



THOMAS
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Beste Datenverfügbarkeit bei höchster Performance:
Der neue Open-E JovianDSS HA-NVMe-Cluster
von Thomas-Krenn

TH-MAS
KRENN®

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Thomas-Krenn & Open-E

Eine langjährige Partnerschaft

**THOMAS
KRENN[®]**

+

open-e



- Open-E Platinum Partner
- 18 Jahre Zusammenarbeit (2005 – 2023)
- 8 Jahre Partner (2015 – 2023)
- 8 zertifizierte Open-E Techniker (OECE)
- 5 zertifizierte Open-E Vertriebsberater (OECSP)
- 4 von Open-E geprüfte und freigegebene Lösungen

Open-E RI4224 HA NVMe Cluster

Unternehmensrelevante Funktionen von Open-E JovianDSS

- Hochverfügbarkeit
- Datensicherheit
- Datenintegrität und Redundanz
- Speichereffizienz
- Beschleunigter Datenzugriff
- Speichervirtualisierung
- Skalierbarkeit

- Unified Storage
- Schnelles und einfaches Storage Management
- Komfortables Monitoring
- Nach Bedürfnissen angepasste technische Support Optionen
- Stabile und Kompatible Storage Lösung

Weitere Informationen und Details siehe
[Open-E JovianDSS Datenblatt](#)

Open-E RI4224 HA NVMe Cluster

Open-E Lösungen von Thomas-Krenn

Open-E RI4224 (HA NVMe Cluster) Ver. 1.0



Open-E RA1212 Ver. 1.0

[🕒 Konfigurationsinfos](#)



Open-E RA1112 (All-Flash) Ver. 1.0

[🕒 Konfigurationsinfos](#)



Open-E RA1436 Ver. 2.0

[🕒 Konfigurationsinfos](#)



Highlights

High Performance HA Lösung mit bis zu 24 U.2 Dual-Port NVMe Datenträger

Highlights

12-Bay Storage Lösung mit Hybrid NVME Option
Metro HA Cluster Ready

Highlights

High Performance Lösung mit bis zu 12 U.2 NVME Datenträger
Metro HA Cluster Ready

Highlights

Enorme Speicherdichte bei 4HE
Bis zu 648TB möglich
Metro HA Cluster Ready

Open-E RI4224 HA NVMe Cluster

Highlights Cluster

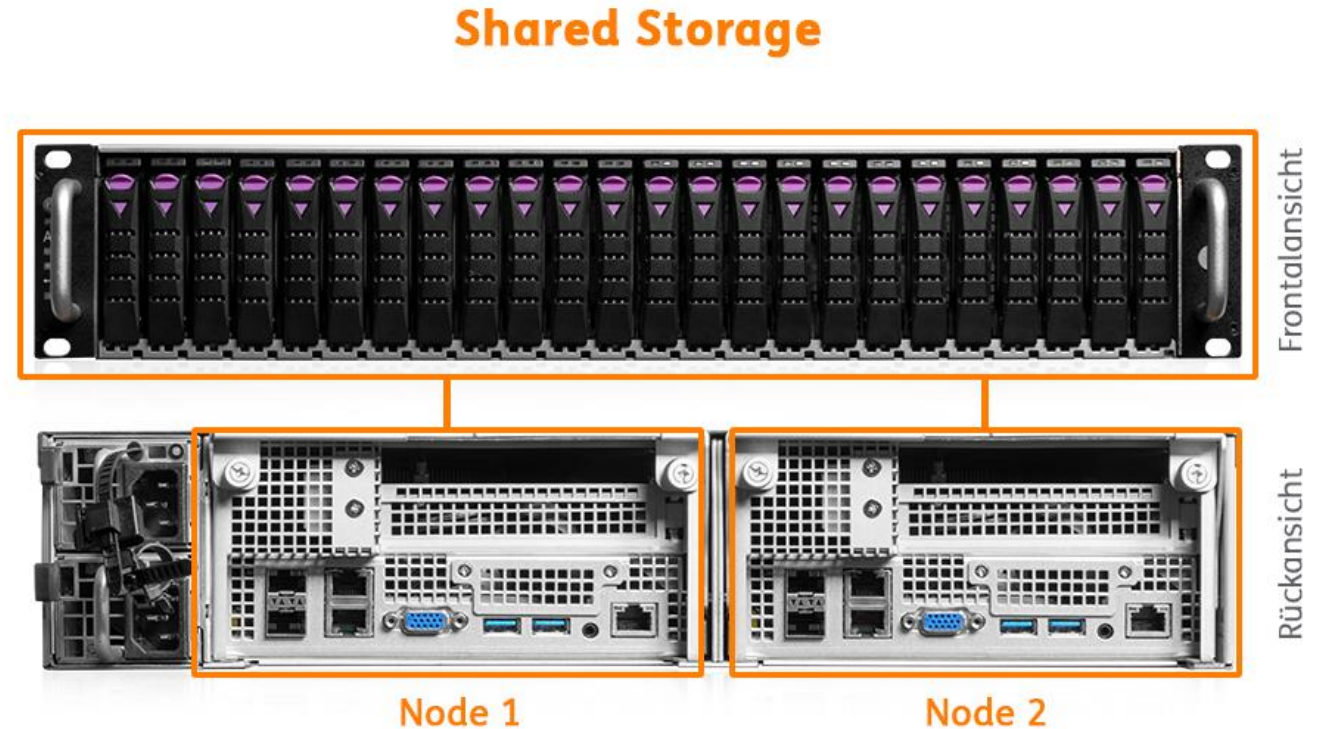
Optimierte Hardware für den Einsatz
von Open-E Jovian DSS

Hochverfügbarer 2HE 2 Knoten Storage Server

24 Port Dual-Port NVMe Backplane

24x 2,5" U.2 NVMe SSDs (Hot-Swap)
Brutto-Kapazität bis zu 307.2 TB

1300W 1+1 redundante Stromversorgung
(80+ Platinum)



Dual-Node-Architektur:
Zwei unabhängige Server in
einem Gehäuse.

Shared Storage:
Gemeinsamer Speicherzugriff für
beide Server-Nodes.

Open-E RI4224 HA NVMe Cluster

Highlights Dual Nodes

Optimierte Hardware für den Einsatz
von Open-E Jovian DSS

Inkl. 2x Intel Xeon Silver 4215R (3,20GHz, 8-Core)
aufrüstbar

Inkl. 128 GB ECC Reg ATP DDR4 3200 RAM
aufrüstbar

Inkl. 2x 2,5" SATA SSD (Boot-Mirror)

2x 10 Gbit/s SFP+ und 2x 1 Gbit/s RJ45 onboard

Erweiterbar mit 2x FP/FL und 1x OCP 2.0
Zusatzkarte(n)

Integriertes IPMI (dedizierte NIC)



Open-E RI4224 HA NVMe Cluster

Beispiel-Konfiguration

24x 3,2 TB Kioxia CM6-V U.3 NVMe SSD

Total storage capacity: 69.89 TiB
(24 disks x 3.2TB = 76.80TB = 69.89TiB)

Nettosumme: 33.042,51 €
(Preise Stand 08.11.2023)

Quelle: [Open-E RI4224 \(HA NVMe Cluster\) \[Ver.1.0\]](#)

