

WINTERGREEN RESEARCH, INC.

**Switch Fabric Market Shares, Strategies, and Forecasts,  
Worldwide, 2010 to 2016**

**Switch Fabric Support for Packet Control and Packet Collision  
Avoidance**



*Picture by Susie Eustis*

**MOUNTAINS OF OPPORTUNITY**

**WinterGreen Research, Inc.  
Lexington, Massachusetts**

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## **CHECK OUT THESE KEY TOPICS**

**Switch Fabric Market Share**

**Efficient switching Modalities**

**Localized Switch Fabrics**

**Virtual Output Queuing (VOQ)**

**Prioritized Flow Control**

**Switch Fabric Methods**

**Switch Fabric Arbitrates Traffic**

**Switch Fabric Control Quality Of Service (QoS)**

**Switch Fabric Forecasts**

**Switch Packets From Input Ports To Output Ports**

**Situation When More Than One Packet Arrives Concurrently If Both Are  
Destined For The Same Output Port**

**Two possible Locations For Buffering**

**Input Of The Switch Fabric**

**(Input Queuing)**

**Internally To The Switch Fabric**

**(Shared-Memory)**

**Value Of Switch Fabric Systems**

**Switch Fabrics Provide Buffering**

**Switch Fabrics Handle Situations**

**Packet Input Rate Greater Than The Switch Fabric Throughput Capability**

***OPPORTUNITY ABOUNDS***

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## Switch Fabric Market Shares, Strategies, and Forecasts, Worldwide, 2010 to 2016

LEXINGTON, Massachusetts (January 1, 2010) – WinterGreen Research announces that it has a new study on switch fabrics. The 2010 study has 329 pages, 111 tables and figures. Worldwide markets are poised to achieve significant growth as data managers move to more cost efficient switching modalities. Vendors are building out localized switch fabrics that support an information system with devices that contain virtual output queuing (VOQ) and prioritized flow control.

Switch fabrics provide a method to switch the packets from input ports to output ports. The switch fabric must arbitrate traffic when more than one packet arrives concurrently if both are destined for the same output port. Switch fabrics provide sufficient buffering to handle situations where the packet input rate is greater than the switch fabric's throughput capability.

The two possible locations for buffering are at the input of the switch fabric (input queuing) or internally to the switch fabric (shared-memory). Switch fabrics control quality of service (QoS).

The switch fabric is responsible for receiving data from a line card and routing it to the proper destination. OEMs outsource the fabric to semiconductor suppliers. Switch fabric solutions integrate advanced queuing and scheduling, a serial crossbar, and multiple channels of high-speed serial link technology in a two-component fabric chip set.

The multi-service provisioning platform (MSPP) is an emerging product category specifically designed to address the needs of service providers for reliable transport of data and telecom services between dissimilar networks. New platforms of this type are employing standards-based packet switching systems designed to transfer voice and data over IP between PSTN, mobile, core and IP networks. Because the access points of a converged network use different protocols for transporting data and voice (that is, ATM, IP, and SONET).

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The task of the MSPP is to seamlessly transfer the media streams at port speed between the various network interfaces while supporting QoS guarantees. It is the move to higher layer switching to incorporate QoS along with the higher port speeds (OC-48, OC-192) that is driving the need for MSPPs with advanced network processing engines and intelligent switch fabric devices.

The intelligent switch fabric devices contain virtual output queuing (VOQ) and prioritized flow control. This supports the ability to provide high-capacity (160 Gbps), non-blocked, class of service based switching. Vitesse GigaStream family of switch fabrics is a product in this category.

The ongoing convergence of communications technologies and proliferation of digital media is introducing radical changes to the consumer electronic market. These changes are redefining traditional ideas of what we can expect from familiar products such as televisions, personal computers and cell phones. Advances in semiconductor technology are driving this transformation by bringing capabilities to which we are already accustomed (such as Web browsing, recording video, and getting driving directions) into new device contexts.

Markets for switch fabrics at \$317 million in 2009 are anticipated to reach \$920 million by 2016, growing in response to decreases in unit costs and increases in integrated IC functionality. Some applications are in high growth market segments, including data center consolidation, security, high definition video, and high speed video applications. Switch fabrics are poised to make people more productive in security environments, help increase productivity with faster desktop access capabilities, and decrease storage seek times.

