DEPARTMENT OF INFORMATION TECHNOLOGY, CHANDIGARH ADMINISTRATION

5th Floor, Additional Deluxe Building, Sector 9-D, Chandigarh -160009
Phone: 0172-2740641, Fax: 0172-2740005

No.45/IT/2023/ 252 **Dated** 26.05.2023

System analyst to arrange a video meet with CDOT
2k
29.05.23

To

All Heads of Departments/Boards/Corporations
Chandigarh Administration.

Subject: **Use of CDOT's Standards-based IoT/M2M Platform.**

Kindly refer to the subject cited above.

In this regard, please find enclosed herewith the copy of D.O. No. 4-33/M2MGeneral/2020-NT, dated 05.05.2023 received from Sh. K. Rajaraman, Department of Telecommunications, Ministry of Communications, Government of India on the subject cited above, which is self-explanatory, for your information and necessary action please.

This is for your kind information & necessary action please.

Points discussed with CDOT be circulated to all HOD's for information.
2k
09.06.23
SA

for Director, Information Technology,
Chandigarh Administration

25/5/23

Endst No.45/IT/2023/ 253-254 **Dated** 26.05.2023

A copy is forwarded to:

1) PS/AA for the kind information of the officer please.
2) PA/HS-cum-SIT for the kind information of the officer please.

for Director, Information Technology,
Chandigarh Administration

25/5/23

R. Rajaraman, IAS
Secretary

सत्यमेव जयते

Government of India
Ministry of Communications
Department of Telecommunications

Adviser to the Administrator
No. 936810 PA/AA
Dated 12-05-2023

Azadi Ka Amrit Mahotsav

D.O. No. 4-33/M2MGeneral/2020-NT
Dated: 5th May 2023

Subject: Use of CDOT's Standards-based IoT/M2M Platform

PA/HS/ 936810
Dated 15-05-2023

Dear Chief Secretary,

At the outset, I compliment the efforts being made by your State in adopting the use of automation to increase work efficiency and cut unnecessary costs, leaving more to invest in enhancing citizen experience when it comes to public services. In this regard, I would like to make a special mention of M2M/IoT Communication Services which is being widely used to create smart infrastructure in various verticals such as power, automotive, safety and surveillance, remote health management, agriculture, smart homes, Industry 4.0, and smart cities, to name a few, using connected devices.

2. You might be aware that Centre for Development of Telematics (C-DOT), the Telecom R&D unit of the Department of Telecommunications, Govt. of India has been one of the largest contributors to oneM2M which is the Global Standards for Internet of Things/Machine to Machine Communications (IoT/M2M). This standard (both Release 2 and Release 3) has been adopted as National Standard by TEC (Telecom Engineering Centre, Department of Telecommunications) after wide consultation with the industry, academia, Govt. departments and Standard Development Organizations (SDOs). The Office Memorandums are enclosed as **Annexure-A.** This standard is also the foundation of the IoT Systems Part One - Reference Architecture Standard (IS 18004) published by the Bureau of Indian Standards (BIS).

3. The standardization of the IoT/M2M ecosystem in India will significantly reduce numerous problems like interoperability, security, data sharing, changing vendors etc. faced by the IoT/M2M ecosystem in the country. It would enable users and application service providers in various domains like Smart Cities, Smart Grids and Meters, Transportation, Health, Energy, Water Resources, Waste Management etc. to use "vendor agnostic" end-to-end interoperable IoT/M2M platforms. A brief background about oneM2M standards, and its major benefits, is given in **Annexure-B.** The mention of oneM2M standard in the RFPs as a mandatory requirement is advisable. Such a mandate would prove to be a catalyst in the modernization of the state infrastructure and would also fulfill the mission of 'Atmanirbhar Bharat' since this would enable indigenous standards-based solutions to be onboarded on the platform.

4. I would also like to mention that C-DOT has also developed an IoT/M2M Platform based on oneM2M standards which is called CCSP (C-DOT Common Service Platform). Compliance with the IoT Reference Architecture Standard can be comprehensively achieved through CCSP and any application which is oneM2M standards compliant can very easily be integrated with it. CDOT has also established a Center of Innovation for IoT/M2M, where it is mentoring the startup ecosystem to convert their solutions to standards-based solutions by integrating with CCSP. The existing solution providers of your state may be asked to register in the same.

