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oneM2M

**ONEM2M IOT SERVICE LAYER
A BRIEF INTRODUCTION**

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oneM2M IoT Service Layer A Brief Introduction

Roland Hechwartner, oneM2M TP Chair

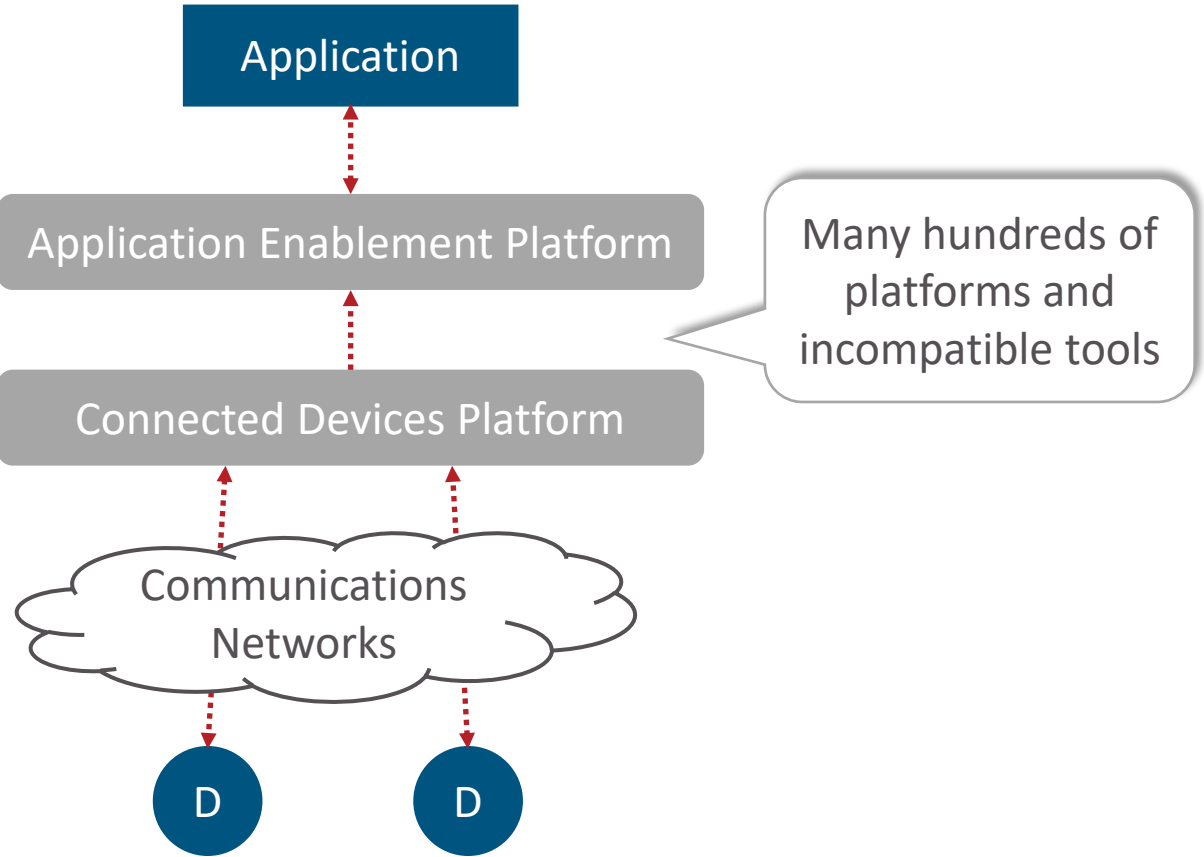
36th APT Standardization Program Forum (ASTAP-36)

