signature_476016533

Positioning & Messaging Guide

**DNOR – Drivenets NETWORK Orchestrator**

Confidential Information

Last Revised December 15, 2020

Product Marketing (Ludo)

Table of Contents

[Terminology 3](#_Toc56936349)

[Description (100-125 words) 3](#_Toc56936350)

[Value Proposition for General Audience (120 words max) 4](#_Toc56936351)

[Key Words 4](#_Toc56936352)

[Messaging (What We Communicate to the Market) 4](#_Toc56936353)

[Positioning (Facts, Customers, Competition) 7](#_Toc56936354)

[Customer Case Study 11](#_Toc56936355)

# Terminology

The following terminology is the preferred wording used in our messaging & positioning – In the comments section, some synonyms can be used/or not used.

|  |  |  |
| --- | --- | --- |
| **Main Terminology** | **DriveNets Definitions** | **Comments / Synonyms** |
| Orchestration | In the cloud sense, provision, scale and manage the Network cluster resources and hosted services in an automated way/with minimal human intervention | Automation |
| Management | life cycle activities of Network cloud entities (Hardware or software) – provision/install, configure, upgrade, extend functionalities, decommission | It can be included in the orchestration functionality (cloud/automation meaning) or be a different function (traditional network) |
| Automation | The basic enabler of orchestration (automation is related to a task – orchestration relates to a set of tasks to achieve a specifc result). It covers network operations, network health, service hosting/runtime and future AI | Can be sometimes used for orchestration |
| Zero-touch provisioning | Use-case for provisioning an unconfigured white box into a working entity | Used already by many vendors but limited in different ways (installation methods, scope…) |
| Cluster | Distributed resources creating a single manageable entity |  |
| POD | Point of Delivery - Can be made of a Network Cloud cluster or standalone box | Synonym to NCE (Network Cloud Element) |
| System | Primarly used to describe DNOR | Network Cloud Component, application |

# Description (100-125 words)

DriveNets Network Orchestrator (DNOR) is an orchestration system designed to automate the deployment, scaling, and management of DriveNets Network Cloud solution. DNOR simplifies and automates the life cycle management of the solution to look like one single manageable entity. It manages the provisioning, upgrade, troubleshooting and decommissioning of the shared Network Cloud resources made of hardware and software like the services running on it. DNOR provides deep and wide visibility into the Network Cloud infrastructure resources and hosted services with detailed insights on the system internal architecture and state: from the hardware-component to the software container level, SLA-related KPIs, alarm and fault management, including network-wide fault correlation and automated root cause analysis, with suggested corrective actions to perform rapid fixes. These insights improve vendor transparency, network reliability and availability and reduce operating costs, relative to traditional monolithic routers.

**Target User(s):** Operational teams within Service Providers (Telco, Cable, mobile) and Hyperscale Cloud Providers (IaaS, PaaS, SaaS) using DriveNets Network Cloud

**Target Buyers:**

**Decision-maker(s):** Network Operation VP

**Key Influencer(s):** Network operational engineers (M&S)

## Value Proposition for General Audience (120 words max)

Cloud software-based, open networks are on the rise but give the impression of greater operational complexity due to separation of hardware/software vendors, distributed white box architecture and virtualization technologies.

DriveNets Network Orchestrator (DNOR) eliminates this complexity by orchestrating and managing the entire Network Cloud solution like an integrated single-vendor network. Unlike traditional backbox solutions, DNOR offers greater control, transparency and insights with a granular but complete system view - hardware components, firmware or software containers across nodes, clusters and the entire network - accelerating troubleshooting, increasing availability and ensuring optimized network performance.

Breaking the monolithic software model, DNOR’s container-level orchestration accelerates the introduction, deployment and scale of hosted services reducing new service time-to-revenue, minimizing maintenance windows, with the shared virtualized network infrastructure utilized to its fullest.

With DNOR, cloud’s operational simplicity, automation and visibility come to DriveNets Network Cloud.

## Key Words

Automation, visibility/transparency, insights, container-level orchestration, time-to-revenue, maintenance windows, network availability, network reliability, troubleshooting

## 

## Messaging (What We Communicate to the Market)

## 

### Market Drivers

1. **The disaggregated network model requires all software and hardware components coming from different vendors work seamlessly from day one in order to accelerate time-to-revenue**

The need: SPs/Cloud providers need an automation tool ensuring that all elements come together into a single system and avoid misconfigurations and lengthy installation procedures

1. **Network evolutions (scale out, software upgrades, new functionalities) must be performed quickly with no errors to reduce maintenance windows**

The need: SPs/Cloud providers need a modular and comprehensive automation tool to upgrade software, firmware, network services or add new functionalities with minimum service disruption.

