



# OptiCop Wavelength Interceptor™

An Automated Intercept Access Solution for DWDM Networks



## INTRODUCTION/OVERVIEW

DWDM networks have forever changed the way the world thinks about communications bandwidth. Arriving on the scene just as Internet usage was dramatically ramping, DWDM technology enabled exponential growth in bandwidth to be transported across Metro and Long-haul fiber networks. These networks represent the optimal monitoring location for those entrusted with protecting our homelands and upholding the law.

I-9196 is the industry first purpose built solution that enables access to these network locations, and provides a better solution from both an Operational and Capital expense perspective. It consolidates the functions of multiple network elements and automates the process while improving the overall monitoring effectiveness.

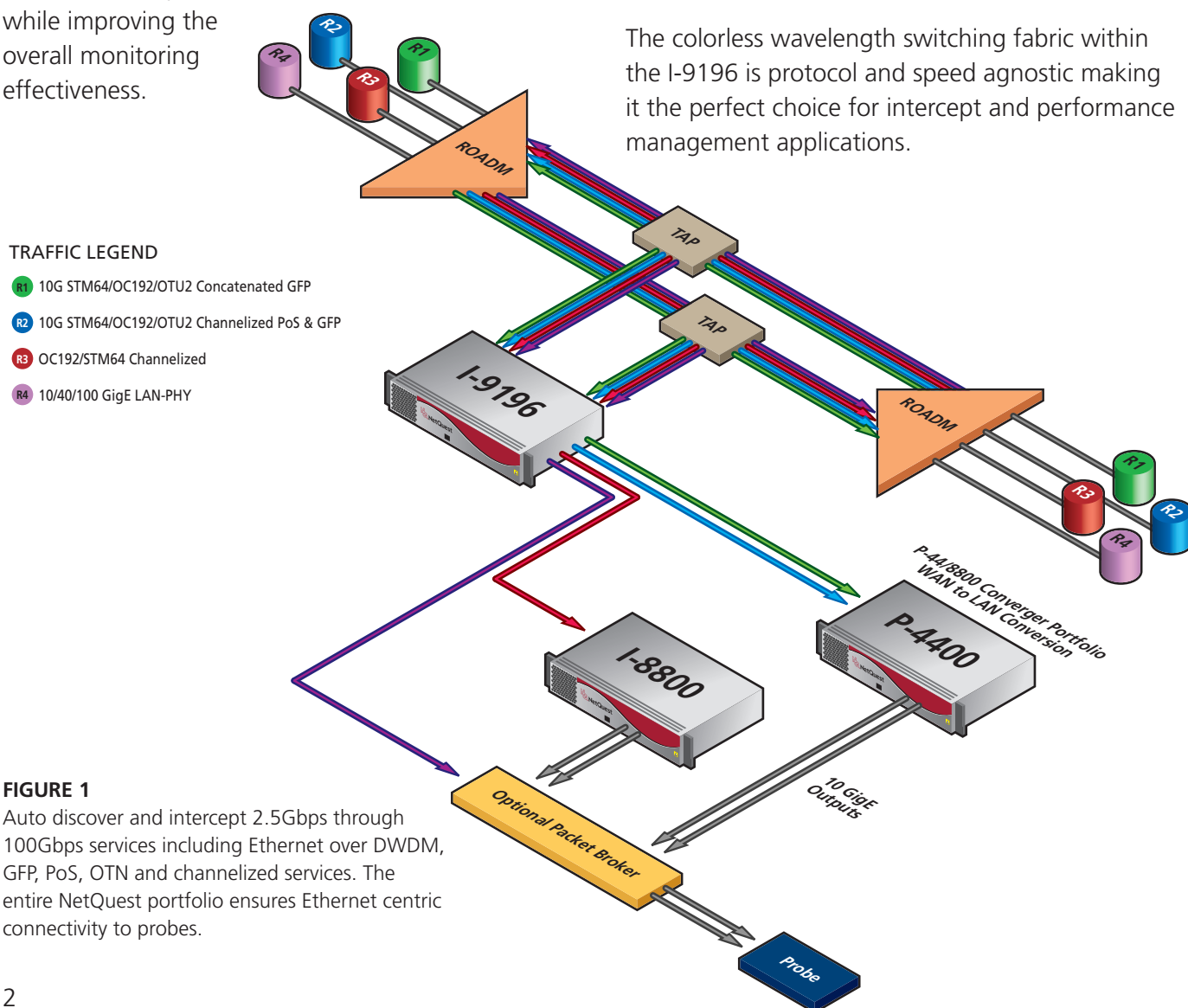
## BENEFITS

- Eliminate ROADMs use for monitoring access
- Automatically discover LI,L2,L3
- Integrated Optical Amplifiers
- Protocol Agnostic Colorless All Optical Switching Fabric

## APPLICATIONS

The I-9196 provides Network Operators and Government Agencies a tool to monitor specific network paths and or services when access to each individual circuit may be not be available physically or it may become prohibitively expensive to attach to 96 circuits individually.

