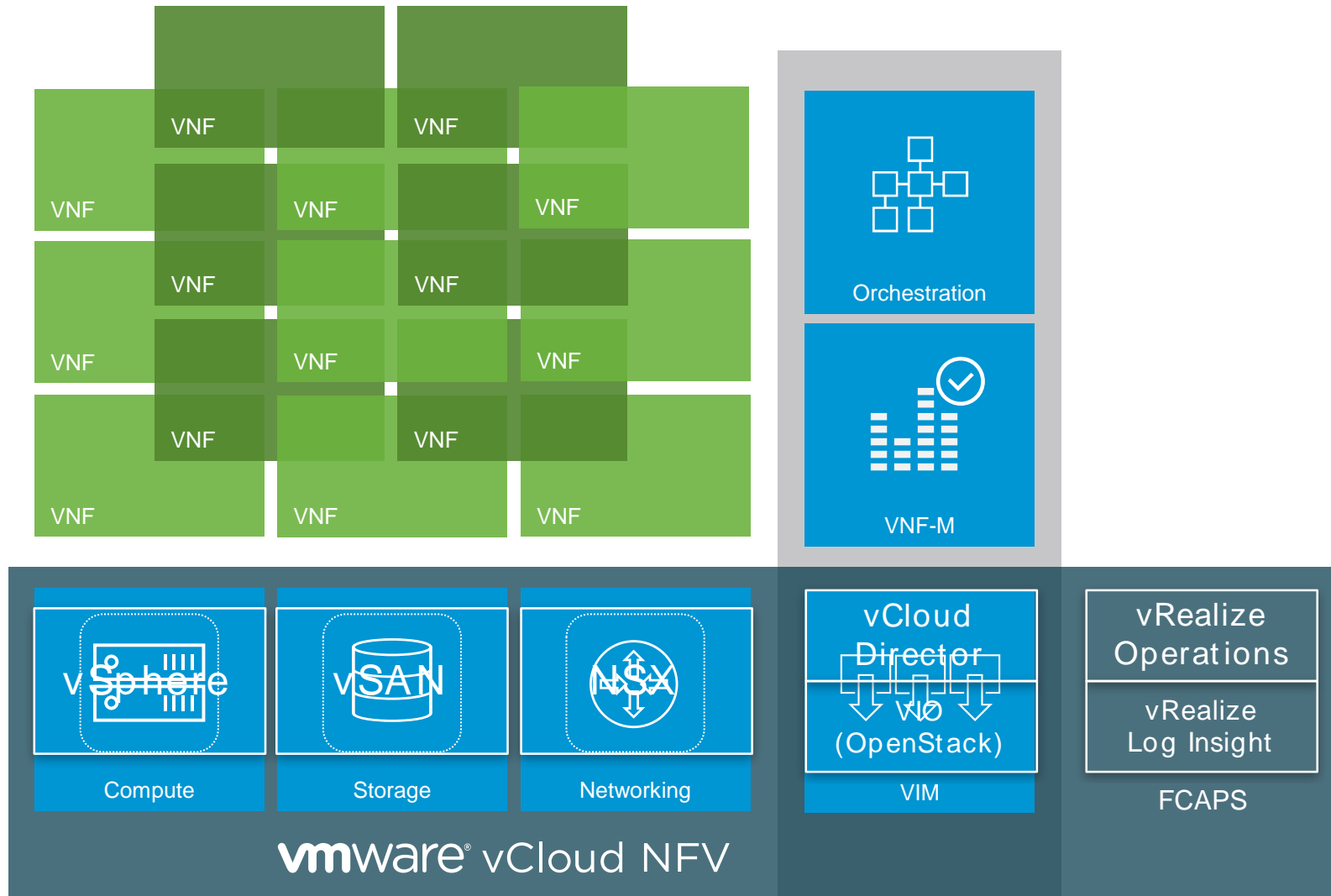
- vEPC
- vIMS
- vRAN
- vCDN
- vCPE
- SD-WAN

