NoviFlow

NoviBroker

With Operational Monitoring Suite

A new breed of NPB designed for the Service Provider Market

Highlights

Features the “FlowAgent” pipeline algorithm,
a next-generation SDN solution for mapping tap feeds to analytic tool clusters.

Multi-terabit throughput capacity
supports interfaces from 10G to 400G and up to 12.8Tbps throughput.

Enhanced Operational Monitoring
provides live analytics for the NoviBroker and a single pane of glass view for a fleet of NoviBrokers

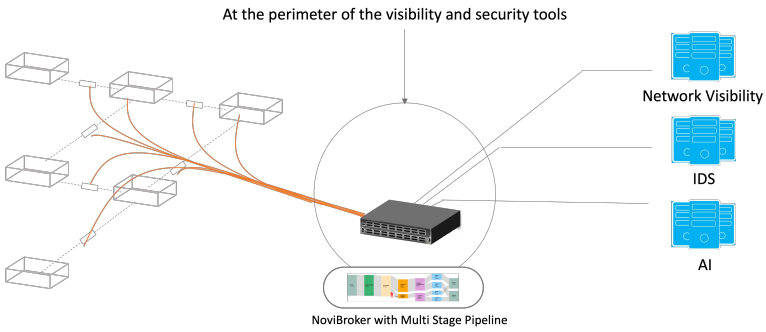
Pipeline Visualizer
shows you a live view of the pipeline configuration and volume of traffic for each rule in a Sankey diagram or heatmap. See how configuration changes affect live traffic.

Competitive Price Point
leverage white-box hardware and flexible licensing options, with both perpetual or annual subscriptions available.

Easy to Use
with a shallow learning curve. This reduces ramp-up and deployment time as well as configuration and maintenance costs.

NoviBroker introduces a next generation SDN technology – the FlowAgent™ pipeline – that makes analytics engineers more productive.

Network Packet Brokering, Monitoring and Analytics
Made for the Network Edge



Traffic Aggregators and Network Packet Brokers are key components of monitoring and visibility tool-sets. NoviBroker is a next generation solution for users looking to upgrade their traffic aggregator function to handle multiple terabits of throughput. NoviBroker is a cost-effective traffic aggregator with up to 12.8Tbps of throughput supporting interface speeds of 10G to 400G for maximum compatibility with existing network infrastructure. By utilizing the latest technology from Intel, NoviBroker delivers features normally found in high-end stateful Intelligent Monitors, but at a lower price point than the competition.

NoviBroker introduces a next generation SDN technology – the FlowAgent™ pipeline – that makes analytics engineers more productive by making the mapping of feeds to tools more intuitive and powerful. This is done by breaking packet broker functionality across four stages in a pipeline, with each stage allowing a new set of filtering or aggregation capabilities. At each stage an agent can register to feeds from prior stage agent(s) to output individually crafted streams to tools. The configuration tools and APIs were designed around the user, not the underlying chip architecture, and using human readable objects, including the inner header of encapsulated packets. This removes the need to manually calculate bit-offsets frequently required in many competitive brokers.

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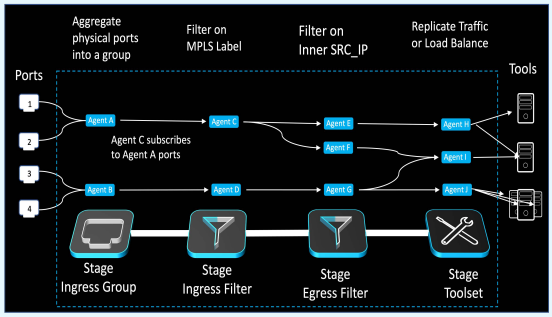
NoviBroker with FlowAgent Pipeline

At the heart of the NoviBroker is the FlowAgent pipeline which features fine grain control of setting up the streams of interest. With four separate stages, FlowAgent lets you create streams of interest that can be virtually wired into multiple stream aggregates.

At the end of the FlowAgent pipeline is the “toolsets” agent which allows you to output to a single port, mirror to multiple ports or load balance across multiple visibility/security tools. Since not every tool can handle the same volume of traffic, weighted load balancing lets you specify the volume of traffic to be load balanced across each device.

4 Stage FlowAgent Pipeline Example



The Agents are a “high-level” interfaces to programming the silicon.

- Easy to understand
- Crafted is a few lines of YAML code
- Easy to maintain
- Each Agent can be modified in isolation and agents down the pipeline can subscribe to traffic flows

Clients have experienced 50% or more reduction in development and maintenance time.