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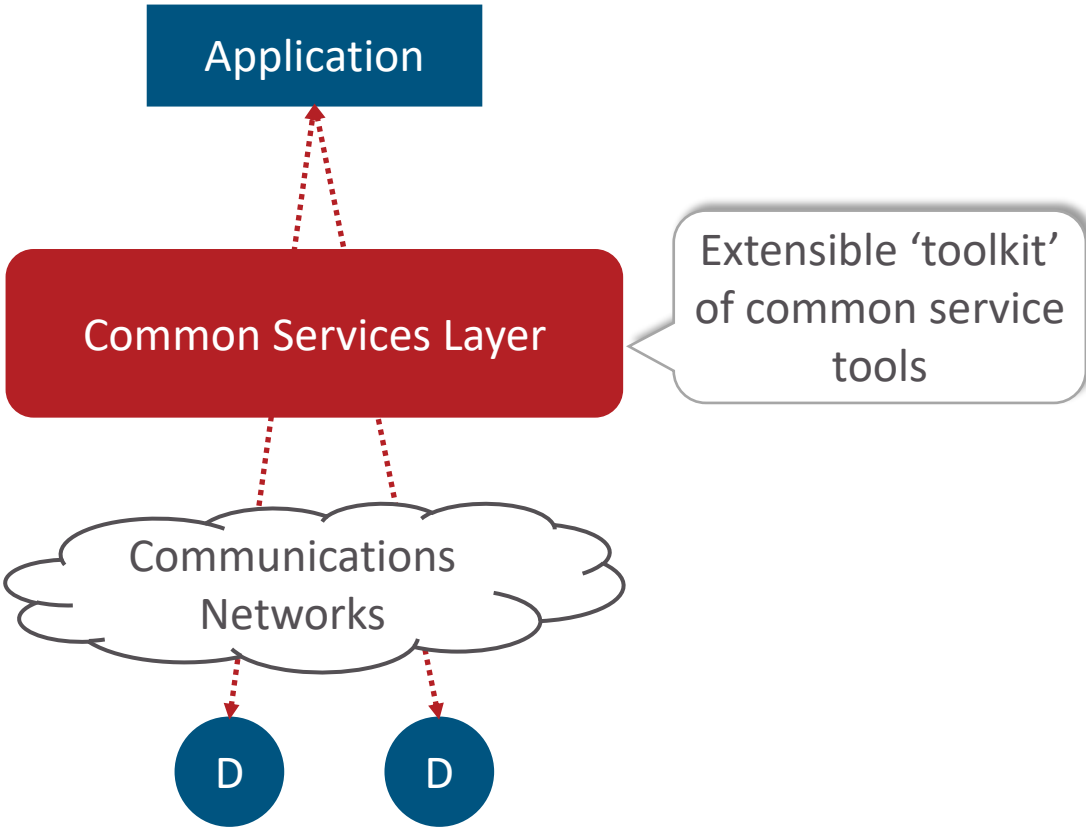
- To **Overcome the Fragmentation** in the IoT Space
- The **Common Service Layer Toolkit**
- **A little bit of history**: highlighting key-events
- **Insights** - Learnings from Deployments
- What's Next? - **Future Features**
- How To? – Pointer to **Tutorials**
- Takeaways