POS	ARTIKEL	MENGE	EINZELPREIS	GESAMTPREIS
01	Open-E RI4224 (HA NVMe Cluster)	AKTION ▾	1	10.949,00 € 10.949,00 €
	Enterprise-Paket: - Hotline (24/7) - Hardware-Austausch SBD - Vor-Ort-Service 24/7/4			
	Exclusive-Paket: - Hotline (24/7) - Hardware-Austausch NBD - Vor-Ort-Service NBD			
	Essential - Paket: - Hotline MO-FR (07.00 - 22.30 Uhr) - Hardware-Austausch NBD			
	3,2 TB Kioxia CM6-V U.3 NVMe SSD	24	689,00	16.536,00
	2x 1300 Watt redundantes Netzteil (80plus Platinum)	1	0,00	0,00
	Ausziehbare Montageschienen	1	0,00	0,00
		Pos. 01	1	27.485,00 € 27.485,00 €
02	Open-E Dual Node	AKTION ▾	2	2.709,00 € 5.418,00 €
	Essential - Paket: - Hotline MO-FR (07.00 - 22.30 Uhr) - Hardware-Austausch NBD			
	2x 1GbE RJ45 Intel I350 2x 10G SFP+ Intel PCH	2	0,00	0,00
	Full Remote Management (KVM over LAN, IPMI 2.0) inkl. Managementsoftware, DHCP Konfiguration	2	0,00	0,00
	2x 480 GB SATA III Intel SSD 3D-NAND TLC 2,5" (D3-S4620) im ZFS-Mirror	2	0,00	0,00
	2x Intel Xeon Silver 4215R (3,20GHz, 8-Core, 11MB) [Hinweis: Nur noch begrenzte Stückzahlen verfügbar!]	2	0,00	0,00
	128 GB (8x 16GB) ECC Reg ATP DDR4 3200 RAM (Premium)	2	0,00	0,00
	Essential-Paket (D): 24 Monate	2	0,00	0,00
		Pos. 02	2	2.709,00 € 5.418,00 €
	Zwischensumme			32.903,00 €
	Optional zu einer monatlichen Leasingrate » 60 Monate			649,46 €
	0,4% Transportversicherung (von 32.903,00 €)			131,61 €
	Verpackungskosten			7,90 €
	Nettosumme			33.042,51 €
	+ 19% MwSt.			6.278,08 €
	Gesamtsumme (zzgl. Versandkosten)			39.320,59 €

Open-E RI4224 HA NVMe Cluster


Basis: Von Open-E Zertifiziertes Barebone

AIC HA202-PV

HA NVMe Shared Storage Cluster Barebone

Hyperlink zu Open-E zertifiziertem System:

[AIC HA202-PV HA NVMe Shared Storage Cluster](#)

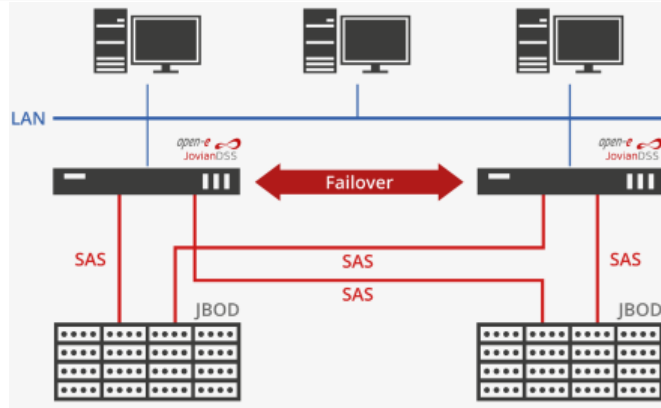


The image shows a server rack with multiple server units. The top left of the rack has the 'AIC' logo in large black letters. The top right has the 'open-e' logo in a stylized red and black font. The server units are silver and black, with various ports and indicators visible. The background is a blurred server room. At the bottom right, there is a circular certification seal with the text 'OPEN-E JOVIANDSS CERTIFIED' and 'HIGH AVAILABILITY READY'. The seal also features a globe and the 'open-e' logo.

AIC HA202-PV HA NVMe Shared Storage Cluster

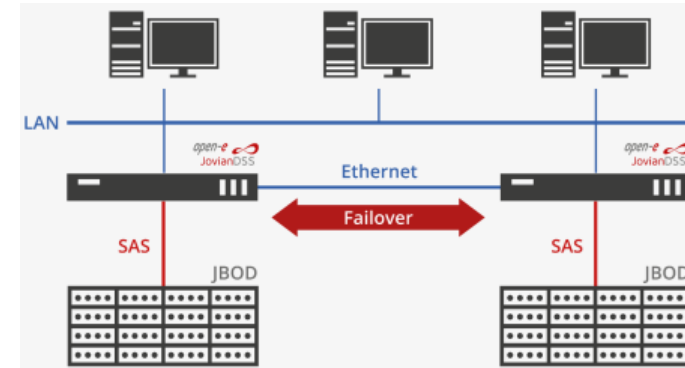
Open-E RI4224 HA NVMe Cluster

Standard HA Cluster vs. Metro HA Cluster over Ethernet



Standard HA Cluster

- Automatischer / manueller Failover
- aktiv/aktiv oder aktiv/passiv
- Dual Port SAS oder NVMe Devices
- Mirror over SAS / PCIe (NVMe)
-> Distanz: wenige Meter
- Geringere Kosten (HW + Feature Pack)

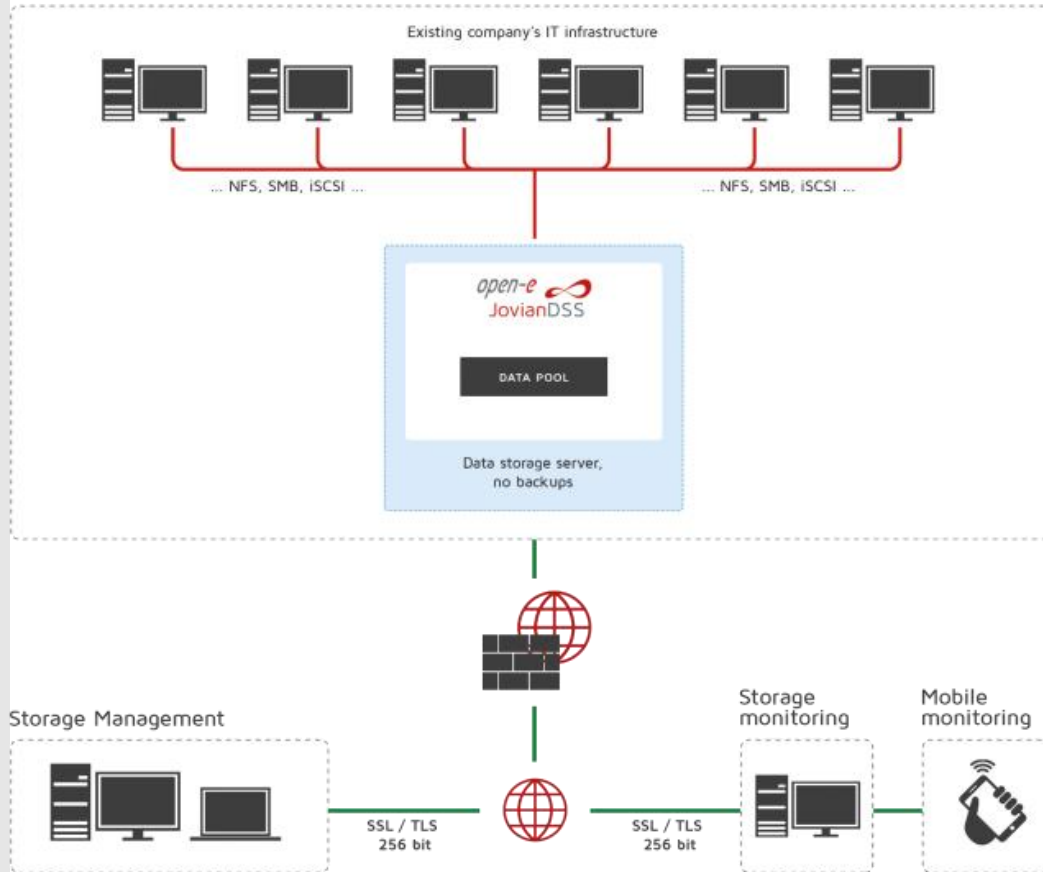


Metro HA Cluster over Ethernet

- Automatischer / manueller Failover
- aktiv/aktiv oder aktiv/passiv
- Standard SATA/SAS/NVMe Devices
- Mirror over Ethernet
-> Distanz: mehrere Kilometer
- Höhere Kosten (HW + Feature Pack)