Public
Cloud

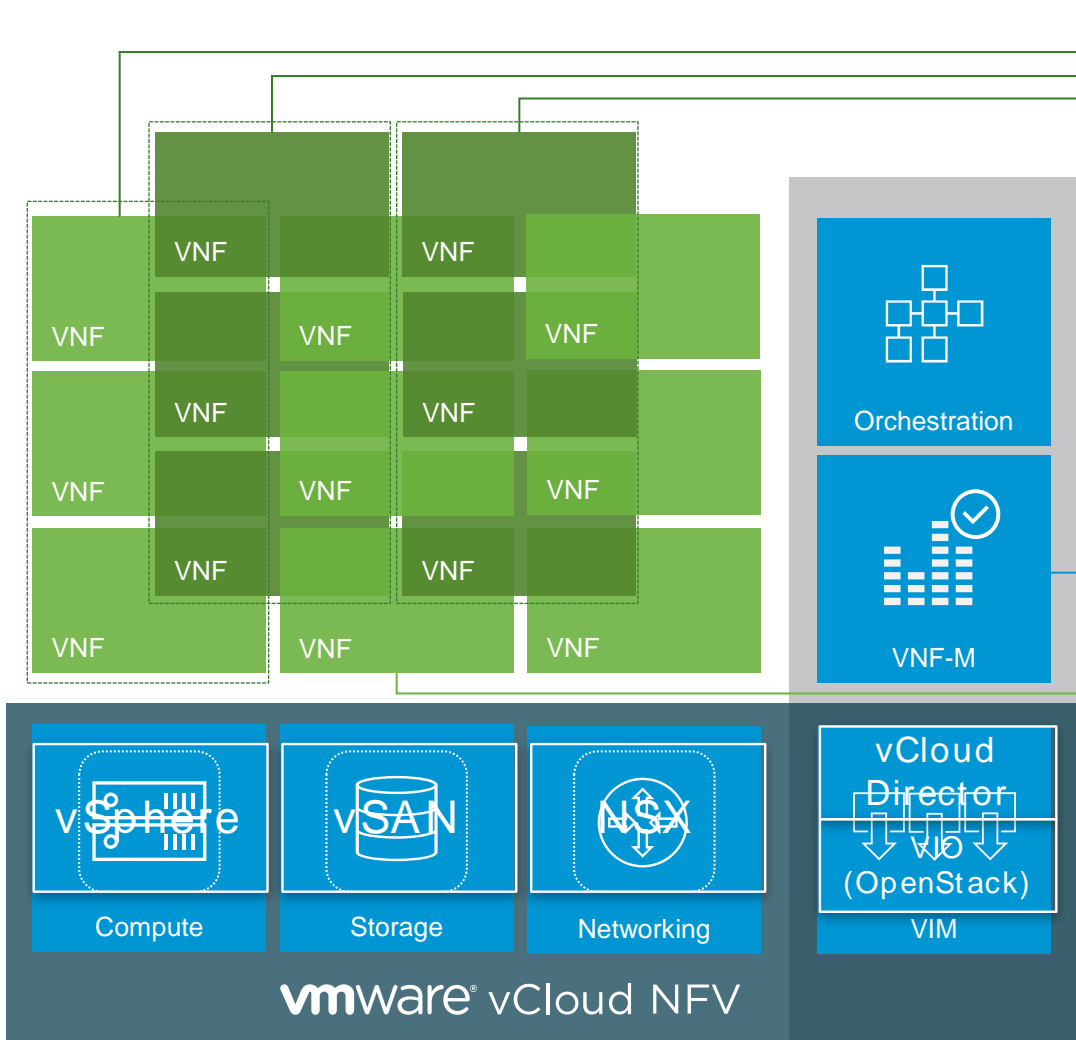


- BSS
- Analytics
- MVNO
- IoT Apps
- Marketing

VMware NFV Portfolio



VMware vCloud NFV – Key Investments



Lighthouse Solution Development
- vIMS, vEPC, vCPE, SD-WAN, IoT

Key Orchestration Partnerships, Open
Tosca Blueprints, VNF On-Boarding

Management and Operations from
Infrastructure to application

VMware Ready for NFV -
VNF Certification Program

Pre-Engineered vCloud NFV NFVi

NFV Reference Architecture -
Certified, Tested and Optimized
for Carrier Deployments

VMware NFV Footprint



45+

Operators

200M

Mobile
Subscribers

80

Production
Implementations

15

On going PoCs
& Field Trials

A World Class SP Partner Ecosystem

A Rich Ecosystem Enables Innovation, Time to Market & Customization.

