



Smarter
technology
for all

Lenovo

Lenovo
Embraces
Telco
Sustainability
Excellence

Pioneering carbon
emission cuts in telco
infrastructure brochure



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Telcos brace for network modernization and massive growth while managing to stringent sustainability targets

The telecommunications industry is undergoing a profound transformation, with sustainability becoming a cornerstone for both operational excellence and corporate responsibility. As telcos seek strategic partnerships that align with their sustainability goals, Lenovo stands out as a model in the field.

The mobile industry is taking a prominent stance in addressing climate change by forging a decarbonization roadmap that aligns with the Science-Based Targets initiative (SBTi) and the Paris Agreement's aim of achieving net-zero emissions by 2050. Achieving this milestone would significantly mitigate the risks and impacts of climate change.

**Lenovo Target:
Net-zero
emissions by 2050**

**Telcos
planning
for net-zero
emissions**



Reducing emissions with modern telecom network infrastructure is vital especially with escalating data demands for more bandwidth

A recent study conducted by the Boston Consulting Group (BCG)* highlighted a concerning fact: the Information and Communication Technology (ICT) sector contributes 3 to 4% of global CO2 emissions, nearly double that of the aviation industry.

With an estimated annual growth in data traffic of 60%, projections suggest this share could escalate to 14% by 2040 unless proactive measures are adopted to curtail the sector's environmental impact.. Over 90% of executives believe sustainability is important but only 60% of organizations have sustainable strategies.

*Source: Boston Consulting Group (BCG)

As data traffic continues to explode, network infrastructure is a major contributor to Telco emissions

90% Executives believe they should have a

sustainability plan but only 60% have a strategy..

Source: BCG



A planned, multi-faceted approach to network modernization necessary to address innovation needs

There are several ways the telecom industry can approach this issue while embracing new technologies that are monitoring, saving and tracking power consumption. Addressing emissions in telecom architecture involves a multi-faceted approach, where technological innovation, industry collaboration, and policy initiatives all play crucial roles.

1. Energy-Efficient Technologies: Developing and implementing more energy-efficient hardware and software solutions can help reduce emissions. This includes more power-efficient processors, better cooling systems, and smarter algorithms that optimize energy usage.

2. Renewable Energy Integration: Increasing the use of renewable energy sources, such as solar or wind power, to run data centers and cell towers can significantly reduce the carbon footprint of the telecommunications industry.

3. Network Optimization: Optimizing network architectures and reducing unnecessary data transmissions can help minimize energy consumption. This might involve using more efficient routing algorithms or implementing better data compression techniques.

4. Lifecycle Management: Implementing strategies to extend the lifespan of devices and equipment can reduce electronic waste, which is a significant environmental concern.

5. Regulatory Measures: Governments and regulatory bodies can encourage or mandate the adoption of more environmentally friendly practices and technologies within the telecommunications industry.

Telecom providers are high energy consumers who need sustainable infrastructure solutions as they modernize networks



Support the circular economy

Our global network helps you leverage a single, consistent solution and point of contact for the responsible recycling, reuse and refurbishment of all your IT assets across multiple locations.

Working with ITAD experts, we will support your commitment to a circular economy by diverting any usable elements back into the manufacturing process and recycling those that can't be repurposed.

And don't worry about who manufactures your equipment – Lenovo Asset Recovery Services cover all brands of IT hardware including servers, storage, networking, PCs, cell phones, and more.

Lenovo ARS can help offset some of the costs related to your new technology refresh. By collaborating with a large network of ITAD partners, Lenovo ARS can help maximize the potential value from your decommissioned IT equipment.

This simplifies the transition from old to new through one convenient, single-source solution, and can help lower the total cost of ownership for your next IT investment.

Additional on-request Services

- Remote or on-site discovery to provide current inventory with value assessment
- Dismantle and move assets to on-site pickup area
- Quarantine hold of assets for specified period to ensure data migration
- On-site data destruction

Other options

- Refurbishment and remarketing

End-of-life asset management made easy with Lenovo ARS



What?

