

Kick-starting innovation with research collaborations to launch edge cloud services.

How **A1 Austria** used Lenovo ThinkSystem SE350 edge servers, powered by NVIDIA® T4 GPUs, to launch a 5G and edge cloud innovation lab with the BABEG Carinthian Agency for Investment Promotion and Public Shareholding.

**Lenovo Infrastructure Solutions
for The Data-Centered**

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Background


A1 Austria (A1 Telekom Austria AG) is a subsidiary of the A1 Group and a leading telecommunications and IT service provider headquartered in Vienna, Austria, with over 5 million mobile and 2 million broadband customers across the country. Part of the international A1 Group with 25 million customers in seven countries in Europe, the A1 Digital division delivers business transformation through innovative IT solutions. The company also owns Exoscale: a rapidly growing public cloud provider powered by Lenovo technology and with a focus on privacy and data protection.

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Challenge

To gain first-mover advantage when launching new solutions for its customers, A1 Austria strives to stay ahead of the competition by investing early in emerging technologies—including cutting-edge 5G services.


Building on its close partnership with the BABEG Carinthian Agency for Investment Promotion and Public Shareholding, A1 Austria and BABEG looked to launch a 5G test laboratory to support research and development in the Carinthia region of Southern Austria.



“We know that 5G will soon become the standard for real-time communication, and we want to be ready for new business opportunities that rely on ultra-low latency. To lay the foundation for offerings such as 360-degree video streaming for virtual reality and the next wave of industrial robots and IoT automation solutions, we aimed to combine 5G radio networks with a decentralized edge computing platform.”

Dr. Wolfgang Fleischer

Group Technology & Future Services, Strategy & Innovation, A1 Group



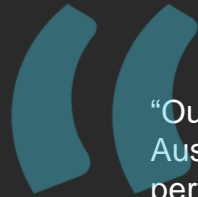
Why Lenovo? Proven expertise, compact solutions, and a strong partnership.

Together, A1 Austria and BABEG created a concept for a new innovation space named “5G Playground Carinthia”, located at the Lakeside Science & Technology Park in Klagenfurt at Wörthersee.

To deliver comprehensive cloud capabilities for 5G Playground Carinthia using 5G technology, A1 Austria reached out to Exoscale, the group’s in-house cloud service provider. The two teams quickly agreed to extend the Exoscale public cloud platform, establishing a new edge location that would enable decentralized cloud computing.

Exoscale already had a strong partnership with Lenovo and decided to build on the extensive technical expertise of Lenovo to deploy the new edge cloud solution.

“For edge cloud deployments, the form factor is crucial,” says Dr. Fleischer. “Lenovo offers a high-quality, compact, flexible, and rugged edge server that can be operated in many different environments, not just purpose-built data centers. In Lenovo, we have a single vendor for core and edge cloud infrastructure, which streamlines our procurement and support processes. The scalability and flexibility of Lenovo solutions also means we can take our edge cloud offering to market rapidly once the pilot project is complete.”



“Our goal is to accelerate development of 5G applications, products, and processes in Austria. The Lakeside Science & Technology Park in Klagenfurt at Wörthersee is the perfect location for the 5G Playground Carinthia, as the facility is surrounded by higher education institutions, and companies with an interest in future technologies and service.”

Michael Russling

Head of Public Shareholding & Corporate Governance, BABEG Carinthian Agency
for Investment Promotion and Public Shareholding

Expanding the cloud to the edge and accelerating the user experience.

A1 Austria and BABEG worked with Kontron, a specialist for IoT and Industry 4.0 solutions, to deploy Lenovo ThinkSystem SE350 edge servers at the Lakeside Science & Technology Park. Building on the Exoscale cloud platform running on Lenovo ThinkSystem HR630X servers, A1 Austria worked with telecommunications startup HyperBlox to set up the 5G environment using next-generation telco software with state-of-the-art container technology.

“With Lenovo edge servers, we have brought the cloud closer to users,” says Dr. Fleischer. “To create an attractive research environment, support for modern tooling was essential. The Exoscale cloud platform provides all the APIs and services that developers and scientists need to deploy research projects rapidly and easily using agile methodologies and the latest cloud-native technologies. The local HyperBlox instance terminates the 5G network locally in order to achieve the ultra-low latency.”

