## High Speed Packet Processing for Data Streams from Sensors

Collect the data from the INGRESS at 10 Gbps and process in parallel by utilizing the majority of the CPU cores available.

<table>
<thead>
<tr>
<th>Solution Description</th>
<th>Outcome and Benefits Delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The incoming data stream from the NIC will be sent directly to the user space application using DPDK.</td>
<td></td>
</tr>
<tr>
<td>• The VPP application runs in user space and receives the incoming packets.</td>
<td></td>
</tr>
<tr>
<td>• The user plug-in handles the streaming data and processes it as required.</td>
<td></td>
</tr>
</tbody>
</table>
Approach to High Speed Packet Processing for Sensor Data
VPP Implementation

- The incoming data stream from the NIC will be sent directly to the user space application using DPDK.
- NIC uses the technology of Receive Side Scaling (RSS) to distribute among multiple cores using separate buffers.
- The VPP application runs in user space and receives the incoming packets.
- Each core of each processor in the dual processor mode will have its own VPP processing.
- Layer 2 – Layer 4 processing done by VPP in built nodes.
- The user plug-in handles the streaming data algorithm and processes it as required.
### Solution Description

- Packet processing speed, scale, efficiency, and software defined flexibility for networking and security are achieved by a high speed packet processing engine.
- The basis of this high speed engine is Vector Packet Processing (VPP).
- VPP involves packet processing graph which processes an entire vector of packets through a graph node, before moving on to the next node.
- fd.io is an initiative from Linux Foundation which uses VPP for high speed packet processing.
- In the above model, new plug-in modules can be introduced for new functionalities by adding new graph nodes.

### Outcome and Benefits Delivered

- <clearly articulate the outcome and business benefits achieved or delivered. Avoid using generic niche words. Include as much metrics as much possible. For example use % savings, % reduction so on>
- <Try including info graphics to convey the benefits delivered (in a quantified way)>
Approach to High Speed Packet Processing for Next Gen Firewall

Custom Application / Custom Packet Processing Graph

1. DPI
2. Anti Malware
3. Intrusion Prevention
4. Sandboxing
5. Content Filtering
6. SSL/HTTPS Decryption
7. Stateful Inspection
8. Layer 2-4 firewall & routing
9. IPSec/VPN
Data Plane and Control Plane of NGFW
VPP Implementation for High Speed Packet Processing - NGFW

- The incoming data stream from the NIC will be sent directly to the user space application using DPDK.
- NIC uses the technology of Receive Side Scaling (RSS) to distribute among multiple cores using separate buffers.
- The VPP application runs in user space and receives the incoming packets.
- Each core of each processor in the dual processor mode will have its own VPP processing.
- Layer 2 – Layer 4 processing done by VPP in built nodes.
- The user plug-in implements the Intrusion Detection and Prevention by Deep Packet Inspection.
- The control plane handles the connection management in NGFW. It runs in one of the cores.
THANK YOU

For More Details, Let's Connect

Gadgeon Systems Inc.
881 Yosemite Way, Milpitas, CA 95035, USA

CONTACT - USA
Mani Ram - Vice President - Solutions and Technology
📞 +1-678-900-0874 | 📧 mani.ram@gadgeon.com

Gadgeon Smart Systems Pvt Ltd.
VI 405/E1, Fathima Tower, Maleppally Road, Thrikkakara PO, Kochi, Kerala, PIN: 682021, India

CONTACT - INDIA
Hari Nair - CEO & Co-Founder
📞 +91 989-501-5880 | 📧 hari.nair@gadgeon.com

Gadgeon Europe
Antwerpsesteenweg 124/54, 2630 Aartselaar, Belgium
📞 +32 475 23 39 46 | 📧 europe@gadgeon.com

✉️ sales@gadgeon.com