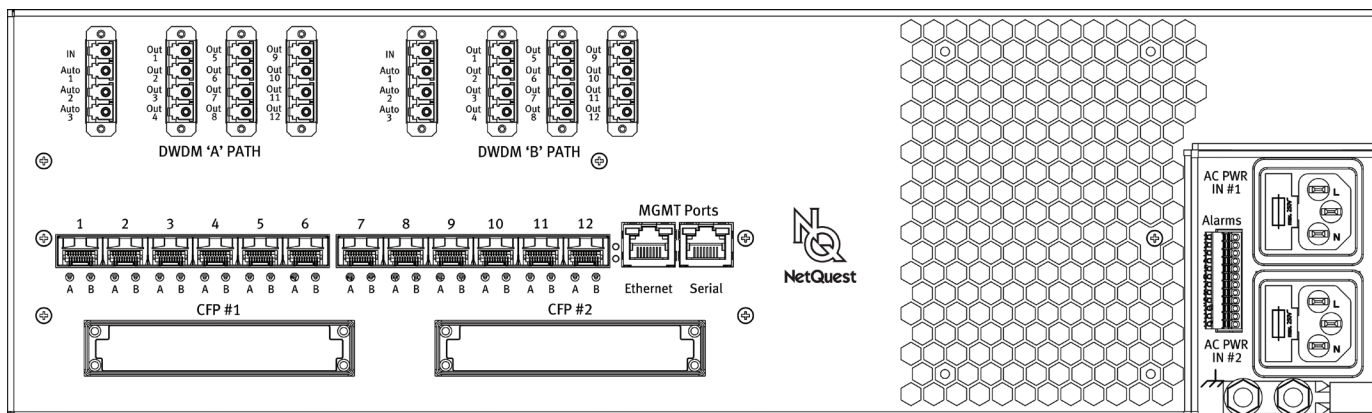
The colorless wavelength switching fabric within the I-9196 is protocol and speed agnostic making it the perfect choice for intercept and performance management applications.



### FIGURE 1

Auto discover and intercept 2.5Gbps through 100Gbps services including Ethernet over DWDM, GFP, PoS, OTN and channelized services. The entire NetQuest portfolio ensures Ethernet centric connectivity to probes.





## AUTO DISCOVERY

The I-9196 can be attached to any C-band optical network and it will automatically identify all wave lengths and multiplexing techniques being utilized along with the traffic types for each of the lambdas transported. By continuously scanning the targeted lambdas in the background without interruption of lambdas continuity, the I-9196 can alert the user should the network assign new channels or reallocate bandwidth. The auto discovery information regarding each wavelength is available locally or remotely and is passed to the targeting engine where the user can determine the next steps.

Compatibility with 2.5G – 100G services deployed on 1550nm optical networks the I-9196 can interoperate with various PHY's including 40Gbps OTU3 or OTU3e on 4 x 10Gbps lambdas and 100Gbps OTU4 on 4 x 28Gbps lambdas and Coherent implementations.

