NVIDIA DOCA Tools

Overview

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Chapter 1. Introduction

DOCA tools are a set of executables/scripts that are needed to produce inputs to some of the DOCA libraries and applications.

All tools are installed with DOCA, as part of the doca-tools package, and can either be directly accessed from the terminal or can be found at `/opt/mellanox/doca/tools`. Refer to NVIDIA DOCA Installation Guide for Linux for more information.

List of tools for both the host and the NVIDIA® BlueField® DPU:

- DPI compiler
- RXP compiler (rxpc)
- RXPBench

Chapter 2. DOCA Tools

2.1. Comm Channel Admin Tool

CLI name: `doca_comm_channel_admin_tool`

The Comm Channel Admin Tool is used to monitor Comm Channel services and connections on both the DPU and the host.

2.3. DPACC Compiler

CLI name: `dpacc`

DPACC is a high-level compiler for the DPA processor. It compiles code targeted for the DPA processor into an executable and generates a DPA program.

The DPA program is a host library with interfaces encapsulating the DPA executable. This DPA program can be linked with the host application to generate a host executable where the DPA code is invoked through the FlexIO runtime API.

2.4. DPI Compiler

CLI name: `doca_dpi_compiler`

This tool is used to create one of the necessary inputs to the DOCA DPI library.

The DPI compiler is used to compile a signature file which is loaded into the BlueField RegEx HW accelerator using a dedicated API (`doca_dpi_load_signatures(cdo_file)`). The output for the DPI compiler is a JSON-based CDO file.

2.5. FlexIO Build

CLI name: `build_flexio_device.sh`

The FlexIO Build tool is used to build and compile FlexIO device code into a static library.

It is designed to generate a host library that encapsulating DPA execution. This tool relies on DPACC.

2.6. PCC Counter

CLI name: `pcc_counters.sh`

The PCC Counter tool is used to print PCC-related hardware counters. The output counters help debug the PCC user algorithm embedded in the DOCA PCC application.

2.7. RXP Compiler

CLI name: `rxpc`

This tool is used to generate a ROF file that can be used by a customer application to program the NVIDIA® RXP® accelerator rules memories.

The RXP compiler is used to compile RegExes into RXP Object Format (ROF) to be executed on the RXP accelerator.

The DOCA RegEx library can be used to load the binary ROF file into the RXP.

2.8. RXPBench

CLI name: `rxpbench`

RXPBench is a tool that allows performance comparison between the NVIDIA® RXP® hardware RegEx acceleration engine, found in the NVIDIA® BlueField® DPU, and the Intel® Hyperscan software library. It provides a comprehensive set of options and facilitates ingress of data from live network ports or previously recorded PCAP files.

It is designed to provide a real-world comparison of these technologies and present the results customers could expect to receive after implementing either technology in their products.

2.9. Socket Relay

CLI name: `doca_socket_relay`

DOCA Socket Relay allows Unix Domain Socket (AF_UNIX family) server applications to be offloaded to the DPU while communication between the two sides is proxied by DOCA Comm Channel.

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