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European industrial technology roadmap for the next generation cloud-edge offering

Roundtable

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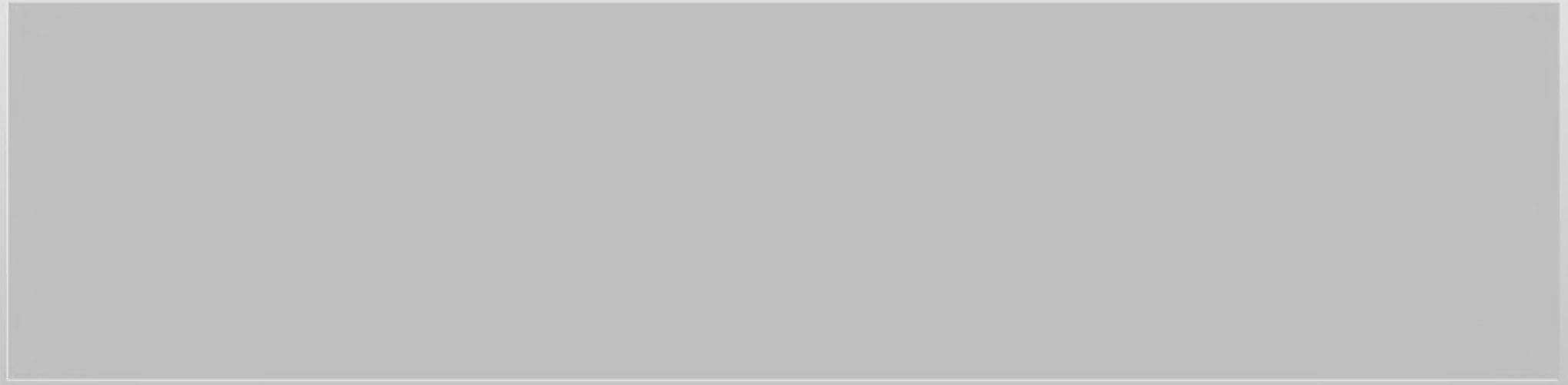
Presenting today



Answering today's needs while preparing tomorrow

Users wish to benefit from the services and performance standards that have been set by leading cloud providers, while keeping ownership over their data and flexibility over what they do in the cloud and edge

THE EUROPEAN MARKET IS AT A TURNING POINT

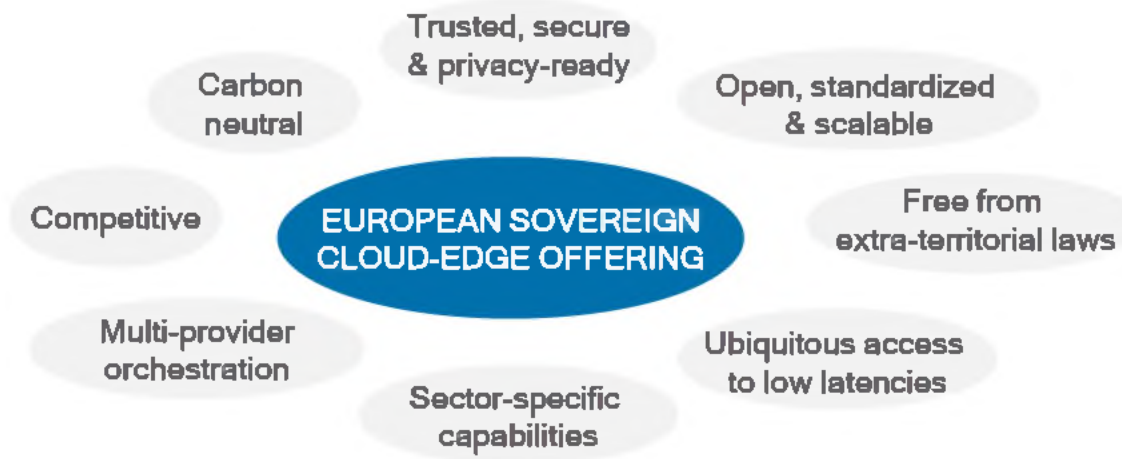
OPPORTUNITIES

- **Untapped demand** for cloud & edge computing services
- Unique **sector-specific expertise**
- Globally recognized **standards** and **open source culture**
- Technologically **diverse** ICT industrial base, with **local** 'roots'

