SiliconGraphics
Computer Systems

WebFORCE™ CHALLENGE® DM, L, XL
Symmetric Multiprocessing Web Servers

The World Wide Web is changing—from a static, text-based world to a dynamic, highly-interactive environment. WebFORCE™ CHALLENGE® DM, L, and XL Web servers enable compelling, high-performance Web applications by combining advanced CHALLENGE symmetric multiprocessing (SMP) technology with a comprehensive software environment. Silicon Graphics® WebFORCE CHALLENGE servers, combined with Silicon Graphics WebFORCE Indy® and Indigo² IMPACT™ authoring stations, provide the most comprehensive solution for professional Web authoring and high-performance Web serving.

A Superior, Scalable Architecture
The inherent scalability of WebFORCE CHALLENGE servers lets you manage high-traffic environments and expand your site to accommodate more information, applications, and users. Based on the symmetric multiprocessing of the MIPS® 64-bit RISC architecture, WebFORCE CHALLENGE servers yield more than enough power for demanding digital media and database Web applications.

The WebFORCE CHALLENGE server family couples SMP technology with industry-leading I/O performance in a highly scalable architecture. Only CHALLENGE servers deliver the I/O bandwidth required for these demanding, complex, multimedia Web sites, with sustained I/O throughputs of up to 960MB per second for the CHALLENGE DM and L servers, and up to 1.2GB per second for the CHALLENGE XL server.

WebFORCE CHALLENGE servers, with binary compatibility across the family, also feature outstanding expandability. Up to 36 CPUs, 6.4 terabytes of disk storage, 19 Ethernet™ ports, 4 FDDI ports, 8 ATM ports, and 16GB of main memory are available

with the high-end WebFORCE CHALLENGE XL platform. Support for Token Ring, X.25, and HiPPI network topologies are also available for all CHALLENGE SMP servers.
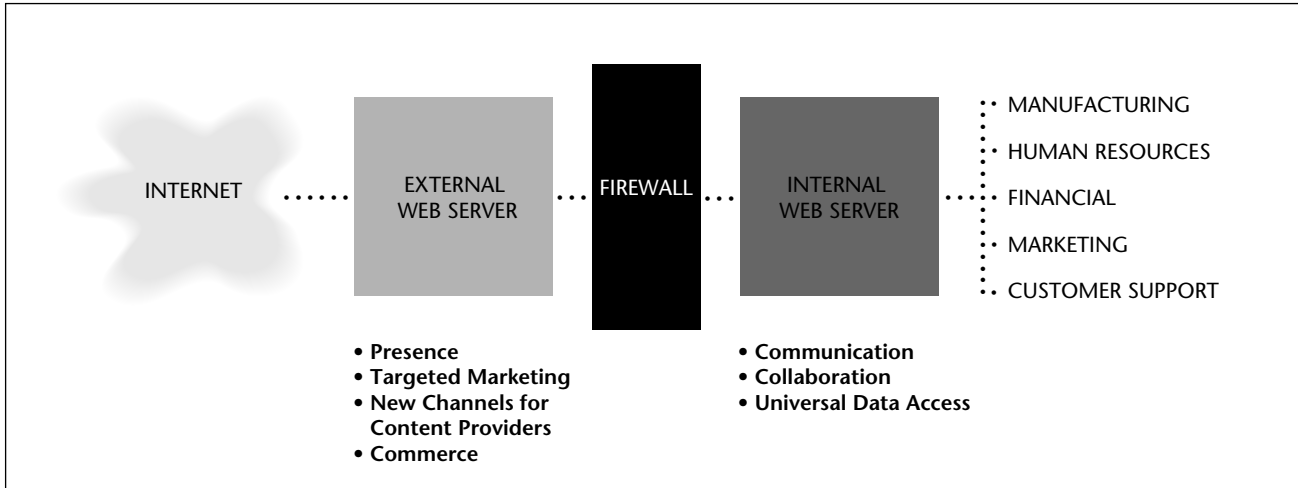
Integrating Digital Media and Databases
Driving this highly interactive, dynamic Web environment are new types of information—databases and media-rich content including video, audio, graphics, and 3D worlds generated with the Virtual Reality Modeling Language (VRML). This data- and media-intensive world requires the power and scalability of WebFORCE CHALLENGE SMP servers. WebFORCE CHALLENGE servers, with compelling digital media and integrated databases, bring new dimensions to commerce, advertising, education, and entertainment on the World Wide Web.

