EVOLUTION OF RAID

OVER 25 YEARS OF IMPROVING RELIABILITY AT SCALE

2014-

RAID 6+

PANASAS INTRODUCES ACTIVESTOR 16

with triple-parity protection and Extended File System Availability (EFSA), improving reliability at scale.

2004

Panasas introduces ActiveStor with scale-out per-file RAID protection. Reliability and availability increase with scale.

RAIDframe all-software RAID controller "A Structured Approach to Redundant Disk Array Implementation"
—COURTRIGHT II, GIBSON, HOLLAND, ZELENKA

Per-file RAID introduced The Scotch Parallel Storage System —GIBSON, STODOLSKY, ET AL

Parallel reconstruction techniques "Parity Declustering for Continuous Operation in Redundant Disk Arrays" —HOLLAND AND GIBSON

Erasure code data protection against multiple failures "Failure correction techniques for large disk arrays" — GIBSON, HELLERSTEIN, KARP, PATTERSON

1996

1995

1992

1989

RAID 1-5 defined "A Case for Redundant Arrays of Inexpensive Disks," University of California, Berkeley —GIBSON, PATTERSON, KATZ

1988