

# Search engine company revs up on HP ProLiant servers with AMD Opteron™ processors

Exalead S.A.



"Every time we're asked to perform a benchmark with competitors, we win on our HP ProLiant platform with AMD Opteron™ processors. It's the platform of choice for a large-scale deployment of our search engine."

– François Bourdoncle,  
President and Chief Executive Officer, Exalead S.A.

#### **Business need:**

Global search engine company Exalead S.A. focuses on dynamic categorization technology, which enables business users to search and index information about their enterprises. In 2004, the Paris, France-based company wanted to showcase a new international searching service on powerful enterprise-class technology, in the quest to become the No. 1 information-access leader. However, Exalead faced price constraints and needed to find an IT company that offered high-performance solutions at a superior total cost of ownership (TCO).

#### **Solution overview:**

Exalead chose HP ProLiant DL585 AMD Opteron processor-based servers running Linux to power its Internet searching technologies at [www.beta.exalead.com](http://www.beta.exalead.com) – and to host a 2-billion-page index with innovative features. Exalead managers determined that the AMD Opteron processor server platform from HP provided exceptional performance for the price, when compared to other servers they had assessed. Exalead employees monitor the platform from a central console using HP Integrated Lights-Out (iLO) technology.



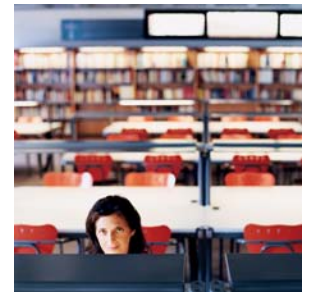
#### **Decreeing a new breed of Web searching**

Although Exalead started business in 2000, its roots in search engine technology run deeper. Exalead's founders developed the company's dynamic categorization technology while working at the Ecoles des Mines de Paris, one of the top engineering schools in France. Exalead CEO François Bourdoncle and board member Louis Monier were early developers of the AltaVista search engine, and they wanted to build a similar vehicle for the Web.

Exalead built its early success on easy-to-use search products for business users. Unlike similar products that search e-mail, database entries, and company files, Exalead's software respects enterprise security policies, while supplying a comprehensible navigational aid, refined search results, bookmarking, and sorting capabilities. Exalead provides a holistic approach to searching that brings together information sources in a completely transparent fashion. This approach appears in the company's flagship product, Exalead Corporate 3.1, and its latest desktop product built with a unified interface, Exalead Desktop, which enable users to find all types of electronic information – whether on an enterprise network or on their in-house computers. International cheese maker Bel – known for its Babybel, The Laughing Cow, and Leerdammer brands – uses Exalead Corporate 3.0 so that its 3,000 employees can efficiently access company-document resources that are available through their Intranet.

In 2004, Exalead management thought the time was right for its foray into international Web searching. To reduce the chance of I/O data transfer problems, the company decided to deploy four-processor, industry-standard machines. Exalead also wanted to use 64-bit architecture, because its software has 64-bit capabilities and these extensions assist in addressing large databases and





thousands of Web requests at one time. Therefore, the company examined options from HP, Sun, and several smaller firms.

"Our research indicated that four CPUs were the right bandwidth for Exalead's Web-serving technologies," says Bourdoncle. "Our choice was HP and the HP ProLiant DL585 with AMD Opteron processors running Linux. We determined that this combination would give us quality, peace of mind, excellent support, and exceptional memory throughput."

Bourdoncle and his staff believed the HP quad-Opteron server platform could meet their exacting criteria because two top-tier vendors were blending the benefits of their respective technical innovations: HP, with its unmatched depth in building high-quality servers; and AMD, with its leadership in pervasive 64-bit computing. Exalead determined that AMD's Direct Connect™ Architecture could deliver superior memory bandwidth and robust power for Exalead's compute-intensive, database searching environment. The Direct Connect Architecture eliminates bottlenecks by connecting the processors, memory controller, and I/O to the central processor unit, thus improving overall system performance and efficiency. Consequently, Exalead introduced its beta site in October 2004 on the HP ProLiant infrastructure with AMD Opteron processors.

