



# SNIA Green Storage Overview & Proposal

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# Reliability, Availability, Serviceability (RAS)

Goal – do not lose data and have system available all the time

Power	Features
High	Dual Controllers or No-SPOF Controller; Mirroring (local and remote, sync or async)
Medium/High	RAID 1, 4/5, 6; Snapshots (full and delta); RAID/Disk scrubbing
Medium	Multi-pathing ; Disk sparing; Dual robotics; Background media scan / maintenance (drive level); Dual Power Supplies
Medium/Low	Remote management ; HARD/DIF (end-to-end data validation); RAID rebuild on drive failure; Hot swap drives
Low	NVRAM/Batteries/UPS (power fail); Concurrent microcode update; Concurrent OS update; Redundant PDU/Power ; Remote diagnostics ; ECC validation btwn modules; Lost write protection; Encryption; Automatic load balancing
Savings	Variable-speed fans (Medium); Head-unloading (Low)

Investigating quantification for Highs & Mediums







**Thanks for Everyone's Time**  
**Q & A**

