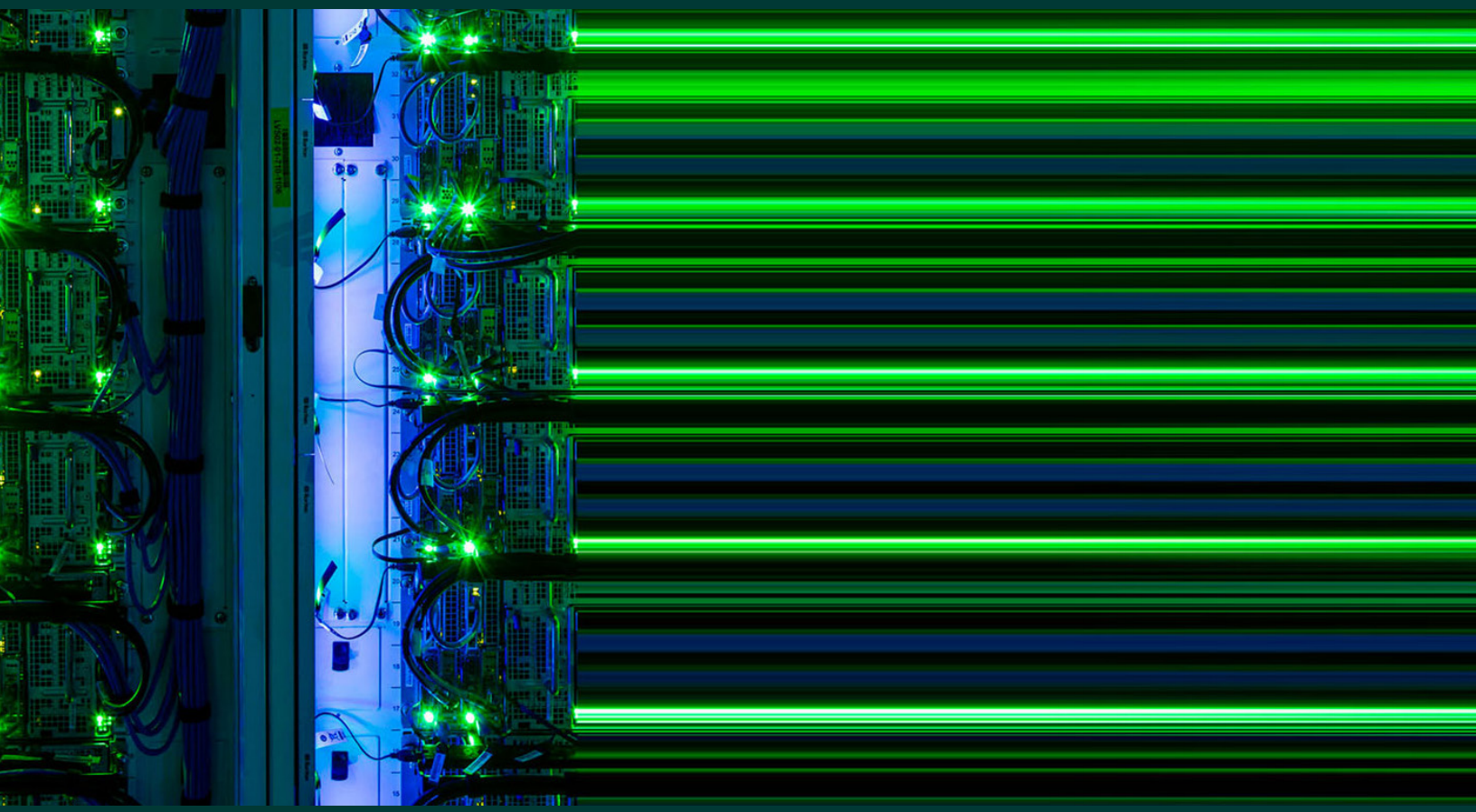
SUSE



switch

98%	360x	100%
faster deployment times	more frequent telemetry updates	uptime for mission-critical customer operations

Switch

Industry and Location
Technology | United States

Products and Services
SUSE® Rancher Prime
SUSE® Virtualization
SUSE® Linux Micro
SUSE® Premium Support Services

Switch sustainably scales AI innovation with SUSE and Oxide

Success Story

At-a-Glance

Operating some of North America's most advanced data centers, Switch proactively adapted its infrastructure to meet AI's exponential power and cooling demands by building a fully integrated, cloud native, private cloud. Switch partnered with Oxide Computer and SUSE to implement this innovative cloud platform, leveraging Oxide's hyperconverged hardware, SUSE Rancher Prime, SUSE Virtualization, SUSE Linux Micro and SUSE Premium Support. This unified environment allows Switch to manage modern containers and legacy virtual machines on a single, streamlined platform, eliminating the need for disparate management silos. The resulting infrastructure accelerated deployment from days to minutes, delivered real-time telemetry data every 10 seconds and scaled AI workloads without increasing overall power consumption.

