5G

*IEEE 1588 PTP and SyncE enabled

daqscribe
ETHERNET PACKET | CAPTURE • RECORD • PLAYBACK

Innovated and produced in the U.S.A

DDR70x-Mini series 2022
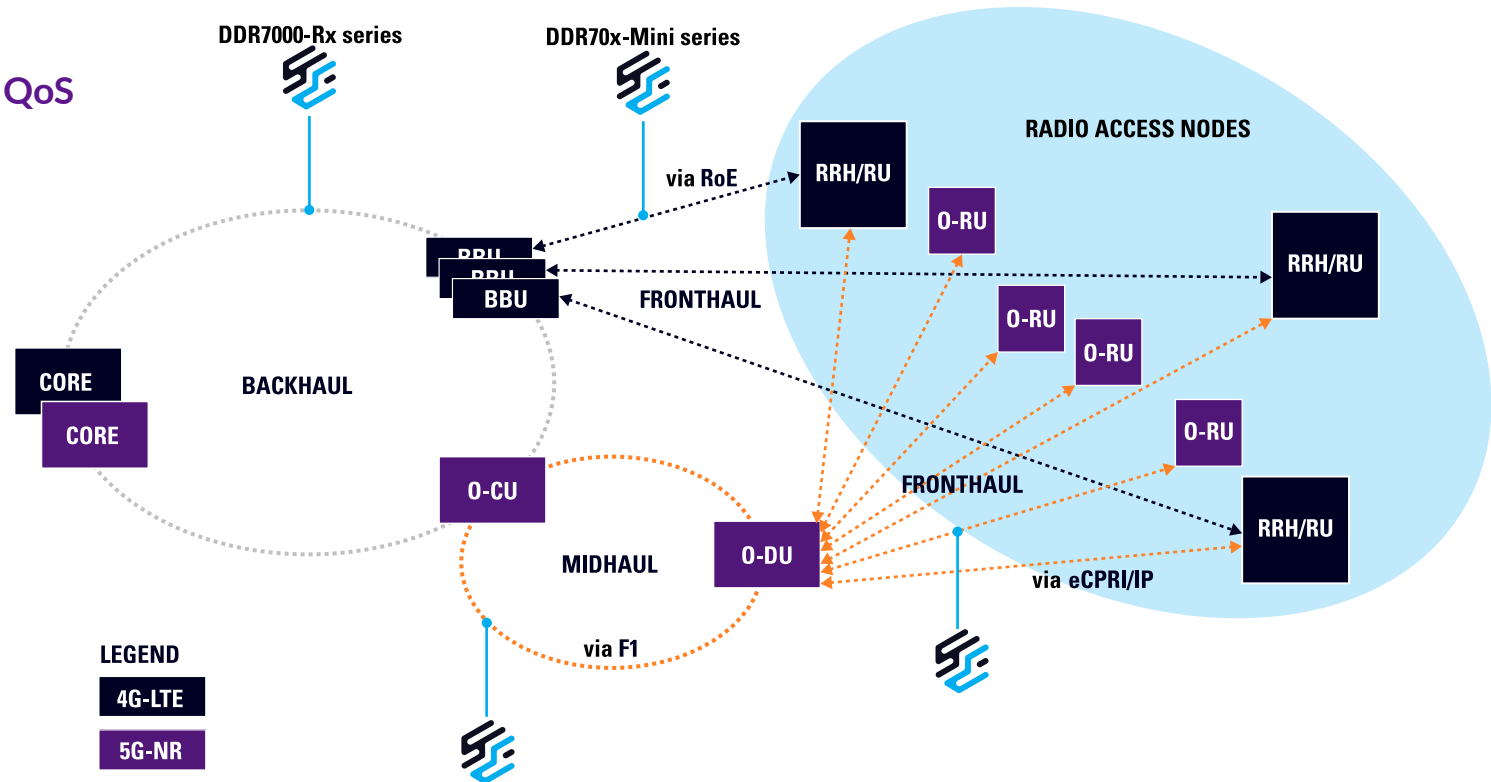
Network planning, rollout, & QoS