1. **Ensuring network health and related SLAs requires clear vendor responsibility and fast detection/resolution especially in a distributed disaggregated network model**

The need: SPs/Cloud providers want deep and broad visibility across all Network Cloud solution components to detect network issues and fix them quickly and efficiently with the right vendor.

1. **The network infrastructure must be able to deploy and scale hosted services quickly and efficiently**

The need: SPs/Cloud providers want to be able to deploy and scale any service, anywhere, anytime on the shared, virtualized network infrastructure using Open APIs to control the forwarding and control planes (capacity, QoS parameters..)

### DNOR Key Messages

1. **DNOR handles the complexity of provisioning and managing open disaggregated networks – different vendors, non integrated software and hardware, distributed components - into managing a single network entity**

* DNOR’s zero-touch provisioning turns unconfigured white-box hardware from any vendor into a single working entity by automatically integrating hardware and NOS software. This entity can scale from single white-box hardware to hundreds of white boxes with cloud-native software running on top of it - regardless of topology, size or location
* DNOR delivers the integration simplicity of the traditional integrated chassis while maintaining the cost and scale benefits of the disaggregated architecture
* Automated scale-up/scale-down: adding or removing a white-box into a Network Cloud POD is automatically provisioned and enabled gracefully without service impact or downtime - avoids forklift

1. **Unlike traditional integrated chassis managed like blackbox solutions, DNOR provides deeper and wider visibility and insights for reduced mean time to resolve (MTTR) to increase network availability and performance of the shared Network infrastructure and the services hosted on it**

* One view to rule them all – DNOR provides multi-level view
  1. Hardware components, white boxes, clusters of white boxes and the network
  2. Firmware, Base OS, DNOS containers, hosted services
* Proactive fault management
* Fast network problem detection and fix via One Click resolution, automated alarm correlation/root cause analysis and smart network insights (backtraced alarms and faults)
* Granular real-time visibility across hardware, software (processes, containers, nodes), clusters (KPIs and alarms) and network (KPIs, alarms)
* Out-of-the box network KPI reports for proactive/reactive service level improvements
* Easy-to-use user interface

1. **Unlike incumbent solutions, DNOR offers a fully transparent, modular, scalable software orchestration experience for reduced maintenance windows and better network reliability**

* Software deployment and upgrades can apply to individual components including firmware, Base OS, NOS containers, and hosted services, over the size of a network, for reduced pace and duration of maintenance windows
* Automated tasks and processes can be scheduled in advance
* Full visibility of the software life cycle to help pintpointing potential issues and act quickly on them
* Container orchestration – automatic scaling and failovers, self-healing, optimal utilization of POD cluster resources – for better reliability

#### DNOR enables the introduction and deployment of more hosted services, their seamless scaling across the entire network and the programmability of the network infrastructure

* Facilitates the introduction and deployment of hosted services on the network infrastructure at its fullest
* Manages and allocates the required resources, scale (any service, any port) and QoS
* Minimizes maintenance windows for service upgrades
* Standard, open northbound APIs for control, automation and closed loop monitoring from/with 3rd party systems (orchestration systems, inventory management, data lakes, analytics systems and OSS/BSS systems)

#### DNOR brings cloud-level operational efficiency to the network accelerating the transformation to a cloud-native network with lowest OpEx

* Rich process automation – inspired by the cloud, adapted to complex distributed disaggregated network environments
* Simplified operations – POD clusters managed as a single entity
* Decouples network growth from operational costs through automation, transparency and data-driven decisions while the skillset required for operation will be less specialized and easier to obtain
* Unlike traditional management solutions and like the cloud, DNOR is not an after-thought solution but a built-in component of DriveNets Network Cloud delivering its best network operational experience.