By linking databases with Web sites, organizations can create dynamic, up-to-date Web pages in real time. CHALLENGE servers provide the ideal platform for the next-generation Web, with support for all of the leading database solutions. Oracle, Sybase, and Informix solutions are available—and optimized—for WebFORCE CHALLENGE SMP servers. With the tools offered by WebFORCE software partners, these databases are easily integrated to deliver high-impact Web sites.

Diagram:

INTERNET ...... EXTERNAL WEB SERVER ... FIREWALL ... INTERNAL WEB SERVER ....

MANUFACTURING
HUMAN RESOURCES
FINANCIAL
MARKETING
CUSTOMER SUPPORT

External Web Server:
- Presence
- Targeted Marketing
- New Channels for Content Providers
- Commerce

Internal Web Server:
- Communication
- Collaboration
- Universal Data Access

Completing the Solution: WebFORCE Software

System Software

At the core of every WebFORCE SMP server is Silicon Graphics powerful IRIX™ 6.2 system software, which includes standard Internet tools such as FTP, Telnet, MediaMail™ E-mail, as well as support for PPP and SLIP connections. Each WebFORCE SMP server also includes the XFS™ filesystem for rapid and reliable recovery of filesystem structure and extremely high I/O performance. Internet utilities such as POP2/POP3 mail servers, WAIS search engines, text browsers, Gopher, Archie, and many more are also available for WebFORCE CHALLENGE servers.

Netscape™ Servers

WebFORCE CHALLENGE servers all begin with the Netscape Enterprise Server and Livewire management software. The performance leader in World Wide Web server software, Netscape offers flexible server configurations, scalability, and easy administration with Netscape Navigator™. Built-in JavaScript™ enables easy integration of a Web server with new or existing databases.

Server Performance Monitoring

WebMeter, based on Silicon Graphics Performance Co-Pilot™ (PCP) architecture, provides system performance monitoring capabilities for optimizing server management. WebMeter, with a unique 3D visual interface, includes sophisticated control mechanisms and facilitates the in-depth analysis required to understand and manage the challenging performance issues posed in complex Web serving environments. WebMeter also enables monitoring of Web server performance and the ability to set alarms if thresholds are exceeded.

Site Management

Cosmo™ Site is a robust Web content management and site visualization tool with an intuitive graphical user interface. Cosmo gives administrators a graphical view of Web sites, real-time monitoring of Web traffic, and sophisticated statistics reporting and log analysis.

Information Sharing

For complex, heterogeneous computing environments, each WebFORCE CHALLENGE SMP system includes the Network File System™ (NFS™), as well as support for PC NetWare™ and Macintosh® native client interfaces.

High Availability

Companies depend more and more on the Web for their business-critical operations and access to the world marketplace. For businesses that cannot afford to have a Web server go down, WebFORCE CHALLENGE servers support several high-availability options.

IRIS FailSafe/Web maximizes data protection. One server can act as a hot standby, and if the primary server goes down, the hot standby takes over immediately. A second option combines load balancing and high availability. In this solution, multiple Web servers service incoming requests, with the load automatically balanced among two or more designated servers. If one server goes down, the remaining servers take over, offering configuration versatility, optimized system usage, and excellent overall server performance.

WebFORCE Server Solutions

Enterprise-Wide Web Service

WebFORCE Enterprise servers, part of the WebFORCE Intranet product line, enhance communication and foster collaboration within a corporation. When combined with WebFORCE Intranet Workgroup solutions, creation and deployment of Intranets becomes easier than ever before.

