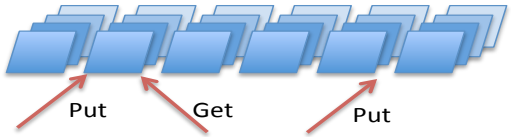
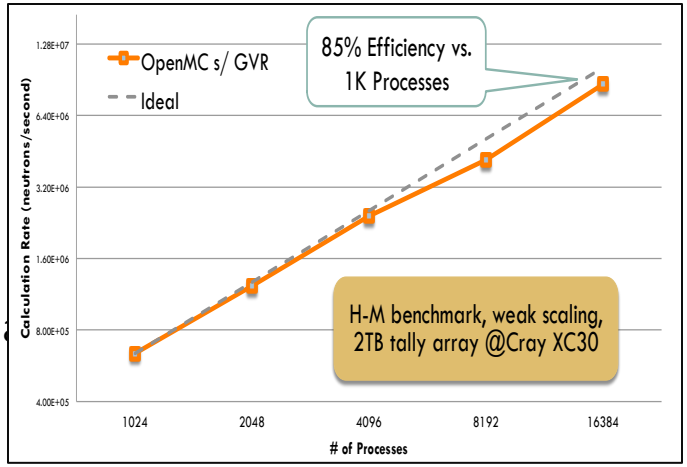
GVR: Robust Resilience for High Error Rate Environments/Systems

- Expand ABFT from immediate to Latent and Silent Errors at extreme scale
  - Efficient Versioning and Recovery library
  - High performance, scalable versioning (NVM)
- Deep App Studies & New Recovery Types
  - Monte Carlo: OpenMC, Particle: ddcMD, AMR: Chombo, Iter: PCG/Trilinos.
  - Rollback, Adaptive, and Fwd Approx Recovery
  - 16,384 Rank experiments: Scalable & High Performa
  - Practical: Only Localized Code Change



A. 1000's of Fast versions (NVM,SSD)



B. Scales well, demonstrated >16K Ranks

Application	% Changed	Application Lines of Code	Leverage Global View
OpenMC	<2%	30 K	Yes
PCG/Trilinos	<1%	300 K	Yes
ddcMD	<0.3%	110 K	Yes
Chombo	<1%	500 K	Yes

C. Practical: < 1% change

http://gvr.cs.uchicago.edu

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