NEWS RELEASE

Penguin Computing Announces LiveData Solution with MemVerge and Intel

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LiveData™ accelerates memory-intensive applications with powerful, flexible big memory

Supercomputing2020 – November 17, 2020 – **Penguin Computing, Inc.**, a division of **SMART Global Holdings, Inc.** (NASDAQ: SGH) and leader in high-performance computing (HPC), artificial intelligence (AI), and enterprise data center solutions, announced at **SC20** that it has partnered with **Intel**® (NASDAQ: INTC) and **MemVerge**™ to unveil the **Penguin Computing LiveData** with MemVerge Memory Machine™ solution to help customers supercharge Big Memory computing initiatives.

As data-intensive workloads scale, it's critical to implement data-driven, software-defined architectures that meet the demands of large data sets. Penguin Computing's LiveData with MemVerge Memory Machine is built upon the Intel Xeon Scalable platform with large memory server building blocks and memory-centric, software-defined architectures to provide a Big Memory solution leveraging DRAM; Intel Optane persistent memory (PMem); and high-performance, low-latency networking to drive real-time workloads. Using Intel Optane, the total addressable memory footprint of a server can be increased between two and four times that of a system using DRAM only. MemVerge Memory Machine allows users to massively scale out DRAM and Intel Optane PMem with virtualized memory pools where all applications and data can run without modification or additional development. To support operational needs, MemVerge has invented rich big memory data services such as snapshot, replication, and tiering that enable lightning fast recovery from in-memory application crashes. Existing tier-1 applications can run safely and transparently on Big Memory without application rewrites.

LiveData addresses the Data Greater than Memory (DGM) roadblock by providing a memory virtualization software layer that delivers software-defined memory services without the need to modify applications. This allows thousands of applications running in the data center to scale DRAM and PMem capacity at a lower cost. LiveData

with MemVerge Memory Machine can be integrated into existing bare-metal, containerized, virtual or cloud environments. It can be implemented alone as a solution or in combination with other Penguin Computing solutions for HPC, AI/Machine Learning, and Cloud to provide an end-to-end complete compute platform.

With the launch of Penguin Computing's four dedicated **technology practices**, **LiveData** is an integral part of the **Data Practice** which delivers modern data architectures that leverage rapidly evolving open hardware combined with the stability, utility, and flexibility of innovative software architectures. LiveData will help customers improve the performance, adaptability, and accessibility of their data platforms with the power of software-defined technologies at every tier.

Penguin Computing is completing verification of incorporating LiveData into its Intel Select Solution, providing additional confidence to organizations looking to speed innovation and accelerate deployment.

"Through our work with Intel and MemVerge, LiveData provides customers with an optimized turnkey big memory computing solution catered to memory-intensive workloads," said Kevin Tubbs, Ph.D., and senior vice president, Strategic Solutions Group at Penguin Computing. "With these advanced capabilities, we're supporting customers' innovative workflows and accelerating time-to-value."

"Intel Optane persistent memory is a breakthrough that combines the performance of memory with the data persistence of storage, delivered with higher capacity points and lower cost-per-gigabyte than large DRAM DIMMs," said Alper Ilkbahar, vice president and general manager of Data Center Memory and Storage Products Group at Intel. "The LiveData solution from Penguin Computing and MemVerge enables existing applications to move 'in-memory' and take full advantage of the persistent memory with zero code modifications."

"MemVerge Memory Machine allows customers to harness the best of DRAM and PMem to create a new software-defined Big Memory tier," said Charles Fan, cofounder and CEO at MemVerge. "Through our partnership with Penguin Computing, we're now able to provide customers a software-defined memory service without having to compromise on cost, storage, or availability."

LiveData key features include:

- Tier Persistent Memory and DRAM for optimum performance
- Low-latency memory replication
- Virtualize memory to form a platform for enterprise-class data services
- In-memory storage compatible with existing applications
- Can recover hundreds of GB in seconds with ZeroIO™ memory snapshots
- Ability to clone databases in seconds

Read more about Penguin Computing's **Data Practice** and the **LiveData Solutions Brief**.

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