Jajja Communications *Optimizes Search Engine Traffic with MySQL Network*

Jajja Communications is one of Europe's leading Search Engine Optimization (SEO) companies. It has clients in 23 countries including Procter & Gamble, H&M, eBay, Dell and IKEA. The company is privately held and has been profitable since it was founded in the year 2000. Jajja Communications today employs approximately 60 people.

Currently, more than 625 million web searches are performed daily, mostly through Google, Yahoo or MSN. For companies doing business on the Internet, it's important for them to show up consistently among the top links in key searches — the ones leading to purchases and other desirable business results. While showing up in the "right" searches is important, it's equally important not to show up in the "wrong" searches, which can be non-productive or, even, counter-productive. In many cases, it is important for companies to identify shoppers early in their information-gathering (search) process so that they can market to them directly.

One way for companies to secure good search exposure is to pay for keyword listings. Nevertheless, research shows that natural searches generate almost 90 percent of commercial referrals from search engines. And, this is where search engine optimization companies enter the picture.

"Because of our high availability commitments and ambitious projected scaling, MySQL Network was really what we needed. We can now keep a high level of 24/7 support for all our servers while being guaranteed optimized and stable versions of MySQL backed by customized technical alerts."

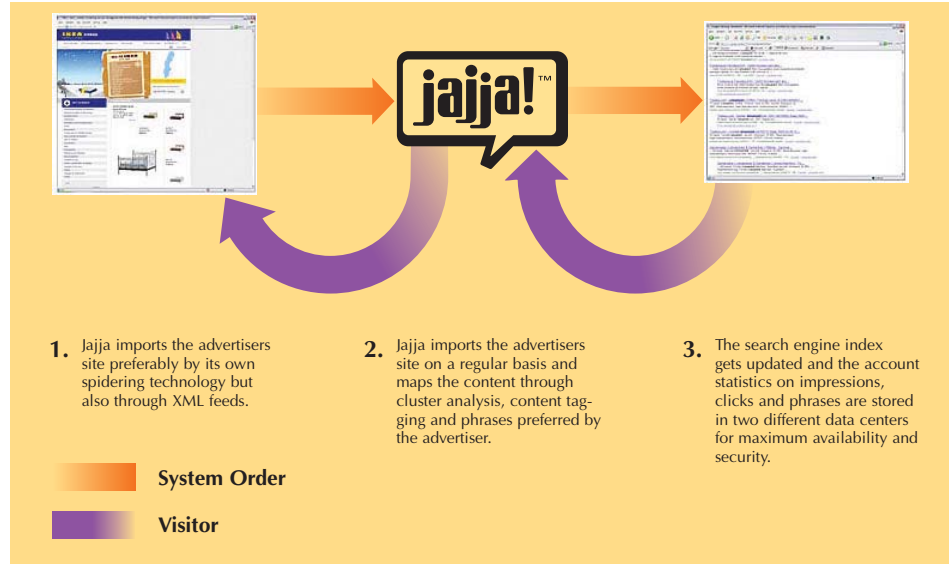**Daniel Ek**
CTO
Jajja Communications

Search Engine Optimization

Search engine optimization companies like Jajja Communications constantly monitor the behavior of search engines and the Internet users that utilize them, building algorithms and strategies to promote the interest of their clients in the process.

"There are no simple tricks – it's really a game of credibility," says Daniel Ek, CTO of Jajja Communications. "We have to help users on the Internet find what they're actually looking for and, preferably, send them to our clients' sites. It's important, but also pretty simple, for us to demonstrate what we deliver in revenue. If, for instance, 3% of all visitors to a client's site result in a purchase, and we can prove that we deliver 1,000 extra visitors, then we explicitly have added 30 purchases. To maintain credibility we let third-party suppliers evaluate our performance."

The SEO business also affects the credibility of search engine companies who have to guard against their search results being unduly weighted. Because of this, Jajja Communications and their competitors can expect no help from

1. Jajja imports the advertisers site preferably by its own spidering technology but also through XML feeds.

2. Jajja imports the advertisers site on a regular basis and maps the content through cluster analysis, content tagging and phrases preferred by the advertiser.

3. The search engine index gets updated and the account statistics on impressions, clicks and phrases are stored in two different data centers for maximum availability and security.

System Order

Visitor

Google, Yahoo or MSN in their efforts. Instead they continuously have to reverse-engineer ever-changing search engine functionalities to channel searches efficiently.

