

Technology paper  
Rohde & Schwarz  
virtual storage  
access (VSA)  
technology



**ROHDE & SCHWARZ**

# Introduction

Channel playout is the transmission of TV channels from the broadcaster to receivers via a broadcasting network. Broadcasting networks can be terrestrial, cable or satellite-based. An automation system helps control playout from a master control room (MCR). The equipment is controlled in a local control room or a remote playout center.

In this highly complex network of different systems from different manufacturers, particular attention must be paid to the failsafety of each component. Uninterrupted operation can be ensured only if all systems seamlessly communicate with each other and if data is available at all times. Playout storage (the source for all playout data) plays a special role with regard to high-availability requirements. Even if the underlying storage systems fail, there must not be any delays or impact on availability when accessing and queuing files for playout or ingest.

This technology paper takes a look at the newly developed Rohde & Schwarz virtual storage access (VSA) technology.



Master control room (MCR)

## Standard high-availability storage configuration

Off-the-shelf storage solutions can provide mechanisms for high-availability configurations to cover failures, but they do not ensure seamless data availability during failover.

There may be interruptions, ranging from a few seconds to a few minutes, when all running data transfers may stop.

### Standard high-availability storage configuration:

- Data replication (by the single file system)
- Controller redundancy
- Hardware failover design

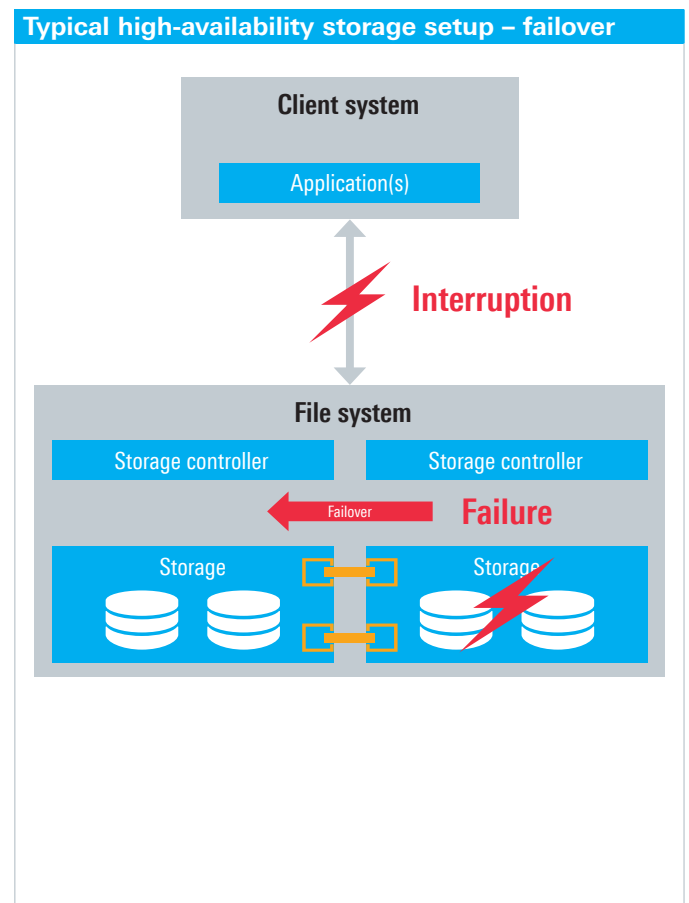
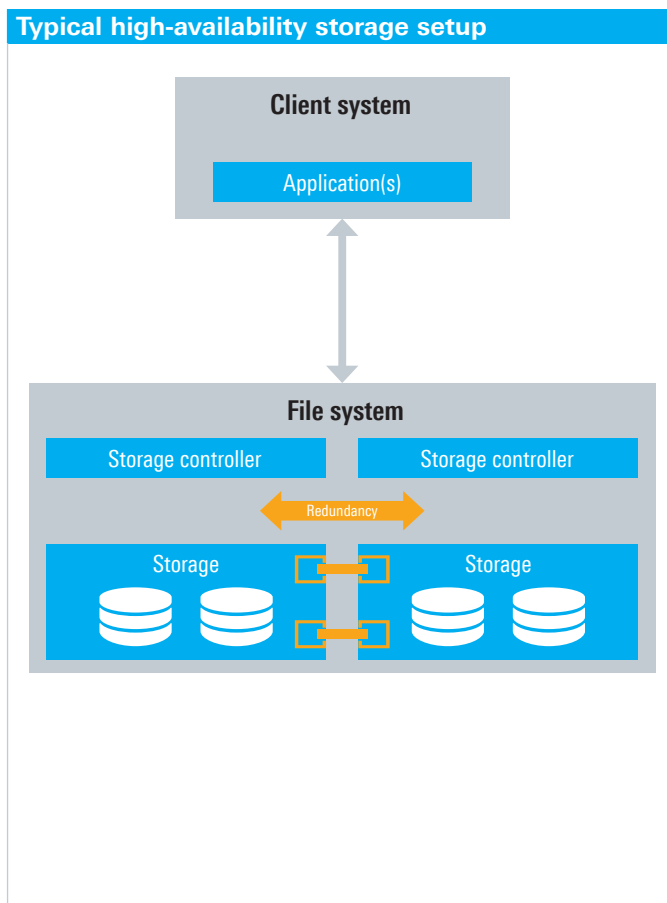
## Standard high availability storage – handling failovers

Even with 1+1 hardware redundancy and file replication, ingest, transfer and playout operations could still be blocked, resulting in data loss or the airing of corrupted media.

