

# CyberMapper™ Optional Feature

## DYNAMIC IN-LINE PACKET BROKER SERVICES

NoviFlow’s Dynamic In-line Packet Broker Services are an optional (separately licensed) extension to NoviFlow’s CyberMapper.

NoviFlow’s Dynamic In-Line Packet Broker Services deliver optimized flow monitoring and acquisition functions without requiring the use of optical taps to duplicate packets on the main network and transmit them to monitoring and analytics network. For ease of use and integration into existing brownfield networks, DPOC implements Tap and Filtering services via programmable SDN technology controlled through RESTful APIs. This virtualizes the entire process of traffic monitoring with a tap/filter, and eliminates the cost and time required to install physical tap hardware, enabling traffic to be monitored dynamically whenever needed under the control of security or orchestration packages.

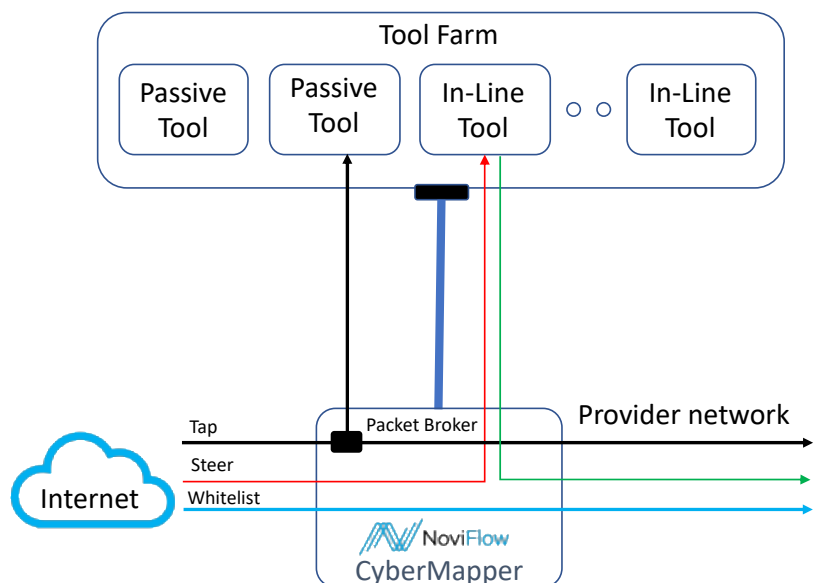
NoviFlow’s CyberMapper enables *NoviWare™* compatible switches (such as NoviFlow’s *NoviSwitches* and select commercially available *white-box switches*) to deliver packet filtering, threat mitigation and load balancing directly in the network fabric in a simple, scalable pizza-box form factor, and at a fraction of the price of conventional threat mitigation solutions. *CyberMapper* leverages the power and flexibility of the programmable SDN match-action pipeline to implement fine grain packet matching, filtering, redirection and load balancing at speeds up to 6.5 Tbps in a single switch using open standard interfaces such as OpenFlow, gRPC and P4-runtime.

Featuring:	
<p><b>Terabit Throughput Services:</b> The most disruptive feature of the Dynamic In-Line Packet Broker Services is Terabit performance, offering a new level of throughput at a far more affordable price point than existing Packet Brokering services.</p>	<p><b>Dynamic Tap/Select Services:</b> Delivers the ability to dynamically initiate and manage taps and filter network traffic via SDN. Functions include bump-in-wire, dynamic taps (simple or bi-directional), dynamic filter (traffic steering), select on encapsulated IP Header, and select on Protocol.</p>
<p><b>In-switch Load Balancing:</b> To devices and VNFs with different throughput capabilities easily accommodating environments where a number of Tools have been added over time and thus vary in capabilities.</p>	<p><b>Enables dynamic scaling of Tool Farms in real-time:</b> With non-destructive fail-over, while protecting stateful information (metadata) about flows as virtualized tools are spun up or down in response to changes in traffic.</p>

NoviFlow’s Dynamic In-line Packet Broker Services are a licensed extension to NoviFlow’s CyberMapper programmable forwarding plane middleware, and thus inherit all the CyberMapper services for accelerating and scaling virtualized network functions, bidirectional load balancing to Tool Farms, and real-time update of rules via a mitigation API.