- ✔ 5G wireless access
- ✔ Mobile edge computing
- ✔ Core networks

5G-NR ready

*IEEE 1588 PTP and SyncE enabled with select models

DDR7000-Rx series

DDR70x-Mini series

RADIO ACCESS NODES

RRH/RU

O-RU

RRH/RU

via RoE

BBU
BBU
BBU

FRONTHAUL

O-RU

O-RU

CORE
CORE

BACKHAUL

O-RU

O-CU

RRH/RU

FRONTHAUL

O-DU

MIDHAUL

RRH/RU

via eCPRI/IP

via F1

LEGEND

4G-LTE

5G-NR

HIGHLIGHTS

- ✔ Minimized footprint - a low-cost "**leave-behind**" solution.
- ✔ Sustained **100%** Ethernet capture, record, and playback performance.
- ✔ **Real-time** standard PCAP status monitoring of capture ports.
- ✔ Up to **60TB (SSDs)** of local data storage.
- ✔ **STIG** compliant & **AES256** encryption options.
- ✔ Data offload: **USB 3.0** and **10GbE**, **25GbE or 40GbE** ports.

DESIGNED FOR ANY NETWORK PROTOCOL

Daqscribe Ethernet recorders feature high-performance network technologies that grab data from **Layer-2** of the **OSI stack**.

This means precise packet-capture no matter the protocol, including **IPV4** or **IPV6**; **TCP** to **SCTP**; and **IP Unicast** to **IP Multicast**.

Data is reliably stored to enterprise **SSDs** in real-time and as **standard PCAP-formatted files.**

Access and analyze your recorded packet-data with common network analysis tools such as **Wireshark®** and **ntop®**.

100% capture & record from Layer 2

7	**Application**	High level APIs. HTTP, FTP, SMTP
6	Presentation	Encryption / decryption compression Context for communication between levels
5	Session	Controls dialogue between computers Controls terminations and results
4	Transport	Enables transfer of data TCP/UDP End-to-end connection
3	Network	Connects hosts on different networks IPV4 + IPV6. Routing of data packets.
2	Data Link	Provides connections between hosts on the same network. (Ethernet MAC addresses)
1	Physical	Electrical + physical specifications for devices. Cables and connectors. Data in bits (1's and 0's)

SOFTWARE

HARDWARE

DDR70-Mini-10G RECORDER

Front

10G
P1-P4 QSFP+ to SFP+
P5-P8 QSFP+ to SFP+

Rear

CP1	CP2
10G SFP+	

DDR70-Mini

- ✔ SWaP:
  - ✔ Size: 22.6cm(8.9")D x 4.3cm(1.7")H x 25.4cm(10")W
  - ✔ Weight: 2.8kg(6lbs)
  - ✔ Power: 12VDC, 150W AC-DC external power adapter with input 100 – 240Vac, 50-60Hz

DDR70c-Mini SERIES RECORDERS

Front

40G	25G	10G
P1 QSFP+	P1 SFP28	P1-P4 QSFP+ to SFP+
P2 QSFP+	P2 SFP28	P5-P8 QSFP+ to SFP+

Rear

CP1	CP2
10G SFP+	
25G SFP28	

CP1
40G QSFP+

DDR70c-Mini

- ✔ SWaP:
  - ✔ Size: 22.6cm(8.9")D x 9.6cm(4")H x 33cm(13")W
  - ✔ Weight: 5kg(11lb), fully equipped
  - ✔ Power: AC input 100-240W, 50-60Hz, 300W