In the event of a failure, it can take such system designs up to 60 seconds to switch over to the standby system. During this switching time, all ingest, transfer and playout operations from or to this storage system are interrupted.

### Failure scenarios:

- Controller: failover to the second controller takes about 30 to 60 seconds
- Storage: failover takes about 8 to 30 seconds



## Rohde & Schwarz VSA technology

The new Rohde & Schwarz VSA technology is a software component that provides virtual storage access by virtualizing a single mount point physically consisting of multiple storage tiers.

The Rohde & Schwarz VSA layer can be easily deployed to the R&S®VENICE media server or the R&S®Spycer Media Gateway servers. It enables non-blocking parallel file replication irrespective of the underlying Rohde & Schwarz storage system.

### Key facts:

- Software component providing virtual storage access
- Customized for the R&S®VENICE and the R&S®Spycer Media Gateway server
- Provides non-blocking parallel file replication
- Independently operating Rohde & Schwarz storage systems

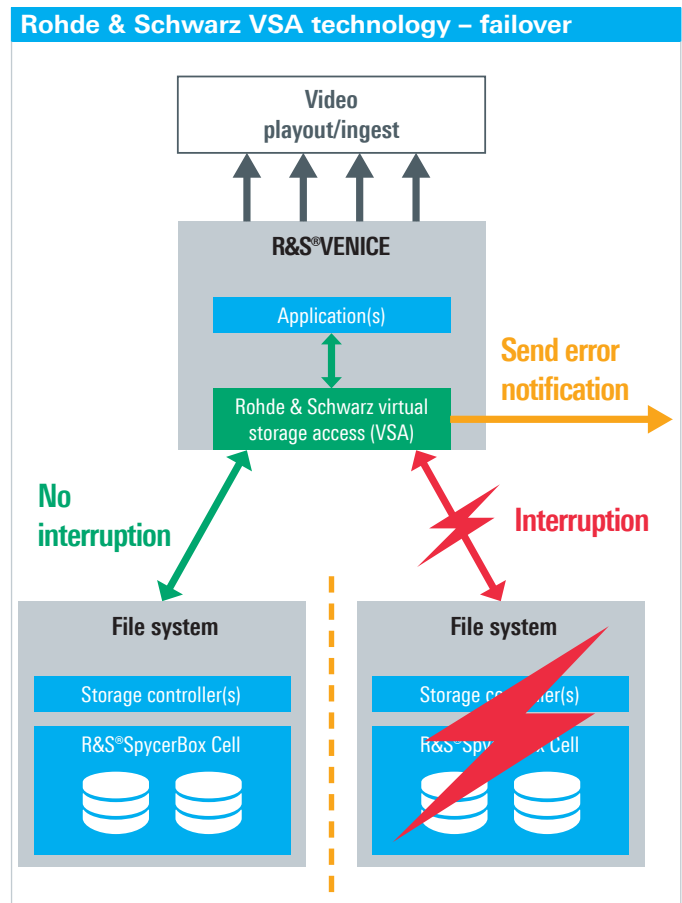
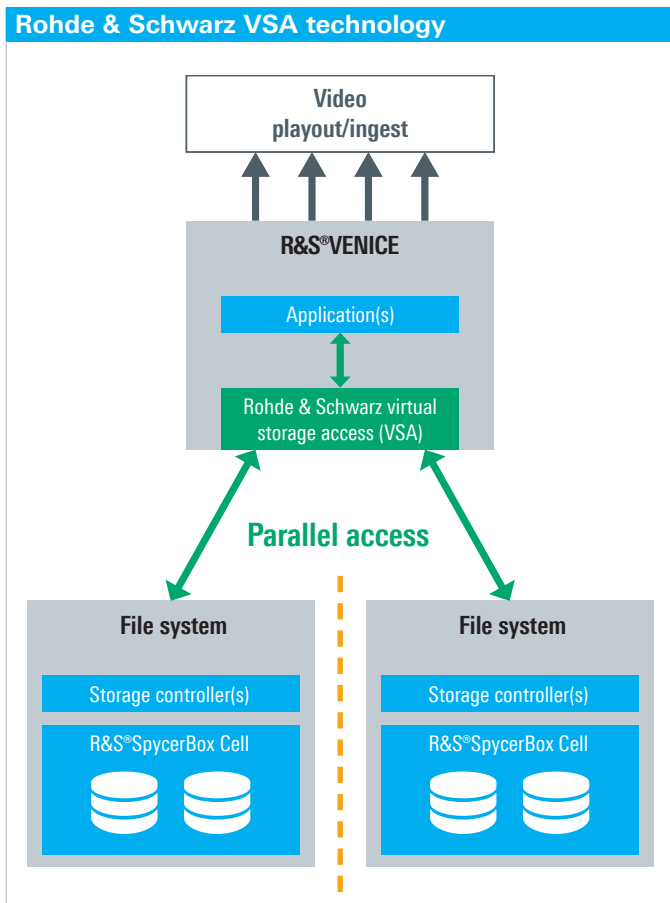
## Rohde & Schwarz VSA technology – handling failovers

Rohde & Schwarz VSA technology prevents any interruption of running media transfers, file encoding and file decoding processes during playout or ingest. The virtualization layer covers errors and long latencies on a storage system. File system operations are simultaneously executed to ensure response times. Both file systems are used to read and write, eliminating switchovers and failovers. In the event of an incident, data delivered from the first responding storage mirror is forwarded to the respective client application.