System Integrators

accenture

DELL EMC

Atos

HCL

Tech
Mahindra

Hewlett Packard
Enterprise

Virtual Network Functions

NOKIA

ERICSSON

CISCO

HUAWEI

viptela

benu

ZTE

FORTINET

ATHONET

ANGEL

JUNIPER
NETWORKS

SIEMENS

paloalto
NETWORKS

ORACLE

CITRIX

Openwave
Mobility

affirmed

BROCADE

MetaSwitch
Networks

Mitel

silverpeak

velocloud

netrounds

Check Point
SOFTWARE TECHNOLOGIES LTD.

Infoblox
CONTROL YOUR NETWORK

riverbed

VERSA
NETWORKS

f5

PROCERA

Management and Orchestration

DELL EMC

ciena | blueplanet

MOOC

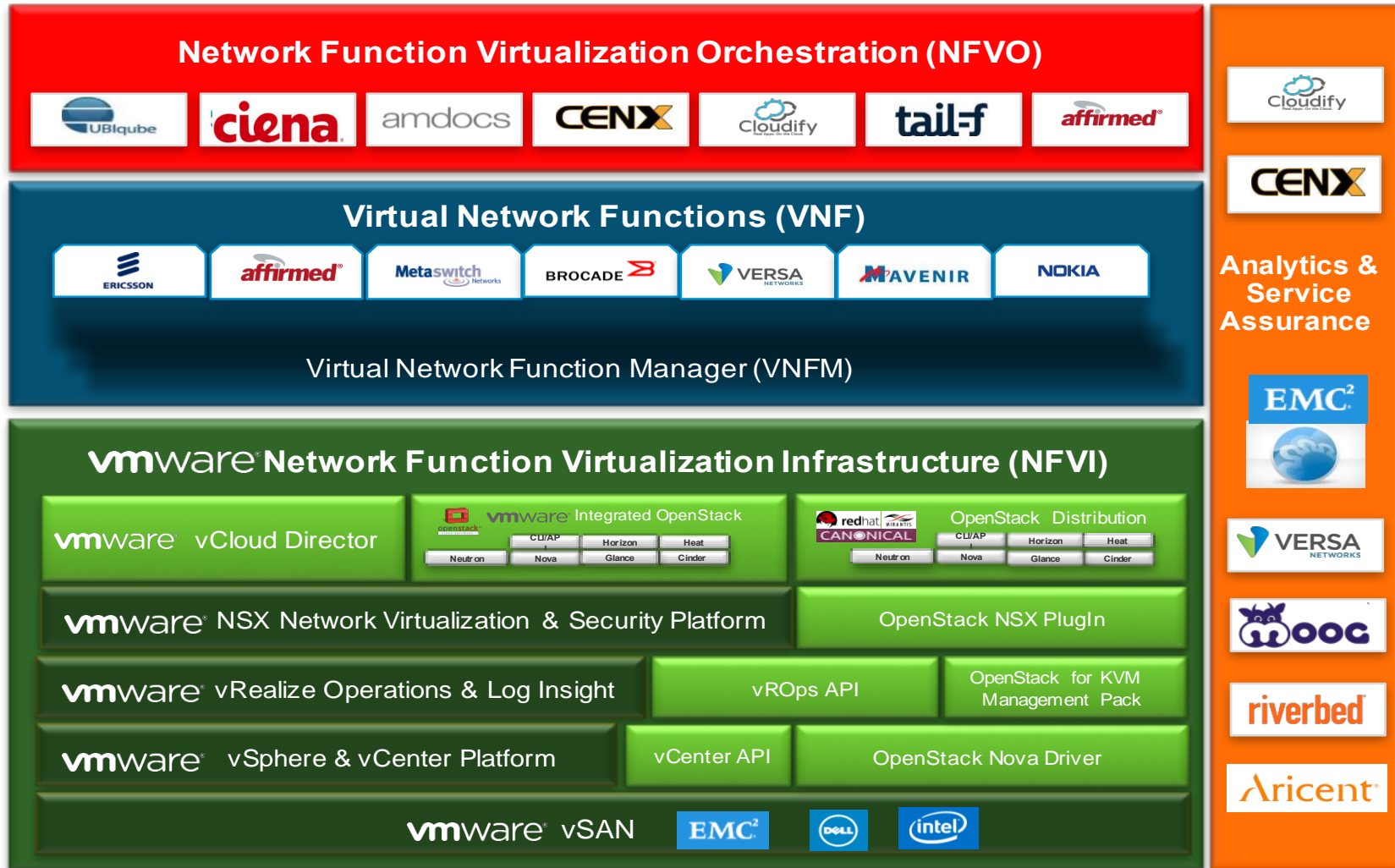
amdocs

Cloudify

cenx

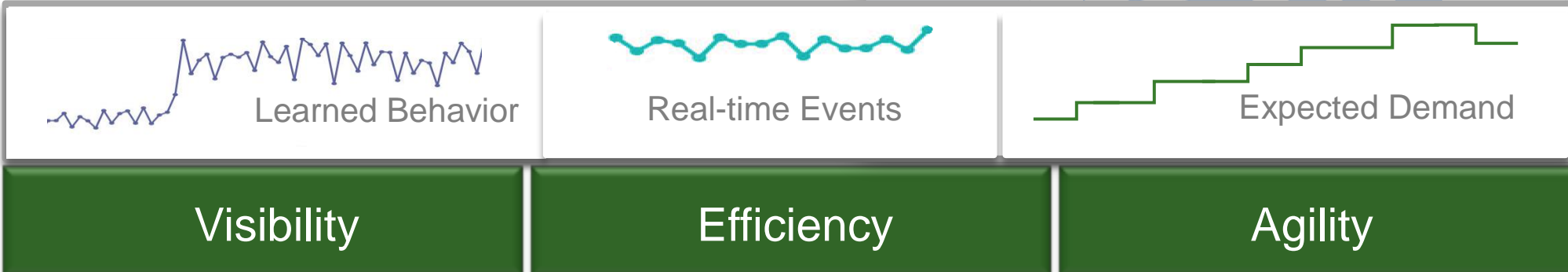
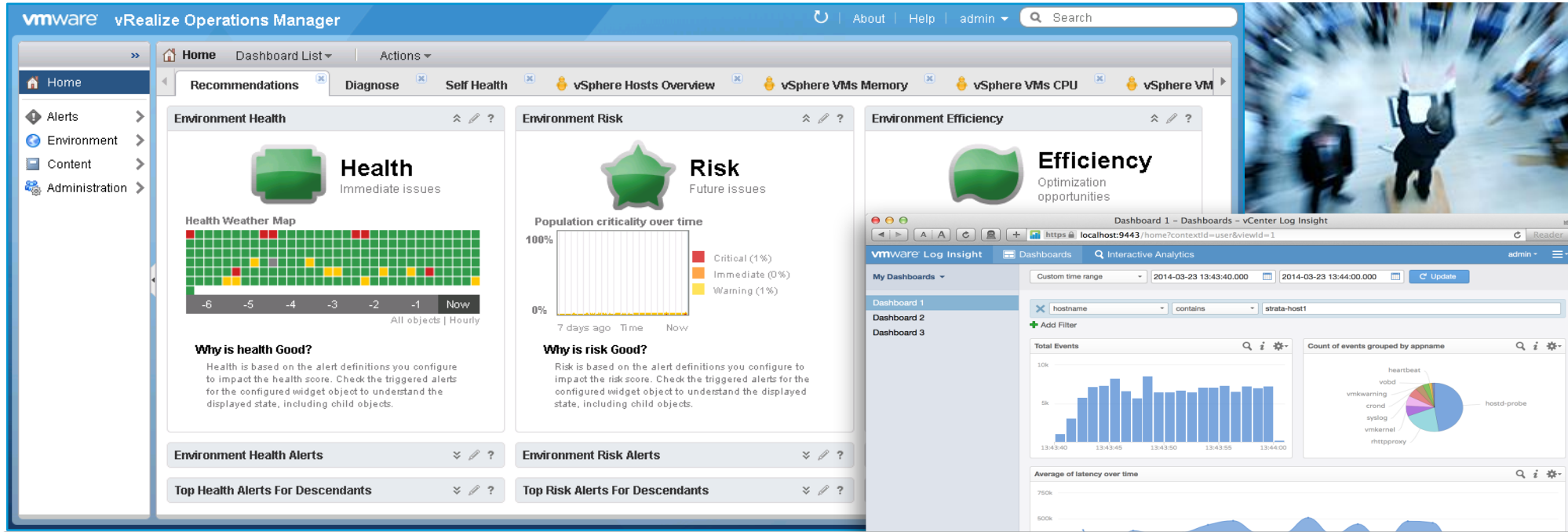
A Modular Platform Approach