Equipped with NVIDIA® T4 GPUs, the Lenovo ThinkSystem SE350 edge servers can accommodate complex edge cloud workloads in a compact form factor, perfectly suited for space-constrained edge locations. Based on the NVIDIA Turing™ architecture, the GPUs provide cost-efficient acceleration for a wide array of computing mainstream tasks including machine learning, AI, and video transcoding.



Image: © Lakeside Park | Gert Steinhäler

Enabling cutting-edge research.

BABEG and A1 Austria have already attracted several teams to work on advanced research projects on the edge cloud.

Martina Eckerstorfer, Project Manager Research, Technology & Innovation at BABEG, says: “One research team from the Alpen Adria University Klagenfurt has already demonstrated a virtual reality use case. Thanks to the Lenovo edge servers equipped with NVIDIA GPUs and dedicated hardware transcoding engines, the team streamed 360-degree video live with minimum latency.”

Additional use cases that have been established at the 5G Playground explore direct communication in drone swarms, which is run by Lakeside Labs. Joanneum Research relies on the 5G Playground to investigate the combination with robotics technology, in particular for industrial automation. Carinthia University of Applied Sciences established a Smart City use case that analyzes possible radio interfaces with 4G and 5G. The team also uses the 5G Playground together with the public A1 Austria mobile network to demonstrate distributed use cases across the city of Klagenfurt.

The latest research initiative of the Alpen Adria University Klagenfurt with technology partner Onda aims to push the boundaries of edge computing even further. By combining the performance of heterogeneous edge devices with Lenovo edge cloud resources, AAU aims to enable more sophisticated 5G applications.

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Results



Working with Lenovo, A1 Austria and Exoscale have expanded their public cloud services to the edge. The cloud service provider can scale up the deployment of edge locations as demand grows—for example, from manufacturers looking to enhance their efficiency by deploying industrial IoT solutions on their production lines.

Thanks to 5G technology and the Lenovo ThinkSystem SE350 edge servers, A1 Austria reduced the latency for end-user applications by 60%. “Before moving to 5G and without an edge cloud, the latency was about 15 ms,” says Dr. Fleischer. “Since we deployed our new research environment, we achieve just 5 ms latency for real-time applications. This is essential for use cases such as augmented and virtual reality, where excessive delays can cause motion sickness.”

The 5G Playground Carinthia brings together organizations from across Austria. “We can offer universities and businesses modern, cutting-edge research facilities,” says Eckerstorfer. “The 5G Playground Carinthia highlights our region’s leading position in Austria when it comes to technology. Our new platform also opens up valuable new opportunities for collaboration across the country.”

- ✓ **>60% lower latency facilitates exciting new services and real-time applications**
- ✓ **Expands public cloud services with decentralized and flexible edge cloud offering**
- ✓ **Establishes unique research environment for 5G and edge cloud, bringing together universities and businesses to form an innovation and high-tech cluster**
- ✓ **Attracts startups and cutting-edge companies to the Lakeside Science & Technology Park in Carinthia**



Image: © Lakeside Park | Gert Steinhäler

“The Lakeside Science & Technology Park is growing, attracting more businesses to the area. Companies such as Onda TLC GmbH, a distributor that sold over eight million communication devices in Europe and South America, has chosen Carinthia not just for its beautiful landscape, but also for the access to expertise and research partnerships they gain through the Lakeside Park.”

Michael Russling

Head of Public Shareholding & Corporate Governance,
BABEG Carinthian Agency for Investment Promotion and
Public Shareholding



“The 5G Playground Carinthia is a true lighthouse project that demonstrates our edge and cloud computing capabilities. We collaborate with the local business community and connect with leading research institutions. By working with Exoscale and Lenovo, we are supporting innovation: enabling us to build interconnected AI and real-time solutions for the future, such as industrial automation platforms and autonomous driving systems.”

Dr. Wolfgang Fleischer

Group Technology & Future Services, Strategy & Innovation, A1 Group

What will you do with Lenovo edge computing solutions?

The Data-Centered bring the cloud closer to users with
Lenovo smarter infrastructure solutions, powered by NVIDIA®.

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