Miniature Ethernet recorders	Storage options Subject to availability and substitution		Line rate performance Packet Size 61 to 10,000 bytes	IEEE802.3	Network interfaces Port type	Modules (not included)
DDR70-Mini-10G-2 Classic **20Gbps throughput** 10GbE-link x 2	3TB 12TB 25TB	6TB 15TB 30TB	Rx: 20Gbps (or 2 x 10Gbps) Tx: 20Gbps (or 2 x 10Gbps)	10GbE	2 x SFP+	SFP+ 10GBASE CR/SR/LR
DDR70c-Mini-10G-4 Silver **40Gbps throughput** 10GbE-link x 4	OPTIONAL REMOVABLE HOT-SWAPPABLE SSDs 12TB 25TB 60TB		Rx: 40Gbps (4 x 10Gbps) Tx: 40Gbps (4 x 10Gbps)	10GbE	4 x SFP+	SFP+ 10GBASE CR/SR/LR
DDR70c-Mini-25G-2 Gold **50Gbps throughput** 25GbE-link x 2	12TB 25TB	60TB 90TB	Rx: 50Gbps (2 x 25Gbps) Tx: 50Gbps (2 x 25Gbps)	25GbE	2 x SFP28	SFP28 25GBASE CR/SR/LR/LR-BiDi, dual-rate 10/25GBASE-SR/LR
DDR70c-Mini-40G Gold **40Gbps throughput** 40GbE-link x 1	12TB 25TB	60TB 90TB	Rx: 40Gbps (1 x 40Gbps) Tx: 40Gbps (1 x 40Gbps)	40GbE	QSFP+	QSFP+ 40GBASE CR4/SR4/LR4
DDR70c-Mini-25G-4 Platinum **100Gbps throughput** 25GbE-link x 4 *IEEE 1588 PTP and SyncE enabled	60TB 25TB	90TB 120TB	Rx: 100Gbps (4 x 25Gbps) Tx: 100Gbps (4 x 25Gbps)	25GbE	4 x SFP28	SFP28 25GBASE CR/SR/LR/LR-BiDi, dual-rate 10/25GBASE-SR/LR

SYSTEMS SPECIFICATIONS

Performance	✔ 100% packet capture, record, playback.
Hardware time stamp	✔ Resolution: 4ns or 1ns, Stratum 3 compliant TCXO ✔ Time formats: PCAP-ns/-µs, UNIX 10 ns, 1 ns
Timing/synchronization	✔ SMA interface for PPS (optional) ✔ RJ45 100/1000BASE-T interface for IEEE 1588 PTP and SyncE support (optional only for select DDR70c-Mini models) ✔ OS time synchronization
Data format	✔ PCAP format (capture/record only) ✔ NTCAP – PCAP style binary format (capture/replay) ✔ CLI utilities: Simple/quick conversion from NTCAP to standard PCAP format or payload extraction
Optional capture /record features (FPGA processing)	✔ Filtering based on e.g. L3/L4 criteria ✔ GTP, IP-in-IP, GRE and NVGRE tunneling support ✔ IP fragment handling ✔ Slicing at fixed or dynamic offset
Storage options	✔ NVMe NAND flash (enterprise) ✔ Storage in TB with endurance TBW (total bytes written in PB) ✔ SSD endurance TBW is based on 128K sequential writing
CPU & memory	✔ Intel® Xeon® scalable dual socket CPU(s) or AMD EPYC™ CPU(s) ✔ System memory from 32GB to 256GB
Peripherals	✔ Power On/Off switch & LED, 2 x LAN LED ✔ 1 x 1GbE IPMI ✔ 2 x rear USB3.0 ✔ 1 x rear COM port ✔ Rear VGA display
Data Offload Options	✔ 1G: 4 x RJ42 ✔ 10G: 2 x RJ45, 2 x SFP+
Temperature	✔ Operating temperature: 0 °C to 40 °C (32 °F to 104 °F) ✔ Operating humidity: 10~85% (non-condensing)
System Cooling	✔ DDR70-Mini-10G-2: 3 x 4cm PWM cooling fans ✔ DDR70c-Mini series: 1 x 8cm, 1 x 6cm, 4 x 40cm PWM cooling fans
What's Included	✔ Durable transportation case

