Сервер хранения данных SpycerNode 2u24

R&S®SPYCERNODE OVERVIEW

The combined exponential growth in media capacity requirements, demand for data protection and high availability calls for a storage solution that meets the critical performance expectations. Media companies not only have to handle huge amounts of data, they need to be able to flexibily manage content and user/access management across the organization,

Due to poor storage solution offerings in the market to date, departments have historically tried to satisfy their own storage and performance needs with the consequence that organisations end up with many disparate, isolated systems. Worse still, this results in expensive resource duplication, complicated management and isolated pools of data.

R&S®SpycerNode solves all these problems with
► an easy-to-use interface
► a high performance file system
► a market-leading data protection mechanism
► many more functions that let you focus on the creative work.

To meet the high paced demands of modern creative media production Rohde & Schwarz has developed a brand new storage platform with the only true hybrid file and block storage architecture.
The resulting characteristics are compact, flexible, reliable, high performance, value for money storage system.

The flagship models 5u84 and 2u12/24 feature intrinsic system controllers and active software RAID redundancy, while delivering constant performance over filling grade and lifetime. These systems are already deployed by broadcasting facilities and post production networks worldwide.

The all new SpycerNode SC 4u60 satisfies the high redundancy requirements and high performance demands of modern post production. SpycerNode SC can operate either as a standalone solution or within a larger cluster of SpycerNode systems that can scale to the required capacity. SpycerNode SC can be optimized for either Performance Mode (high speed, reduced capacity) or Endurance mode (maximized capacity). In addition, Metro Cluster mode satisfies the requirements of highest redundancy and efficiency environments. SpycerNode SC is high performance computing storage in a box that is simple to install, simple to operate and simple to scale.

All Rohde & Schwarz storage solutions are designed by media experts, for media experts and come with the quality, reliability and support that customers worldwide have enjoyed for decades.

The R&S®SpycerNode platform

Ethernet interface
Equipped with multiple high-speed Ethernet ports, the R&S®SpycerNode platform is future proofed.

Leading in IOPS and bandwidth
A single R&S®SpycerNode is capable of delivering millions of IOPS with a data throughput of more than 22 Gbyte/s.

Available in different configurations
R&S®SpycerNode is available in two different versions: SpycerNode and SpycerNode SC. SpycerNode is available in three different chassis sizes: 2U12, 2U24 and 5U84. SpycerNode SC is available in a 4U60 chassis. R&S®SpycerNode versions and chassis can easily be combined or configured to meet your requirements, with storage capacities ranging from 92 Tbytes to Exabytes.

Single namespace
All R&S®SpycerNode storage tiers can be managed under a single namespace. No matter in which pool your data is stored, it is always accessible with the same URL.

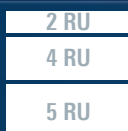### Central configuration and administration tools
The Rohde & Schwarz device manager allows you to install, maintain and service your storage setup via a web-based, easy-to-use interface.

HIGHLIGHTS

Ethernet interface

High performance

2 RU
4 RU
5 RU

Different chassis

Available in different configurations

Device manager

Massive scalability

Flexibility is essential in a media environment, and it can only be achieved with easily scalable solutions. In contrast to other storage solutions, R&S®SpycerNode can be scaled as needed, starting with just a single unit. The solution can be adapted to your capacity and bandwidth requirements at any time – even during operation. It is also possible to combine different R&S®SpycerNode systems of different sizes with different storage performance or drive types.

No single point of failure

Protecting your data from loss is our highest priority, which is why we have implemented full redundancy in even the smallest unit. R&S®SpycerNode combines full hardware redundancy with data protection mechanisms such as erasure coding. The use of proven enterprise-class hardware results in high availability and cost-efficient maintenance.

High Performance Computing (HPC) RAID technology

Data loss is the worst-case scenario in a media environment. To protect your content, we have equipped R&S®SpycerNode with HPC redundancy mechanisms. The software solution comes from IBM (IBM Spectrum Scale™ RAID) and is based on state-of-the-art erasure coding technologies. In the event of a system failure, rebuild times can be reduced by a factor of four compared to conventional RAID solutions. The impact on system performance is minimal since all disks contribute to system recovery. The integrated disk hospital detects a faulty disk before a failure occurs. In addition to these features, R&S®SpycerNode also offers other redundancy highlights.

▪ Enhanced fault tolerance with an end-to-end checksum that makes it possible to detect silent data corruption
▪ Very high mean time to data loss from 200 years to 200 million years
▪ The RAID technology used offers protection even if a third disk fails, in contrast to RAID 6

High performance file system

To meet the demands of today's media environments, storage solutions must satisfy high requirements in terms of scalability and workflow integration. Seamless workflow integration is a key requirement for media storage solutions. R&S®SpycerNode uses Spectrum Scale™, the high performance file system file system from IBM, which gives you a number of advantages over competing products.