#### **Price-to-performance excellence and budgetary bonuses**

The servers run Exalead's Indexing Platform, which consists of a proprietary application, database, crawler, search engine, and Web server. Company engineers built the application entirely with homegrown software. The query-serving portion of the application stack includes a front-end tier incorporating the application tier, a load-balancing function, and a back-end, database-like tier. Other components of the stack handle Web page crawling, index updating, and application monitoring.

Bourdoncle believes his firm's search technology holds its own among the best. Competing against other major search sites, Exalead's beta site already has indexed 2 billion pages of the Web and will soon achieve 4 billion pages.

Exalead expects that as business grows, high availability will be a critical component of its infrastructure. For now, Exalead uses the site to showcase its technology; the response has been exceptional, with traffic increasing at a rate of 20 percent weekly. With future revenue, reputation, and service levels at stake, the company is pleased with the platform's performance, but Bourdoncle notes that data is strictly confidential.

"Every time we're asked to perform a benchmark with competitors, we win," Bourdoncle offers. "Our HP platform handles the querying load extremely well, and the AMD Opteron processor is terrific. The AMD processor architecture increases application performance because of its low memory latency. We get great performance, and yet the price is just right. And because the HP server catalog is reasonably priced, we seldom need to settle for lower-cost, lower-quality products."

Splendid performance in a smaller design contributes to a lower total cost of ownership (TCO) for Exalead. Reduced power consumption, low maintenance, and less money spent on hosting expenses – also reduce TCO. The AMD Opteron processor-based ProLiant architecture lets Exalead tap economical hosting services for its current configuration, racks, and disk bays – without having to pay for major adjustments in the hosting facility.

"Maintaining zillions of less expensive servers was not an option because power supply, hosting, and maintenance costs would have been higher for us," Bourdoncle says. "We prefer the powerful performance and the modular design that the HP ProLiant DL585 server provides."

Exalead also deployed HP RAID Smart Array Controllers to provide reliable data protection and the HP StorageWorks Modular Smart Array 20 to store larger, less critical data volumes. Bourdoncle notes, "The HP StorageWorks MSA20 gives us a better price/capacity ratio and higher physical density than SCSI-based disk arrays. The quality of HP supporting hardware enables us to build an environment for our needs and to make subsequent maintenance operations amazingly easy. This immediately translates into effective cost savings, increased efficiency, and better predictability in managing our IT projects."

"We chose HP and the ProLiant DL585 with AMD Opteron™ processors running Linux because our research indicated that this combination would give us quality, peace of mind, excellent support, and exceptional memory throughput."

– François Bourdoncle, President and Chief Executive Officer, Exalead S.A.

#### **Succeeding with a high degree of manageability**

Contributing to IT efficiency is HP Integrated Lights-Out (iLO) technology, which permits anytime, remote server management and monitoring from a single pane of glass. This capability gives a small organization exceptional faculty to meet growth demands. Using iLO and their custom software for operating system and application management, Exalead staff control the entire IT environment.

"Since nobody is physically on site, we must fully manage our server platform remotely and supervise and maintain our servers online," Bourdoncle notes. "HP ProLiant servers are well-engineered for remote management, with advanced technologies typically found on more expensive servers. HP iLO technology lifts the constraint that servers should be hosted near people, and lets us better fine-tune our facilities. iLO definitely contributes to time and cost savings in that we don't need anyone on site."

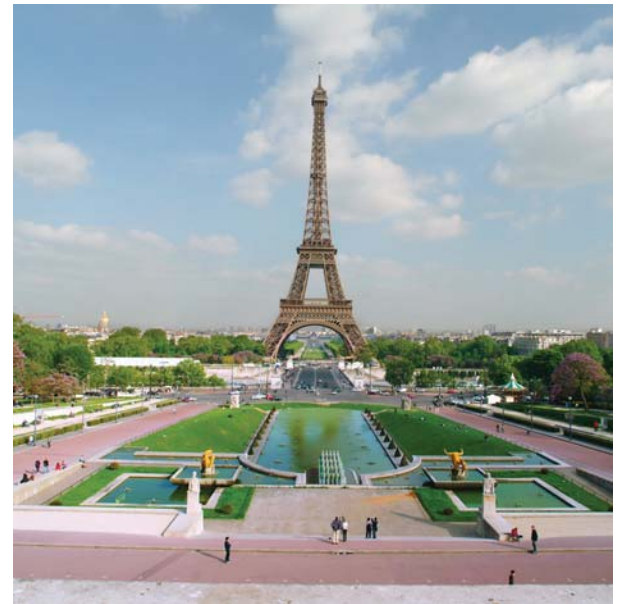
Now that it has entered the elite club of international Web search engines, Exalead is poised to announce another milestone soon – a 4-billion-page index available via its Web site. In addition, Exalead will certainly open up a new world of Web searching to an ever-increasing international audience, including richer functionalities for speed, ease of use, information access, and interactive navigation.