- Secure and environmentally conscious recycling of EOL devices.
- Hardware agnostic - manages both Lenovo & multi-brand assets at a global scale
- Custom solution that helps mitigate risks of improper e-waste disposal.
- Fair market value (FMV) for re-marketable assets at end-of-life.



Why?

- Show commitment to sustainability and help minimize the impact of e-waste.
- Help improve your bottom line and enjoy TCO benefits.
- Offset costs for a new technology refresh and ensure employee productivity.
- Easy, simple solution with Lenovo as your one-point of contact.
- Aims to mitigate data security and compliance risks.



How?

- Lenovo is your single point of contact with detailed reporting:
 - Secure transport of devices from client location
 - Data security
 - Environmentally conscious recycling
 - Optimize recovery value
- Engage industry leading ITAD partners
- Onsite services on customer request

Lenovo has a carefully crafted portfolio of sustainability hardware and software solutions that suit the modern needs of expanding 5G services, edge growth, AI and IoT analytics.



Sustainability is a long-term Telco commitment

Lenovo's commitment to the environment and smart engineering is driving measurable sustainable innovation for telco network infrastructure

Lenovo's server engineering prowess stands as a testament to its commitment to technological excellence and environmental responsibility. With a long-standing, deep-rooted focus on innovation sustainable practices, Lenovo has honed its expertise in crafting servers that not only excel in performance but also prioritize energy efficiency. Beyond internal initiatives, Lenovo leads by example, championing a sustainable ethos by actively reducing carbon footprints and CO2 emissions across its entire operations.

This commitment extends to their Telco customers, where Lenovo plays a pivotal role in modernizing networks. By offering cutting-edge, eco-friendly solutions, Lenovo empowers Telcos to overhaul their infrastructure with technologies designed to minimize environmental impact while maximizing operational efficiency. Through a seamless integration of advanced server engineering and a resolute dedication to sustainability, Lenovo continues to pave the way for a more technologically advanced future for both themselves and their Telco partners.



CO2 Offset Initiatives: Mitigating Environmental Impact

Tangible carbon offset programs

Recognizing the urgency of combating climate change, Lenovo has undertaken robust CO2 offset initiatives. These initiatives go beyond mere compliance with regulations, demonstrating a proactive approach to managing environmental impact. By investing in renewable energy projects, reforestation efforts, and carbon offset programs, Lenovo sets an industry benchmark for responsible corporate citizenship, encouraging telcos to join forces in managing their IT carbon footprint.

While minimizing and eliminating emissions is always the goal, carbon offsetting your IT fleet is another way to help manage your overall carbon footprint. We make it easy with a seamless, transparent process for Lenovo devices across your current IT fleet or new purchases — with a sustainability dashboard to view the offset metrics. The offsets are contributed to climate action projects verified by independent third-party organizations like the United Nations, CDM, Gold Standard,[®] and Climate Action Reserve.

Recognizing the urgency of combating climate change, Lenovo has undertaken robust CO2 offset initiatives. These initiatives go beyond mere compliance with regulations and extend to products designed for sustainable telco infrastructure.



Lenovo Neptune: Water-Cooling Redefines Energy-Efficient Data Centers

Lenovo Neptune™ is a patented direct water-cooling solution for data centers. Lenovo Neptune™ achieves up to 95% heat removal efficiency and up to 40% lower power consumption. Plus, it uses a fraction of the water compared to evaporative cooling. New high-density storage helps deliver power and space savings with up to 62% less power consumption as compared to previous generations.

95% heat removal efficiency

Prioritizing Energy Optimization

Lenovo's Neptune™ water cooling feature stands as a pioneering initiative revolutionizing energy-efficient infrastructure in the telecommunications sector. It adopts a comprehensive approach to design and development, prioritizing the optimization of energy consumption while preserving high-performance standards. Leveraging innovative engineering, Neptune presents telcos with a scalable and efficient solution that significantly reduces power usage while amplifying operational productivity.