Unified file and block storage

R&S®SpycerNode provides file level as well as block level storage access. Unlike competing products, hybrid operation is also possible, giving you enormous workflow flexibility. R&S®SpycerNode takes advantage of the IBM Spectrum Scale™ file system and gives you easy access to the drives irrespective of the used access protocol. This enables all clients that cannot be connected natively to still be able to access the system through SMB and NFS protocols.

Device Manager

The most frequent customer requirements are that storage must function reliably, meet the required high performance parameters and be easy to use. When developing our new storage architecture, we focused on finding optimized solutions for these requirements. User-friendliness in particular is crucial in the creative market environment. This has led us to take a completely new approach. We developed the Rohde&Schwarz device manager, a web application that significantly simplifies the use and setup of our solution. The device manager allows Rohde&Schwarz systems such as R&S®VENICE in a network with R&S®SpycerNode to be managed via a single interface. Complex configurations via the console and tedious maintenance work are a thing of the past. Now you can fully concentrate on your business.

Outstanding performance

R&S®SpycerNode offers excellent performance data in all configurations. It can be used in any media workflow no matter what the requirements are. Based on latest field-proven enterprise-class hardware and equipped with an high performance computing file system file system and erasure coding mechanisms, R&S®SpycerNode delivers millions of IOPS and extremely high bandwidth. The system can be used in high-speed Ethernet networks up to 100 Gbit/s.

Production Asset Management – R&S®SpycerPAM

SpycerPAM expands the R&S®SpycerNode storage experience by delivering a fully-fledged production asset management (PAM) solution. SpycerPAM addresses the inherent challenges of content production by decreasing overall project complexity. Creative talent benefits from its powerful search and view capabilities as well as its easy rights management, automatic proxy generation/preview, bin locking and much more. SpycerPAM integrates seamlessly into leading editing platforms such as Adobe Premiere, Avid Media Composer and Apple Final Cut Pro.

	SpycerNode	SpycerNode SC
Ethernet interface	100 Gbit	Up to 400 Gbit
Bandwidth per node	Up to 10 Gbyte/s	Up to 22 Gbyte/s
Drive rebuilds	Up to 4 times faster	Standard
Single namespace	Yes	Yes
Scalable online	Yes	Yes
Intrinsic controller redundancy	Yes	No
Data protection	Erasure coding[1]	RAID6
Metro cluster redundancy[2]	Yes	Yes
Application modes	Endurance mode[3]	Performance mode[4] or endurance mode
Unified block and file storage	Yes	Yes
High performance file system	Yes	Yes
SpycerPAM	Yes	Yes
Device manager	Yes	Yes
Field of application	High redundancy and constant performance applications e.g. news production, playout, central storage, etc.	High performance applications e.g. mastering, grading, editing, etc.

1) Erasure Coding / HPC RAID technology:

Data loss is the worst-case scenario in a media environment. To protect your content, we have equipped R&S®SpycerNode with HPC redundancy mechanisms. The core of this software solution is the IBM Spectrum Scale™ RAID which is based on state-of-the-art erasure coding technologies. In the event of a system failure, rebuild times are reduced by a factor of four compared with conventional RAID solutions. The impact on system performance is negligible since all disks contribute to system recovery. The integrated disk hospital detects a faulty disk before a failure occurs.

▶ Enhanced fault tolerance with an end-to-end checksum that makes it possible to detect silent data corruption
▶ Very high mean time to data loss from 200 years to 200 million years
▶ The RAID technology used offers protection even if a third disk fails

2) Metro cluster redundancy:

Business continuity and the availability of applications is one of the top requirements of the media production industry. Metro Cluster technology is an advanced high availability option that allows communication with storage resources to continue after the loss of vital system components. The entire half of a storage cluster can fail, even if the components are located far away from each other. In such a case, all clients are rerouted to the still intact part of the cluster and can thus continue to work without restrictions.

3) Endurance mode

Constant performance of storage systems over the entire storage depth is often neglected and not taken into account at the time of purchase. Endurance Mode ensures consistent performance regardless of the storage's filling level. Even if the system is filled up to 99%, it will behave in terms of performance as if it had just been installed. Intelligent allocation of data blocks allows complete predictability in the performance of a SpycerNode storage system. The system is kept in a non-fragmented state for its entire lifetime, making time-consuming defragmentation a thing of the past.