If a write process on one of the two file systems fails, the corresponding file system is deactivated. The other file system remains unaffected.

In the event of an incident, conditions are forwarded to the central management service (which runs on an R&S®Spycer Media Gateway server) for later resynchronization. The reports from all VSA clients are collected here.

After fixing the degraded condition (storage defect, network, etc.), potentially corrupted media files will be replaced.

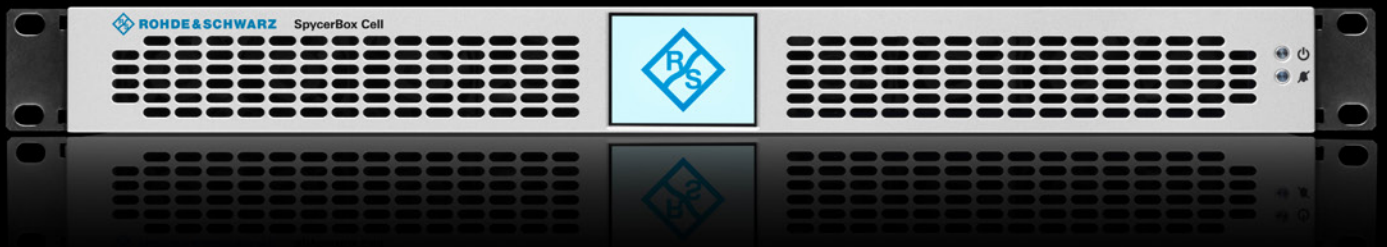


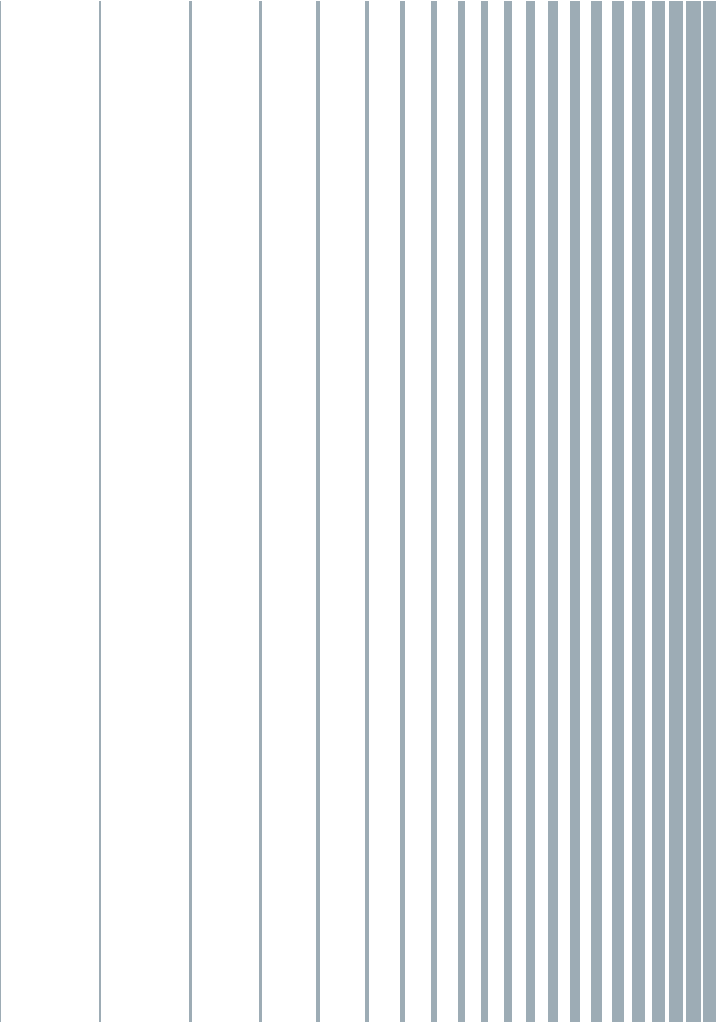
## The virtualization layer covers errors and long latencies on one storage system

- Uninterrupted media transfers
- Ensured response times
- Simultaneous execution of file system operations
- No failover process necessary
- Conditions are forwarded to a central management service for later resynchronization

Rohde & Schwarz VSA technology provides maximum failsafety for all Rohde & Schwarz applications for ingest and play-out. This software-based solution ensures maximum flexibility when deploying and expanding systems.

R&S®SpycerBox Cell storage solution





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