Whether it's for distributing information to a field sales force, offering human resources information on line, or providing a means for work groups to collaborate on projects, a corporate WebFORCE Enterprise server provides an excellent return on investment. With the integration of databases to store and share information, and video or audio to enhance the collaborative processes, a WebFORCE Enterprise server raises productivity throughout the enterprise.

Integrating Legacy Systems

WebFORCE Enterprise server customers are using the Web to add a new dimension to existing information systems. Firms can now use the Web as a front end for existing applications such as customer support, inventory systems, and order entry and tracking. WebFORCE Enterprise servers support simple-to-use access paths to corporate systems, and improve overall production while reducing training and development costs.

Personalized Marketing

The combination of database management systems from market leaders such as Oracle, Sybase, and Informix, and WebFORCE CHALLENGE servers is revolutionizing marketing methodology. Personalized Web pages can be created for each target audience, no matter how small. While expensive advertisements require mass-media broadcasts or publications, the Web invites the interested parties to locate the exact information they desire from your WebFORCE CHALLENGE server. The databases supported with the WebFORCE platforms make it realistic to set up and distribute many varied messages, each focused on the large or small market cross sections they will reach. Marketing departments can now tailor messages to previously unreached subsets of the population, and can take advantage of the self-selected advertising that the Web affords.

Database Visualization and Database Mining

With all of the data that your Web site will generate, a wealth of knowledge about your visitors can be extracted. With innovative data mining tools, users can efficiently access and view large quantities of information. The data mining and data visualization tools from Silicon Graphics make it easy for users to recognize patterns within the Web data. When integrated with VRML as a front-end user interface to a database, information becomes much easier to understand, interpret, and react to.

WebFORCE CHALLENGE DM: Affordable SMP

With one to four processors, the WebFORCE CHALLENGE DM server suits a broad range of database, digital media, file-serving, and real-time applications. For I/O-intensive applications, it provides unprecedented performance for its price. The expandable deskside package accommodates up to 6GB of memory, terabytes of mass storage, and 19 Ethernet and 24 SCSI ports.

WebFORCE CHALLENGE L: High-Performance Computing

The WebFORCE CHALLENGE L deskside server houses up to 12 processors and is perfect for compute- and database-intensive applications. For multimedia applications, the CHALLENGE L server has ample power for video and audio stream management. For large-scale database querying applications and hosting multiple Web sites, the CHALLENGE L server supports up to 4.7 terabytes of storage, 6GB of main memory, and 960MB per second I/O throughput.

WebFORCE CHALLENGE XL: Unrivaled Power

High-volume order processing, inventory management, customer billing, data mining, and other dedicated back-end database applications are perfect for WebFORCE CHALLENGE XL, the highest-performing database server on the planet. Up to 36 processors, 16GB of main memory, and 1.2GB-per-second I/O throughput allow CHALLENGE XL to support up to thousands of users. The capacity and performance mean that this WebFORCE server can keep up with increasing traffic, new users, and additional, complex data.

HARDWARE

	CHALLENGE DM	CHALLENGE L	CHALLENGE XL

CHALLENGE DM

Processor Data
Microprocessor	MIPS® R4400™ 64-bit RISC CPU
Processors	1 to 4

System Bus
Bandwidth	1.2GB/sec sustained, parity protected
Size	256-bit wide data path 40-bit wide physical address path

Memory Subsystem
Physical memory	64MB to 6GB ECC protected

High-Speed I/O Subsystem
Bus type	SGI HIO bus (320 MB/sec)
Bandwidth	160MB/sec per HIO bus
No. of HIO buses	1 to 3
No. of HIO slots	2 to 6

Industry-Standard I/O Subsystem
Bus type	VME-64 bus
Bandwidth	50MB/sec
No. of VME buses	1
No. of VME slots	5

Mass Storage
Interfaces	Up to 24 SCSI-2 channels
Protocols	SCSI-2, Fast and Wide single-ended or differential
Max. bandwidth	20MB/sec per channel
Device capacity	2GB or 4.3GB, formatted

External Storage
Vault L	34GB max per unit
Vault XL	412GB max per unit
Max. configuration	1.5TB max non-RAID 4.7TB max RAID