Stufenmodell Datensicherheit von Open-E

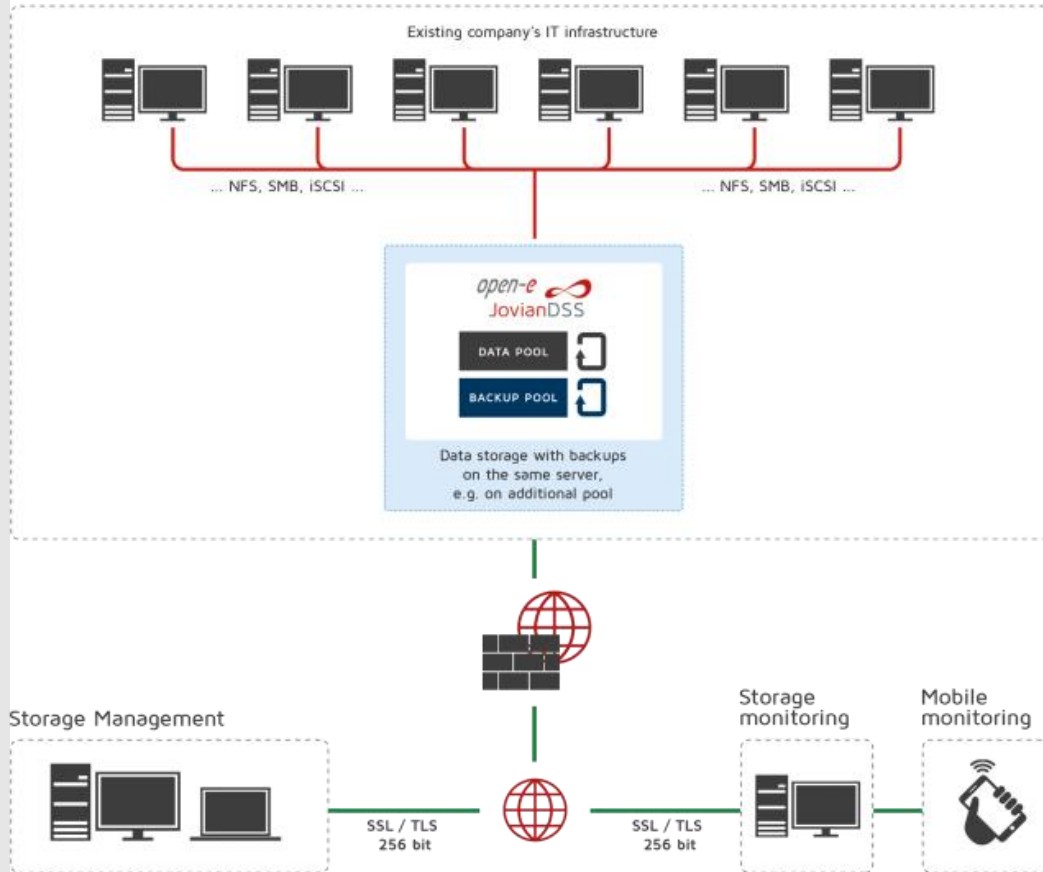
Single Host mit Data Pool



Gefahren	Gegenmaßnahme	Restore-Zeit
Virus-Angriff	Snapshots	Sofort
Datenkorruption	Selbstheilend	Sofort
Festplattenfehler	RAID	Sofort
Wiederherstellungsfehler	Keine	Keine
Systemfehler	Keine	Keine
Naturkatastrophe	Keine	Keine
Diebstahl	Keine	Keine
Menschliches Versagen	Keine	Keine
Ausfall / Downtime	Keine	Keine

Stufenmodell Datensicherheit von Open-E

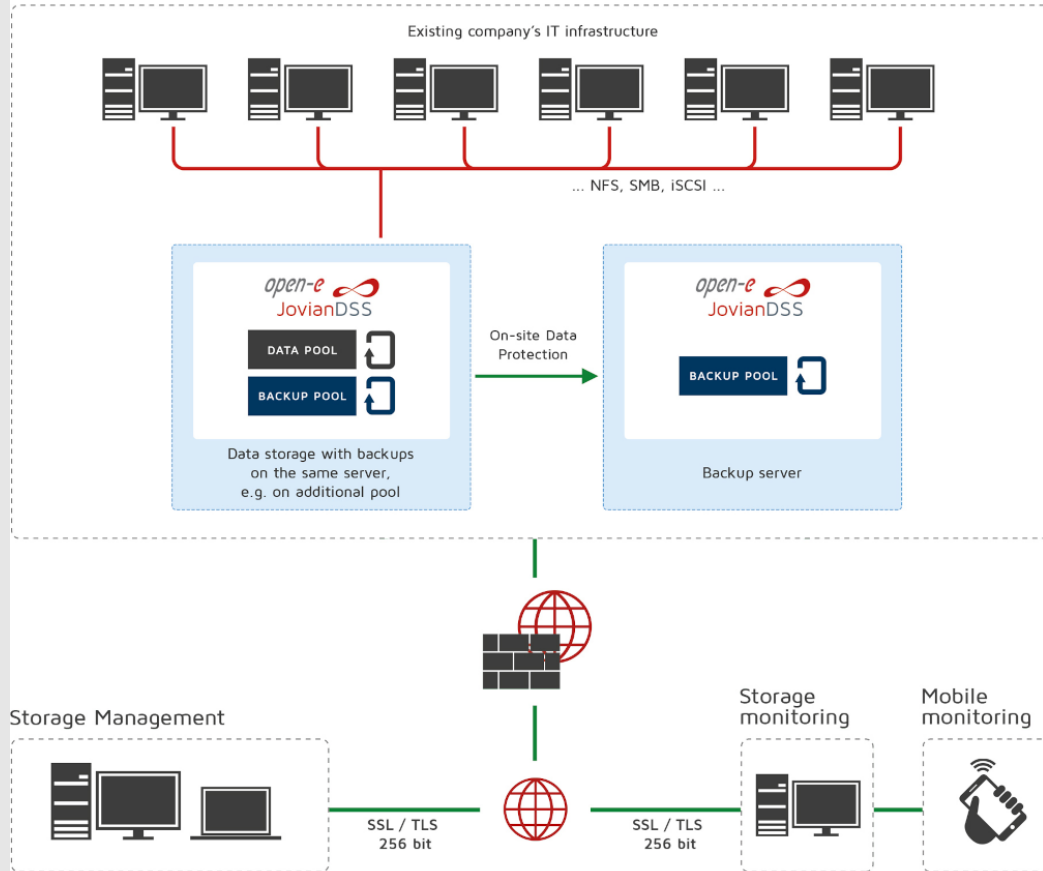
Single Host mit Data Pool und Backup Pool



Gefahren	Gegenmaßnahme	Restore-Zeit
Virus-Angriff	Snapshots	Sofort
Datenkorruption	Selbstheilend	Sofort
Festplattenfehler	RAID	Sofort
Wiederherstellungsfehler	Zweites RAID	Sofort
Systemfehler	Keine	Keine
Naturkatastrophe	Keine	Keine
Diebstahl	Keine	Keine
Menschliches Versagen	Keine	Keine
Ausfall / Downtime	Keine	Keine