Introducing Switch

Founded in 2000, Switch operates some of North America's largest and most advanced data centers. Its visionary founder, Rob Roy, pioneered industry-standard innovations like

Photo courtesy of Switch

hot-aisle containment, transforming how data centers worldwide manage energy. Today, Switch continues this legacy of sustainability and technology leadership. Its high-performance infrastructure services — including cloud computing, telecommunications and sophisticated AI workloads — run entirely on renewable energy. Delivering exceptional reliability and scalability, Switch empowers startups, global enterprises and hyperscalers alike to meet their ESG commitments while using next-generation technologies.

Switch is the only company among over 180 issuers to achieve S&P Global's highest environmental rating (E-1), alongside top scores in its peer group for social (S-2) and governance (G-2) practices.[1] Recognizing the growing environmental concerns associated with data center water usage, Switch is committed to a net-positive water strategy. Through targeted investments, Switch aims to more than offset its water consumption, protecting the world's most precious resources and minimizing the environmental impact within the communities it serves.

1 https://www.switch.com/sustainability/.

> “Not all open source is the same. SUSE understood the complexities of our environment — especially the critical importance of secure, auditable software supply chains.”
>
> **Zia Syed**
> Executive Vice President of Software Systems and AI Switch

Challenges supporting AI workloads

The rapid rise of AI introduced unprecedented operational complexity and a critical challenge to Switch’s commitment to sustainability, reliability and technology leadership.

AI workloads typically require up to 10 times more power than traditional workloads, introducing new challenges related to power consumption, cooling efficiency, hardware reliability and sustainability.[2] However, certain advanced hardware — such as NVIDIA’s GB200 racks used at Switch — can far exceed this average, consuming up to 23 times more power (drawing 120kW compared to traditional servers’ 5kW).[3]

At Switch’s massive scale, with campuses consuming power comparable to entire metropolitan regions, even minor fluctuations can strain the energy grid and compromise data center reliability.

To manage these exceptionally power-intensive AI racks, Switch adopted direct-to-chip liquid cooling. But in order to optimize this solution, it needed to monitor and manage power usage and environmental conditions more precisely, and at a much greater scale.

Its existing VMware-based infrastructure and monolithic applications only allowed telemetry

Photo courtesy of Switch

data collection hourly — far too infrequent for effectively managing power-intensive workloads. Additionally, Switch’s customers operating sophisticated AI environments required detailed, real-time visibility into environmental conditions, power consumption and resource availability. Without granular visibility, optimizing workload performance and energy efficiency was nearly unachievable.

The architecture also lacked the flexibility and scalability required to support modern AI and cloud native workloads. Deployments took days. Replication across multiple data centers

2 Generational Growth AI, data centers and the coming US power demand surge, Goldman Sachs, April 28, 2024.

3 GB200 Hardware Architecture – Component Supply Chain & BOM, SemiAnalysis, July 17, 2024.

> “SUSE Rancher Prime was transformative for our agility. Its GitOps-based deployments and real-time orchestration delivered immediate, measurable improvements to our operational speed and efficiency. Tasks that previously took days now take less than an hour, often just minutes.”
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> **Zia Syed**
> Executive Vice President of Software Systems and AI Switch

required managing multiple sourcing contracts, separate management interfaces and distinct monitoring tools for storage, networking and compute, significantly complicating operations. Transitioning legacy applications also required extensive replatforming and redevelopment for cloud native environments, further extending project timelines and increasing costs.

Switch recognized that to overcome these operational challenges effectively, it needed to fundamentally rethink its infrastructure strategy. Rather than incremental improvements, Switch envisioned a fully integrated, Kubernetes-based private cloud platform that combined cloud-scale flexibility, operational simplicity, security and powerful real-time analytics capabilities within its own data centers. This strategy also needed a path beyond legacy virtualization, so Switch could bring existing virtualized workloads forward into the same cloud native platform it was building around Kubernetes.