THREATS

- **Disjointed** offerings that cannot compete vs integrated 'hyperscaler' services
- Difficulties to **scale** beyond national markets
- Low **investment** relative to global competition

OUR VISION FOR 2025 AND BEYOND



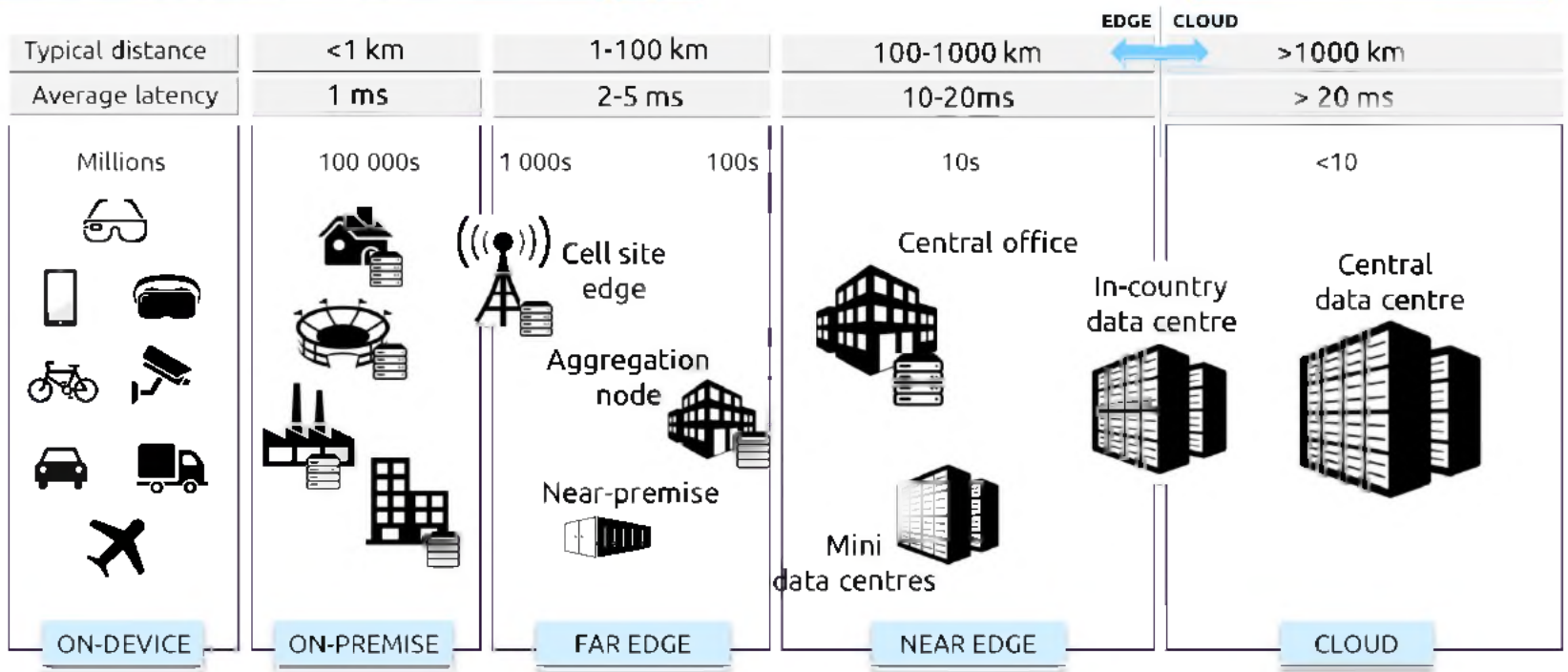
By **inventing the next generation** cloud-edge offering, Europe has the opportunity to **own its data transformation** and set up success for its 'Digital Decade' on the **global stage**

