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Technical Report

**Machine-to-Machine communications (M2M);
Use Cases of M2M applications for Connected Consumer**

Reference

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Keywords

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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Machine-to-Machine communications (M2M).

The present document may be referenced by other TRs and Technical Standards (TS) developed by ETSI TC M2M. The present document is a TR and therefore, the content is informative, but when the present document is referenced by a TS, the referenced clauses may become normative with respect to the content of the referencing TS.

1   Scope

The present document includes Use Case descriptions for Connected Consumer applications in context of Machine-to-Machine (M2M) communications. The described Use Cases will be used to derive service requirements and capabilities of the functional architecture specified in ETSI TC M2M.

2   References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

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2.1   Normative references

The following referenced documents are necessary for the application of the present document.

Not applicable.

2.2   Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

Not applicable.

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the following terms and definitions apply:

connected consumer: generic terminology describing a class of applications that serve the purpose of improving life style of human in the aspects of conveniences and entertainments by means of the communication capability embedded consumer electronics and consumer devices in the terms of Machine-to-Machine technology

3.2   Abbreviations

For the purposes of the present document, the following abbreviations apply:

CE   Consumer Electronics
M2M   Machine-to-Machine (Communications)
MMS   Multimedia Messaging Service
SMS   Short Message Service

4   M2M Use Cases for connected consumer

"Connected Consumer" referred to in the present document is a human equipped with communication means that allow monitoring and controlling of devices, and possibly sharing contents with other humans, via M2M applications.

Use Cases described below extend from leisure Use Cases to security Use Cases, and also include home automation Use Cases.

4.1   Use Case 1: Photo uploading from still camera

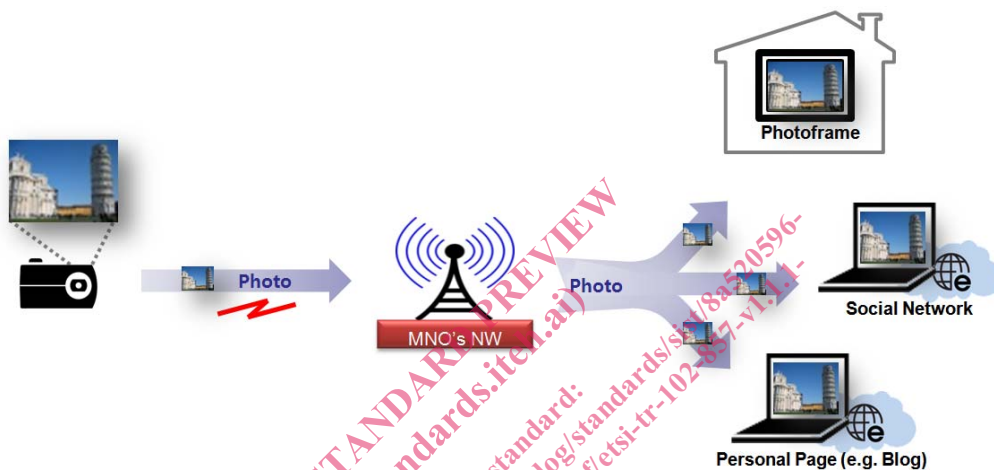### 4.1.1   General Use Case Description

Figure 1: Photo uploading from still camera use case

This clause describes the use case where a user is uploading a picture to social networks and also to a photoframe at home.
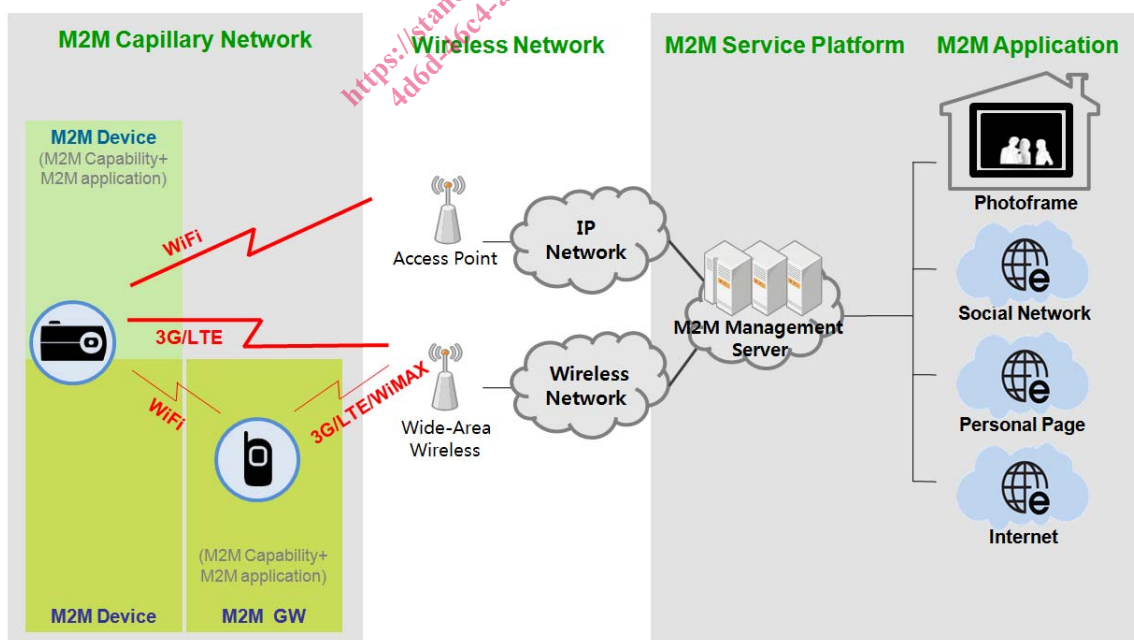