Stufenmodell Datensicherheit von Open-E

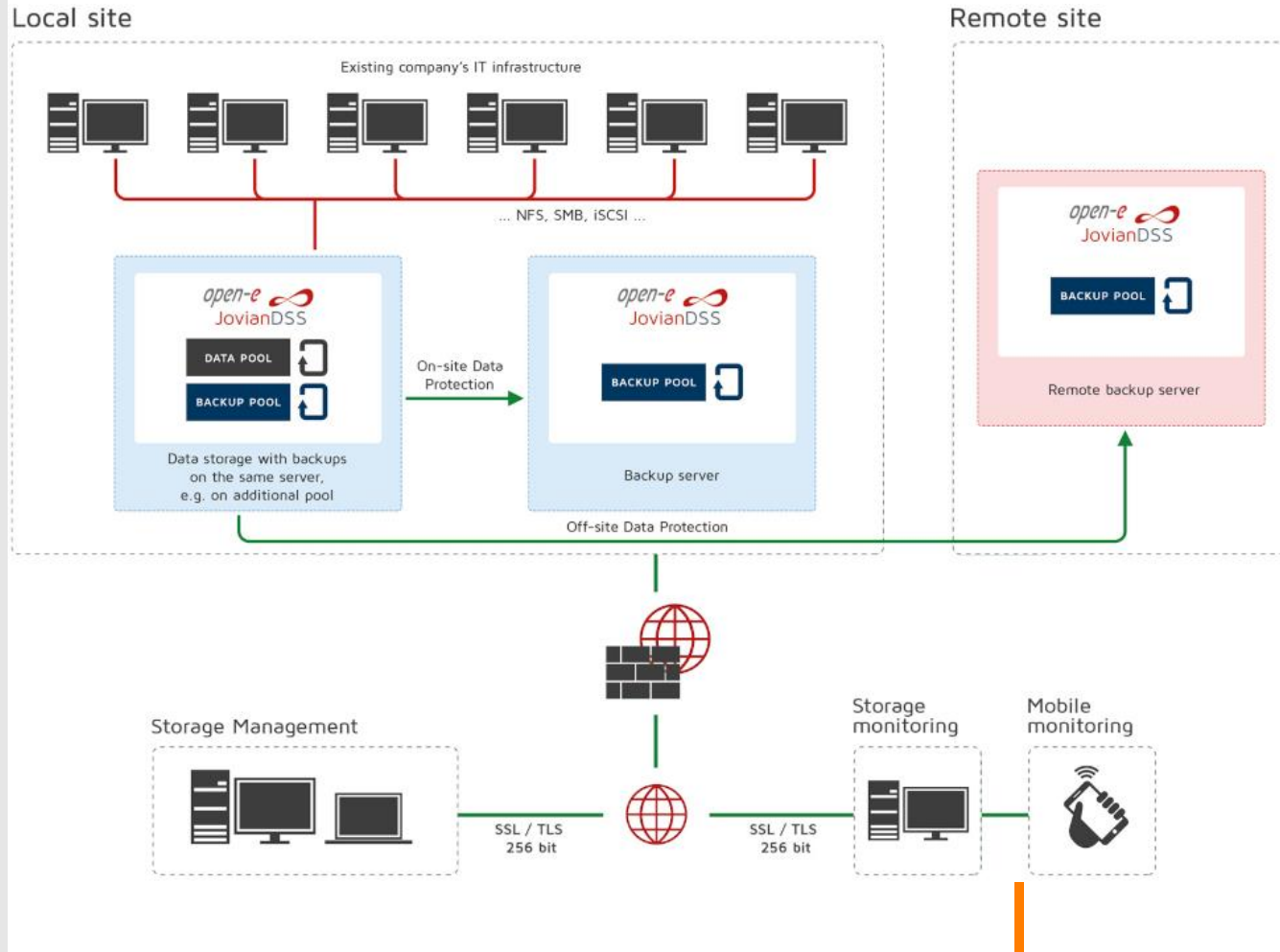
Single Host mit Data Pool und Backup Pool
+ Onsite Backup Server mit 2. Backup Pool



Gefahren	Gegenmaßnahme	Restore-Zeit
Virus-Angriff	Snapshots	Sofort
Datenkorruption	Selbstheilend	Sofort
Festplattenfehler	RAID	Sofort
Wiederherstellungsfehler	Zweites RAID	Sofort
Systemfehler	Backup Server	Sofort
Naturkatastrophe	Keine	Keine
Diebstahl	Keine	Keine
Menschliches Versagen	Keine	Keine
Ausfall / Downtime	Keine	Keine

Stufenmodell Datensicherheit von Open-E

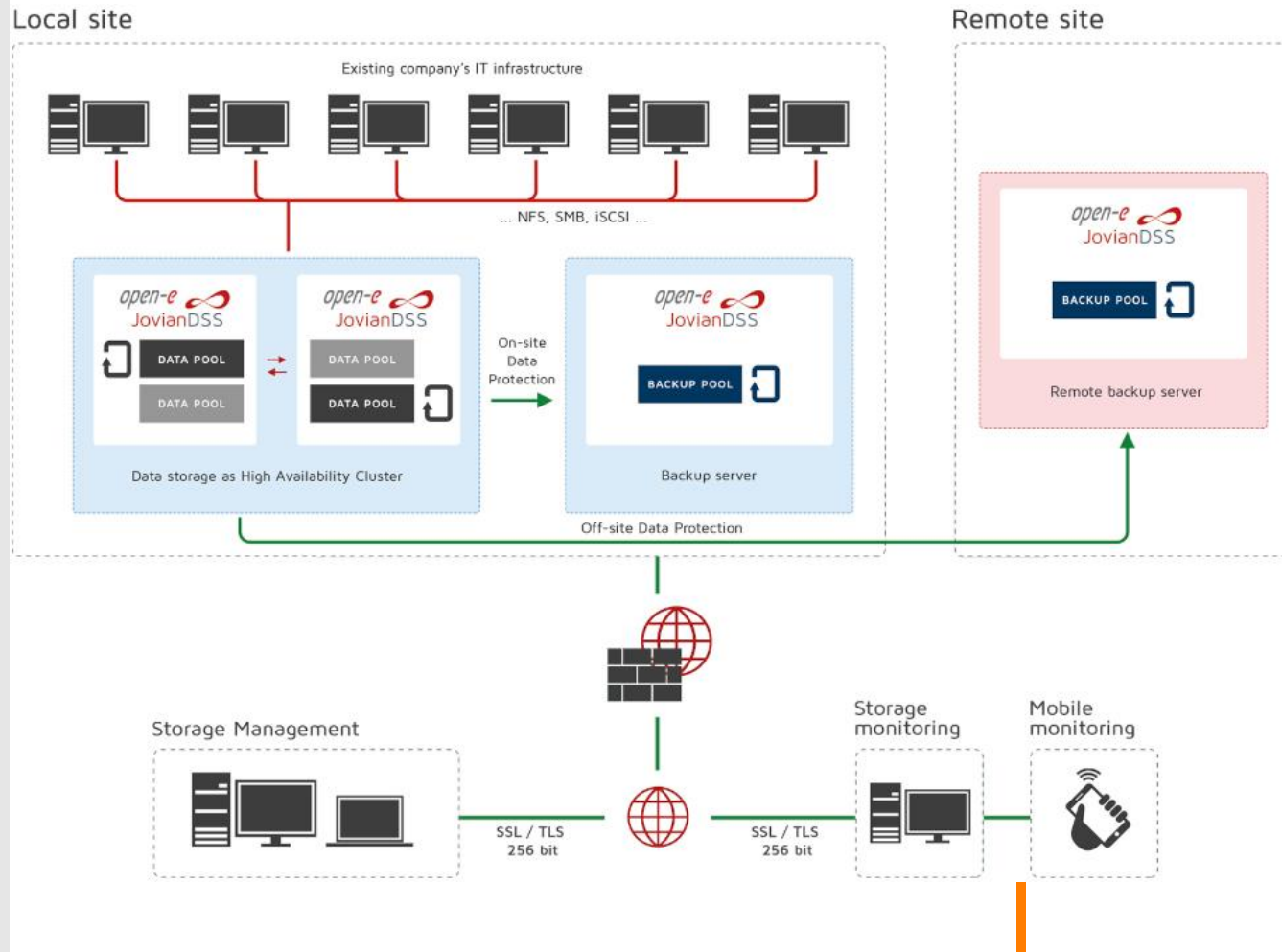
Single Host mit Data Pool und Backup Pool
 + Onsite Backup Server mit 2. Backup Pool
 + Offsite/Remote Backup Server mit 3. Backup Pool



