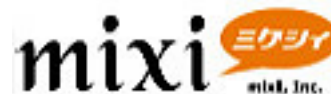




## mixi *Delivers Massive Scale-out with* MySQL

mixi is the largest Social Networking Site (SNS) in Japan. Members can create diaries, share photos, post message, and participate in discussions. According to Alexa Traffic Rankings, mixi is ranked in the Top 30 of the most trafficked web sites in the world. mixi attributes its success largely to the site's ease-of-use and the ability to deliver a high-performance, scalable solution to meet the demands of its exponentially growing user base. Within the first 2 months of launching the site, mixi had 10,000 users and 600,000 page views/day. mixi quickly realized just how popular their service would be. They focused on creating an architecture to cost-effectively scale-out their infrastructure.

As a young start-up company, mixi could not afford expensive proprietary software. Instead, they turned to the LAMP (Linux, Apache, MySQL, Perl) stack for their high-performance scale-out solution. mixi deploys over 100 MySQL Servers to manage over 3 million users who are creating diaries, posting messages, paying for premium services, and more. mixi is adding 15,000 new members every day and generates over 150 million page views/day using MySQL!



*“MySQL delivered the right balance of features, reliability, performance and scalability making MySQL a perfect fit for scaling-out our system.”*

**Batara Kesuma**  
Chief Technology Officer  
mixi, Inc.



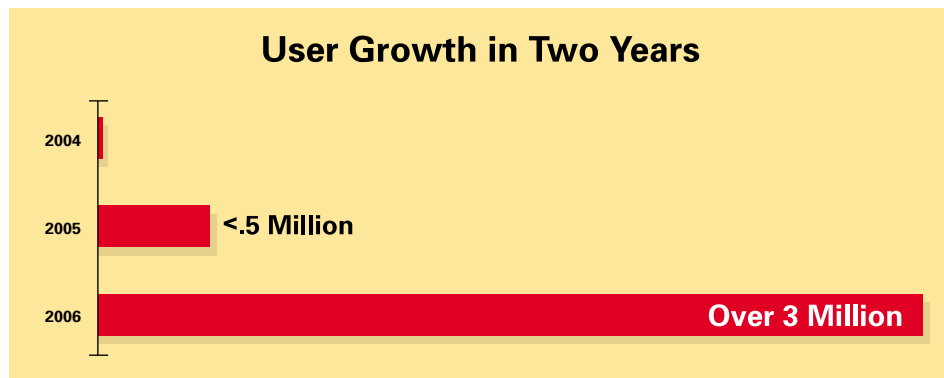
## MySQL's High Performance Meets Exponential Growth

### Member Database

All mixi participants become members via invitation and share their profile information so they can be identified. The 'invitation-only' approach helps maintain the integrity of the members and is a key reason why 70% of their members are active users. Active users are defined as having logged into mixi in the past 72 hours. Plus, the average user spends almost 3.5 hours on mixi every week. MySQL is used to store all profile information including, personal profiles, interests, contact information, and more for its 3+ million members.

### Diaries

Diaries are at the heart of mixi, allowing millions of members to publish and share their personal experiences and stories. About 110 million diary entries are published at any given time and are growing at a rate of 500,000 new records daily. Diaries are very write intensive, with a read/write ratio of 15/85. Data is partitioned across multiple masters to maximize performance and scalability.



*mixi's membership has grown to more than 3 million in 2 years.*

### Communities

Communities are forum-based discussion groups allowing members to post questions and answers on topics of interest. mixi maintains over 750,000 communities. 2,500 new communities are added every day and the biggest community has about 150,000 members. To power the Communities section, mixi relies on a replicated set of MySQL Master and MySQL Slaves.

### Messages

Members are able to read and write internal mixi messages to and from other registered members. Message volume is 1.6 million/day with an average of 58 writes/second. Messages are partitioned across several MySQL Masters and MySQL Slaves.

### Premium Services

mixi's basic services, including writing diaries and posting messages, are free. But, mixi also offers advanced features, as a paid service. These include sharing photo albums, creating surveys, decorating icons and more. Mixi relies on MySQL to manage all e-commerce transactions for paying subscribers.

mixi has consistently focused on ease-of-use, without straying too far from its core competency of developing core SNS features. One of mixi's challenges was to scale this model from 10,000 original users to 3+ million members in the most cost-effective way possible. mixi found that MySQL delivered the right balance of features, reliability, performance and scalability making MySQL a perfect fit for scaling-out their system, in the shortest timeframe.

## MySQL's is a Perfect Fit for Scale-out



*"Mixi relies on MySQL to manage everything from storing profile information to handling all e-commerce transactions. Plus, MySQL has enabled us to scale to over 3 million users in less than 2 years."*

**Batara Kesuma**  
Chief Technology Officer  
mixi, Inc.

### Performance

With many social networking services available, mixi is well aware that users won't tolerate slow performance and extended wait times. mixi focused on optimizing the system architecture to maximize performance and scalability. For example, by keeping queries simple and avoiding complex join queries, mixi is able to handle about 2000 queries/second at peak time.

### Scalability

mixi's original architecture consisted of a single MySQL server with multiple slaves. This architecture served the 10,000+ original users well. However, to improve performance and scalability, mixi implemented a multi-master system and partitioned the data across numerous masters on 2 levels: vertically by users and horizontally by table types.

Furthermore, memcached is used to alleviate the database load and improve performance. mixi relies on more than 100 MySQL Servers and adds about 10 new MySQL servers every month to achieve extreme scalability.

### Ease of Administration

MySQL's ease of installation and administration translates into reduced administration costs. In fact, mixi employs a very small development team, with each developer being able to manage their own tables, eliminating the need for high-cost proprietary DBA skills. The reliability of MySQL also eases the administration burden. mixi cites that MySQL have been up and running for 2 years without any issues.



## Technical Environment

<i>Hardware:</i>	Dell PE850
<i>OS:</i>	Fedora Core 4
<i>CPU:</i>	Intel Pentium
<i>RAM:</i>	4 GB
<i>Hard Disk:</i>	300GB SCSI
<i>Language:</i>	Perl
<i>Database:</i>	MySQL Server
<i>Database Size:</i>	◆ 836 GB
<i>(Diaries)</i>	◆ 400 Million Rows per Table

The hardware listing above is the typical deployment specification.

## About MySQL

MySQL AB develops, markets, and supports the MySQL database server, the world's most popular open source database. With over six million active installations, MySQL has quickly become the core of many high-volume, business-critical applications.

Major corporations such as Yahoo!, Sony Pictures Digital Entertainment, Lucent Technologies, Motorola, NASA, HP, Xerox and Cisco rely on the ultra-fast, highly-reliable MySQL database. MySQL is available under the free software/ Open Source GNU general public license (GPL) or a non-GPL commercial license.

For more information about MySQL, please go to [www.mysql.com](http://www.mysql.com).



The World's Most Popular Open Source Database

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