Europe's industrial strategy must …

…SEIZE THE OPPORTUNITY FOR GLOBAL TECHNOLOGY LEADERSHIP AT THE "EDGE(S)"…

…WHILE DIFFERENTIATING EUROPE'S VALUE PROPOSITION IN THE "CLOUD"

…AND BOOST ADOPTION AND DATA-LED INNOVATION THROUHGOUT INDUSTRIES



Energy

Public administration

Manufacturing

Health

Aerospace-defence

Mobility

…

Europe's next generation **cloud-edge offering** can build on three pillars

Become the global leader in transversal domains

1. CLIMATE NEUTRALITY AND RESOURCE EFFICIENCY
2. CYBERSECURITY
3. INTEROPERABILITY AND MULTI-PROVIDER SERVICES

By 2025, the European cloud-edge industry should be **globally renowned for its technological leadership, competitiveness and adoption** in these three fields, **shaping worldwide standards.**

Renew and expand infrastructure foundations across Europe

4. DATA CENTRE INFRASTRUCTURE
5. NETWORK INTEGRATION AND INTER-CONNECTIVITY
6. NEXT GENERATION CLOUD-EDGE FOUNDATION INFRASTRUCTURE

To meet targets for adoption, accessibility and Single Market integration, investments must increase the **density, efficiency of cloud and edge facilities** across Europe, improve **connectivity**, and optimize operations with best-in-class **operating and management software.**

Enable sovereign and sector-specific services to end-users

7. INFRASTRUCTURE SERVICES
8. PLATFORM SERVICES
9. APPLICATION & DATA SERVICES

European users should be in a position to choose cloud-edge services - from IaaS to SaaS - that meet their requirements for **openness, security, interoperability** and **data sovereignty**, and that **accelerate industry-specific use cases.**

They encompass **30 priority technologies & investment domains**, for an estimated public-private investment need of ~19 bn€ by 2025

Become the global leader in transversal domains

1	CLIMATE NEUTRALITY AND RESOURCE EFFICIENCY	Low carbon digital infrastructures
		Zero-carbon cloud-edge data storage & management
		Cross-industry decarbonization data platforms
2	CYBER - SECURITY	Zero trust identity management solution powered by AI
		Innovative data encryption technologies, incl. quantum safe encryption
		Automated SOC for faster detection and response to cyberattacks
		Secure access service edge
3	INTER - OPERABILITY AND MULTI-PROVIDER SERVICES	European standards for cloud services
		Multi-provider cloud-edge control plane & API framework
		Federated European cloud marketplace
		Cloud to edge reference implementation

Renew and expand infrastructure foundations across Europe

4	NEXT GENERATION DATA CENTRE INFRA - STRUCTURE	Increased density of cloud facilities
		Increased density of near & far edge facilities
		Retrofitting of data centres for improved energy efficiency and performance
		Advanced data centre infrastructure management
5	NETWORK INTEGRATION AND INTER-CONNECTIVITY	Network service technology ensuring performance at the edge
		Interconnectivity for European cloud and edge services
		E2E service orchestration and assurance across network and cloud
6	NEXT GENERATION CLOUD FOUNDATION INFRA-STRUCTURE	Cloud-edge infrastructure control plane
		Cloud and edge hardware design, integration and deployment
		Hardware acceleration for computationally intensive tasks on edge
		Multi-tenancy for edge hardware
		Edge hardware / software disaggregation

Enable sovereign and sector-specific services to end-users

7	INFRA-STRUCTURE SERVICES	Development of open standard/open-source cloud software stack
		Reference implementation for a 'telecom cloud' stack
		First deployments of advanced IaaS & PaaS services
8	PLATFORM SERVICES	End-to-end data pipelines and platforms
		Middleware and runtime capabilities
		Managed databases and custom operating systems for industrialization
9	APPLICATION & DATA SERVICES	Application services enabling development of edge use cases
		Pan-European data sharing platforms

NB: the roadmap's technology priorities only feature domains co-investment between public & private players. They do not feature technology that are assumed to be fully demand-funded.