

OVERCOMING THE LIMITATIONS OF RAID 6

EMC® DSSD™ Cubic RAID™ features patented RAID technology that breaks through the reliability barriers of traditional and multi-dimensional RAID 6. It provides unprecedented enterprise-level flash memory reliability without any extra overhead.

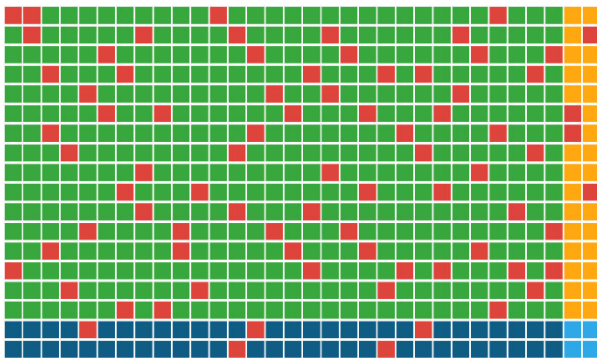
INTELLIGENT PARITY

Cubic RAID's system-wide view of data overcomes the limitations encountered by simpler multi-dimensional RAID 6 algorithms. Cubic RAID protects data in many grids, each made up of 18 rows and 32 columns, with each grid square representing a flash die cell. Similar to multi-dimensional RAID 6, two cells at the end of each row and column are dedicated to parity. What makes Cubic RAID different and results in much greater reliability for underlying flash memory cells are two key innovations.

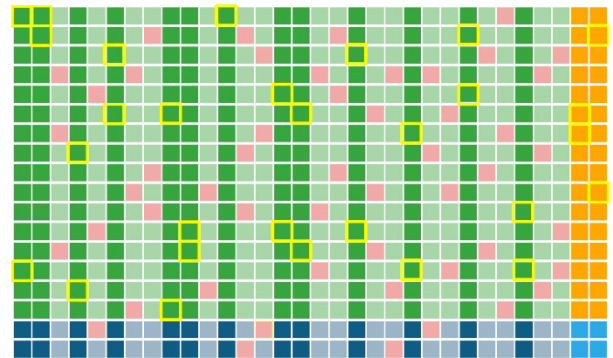
First, Cubic RAID dedicates the four intersection cells—where the row and column parity intersect—to hold parity information for, and remedy failures in, the row and column parity cells themselves. This feature provides an additional layer of protection.

Second, and more importantly, Cubic RAID cohesively interlinks the different RAID dimensions. This means that where three intersecting failures in a row and a column would cause other schemas to lose data, Cubic RAID can recover from those failures. Cubic RAID accomplishes this by fixing rows or columns with two or fewer failures in an alternating order to reduce the number of overall failed cells, ultimately enabling Cubic RAID to recover more than two intersecting failures in a row and a column. In fact, Cubic RAID can recover data even from large and complex failure patterns.

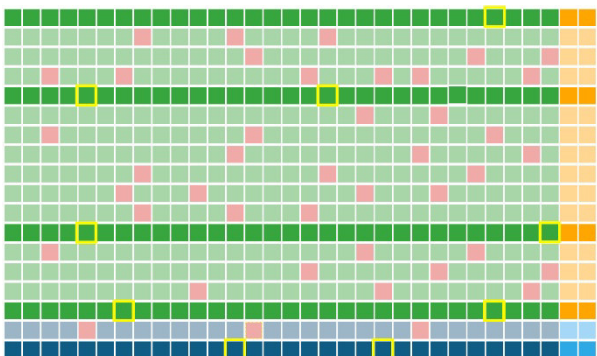
HOW DSSD CUBIC RAID FIXES COMPLEX DATA FAILURES



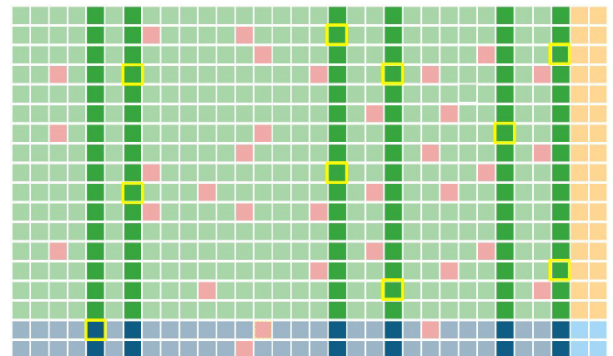
A grid with a large and complex data failure pattern