Developers use platform tools to build and support IoT systems

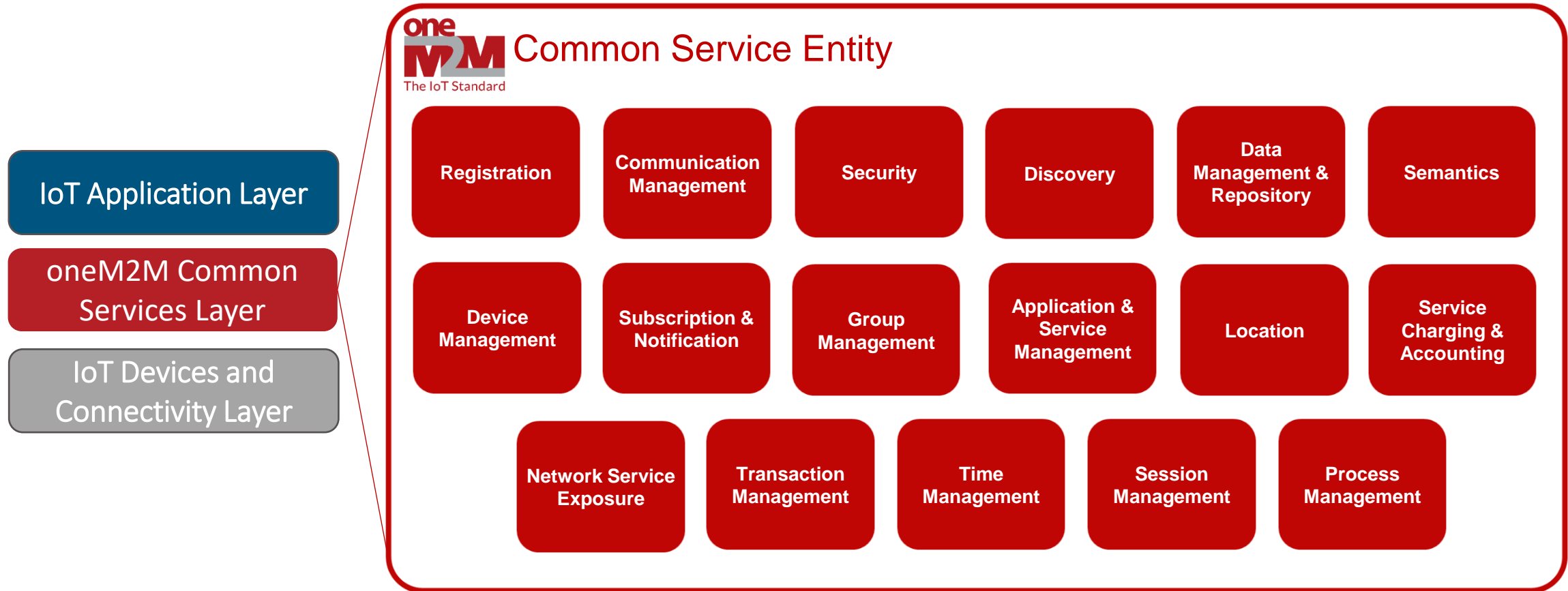
Traditional Market Structure



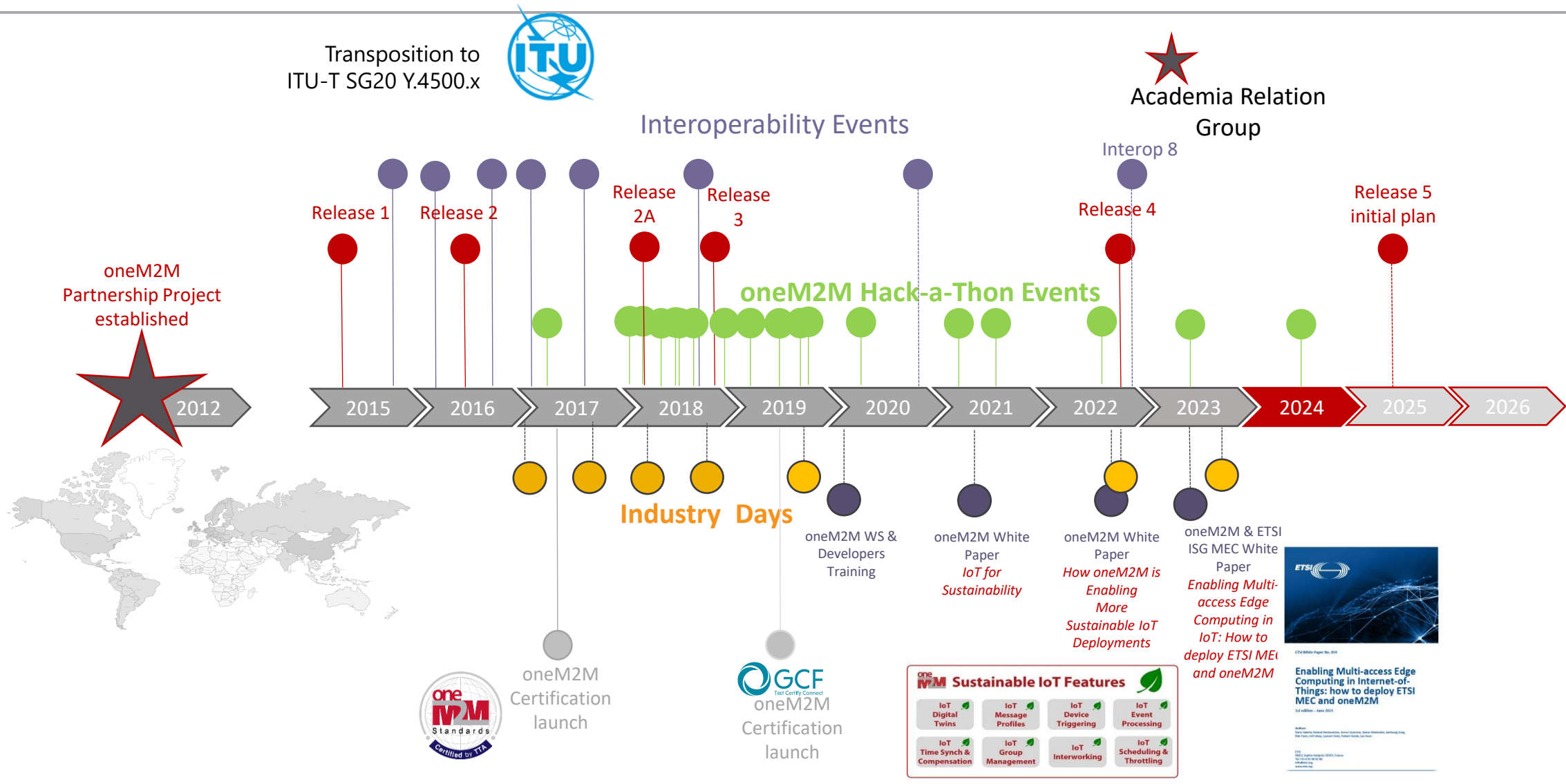
oneM2M's Standards-based Structure



oneM2M Common Services “Toolkit”



oneM2M Key-Events Timeline



Insights...



"oneM2M provides a very solid architectural foundation in terms of interfaces and data structures. It is built for interoperability and is very flexible."

Andre Dutra, Deutsche Telekom



"Using oneM2M, our data hub collects and links data for a hundred different services. We plan to export it to other local governments."

Seon-woo Yi, nTels



"oneM2M has been evolving continually and solutions to common problems faced by the IoT industry are incorporated quickly in its specifications."

Anupama Chopra, C-DOT



"We rewrote our proprietary system to use oneM2M's open standard and now operate at scale, meeting over 99% of our customers' reporting metrics and delivering over 3 billion meter reads daily"

Ray Bell, Aethoros

Deployments



Executive Viewpoints



oneM2M Future Feature development

Release 5



TECHNICAL REPORTS



REQUIREMENTS

TS-0002



TECHNICAL SPECS

- AI enablement
- Support of Data Protection Regulations
- Support of Data License Management
- Advanced Semantic Discovery
- Enablement of IoT in the metaverse
- Digital Twins Enablement in oneM2M
- Integrating NGSI-LD API in oneM2M
- Additional Interworking (e.g. OGC's Sensor Thing API)
- Enhanced Filter and Queries
- Enhanced Public Warning Service Enabler
- Effective IoT Communication to Protect 3GPP Networks (cont'd)

oneM2M Tutorials

The first set of the **oneM2M Tutorials using Jupyter Notebooks** is now online!