Why SUSE and Oxide Computer?

When Switch decided to build a private, on-premises cloud, it prioritized simplicity, efficiency and operational clarity. Traditional infrastructure required assembling distinct hardware and software components, each with separate management interfaces and support contracts. When issues arose, vendors typically pointed fingers at each other, slowing resolutions and complicating operations. Switch sought a fundamentally different approach: a fully unified, scalable and secure platform with minimal fuss.

Switch discovered Oxide Computer’s fully integrated, rack-scale hardware architecture was exactly what they were looking for. Oxide’s innovative design eliminated many inefficiencies common in traditional hardware — such as redundant AC/DC conversions and fragmented hardware components — creating a unified infrastructure platform that significantly simplified management, reduced power consumption and accelerated deployment.

A long-time SUSE partner, Switch introduced Oxide to SUSE to help build a private cloud catered to Switch’s unique needs. The three organizations promptly initiated a proof of

> “We’re actually handling significantly larger workloads, but our energy consumption hasn’t increased correspondingly. SUSE Rancher Prime helps us scale sustainably.”
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concept (POC) to evaluate SUSE’s cloud native technologies atop Oxide’s integrated hardware in Switch’s data centers.

Focusing on critical metrics such as scalability, reliability and security, the POC delivered impressive results. With SUSE Rancher Prime running atop Oxide’s integrated hardware, Switch could manage Kubernetes environments more consistently, reduce deployment times from days to minutes and gain the operational visibility it needed. In parallel, Switch evaluated a broader SUSE cloud native stack, including SUSE Linux Micro and SUSE Virtualization, to support both Kubernetes and virtual machine workloads as the platform evolves. Less than a year after initiating the POC, Switch adopted SUSE Rancher Prime and SUSE Linux Micro as integral components of its private cloud platform and expanded the platform to include SUSE Virtualization to support virtual machine workloads alongside Kubernetes.

Switch specifically chose SUSE Virtualization because it provides a clear path to modernize beyond VMware-era virtualization while bringing existing virtualized workloads into the Kubernetes operating model. With SUSE Virtualization, Switch can run virtual machines alongside Kubernetes on the same cloud native foundation, helping teams consolidate operations and move workloads at their own pace.

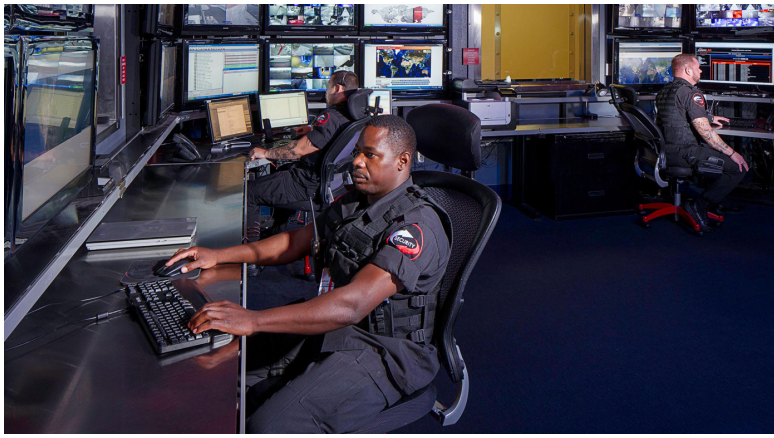

Photo courtesy of Switch

Switch selected SUSE Linux Micro for its lightweight, container-optimized design, security benefits and minimal operational overhead. With its reduced attack surface and rapid, disruption-free updates, SUSE Linux Micro provided an ideal operating system for Switch’s cloud native workloads, particularly as deployments extend to edge environments.

Beyond technical capabilities, Switch also chose SUSE because of its proactive approach to support. Given the scale, complexity and mission-critical nature of its operations, Switch wanted full enterprise support for reassurance and guidance.

“SUSE Premium Support isn’t just about rapid problem-solving,” says Zia Syed, Executive Vice

> “Our developers can innovate and iterate much faster because of the flexibility of SUSE Rancher Prime, SUSE Virtualization and SUSE Linux Micro. It means quicker deployments, faster development cycles and accelerated innovation.”
>
> **Zia Syed**
> Executive Vice President of Software Systems and AI
> Switch

President of Software Systems and AI at Switch. “It’s about proactively avoiding problems in the first place. Having that proactive support significantly reduces our operational risks, ensuring our business remains resilient and agile.”

