

Data Backup in Ultra High Performance Servers

Volatile Memory for the Quickest Access to Data

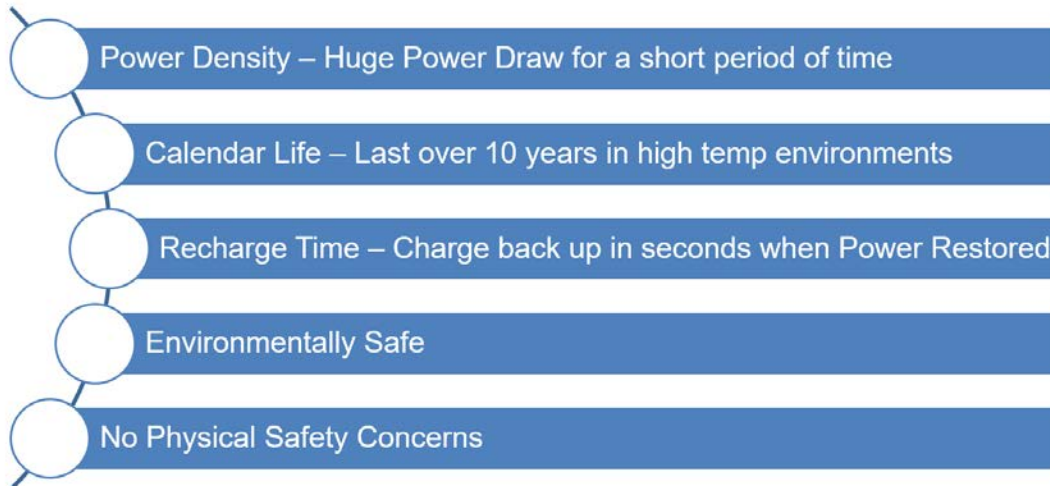
A decade ago IBM imagined the line between Random Access Memory and long term disk based storage would disappear into that they called **Storage Class Memory** (SCM). Today we are closer than ever to vision of SCM with servers using Volatile memory (DDR4 DIMMs) as their main memory for increased data access speed. The industry calls this memory **Non-Volatile Dual Inline Memory Module** (NVDIMM) . The memory is on orders of magnitude faster than spinning disks and SSD drives.

What Happens When the Power Goes Out?

A momentary loss of power will completely erase all the data in Volatile memory . Generators can take up to a minute to startup and by that time the data in the Volatile memory will all be gone. Data in Volatile memory must be quickly transferred to non-volatile memory during a power outage to ensure data integrity.

Ultracapacitors are the Solution.

Ultracapacitors have the power density to write data from the Volatile memory to Non-volatile memory, they charge back up in seconds, they are non-toxic, and they will outlast the usable life of the server.



History of the NVDIMM

Agigatech released the first NVDIMM in 2008 that were evolved from battery backed up Dimms that were designed to maintain power to the volatile memory for up to 72 hours. These battery systems did not have double redundancy incase the power came back on for 5 minutes and then back off, and if the power was out for more than 72 hours the data would be lost anyways. Battery based solutions also came with all the disadvantages of batteries such as limited lifespan requiring regular replacement and server downtime, they are considered hazardous waste and they contain heavy metals violating RoHS compliance. Because of the large power and small energy requirement, Ultracapacitors are perfect for use in NVDIMMs.

The **Tecate Group** offers Ultracapacitor Cells and Modules perfect for all NVDIMM use cases. Standard modules can be customized to fit any server cable length and size requirements.