oneM2M Wiki

https://wiki.onem2m.org/index.php?title=OneM2M_Jupyter_Notebooks

YouTube

https://www.youtube.com/playlist?list=PLDd4EJmw5gUnA_d1RgYnxrOrYeYuHdH5u

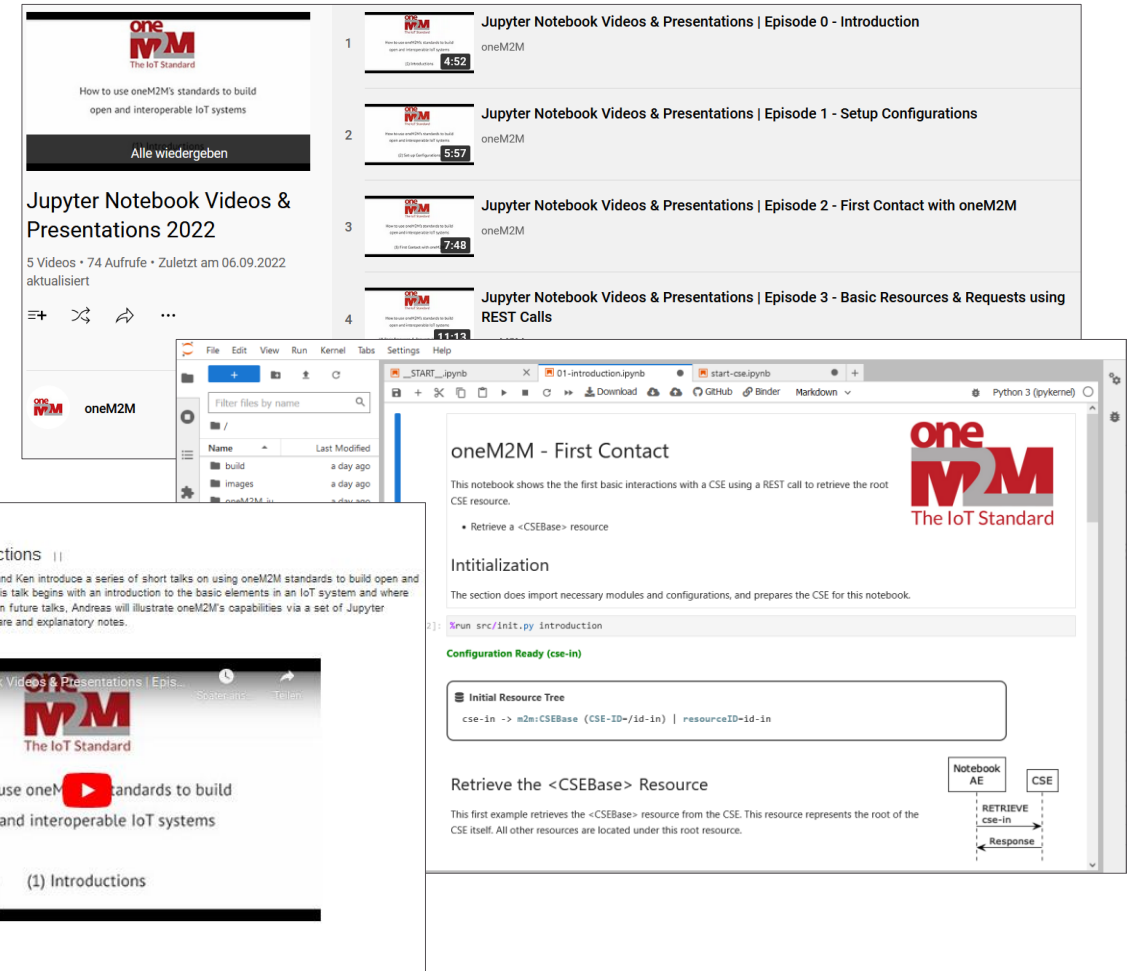
GitHub & Discussions

<https://github.com/oneM2M/onem2m-jupyter-notebooks>

<https://github.com/oneM2M/onem2m-jupyter-notebooks/discussions>

MyBinder Runtime

https://mybinder.org/v2/gh/oneM2M/onem2m-jupyter-notebooks/master?urlpath=lab/tree/_START_.ipynb



The collage displays the following content:

- Video Player:** A list of four episodes from the 'Jupyter Notebook Videos & Presentations 2022' series:
 - Episode 0 - Introduction (4:52)
 - Episode 1 - Setup Configurations (5:57)
 - Episode 2 - First Contact with oneM2M (7:48)
 - Episode 3 - Basic Resources & Requests using REST Calls (11:13)
- GitHub Repository:** A screenshot of the GitHub page for 'oneM2M', showing the repository name and a 'oneM2M' logo.
- Jupyter Notebook Screenshot:** A detailed view of the 'oneM2M - First Contact' notebook. It includes:
 - Initialization:** A section for importing modules and configurations.
 - Code Cell:** A cell with the command `!run src/init.py Introduction`.
 - Configuration Ready (cse-in):** A status message.
 - Initial Resource Tree:** A tree view showing the resource structure: `cse-in -> m2m:CSEBase (CSE-ID=/id-in) | resourceID=id-in`.
 - Retrieve the <CSEBase> Resource:** A section explaining the first example of retrieving the <CSEBase> resource via a REST call.
 - Diagram:** A diagram showing a 'Notebook AE' box sending a 'RETRIEVE cse-in' message to a 'CSE' box, which returns a 'Response'.

Takeaways

oneM2M

- is a global open standard, not controlled by a single private company
- specifies a common set of horizontal IoT services
 - architecture, common services functions,
- enables data interoperability
 - Information model, semantics, ontology-based interoperability
- interworks with existing IoT technologies
- has interoperability testing and a certification program
- standardized APIs simplify the life for IoT stakeholders
 - minimize development, deployment & maintenance costs
- is a mature and a commercially deployed technology

Join oneM2M

Work in progress on
oneM2M Release 5

Work commence on
oneM2M Release 6



Thank You!

Roland Hechwartner

Chair oneM2M Technical Plenary

Deutsche Telekom

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