संचार भवन, 20, अशोका रोड, नई दिल्ली-110001 / Sanchar Bhawan, 20, Ashoka Road, New Delhi-110001
Tel.: +91-11-23719898. Fax : +91-11-23711514. E-mail : secy-telecom@gov.in

5. I therefore request you to consider the following:

i. Direct State departments to specify compliance with oneM2M standards in their RFPs as a mandatory requirement to ensure safe and secure standards-compliant IoT/M2M solutions as part of procurement tenders.

ii. Direct State departments to deploy secure IOT devices from trusted sources compliant with the TEC Code of Practice for Securing Consumer Internet of Things (IoT) TEC 31318:2021 and specify the same in tenders.

iii. Encourage use of the CCSP platform in the state IOT based projects. Ms. Shikha Srivastava, Director, CDOT (Mo. 98105-83833, Email- dirtd2@cdot.in) can provide the necessary support.

With regards,

Yours Sincerely,

5/7/2023

(K. Rajaraman)

Encl: as above.

To,

Chief Secretaries of all States/Administrators of UTs

Annexure A

सत्यमेव जयते

भारत सरकार
दूरसंचार विभाग
दूरसंचार अभियांत्रिकी केन्द्र
खुर्शिद लाल भवन, जनपथ, नई दिल्ली–110001

Government of India
Department of Telecommunications
Telecom Engineering Centre
Khurshid Lal Bhawan, Janpath, New Delhi-110001

Office Memorandum

No. 19-1/2019-STD/TEC/2

Dated: 17.09.2020

Subject: Adoption of TSDSI transposed OneM2M (Release 2) specifications as National Standards by TEC

TSDSI, as partner type 1 of oneM2M has transposed oneM2M (Release 2) specifications[1] totalling 27 documents in numbers and had provided to TEC for adoption as national standards by TEC. These specifications address the need for common M2M service layer that can be readily embedded within various hardware and software, and relied upon to connect the myriad of devices in the field with M2M application servers worldwide. These transposed documents cover oneM2M functional architecture, requirements, Service layer control protocols, Management enablement etc.

These specifications have been processed for adoption as per the process defined in the "Standardization Guide – A policy document for adoption of the domestic/international standards into national standards" notified as per O.M. No. 2-1/2018/SD/TSDSI/TEC/5 dated 8th May 2020. These standards were initially circulated to all the stakeholders for the public consultation. Then, the Consultative Committee (CC) on oneM2M under chairmanship of DDG (IOT), TEC and other members from industry, academia, government, R&D organizations, SDOs etc. have examined the specifications w.r.t. public comments and inclusion of national requirements. Subsequently, Telecom Standards Advisory Committee (TSAC) has recommended adoption of these standards as identical adoption as per ISO/IEC Guide 21-1 (except TS-007, TS-0021 and TS-0024). The competent authority has approved adoption of these TSDSI transposed oneM2M specifications as national standards for IoT/M2M ecosystem in India.

Internet of Things (IoT) division of TEC is requested to take further necessary action for allocation of number, publication, presentation etc. of these standards as per the Standardization Guide in consultation with Regional Coordination (RC) Division.

This has approval of Sr. DDG TEC.

17/09/2020

(Premjit Lal)
Dir (Standardization)

To,

1. DDG (IOT), TEC, K.L. Bhawan, New Delhi for necessary action.
2. DDG (RC), TEC, K.L. Bhawan, New Delhi.
3. DDG (IT) TEC, K.L. Bhawan, New Delhi with a request to upload on the TEC website.
4. ED, CDOT/ DG TSDSI, New Delhi.

Copy for kind information to:

1. Member (S)/Member(T), Digital Communications Commission, Sanchar Bhawan, N. Delhi.
2. Sr. DDG & Head TEC K.L. Bhawan, New Delhi.
3. All DDGs/Directors/ADGs, TEC, K.L. Bhawan, New Delhi.

