

## Multi-rate segments of multi-functional bypass and active Tap

The 2825 is part of the BypassP<sup>2</sup> product line, supporting 1/10/40/100Gb network deployments. Four factory-configured bays are available. Bypass modules come in single-bay or double bay size. Modules are available in 100Gb, 40Gb and 1/10Gb. Users can mix and match modules at time of order to meet their network requirements



2825 comprises four bays supporting various network deployments. Front panel with two full 4-port segments of 100Gb depicted

Ordering/Configuration	100Gb segment	40Gb segment	1/10Gb segment
Full bypass four-port segments	up to 2	up to 4	up to 8
Module size	Double bay	Single bay	Single bay
Segments per module	1	1	2

## Multifunctional BypassP<sup>2</sup> Segment

A full bypass segment comprises two network and two appliance ports. The network ports offer direct single mode (SM) or multimode (MM) connectivity. The appliance ports utilize customer pluggable transceivers, and depending on the module type support the flexibility to connect appliances (tools) using 1/10Gb, 40Gb or 100Gb whether SM, MM or copper.

The network ports connect to the non-blocking switching fabric via high-grade integrated transceivers. Fabric Flow technology provides the ability to forward the traffic from one segment to any other segment.

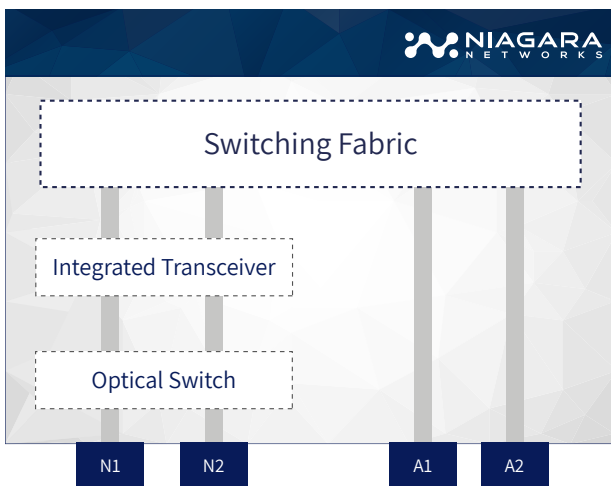


Figure 2: multi-purpose 4-port segment

## Product Highlights

### High Density:

- Up to 2 full 100Gb bypass segments
- Double protection bypass technology

### Multi-functional Segments

- Each segment comprises 2\*Network ports and 2\*Appliance ports
- Support multiple bypass segment modules
- Factory configuration options for 1/10Gb, 40Gb and 100Gb modules.
- Network ports support:
  - 100Gb – SR4, LR4
  - 40Gb – SR4, LR4, BiDi SR
  - 1/10Gb – SR/SX and LR/LX
- Bypass for inline deployments
- Active tap for monitoring deployment

### Management:

- Robust Command Line Interface (CLI) User friendly, Web-based user interface
- REST API for 3rd party integration and support by Niagara Visibility Controller
- Centralized management by Niagara Visibility Controller
- Supports TACACS+, RADIUS, SNMP and NTP



**Fabric Flow:** Mapping traffic flow relationships between source and destination ports

- Multi-functional bypass segment configuration
- Detects appliance failure and protect network by going into active bypass
- In case of power failure protect network, traffic using hardware bypass switch
- High availability between primary and secondary appliance
- Supports different heartbeat configuration

# Network Bypass Technology

Our signature BypassP<sup>2</sup> offers double-protection bypass technology. A failsafe optical relay on network ports, and a user-configurable heartbeat-generated packets on appliance ports.

In Bypass/Inline deployments, traffic from one side of the network is forwarded to the inline appliance, and through the inline appliance to the other side of the network. This is the common network deployment for inline security devices such as firewalls and intrusion detection systems.

