NFV ORCHESTRATION AND AUTOMATION—PRINCIPLES AND ATTRIBUTES

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AGENDA

1. THE CARRIER CHALLENGE
2. NFV ORCHESTRATOR CHALLENGE
3. NFV ORCHESTRATOR EXPECTATIONS
4. NFV ARCHITECTURE
5. CHALLENGES OF AUTOMATING THE VNF LIFECYCLE
6. NETWORK FUNCTIONS VIRTUALIZATION PRINCIPLES
VIRTUALIZATION: A (CYNICAL) ENGINEER’S VIEW

VIRTUALIZATION IS ANSWER BUT WE NEED TO BE MORE THAN BLIND MONKEYS!
THE CARRIER CHALLENGE

FROM THE CARRIER OF TODAY...

Static and OPEX-heavy, with multiple management systems and slow time to market.

...TO THE CARRIER OF TOMORROW.

Increased agility and decreased OPEX, with unified orchestration and faster to market.
NFV ORCHESTRATOR CHALLENGES

• How to select tools and techniques for the instantiation, activation, resource allocation and programming of Virtual Network Function (VNF)?

• How to ensure that actions are performed in consistent way across all physical resources? and distributed environment?

• How to ensure that VNF consumes resources effectively across distributed infrastructure?

• How to monitor all available data about cloud nodes, allocated resources, network and transactions?

• How to display the data and alerts to user and make them available over open APIs? And how to apply analytics, trending and prediction and feeding it back into optimization.

• How to trigger events when metrics cross defined threshold?

• How to identify security mechanisms?

• What are the best practices to improve O&M functionality?
NFV ORCHESTRATOR EXPECTATIONS

- AUTONOMOUS
  - SELF MONITORING
  - SELF HEALING
  - TRANSFORM FAULTS TO CAPACITY REDUCTION ISSUE

- OPENNESS and MULTI-VENDOR SUPPORT
  - OPEN SOURCE API
  - NORTHBOUND
  - SOUTHBOUND

- CARRIER PaaS
  - FULL LIFE CYCLE MANAGEMENT
  - ON BOARDING
  - SCALING IN/OUT
  - SELF HEALING
  - ELASTICITY

- ANALYTICS-DRIVEN BUSINESS INTELLIGENT
  - REAL TIME
  - DYNAMIC AND PROACTIVE
  - END-TO-END

- FULLY DISTRIBUTED CLOUD TOPOLOGY FUNCTIONALITY
  - RELIABILITY
  - WORKLOAD MIGRATION
  - FEDERATION
NFV ARCHITECTURE

Virtual Network Function
Life Cycle Management – cPaaS

OPEN APIs

NFV MANAGEMENT & ORCHESTRATOR

IaaS Controller

SDN/Network Controller

Distributed Nodes

Network Connectivity

VNF 1
VNF 2
VNF 3
VNF 4

OSS

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CHALLENGES OF AUTOMATING
THE VIRTUALIZED NETWORK FUNCTION LIFECYCLE

MULTI-TIERED HIGH-AVAILABILITY VNF
NETWORK FUNCTIONS VIRTUALIZATION PRINCIPLES

- LEVERAGES THE NETWORK
- OPENNESS ACROSS ALL LAYERS
- DISTRIBUTED, SCALABLE WORKLOAD MANAGEMENT
- CARRIER PAAS
- END-TO-END SOLUTION
- NEW OPERATIONAL MODEL

SOLUTION THAT ENABLES COMPLEX NETWORK SERVICE INTEGRATION - FROM NETWORK ORCHESTRATION TO NETWORK VIRTUALIZATION
LET’S KEEP IN TOUCH

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