For example, Exalead makes a large number of pages, documents, and information searchable in many languages. Its system features geographic navigation,

document type selection, spelling suggestions, sorting capabilities, translations, and many other enhancements. Exalead's search engine also provides a thumbnail or visual preview of the page from each search result. An icon quickly identifies non-Web pages, such as PDF and Microsoft® Word® documents. In addition, Exalead's real-time indexing technology stays synchronized with the Web so that the latest results appear.

By empowering users to search the Web innovatively, Exalead believes it is living up to its name, which means "helping people find their way in the multitude." The firm plans to continue using HP technologies to fulfill its information-access mission.

"It's extremely good news for us that newer AMD Opteron processor CPUs will be dual-core chips providing a boost in memory and performance with hardly any increase in power consumption," Bourdoncle comments. "We will be able to grow and double the speed of our Web site. We orchestrated our proprietary technology to take full advantage of the transfer speeds of these new dual-core processors, so Opteron processors and HP ProLiant servers will help protect our technology investments."



#### **About Exalead S.A.**

While working at the prestigious Ecole des Mines in Paris, the founders of Exalead S.A. ([www.exalead.com](http://www.exalead.com)) were involved in developing the first generation of Web search engines. Since creating Exalead in 2000, management has concentrated on facilitating access to Exalead clients' information bases for all users: employees, customers, suppliers, and the general public. Headquartered in Paris, France, Exalead also maintains a southern European office in Italy and a U.S. office in San Francisco, California.

# Search engine company revs up on HP ProLiant servers with AMD Opteron™ processors

Exalead S.A.

## At a glance

### Hardware:

- HP ProLiant DL585 servers, each with quad-AMD Opteron processors and 24 GB of memory
- HP ProLiant storage, including RAID Smart Array 642 and Smart Array 6402 PCI Controllers, with a mixture of 70 and 140 GB Ultra320 SCSI disks in MSA20 enclosures using RAID 5 or RAID Advanced Data Guarding (ADG)
- HP StorageWorks Modular Smart Array 20 Storage Enclosure (MSA20) and Serial Advanced Technology Attachment (SATA) disk drives

### Software:

- HP Integrated Lights-Out (iLO) technology
- Linux operating system, generic version
- Exalead Indexing Platform

### HP Services:

- Hardware support – on site, next business day
- Installation services by HP reseller Hexales

## Challenges

- Cost effectively showcase a new, international searching service
- Deploy powerful enterprise-class server technology with excellence price-performance
- Sustain site growth and higher traffic volumes
- Enable remote server management

## Solution

- Implemented a platform of HP ProLiant servers with AMD Opteron™ processors, along with ProLiant storage and HP StorageWorks solutions
- Supported by HP Integrated Lights-Out (iLO) technology and hardware and installation services

## Results

- Hosts a 2-billion-page (and growing) index
- Provides lower TCO in power consumption, maintenance, and hosting expenses
- Yields exceptional memory, performance, and data transfer speeds
- Gives top performance in search engine benchmarking
- Sustains a 20 percent increase in site traffic weekly
- Allows remote server management, which fosters quick response to IT issues
- Eliminates the need for on-site staff
- Expands to accommodate growth

For more information on how working with HP can benefit you, contact your local HP representative, or visit us at [www.hp.com](http://www.hp.com).

© Copyright 2005 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein. Quotes provided are customer comments.

AMD, Opteron, and Direct Connect are trademarks of Advanced Micro Devices, Inc. Microsoft and Windows are trademarks of Microsoft Corporation. Linux is a U.S. registered trademark of Linus Torvalds.

5983-2785EN, 7/2005