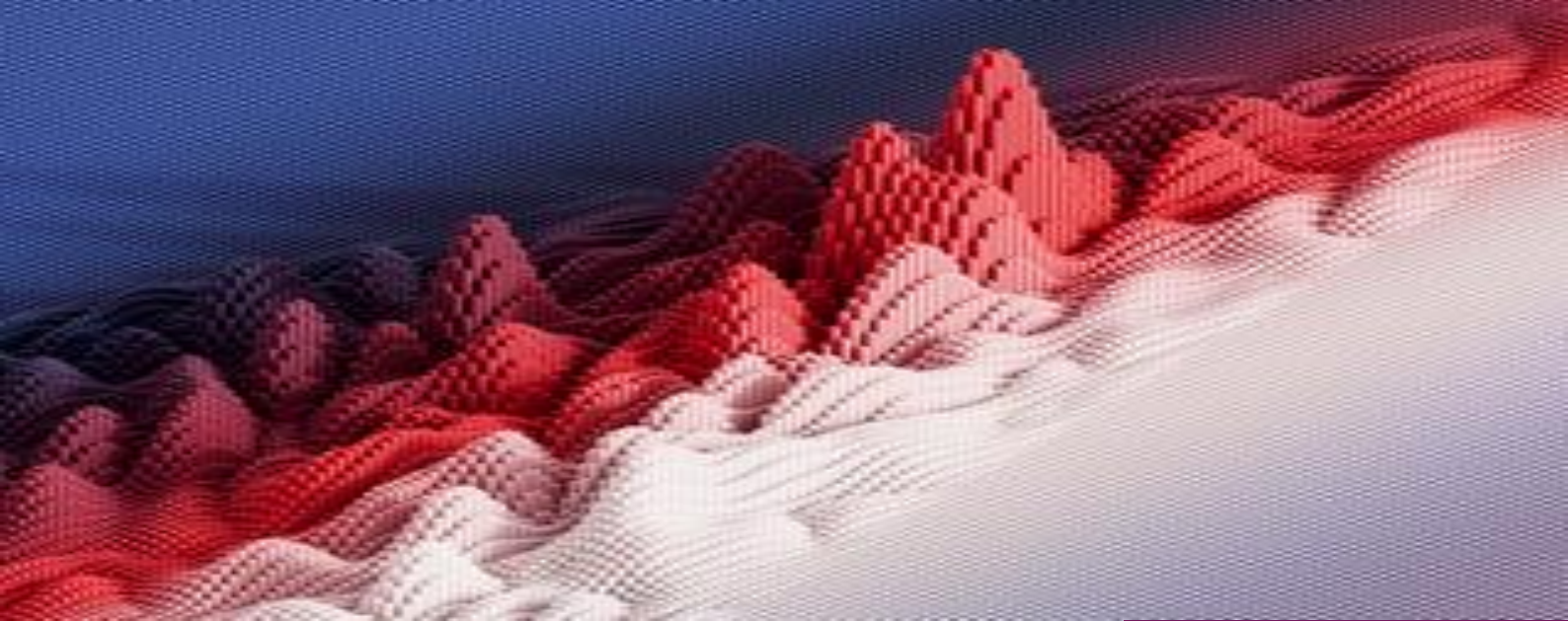
Groundbreaking water-cooling technology

Tackle the data center's toughest challenge: cooling. **Lenovo Neptune™** direct water cooling delivers **95% heat removal efficiency** and up to **40% lower power consumption**.⁴ The warm water loop is closed and uses a tiny fraction of what evaporative cooling uses, so you can power through the most compute-intensive workloads more energy-efficiently.