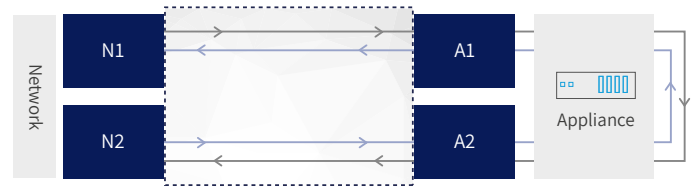


Figure 3: Inline deployment

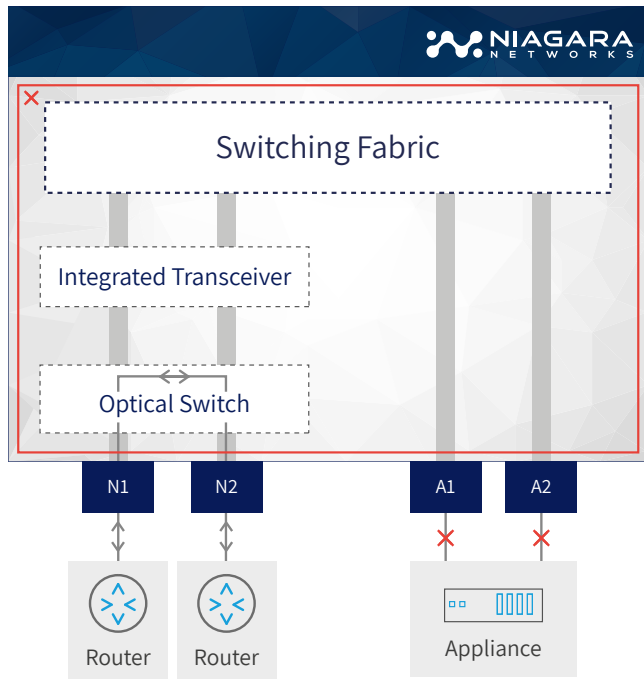


Figure 4: Power Failure Mode

**Failsafe protection** - protecting network traffic flow in the event of BypassP<sup>2</sup> failure. When power fails, as depicted in figure 4, the optical-relays ensure that the network flow continues uninterrupted. The optical relays can be configured fail open or fail close to meet specific deployment needs. An optical switch mechanism is the most reliable method for connecting inline devices to your network, while ensuring uninterrupted network services under all conditions.

**Heartbeat protection** - protecting network traffic flow in case of appliance failures. The BypassP<sup>2</sup> transmits a user-configurable heartbeat on the appliance ports as depicted in figure 5. In the event of an appliance malfunction (such as a software crash, system failure or loss of power depicted in figure 6), the failure is detected, and the BypassP<sup>2</sup> bypasses the traffic intended for the inline appliance to the network ports, allowing it to continue to flow through the network link. This feature also enables the network appliances to be removed and replaced without network downtime. Once the system is back up, or the power is restored to the appliance, it is detected by the BypassP<sup>2</sup> heartbeat mechanism, and network traffic is seamlessly diverted back to the inline device, allowing it to resume its critical functions.

Niagara's heartbeat mechanism is an integrated configurable sub-second-rate mechanism that is available independently for each segment. The number of missed heartbeat packets before entering bypass mode is configurable, so too is the number of received heartbeats to determine that the appliance is back on-line. BypassP2 heartbeat does not require additional drivers to be installed on connected appliances.

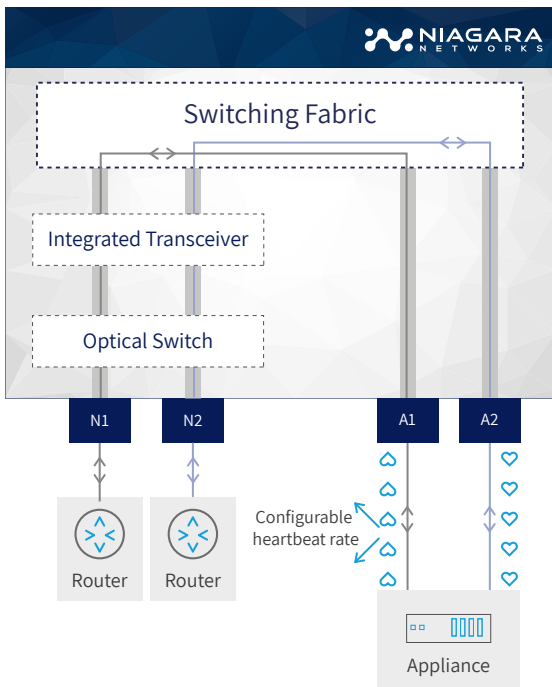


Figure 5: Normal inline Operation Mode

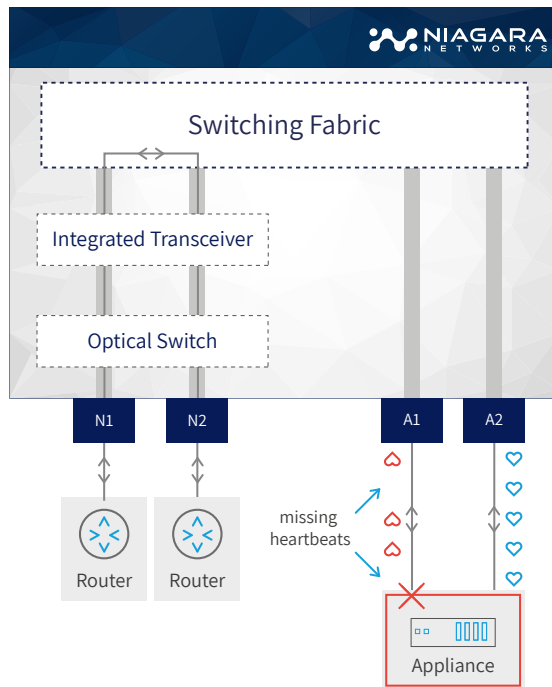


Figure 6: Appliance Failure Mode

## Active Tap (aggregation)

The bypass segment is configured as an active Tap, supporting one network link. Traffic on the network side is always maintained. Each appliance port receives a copy of the Rx from both sides of the network. This mode economizes on monitoring tool ports, in case the total traffic throughput from both network sides is below that of the single appliance port.