Figure 2: Generic framework for data uploading

4.1.2 Stakeholders

Holiday maker: The "holiday maker" is an individual, who could use the still camera with uploading capabilities to upload photos from his/her holidays to different social networking websites he/she is subscriber and also at a photoframe device that is residing at his/her house. This way other friends and family members will be able to see the photo instantaneously as it appears.

Still camera with uploading capabilities: Digital camera with uploading capabilities which acts like an M2M device with wireless network capabilities, user interface and interface into the M2M network. The device takes photos and uploads them to the different social networks the user is subscribed to or to photoframe where the user wants to send the pictures. Low power, low complexity protocols are likely required for these devices.

M2M service capability provider: Network entity that provides M2M communication services to the M2M application entities. These applications may support specific functional capabilities which assist in facilitating uploading of pictures from the still camera M2M device to the network. Additionally, the M2M service capability provider communicates with the social networking websites and the photoframe in order to adapt the photo to the requirements that are needed to be displayed at each one of them.

M2M application entity: Term created to bundle together, and treat as a single system element, stakeholders above the M2M scope. High-level application such as social networking websites, photoframe devices etc that receive the photos from the M2M service capability provider and display them for consumption by third party users (e.g. friends of the holiday maker).

Friends of the holiday maker: These are individuals, who are able to access the application entity either virtually e.g. through a website or physically if they are in the close proximity of the photoframe and they are able to see the photos that have been uploaded from the holiday maker.

4.1.3 Scenario

Initialization

The still camera with M2M device capabilities is attaching to the wireless network and performs registration in the M2M system. Registration includes the capability to maintain information describing the still camera device capabilities (e.g. model type, resolution etc), the user of the device, and the M2M application that will be used in order to display the data (e.g. social networking website-1, social networking website-2). For example, this may include registering the device with the manufacturer or data intermediary and performing other functions to uniquely identify the device. Registration may also include registering data that can be used to verify the state of the still camera by the M2M service capability provider.

Photo uploading

The photo uploading includes the tasks that the holiday maker takes a photo or even selects a photo from its already stored album photos and selects to upload it to a number of social networking websites that is subscribed to and also the photoframe that is at his/her home. The holiday maker after it selects the photo he/she wants to upload then chooses the appropriate destinations (e.g. social networking website-1, social networking website-2, my photoframe). Then he/she starts the uploading of the photo procedure.

Photo Display

The M2M service capability entity after it receives the photo from the still camera with M2M device capabilities and the destinations it is required to upload the photo, it adapts the photo to appropriate specifications for it to be displayed in the right format e.g. file type , resolution etc. Then it sends the photo to the appropriate M2M application entities that have been indicated in the destination list. The M2M application entities that are indicated display the photo in the right format and the friends of the holiday maker are able to access it and see it.

4.1.4   Information Exchanges

Registration

The still camera with M2M device capabilities is attaching to the wireless network and performs registration in the M2M system. Registration includes the capability to maintain information describing the still camera device capabilities (e.g. model type, resolution etc), the user of the device, and the M2M application that will be used in order to display the data (e.g. social networking website-1, social networking website-2). For example, this may include registering the device with the manufacturer or data intermediary and performing other functions to uniquely identify the device. Registration may also include registering data that can be used to verify the state of the still camera by the M2M service capability provider.

Photo Uploading

Capability to upload the photo to the M2M system from the still camera device with M2M capabilities.

Data Delivery

Capability to securely deliver data to the intended device (e.g. photoframe) or M2M application entity (e.g. social networking website) in the appropriate format and confirm delivery.

4.1.5   Potential new requirements

No potential new requirements identified.