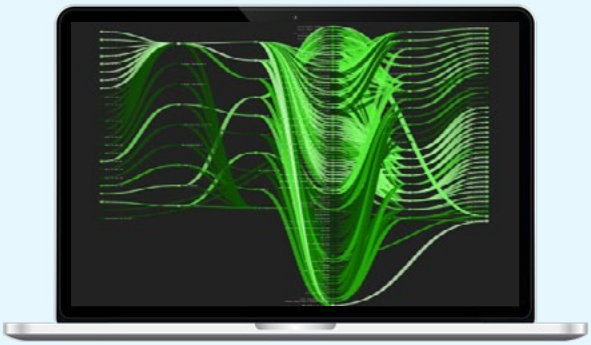
NoviBroker Operation Monitoring Suite

NoviAnalytics for NoviBroker allows operators to live monitor over 75 different hardware sensors, OS log files and application messages to fully understand the operational health of the NoviBroker. Troubleshooting a problem or performing preventative ensures a higher level of uptime.

NoviDashboard provides you a single pane of glass to monitor your whole fleet of NoviBrokers. The information updates are real-time indicators of the overall health of the platform. If a sensor reports a fault or out of tolerance, live historical data with the key information needed for troubleshooting available within two clicks.

Pipeline Visualizer for NoviBroker

The operational benefits of NoviBroker’s multi-stage pipeline are greatly enhanced by the Pipeline Visualizer, a full representation of all stages in the pipeline offering end-to-end visibility from taps to tools. Monitor live traffic in the pipeline or scroll through a history to see the effects of configuration changes. Troubleshooting configuration errors has never been easier, saving you the most precious resource of all - time.



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Features

Packet Brokering

Agent Pipeline
Advanced 4 stage packet broker pipeline for object-oriented pipeline programming

Filtering
2 stage Filtering Pipeline for matching on packet shape, encapsulated packets or inner header

Aggregation
Aggregate multiple ports or streams of traffic to monitoring tools

Replication
Replicate traffic to multiple tools or to combine into multiple streams

Proportional Load Balancing
Weighted load balancing based on tool throughput

Deep Packet Matching
Look past the first 128bytese of a packet for filtering

Traffic Optimization

Header Stripping
Removes header information to focus on the data of interest

Payload Slicing
Removes the payload to cut down on unnecessary information sent to the tools

Tunneling
Supports ERSPAN & VxLAN tunneling and termination

Stateless Deduplication
Match on packet shape so that you don't send duplicate packets to the tools

Stateless CUPS Correlation
Load balance UP traffic and replicate CP traffic to tools

Filter Stacking Optimization
Use the first of multiple filters to discard unwanted traffic

Priority Based Agents
Assign priorities to each agent to reduce the likelihood of a rule conflict

Features & Benefits

Features	Benefits
Multi-terabit throughput, flexible port configurations in a small footprint • Up to 12.8Tbps non-blocking core switching • Supports a wide range of interface speeds, including 10G, 25G, 40G, 50G, 100G and 400G with industry standard transceiver modules • 1U and 2U options on commercial-off-the-shelf networking hardware	• Replace multiple existing traffic aggregators with a single NoviBroker, reducing cost, while also reducing the complexity of the TAP network » Port densities of 256x10G up to 32x400G • Support a wide range of media speeds from 10G to 400G for ultimate compatibility with existing TAP and SPAN ports • Compact footprint, utilizes less rack space and power consumption
FlowAgent™ pipeline with multiple agents to map TAPs to Tools • New Agent pipeline algorithm • 4 stage pipeline for flexible aggregations and filtering of the streams » Each stage allows a finer grain flow aggregation » Each stage can register to a stream output of a prior stage to create new aggregate interests » Filters by packet fields or packet shape (for example 2 MPLS tags) • Weighted Load balancing and mirroring of output traffic to tools with a tool set.	• Program the traffic aggregator in a human readable object-oriented environment, removing the need to calculate byte offsets to match a flow » Reduces the learning curve and time to deployment » Eliminates the cost of maintaining custom configurations and the expertise to create/edit them • Advanced parsing engine allows for outer and inner headers of encapsulated packets to be parsed • Multiple stages improves flexibility and enables reuse of the rules crafted earlier in the FlowAgent pipeline
Easy to Use • Configure aggregation streams using object-oriented Agents • Do not need to use complex bit-offsets to program “interests” • Supports both remote API calls and local CLI for pipeline configuration	• Lowers barriers to deployment • Reduces the need for special skillsets to program traffic aggregation • Program once when deployed or create dynamic orchestration of traffic flows to tools by using the north-bound API interface
Competitive Price point • Based on white-box OCP compliant hardware you can source through NoviFlow or your own supply channels • Perpetual and annual software licensing is available for the NoviBroker software	• Leverage products from a leader in commercial-off-the shelf white box hardware, Edgecore • Flexible software licensing allows you to select the best way to deploy, with a perpetual license or annual licensing
We can do what your current vendor won’t • Software Programmable Parser • Rapid response to customer requirements	• If you have a special requirement, contact NoviFlow, we can rapidly add support for new protocols and features