## Positioning (Facts, Customers, Competition)

### Key Products and Benefits

**Internal Note(s)**:

|  |  |  |
| --- | --- | --- |
| ***Product/Capability*** | ***Description*** | ***Benefits/Messages*** |
| **General** |  |  |
| User interface | * Graphical, high resolution user interface * Full CLI access | * Easy and intuitive experience * Simplified skillset * Single interface for operations, management and tech support |
| Public or private cloud deployment | * DNOR can be installed and run on public clouds (AWS, Azure…) or customer’s private clouds. | * System deployment flexibility |
| **Automated Operations** | Ops automation |  |
| Zero-touch provisioning | * Automatically integrates multi-vendor white box hardware and DNOS software into a working routing solution. It supports a secure, error-free deployment with minimum manual intervention. Prior entering the secure and controlled operator network’s environment, white boxes undergo a secure initialization process managed by G-DNOR, DriveNets’ multi-tenant, pre-provisioning system running on public cloud, and operated by a reseller or value-added reseller (VAR). | * Accelerate time-to-revenue * Avoid misconfigurations due to manual errors * Provide secure process   Messages  Traditional ZTP solutions are limited (provisioning methods are imposed, configuration files must be updated manually) |
| Consistent single entity management | * Any Network Cloud deployment, based on a standalone white box to a cluster of white boxes, is managed in the same way and as a single entity, independently of its topology, size or location | * Simplified operation |
| Software orchestration: installation, patch and upgrade | * Includes entire software stack: firmware, Base OS, , NOS image/container, hosted services across nodes, clusters and the entire network   + Software signature   + Hardware/software integrity verification   + Modular download, installation and upgrade per component   + Real-time orchestration status   + Scheduled automated tasks and processes   + Installation rollback   + Parallel installation across and within clusters   + Container orchestration: automatic scaling and failovers, self-healing, optimal utilization of cluster resources | * Reduced maintenance windows * Better network reliability |
| Hardware inventory management | * Detailed information for every white box (network cloud element) and its components, including location, model, and device status | * Better Transparency/Visibility |
| Automated scale-up and scale-down | * Adding or removing a new white box into a Network Cloud cluster is automatically provisioned and enabled gracefully without service impact or downtime. | * Fast, seamless network growth without service downtime |
| **Health monitoring and assurance** | Health automation |  |
| Cluster topology | * Live view of the cluster’s nodes, their states, formation, and connectivity * Different views: white box internal components, white boxes (NC components) , clusters of white boxes (incl. Internal connectivity) and entire network * Components include hardware (ports, fans, CPU, memory, temperature, hard drive…) and software components (processes, containers, microservices) | * Granular visibility |
| Fault, performance and alarm management | * Supports alarms and KPIs at every level of the system – from hardware components to software containers and services across nodes, clusters and network * Based on aggregation and cross-reference of multiple data sources (hardware, system, traffic counters, and more) * Supports out-of-box KPIs * Alarm dashboard to monitor and categorize system alarms * Automated alarm filtering and correlation * Automated root cause analysis * Correlation between performance KPIs for predictive/reactive fault and performance management * Real-time and time-series alarm view * User-defined alarms | * Full transparency * Any granularity level * Fast network problem detection/fix (fault, performance issues) – reduced MTTR (Mean Time To Resolve) * Ensure network availability (SLA) * Ensure network performance (SLA) |
| Tech support integration for in-depth system diagnosis and debugging | * Easy log file management – generation, view, export and download * CLI integration * Screen recording and sharing * Support of scripting and macros | * Remote tech support efficiency * Reduced troubleshooting and and debugging time |
| Open APIs / standard protocols | * 3rd party integration with e2e orchestrators, inventory systems, OSS/BSS, data warehouse/analytics * AAA (Authentication, Authorization, Accounting) * REST APIs | * Facilitate and reduce the time to integrate with legacy systems (OSS/BSS, multi-domain orchestration…) |
| **Multi-service orchestration** |  |  |
| Hosted multi-service deployment and scale (roadmap) | * Automates the introduction and deployment of different hosted services running in microservices and separate containers (ex: DDOS, 5G user plane, 5G control plane, analytics…) * Allocates and manages required resources, scale, and QoS parameters per service or network element | * Any service on any port, at any scale, at any time * Accelerate time-to-revenue for 3rd party services * Openness to third-party applications * Application marketplace (long-term roadmap) * Resource use on the shared infrastructure at its fullest |
| **Others** |  |  |
| Security | Use of SSH and certificates |  |
| Redundancy/  switchover | DNOR: Active/Hot standby/cold standby  G-DNOR: multi-tenant system running in the public cloud |  |
| System logging | Syslog through GRPC/gNMI | Open protocols used for southbound interfaces with Network Cloud PODs |
| User management | Different user roles and permissions are possible:   * Network Cloud Administrator * Internal SI User (Service Instance) * Customer from Public Cloud (roadmap) |  |

### Key Services and Benefits

|  |  |  |
| --- | --- | --- |
| **Support** |  |  |
| Maintenance & support services | Part of DriveNets Network Cloud M&S |  |
| **Training** |  |  |
| Training | Part of DriveNets training & certification program | Highly |
| Certification for Partners, Customers | Part of DriveNets training & certification program |  |

## Customer Case Study

***Customer: AT&T core***

***Goals:*** *Automates deployment, scale and management of DriveNets Network Cloud and integrates it with AT&T end-to-end orchestration platform called Network Systems (ex Ecomp interface)*

***Challenge:***

***Solution:***

*Description (as of oct 25, 2020)*

* *4 large clusters + 2 medium clusters*
* *Version used: v11.5.9.2*
* *AT&T Network Systems interfaces:*
  + *DNOR APIs are called by Network Systems to create clusters*
  + *DNOR updates cluster’s active nodes information in Network Systems*

Used by 15-20 AT&T network engineers

***Value (Projected or Achieved):***