

RAID 7.3

RAID 7.3 needs up to 30% less drives than RAID 6 to deliver 99,999 availability

Best choice for high workloads and large capacity drives

Triple parity for better reliability

RAID 6 performance level for sequential workloads

Providing Reliability and Performance

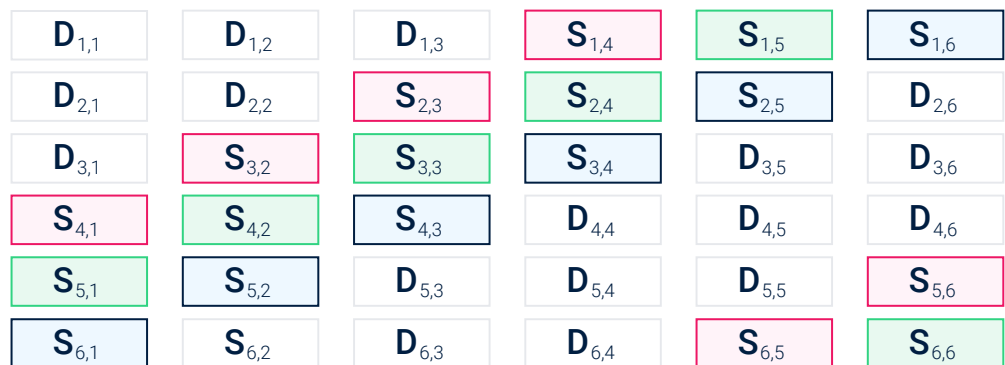
Storage admins are constantly seeking for the balance between reliability and performance of the data center infrastructure. They need to keep data protected and available after drive failure and have maximum possible write/read speed at the same time.

RAID 6 is one of the most common tools to solve this issue. Having double parity to prevent data loss after two drives failures, it delivers quite high speed of data processing.

RAID With Triple Parity

To substitute RAID 6 with a more reliable array, RAIDIX engineers developed a triple-parity RAID. It was named RAID 7.3 for the market.

Figure 1. RAID 7.3 has 3 drives for checksums



RAID triple parity technology is not unique. At the global storage market there are various vendors with such product feature, but most of them face the same technical issue. Processing three checksums in an array is a very resource-intensive process that significantly decreases RAID performance and makes it less suitable for the customers' needs.

Faster Than Usual

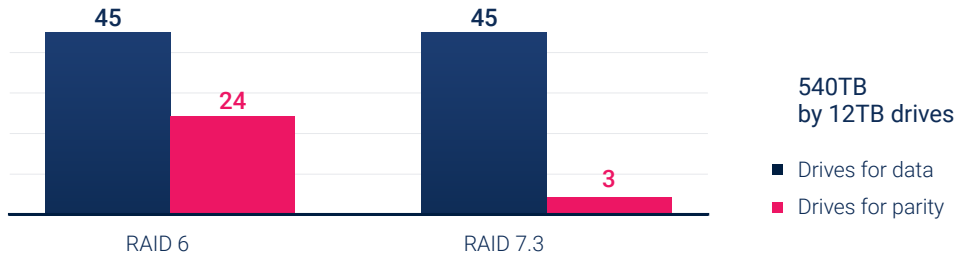
Due to unique erasure coding implementation, RAID 7.3 is able to calculate checksums at the very fast speed giving RAID 7.3 the near RAID 6 level performance.

RAID 7.3 performance rate makes it the best option for various storage cases, and three drives for parity deliver necessary data protection.

Less Drive Redundancy

Three checksums in an array deliver a high level of data availability, as the risk of concurrent failure of three drives is very unlikely. That is why RAID 7.3 can provide the same storage volume and 99,9999 data availability with less drives than RAID 6.

Figure 2.
RAID 7.3 has up to 30% less drives in array than RAID 6



How it's been calculated

To compare RAID 7.3 with RAID 6, we've calculated MTDDL (Mean Time To Data Loss) for each array with 12TB HDDs. All of them working in full-loaded sequential mode with 15% reconstruction priority.

The calculations reveal that for 1 year RAID 6 shows required availability level (99,9999%) only with 6 drives, while RAID 7.3 does the same with 48 drives. Therefore we can compare RAIDs that provide equal useful volume.

Useful volume	Number of drives for useful volume	RAID 6	RAID 7.3	RAID 7.3 reduces drives number by
96TB	8 HDDs	2 arrays with 6 HDDs (4 HDDs for parity)	1 array with 11 HDDs (3 HDDs for parity)	8%
288TB	24 HDDs	6 arrays with 6 HDDs (12 HDDs for parity)	1 arrays with 27 HDDs (3 HDDs for parity)	25%
540TB	45 HDDs	9 arrays with 6 HDDs (24 HDDs for parity)	1 array with 48 HDDs (3 HDDs for parity)	30%

RAID 7.3 Benefits

RAID 7.3 as a triple parity array is suitable for the large capacity drives, which have long rebuild time. During intensive workloads, extended rebuild time increases the chance of the next drive failure and puts the data under the risk of loss.

Working with HDD or hybrid solutions, RAID 7.3 significantly reduces storage costs by less number of drives used and meets customer requirements of performance and reliability.

RAID 7.3 brings multiple opportunities to manage your data center infrastructure by providing convenient and fault-tolerant technology for your storage array.