

For more information about Agilent Technologies photonic switching products, applications, or services visit our web site: www.agilent.com/comms/photonicswitch
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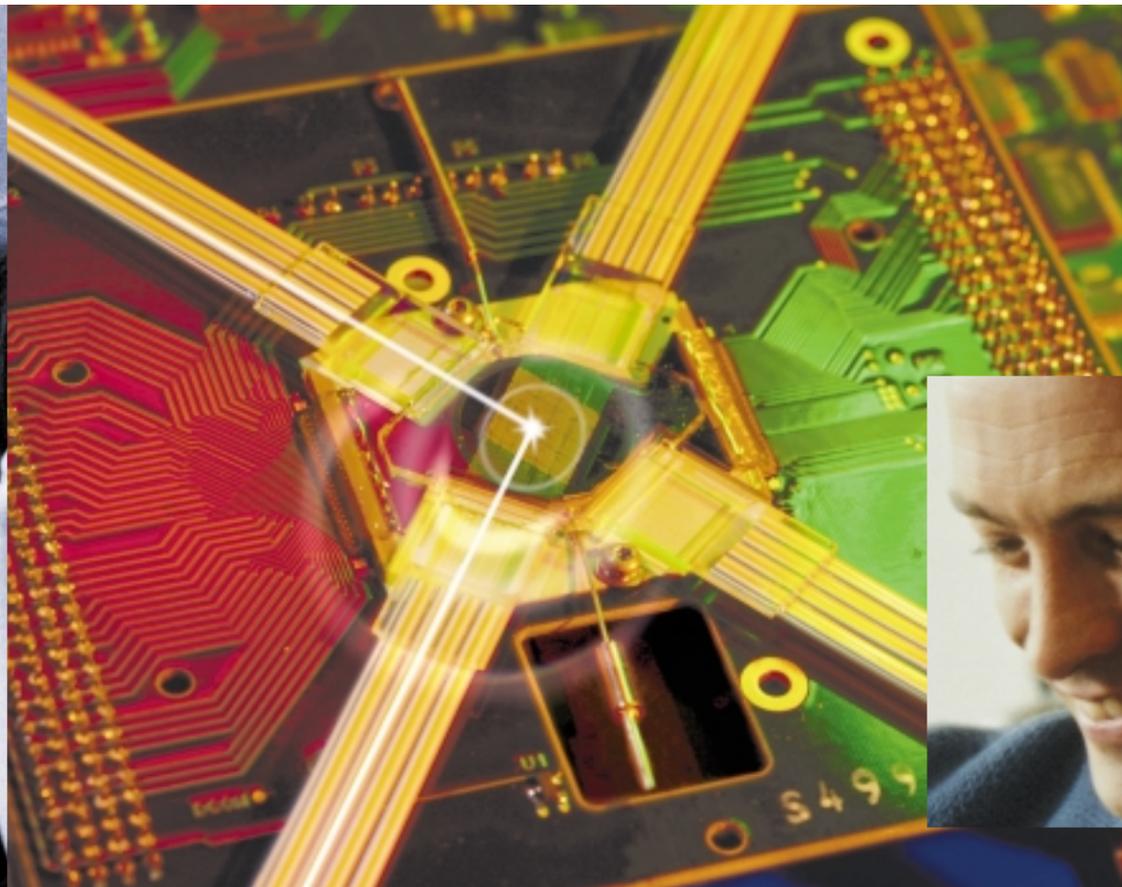
Agilent Technologies Photonic Switching Platform



Making All-Optical
Networks Real



Agilent Technologies: Making Your Network Dreams Real



Explosive information demand in the new Internet economy is driving enormous capacity expansion needs for telecommunication service providers. And experts predict network traffic will double every nine to twelve months—further increasing the need for high-bandwidth technologies, products, and services.

Dense wavelength division multiplexing has provided the capacity service providers demand—but bottlenecks remain at switching and add/drop points. In this emerging market, network equipment manufacturers are now faced with the daunting task of producing the equipment that will enable these leading-edge networks by removing switching bottlenecks, and providing value-added features that will improve performance, responsiveness, and reliability.

Agilent Technologies has combined reliable, established technologies to create a breakthrough, all-optical photonic switching platform. Our Agilent Photonic Switching Platform gives network equipment manufacturers the complete solution they need to get to market faster with the features that differentiate their products. It offers the flexibility and scalability to respond to market demands, the innovation and performance to help make technology dreams real, and the reliability of Agilent Technologies, a known technology leader for over 60 years.



**All-optical Networking:
The Benefits Are Clear**

As use of high-bandwidth fiber spreads from long-distance backbones to metropolitan and even access networks, users of all kinds will increasingly demand the faster speeds and lower equipment and maintenance costs available from all-optical networks. Current optical-electrical-optical switching techniques can't meet the growing needs for cost-effectiveness as well as bit-rate and protocol independence. And, even at the rate silicon speeds are increasing, electronic switching is unlikely to catch up. All-optical networks are clearly the wave of the future for backbone applications, expanding soon into the metro and even enterprise use as the demand increases.