System specifications subject to change

Our Ethernet packet recording successes start with the careful selection of hardware for integration into our products.
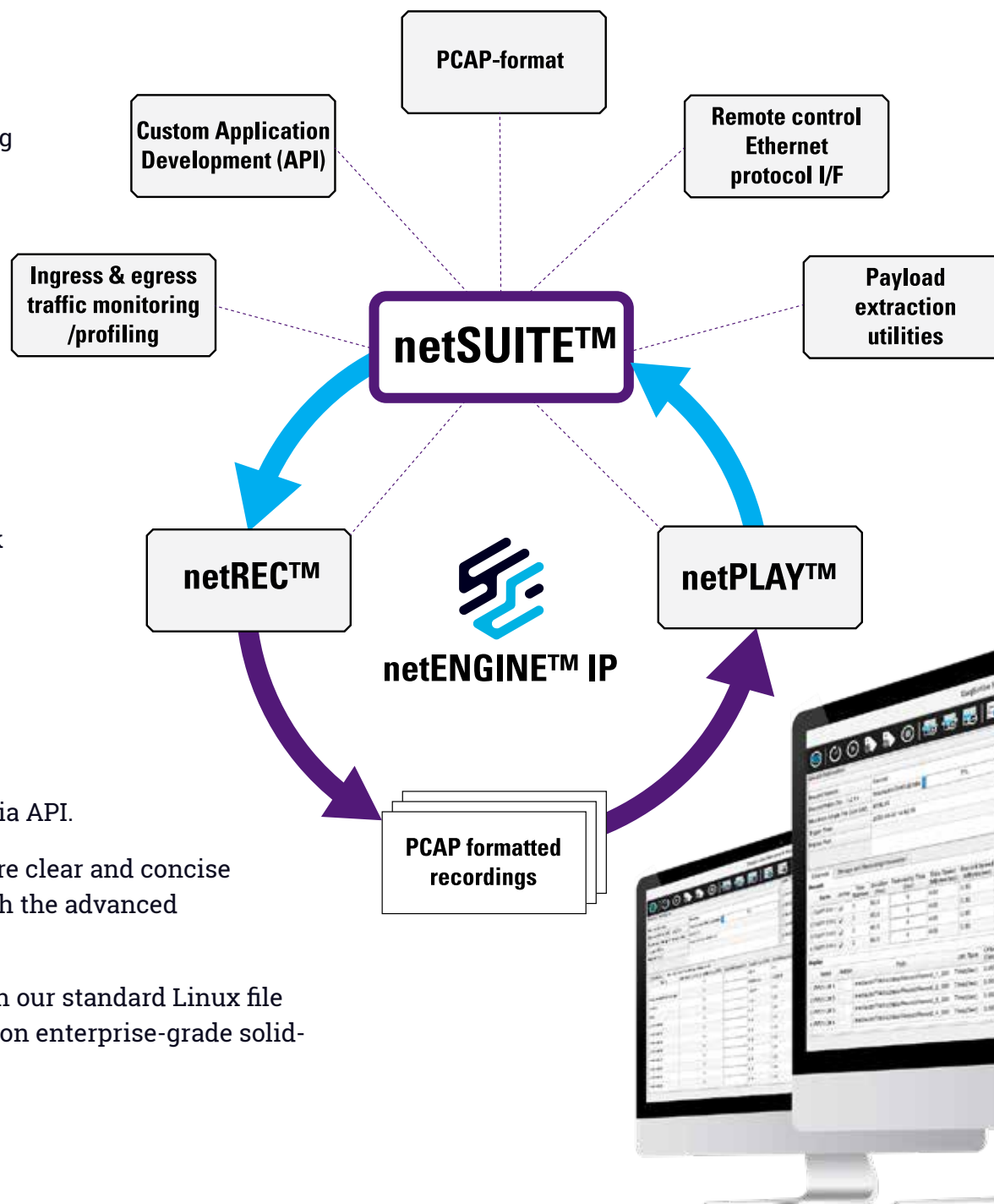
The end-to-end network data paths are then driven by our specially developed **network-engine IP**.

The result is a well-tuned Ethernet record and playback instrument, whose system functions are directed by one of our powerful software modules within **netSUITE™**.

