Microsoft Azure

Circularity in Action

How Microsoft Circular Centers contribute to our zero waste goal

We've reached our target of **90% reuse and recycling of servers and cloud hardware components a year early** through Microsoft Circular Centers.

In 2024, Microsoft Circular Centers **reused more than 3.2M components.**[1]

[1]Refers to both internal and external reuse.

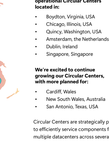
In 2024, we used our own harvested inventory to **fulfill 85% of the demand for obsolete spare parts.**[2]

[2]Refers only to the demand for spare parts that are no longer manufactured.

Microsoft is transforming how we manage cloud hardware across millions of servers in more than 300 datacenters around the world. In 2020, as part of our journey to become **zero waste by 2030**, we set a target of reusing or recycling 90% of our servers and components across all cloud hardware by 2025. We established a global circularity program, Microsoft Circular Centers, that helped us **reach a 90.9% reuse and recycling rate in 2024.**

By considering responsible design and circular economy principles, Microsoft helps optimize the useful life of cloud hardware and its components through reuse and recycling. In addition to reducing electronic waste, or e-waste, we help strengthen the supply chain and create a smarter, more responsible approach to cloud hardware.

Improving reuse and recycling of servers and components for all cloud hardware.



Microsoft currently has six operational Circular Centers located in:

- Boyilton, Virginia, USA
- Chicago, Illinois, USA
- Quincy, Washington, USA
- Amsterdam, the Netherlands
- Dublin, Ireland
- Singapore, Singapore

We're excited to continue growing our Circular Centers, with more planned for:

- Cardiff, Wales
- New South Wales, Australia
- San Antonio, Texas, USA

Circular Centers are strategically placed to efficiently service components from multiple datacenters across several regions.

Designed for circularity

Optimizing repairability, reusability, and recycling

From the beginning of nearly every cloud hardware component's design through the end of its lifecycle, Microsoft puts sustainability at the forefront.

Designing for repairability

We make hardware easier to repair and upgrade, reducing the need for full replacements and minimizing e-waste.

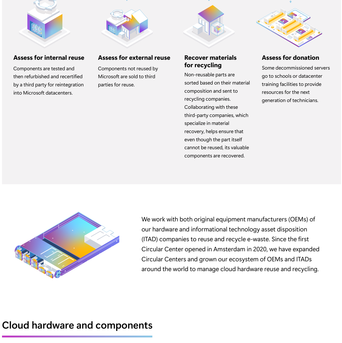
Designing for reusability

We make hardware and components that stay in circulation longer though reuse.

Designing for recycling

When we decommission hardware, we think about how to make component recovery more efficient to enable circulation of valuable materials back into the supply chain.

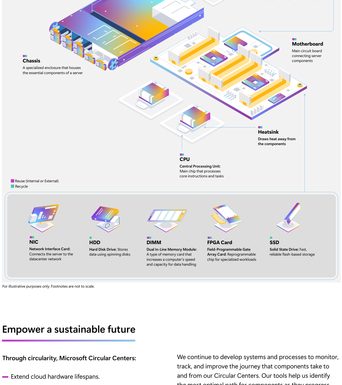
These factors enable us to understand and manage the quality of components across their lifecycle, improving the durability of Microsoft's cloud hardware.

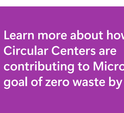


For illustrative purposes only.

Microsoft Circular Centers

Microsoft Circular Centers are dedicated areas within key datacenter campuses where we route and process decommissioned servers and hardware components to their next useful lives, such as internal reuse, other electronic supply chains, or academies that train datacenter technicians.





We work with both original equipment manufacturers (OEMs) of our hardware and informational technology asset disposition (ITAD) companies to reuse and recycle e-waste. Since the first Circular Center opened in Amsterdam in 2020, we have expanded Circular Centers and grown our ecosystem of OEMs and ITADs around the world to manage cloud hardware reuse and recycling.

Cloud hardware and components

Our Circular Centers process a variety of cloud hardware and components, all with varying limited lifespans. Some components retain high commercial value and find a second life reused internally at Microsoft or externally through third-party companies. Components we cannot reuse or recycle, such as those from data-bearing devices (DBDs), are shredded at both Microsoft datacenter campuses and Circular Centers in accordance with privacy requirements and local regulations. Once shredded, these devices are then recycled. We are working with recyclers to optimize DBD recycling and recover rare earth elements from hard disk drives.

For illustrative purposes only. Footnotes are not to scale.

Empower a sustainable future

Through circularity, Microsoft Circular Centers:

- Extend cloud hardware lifespans.
- Reduce e-waste.
- Help Microsoft progress toward our target of zero waste by 2030.

We continue to develop systems and processes to monitor, track, and improve the journey that components take to and from our Circular Centers. Our tools help us identify the most optimal path for components as they progress through the lifecycle across the supply chain, from upstream suppliers to downstream options for circularity.

These innovations help drive the transition to a more sustainable cloud, improving business efficiencies and costs and building a more resilient supply chain. Specific benefits include:

- Reduced dependency on new materials.
- Extended useful life for cloud hardware components
- Value recovery from used components.
- Enhanced transparency throughout the supply chain from procurement to material recovery.
- Improvements in the recycling ecosystem.

Learn more about how Circular Centers are contributing to Microsoft's goal of zero waste by 2030.

Check out how we're innovating for zero waste with Circular Centers and across Microsoft at **aka.ms/zerowasteinnovation.**

For more information on our sustainability progress on waste—as well as carbon, ecosystems, and land—visit **aka.ms/datacentersustainability.**