

Data Center Solutions

starline[®]
Computer GmbH

www.starline.de



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Celebrating 35 Years

Dear Reader,

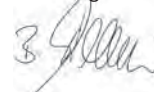
We are happy and proud to have celebrated our 35th anniversary last November. We are looking forward to serving our customers for many more decades.

Our aspiration is to be your partner for everything involving server, storage and virtualization. We also cover your needs for network components and UPS solutions.

Throughout our history, we have shaped trends. For instance, we were the first distributor of ATA-based RAID systems in Europe. And we continue to work hard to stay innovative: In this catalogue you can read about our application-specific ARM servers from Ambedded which are optimized for Ceph. Both Object Storage and ARM are two topics we are excited about.

As always, if you have any questions please don't hesitate to get in touch. We are looking forward to many good conversations and collaborations – be it via email, telephone or in person at one of our exhibition booths. You can of course also follow us on social media and subscribe to our newsletter to never miss any trends and news.

Best regards

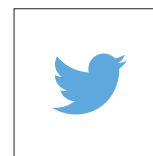


Bernd Widmaier - Sales Director
Starline Computer GmbH

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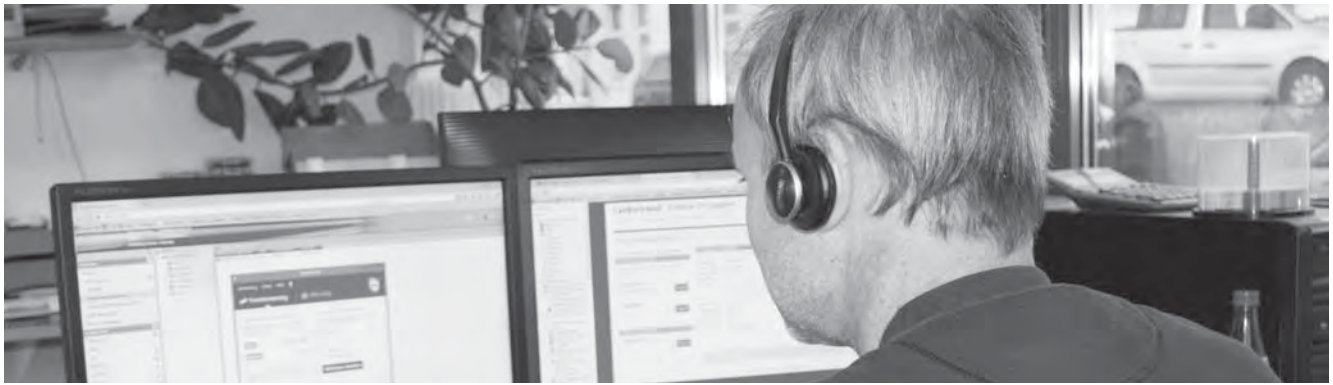
facebook.com/starlinecomputer



twitter.com/starline_de



www.starline.de



Inspiring With Service We offer more than just hard- and software

We are there for you - especially when things get more complicated. With us you get to rely on more than 35 years of know-how with data storage systems. We have been passionate about our work from the very beginning. We only sell products whose quality we believe in.

Our technical department thoroughly tests the products for reliability, performance, ease of service and ease of administration. After all, the hardware and software must be reliable and easy to integrate into the existing system. And should there be any problems, our technicians will be happy to assist you by email or telephone. The satisfaction of our customers with our support speaks for itself:

” Various inquiries over several years have always shown: Very good service, high competence and courtesy. Thank you. “

Professor Michael Wendt
University Greifswald

” I have always liked the way the Starline support reacts to my issues. Keep working like that and thank you. “

H. Neykov
Creativecenter

” As always, fast and competent help from the Starline support. “

Ralf Gerber
SIEMENS

” Very nice and above all competent staff, who were always very helpful to me! With such outstanding support, we'll gladly use Starline products again! “

Marco Kuhn
CKNS-Dienstleistungen GmbH

” We tip our hats to you: We have tested your DataCore support. You passed the test with flying colors. “

Martin Wüme
Ing.-Büro WIUME

” Thanks a lot for your valuable support. “

Michel Gravey
SYS.VISION



We are your reliable and capable partner for servers, storage & virtualization

We offer you more than hard- and software: We are your partner with over 35 years of experience and know-how.