[1] (Available at https://tsdsi.in/onem2m/)

सत्यमेव जयते

भारत सरकार
दूरसंचार विभाग
दूरसंचार अभियांत्रिकी केन्द्र
खुर्शीद लाल भवन, जनपथ, नई दिल्ली–110001

Government of India
Department of Telecommunications
Telecom Engineering Centre
Khurshid Lal Bhawan, Janpath, New Delhi-110001

Office Memorandum

No. 19-01/2020-STD/TEC Dated:01.08.2022

Subject: Adoption of TSDSI -Transposed from OneM2M Release-3 - as National Standards.

TSDSI, as a partner of OneM2M had submitted OneM2M Release-3 specifications [1], consisting of totaling 27 documents in numbers (TSs-24 & TRs-03) to TEC for adoption/ratification as national standards.

These specifications have been processed for adoption as per the "Standardization Guide – A policy document for adoption of the domestic/international standards into national standards" notified as per O.M. No. 2-1/2018/SD/TSDSI/TEC/5 dated 8th May 2020. These standards were initially circulated on 17.06.2021 to all the stakeholders for the public consultation. Then, a Consultative Committee (CC) on OneM2M Release-3 standard under chairmanship of DDG (IoT), TEC and other members from industry, academia, government, R&D organizations, SDOs etc. have examined the specifications w.r.t. public comments and inclusion of national requirements. Subsequently, Telecom Standards Advisory Committee (TSAC) has recommended adoption of OneM2M Release-3 standard without any changes ("identical adoption").

The competent authority has approved adoption of these TSDSI transposed OneM2M Release-3 standard (24 TS documents) as National Standard without any changes ("identical adoption") and 3 TR documents be published as Technical Report on TEC website.

IoT division of TEC is requested to take further necessary action for allocation of number, publication, and presentation etc. of these standards as per the Standardization Guide in consultation with Regional Coordination (RC) Division.

01.08.22

(Bankesh Kumar Sinha)
Assistant Director (S)
(adgs.tec-dot@gov.in)
Ph: 011-23310437

To,

1. DDG(IoT), TEC, K.L.Bhawan, New Delhi for necessary action.
2. DDG(RC), TEC, K.L.Bhawan, New Delhi.
3. DDG(IT), TEC, K.L.Bhawan, New Delhi with a request to upload on TEC website.
4. DG TSDSI.

Copy for kind information to:

1. Member(Services), Digital Communications Commission, Sanchar Bhawan, New Delhi.
2. Member(Technologies), Digital Communications Commission, Sanchar Bhawan, New Delhi.
3. Sr. DDG & Head TEC K.L.Bhawan, New Delhi.
4. All DDGs/Directors/ADGs, TEC, K.L.Bhawan, New Delhi

1.(https://tsdsi.in/onem2m)

