



Keeping citizens safe throughout a global pandemic by leveraging AI technology.

How **Addfor** leverages a Lenovo ThinkSystem SE350 server, powered by NVIDIA® T4 Tensor Core GPUs, to collect, process, and analyze drone video footage at the edge to help strengthen COVID-19 public health measures.

Lenovo Infrastructure Solutions
for The Data-Centered

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1

Background

Headquartered in Turin, Italy, Addfor provides next-generation artificial intelligence (AI), data science, and edge computing solutions. Its dedicated research and development team is continually pushing the frontiers of AI and data science to help tackle industrial and social challenges.

When the COVID-19 pandemic spread across the globe, normal life in Italy was severely disrupted. Addfor aimed to use its AI expertise to help governments and local authorities keep citizens safe.

2

Challenge

Even as large-scale immunization initiatives get underway, social distancing, face coverings, and contact tracing remain some of the most important tools that public health bodies have to reduce the spread of coronavirus.

Like many European countries, Italy put in place social distancing measures in public settings such as shops, offices, public transport, and public outdoor spaces. However, the effectiveness of these measures depends on people carefully following the guidelines.

Enrico Busto, Founding Partner & CTO at Addfor, explains: “Measuring compliance with COVID-19 public health measures poses a huge challenge for authorities. We set out to develop an AI-enabled image recognition system that could be used in the fight against coronavirus.”

The crowdHEDGE solution interfaces with drone video streams to extract data insights on public spaces, such as city parks. Addfor teamed up with the City of Turin to connect crowdHEDGE to drone video streams. The aim was to enable public health officials to track metrics such as foot traffic and crowd sizes, and use an advanced graphical interface to explore the data by time and geographical area.

Analyzing video footage in real-time presented a technical challenge for Addfor. How could the company process vast amounts of data rapidly and cost-effectively on behalf of the City of Turin?

Why Lenovo? Next-generation edge computing.

To support the crowdHEDGE pilot in Turin, Addfor, an NVIDIA Metropolis partner, implemented a Lenovo ThinkSystem SE350 edge server, equipped with NVIDIA® T4 Tensor Core GPUs.

The Lenovo ThinkSystem SE350 is a purpose-built, ruggedized, highly secure edge server specifically designed to support the compute, storage, and connectivity requirements at the edge. The Lenovo ThinkSystem SE350 has operating temperature ranges from 0-55°C and is targeted for deployment outside of a data center environment using wall or ceiling mounting systems. It can be deployed, managed, and repaired with nZTP (near zero touch) almost anywhere, even in a van or mobile environment. It is compliant with NEBS3 and ETSI standards, thereby passing rigorous emission, altitude, shock, and vibration testing.

Built-in WiFi connectivity enables Addfor to wirelessly stream video data directly from drone video streams at the edge where the video is captured, which also maintains privacy.

“Processing and analyzing data at the edge reduces traffic load and improves performance,” says Busto. “The Lenovo ThinkSystem SE350 is therefore the ideal solution for this project. It’s a small, rugged, ultra-reliable server that enables us to collect, process, and analyze vast amounts of video data rapidly, close to the source.”

Furthermore, the Lenovo ThinkSystem SE350 is the most compact server delivering NVIDIA T4 GPUs, making it a performance leader for edge AI workloads that demand the highest performance.