Service



We are proud of the satisfaction and appreciation our customers show for our service and support. We are there for our customers and make sure our products and solutions work. We only sell solutions that have proven their quality during our tests. And if our customers have a question or encounter a problem, our engineers are there to support them by email or phone.

Availability



Because we keep a high level of inventory and of replacement parts in our warehouse, even for older systems, we have fast delivery times for orders and replacements.

Customer focus



Guided by our customers' needs, we offer innovative solutions that we test rigorously. Whether you need fail-safe data storage or high-performance data provision, we will work with you to find the right solution.

Teamwork



Our employees are highly motivated and enjoy the challenge of finding the best solution for our customers. At Starline, we are all passionate about our work. The satisfaction of our customers is our proof.



We always treat our customers as partners

We provide our customers with benefits that others make available only through partner programs.

- **Project and customer protection**
Register your project with Starline to get price protection.
- **Free email and phone support**
Take advantage of the competent and easily accessible Starline support and its extensive know-how.
- **Testing of servers, clusters and storage hardware**
Before ordering, check the performance of the requested hardware.
- **Live support via TeamViewer**
Get live support via screen sharing with our experts in a TeamViewer session.
- **Presentation material for your exhibitions**
Starline provides you with demo devices, illustration materials and catalogues.
- **Workshops and trainings**
Visit us for one of our workshops – also tailor-made for you and your customers.
- **Provision of images**
We supply you with suitable logos and decorative images for your homepage and for your printed products.
- **Customized branding**
Upon request you can order our server and storage hardware branded with your own logo.
- **Professional texts**
Use royalty-free explanations and descriptions for your purposes.
- **Support even after the end of warranty**
Starline maintains a huge warehouse. This means that spare parts can usually be supplied long after the warranty has expired.
- **Customer leads**
The Starline sales team forwards end-customer leads to you as our resellers.



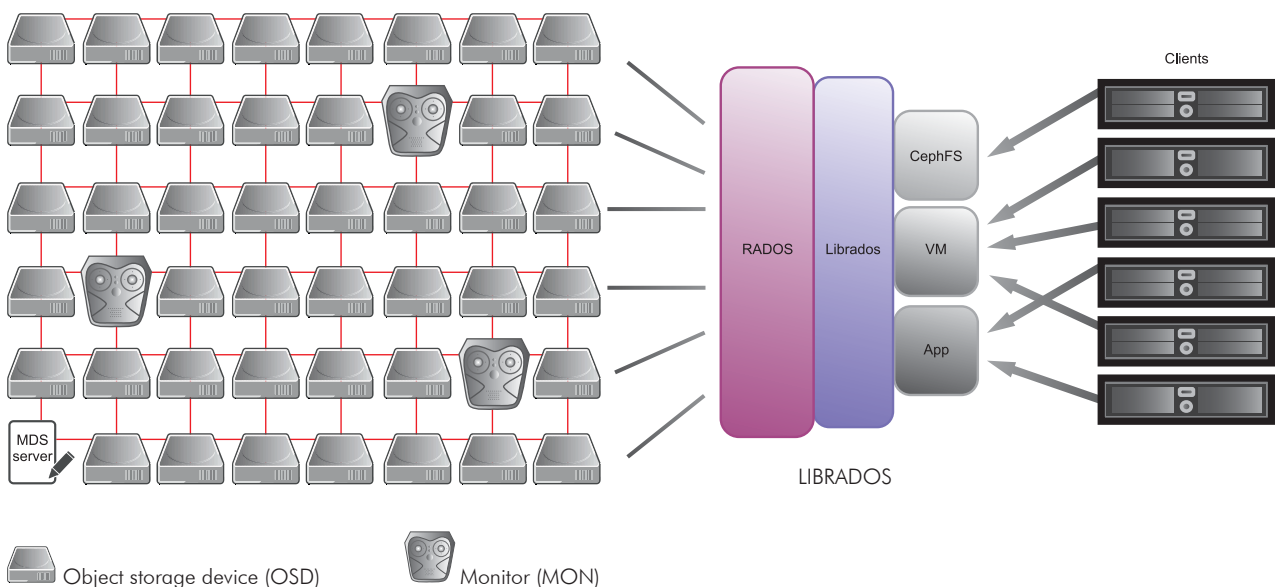
Ceph in a Nutshell A Software-Defined Storage Platform

Ceph is a software-defined storage (SDS) platform. SDS means that a solution relies on software intelligence rather than expensive hardware controllers and an inflated number of disks to preserve the integrity of data and keep total cost to a reasonable minimum.