Throughout the POC, Switch also discovered a deep philosophical alignment with SUSE’s open source values. “Everything was on the table for us to optimize,” says Syed. “Keep it simple, keep it simple — because simplicity’s going to scale. The alignment of that philosophy and mindset was very important for us in this journey.”

The impact of partnering with SUSE

The combined SUSE-Oxide solution provides unparalleled integration for Switch, delivering an on-premises cloud that rivals the ease and agility of public cloud environments. This unified platform enabled Switch to avoid traditional vendor complexities, streamline infrastructure management and significantly enhance operational simplicity and scalability.

“Not all open source is the same,” says Syed. “SUSE partnered with us closely to guide us through this transition.”

Photo courtesy of Switch

Unifies Kubernetes and virtual machine workloads on one platform

Switch uses SUSE Virtualization with SUSE Linux Micro and SUSE Rancher Prime in its development environment to provide a consistent platform for developing, testing and deploying applications. This gives Switch’s teams a reliable place to validate changes before delivering applications into production data centers.

As Switch moves beyond traditional VMs, SUSE Virtualization helps carry existing VM workloads forward into the same operational model as Kubernetes. This supports a practical transition beyond legacy virtualization while keeping operations consistent across environments.

SUSE

> “SUSE Premium Support was crucial for us. We simply cannot afford downtime. Knowing SUSE experts are always available gives us confidence and peace of mind, allowing us to focus on our core mission.”
>
> **Zia Syed**
> Executive Vice President of Software Systems and AI
> Switch

“SUSE Virtualization has been key to helping us migrate our legacy virtualized workloads onto Kubernetes,” says Syed.

Accelerates deployment times from days to minutes, up to 98% faster

Previously, deploying new workloads or system updates required days of careful coordination. With SUSE Rancher Prime’s GitOps capabilities, those same deployments now happen seamlessly within minutes, up to 98% faster.

“SUSE Rancher Prime was transformative for our agility,” says Syed. “Its GitOps-based deployments and real-time orchestration delivered immediate, measurable improvements to our operational speed and efficiency. Tasks that previously took days now take less than an hour, often just minutes.”

Delivers real-time telemetry data every 10 seconds

Accurate, timely monitoring of power and environmental conditions is crucial in managing power-intensive AI workloads. Switch previously collected telemetry data only once per hour — far too infrequent for precise management. Now, SUSE Rancher Prime deployed on Oxide hardware enables telemetry every 10 seconds, representing a 360-fold increase in frequency.

Photo courtesy of Switch

“With near real-time data, we finally have the detailed visibility we need,” explains Syed. “We can now optimize power usage, efficiency and workload scheduling in ways that were previously impossible.”

This increased sampling rate allows Switch to perform multidimensional analysis and rapidly iterate on operational improvements.

Maximizes power usage efficiency

Despite substantial increases in AI-driven workloads, Switch has seen minimal increases

> “This partnership delivered exactly what we needed — deep integration, technical excellence and a shared vision. The joint expertise of Oxide and SUSE accelerated our timelines, simplified operational complexity and provided an innovative platform we couldn’t achieve alone.”
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> Switch

in power consumption. SUSE Rancher Prime’s cloud native architecture, automated load balancing and efficient orchestration have enabled more intensive workloads to run across Oxide’s equally efficient stacks within the existing energy footprint.

“SUSE helped us scale our infrastructure to meet the exascale demand we face in the industry today,” says Syed. “Working with SUSE, we built a scalable, reliable and efficient software stack that aligns perfectly with our sustainability goals and innovation needs. We’re actually handling significantly larger workloads, but our energy consumption hasn’t increased correspondingly. SUSE Rancher Prime helps us scale sustainably.”

Enhances scalability and flexibility

Adopting SUSE Rancher Prime, coupled with Oxide’s hyperconverged platform, improved Switch’s infrastructure flexibility. Previously, scaling and replicating VMware-based legacy infrastructure was cumbersome. With SUSE Virtualization, Switch simplified its platform architecture by reducing tooling sprawl and operational overhead typically associated with

Photo courtesy of Switch

traditional virtualization stacks. SUSE Rancher Prime now centrally manages these virtualization clusters across multiple North American data centers and, together with the lightweight footprint and efficient manageability of SUSE Linux Micro, it enables consistent expansion across campuses and new deployments.