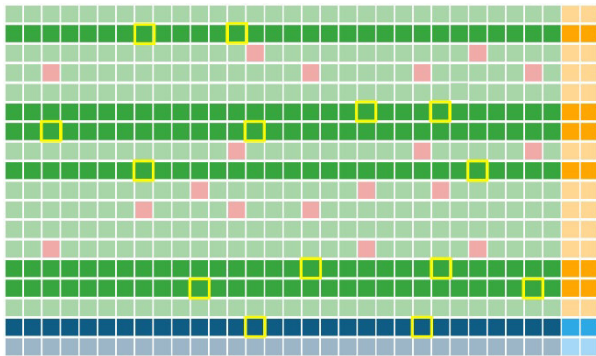
Step 1: Cubic RAID fixes all columns with two or less failures



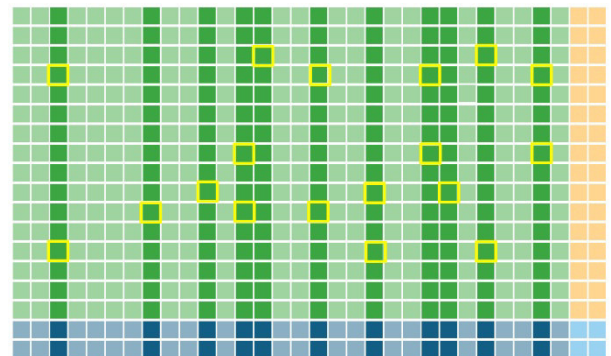
Step 2: Cubic RAID fixes all rows with two or less failures



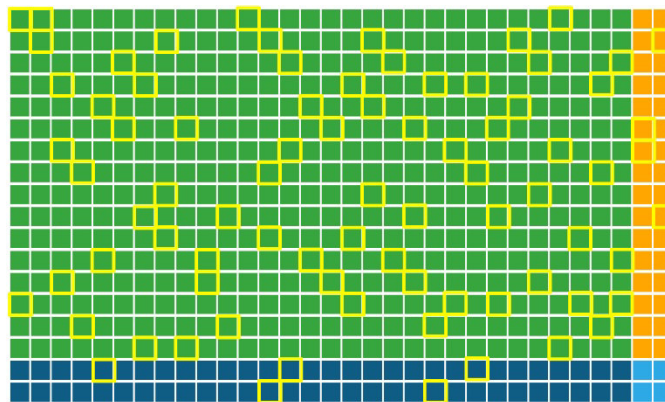
Step 3: Now more columns are recoverable at two or less failures



Step 4: Now more rows are recoverable at two or less failures



Step 5: A final iteration on remaining columns with two or less failures



All data failures have been remedied by Cubic RAID!

UNLOCK THE POTENTIAL OF FLASH STORAGE FOR YOUR MISSION-CRITICAL WORKLOADS

EMC DSSD Cubic RAID:

- Can recover from data failures that cannot be remedied utilizing traditional RAID 6 or multi-dimensional RAID 6
- Requires only 17 percent overhead
- Is always on and is not configurable
- Provides a high level of protection at EMC DSSD D5™ high levels of performance
- Provides unprecedented reliability required for today's and tomorrow's data and I/O intensive workloads

CONTACT US

To learn more about how EMC products, services, and solutions can help solve your business and IT challenges, [contact](#) your local representative or authorized reseller, visit www.emc.com, or explore and compare products in the [EMC Store](#).

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