- To ensure the integrity of your data, Ceph uses monitors (MONs) to watch over your object storage devices (OSDs). The OSDs are where your data is kept. It can also run metadata servers which provide POSIX file-system capabilities.
- Ceph can use either Replica or Erasure Coding profiles:
 - Replicas = Number of copies of your data
 - Erasure Coding = An algorithm that allows you to make more efficient use of your raw capacity in exchange for more CPU and RAM usage
- Ceph makes use of a Crush Map, an algorithm that determines how to store and retrieve your data by computing data storage locations
- Ceph has object storage, block storage and file-system abilities. This allows it to be integrated within almost any storage scenario.

Advantages

- Open source software-defined storage
- Unified storage platform (block, object and file storage)
- Runs on commodity hardware
- Self-managing, self-healing
- Massively scalable
- Avoids single points of failure
- Choosing between Replicas and Erasure Coding allows you to balance resilience and optimal use of your raw storage capacity
- Makes building and maintaining petabyte-scale data clusters economically feasible
- Scales on the go without mandatory downtime
- Shorter recovery time
- Avoids bottlenecks / performance degradation at high utilization rates





Open Source Scale-Out iSCSI SAN A Solution That Grows With Your Needs

PetaSAN is a new Open Source Scale-Out SAN solution which uses modern technologies that power many cloud deployments. The system is agile, scalable and provides data resilience, thanks to the advanced AI that is provided by PetaSAN's Ceph-based architecture. This allows for the addition of storage nodes at any time without interruption.

PetaSAN is designed to provide the user with highly available, clustered iSCSI hard disks. Multi-path iSCSI disks, each of which can be identified by a virtual IP address, provide fast I/O and link redundancy. With PetaSAN the iSCSI drives are mapped by Ceph to multiple physical drives in the cluster. In the event of node failure those virtual IPs can be dynamically moved from one node to another in a client-transparent manner.

PetaSAN is ideal for deployments that require high parallel I/O operations. Examples of use cases with high I/O demands are:

- Big Data analytics
- VMware vSphere deployments
- MS Hyper-V implementations
- Scalable shared file systems such as MS Scale-Out File Server (SOFS)
- Database servers with multiple parallel transactions per second

PetaSAN excels when it comes to providing users with a highly available, clustered iSCSI storage that is easy to deploy and a breeze to manage. It makes things easy for system administrators by providing an intuitive point-and-click management interface while also allowing power users full access to the underlying system via command line.

PetaSAN can be fully integrated with modern Open Source IT infrastructure automation and management solutions such as Ansible, Puppet, SaltStack and more.



The concise PetaSAN user interface provides an overview of all the important information at a glance.