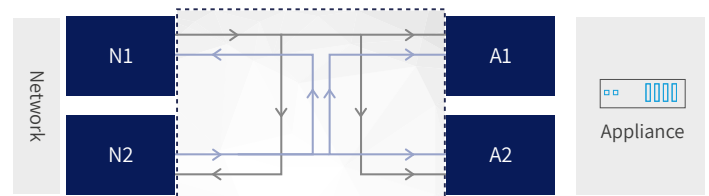


Figure 7: Active Tap (aggregation)

## Active Tap (split)

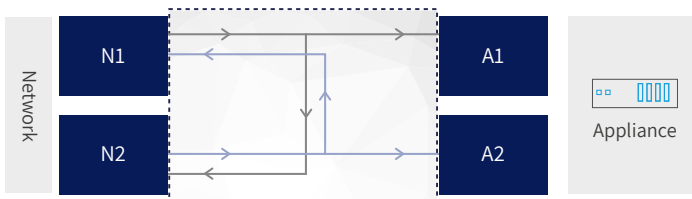


Figure 8: Active Tap (split)

The bypass segment is configured as an active Tap, supporting one network link. Traffic on the network side is always maintained. Each appliance port receives a copy of the Rx from one of the network ports.

## Manual Active Bypass

In this mode, the segment becomes transparent to the network traffic. Network traffic flows unimpeded between N1 and N2. This mode is useful for carrying out maintenance on the appliance ports without bringing the network side down

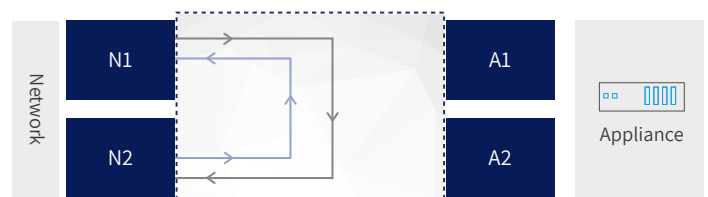


Figure 7: Manual Active Bypass Mode

# Common Use Cases

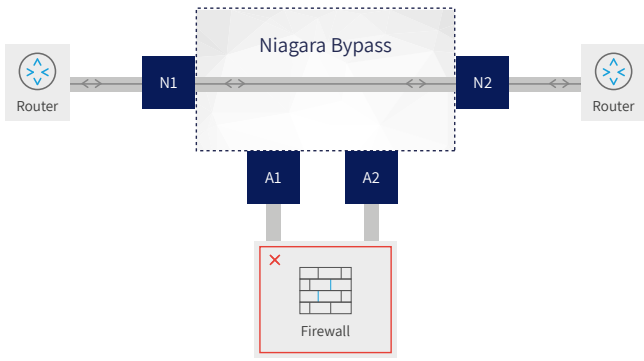


Figure 8: Protects network traffic in case of a security appliance failure.

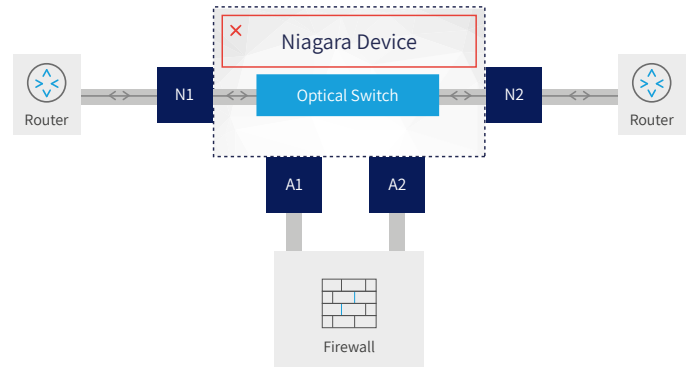


Figure 9: Supports high network availability. Traffic flow is maintained in case of failure of bypass switch

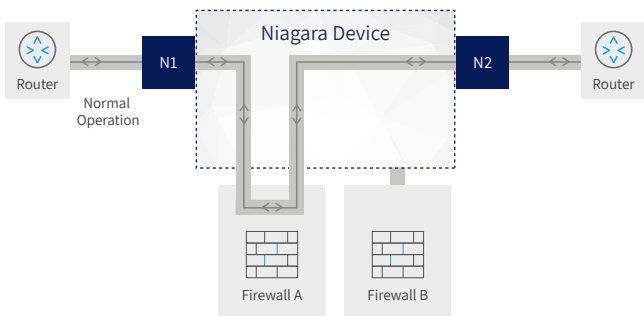


Figure 10: Supports high availability configuration. If Firewall A failed, Niagara device will switch traffic to Firewall B and protect network from security attack.

