



Radio Telefís Éireann Uses 3ware® SATA RAID to Bring Television and Radio Broadcasts to the Internet

In the highly competitive world of broadcasting Radio Telefís Éireann (RTÉ) is the distinctive leader in the Irish media. In order to remain at the top of their industry RTÉ has to be at the peak of the technology curve. AMCC and 3ware SATA RAID help RTÉ achieve their goals.

“In the past, most of RTÉ ePublishing’s projects have been executed with major constraints on storage. Now that efficient storage is affordable it is finally possible for us to start producing and archiving large volumes of content in multiple formats. Also by using commodity hardware and OpenSource software we are able to significantly reduce the TCO that would normally be associated with more proprietary NAS solutions.”

— John Moylan,
Radio Telefís Éireann

RTÉ is the distinctive leader in the Irish media, providing programs of cultural, educational and informational excellence on both radio and television. They are currently faced with one of the most challenging eras in the history of broadcasting — one of enormous technological developments coupled with a highly competitive market place. Staying on top of new technology is a core RTÉ objective.

The Challenge

- Deliver 12 million page impressions per month
- Support streaming Real Audio and Real Video format
- Provide storage for 1/2 TB of audio and video content
- Manage new content added at a rate of 1.5 GB per day

The Solution

- Multiple file servers with 1.5 TB of storage per file server with excellent fault-tolerance
- 8-channel 3ware 9500 controllers per file server
- Eight 300 GB SATA drives configured as a single six-disk RAID 5 array with two hot spares
- Support RTÉ performance objectives with StorSwitch switch fabric architecture

The Internet is changing the way that broadcasters are able to deliver news and information. Many broadcasters have established an online presence, delivering news in HTML pages and streaming audio and video, often in parallel to their radio and TV broadcasts. Few broadcasters can match the scale of the online presence established by Radio Telefís Éireann (RTÉ), the Irish Public Service Broadcasting Organisation.

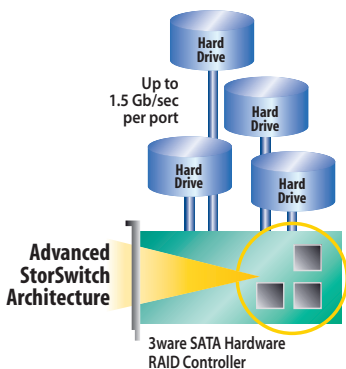
RTÉ ePublishing has been archiving news programs on their website since 1998. Visitors to www.rte.ie not only get to access the latest radio and television news broadcasts, they can also access the news for any day in the last six years. As one of the most popular sites in Southern Ireland, RTÉ ePublishing delivers roughly 12 million page impressions per month with an average six hundred users accessing the video and audio content at any one time.

Data is stored in Real Audio and Real Video format, and had been delivered by one server coupled with a SCSI-based NAS box for archived content. Managing this enormous volume of data was a challenge for the RTÉ system administrators. RTÉ has 1/2 TB of audio and video stored, with new content being added at a rate of approximately 1.5 GB per day. This architecture did not offer the scalability, cost-effectiveness or data security required by a broadcaster of RTÉ’s stature.

Maximum Performance with StorSwitch™

The AMCC 3ware® family of high-capacity storage solutions is designed to deliver reliable, enterprise class RAID storage using low cost ATA and SATA drives. The 3ware product family features the only complete family of 12, 8 and 4 port SATA RAID controllers available in the market. With support for up to 4.8 TB of storage these controllers satisfy the demands of the most data-intensive applications.

AMCC is at the forefront of SATA technology with the only switched fabric architecture — StorSwitch™. StorSwitch allows the controller to simultaneously communicate with all drives, scaling linearly as more drives are added, resulting in the highest possible storage subsystem performance. The 3ware 9000 series of hardware RAID controllers deliver in excess of 400 Mbytes per second (MB/sec) sustained RAID 5 reads and over 100 MB/sec RAID 5 sequential writes with less than 3% CPU utilization.



“By its very nature, the broadcasting industry is very storage intensive. Delivering content over the internet has significantly raised the bar on the required performance of storage subsystems. RTÉ has done a stellar job of utilizing the latest SATA RAID technology to deliver audio and video to its customers in real-time.”

— Mike Joyce,

Director of Marketing, AMCC

The solution - multiple file servers that feed separate systems to stream the data to users and hold the archives. Of critical importance to this architecture is the optimal choice for storage technology. SATA was quickly identified as the best solution. When streaming sequential data, the performance of SATA or SCSI is a must. However, the high cost per GB of SCSI was simply too much for this project to bear. SATA drives offer reliability and performance in a cost-effective solution.

The choice of controller for the SATA drives was an easy decision. Only the 3ware SATA RAID controllers from AMCC offered true hardware RAID with the performance, capacity and Open-Source drivers that RTÉ ePublishing needed. The file servers were built using 8-channel 3ware 9500 controllers and 300 GB Maxtor SATA drives. The eight drives were configured as a single six-disk RAID 5 array with two hot spares. This approach offers 1.5 TB of storage per fileserver — three times the previous capacity — and provides excellent fault-tolerance. New content is added at the end of the discs, meaning that access in these machines is almost sequential in nature — the best possible way to access a SATA drive.

The initial design includes three redundant file servers using CentOS, an Open-Source Linux distribution maintained by the cAos community and based upon Redhat Enterprise Linux. Using several file servers, not only offers the required redundancy, but this plan allows for future scalability as more file servers can be added when the demand for capacity grows. For security purposes, one of the three servers has been installed in a separate location and linked to the other two via a 10 Mb link.

All multimedia content on RTÉ ePublishing's website is now served from the SATA RAID arrays. The project is so successful that RTÉ already plans to implement new projects using a combination of SATA and 3ware RAID.



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