

IoT and Edge Computing: Future directions for Europe

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Interactive Session on Enabling Technologies

The role of cloud – edge architectures for scenarios applying distributed ledger solutions in energy-related contexts

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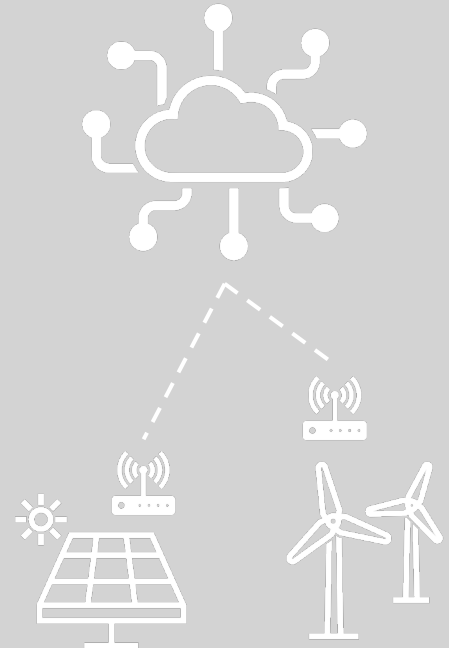
Energy, Blockchains and ... Cloud-Edge

- The energy sector represents a Critical Infrastructure that is facing challenges
 - Increased renewables penetration is causing instabilities to the power grids
 - Intelligent control leaves the door open to automation
 - Cyber attacks are more relevant as ever
- Blockchains are stellar examples of distributed ledgers. Use cases:
 - Data non-repudiation and security guarantees
 - Distributed identity schemes to avoid vendor lock-ins
 - Transactive energy approaches
- Real-time requirements: always pertinent
 - Cloud – Edge architectures coupled with 5G come to the rescue



The necessity for cloud-edge approaches

- Blockchain-related operations are usually computationally intensive
 - Field devices are generally not computationally capable
- Data security and confidentiality are key factors
 - Keep local data at local level
 - Enforce data sovereignty
- The role of cloud-edge architectures and 5G is crucial:
 - Offload computationally-intensive operations to the edge instead of the cloud
 - Blockchain gateways
 - Digital Twins



Towards a harmonized integration

- Digital twins appear to be good candidates to mitigate a lot of the issues
 - Lower communications latency
 - Faster development cycles → Faster evolution of services
 - Increased resilience
 - Local data keepers
- AI-Powered cloud-trained digital twins operate better at the edge!
 - Lower analytics latency
 - Closed-loop integration of analytics and local control

Cloud-Edge architectures coupled with 5G communications
actually empower
blockchain-powered energy networks.

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