“Our developers can innovate and iterate much faster because of the flexibility of SUSE Rancher Prime, SUSE Virtualization and SUSE Linux Micro,” says Syed. “It means quicker deployments, faster development cycles and accelerated innovation.”

Provides unmatched reliability with 100% uptime

Reliability is critical for Switch's customers — including hyperscalers and global enterprises — that depend on uninterrupted operations. SUSE Rancher Prime's robust orchestration capabilities combined with proactive support from SUSE Premium Support ensure rapid resolution of potential issues, helping Switch consistently achieve 100% uptime.

"SUSE Premium Support was crucial for us," explains Syed. "We simply cannot afford downtime. Knowing SUSE experts are always available gives us confidence and peace of mind, allowing us to focus on our core mission."

Collaborated to develop a custom Rancher node driver

The collaboration between Switch, Oxide and SUSE was foundational in building Switch's private cloud. Oxide's innovative rack-scale hardware with integrated DC power distribution and networking combined seamlessly with SUSE's cloud native software stack, creating a unified platform tailored specifically for Switch's needs.

Central to this collaboration was the custom Rancher node driver, jointly developed by Switch and Oxide, with validation and support provided by SUSE Premium Support Services. This critical innovation streamlined Kubernetes deployments, enabling rapid, efficient and secure provisioning of new infrastructure.

"This partnership delivered exactly what we needed — deep integration, technical excellence and a shared vision," Syed says. "The joint expertise of Oxide and SUSE accelerated our timelines, simplified operational complexity and provided an innovative platform we couldn't achieve alone."

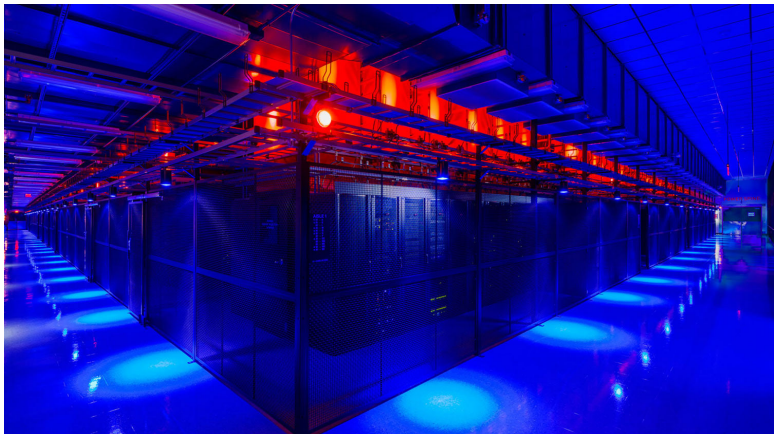

Photo courtesy of Switch

This successful collaboration has set a new benchmark for future deployments, providing a model for other enterprises seeking similar efficiency, scalability and sustainability.

What's next for Switch?

Switch considers its investment in SUSE's cloud native platform and Oxide's hyperconverged hardware strategically critical for the coming decade. "This transformation ensures we remain ahead of industry trends and are fully prepared for an increasingly AI-driven and sustainability-conscious marketplace," says Syed.

Switch plans to significantly expand its adoption of SUSE solutions, particularly at the network edge. As workloads and infrastructure continue moving closer to end users, Switch sees great potential in deploying SUSE Linux Micro. This extension will enable Switch to deliver enhanced performance, security and resilience directly at the edge, meeting customer demands for even faster, more responsive services.

“We’ve already experienced tremendous benefits from our partnership with SUSE, but we’ve only scratched the surface,” Syed notes. “Going forward, we’ll place significant emphasis on optimizing the intersection of hardware efficiency, software orchestration and AI-driven analytics. This will enable us to deliver the next generation of sustainable, high-performance data center infrastructure.”

Benefits

- Reduces deployment time from days to minutes, up to 98% faster.
- Increases telemetry data collection frequency by 360-fold, from hourly intervals to every 10 seconds.
- Improves scalability and flexibility compared to legacy VMware environments.
- Migrates existing virtualized workloads to the same cloud native platform used for Kubernetes.
- Maintains 100% uptime.
- Supports substantial growth in power-intensive AI workloads without increasing energy footprint.
- Ensures rapid support response and operational reliability with SUSE Premium Support.

