

Megaplex-4 D-NFV

Virtualization Modules



- Distributed network functions virtualization (DNFV) for rapid rollout of new services, network capabilities and functions.
- Integration of higher-level applications (firewall, encryption, SCADA etc) with a communication platform in a single device
- Reduced number of physical network devices for better reliability and simpler operation
- x86 Quad/Dual cores engine
- Reduced customer site equipment footprint, less power consumption

The D-NFV modules add to Megaplex-4 a built-in standard Intel x86 core that hosts virtual machines providing virtual network functions (VFs) or value-added service capabilities. This new capability provides a quick and easy way to introduce new services and applications with the benefit of function localization at the customer premises. For U&T the modules provide a way to implement new functionalities and applications into the multiservice platform and to integrate OT and IT equipment into one chassis. They also provide an easy way to cope with new regulatory requirements (such as NERC-CIP).

The modules are available in two flavors:

- DNFV: x86-based virtualization I/O module, Intel I7 core processor
- DNFV-L: x86-based virtualization I/O module, Intel Atom® processor C2000 (formerly Rangeley).

The modules occupy two module slots in the Megaplex-4 chassis. They are based on a Main board and a Carrier board. The Carrier board (X86 piggy) interfaces the Main board and carries a compact COM Express module.

The carrier board includes the following:

- DNFV: 4 FE ports, local USB and UART Control ports, 8 GB RAM, an SSD memory connected via mSATA interface and one external GBE Ethernet port terminated with a UTP connector.
- DNFV-L: local USB and UART Control ports, 4 GB RAM, an SSD memory connected via M.2 interface.

In the basic application, the D-NFV modules accommodate virtual functions (VF), such as MPLS switch, CES processor, router, firewall, encryption engine or traffic monitor.

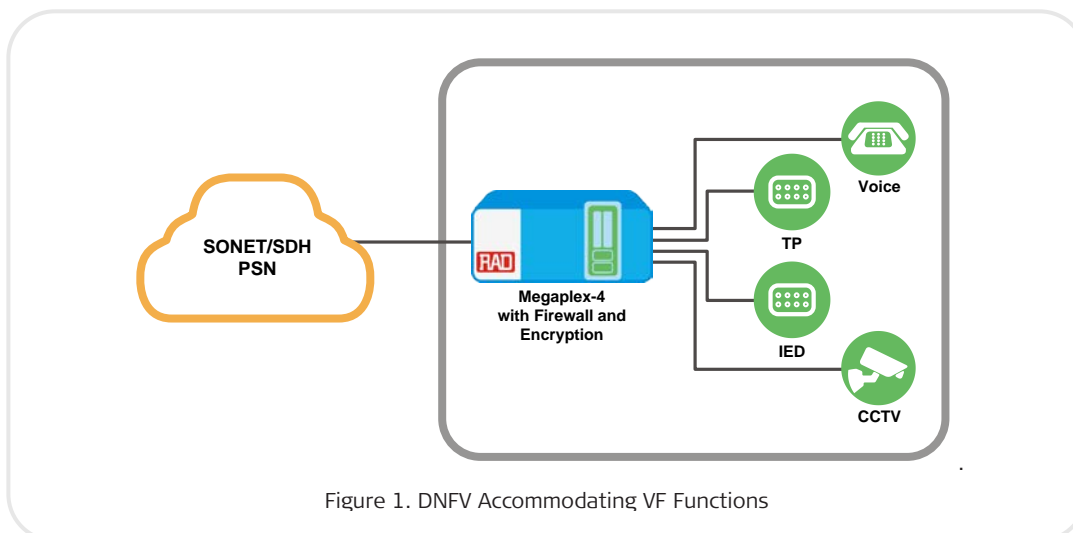


Figure 1. DNFV Accommodating VF Functions

D-NFV

Virtualization Modules

Specifications

ETHERNET INTERFACE (DNFV ONLY)

Fast Ethernet Interfaces

Number of Ports: 4
 Data Rate: 10/100 Mbps
 Type: 10/100BASE-T,
 full-duplex, autonegotiation
 Maximum Frame Size: 9600 bytes
 Connectors: Shielded RJ-45

GbE Interface

Number of Ports: 1
 Type: 10/100/1000BASE-T,
 full-duplex, autonegotiation
 Maximum Frame Size: 9600 bytes
 Connectors (per port): RJ-45, shielded

CONTROL PORT

Interface: RS-232, UART
 Baud Rate: 115200 bps
 Connector: RJ-45

USB PORT

Type: USB2
 Max Feeding Power: 2.5W
 Voltage: 5 VDC
 Max current: 0.5A

Note: This port will be used in future versions and is currently for factory use only.

DNFV OS

Linux OS + KVM Hypervisor

DNFV: Linux Ubuntu distribution version 14.04.3 LTS

DNFV-L: Linux Ubuntu distribution version 16.04.3 LTS

OpenStack ComputeNode

RADview D-NFV orchestrator or customer OpenStack controller

GENERAL

Processor

DNFV: i7 x86 engine with 4 cores (Intel® Core™ i7-4700EQ)

DNFV-L: C2358 x86 engine with 2 cores (Intel Atom® Processor C2358)

RAM

DNFV: 8 GB
 DNFV-L: 4 GB

Hard Drive

SSD-based storage, 128 GB

LED Indicators

RDY (green): Initialization of COM Express is finished and x86 processor is up and running

LINK (green) – per port (DNFV only):

- On: the port is connected to an active Ethernet hub or switch
- Off: Ethernet link is not detected

ACT (yellow) – per port (DNFV only):

- On or Blinking (in accordance with the traffic): ETH frames are received or transmitted
- Off: ETH frames are not received and transmitted

Power Consumption

DNFV: 35W max (at CPU operating frequency 1 GHz)

DNFV-L: 35W max (at CPU operating frequency 1.7GHz)

Environment

Operating temperature:

-10°C to 55°C (14°F to 131°F)

Storage temperature: -20°C to 70°C (-4°F to 158°F)

Humidity: up to 95%, non-condensing

Ordering

RECOMMENDED CONFIGURATIONS

MP-4100M-DNFV/I7/128S/GBEUTP

DNFV: x86-based virtualization I/O module, Intel I7 core processor

MP-4100M-DNFV/R2C/128S/4R

DNFV-L: x86-based virtualization I/O module, Intel Atom® processor C2000 (formerly Rangeley)

The module must be ordered together with a RADcare Package and RADcare Project Assurance Package.

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