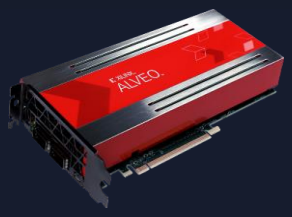
WireHex

Deep Packet Inspection and Analysis Tool

SOLUTION BRIEF

XILINX ALVEO™



- DPI and Network Packet Analysis at 100 Gbps
- 20K rules in parallel
- Packet blocking based on IPs, Payloads
- Integration with Elasticsearch and Kibana

INTRODUCTION

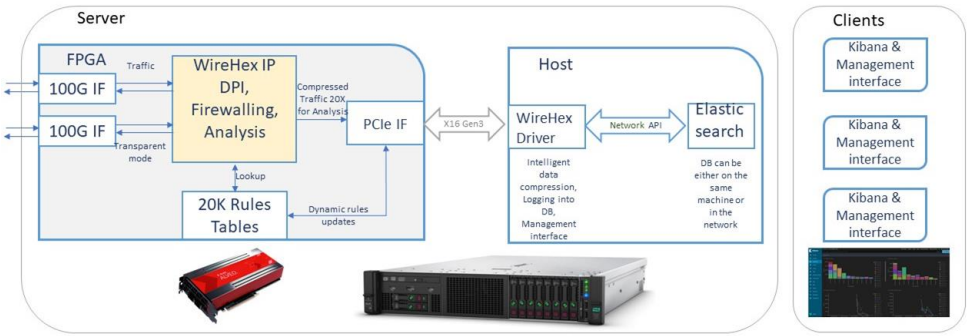
WireHex is a deep packet inspection and analysis tool designed for 100 Gbps networks. Based upon the Xilinx Alveo cards, WireHex acts as a transparent network device that performs advanced network analysis, DPI and firewalling operations. The device supports packet blocking through network header parameters as well as the payload lookup, using 20K user-defined rules. On the basis of the matching information, packets are being recorded in the host server through Elasticsearch DB engine. Integration with Kibana visualization tool allows to get sophisticated statistical information about data flowing over 100 Gbps link. Data visualization accuracy is about 99%.

KEY BENEFITS

- DPI and network analysis at 100Gbps
- Checking the input data against 20K user defined rules
- Packet blocking based on user defined rules
- Transparent bidirectional mode
- Elasticsearch and Kibana integration for data analysis

SOLUTION OVERVIEW

The solution consists of three parts:
1) WireHex IP core on the FPGA side which performs ethernet interface transparency, packet forwarding, firewalling, DPI analysis and initial compression.
2) Low-level drivers on the Host side which performs IP configuration, packet compression and logging into Elasticsearch DB.
3) Client user interface implemented in Kibana visualization software which shows deep analytical calculations based on all traffic headers flowing over 100Gbps wire.



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SOLUTION DETAILS

Specification of Grovf WireHex:

Parameters	Details
Throughput	100 Gbps
FPGA Resources (LUT, BRAM, URAM, Register, DSP)*	11%, 14%, 17%, 8%, 0,5%
Supported simultaneous rules	20k
Rule Size	Variable, from 5 to 30 chars
Visualization Accuracy	~ 99% for each connection
Software Integration	Elasticsearch, Kibana

* Percentages are calculated for Alveo U200

RESULTS

Grovf WireHex DPI and Analysis tool powered with Xilinx FPGA show unprecedented results for the analysis of 100Gbps network traffic. Such performance is achieved due to data processing and initial compression implemented in the FPGA chip. Taking into account the data capturing accuracy and analysis deepness, the highest results that can be obtained are highly under 10Gbps. WireHex stably shows the ability of 100Gbps real-time data analysis with ~99% data capturing accuracy. Furthermore, WireHex logs all data into Elasticsearch DB and has the Kibana visualization system, preconfigured to get the full benefit of the network traffic insights. Open data architecture in DB makes it possible to implement other 3rd party analytics based on the captured data if necessary.

TAKE THE NEXT STEP

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Learn more about Grovf, Inc.
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