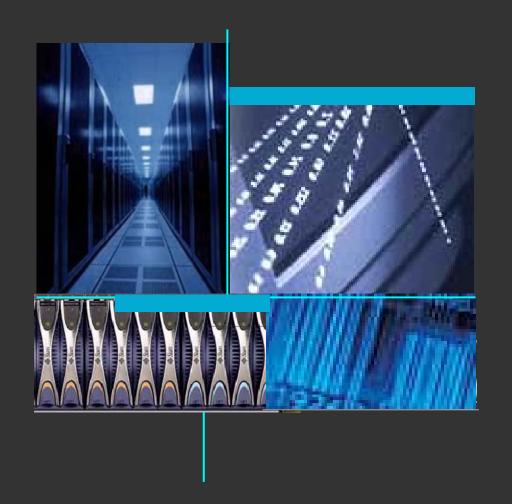
# An Industry Report Modular Computing Series 2010



# Architecting Next Generation Data Centers

www.imexresearch.com

# **Architecting Next Generation Data Centers**

#### TABLE OF CONTENTS

#### 1. Executive Overview

## 2. Market Drivers & Industry Dynamics

**Data Center automation Targets** 

**Applications Driven architectures** 

The rise of Blade Computing

Key Technologies - Clustering, Server Interconnects & Virtualization Pros & cons of Proprietary vs. Open Cluster Interconnect solutions

Interconnect Contenders: Characteristics, Status

Fibre Channel, InfiniBand, TCP/IP/Ethernet

Technology Comparison - Interconnect Fabrics

State of Cluster Interconnect Fabrics

Technology Issues – Bandwidth, Latency (Memory, LAN, WAN, TLB, Disk, Cache OS), Scaling, Storage

#### 3. Market Segments & Product Requirements

# Market Segments & Product Requirements by Application OLTP

Transaction Processing (ERP/CRM/SCM), eCommerce

#### IP Telecom

VoIP, Messaging, Convergence (Voice, Data, Video)

#### **Decision Support Systems**

Business Intelligence, OLAP, Data Mining

#### **HPC / Grids**

Technical & Commercial Grids, Transaction Grids

Bioinformatics, Visualization/Rendering, Earth Resources Exploration...

HPCC Architectures, Building Block, Software, Hardware Components

Network and Server Interconnects, Management and Monitoring

#### Streaming

Medical. Entertainment Content, MP3, VOD

Market Segments & Product Requirements by Tiers – 1,2 & 3 Technology Challenges

#### 4. Market Forecast & Market Shares

#### **WW IT Spending**

#### **WW Server Market Forecast (Revenues, Units, ASP)**

By OS

By Price Groups

By Processor Technologies

By Workloads

By Tiers - Web Servers, Application Servers, DB/Transaction Servers

By Scale Up vs. Scale Out Technologies

By High Availability Levels

#### WW Networking Market Forecast (Revenues, Ports, ASP)

By Gateways & Switches (Managed & Unmanaged)

By Server Interconnects (IB, GbE..)

## 5. Emerging Technologies & Standards

#### **Server Technologies**

**Blade Servers** 

Clustering

Interconnect Fabrics (IB, proprietary, IP, PCI-Express)

Server Virtualization

Server I/O Technologies

Provisioning – Solutions and Standards

Automation

SAN Technologies

#### **Industry Initiatives**

Infiniband, GEA, RDMA Consortium, MS Chimney...

#### State of Progression of Interconnect & related Technologies

TOE, RDMA, iSCSI, RDMA over IB and RDMA over IP,

Integrated Remote Management

FC vs. IP SANs

Performance Benchmarks & Standards

#### 6. Major Suppliers & Strategies

#### **Players by Market Segment**

#### **Vendors in Value Chain by Technology Segment**

Infiniband (Chips, HCA/TCAs, Switches/Gateways, Systems, Solution Providers, Distributors) GbE/10GbE (Chips, HBA, Multifunction NICs, Hubs/Switches/Routers, Systems, Solution Providers, Distributors)

#### **IB Vendor Profiles**

Mellanox, Fujitsu, Infinicon, Top Spin, Voltaire, Agilent, HP, Sun, IBM ...

**GbE Vendors Profiles** 

# 7. Competitive Products Positioning

Interconnect Metrics - Latency vs. Bandwidth

Proprietary Interconnects Myrinet, Quadrics, ServerNet, SCI..)

Open Standard Interconnects (Infiniband, GbE PCI Express..)

**Pricing Structures & Price Erosion Curves** 

# 8. Go-to-Market Strategies & Channels of Distribution

Targeted Markets - OEMs vs. Partners

**Effective Marketing Programs** 

Channels used by Chip, Switch & System Vendors

**Pricing Structures – OEM, Distribution, Street** 

**Top 10 Potential OEMs** 

**Top 50 Potential System Integrators** 

**Top 50 Potential Solution Providers** 

Top 50 End Users by Vertical Industry Sectors

#### 9. Recommendations

# 10. Research Methodology & Appendices