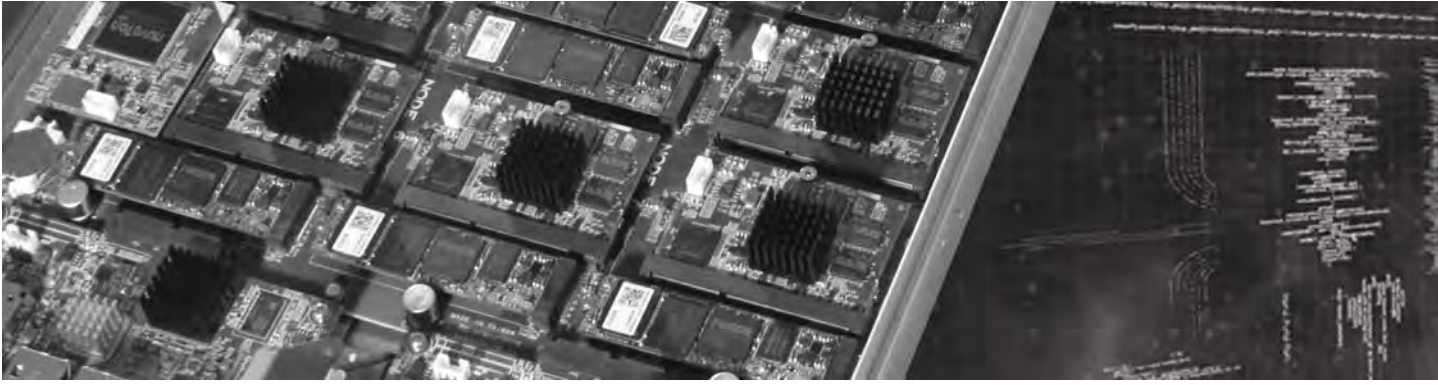
Internally PetaSAN uses the following modules:

- LIO (www.linux-iscsi.org) for its target iSCSI server
- Ceph (www.ceph.com) for its storage engine
- Consul (www.consul.io) for distributed resource management in the cloud

Reliable support from Starline

In case of questions and for troubleshooting, Starline will provides you with full first-level support: You can reach us by email or telephone five days a week for nine hours each.



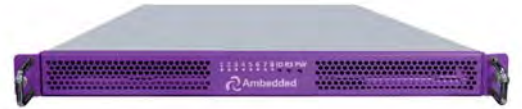


Ceph-Optimized Storage Appliance With Eight Independent Microservers

Starline has added the innovative Mars 400 server model from Ambedded to its portfolio. The 64-bit ARM microservers run Ceph to offer a range of advantages: from self-healing to unlimited scale-out capabilities to extremely low power consumption.

The concept of the grand Mars 400 series from Ambedded is based on three pillars: the Open Source software-defined storage solution Ceph; eight independent, extremely efficient ARM microservers specifically designed for running Ceph; and the graphical user interface UVS (Unified Virtual Storage Manager).

The Ambedded Mars 400 is suitable for small and large installations and anything in between. Each of these 1U multi-servers can be a stand-alone cluster. With three Mars 400 appliances, Ceph-based high availability is possible in just 3U of rack space. This makes the Mars 400 a perfect entry-level solution to get started with Ceph.



Ceph storage appliance Ambedded Mars 400



Ambedded Mars 400 with TOSHIBA SATA HDDs





A Flexible ARM-Based Ceph Solution

ARM-Server

The slim award-winning Mars 400 server from Ambedded makes full use of Ceph's flexibility and even adds to it: The Mars 400 server, which is equipped with eight ARM dual-core processors and up to eight SATA drives (HDDs and/or SSDs), forms a complete cluster of eight microservers. If one of the hard disks or microservers fails, the intelligent Ceph algorithm automatically regenerates the data and writes it to the remaining data carriers in parallel.

UVS

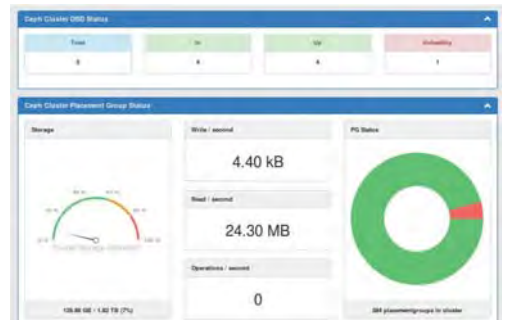
The intuitive graphical management interface provides a quick introduction to Ceph. Even inexperienced users can create a cluster within 30 minutes. In the so-called dashboard, the administrator allocates virtual memory and manages user keys, for example.