Find out how SUSE can help you become an innovation hero!

- Sales-Inquiries-APAC@suse.com
- Sales-Inquiries-EMEA@suse.com
- Sales-Inquiries-LATAM@suse.com
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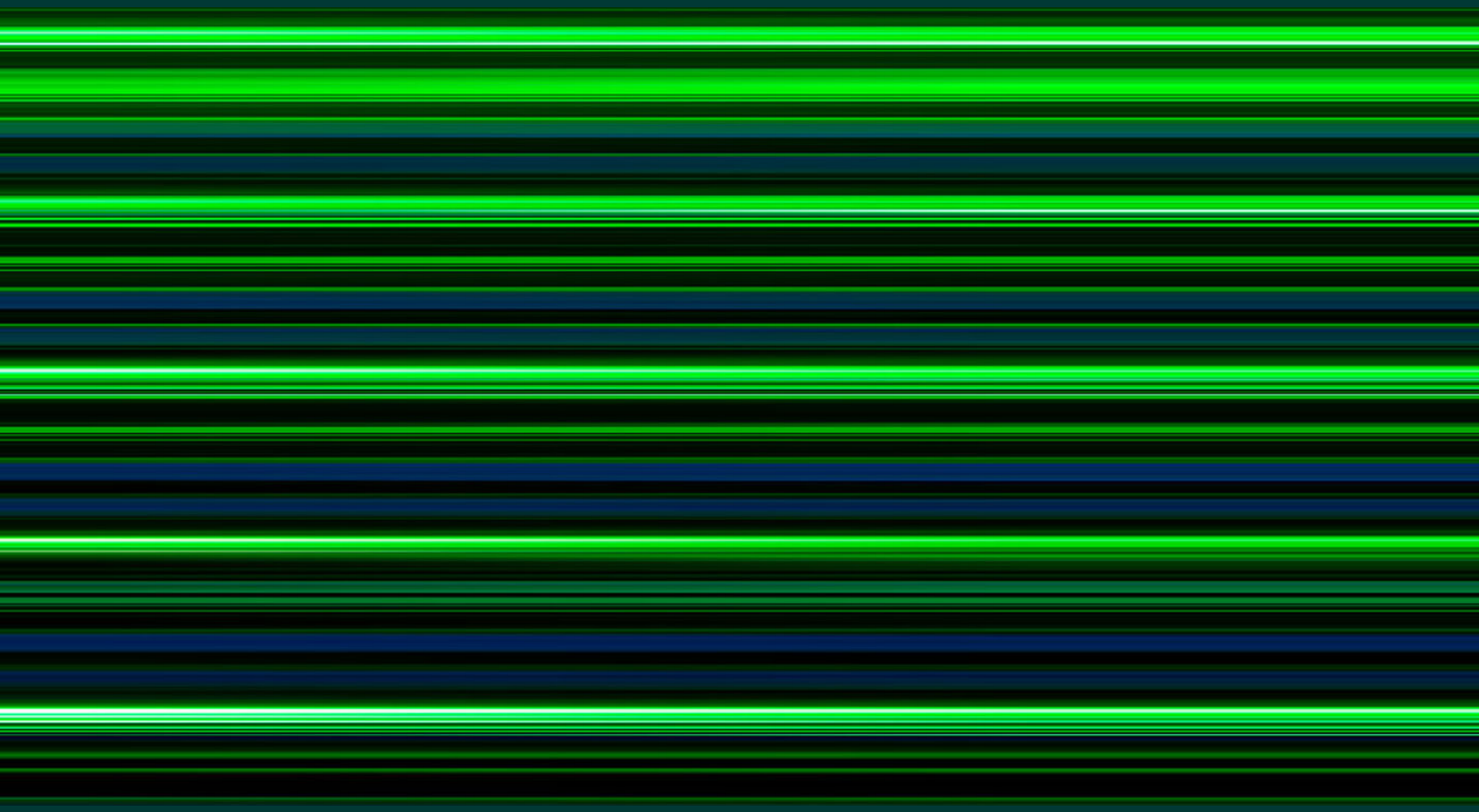

SUSE Software Solutions
Germany GmbH

Frankenstraße 146
90461 Nürnberg
Germany

www.suse.com

For more information, contact SUSE at:

+1 800 796 3700 (U.S./Canada)

+49 (0)911-740 53-0 (Worldwide)

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