The main disruptive feature of In-Line Packet Broker Services is Terabit performance when deployed with

NoviSwitch 5000 series switches, or with Tofino-based white-box switches supported by the NoviWare NOS. This solution represents a new level of Packet Broker throughput at an unprecedented low price point.



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## DYNAMIC IN-LINE PACKET BROKER SERVICES FEATURE SUMMARY

### NoviFlow's DPOC Services:

- Deliver the ability to dynamically initiate and manage taps and filter network traffic via SDN
- Switches can be configured as bump-in-wire with a set of ports connected to the Tool Farm
- Tap / filter rules are dynamically installed to direct traffic toward the Tool Farm
- Dynamic Taps – rules select certain flows with the action to copy the packets and direct them to the Tool Farm
- Using CyberMapper's Affinity Load Balancing a rule can be bidirectional – copy initial and response packets to Tool Farm.
- Dynamic Filters redirect selected original flows to the Tool Farm via the Load Balancing functionality
- Can even select on encapsulated IP Header – creating rules that looks inside VLAN, MPLS, or GTP encapsulated tunnels, selecting on source/destination IP address
- Can select on Protocol – ability to create a rule that selects on VRRP, LACP, OSPF, or BGP protocol

Affinity Load Balancing is a functionality provided by CyberMapper, and provides DPOC a critical advantage over conventional Packet Broker solutions. Affinity Load Balancing implements an algorithm enhanced to service Tool devices and VNFs with different throughput capabilities, easily accommodating environments where a number of Tools have been added over time and thus vary in capabilities. This algorithm also delivers Tool Farm dynamic scaling in real-time, and non-destructive fail-over while protecting stateful information (metadata) about flows as virtualized tools are spun up or down in response to changes in traffic.

DPOC's Multi-Tenant Port Pairs capability allows flows from multiple sources (tenants) to be processed by the same Tool Farm. This provides a significant reduction in cost per port.

Finally, DPOC comes with a web based dashboard that presents the activity and allocation of the flow Load Balancing to the Tool Farm in real-time.

### CyberMapper Solution Requirements:

- CyberMapper s/w running on a standard server (4-core X86 with minimum 16GB RAM, or better)
- One or more NoviWare capable switches (NoviSwitch 2000 or 5000 series, or equivalent white-box devices running NoviWare. See [www.noviflow.com](http://www.noviflow.com) for list of certified white-box devices) Barefoot Tofino-based devices are recommended for deployments managing 500K or less IP reputation rules.
- One CyberMapper Right-to-Use license for each switch being managed by CyberMapper.

NOVIFLOW PART NUMBER	
800-002-011	DDoS Optional Features Bundle add on CyberMapper perpetual license for series 2000 NoviSwitch (per switch)
800-002-012	DDoS Optional Features Bundle add on CyberMapper perpetual license for Barefoot Tofino 18 base switches (per switch)
800-002-013	DDoS Optional Features Bundle add on CyberMapper perpetual license for Barefoot Tofino 32D base switches (per switch)
800-002-014	DDoS Optional Features Bundle add on CyberMapper perpetual license for Barefoot Tofino 32Q base switches (per switch)
800-002-015	DDoS Optional Features Bundle add on CyberMapper perpetual license for Barefoot Tofino 64 base switches (per switch)

**NoviFlow Inc.™** aims to change the traditional approach to networking by making networks fully programmable. The company was founded to deliver upon the promise of OpenFlow and SDN by delivering solutions that can handle complex flow processing and be field upgradable via software updates, making it possible for data centers and WANs to keep up with today's exponentially growing networking demand. For more information, please visit [www.noviflow.com](http://www.noviflow.com)™ or e-mail us at [contact@noviflow.com](mailto:contact@noviflow.com)