Modularity Enables Service Providers to Build their Own Custom Stack!



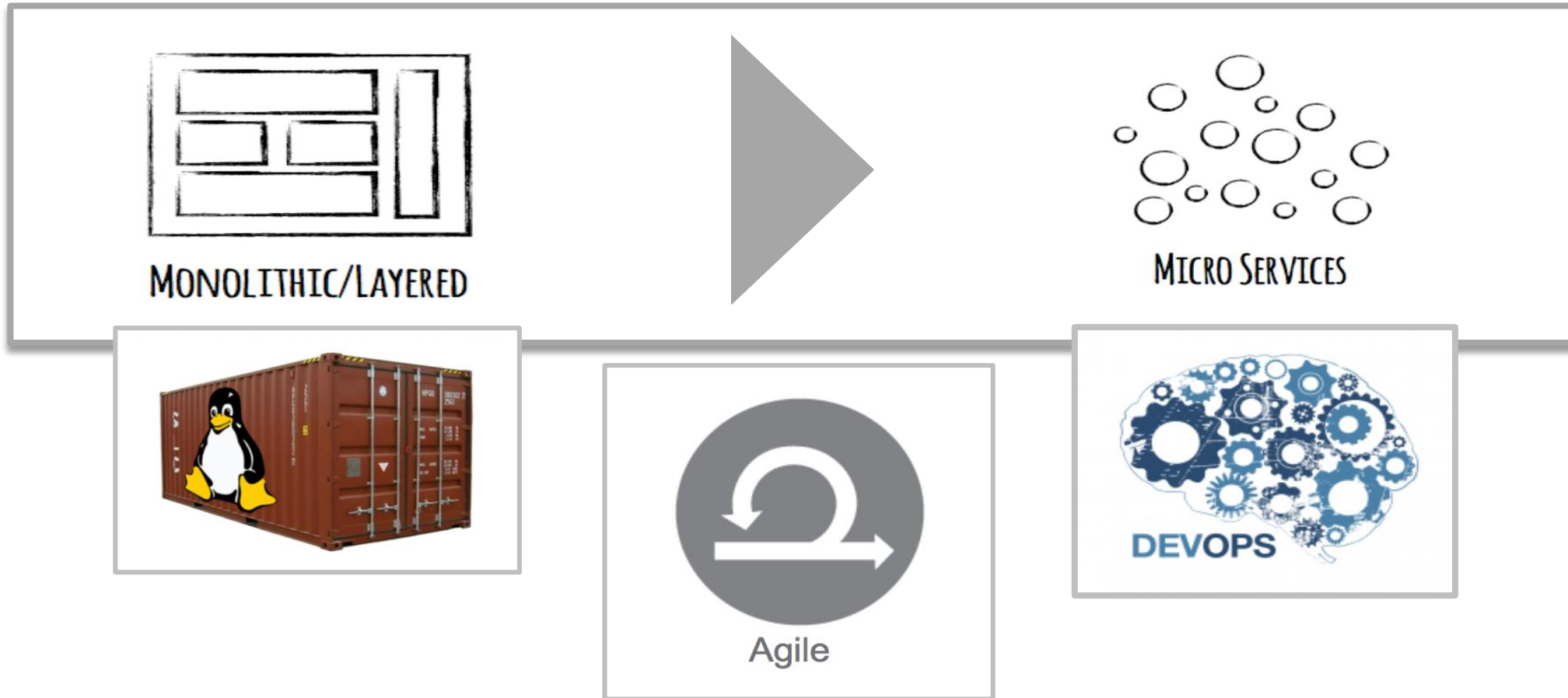
A Capability Rich & Mature Operations Foundation

The Single Most Critical Enabler for Moving NFV into Production Service Deployment.