## LAMBDA TARGETING

Using the findings of the Auto Discovery process the I-9196 enables the users to selectively intercept/monitor individual lambda channels with a higher degree of flexibility than with fixed frequency DWDM's and more cost effectively than using

ROADM's. In addition to the flexibility of the I-9196 Wavelength Switching capabilities, it is also equipped with wideband erbium doped amplifiers making it possible to recover low level monitoring access with as much as -26dBm of attenuation. The user may target up to 16 wavelengths (8 per input) and forward the traffic

## MANAGEMENT

The I-9196 Interceptor can be managed locally or remotely using menu-driven screens via Telnet or a serial craft port. Both methods provide secure access through SSH and a multi-level password protection system that leverages Radius or TACACS+. Interceptor has integral Syslog support along with a SNMP V1-V3 agent that supports TRAP functionality, making it possible to audit and manage configuration change and alarm notifications in a networked environment.

For applications where a tight integration between the I-9196 and the intercept application system or LI management system is required, NetQuest has developed a machine-to-machine interface called GSCP, a proprietary UDP-based control protocol. Integrating GSCP with the intercept application system enables solution providers to present a unified solution at every level.

# TECHNICAL SPECIFICATIONS

<b>Model</b>	I-9196.100	
<b>DWDM Input Ports</b>	Port Quantity	2
	Input Signal Type	DWDM, ITU "C" band compliant
	Fiber Type	Single Mode
	Channel Resolution	50/100 Ghz
	Number of Channels	96 max@50Ghz and 48 max @100Ghz
	Connector	2 x LC
	Input Power Range	-26 to -3 dBm
	Dispersion Compensation	None
	Auto Discovery Support	2.5 & 10Gbps SONET/SDH/WAN-PHY/LAN-PHY OTU2/2e/1e 40Gbps OTU3/3e1/3e2 (4x10G lambdas) 100Gbps OTU4, LAN-PHY (4 x 25/28 & Coherent)
<b>Output Ports</b>	Port Quantity	Total 16, Per DWDM Input 8
	Output Signal Type	DWDM, ITU "C" band compliant
	Fiber Type	Single Mode
	Number of Channels	192 Accessible
	Connector	16 x LC
	Output Power Range	0 to -10dBm or -7 to -17dBm
<b>DWDM Switching</b>	Number of Channels Accessible	96max@50Ghz and 48 max @100Ghz
<b>Management Interfaces</b>	Ethernet 10/100	1 Telnet, SSH, SNMP, Syslog
	Serial (EIA 232)	1 Terminal VT-100
	Dry Contact Alarm	Dry Contact Alarms (Critical, Major, Minor, PSU1/2, InputPower, Fan, Audio)
	Visual Indicators	LED's (Critical, Major, Minor, PSU1/2, InputPower, Fan, Audio)
<b>Mechanical, Power, Environment</b>	Enclosure Size	3 Rack Units (19/23" front, center or rear mount) 5.25"H x 19"W x 17.25"D (13.9cm H x 48.3cm W x 43.8 cm D)
	Weight	16 Pounds (7.27kg)
	Input Power Source	100 to 240 VAC, 50/60Hz, 2.5A -40 to -72 VDC, 6.25A Dual feed with indepent fusing
	Maximum Power	200 Watts (redudant supplies), Hot swap capable
	Operating Temperature	0°C to 55°C
	Cooling (front to rear airflow)	Forced Air (2 Fan Trays), Hot swap capable
	Humidity	10% to 90%, Non-condensing
	Warm Up Time	14 minutes (Auto discovery will nominally work prior to full warm up although full spec compliance is not assured)
	Compliance	Safety: UL60950-1 ☒ EN60950-1, CSA C22.2#60950-1, IEC60950-1 Emissions: FCC Part 15 Class A, ETSI EN300-386, ☒ EN55022, EN55024 (immunity) NEBS Telcordia: GR-63-CORE, GR-1089-CORE, RoHS, Reach, WEEE

**About Netquest:** NetQuest Corporation designs, manufactures and markets innovative monitoring access products for applications in telecommunications service provider, government, and enterprise networks. Founded in 1987 and based in Mount Laurel, New Jersey, NetQuest is privately held and operates under the original management team. With more than a 20 year track record of providing cutting edge monitoring access solutions, NetQuest has developed a global customer base, marketing directly and through a network of value added resellers and representatives.

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