Global Memory Abstraction: applications, tools and programming models access data on the SAGE system either directly by mapping objects to memory in the tier nodes, or, by accessing them as a storage system through the Clovis API.

Three scenarios envisaged:
- Make NVRAM-C (NVRAM within compute nodea) appear as a single addressable space
- For larger objects, make use of external NVRAM (NVRAM-E), directly accessing using RDMA
- Using standard MERO APIs to access data in any tier

Under Development:
- Differential checkpointing of objects to back them up to lower level storage
- Data Reshaping to allow restart with different numbers of nodes

Co-Design: SAGE architecture has been co-designed with application developers and users. Applications cover:
- Space weather (IPIC3D)
- Satellite Data Processing (JURASSIC)
-Finite Element Modelling (paraFEM)
-CFD (BOUT++)
-Neural Simulation Tool (NEST)
-CAT (Savu)

Application Support and Programming Models
ARM have developed extensions to their Allinea Forge toolkit and are supporting integration of MERO onto ARM processors. Kitware are adapting their visualization tools to optimize user experience when analysing results on SAGE.

Current and Future Status:
- Prototype system installed and operational at Jülich Supercomputing Centre
- MERO object store under consideration for Open Sourcing