As part of the Lenovo Neptune™ cooling technologies, let our Energy Aware Runtime (EAR) software and xClarity Energy Manager optimize your power states, turn off unused components, and route workloads to the most efficient resources, delivering optimal performance with lower energy consumption.





Lenovo TruScale for efficient power monitoring

Monitoring infrastructure health and power consumption for lower TCO with pay-as-you-go model

The Lenovo TruScale Device as a Service (Lenovo TruScale DaaS) subscription model is an efficient way to manage your fleet of end-user devices, optimizing resources and costs while promoting circularity. Deploy just what you need and responsibly dispose of what you don't. Supported by our suite of services, TruScale DaaS helps you prolong device usability and create a more sustainable end-to-end journey for your IT assets.

Optimizing data center consumption

Optimize Telco data center consumption with Lenovo TruScale Infrastructure as a Service — a cost-efficient, flexible, pay-as-you-go model that right-sizes infrastructure for demand. Take advantage of Lenovo's TruScale metering technology and the TruScale portal to monitor your infrastructure health, power consumption, and heating, and help manage utilization and costs more efficiently.

Pay-as-you-go
infrastructure-as-a-service
model can
free up
financial
resources



Lenovo Open Cloud Automation (LOC-A) for Network Modernization

Accommodating the demands for 5G, Lenovo believes that automation is the foundational structure for building out complex, scalable 5G telecommunications networks that can offset the costs and deployment headaches of a dynamic, expanding network.

Building and managing scalable 5G networks can be complex, especially with legacy automation approaches. Simply containerizing network functions and running them on centralized or edge clouds does not maximize the cost savings and operational efficiencies promised by the cloud.

Over the last two years, Communication Service Providers (CSPs) have asked for an open cloud-native automation solution on which to build out cloud-resilient, efficiently scalable network infrastructure that flattens their cost curve.

Lenovo Open Cloud Automation (LOC-A) is a software solution that rapidly deploys and manages the lifecycle of on-prem cloud infrastructure, regardless of its location: inside of a datacenter or distributed in your remote edge locations. LOC-A uses Infrastructure as Code and GitOps best practices for consistent and error-free results.

Lenovo LOC-A

An AvidThink study estimated that Telco's leveraging LOC-A users appreciate:

ROI of **\$1.36 NPV*** over three years on every dollar spent;

Reductions of up to **81%*** on initial deployment lead times; and


Labor reduction for cloud implementations of up to **11X***.

Lenovo Open Cloud Automation

Lenovo's ThinkEdge SE455 V3

<https://www.lenovo.com/us/en/resources/data-center-solutions/analyst-reports/avidthinklenovo-open-cloud-automation-csp-comparison-2020>





Lenovo has proudly established a pioneering standard in server power and energy efficiency within the industry

With the right partnerships, Telcos can quickly reshape complex operational frameworks for a positive transformation

Top telecommunications companies are swiftly crafting decarbonization strategies that involve reshaping operational frameworks to facilitate the necessary transformation.

When telco's act quickly, they can benefit from the transition to less power consumption and lowered emissions. One example of a partnership to reduce emissions is between Orange Business and Lenovo.

The following use case is an example of how Orange Business relies on Lenovo's Telecommunications infrastructure hardware for emission-reducing, cutting-edge network infrastructure.

With the right partner, Telcos can leverage 5G network modernization for new revenue opportunities and energy efficiencies. With the support of virtualization, edge computing, AI-driven analytics, and cloud computing, 5G offers a foundational framework to significantly enhance the energy efficiency of both industries and urban areas.



Orange Business – Lenovo Use Case High Performance, Lower Carbon and TCO

Orange Business is relied upon by thousands of companies to provide critical infrastructure. By empowering more sustainable cloud technology and making efforts to reduce its own CO2 emissions it's critical that data centers are built for optimal energy usage and cooling is key to achieving this goal-and Orange Business is working closely with Lenovo to make it a reality.