Optical Crossconnect (OXC)

Because of the high port count required in most crossconnect nodes, scalability is a very big issue. The Agilent Photonic Switching Platform allows manufacturers to use a cost-effective, Wavelength Selective Crossconnect (WSXC); or a flexible, multi-tier, Clos-type architecture for a Wavelength Interchange Crossconnect (WIXC).

The Agilent switch can support either configuration. For the most efficient routing functions, the Agilent optical switch is also non-blocking in all configurations—allowing users to send an input channel to any unoccupied output channel.

Optical Add/Drop Multiplexers (OADMs)

In most network configurations, 20-30 percent of wavelengths are usually dropped off or added at intermediate nodes. The Agilent Photonic Switching Platform, combined with multiplexers and demultiplexers, enables OADMs that can add and drop wavelengths to any port, while allowing express channels to pass through untouched—all while remaining in the optical domain.

To keep pace with the demands of today's dynamic networks, Agilent technology also allows users to reconfigure and rearrange add/drop wavelengths remotely—making it possible to provision services instantly.

Protection Switching

A failure like a cut fiber can create havoc for service providers, who typically allot 50 ms to the network for protection switching applications. Of this total, the optical switch is allowed less than 10 milliseconds.

The Agilent Photonic Switching Platform can switch wavelengths or fibers equally quickly, in under 10 milliseconds, to give service providers the re-routing options they need to protect service integrity.

Switch to Agilent

A lot of companies claim to have the optical solutions you need for these and other optical applications. Some are unproven technologies from unknown companies. Others are hybrid technologies that still incorporate electromechanical limitations. Some are only partial solutions that leave manufacturers with big development issues before they can actually bring a product to market.

Only Agilent offers manufacturers and their customers an all-optical switching solution with no compromises.

The Agilent Advantage

The Agilent Photonic Switching Platform provides the best technology platform for optical products. Offered as a complete solution with a high-performance optical switch and intelligent subsystem, the Agilent Photonic Switching Platform lets network equipment manufacturers build better products faster, with the flexibility to add more value for end customers.



**A Breakthrough
Photonic Switching Platform**

The Agilent Photonic Switching Platform combines two well-known technologies for a breakthrough in transparent switching. A reliable, time-tested switching mechanism positions the Agilent platform as the most viable all-optical switching technology.

Completely transparent, the Agilent platform also offers the bit rate and protocol independence that will enable customers to simplify network elements and eliminate forklift upgrades—for an estimated savings of up to 75 percent over optical-electrical-optical solutions.

Modular and Scalable

The industry's first compact all-optical 32 x 32 matrix switch subsystem, the Agilent Photonic Switching Platform offers a high port count, scalable to higher-order N x N multi-stage switch architectures.

The subsystem API, Ethernet Interface, and intelligent controller enable scaling to larger NxN matrices.

Best-in-class Optical Performance

Built with intersecting silica waveguides and thermal inkjet elements, the Agilent switch directs light by creating a bubble in the index-matching fluid at the intersection between the input waveguide and the desired output waveguide. Light is reflected completely internally.

This simple switch technology creates no polarization, wavelength, or bit-rate dependencies. Crosstalk measures less than -50 dB. The switch fulfills the protection switching requirements for less than a 10 ms switching time. And it offers a high port count with low loss—typically an average 5 dB for a Wavelength Selective Crossconnect, 15 dB fiber-to-fiber for a 512 x 512 Wavelength Interchange architecture, or 3.5 dB for express channels in an add/drop application.

Reliable

The simple Agilent photonic switching mechanism has no complex, dynamically aligned mirrors, control systems, or clean-room boxes—just passive waveguides, guided beams, and mass-produced IC actuators.

Built with silica planar lightwave circuits and thermal inkjet technology, the Agilent Photonic Switching Platform meets stringent environmental requirements and can switch dependably after it has been idle in a specific state for long periods of time. The fluid is non-corrosive and stable, and inkjet elements have been switched millions of times without failure.

Faster Time to Market

The only platform-level product on the market, the Agilent Photonic Switching Platform offers an intelligent control subsystem and high-level API. The subsystem comes with an Ethernet interface, control electronics, controller, and proactive alarming capabilities. The simple API command structure lets users easily access the subsystem, operating on industry-standard platforms and operating systems.

All of which lets manufacturers spend more time adding value through system and software development and integration. While still getting products to market faster.



**Get It All. Get All-optical
Solutions From Agilent**

Get the all-optical technology with no compromises—the Photonic Switching Platform from Agilent Technologies.

Our proven, well-known technologies can easily be manufactured in quantity to enable early adoption. With no moving parts, our switch offers a level of reliability manufacturers can't get from competing technologies. Our all-optical solution provides bit-rate and protocol independence for the transparent speeds and future-proof solutions customers want. Because it's all-optical, the Agilent Photonic Switching Platform provides a less expensive, more flexible network that's easier to maintain. And the switch architecture offers superior scalability with low loss.

Best of all, it's from Agilent—a trusted partner with a 60-year heritage of quality, technical innovation, and reliability. Get the advantage of all-optical technology with no compromises, combined with the global reach and mass production capabilities of Agilent. Get the best solution for transparent switching with the Agilent Photonic Switching Platform.

