

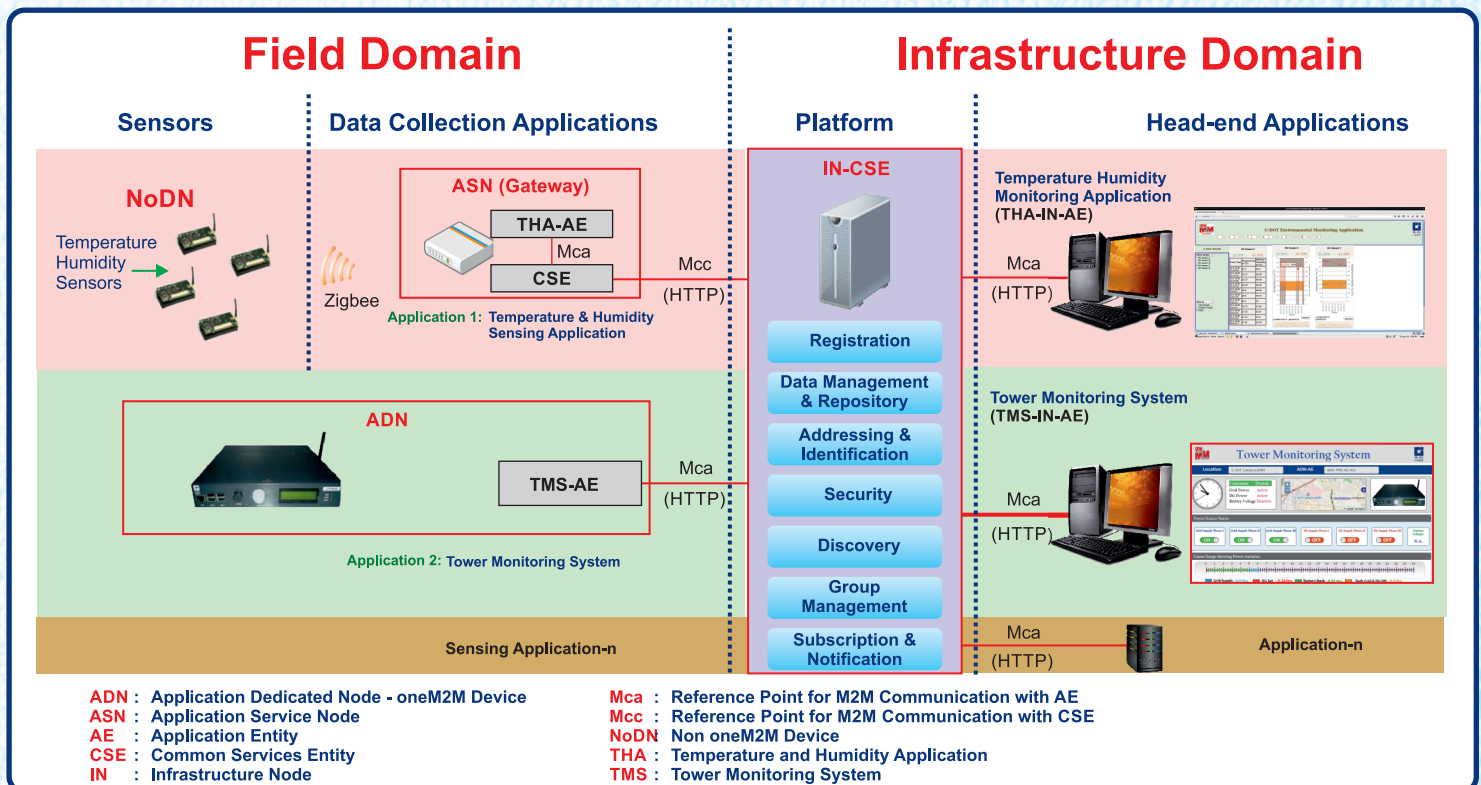
# C-DOT Common Service Platform (CCSP) for M2M Communication



Machine-to-Machine (M2M) communication is a form of data communication that involves one or more entities that do not necessarily require human interaction or intervention in the process of communication.

**C-DOT provides CCSP-M2M communication platform solution, comprising of oneM2M standards based ADN, ASN and IN nodes.**

**oneM2M - The Machine 2 Machine communication standards** - oneM2M is a global standards initiative for Machine to Machine (M2M) communications and the Internet of Things (IoT). 8 of the world's leading ICT standard bodies, 7 Global fora and SDOs, over 200 companies from industrial sector are part of oneM2M. It is developing globally agreed-upon, access- independent, end-to-end specifications for an M2M communications and management system, which addresses the need for a 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.



## CCSP for M2M provides

- Interoperability
- Standardisation
- Reduced Dependence of Application on device vendors
- Scalability
- Security
- Flexibility

## The Nodes Involved are:

- **Infrastructure Node – IN** - A software

platform to make M2M devices/applications i.e. data producers and consumers to communicate with each other in a secure and efficient manner on a horizontal Common Service Layer.

- **Application Service Node - ASN (Gateway)**- Contains Application and Common Service Layer.
- **Application Dedicated Node - ADN** - Contains Application only.
- **M2M Application Solution** - Temperature and Humidity monitoring application, Tower Monitoring System.



## CCSP Solution Set

- CCSP for the field domain nodes : M2M Device and the M2M Gateway i.e ASN- Application Service Node and MN – Middle Node
- CCSP for the Infrastructure domain node - Infrastructure Node (IN).

To enable the application developer, CCSP also provides the Java based SDK (Software Development Kit). It also supports Visual Resource tree viewer tool.

## Features and Benefits of C-DOT M2M Platform

- A software layer which sits between M2M applications and communication HW/SW.
- Rides on top of IP network.
- Provides functions that M2M applications across different industry segments commonly need. These functions are exposed to applications via IT friendly APIs. (CRUD - Create, Retrieve, Update, Delete) operations.
- RESTful (Representational State Transfer) resource oriented APIs.
- XML and JSON data format support.
- HTTP and CoAP Transport Layer binding support.
- Reduces Application development, test and deployment lifecycles through focusing on core business (application logic).
- Common Service Layer Functionalities available in C-DOT Infrastructure Node Platform are:
  - ◆ Registration
  - ◆ Security
  - ◆ Data Management and Repository
  - ◆ Discovery
  - ◆ Addressing & Identification
  - ◆ Group Management
  - ◆ Subscription and Notification

**With C-DOT's ADN and ASN (Gateway) hardware and common service software and IN node, applications get a platform to host their application entities easily and quickly.**

### C-DOT Common Service Platform for M2M Communication

#### Lower CAPEX

- Lower complexity of the M2M solution development thus reduces development cost.
- Standardized protocols & APIs which reduces M2M application development cost.
- Standards based development ensures easy interfacing thus reduces integration cost.
- Use of OneM2M Service Layer simplifies testing and interworking of components (device/server side).
- Faster application deployment reduces the deployment cost.

#### Lower OPEX

- Various components/devices are identical in nature and may differ in their access technologies i.e. ZigBee, Bluetooth, M-bus, Zwave etc. and thus data models. Any new component having any access technology can be integrated.
- Same service layer for different verticals - Reduces cost of operation.
- Possibility to share infrastructure with other verticals thus reducing infrastructure cost.



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