Ceph

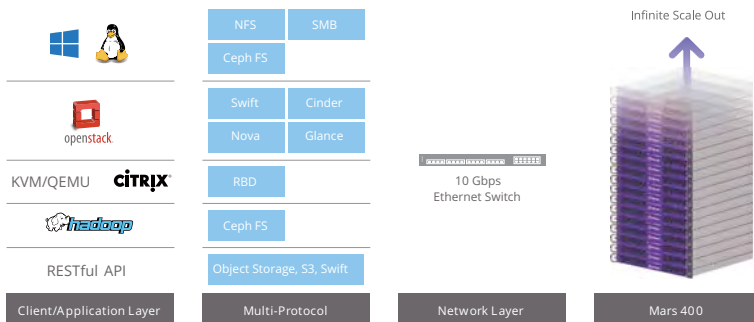
Ceph is an open source software-defined storage system that can make data available as object, block or file storage. It protects data by distributing and replicating individual fragments intelligently and economically. The developers pay particular attention to the scalability of the systems: Within the Ceph world, a cluster is not subject to any restrictions. If more storage space is required, it is sufficient to put additional servers into the rack. The Auto Load Balance function ensures that the data is evenly distributed across the assigned object storage devices.



ARM dual-core microserver System On a Chip (SOC)



Unified Virtual Storage Manager (UVS)



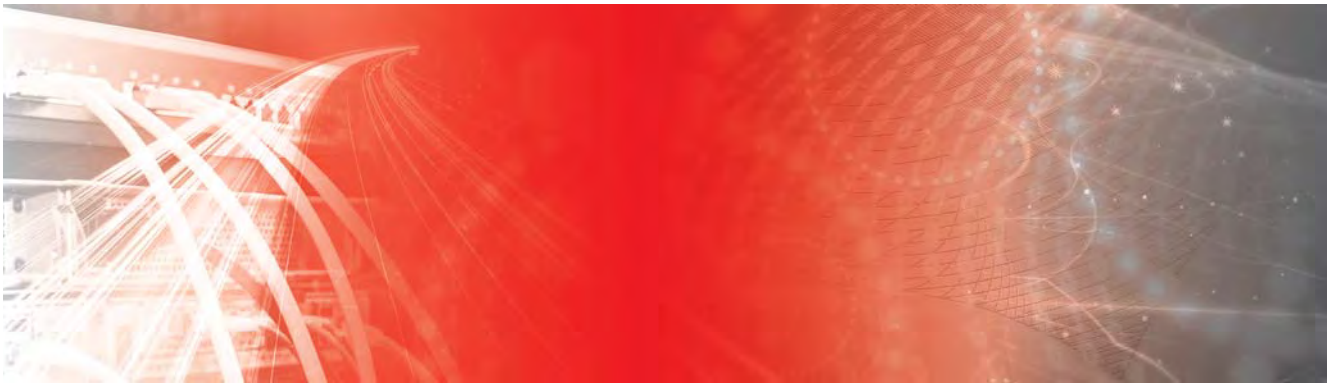
Ceph allows for the system to be expanded as required.



You can find more information about the Ambedded Mars 400 at www.starline.de



Ambedded



Industry Leading Performance With up to 400 GbE Switching

The Mellanox Spectrum Ethernet switches are purpose-built for the modern software-defined data center. The product family includes a broad portfolio of top-of-rack and aggregation switches that range from 16 to 128 ports with data rates of up to 400 GbE per port.

They are perfect to build cost-effective and scalable data center network fabrics that can scale from a few nodes to tens of thousands of nodes. Storage solutions such as an active-active cluster benefit from the high performance, low power consumption and low latency of high-end switches.



Mellanox SN3000 Ethernet Switch series

Features:

- Advanced Network Virtualization with support for high performance single pass VXLAN routing and IPv6/MPLS segment routing
- Programmable Pipeline with the ability to programmatically parse, process and edit packets



Switches With Advanced Software-Defined Network Capabilities

Offering thirty-two 100 Gbps Ethernet ports, the SSE-C3632S switch enables robust layer-3 IP fabric for flexible layer-2 overlay in ethernet fabric architectures.

For modern scale-out, leaf-and-spine data center network deployments, the SSE-C3632S is positioned as the high-speed spine layer to provide scalable bi-sectional fabric bandwidth for the leaf layer.

The compact 1U form factor gives users the ability to optimize deployment in standalone or top-of-rack environments.

These switches are ideal for deployment in data center, cloud and enterprise environments with the capability of handling access for the most demanding applications.