Gefahren	Gegenmaßnahme	Restore-Zeit
Virus-Angriff	Snapshots	Sofort
Datenkorruption	Selbstheilend	Sofort
Festplattenfehler	RAID	Sofort
Wiederherstellungsfehler	Zweites RAID	Sofort
Systemfehler	Backup Server	Sofort
Naturkatastrophe	Server außerhalb	Sofort
Diebstahl	Server außerhalb	Sofort
Menschliches Versagen	Server außerhalb	Sofort
Ausfall / Downtime	Keine	Keine

Stufenmodell Datensicherheit von Open-E

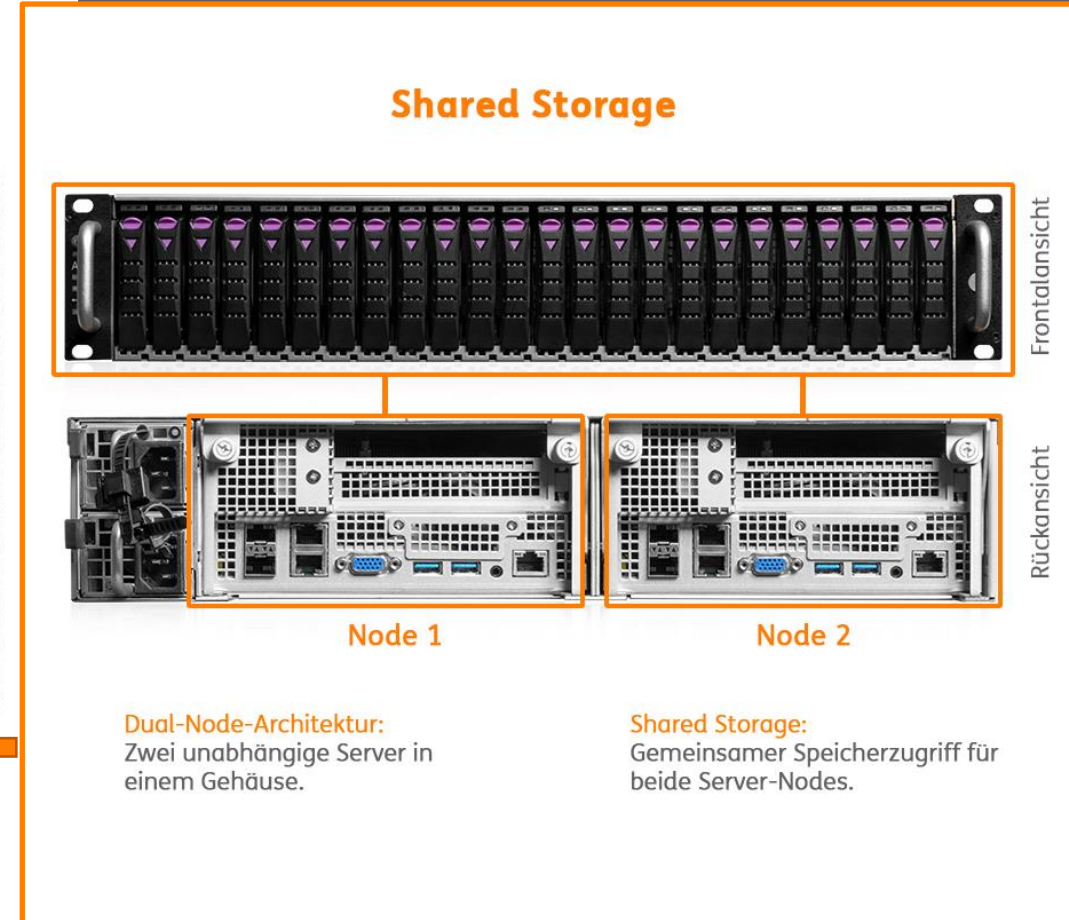
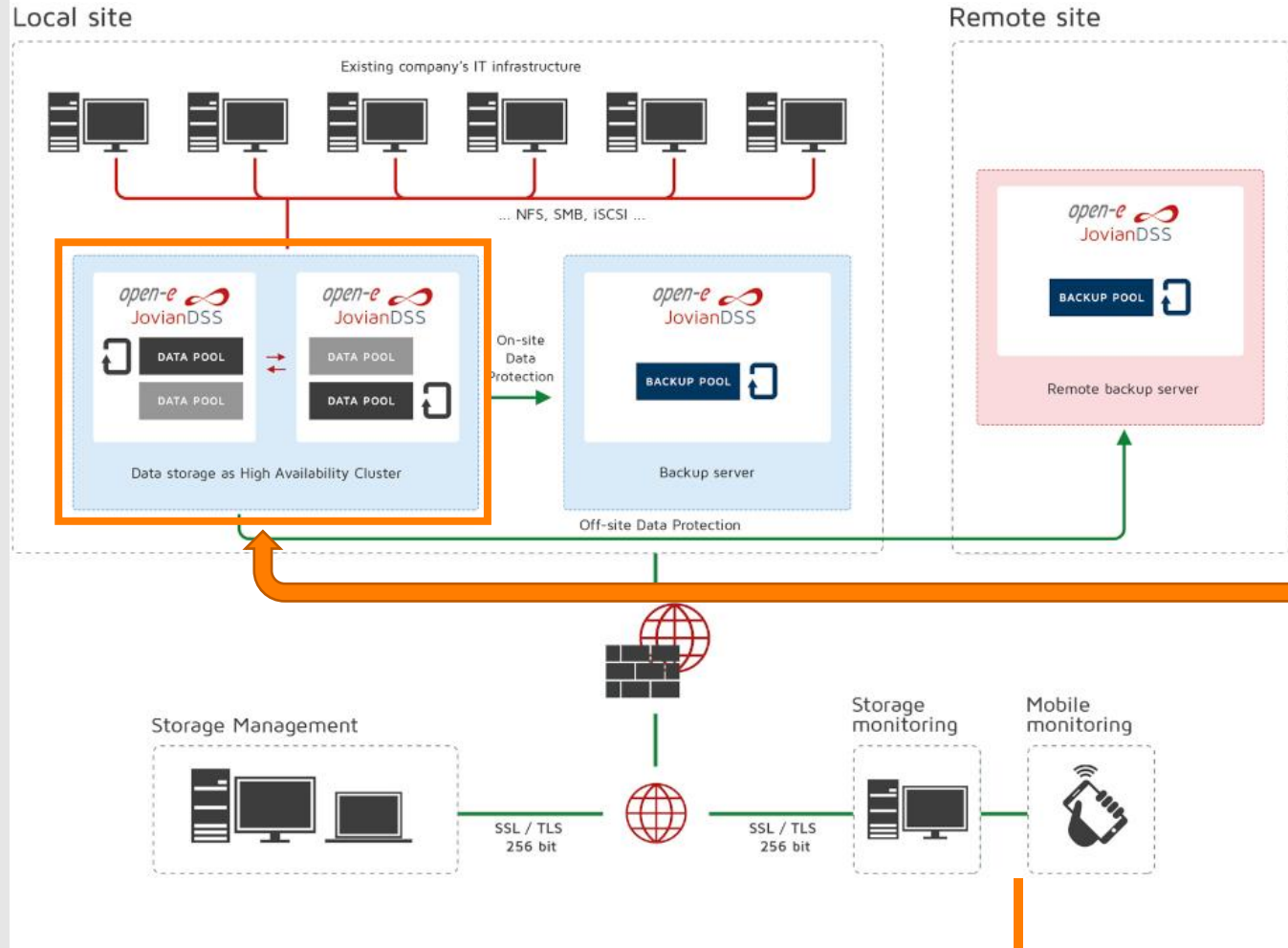
HA-Cluster mit Datapool und Backup Pool
 + Onsite Backup Server mit 2. Backup Pool
 + Offsite/Remote Backup Server mit 3. Backup Pool