In response to high energy prices, Orange Business has taken advantage of Lenovo's advanced energy efficiency and power-saving features for the first time. Andersen comments: "we were amazed to find that switching to the power-saving setting lowered power consumption by 25% without any drop in performance. We ran lots of tests with servers running VMs at 70-80% capacity, both with and without the power-saving setting enabled, and we were blown away by the results. We even pitted the Lenovo servers against another vendor's servers with the same specifications running the exact same workloads, and the difference in energy efficiency was huge. Naturally, our engineers were intrigued and wanted to investigate. We found that small differences in the design of the chassis and fans means that Lenovo servers have much better airflow, which creates better colling and improves energy efficiency." Higher energy translates into lower electricity costs and leaner, more sustainable data center operations. "We save around 200 watts of energy per server, which adds up lower electricity costs overall. It's good for our bottom line and the environment too," notes Andersen.

**"We saved
200 watts
energy
per server.**

**Results
delivered
for Orange
Business
Testing -
lower power
consumption
by
25% "**

IRiisAndersen. Orange business



Business

[Check out the Orange-Lenovo-VMWare Use Case Here: Supporting cloud services with speed & simplicity | Lenovo US](#)

Lenovo



Lenovo Consistently Receives Prestigious Rankings for Telco Solutions

Lenovo is Leading by Example

A deep-rooted commitment to the environment with engineering excellence and climate efficiencies positions Lenovo as the sustainability partner to lead telcos in their network modernization efforts.

Lenovo's commitment to net-zero emissions and broad portfolio of sustainability solutions such as Neptune™ water-cooling technology, energy-efficient hardware and software solutions, CO2 offset services, Asset Recovery and TruScale positions Lenovo as the go-to telecom equipment partner for telcos.

By embracing Lenovo's innovative technologies and steadfast dedication to environmental responsibility, telcos can forge a path toward a more sustainable future while maximizing operational excellence.

As the telecommunications industry continues to evolve, strategic partners like Lenovo offer telcos the opportunity to lead by example, fostering a culture of sustainability and innovation that benefits both the industry and the planet.

For more information, go to:

URL: <https://www.lenovo.com/us/en/servers-storage/solutions/telco-nfv/>

Ranked

#1

on **Green500** list
with the **world's
most energy-
efficient**
supercomputer.

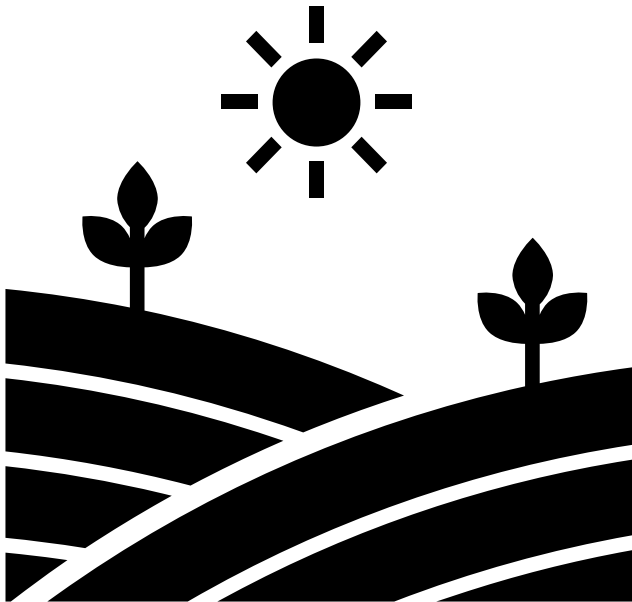
Ranked

#1

for **9** Years
in a row for
Server Reliability

Lenovo

Contact Lenovo Today
For more on Lenovo Sustainability, go
to: [Lenovo/Sustainability.com](https://www.lenovo.com/us/en/servers-storage/solutions/telco-nfv/)



For more information,
go to:

Resources

URL:

<https://www.lenovo.com/us/en/servers-storage/solutions/telco-nfv/>

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