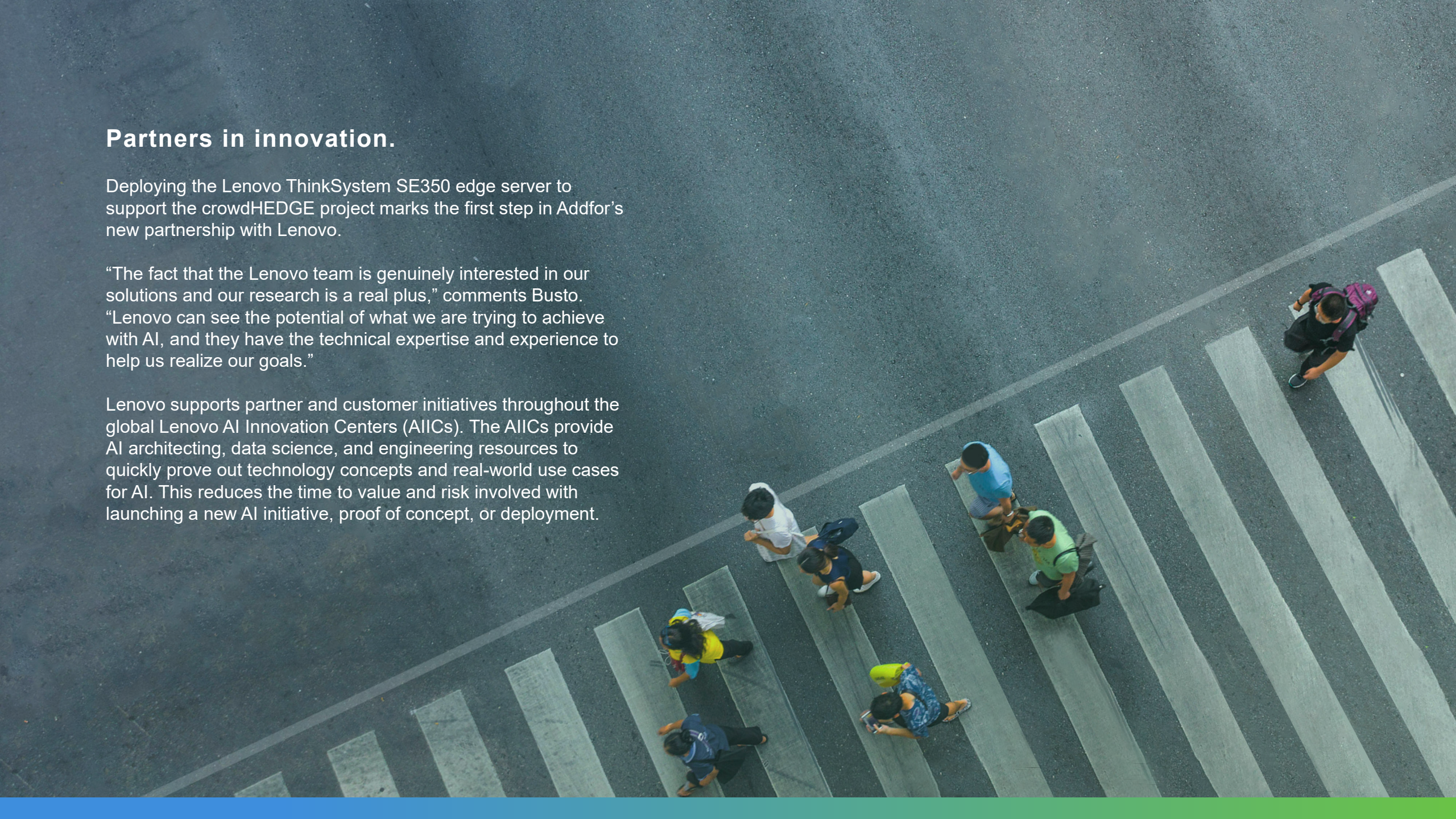
“We were particularly impressed with the support for NVIDIA T4 GPUs, which made the Lenovo ThinkSystem SE350 perfectly suited to our needs,” comments Busto. “For example, GPU-acceleration for analytics workloads enables us to calculate the number of people present in a given area in real time.”

Partners in innovation.

Deploying the Lenovo ThinkSystem SE350 edge server to support the crowdHEDGE project marks the first step in Addfor's new partnership with Lenovo.

"The fact that the Lenovo team is genuinely interested in our solutions and our research is a real plus," comments Busto. "Lenovo can see the potential of what we are trying to achieve with AI, and they have the technical expertise and experience to help us realize our goals."

Lenovo supports partner and customer initiatives throughout the global Lenovo AI Innovation Centers (AIICs). The AIICs provide AI architecting, data science, and engineering resources to quickly prove out technology concepts and real-world use cases for AI. This reduces the time to value and risk involved with launching a new AI initiative, proof of concept, or deployment.





“Because Lenovo is always enhancing their data center solutions, we can take advantage of the latest advances in AI and edge computing and stay at the bleeding-edge of the discipline.”

Enrico Busto
Founding Partner & CTO, Addfor

3

Results

Backed by Lenovo and NVIDIA technology, Addfor is helping the authorities in Turin monitor compliance with COVID-19 related public health policies.

The crowdHEDGE solution can calculate the approximate distance between individuals, and identify the frequency of risky social contacts based on the size of each gathering and the amount of time spent together.

Busto comments: “We anticipate that crowdHEDGE will play an important role in helping local authorities track the spread of coronavirus. This insight will empower them to make data-driven decisions to protect public health.”

While crowdHEDGE is currently being used by the City of Turin to help in the fight against COVID-19, the solution has a wide range of other potential applications.

“We’re proud of the achievements that we have made with crowdHEDGE,” says Busto. “We are already exploring ways that the solution can be adapted to help prevent overcrowding in business and public settings, or even help police forces better protect citizens.”



- ✓ Enables wireless streaming of drone video footage at the edge
- ✓ Reduces traffic load and improves performance for real-time data analysis
- ✓ Helps local authorities to measure compliance with COVID-19 public health measures



“The Drones Unit of the City of Turin has successfully tested, within the services of the Public Administration, the use of drone, AI, and edge computing solutions with the collaboration of Lenovo, NVIDIA, and Addfor. The use cases developed are related to the real-time analysis of data, which are useful for the development of innovative services for citizens. Thanks to this pilot project in the field of safety and security of public spaces, the City of Turin addresses the combined use of drones, AI, and edge computing to focus on urban and aerospace mobility as an opportunity for the use of AI within the Public Administration.”

Marco Pironti

Deputy Mayor Innovation and Smart City, City of Turin



“We’re excited to continue developing cutting-edge AI and edge computing solutions supported by Lenovo and NVIDIA. We’re confident that our partnership will play an important role in pushing the frontiers of data science innovation.”

Enrico Busto
Founding Partner & CTO, Addfor

What will you do with Lenovo analytics and AI solutions?

The Data-Centered help local authorities track the spread of coronavirus with Lenovo smarter infrastructure solutions, powered by NVIDIA®.

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