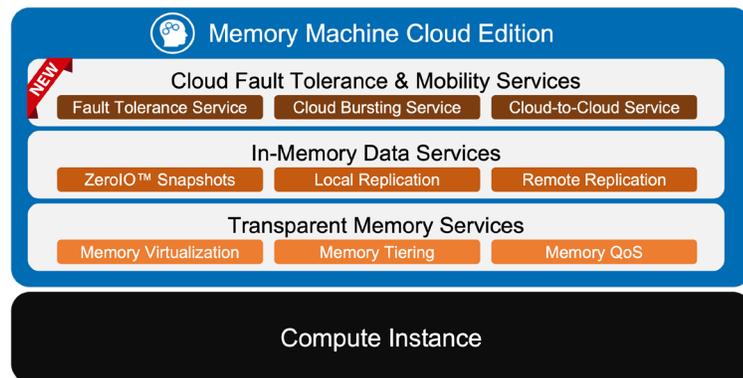


Memory Machine™ Cloud Edition

Enterprise-Class Big Memory Software

Key Features & Benefits

- **Transparent Memory Service** – Provides access to the pool of software-defined memory without changes to applications.
- **AppCapsules** – are constructed by capturing in an in-memory snapshot all application data necessary for restarting an app from that point-in-time.
- **Fault-Tolerance Service** – Long-running apps can be on-ramped to low-cost Spot instances without fear of unplanned instance terminations.
- **Cloud Bursting Service** – apps can burst from on-prem to the cloud at the speed of memory.
- **Cloud-to-Cloud Service** – Workloads can migrate seamlessly to another cloud with automated cloud service configuration.
- **Integrated** – Fault-tolerance, cloud bursting, and cloud-to-cloud mobility services are integrated with cloud service schedulers and cloud-native app orchestration platforms.



For Stateful, Non-FT, Long-Running Apps

The cloud has fulfilled its promise of agility and flexibility for many applications, but thousands of non-fault-tolerant and long-running apps have been left behind, especially those with a lot of stateful data in memory.

For example, applications such as big data analytics, HPC simulations, genome sequencing and graphics rendering are not recommended for lower cost Spot compute instances; and bursting these apps quickly from on-prem to the cloud, or moving them from a cloud to another cloud, is prohibitively complicated and slow.

Enter Memory Machine Cloud Edition with fault-tolerance and mobility services that organizations can easily add to their cloud infrastructure. Stateful, non-fault-tolerant, and long-running apps can now realize the promise of cloud agility and flexibility.