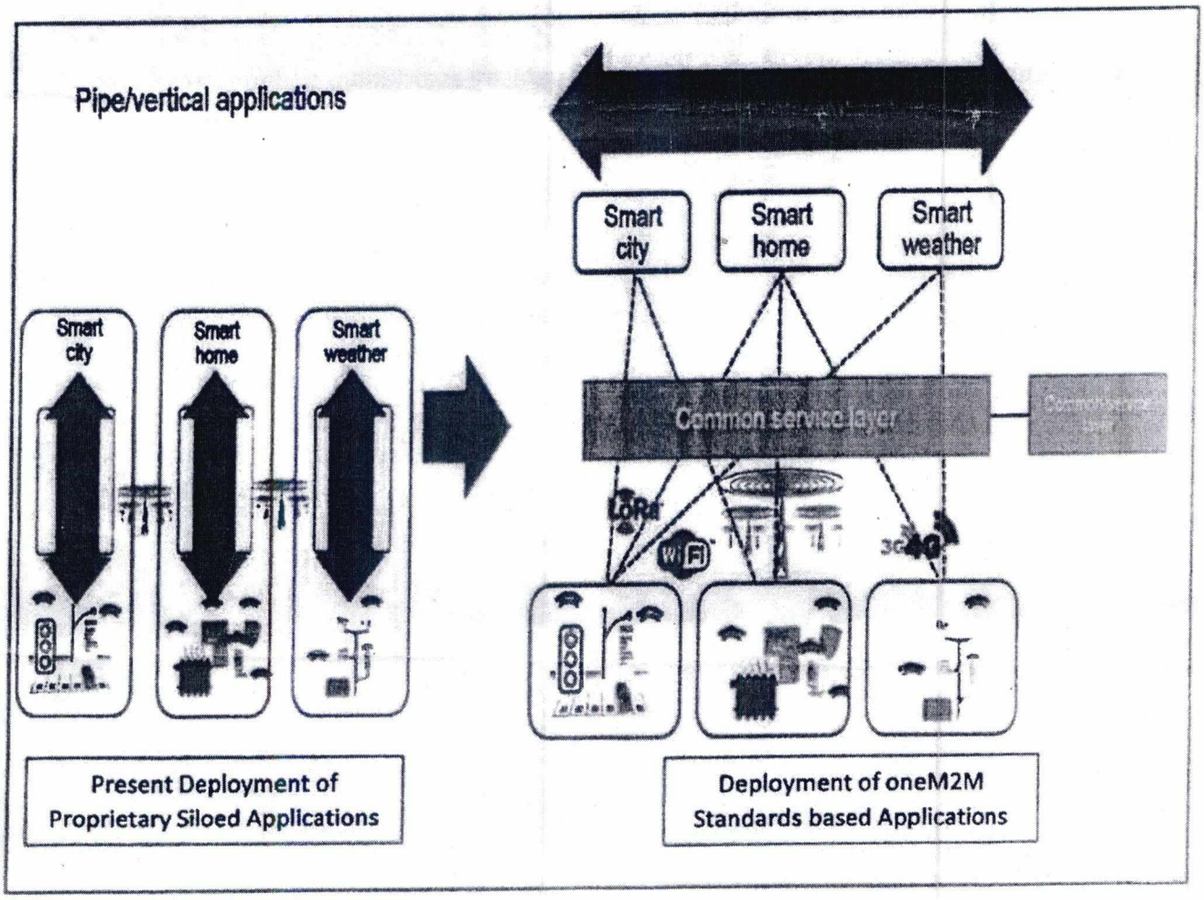
Annexure B

oneM2M and its benefits

The Current Scenario of IoT Application Deployment

The deployment of IoT applications so far have been happening using proprietary software and protocols as depicted in the left-hand side of the figure below. Smart City IoT applications have also been deployed in the same fashion under proprietary Smart City Platforms. This has created a situation of vendor-lock-in which resulted into lack of data sharing among divergent applications, device and software interoperability challenges among many other issues.

The oneM2M standard specifies a horizontal Common Service Layer architecture which breaks the silos as this sits between the devices and applications and allows communication using a standardized set of interfaces and APIs. This solves majority of the issues that exist in case of proprietary solutions.



About oneM2M

oneM2M is the global standards initiative that covers requirements, architecture, API specifications, security solutions and interoperability for Machine-to-Machine and IoT technologies. oneM2M was formed in 2012 and consists of the following eight of the world's preeminent Standards Development Organizations (SDOs):

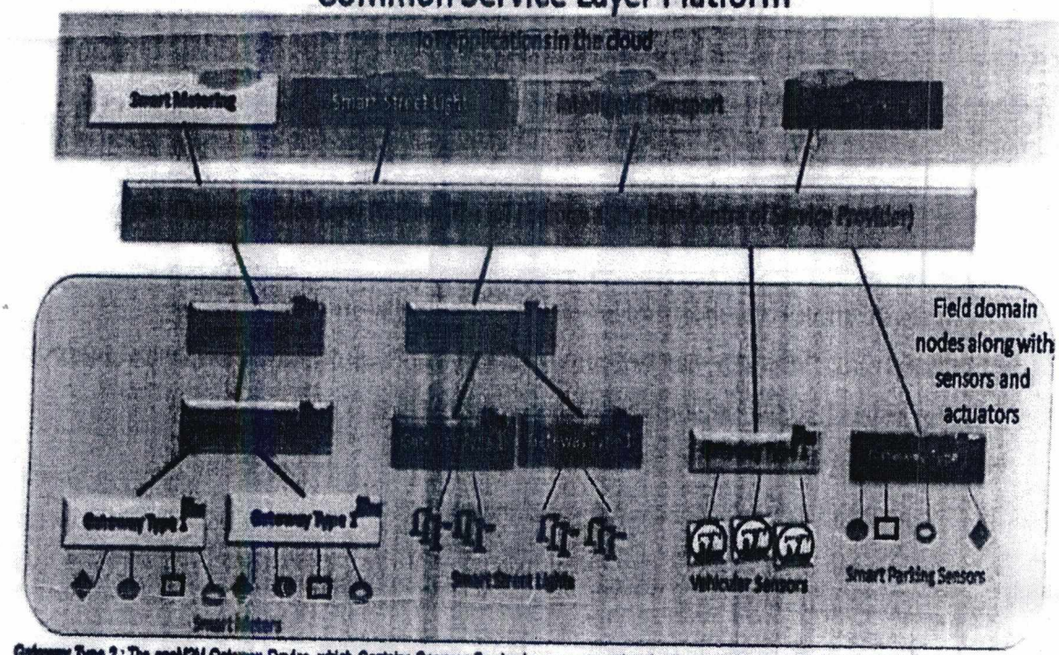
- ARIB (Japan),
- ATIS (U.S.),
- CCSA (China),
- ETSI (Europe),
- TIA (U.S.),
- TSDSI (India),
- TTA (Korea), and
- TTC (Japan),