Future-Proof for Continuous Evolution

Continuous Innovation & Integration to Achieve Rapid TTM & Cost Advantages.



Vodafone

Large Multi-Vendor Service Provider Deployment

- Common Multivendor Telco Cloud Platform.
- Telco Strengths + Cloud Benefits.
- VoLTE Services
- vSAN, vSphere, VCNS, vRO, vCD
- Profile: MultiVendor VNF & Scale

Why Did Vodafone Choose VMware?

- Proven Platform
- Rich Capabilities
- Broad & Diverse VNF Ecosystem



Vodafone has been able to combine the best Virtual Network Functions (VNFs) from different vendors on a single platform, and to bring high-value services to market more quickly."

*Rui Frazao, Director Network Engineering,
Vodafone Germany*

- **10 OpCos in Production.**
- **4 OpCos in Late Field Trials.**
- **~ 10 Million Virtual Service Subscribers**

Ooredoo

"Unify" ONE Cloud Convergence

Overview

- Converged IT and Operator Services
- VoLTE Services
- vSAN, vSphere, vROI, NSX, vCD
- Huawei IMS Services
- Initial Deployment: Kuwait & Qatar
- 6 New Countries in 2016
- vSphere, NSX, vCD & SRM

Testimonials

"The speed at which we have been able to trial our unified cloud and onboard the VoLTE service functions into our IT network has exceeded our expectations. We did a joint R&D project that took only two months to complete, and we finalized the development of our vIMS product that can be deployed in a production, commodity infrastructure, automatically in only 3.5 hours."

Mijbil Al-Ayoub
Director, Corporate Comms, Ooredoo Kuwait

Reasons for choosing VMware

- Fast Deployment
- Service Innovation
- Common Multi-Vendor Platform



ooredoo

Join Experience

“Third” generation Wireless and Wireline Telecom Operator

The Challenge

- Newcomer on the mobile telecom market, offering both Telecom and IT Cloud services
- JOIN Experience’s ambition is to service 50,000 customers in the short term and to grow to a 200,000+ customer base by 2018.
- Enter the M2M market and provide services to other MVNO’s Unified
- Network and IT Service Catalog and Policy-based governance

Testimonial

“We were able to define the best possible infrastructure that would give us the means to provide robust and flexible services and to foster a flexible growth. This is where VMware really comes into play and which makes us different, putting all the intelligence in the software layer guarantees us more flexibility.”

Michael Mossal
CDO, JOIN Experience

Results

IMS Platform fully relying on VMware Integrated OpenStack (VIO) and NSX

Rollout of IMS Virtual Machines in hours instead of months through VMware automation and services delivery

Launch of all forms of new services (VoIP, Video Conferencing, VoD) based on virtual IMS



JOIN

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Customer Momentum and Partnerships



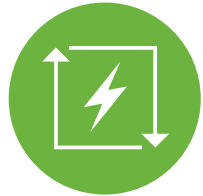
Key NEP Partners For NFVI



Key System Integrators For NFVI



VMW NFV: Removing Key Barriers for Business Transformation



Reliability



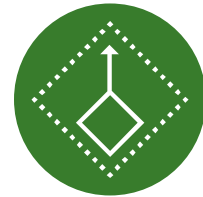
Tested, Optimized and Proven NFVi in over **80** NFV implementations worldwide



Interoperability



100+ Telecom TAP Partners, **40+** Certified VNF Partners through 'VMW Ready for NFV' program



Extensibility



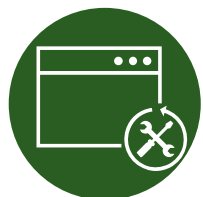
Ability to Extend and **Unify** Automation and Control in a **Cross-Cloud** environment: IT, NFV, Public and Managed



Operations



End-to-end **Operational Intelligence** and **Management** from Physical Layer to Applications and VNFs



Support



VMware first **Carrier Grade Support** for NFV

Thank You

www.vmware.com/go/nfv