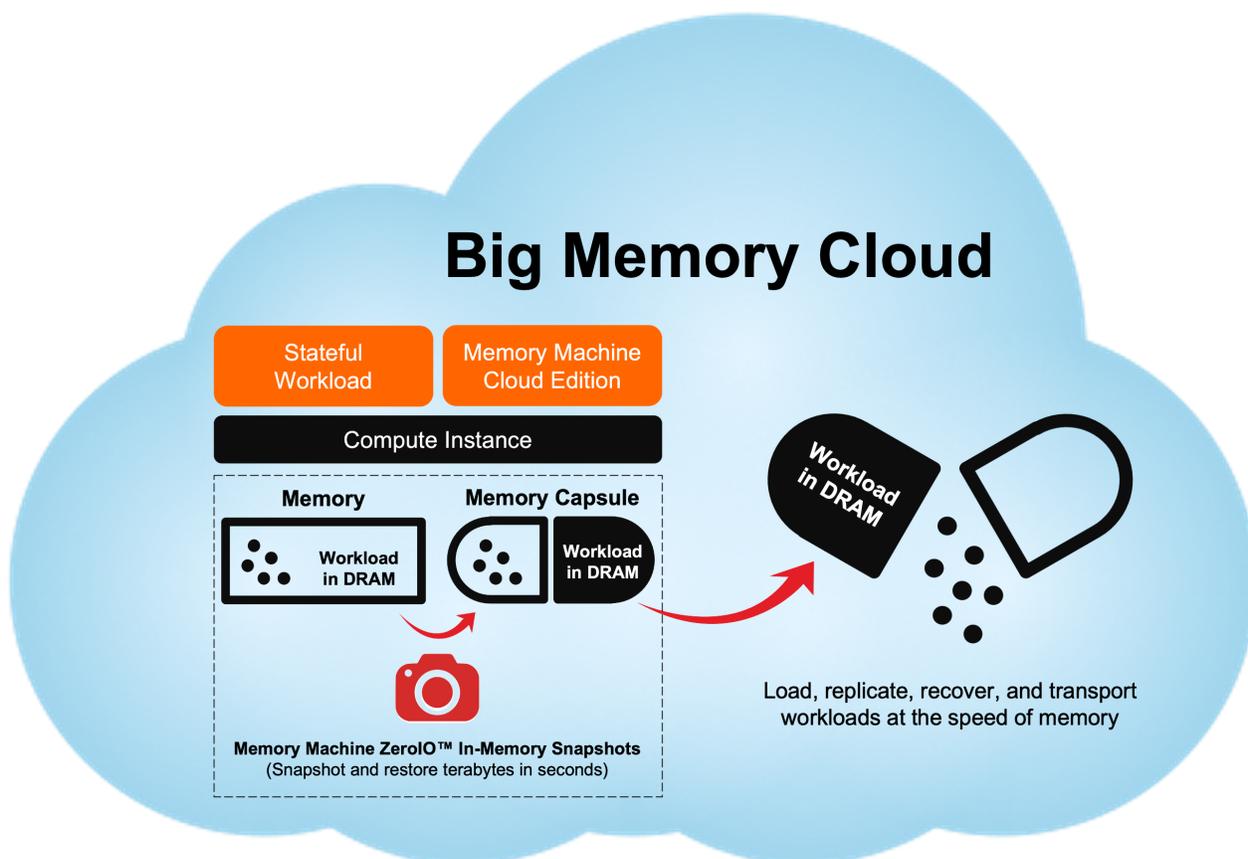
Introducing Big Memory Cloud Technology

Over the last four years, MemVerge has developed Big Memory Computing technology capable of encapsulating stateful apps including all of their memory state into AppCapsules. These AppCapsules can now be used in cloud fault tolerance services to deliver instant recovery, and in-cloud mobility services for cloud bursting and cloud-to-cloud migrations.

These innovative new cloud services are delivered through Memory Machine Cloud Edition software. Once a workload is captured in a Memory Machine AppCapsule, it can be loaded, replicated, recovered, and transported at the speed of memory, and what was impossible becomes possible.

Long-running apps can be on-ramped to low-cost Spot instances without fear of unplanned instance terminations; apps can burst from on-prem to the cloud at the speed of memory; and big memory workloads can migrate seamlessly to another cloud with automated cloud service configuration.

Big Memory Cloud Technology: AppCapsules



Patented ZeroIO™ In-Memory Snapshots are used to create AppCapsules. The AppCapsules capture all application data necessary for restarting an app from the point-in-time the snapshot was taken. The AppCapsules allow cloud admins to load, replicate, recover, and transport apps at the speed of memory.

Supported In-Memory Applications

Kx: kdb+	Time-series in-memory database
Autodesk: Maya	3D animation and rendering
Apache Software Foundation: Spark	In-memory big data analytics framework
Redis Labs: Redis	In-memory key-value database
Apache Software Foundation: TensorFlow	Machine learning framework
Open Source: PyTorch	Machine learning framework
Apache Software Foundation: Flink	Stream processing framework
Apache Software Foundation: XGBoost	Gradient Boosting framework
Hazelcast: Hazelcast	In-memory data grid
Apache Software Foundation: Cassandra	Wide column store, NoSQL database
Apache Software Foundation: RocksDB	Persistent key value database
Apache Software Foundation: HBase	Non-relational distributed database
GNU: MySQL	Relational database management system
BSD: Memcached	In-memory key-value database
Linux Kernel Community: KVM	Hypervisor
MongoDB, Inc.: MongoDB	NoSQL database
R Foundation: R	Environment for statistical computing and graphics
** MemVerge is continuously qualifying new apps. Support for apps is available upon request.	

Supported Environments

Hardware	Second and Third Generation Intel® Xeon® Scalable Processors, with Optane DCPM memory
Operating Systems	CentOS: 8.1 with kernel 5.7.4; 8.0 with kernel 4.20; 7.8 with kernel 5.7.6; 7.7 with kernel 3.10.0-1062.12.1.el7.x86_64, 3.10.0-1062.9.1.el7.x86_64; 7.6 with stock kernel or kernel 4.20. RHEL: 8.1 or 8.0 with stock kernels.
Hypervisors	VMware ESXi running on above HW (vSphere 6.7, 7.0), QEMU-KVM
Containers	OpenShift, VMware Tanzu, and other Kubernetes based container platforms