Massive High Availability Databases

In practice, Jajja Communications runs ghost mirrors of their clients' entire sites in real-time, including all possible search results at the site. Whenever a visitor clicks a link to the client in a search engine list, he is actually transferred to Jajja's ghost site where search and browse behavior is analyzed as the visitor is channeled through to the suitable destination. An average of 1,400 measure

points are monitored per client web page, including links to the page, page title and word frequency analysis. If Jajja's ghost mirror should ever go down, all visitors from search engines to the clients' web pages during that time would end up on a blank page — an unacceptable result. Jajja Communication has built a high availability solution based on MySQL and Emic m/cluster that, combined with high demands on bandwidth, load balancing and storage capacity of 15 Tb of data, results in a 99.999% uptime guarantee.

MySQL Network for Optimal Performance

"So far MySQL performance has scaled beautifully without limitations," says Ek. "We also evaluated Oracle but came to the conclusion that it just wouldn't scale without major cost increases."

Jajja Communications sees no limitations in "reads" from the database, but are concerned about future bottlenecks when it comes to "writes." Today the system is scaled to handle seven million writes per day, but demands are projected to soon rise to nearly 200 million daily writes. Since the source code of MySQL is open, Jajja is confident that it will be able to make its own adjustments necessary for the company's

specific needs. Focus will be placed on scaling the live environment that handles visitor-client transactions. The warehousing and analysis parts of the system may be handled during low traffic.

"Because of our HA-commitments and ambitious projected scaling, it's extremely important for us to stay optimized. New tools like MySQL Administrator have proven very useful, but MySQL Network was really what we needed," says Ek. "We can now keep a high level of 24/7 support for all our servers while being guaranteed optimized and stable versions of MySQL backed by customized technical alerts."

"We chose MySQL because of its speed, scalability and low TCO, especially when it comes to flexibility in choice of hardware."

Daniel Ek
CTO
Jajja Communications
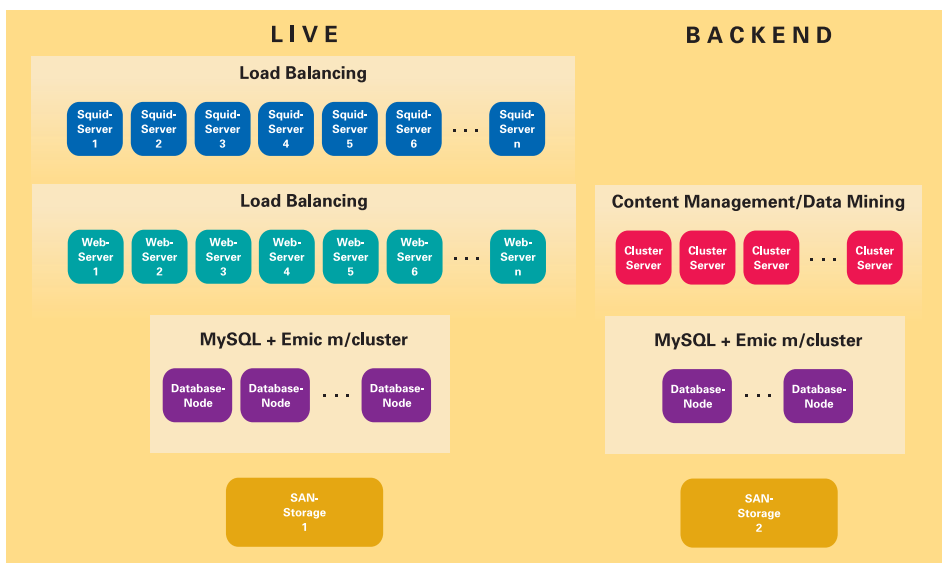
Outsourced and In-house Technical Solutions

The Jajja system is built on more than sixty physical servers, mostly Dell 2850 machines. The table below shows a typical configuration.

Hardware: Dell 2850

OS: Redhat Enterprise Linux

CPU: Dual Xeon 3.2GHz

RAM: 8 GB

Hard Disk: iSCSI SAN or 15000 RPM internal SCSI-disks in RAID 1+0.

Database: MySQL

Operation of the live environment that handles reads and writes in visitor-client transactions has been outsourced to Telia International Carrier. Jajja owns the machines, but they are placed in the operator's computer facilities. The warehousing and analysis backend is kept in-house on five servers running MySQL Network and Emic m/cluster.

About MySQL AB

MySQL AB develops, markets and supports a family of high performance, affordable database servers and tools. The company's flagship product is MySQL, the world's most popular open source database, with more than six million active installations. Many of the world's largest organizations, including Google, Sabre Holdings, The Associated Press, Suzuki and NASA, are realizing significant cost savings by using MySQL to power Web sites, business-critical enterprise applications and packaged software. MySQL AB is a second generation open source company, and supports both open source values and corporate customer needs in a profitable, sustainable business.

For more information about MySQL, please go to **www.mysql.com**.

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