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Hardware (Purchased separately from an authorized NoviFlow hardware vendor)

Ports	Ports 10/25/40/50/100/400G using industry standard transceiver modules within a variety of multi-port enclosures in commercial-off-the-shelf 19" rack-mount with AC and DC power
Core Bandwidth	3.2Tbps (Tofino-32D) / 6.4TBps (Tofino-64) / 12.8Tbps (Tofino 2)
Rack Units	1RU / 2RU
Power Input	Typical values: (Note: actual values to be provided by third party hardware vendors directly based on model used.) AC: 100-127 VAC, 50-60Hz, 11A; 200-240 VAC, 50-60Hz, 6A 100-240 VA, 50-60Hz, 3A to 8A DC: 200-300 VDC, 4-6A
Power Consumption	Typical values (Note: same as above) 512W to 1100W
Fan and PSU Redundancy	Depending on hardware selected fans are hot-swappable and accessible on rear panel PSUs: Multiple redundant, load-sharing, hot-swappable AC/DC
Temperature	Operating: 5˚C to 45˚C (41˚F to 113˚F) Storage: -40˚C to 70˚C (-40˚F to 158˚F)
Weight	Depending on hardware selected: 20.4 kg (45 lb) to 9.8 kg (21.61 lb)
Dimensions	Depending on hardware selected: 440 x 507 x 89 mm (17.32 x 19.97 x 3.50 inches) to 440 x 507 x 44 mm (17.32 x 19.97 x 1.73 inches)

Software

NoviBroker

CPU	4x x86 vCPUs
Memory	4GB RAM
Storage	50GB
Software	Ubuntu 20.04 Docker v19.03 or later Docker-compose v1.24

NoviAnalytics & NoviDashboard

CPU	Minimum: 4 core CPU @ 2.1GHz Recommended: 8 core CPU @ 2.1GHz
Memory	Minimum: 4GB RAM Recommended: 12GB RAM
Storage	Minimum: 500GB Recommended: 100Gb
Software	Ubuntu 20.04 Docker v1.9 or later

NoviBroker with Tofino-64 (64x100G) Switch			
Sourcing	License Type	Part Number	Description
NoviFlow Direct	Perpetual license	800-006-005	NoviBroker for Tofino-64 Perpetual License
		200-100-100	NoviWare NOS for Tofino-64 Perpetual License
	Annual Subscription	850-006-005	NoviBroker annual software subscription
	(Hardware not included)		NoviWare NOS for Tofino-64 annual software subscription

NoviBroker with Tofino2 (32x400G) Switch			
Sourcing	License Type	Part Number	Description
NoviFlow Direct	Perpetual license	800-006-006	NoviBroker for Tofino2 Perpetual License
		200-100-120	NoviWare NOS for Tofino2 Perpetual License
	Annual Subscription	850-006-006	NoviBroker annual software subscription
	(Hardware not included)	301-100-020	NoviWare NOS for Tofino2 annual software subscription

NoviBroker with Tofino-32D (32x100G) Switch			
Sourcing	License Type	Part Number	Description
NoviFlow Direct	Perpetual license	800-006-004	NoviBroker for Tofino-32D Perpetual License
		200-100-104	NoviWare NOS for Tofino-32D Perpetual License
	Annual Subscription	850-006-004	NoviBroker annual software subscription
	(Hardware not included)	301-100-004	NoviWare NOS for Tofino-32D annual software subscription

Compatible Whitebox Hardware (Please contact NoviFlow for list of currently supported hardware)			
Sourcing	Model Number	Part Number	Description
Edgecore	Wedge100BF-32X-O-AC-US	FP3ZZ7632413A	Wedge100BF-32X, 32 port 100G QSFP28 Switch, dual AC PSU
	Wedge100BF-65X-O-AC-US	F0PCH7664400S-C	Wedge100BF-65X, 65 port 100G QSFP28 Switch, dual AC PSU

NoviAnalytics Ordering Information

NoviAnalytics for NoviBroker			
Sourcing	License Type	Part Number	Description
NoviFlow Direct	Perpetual license	800-005-100	NoviAnalytics for NoviBroker on Tofino-32D Perpetual RTU
		800-005-101	NoviAnalytics for NoviBroker on Tofino-64Q Perpetual RTU
		800-005-102	NoviAnalytics for NoviBroker on Tofino 2 Perpetual RTU

NoviDashboard Ordering Information

NoviDashboard for NoviBroker			
Sourcing	License Type	Part Number	Description
NoviFlow Direct	Perpetual license	800-005-900	NoviDashboard Perpetual software Right To Use License
	Subscription License	800-005-901	NoviDashboard Subscription fee per year, per connected NoviBroker

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