Switch fabric markets are forecast to grow as the quantity of data traversing the Internet grows. The Internet data is doubling every 5 months. Quantities of data are increasing from petabytes per day to exabytes per day. The technology needed to handle this includes switch fabrics. Cloud computing and HD TV represent the most significant market driving forces for growth of switch fabrics.

## YOU MUST HAVE THIS STUDY

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## Companies Profiled

### Market Leaders

Broadcom  
Dune  
Fujitsu  
Fulcrum Microsystems  
PMC-Sierra  
Vitesse

### Market Participants

Cisco Systems  
Juniper Networks  
AppliedMicro  
Erlang Technology  
Integrated Device Technologies  
Mindspeed  
Netlogic Microsystem / Aeluros Inc.  
Sierra Wireless  
STMicroelectronics  
Zarlink Semiconductor

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## Switch Fabric Market Shares, Strategies, And Forecasts, Worldwide, 2010 to 2016

### Report Methodology

This is the 426 st report in a series of market research reports that provide forecasts in communications, telecommunications, the Internet, computer, software, telephone equipment, health equipment, and energy. Automated process and significant growth is a priority in topic selection. The project leaders take direct responsibility for writing and preparing each report. They have significant experience preparing industry studies. Forecasts are based on primary research and proprietary data bases.

The primary research is conducted by talking to customers, distributors and companies. The survey data is not enough to make accurate assessment of market size, so WinterGreen Research looks at the value of shipments and the average price to achieve market assessments. Our track record in achieving accuracy is unsurpassed in the industry. We are known for being able to develop accurate market shares and projections. This is our specialty.

The analyst process is concentrated on getting good market numbers. This process involves looking at the markets from several different perspectives, including vendor shipments. The interview process is an essential aspect as well. We do have a lot of granular analysis of the different shipments by vendor in the study and addenda prepared after the study was published if that is appropriate.

Forecasts reflect analysis of the market trends in the segment and related segments. Unit and dollar shipments are analyzed through consideration of dollar volume of each market participant in the segment. Installed base analysis and unit analysis is based on interviews and an information search. Market share analysis includes conversations with key customers of products, industry segment leaders, marketing directors, distributors, leading market participants, opinion leaders, and companies seeking to develop measurable market share.

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Over 200 in depth interviews are conducted for each report with a broad range of key participants and industry leaders in the market segment. We establish accurate market forecasts based on economic and market conditions as a base. Use input/output ratios, flow charts, and other economic methods to quantify data. Use in-house analysts who meet stringent quality standards. Interviewing key industry participants, experts and end-users is a central part of the study. Our research includes access to large proprietary databases. Literature search includes analysis of trade publications, government reports, and corporate literature.

Findings and conclusions of this report are based on information gathered from industry sources, including manufacturers, distributors, partners, opinion leaders, and users. Interview data was combined with information gathered through an extensive review of internet and printed sources such as trade publications, trade associations, company literature, and online databases. The projections contained in this report are checked from top down and bottom up analysis to be sure there is congruence from that perspective.

The base year for analysis and projection is 2009. With 2009 and several years prior to that as a baseline, market projections were developed for 2010 through 2016. These projections are based on a combination of a consensus among the opinion leader contacts interviewed combined with understanding of the key market drivers and their impact from a historical and analytical perspective. The analytical methodologies used to generate the market estimates are based on penetration analyses, similar market analyses, and delta calculations to supplement independent and dependent variable analysis. All analyses are displaying selected descriptions of products and services.

This research includes referencde to an ROI model that is part of a series that provides IT systems financial planners access to information that supports analysis of all the numbers that impact management of a product launch or large and complex data center. The methodology used in the models relates to having a sophisticated analytical technique for understanding the impact of workload on processor consumption and cost.

WinterGreen Research has looked at the metrics and independent research to develop assumptions that reflect the actual anticipated usage and cost of systems. Comparative analyses reflect the input of these values into models.

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The variables and assumptions provided in the market research study and the ROI models are based on extensive experience in providing research to large enterprise organizations and data centers. The ROI models have lists of servers from different manufacturers, Systems z models from IBM, and labor costs by category around the world. This information has been developed from WinterGreen research proprietary data bases constructed as a result of preparing market research studies that address the software, energy, healthcare, telecommunications, and hardware businesses.

## **Switch Fabric Market Shares, Strategies, and Forecasts, Worldwide, 2010 to 2016**

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