Gefahren	Gegenmaßnahme	Restore-Zeit
Virus-Angriff	Snapshots	Sofort
Datenkorruption	Selbstheilend	Sofort
Festplattenfehler	RAID	Sofort
Wiederherstellungsfehler	Zweites RAID	Sofort
Systemfehler	Backup Server	Sofort
Naturkatastrophe	Server außerhalb	Sofort
Diebstahl	Server außerhalb	Sofort
Menschliches Versagen	Server außerhalb	Sofort
Ausfall / Downtime	Hochverfügbarkeit	Sofort

Positionierung unserer neuen Lösung

Open-E RI4224 HA NVMe Cluster



Live-Demo

Installation

```
                Select version
1.0up29r4.xxxx.50996 2023-03-15 [b50996 2023-03-15]

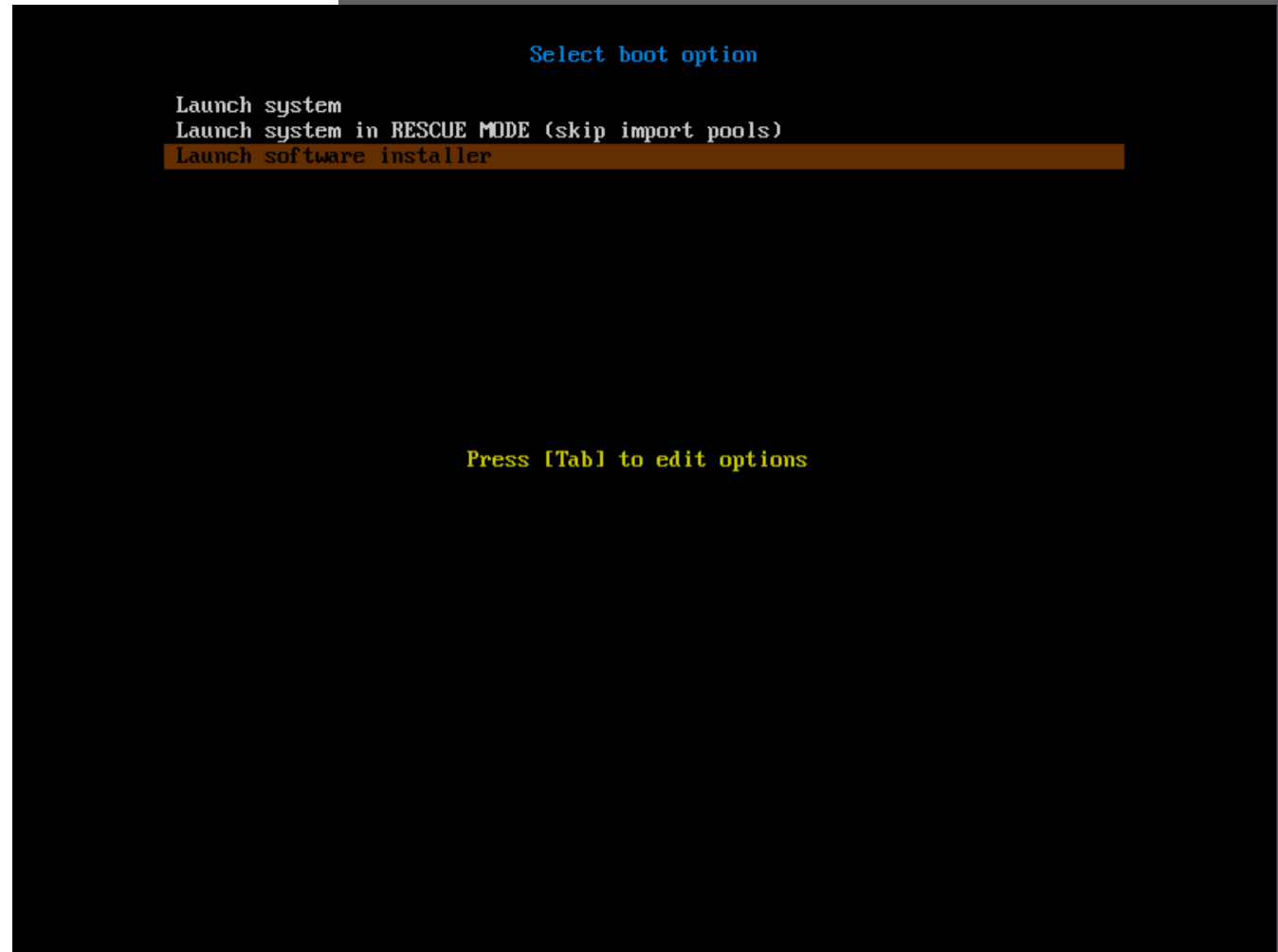
Some tests:
Run Memtest utility

Press [F1] to get help, press [Tab] to edit options.
```

CD-ISO Booten

Live-Demo

Installation



Launch Software Installer

Live-Demo

Installation



Boot Logo

Live-Demo

Installation

```
INIT: version 2.88 booting
[info] Using makefile-style concurrent boot in runlevel S.
[ ok ] Starting the hotplug events dispatcher: udevd.
[ ok ] Synthesizing the initial hotplug events...done.
[ ok ] Waiting for /dev to be fully populated...done.
[ ok ] Activating swap...done.
[warn] Creating compatibility symlink from /etc/mtab to /proc/mounts. ... (warning).
[ ok ] Cleaning up temporary files... /tmp.
[info] Loading kernel module iscsi_tcp.
[info] Loading kernel module ib_iser.
[info] Loading kernel module loop.
[ ok ] Discovering and coalescing multipaths...done.
[ ok ] Activating lvm and md swap...done.
[... ] Checking file systems...fsck from util-linux 2.25.2
done.
[ ok ] Mounting local filesystems...done.
[ ok ] Activating swapfile swap...done.
[ ok ] Cleaning up temporary files...
[info] Setting console screen modes and fonts.
[ ok ] Generating system users and groups.
[FAIL] Initializing system environment failed!
[ ok ] Prepare configuration for RAID tools...
[ ok ] Generating file with sysctl default values...
[ ok ] Setting kernel variables ...done.
```

Textmeldungen einblenden mit der „Entf“-Taste

Live-Demo

Installation

```
Welcome to the software installer

| License agreement |
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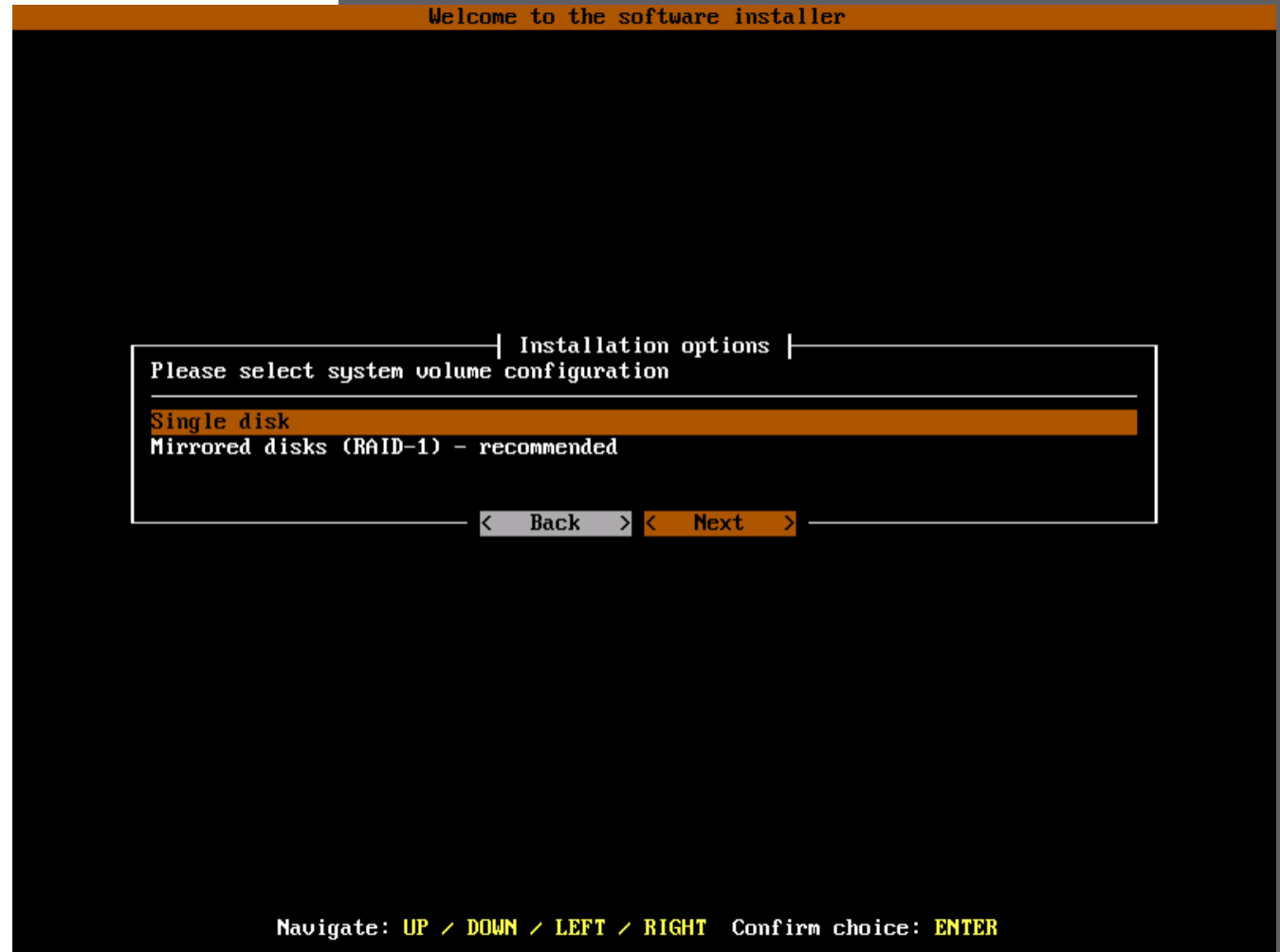
< Agree > < Disagree >

Navigate: UP / DOWN / LEFT / RIGHT Confirm choice: ENTER
```

