MIRAI facilitates edge computing approaches that scale vertically to the cloud and horizontally to other devices.

At least 10%. Edge computing is also suitable in hundreds of markets, including mobility, healthcare and manufacturing; MIRAI therefore aims to facilitate the development of new applications to maximise the technology’s impact. By 2023, the edge AI software market will be worth USD 1.15 billion, yet only 10% of enterprise-generated data is processed at local edge infrastructures. The MIRAI open architecture is thus a major opportunity for both SMEs and large enterprises to expand their services and enter this fast-growing domain.

ADDRESSING THE CHALLENGE

Only 1% of the data generated by end nodes and available at the edges of modern networks is utilised; the rest is neglected due to limitations such as low bandwidth and high latency in the connection to the cloud, and poor security/privacy standards. The current approach for IoT is to leverage cloud infrastructures to address constraints at the end/edge nodes, but this is no longer viable due to hard real-time requirements of (mission-)critical applications, increasing AI usage and high demands on storage and computational power.

PROPOSED SOLUTIONS

As a decentralised intelligence framework, MIRAI will enable the optimal distribution of AI computing tasks and workloads across existing computing nodes, serving as a truly scalable edge computing software toolkit for IoT and edge computing applications. Through the MIRAI Framework Building Blocks (MFBB), appropriately sized AI modules will be deployed at nearby available edge nodes. This will provide a low-latency distributed ecosystem for AI-enabled computing in IoT. With application services and tasks deployed on local resources, network problems will become less critical. This decentralised approach will make the MIRAI solution more robust (by enabling new failover mechanisms) and secure (as the computations are executed directly on the source without the need to move the data around).

PROJECTED RESULTS AND IMPACT

MIRAI represents a fundamental transition from cloud services offered by hyperscalers (such as Google) to distributed edge computing systems. From a technical perspective, the expected benefits will include reducing downtime when operating under noise by a factor of 10, reducing bandwidth requirements by 90% and reducing development, deployment and operational costs by at least 10%. Edge computing is also suitable in hundreds of markets, including mobility, healthcare and manufacturing; MIRAI therefore aims to facilitate the development of new applications to maximise the technology’s impact. By 2023, the edge AI software market will be worth USD 1.15 billion, yet only 10% of enterprise-generated data is processed at local edge infrastructures. The MIRAI open architecture is thus a major opportunity for both SMEs and large enterprises to expand their services and enter this fast-growing domain.
ITEA is a transnational and industry-driven R&D&I programme in the domain of software innovation. ITEA is a EUREKA Cluster programme, enabling a global and knowledgeable community of large industry, SMEs, start-ups, academia and customer organisations, to collaborate in funded projects that turn innovative ideas into new businesses, jobs, economic growth and benefits for society.

MIRAI

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Project leader
Joana Sousa, NOS Inovação

Project email
joana.sousa@parceiros.nos.pt

Project website
https://project-mirai.eu

https://itea3.org