SSE-C3632S Ethernet Switch

Features:

- Bare metal - ONIE installed (Cumulus Linux Ready)
- Data center friendly
- Dual redundant hot-swappable PSU
- Regular and reverse air-flow models
- Powerful Broadcom Tomahawk switch chip
- 3.2 Tbps switching capacity



Mellanox



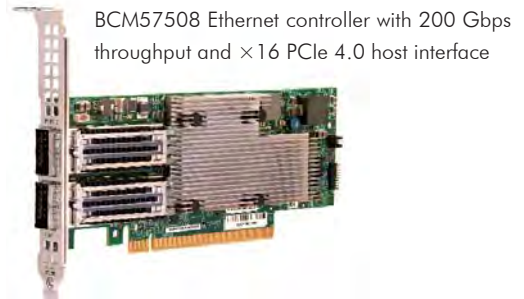
Supermicro



200 GbE NICs Power High-Performance Network Solutions

The NetXtreme-E series meets the high throughput performance and service requirements of data center networks. Functions such as TruFlow increase VM density and also provide CPU cycles for additional virtual machines.

Of course, these NICs support advanced network technologies such as RoCE, SDN, NFC and virtualization. Their on-chip tunneling protocol processing for GENEVE, VXLAN and NVGRE provides up to a 5x throughput increase and lowers CPU utilization up to 90 percent compared to software-only solutions.



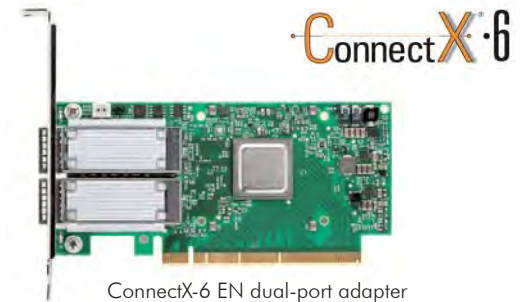
BCM57508 Ethernet controller with 200 Gbps throughput and x16 PCIe 4.0 host interface



ConnectX-6 EN NICs Support 200 Gbps Ethernet

The Mellanox ConnectX-6 network cards offer world-leading performance, smart offloads and in-network computing. They provide two ports of 200 Gbps each for Ethernet connectivity, latency below 800 ns and 215 million messages per second. This enables the highest performance for the most demanding data center applications.

The ConnectX-6 cards offer a crucial innovation for network security by providing block-level encryption. Data in transit is encrypted and decrypted as it is stored and retrieved.



ConnectX-6 EN dual-port adapter



FastLinQ Ethernet NICs Enable High Density Virtualization

The Marvell FastLinQ 45000 Series delivers advanced Ethernet solutions that are specifically designed to meet requirements from leading enterprises and cloud providers.

Integrated, advanced networking eliminates I/O bottlenecks and conserves CPU cycles so organizations can reach new levels of performance in physical, virtual, and cloud environments.



FastLinQ QL45611HLCU, intelligent Ethernet adapter with 100 Gbps Ethernet-to-PCIe 3.0



CyberPower®
Reliability. Quality. Value.

Protection Against Power Failures and Power Surges

Thunderstorms can pose several threats to the IT infrastructure: lightning strikes can lead to power failures and destructive power surges. CyberPower has proven to offer the right protection in these cases. The CyberPower range of uninterruptible power supplies (UPS) includes the appropriate solution for all size and protection requirements.

The most important task of any UPS is protecting against data loss in case of a power failure. With a correctly sized CyberPower UPS, the connected server and storage hardware is supplied with power at least as long as it takes for the system to safely shut down in order to avoid data corruption. Depending on the model chosen, power failures can also be compensated for over a longer period of time so that data access can continue.

In addition, the CyberPower UPS also protects against power surges and high-frequency disturbances in the electricity supply. And, if required, the UPS can also protect telecommunication lines such as telephones or DSL from power surges due to events like lightning strikes. CyberPower covers these claims with an insurance policy: should connected hardware ever be damaged by a power surge, the CyberPower insurance covers the damage up to 25,000 euros.



Professional Series UPS with up to 5,000 VA

At Starline, you can obtain the entire range of CyberPower models – to protect your NAS, servers or your entire IT infrastructure.