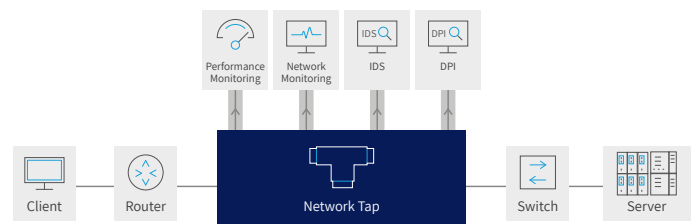


Figure 11: Sends copies of network traffic to multiple tools.

Specifications			
Height	1.7in (43.31mm)	Operating Humidity	5 to 95%
Length	26.12in (663.49mm)	Max Current	3.33A @ 100 V <sub>AC</sub> 6.93A @ 48 V <sub>DC</sub>
Width	17.25in (438.15mm)	AC	100-240V, 50-60Hz, 10-5A
Operating Temp	32-104°F (0-40°C)	DC	48-60V, 19-15A
Raw Power	455.64 W	BTU / hr	1400.514
Max Power	332.85 W		

Emissions	Immunity
FCC Part 15B, ICES 003, EN55032	EN55024

Safety	Certifications
UL/CSA 60950-1, EN 60950-1, IEC 60950-1 CB Scheme with all country differences	North America (NRTL) European Union (EU) VCCI (Japan) 2014/35/EU Low Voltage Directive 2014/30/EU EMC Directive 2011/65/EU RoHS Directive 2012/19/EU WEEE Directive

Part Number	Description	Ordering Details
2825-MN-xx	2825 main chassis. Includes two power supply units and four fan units. Integrated non-blocking switching fabric. Bypass segments ordered separately	yy - specify preferred power supply option AC – Dual AC redundant power supply DC – Dual DC redundant power supply
2825-MN-H-xx	2825 main chassis. Includes two power supply and four fan units. Integrated non-blocking switching fabric and hardware heart beat module	xx - specify preferred power supply option AC – Dual AC redundant power supply DC – Dual DC redundant power supply
2825-MN-xx-H-yy	2825 main chassis with fixed configuration 100Gb bypass segment bay. Includes two power supply units and four fan units. Integrated non-blocking switching fabric and hardware heart beat module. Bypass segments ordered separately	xx - specify number of fixed 100Gb Bypass segments (ordered separately) 1C - 1 x full 100Gb bypass segment (fixed) 2C - 2 x full 100Gb bypass segments (fixed)  yy - specify preferred power supply option AC – Dual AC redundant power supply DC – Dual DC redundant power supply
800W-PSU-AC	Field replaceable power supply unit AC. 800W	
750W-PSU-DC	Field replaceable power supply unit DC. 750W	
NN-FAN-1	Field replaceable fan unit for 1RU products	

Bypass segment modules	Users can mix and match single bay and double bay modules to meet network requirements.	
N2-SG-X-yy-2B	10Gb dual full bypass segment. Bypass segment includes 2 network ports and 2 appliance ports. Integrated transceivers for network ports. Module occupies single bay	yy - specify network-side fiber type: M-SR multimode 50/125 M5-SR multimode 62.5/125 S-LR singlemode Transceivers for appliance ports ordered separately
N2-SG-XL-xx-1B	40Gb full bypass segment. Bypass segment includes 2 network ports and 2 appliance ports. High grade integrated transceivers for network ports. Module occupies single bay	xx - specify network-side fiber type: M4-SR4 multimode S4-LR4 singlemode BD-BiDi multimode Transceivers for appliance ports ordered separately
2825-SG-C-xx-1B	100Gb full bypass segment fixed module. Bypass segment includes 2 network ports and 2 appliance ports. High grade integrated transceivers for network ports. Module occupies double bay	xx - specify network-side fiber type: M4-SR4 multimode S4-LR4 singlemode Transceivers for appliance ports ordered separately

## About Niagara Networks

Niagara Networks provides high performance network visibility solutions for seamless administration of security solutions, performance management and network monitoring. Niagara Networks products provide advantages in terms of network operation expenses, downtime, and total cost of ownership.

A former division of Interface Masters, Niagara Networks provides all the building blocks for an advanced Visibility Adaptation Layer at all data rates up to 100Gb, including Taps, bypass elements, packet brokers and a unified management layer. Thanks to its integrated in-house capabilities and tailor-made development cycle, Niagara Networks are agile in responding to market trends and in meeting the customized needs of service providers, enterprise, data centers, and government agencies.