

Schooner Membrain

Membrain: a memcached-compatible software cache and persistent NoSQL key-value store that delivers breakthrough 10x server consolidation to simplify datacenter scale out for capacity and performance.

Membrain Fast Facts

Used as pure memcached or as a persistent NoSQL data store, Membrain delivers:

- The best memcached and NoSQL performance, with hundreds of thousands of accesses per second per node
- Persistence, including guaranteed completion of writes into flash
- Support for flash memory at DRAM-like speeds on your x86 servers
- Minimal downtime through high-speed synchronous replication and immediate automated failover
- Isolation and policy control for different data sets on the same server via configurable containers
- A powerful GUI to simplify administration
- RAID and hot-swapping across flash memory for SAS / SATA drives
- Comprehensive facilities for concurrent backup and restore
- Massive savings in hardware spending and related operating expenses

Membrain™, which runs on commodity x86 servers from Dell, HP, and IBM, is optimized to exploit flash memory and supports up to one terabyte (TB) per server to accommodate new high-capacity flash drives from Fusion-io, Intel®, LSI Corporation, and other manufacturers. Membrain starts with Schooner's highly-concurrent implementation of memcached, extended to provide true persistence. It includes Schooner libraries that optimize and balance the use of multiple x86 processor cores, flash memory, and DRAM on commodity servers. Membrain includes high-speed synchronous replication and automated failover for enterprise use.

"Schooner Membrain leverages a very powerful caching technology based on memcached, making it both scalable and cost-efficient, two things that pair well with our ioMemory. Schooner's clever caching between DRAM and Fusion-io solid state memory delivers DRAM-like performance with the persistence of flash, providing a low-latency solution that accelerates database performance."

— Tyler Smith

Vice President of Strategic Alliances, Fusion-io

Customer Success Story

Plaxo solved its cache and NoSQL scalability problems by using Membrain on IBM 8-core x86 servers with 512 GB of flash memory. Rather than spreading 640GB of cache capacity across 10 servers each with 64GB of DRAM, Plaxo found that a single Schooner-powered x86 server was able to do the job. This resulted in a 10X reduction in power, cooling, and rack space.

"In the wonderful world of Schooner, failovers go away. Schooner replication means that you're sure that what you have on one node will also be on the other."

— Ethan Erchinger

Vice President of Operations and
Solution Architecture, Plaxo

Scaling other caching software or NoSQL data stores usually requires that data on each server is kept small enough to fit in the available DRAM. As the datacenter needs more cache or data store capacity, the only way to scale is to add servers and shard the data across them. That's expensive and inefficient, since many of these servers are poorly utilized.

Membrain offers a better way, scaling by exploiting cores and flash memory instead of rack after rack of servers, and eliminating the need to keep your data in DRAM to get great performance.

Membrain transforms standard servers into memcached and NoSQL super-servers, providing access to up to 1TB of flash memory on each server at DRAM-like speeds. These super-servers can manage much larger workloads with fewer nodes and with minimal downtime.

Engineered for Maximum Concurrency

Flash memory is 100x faster than hard drives with 1/100th the power consumption of DRAM. Multi-core processors allow parallel execution of multiple threads. But neither memcached nor NoSQL options such as MongoDB, CouchBase, or Cassandra were written to exploit multi-core processors or flash memory. Cores go unused. Flash IOPS go unexploited. Precious IT budget is inefficiently used.

Membrain was developed with maximum concurrency, true persistence, and high availability, making it a superb NoSQL data store. Membrain code sits on top of the operating system (OS) to balance the use of the server's cores, flash memory, and DRAM. This holistic and tightly-coupled approach allows users to fully exploit the power of modern commodity hardware.

Compatibility

Membrain is 100% memcapable, including binary protocol. If an organization uses memcached or a NoSQL data store today, it can use Membrain just as easily but with far better performance and a lower license cost.

Why Schooner?

Schooner Information Technology delivers cost-effective, enterprise-grade database software that frees customers from the traditional tradeoffs between availability, performance and total cost of ownership (TCO). Schooner's proven, cost-effective offerings include SchoonerSQL, which is 100% compatible with MySQL for easy adoption, and the complementary Membrain data store and software cache. Based in Sunnyvale, California, Schooner is privately funded and supports a variety of customers across technology, entertainment, financial services and telecommunications industries.

For more information, please visit www.schoonerinfotech.com.
Follow us on Twitter @schoonerinfo.

Running Requirements

- Compatible with all commodity x86 servers including those offered by Dell, HP, and IBM
- Compatible with Red Hat Enterprise Linux versions 5.4, 5.5, and 6.2 as well as CentOS versions 5.4, 5.5, and 6.2
- Compatible with all SAS, SATA, and PCIe flash drives

New in Membrain 4.0

In the latest release of Membrain, Schooner delivers several new features:

- Increase from 512 GB to 1 TB (1024 GB) in the amount of flash memory supported on each x86 server;
- Full-featured graphical user interface (GUI) for easier management and monitoring of the Membrain instances;
- Support for monitoring instances of stock memcached, which are often used in conjunction with flash-optimized Membrain;
- Upgraded installer;
- Upgraded remote diagnostics tool;
- Support for Red Hat Enterprise Linux 6.2 and CentOS 6.2

Contact Schooner

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