4.2   Use Case 2: Contents download to eBook reader device

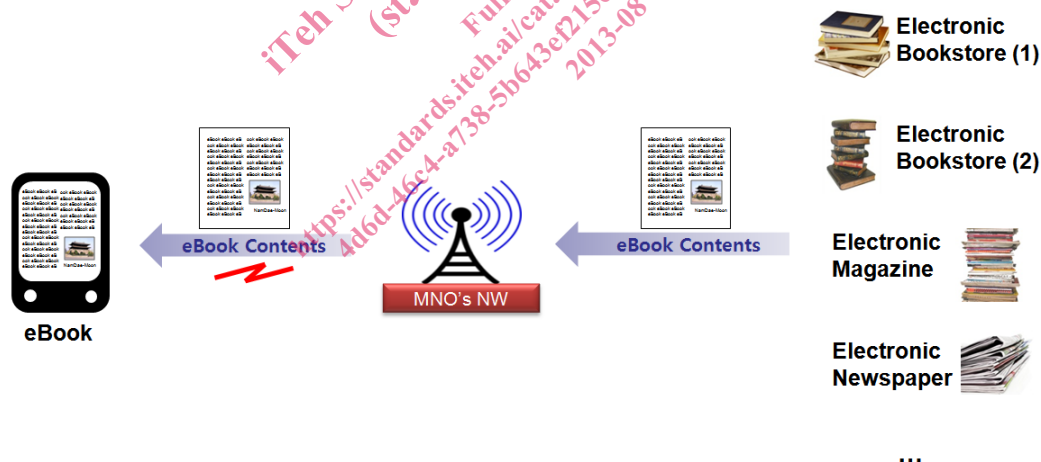### 4.2.1   General Use Case Description

Figure 3: Electronic book download to eBook reader device

This clause describes the use case where a user is downloading books, magazines, or newspaper content in an eBook reader device from several suppliers e.g. electronic bookstores or content providers.
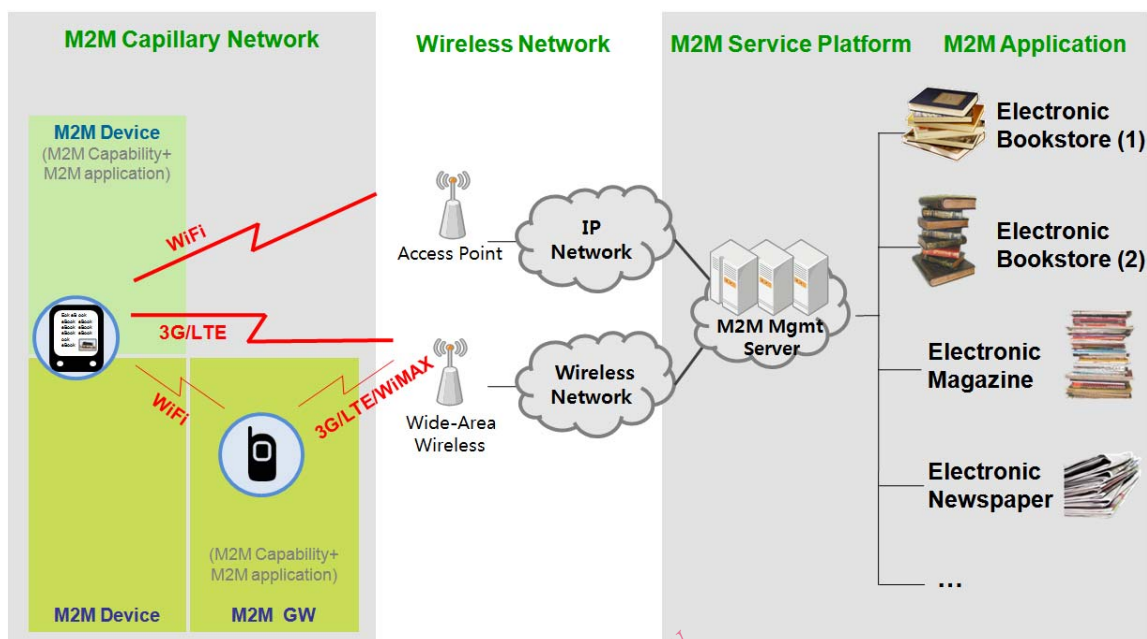
Figure 4: Generic framework for data downloading

4.2.2   Stakeholders

Book reader: The "book reader" is an individual, who could use the eBook reader device with downloading capabilities to content e.g. book or magazine material from different electronic bookstores or newspapers/magazines he/she is subscriber.

eBook reader device with downloading capabilities: eBook reader device with downloading capabilities which acts like an M2M device with wireless network capabilities, user interface and interface into the M2M network. The device downloads content from different content supplier websites, stores it and displays it to the book reader. Low power, low complexity protocols are likely required for these devices.

M2M service capability provider: Network entity that provides M2M communication services to the M2M application entities. These applications may support specific functional capabilities which assist in facilitating downloading content e.g. book material, news content, magazine articles. Additionally, the M2M service capability provider communicates with the third parties that supply the content in order to adapt the content to the requirements that are needed to be displayed to the type of eBook reader device that is downloading the content.

M2M application entity: Term created to bundle together, and treat as a single system element, stakeholders above the M2M scope. High-level application such as electronic bookstore websites, electronic news content suppliers etc that supply the content to the eBook reader device with M2M device capabilities.

4.2.3   Scenario

Initialization

The eBook reader device with M2M device capabilities is attaching to the wireless network and performs registration in the M2M system. Registration includes the capability to maintain information describing the eBook reader device capabilities (e.g. model type, resolution, file format, screen type etc), the user of the device, and the M2M application that will be used in order to display the data (e.g. bookstore-1 or newspaper-2). For example, this may include registering the device with the manufacturer or data intermediary and performing other functions to uniquely identify the device. Registration may also include registering data that can be used to verify the state of the eBook reader device by the M2M service capability provider.