License agreement

Live-Demo

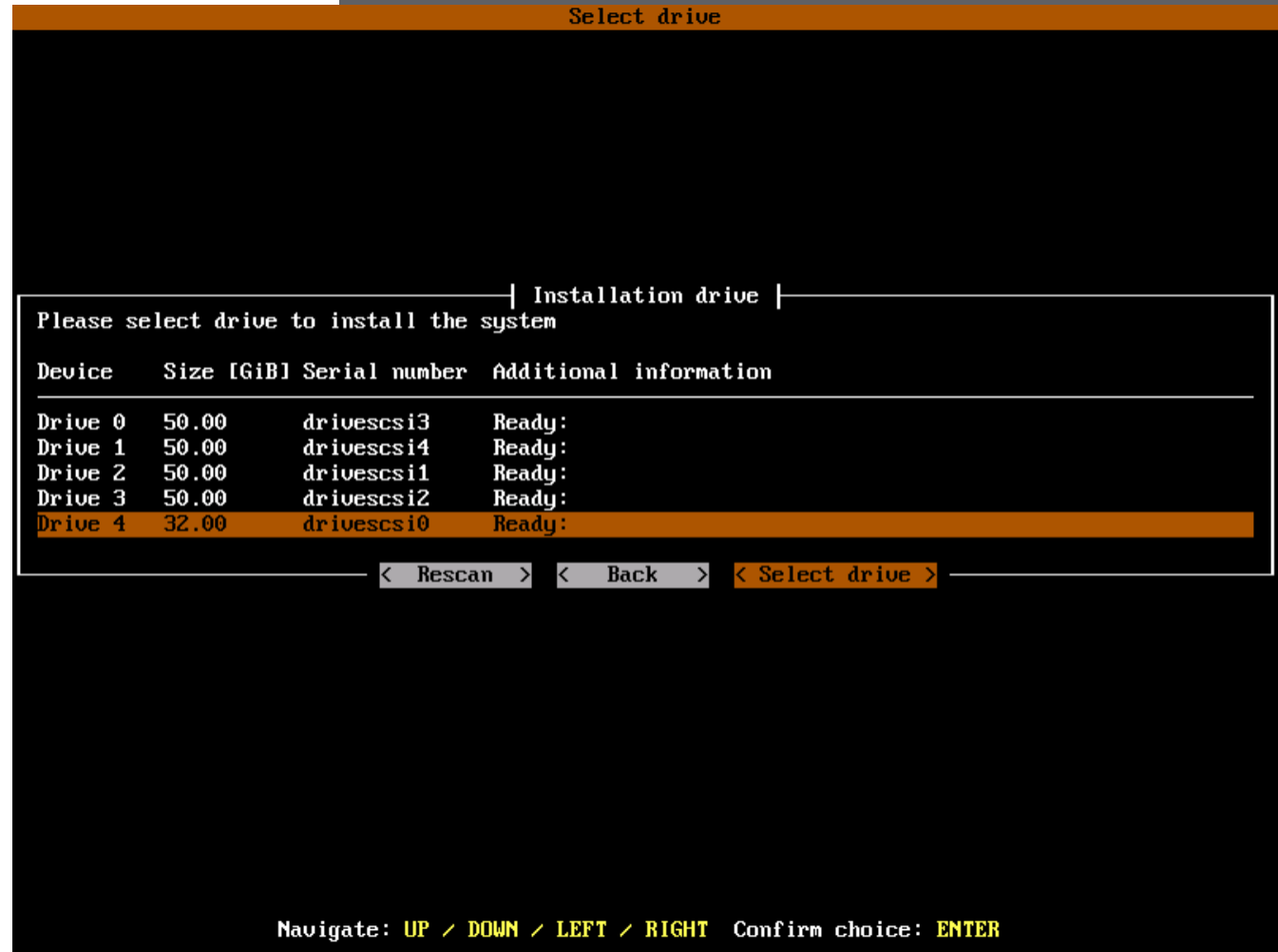
Installation



Single Disk oder Mirrored disks

Live-Demo

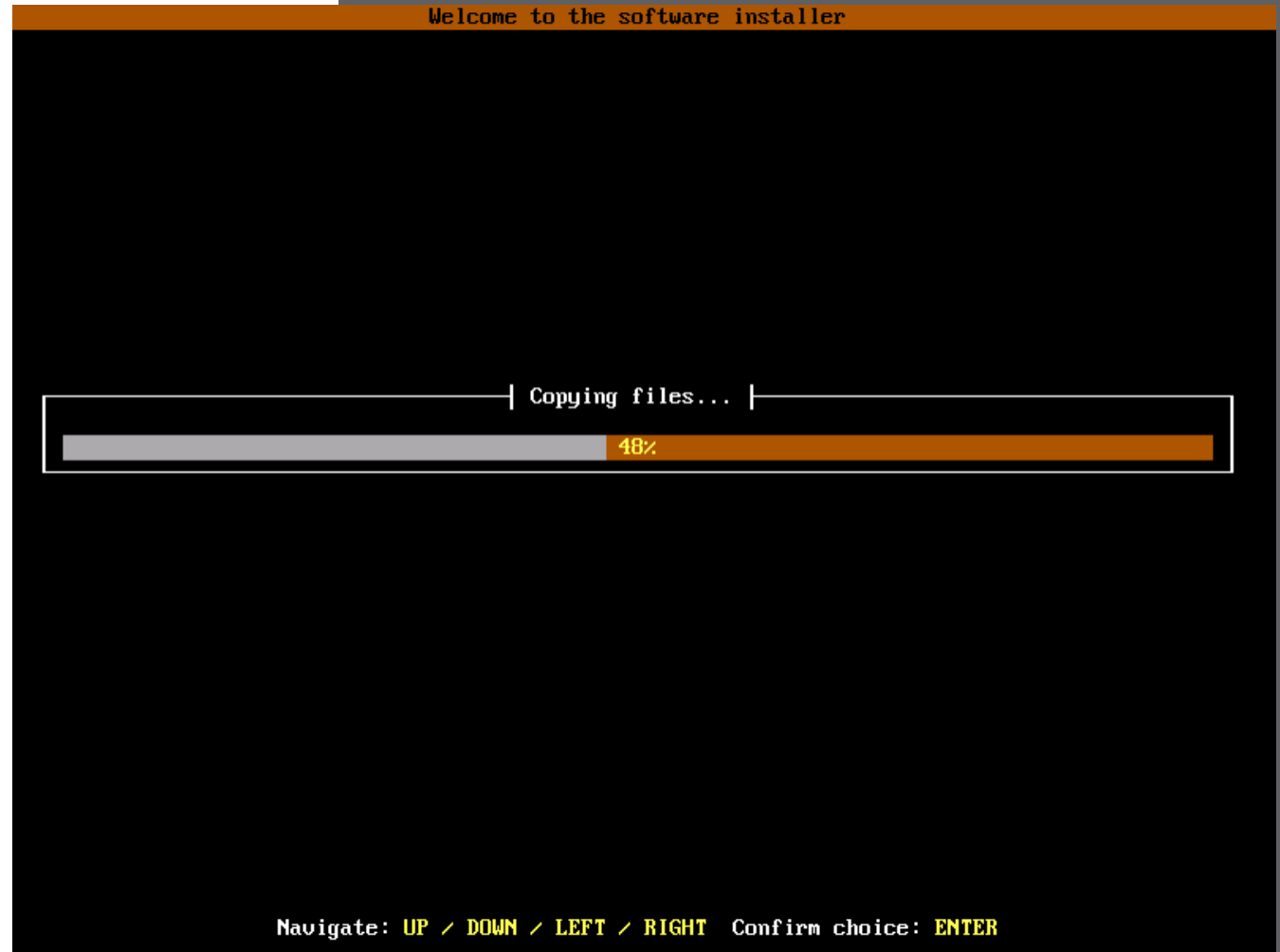
Installation



Device auswählen

Live-Demo

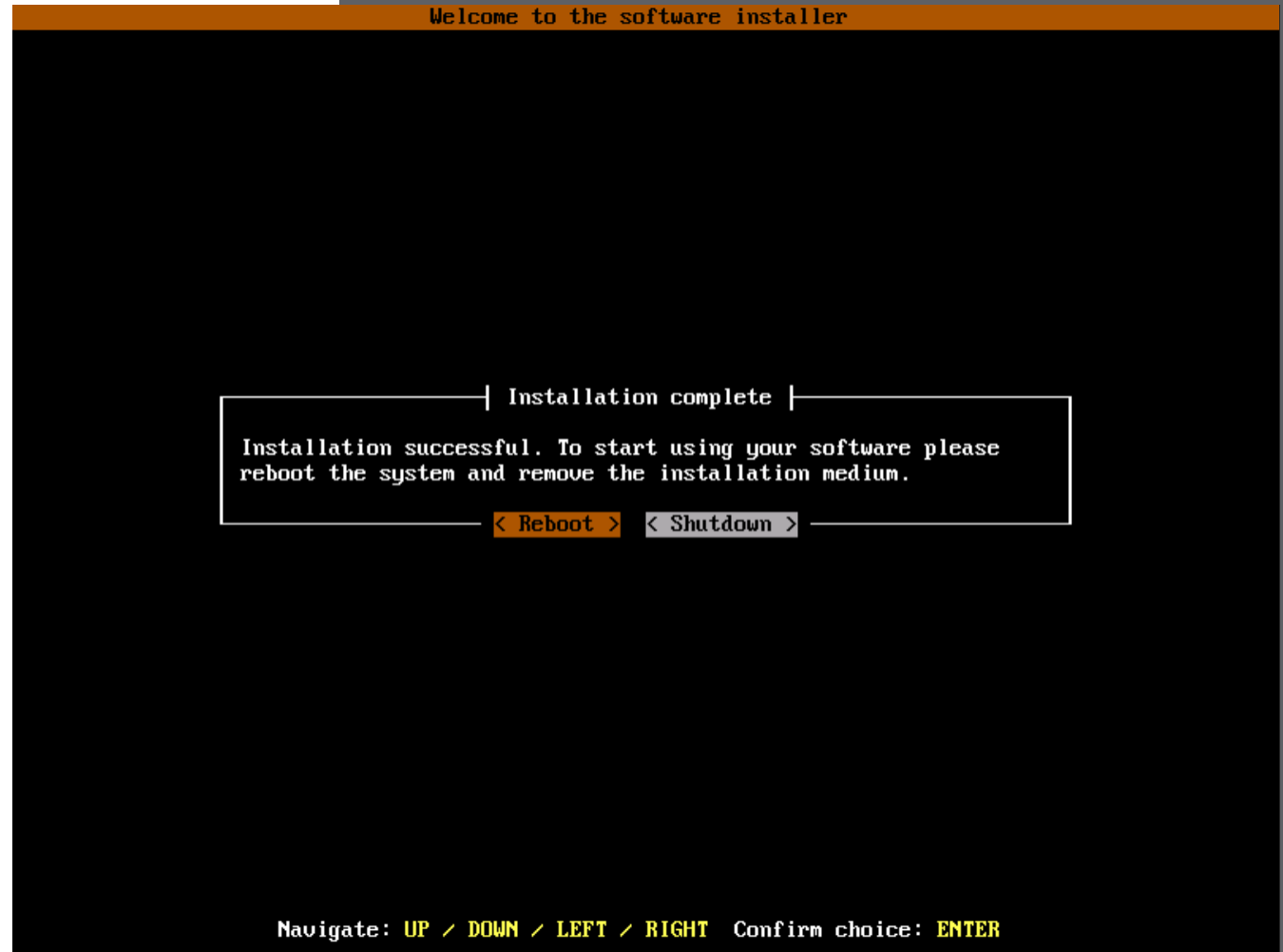
Installation



Installation läuft

Live-Demo

Installation



Abschließender Reboot

Live-Demo

Installation

Press F1 or H for help

```
Welcome to Open-E JovianDSS
USB controller works in 1.1. mode.

Version: 1.0up29r4.50996      Release date: 2023-03-15
S/N:                          Licensed storage capacity: 0 TiB
Host: node-06209953          Licensed storage capacity status: Within license

Quick start: To set up and manage your system open this address in your web browser:
https://192.168.0.220 (or try IP-addr of other network interface marked in green below)

--- System Status ---
Uptime: 7m 36s                System load: 0.03/0.49/0.33
System time: 2023-11-09 15:43  IO-Wait: 0.00%
Time zone: GMT+0100

System Status refresh rate (1s)

--- Network Interfaces ---
Statuses: Green: OK Red: No Cable Gray: Disabled Showing 1 - 2 out of 2
eth0: 192.168.0.220/24 N/A N/A
eth1: 192.168.1.220/24 N/A N/A

Open network interfaces

--- Notifications ---
Last 24h: 0 Info, 1 Warnings, 0 Errors Last 7d: 0 Info, 1 Warnings, 0 Errors

See all notifications

Help: F1 or H Navigate: UP / DOWN / LEFT / RIGHT Confirm choice: ENTER
```

Fertig installiert

Live-Demo

Installation

Licenses

Product key format is XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX.

Product key: + Add

Storage keys: + Add

Feature Pack keys: + Add more Feature Pack keys

✓ Run

License Key / Trial Key

Live-Demo

Installation



Login

Activation required

For optimal performance, the trial version needs to be activated. You have **5 days to activate** it. Otherwise, the network performance will decrease, and the system will automatically shut down.

To activate the trial please log in, go to the "About" section, and click the "Activate" button.

Default factory password is "admin". Please change your password after logging in.

Password:

Login

Live-Demo

Installation



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License agreement

Live-Demo

Shared Storage



Frontalansicht



Rückansicht

Node 1

Node 2

THOMAS
KRENN®

Q & A



**THOMAS
KRENN®**

Vielen Dank für Ihre
Aufmerksamkeit!