Removable Media
SCSI devices	CD-ROM, DAT, 8mm tape drive, 1/4" cartridge tape, DLT

Communications
Integrated serial I/O	Up to 4 serial ports @ 9600 baud Ethernet, SCSI-2
Integrated parallel I/O	Up to 3 parallel ports
VME controllers	Ethernet, FDDI, Token Ring, X.25
SGI HIO controllers	FDDI, HiPPI, SCSI-2, Ethernet

CHALLENGE L

Processor Data
Microprocessor	MIPS R4400, R10000 64-bit RISC CPU
Processors	2 to 12

System Bus
Bandwidth	1.2GB/sec sustained, parity protected
Size	256-bit wide data path 40-bit wide physical address path

Memory Subsystem
Physical memory	64MB to 6GB ECC protected

High-Speed I/O Subsystem
Bus type	SGI HIO bus (320 MB/sec)
Bandwidth	160MB/sec per HIO bus
No. of HIO buses	1 to 3
No. of HIO slots	2 to 6

Industry-Standard I/O Subsystem
Bus type	VME-64 bus
Bandwidth	50MB/sec
No. of VME buses	1
No. of VME slots	5

Mass Storage
Interfaces	Up to 24 SCSI-2 channels
Protocols	SCSI-2, Fast and Wide single-ended or differential
Max. bandwidth	20MB/sec per channel
Device capacity	2GB or 4.3GB, formatted

External Storage
Vault L	34GB max per unit
Vault XL	412GB max per unit
Max. configuration	1.5TB max non-RAID 4.7TB max RAID

Removable Media
SCSI devices	CD-ROM, DAT, 8mm tape drive, 1/4" cartridge tape, DLT

Communications
Integrated serial I/O	Up to 4 serial ports @ 9600 baud Ethernet, SCSI-2
Integrated parallel I/O	Up to 3 parallel ports
VME controllers	Ethernet, FDDI, Token Ring, X.25
SGI HIO controllers	FDDI, HiPPI, SCSI-2, Ethernet

CHALLENGE XL

Processor Data
Microprocessor	MIPS R4400, R10000 64-bit RISC CPU
Processors	2 to 36

System Bus
Bandwidth	1.2GB/sec sustained, parity protected
Size	256-bit wide data path 40-bit wide physical address path

Memory Subsystem
Physical memory	64MB to 16GB ECC protected

High-Speed I/O Subsystem
Bus type	SGI HIO bus (320 MB/sec)
Bandwidth	160MB/sec per HIO slot
No. of HIO buses	1 to 4
No. of HIO slots	2 to 8

Industry-Standard I/O Subsystem
Bus type	VME-64 bus
Bandwidth	50MB/sec per VME-64 bus
No. of VME buses	1 to 5
No. of VME slots	5 to 25

Mass Storage
Interfaces	Up to 32 SCSI-2 channels
Protocols	SCSI-2, Fast and Wide, single-ended or differential
Max. bandwidth	20MB/sec per channel
Device capacity	2GB or 4.3GB, formatted

External Storage
Vault XL	412GB max per unit
Max. configuration	2TB max non-RAID 6.3TB max RAID

Removable Media
SCSI devices	CD-ROM, DAT, 8mm tape drive, 1/4" cartridge tape, DLT

Communications
Integrated serial I/O	Up to 4 serial ports @ 9600 baud Ethernet, SCSI-2
Integrated parallel I/O	Up to 4 parallel ports
VME controllers	Ethernet, FDDI, Token Ring, X.25
SGI HIO controllers	FDDI, HiPPI, SCSI-2, Ethernet

SOFTWARE

All WebFORCE SMP servers complete with:

- Netscape™ Enterprise server 2.0
  (Netscape Navigator™ required for installation/administration)
- Network File System (NFS) 3.0
- PCP/WebMeter system monitoring software
- Public Domain Software (Unsupported):
  Elm/Pine Mail Readers, POP3 Mail, WAIS, News Readers
  NCSA Mosaic Browser, and more
- Cosmo Site Web site management software

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