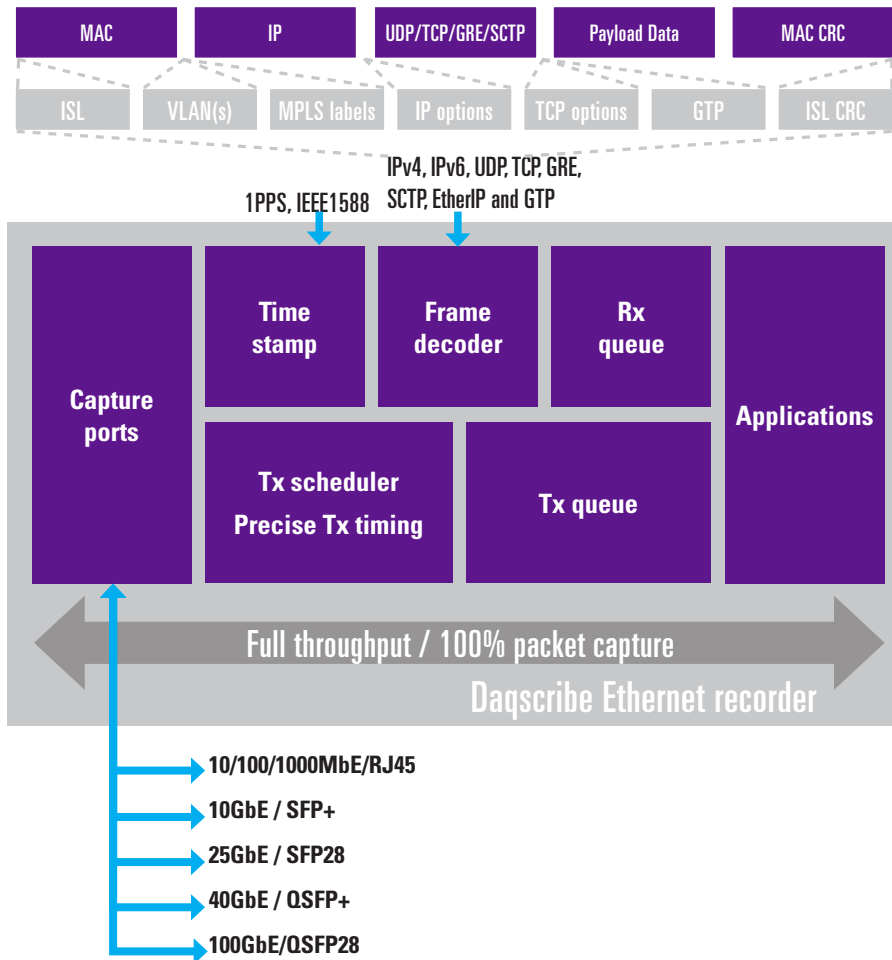Operation workflows are easy to setup and manage from either your desktop or via API.

netREC™ and **netPLAY™** feature clear and concise GUIs, for consideration of both the advanced and novice users.

Your data can be found within our standard Linux file system, in **PCAP-format,** and on enterprise-grade solid-state storage.

PCAP-format

Custom Application Development (API)

Remote control Ethernet protocol I/F

Ingress & egress traffic monitoring /profiling

Payload extraction utilities

netSUITE™

netREC™

netPLAY™

netENGINE™ IP

PCAP formatted recordings

SYSTEM BLOCK DIAGRAM

netSUITE™ software, featuring netREC™ and netPLAY™

MAC	IP	UDP/TCP/GRE/SCTP	Payload Data	MAC CRC

ISL	VLAN(s)	MPLS labels	IP options	TCP options	GTP	ISL CRC

IPv4, IPv6, UDP, TCP, GRE, SCTP, EtherIP and GTP

1PPS, IEEE1588

Capture ports

Time stamp

Frame decoder

Rx queue

Applications

Tx scheduler Precise Tx timing

Tx queue

Full throughput / 100% packet capture

Daqscribe Ethernet recorder

10/100/1000MbE/RJ45

10GbE / SFP+

25GbE / SFP28

40GbE / QSFP+

100GbE/QSFP28

L2 monitoring tool

- ✔ Port statics/RMON counters RX - TX
- ✔ Checksum error counters
- ✔ Packet decode counters
- ✔ Drop counters
- ✔ IPF table counters
- ✔ Sensor monitoring
- ✔ PPS statistics
- ✔ IEEE 1588 PTP

Daqscribe Ethernet recorders are Assured Data Availability Solutions (ADAS) offering 100% packet capture, record, and playback capabilities

OTHER USE CASES

Spectrum Research

Electromagnetic sensing & analytics

- ✔ Wideband digital receivers
- ✔ Radio frequency system-on-a-chip
- ✔ Digital signal processing

Cyber Operations

Computer & Network Defense

- ✔ Offensive computing
- ✔ Deep packet inspection
- ✔ Network capture & store

A VERSATILE PROCESSING PLATFORM
(software examples)

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COMINT consulting

REDHAWK

ntop

VIAVI

MathWorks®

WIRESHARK