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 **www.wintergreenresearch.com**

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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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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.

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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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, telecommunicatons, and hardware businesses.

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ABOUT THE COMPANY

WINTERGREEN RESEARCH, HAS A UNIQUE RESEARCH STRATEGY THAT RELATES TO IDENTIFYING MARKET TRENDS THROUGH BUILDING ON A STRONG KNOWLEDGE BASE AND INTERVIEWING OPINION LEADERS. BY READING THE ELECTRONIC EQUIVALENT OF 40 FEET OF PAPER, WINTERGREEN RESEARCH SENIOR ANALYSTS CAN LEARN A LOT MORE ABOUT MARKETS, A LOT FASTER THAN CAN BE LEARNED THROUGH EXPENSIVE SURVEYS AND FOCUS GROUPS. PRIMARY RESEARCH IS CONDUCTED BY IDENTIFYING MARKET TRENDS. ACCURACY OF NUMBERS IS A HIGH PRIORITY AT WINTERGREEN RESEARCH. AS WITH ALL RESEARCH, THE VALUE PROPOSITION FOR COMPETITIVE ANALYSIS COMES FROM INFORMED INPUT.

WINTERGREEN RESEARCH IS FOCUSED ON UNDERSTANDING GROWTH MARKETS AND CHOOSES TO WRITE ABOUT MARKET OPPORTUNITY IN THE CONTEXT OF AUTOMATED PROCESS. WINTERGREEN RESEARCH HAS THE SOFTWARE AND PROPRIETARY DATA BASES THAT MAKE IT POSSIBLE TO GATHER INFORMATION, LOTS OF INFORMATION FROM READING MASSIVE AMOUNTS OF CONTENT, AND THEN TRYING TO MAKE SENSE OF THAT CONTENT. THE ABILITY TO THINK ABOUT MARKET TRENDS IS ENHANCED BY DOING IT OVER AND OVER FOR MANY DIFFERENT MARKETS. THAT IS WHAT WINTERGREEN RESEARCH IS ALL ABOUT: READING AND THINKING IS AN ESSENTIAL ASPECT OF COMPETITIVE ANALYSIS. TALKING TO OPINION LEADERS IS THE THIRD ESSENTIAL ASPECT OF PRODUCING GOOD, RELIABLE DATA.

WINTERGREEN RESEARCH, FOUNDED IN 1985, PROVIDES STRATEGIC MARKET ASSESSMENTS IN TELECOMMUNICATIONS, COMMUNICATIONS EQUIPMENT, HEALTH CARE, INTERNET AND ADVANCED COMPUTER TECHNOLOGY. INDUSTRY REPORTS FOCUS ON OPPORTUNITIES THAT EXPAND EXISTING MARKETS OR DEVELOP MAJOR NEW MARKETS. THE REPORTS ASSESS NEW PRODUCT AND SERVICE POSITIONING STRATEGIES, NEW AND EVOLVING TECHNOLOGIES, AND TECHNOLOGICAL IMPACT ON PRODUCTS, SERVICES, AND MARKETS. MARKET SHARES ARE PROVIDED. LEADING MARKET PARTICIPANTS ARE PROFILED, AND THEIR MARKETING STRATEGIES, ACQUISITIONS, AND STRATEGIC ALLIANCES ARE DISCUSSED. THE PRINCIPALS OF WINTERGREEN RESEARCH HAVE BEEN INVOLVED IN ANALYSIS AND FORECASTING OF INTERNATIONAL BUSINESS OPPORTUNITIES IN TELECOMMUNICATIONS AND ADVANCED COMPUTER TECHNOLOGY MARKETS FOR OVER 30 YEARS.

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ABOUT THE PRINCIPAL AUTHORS

ELLEN T. CURTISS, TECHNICAL DIRECTOR, CO-FOUNDER OF WINTERGREEN RESEARCH, CONDUCTS STRATEGIC AND MARKET ASSESSMENTS IN TECHNOLOGY-BASED INDUSTRIES. PREVIOUSLY SHE WAS A MEMBER OF THE STAFF OF ARTHUR D. LITTLE, INC., FOR 23 YEARS, MOST RECENTLY AS VICE PRESIDENT OF ARTHUR D. LITTLE DECISION RESOURCES, SPECIALIZING IN STRATEGIC PLANNING AND MARKET DEVELOPMENT SERVICES. SHE IS A GRADUATE OF BOSTON UNIVERSITY AND THE PROGRAM FOR MANAGEMENT DEVELOPMENT AT HARVARD GRADUATE SCHOOL OF BUSINESS ADMINISTRATION. SHE IS THE AUTHOR OF RECENT STUDIES ON WORLDWIDE TELECOMMUNICATIONS MARKETS, THE TOP TEN INTERNET EQUIPMENT COMPANIES, THE TOP TEN CONTRACT MANUFACTURING COMPANIES, AND THE TOP TEN TELECOMMUNICATIONS MARKET ANALYSIS AND FORECASTS.

SUSAN EUSTIS, PRESIDENT, CO-FOUNDER OF WINTERGREEN RESEARCH, HAS DONE RESEARCH IN COMMUNICATIONS AND COMPUTER MARKETS AND APPLICATIONS. SHE HOLDS SEVERAL PATENTS IN MICROCOMPUTING AND PARALLEL PROCESSING. SHE HAS THE ORIGINAL PATENTS IN ELECTRONIC VOTING MACHINES. SHE HAS NEW PATENT APPLICATIONS IN FORMAT VARYING, MULITPROCESSING, AND ELECTRONIC VOTING. SHE IS THE AUTHOR OF RECENT STUDIES OF THE REGIONAL BELL OPERATING COMPANIES' MARKETING STRATEGIES, INTERNET EQUIPMENT, BIOMETRICS, A STUDY OF INTERNET EQUIPMENT, WORLDWIDE TELECOMMUNICATIONS EQUIPMENT, TOP TEN TELECOMMUNICATIONS, DIGITAL LOOP CARRIER, WEB HOSTING, WEB SERVICES, AND APPLICATION INTEGRATION MARKETS. MS. EUSTIS IS A GRADUATE OF BARNARD COLLEGE.

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