UPS

CyberPower

ENTERPRISE SOLUTIONS

WE POWER THE DIGITAL WORLD

Cloud and digitalization have become a hot topic not only in German companies. The amount of stored data and the demand for security and availability of this data are constantly growing in factories and enterprises.

To ensure the availability and consistency of stored data, all industries need a reliable power supply, not just data centers and hospitals. This is why high-quality uninterruptible power supplies are important across all industries.

Uninterruptible power supplies secure more than just servers. They can secure whole facilities and production lines and are becoming increasingly important to avoid high costs due to power outages.





Recent Trade Shows We hope to see you at one of our booths!

Every year you can meet us at several trade shows where we show new innovations as well as established favorites. At our booths we have live demos of our solutions and we showcase current products for you to explore. We look forward to your visit and interesting technical discussions with you.

Ceph Day



Ceph Days are full-day events that are all about Ceph. They are hosted by the Ceph community in selected cities around the world. We were among the sponsors and speakers for the Ceph Day Germany in February 2018 in Darmstadt.



OpenStack Summit



The OpenStack Summits are about building and operating open infrastructure. In November 2018 together with our partner Ambedded, we were among the sponsors for the OpenStack Summit Berlin, where we showcased the Ambedded Mars 400.





Experience since 1982 Milestones of Starline Computer GmbH

- 1982** Foundation of the „Computer Speichersysteme GmbH“ in Leinfelden/Echterdingen near Stuttgart
- 1990** „Computer Speichersysteme GmbH“ becomes „Starline Computer GmbH“

The current managing director Carsten Wilde starts his career at Starline
- 1992** Development of SCSI storage solutions for the printer port
- 1994** Starline introduces the first Infortrend SCSI RAID controller to the European market
- 1997** Starline offers the first ATA disk-based RAID systems from easyRAID in the German market
- 2001** Starline moves to larger premises in Kirchheim unter Teck
- 2003** Starline introduces the first internal Areca RAID systems to the European market
- 2004** Starline introduces the first RAID-level 6 PCI controller from Areca
- 2005** QLogic honors Starline as „EMEA Signature Partner of the Year“

Expansion of the company premises for additional office and warehouse space
- 2008** Starline introduces the first NASdeluxe iSCSI/NAS systems
- 2009** Starline creates „Enterprise Storage Solutions“ team to advise customers with complex storage solutions

Starline becomes a direct partner of Toshiba
- 2010** Starline becomes VMware partner „Enterprise Solution Provider“

Starline launches the first Zealbox server based on Supermicro
- 2011** Open-E honors Starline as the first ever „Gold Partner“ worldwide
- 2012** Starline becomes DataCore partner „Systembuilder“

Starline becomes a direct partner of Seagate

Veeam awards Starline the status of „Veeam Gold Pro Partner“
- 2013** Starline becomes a „Citrix Ready Partner“
- 2014** Dr. Tim Ganser joins the company as managing director

Infortrend celebrates the 20th anniversary of Starline as its most experienced distributor
- 2015** The Zealbox servers by Starline are certified for DataCore, FalconStor, VMware and Windows Server 2016

Starline becomes „DataCore Silver Solution Partner“
- 2016** Starline is named the first „Open-E Platinum Partner“ worldwide
- 2017** Employees in the Sales and Production Department celebrate 20 year anniversaries at Starline

Starline delivers first GPU servers
- 2018** Starline becomes „DataCore Gold Partner“

Starline sponsors „Ceph Days Germany“

Two employees in the Sales Department celebrate 25 year anniversaries at Starline

Starline’s quality management system is certified according to ISO 9001:2015
- 2019** Starline showcases its Ceph solutions at CloudFest in Rust for the first time



Successful ISO 9001:2015 Certification

Many meetings and a ream of printed pages of flow charts were necessary to confirm what both employees and existing customers have known for years: Starline has a well structured and strict quality management system. We used the opportunity provided by the certification

process to further sharpen our quality management in order to continue to provide great value for our customers. Our rigorous documentation according to the ISO 9001:2015 standard has already proven a valuable tool for our continuous improvement process.

