LOM2M – Light OM2M Optimised IoT gateway/device stack for constrained devices

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Light OM2M stack for IoT constrained devices: LOM2M

› LAAS-CNRS
  • Research in IoT: performance, autonomic, fog, High performance, semantic
  • Real use cases => development of an IoT stack

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eclipse-OM2M 0.8
SmartM2M standard

oneM2M R1-R2 standard

LoM2M

Context of massive IoT:
  • Very low cost device: few memory, low frequency
  • Connect with IoT protocol: 5G, LPWAN
  • Dedicated hardware capabilities: data analysis, IA
  • Fog computing capabilities

=> New challenges
Overcome the limitations of OM2M

› Heavy stack for device and gateway – MN-CSE and ASN

- File system: 30 Mo
- Memory: JVM, OSGI, Jar – 400 Mo
- Execution performance: Java overload

› Need of modular CSE for ASN or MN
- Base module

TR0051: 70% resources and operations
Ecosystem of LOM2M

› Project dedicated to Industrial deployment
  • Cooperation with several companies
  • Valorization and Industrial Transfer between CNRS and Pilot things
    => Integration in Pilot Things IoT environment for smart city and industry 4.0

› On going
  • Smart city / smart campus use case:
    • Autonomous green vehicles use case:
      http://msiot.insa-toulouse.fr/fr/actia-chair/it-architecture-for-autonomous-vehicle.html

› Partnership in research and European projects
  • Contact: monteil@laas.fr
Some resources created in the team

› Mooc
  • English: open.insa-toulouse.fr
  • French: openclassrooms.com

› Fast prototyping with NodeRed:
  • https://homepages.laas.fr/monteil/drupal/content/node-red-ideom2m

› Python resources: open.insa-toulouse.fr

› Hackathons resources:
  open.insa-toulouse.fr

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