The above SDOs along with industry fora or consortia (GlobalPlatform) and over 200 member organizations contribute in framing the oneM2M specifications which provide a framework to support applications and services such as the smart grid, connected car, home automation, public safety, and health. oneM2M actively encourages industry associations and forums with specific application requirements to participate in oneM2M, in order to ensure that the solutions developed support their specific needs

Deployment of IoT Applications using oneM2M Standards based Common Service Layer

The following diagram presents the deployment scenario for variety of applications based on oneM2M Common Service Layer. The sensors/actuators like Smart Meters, Smart Street Lights, Vehicular Sensors, Parking sensors etc. get connected to the respective Gateways using any kind of wireless connectivity like Bluetooth, LoRa, ZigBee or Wired connectivity.

IoT Application Deployment using oneM2M Standards based Common Service Layer Platform



Gateway Type 2 : The oneM2M Gateway Device which Contains Common Service Layer component and optionally applications [Defined as Middle Node in oneM2M]
Gateway Type 1 : The oneM2M Device that contains applications which interface with sensors/actuators [Defined as Application Dedicated Node in oneM2M
—— Interface specified in oneM2M Standard

The oneM2M compliant field domain application on these Gateways would send the data to the oneM2M based Common Service Platform. The data consuming applications for the various domains hosted on the cloud would be collecting the data from the Common Service Layer Platform received from the respective sensors in a secured manner for visualization, analysis or for taking some actions. This architecture ensures that only authorized and authenticated devices and applications are able to communicate. It also makes it possible to share the data among divergent applications without the need for additional layer of software.

The Common Service Layer mentioned here is a horizontal layer of functions commonly needed across different market segments / not segment-specific. This is similar to generic versus use case-specific computer/OS in early times of computers. It would enable the industry to develop Standard based Applications which would reduce the development, test and deployment lifecycles.

By deploying the Standards compliant Common Service Layer Platform, M2M Service Providers can offer wide range of services developed by the industry.

It can also play a pivotal role in the Smart City Projects by having this platform which would ease the development efforts of the application providers offering solutions for smart city project.

Major benefits of oneM2M Standards

Following are the major benefits of oneM2M Standards:

1. The development of new innovative applications would be much easier due to well defined standards. This would be immensely beneficial even for smaller organisations/start-ups.
2. Interoperability of devices and applications would become possible due to standardized interfaces
3. Only authenticated and authorized devices would be able to communicate
4. Information and statistics regarding the IoT devices and applications would be available
5. Resource utilization can be monitored by the authorities
6. Regulations, KYC can be enforced
7. Data Security and Privacy concerns are addressed
8. Data sharing would be feasible in a standardized way among divergent applications
9. Integration of innovative applications across domains would be much easier
10. Device Management becomes easy
11. Certification would become feasible (with standardized test suites) for
    a) Devices: Ecosystem of Certified products ensuring interoperability, trust
    b) Applications: Sharing of data, interworking, Security
    c) Services: Compliance

SCBM