4) Performance mode

Due to constantly increasing data rates, especially in high end post-production, it is sometimes necessary to have the complete performance of a system available. Performance Mode optimises all resources of the SpycerNode SC for high performance and bandwidth, so that media applications such as color grading or compositing can benefit from the high peak bandwidth. To prevent significant performance degradation, the lesser performing part of the storage can be excluded from access.

R&S®SpycerNode 2u24 Storage Server

Specifications

Description

The R&S®SpycerNode 2u24 is a storage server for media and entertainment applications. With its ideal size as a building block, it is easy to lift, install and deploy. IT managers appreciate features such as two-digit front panel shelf ID, activity and status indicators for all key components, alarms and lockable carriers. With the "no single point of failure" design, advanced data security and support for dual ported NL-SAS and dual ported SSD drives, the R&S®SpycerNode 2u24 is ready to fulfill a wide range of applications.

- Software-defined storage system
- Single namespace
- Scalable data and hardware architecture
- Advanced erasure coding data protection
- Advanced 12 Gbit/s SAS implementation
- 80 PLUS® gold certified power efficiency conversion

Specifications

System configuration		
		• 2 HU rackmount • 24 drives per chassis • dual I/O modules per enclosure (main and JBOD) • Intel Xeon processor • DDR4 DIMM • internal 256 Gbyte M.2 module • mini-SAS HD ports main to JBOB interconnectors • dual ported drive technology
Connectivity per controller		
100 Gigabit Ethernet network	main unit	2 × QSFP data ports
10 Gigabit Ethernet network	main unit	2 × RJ-45 data ports
1 Gigabit Ethernet network	main unit	3 × RJ-45: two data ports, one management port to BMC
USB	main unit	2 × USB 3.0 connectors (rear)
Serial port	main unit	1 × RCA 3.5 mm audio serial port
Video port	main unit	1 × mini HDMI™ port
Expansion	main unit	2 × 12G mini SAS HD

The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.

Environmental conditions		
Temperature	operating temperature range	+5 °C to +40 °C (+35 °C above 2000 m)
Relative humidity	operating	20 % to 80 % relative humidity with +29 °C maximum dew point
Altitude	operating	0 m to 3000 m
	nonoperating	−300 m to 12192 m
Vibration	random, operating	0.21 g (RMS)
	random, nonoperating	1.04 g (RMS)
	relocation, swept sine	0.3 g (RMS)
Shock	operating	5 g, 10 ms half sine
	nonoperating	20 g, 10 ms half sine
Acoustics	operating sound power level	≤ 6.5 B L_{WAd} (re 1 pW) at +23 ºC ambient
Power rating		
Rated voltage		100 V to 240 V AC (50/60 Hz)
Power output	maximum main unit	764 W (100 V to 240 V AC)
	maximum JBOD unit	764 W (100 V to 240 V AC)
BTU	maximum main unit	2608 BTU/h
	maximum JBOD unit	2608 BTU/h
Product conformity		
Safety certification	for USA and Canada	in line with UL 60950-1
	for Europe	in line with EN 60950-1
	for CB	in line with IEC 60950-1
Electro magnetic compatibility (EMC)	North America	CFR 47 part 15, subpart B, class A; CES/NMB-003 class A
	Europe	in line with EN 55022 class A, EN 55024, EN 61000-3-2, EN 61000-3-3
Standard marks	North America	FCC, UL, cUL, ICES/NMB-003 class A
	Europe	CE
	China	CCC (PSU only)
	Taiwan	BSMI
	Korea	MSIP (formerly KCC)
	Japan	VCCI
	Australia/New Zealand	RCM (formerly C-tick)
Dimensions and weight		
Dimensions	W × H × D	48.3 cm × 8.89 cm × 63.00 cm (19 in × 3.5 in × 24.8 in)
Weight	including drives	max. 24 kg (53 lb)
Rackmounting		
Rails		universal rackmounting kit

Ordering information

Designation	Type	Order No.
R&S®SpycerNode 2u24 storage server, main unit	R&S®SNO2U24	2902.3666.02
R&S®SpycerNode 2u24 storage server, JBOD unit	R&S®SNO2U24JB	2902.3672.02
R&S®SpycerNode 2u24 storage server, SSD bundle 23 Tbyte	R&S®SNO-B104 SSD BUNDLE 23TB (24)	2902.3689.02
R&S®SpycerNode 2u24 storage server, SSD bundle 46 Tbyte	R&S®SNO-B105 SSD BUNDLE 46TB (24)	2902.3695.02
R&S®SpycerNode 2u24 storage server, SSD bundle 92 Tbyte	R&S®SNO-B106 SSD BUNDLE 92TB (24)	2902.3708.02