Lesson 6
Extensible Messaging and presence (XMPP) protocol

Extensible Mark up Language (XML)

- An open source popular language which uses the markups
- Markup means marking by some signs and characters or tags so specify the contents between the markups.

XML

- Markup can be at the beginning as well as end of the contents within. Each markup in XML language has text within a pair of tag and end-tag.
- For eaxmple, <Contact_Name> Raj Kamal </Contact_Name)

Example of an XML message

- <SensorTemp ID = ‘250715’ TimeDate = ‘19:28:33 Jul 17 2015’> 22 </SensorTemp>.
- Java or C++ or other langauge Parser reads the XML and finds that sensor of ID = 250715 had T = 22 C on 17.07.2015 at 19:28:33

XMPP

- XMPP specifies the Instant Messaging (IM) and Presence,
- RFCs are for Internet, protocols, procedures, programs, and concepts and other related aspects
- RFC 6122 XMPP specifies the Address format

Assignments of RFC to Protocol

- Request for Comment (RFC): an IETF publication assigns number, such as RFC 6120, which later adopted as Standards.
- RFC document series contain technical and organizational notes

XML based XMPP (Extensible Messaging and Presence Protocol)

- XML is open source IETF recommend language
- XMPP also an open source protocol accepted by IETF. RFC 6120 standardisation document specifies XMPP **CoRE,** RFC 6121

XMPP

- Enables communication
- Interoperable, for example, Google Talk.
- XMPP enables IMs (Instant Messaging) between many using presence notification and Chat features

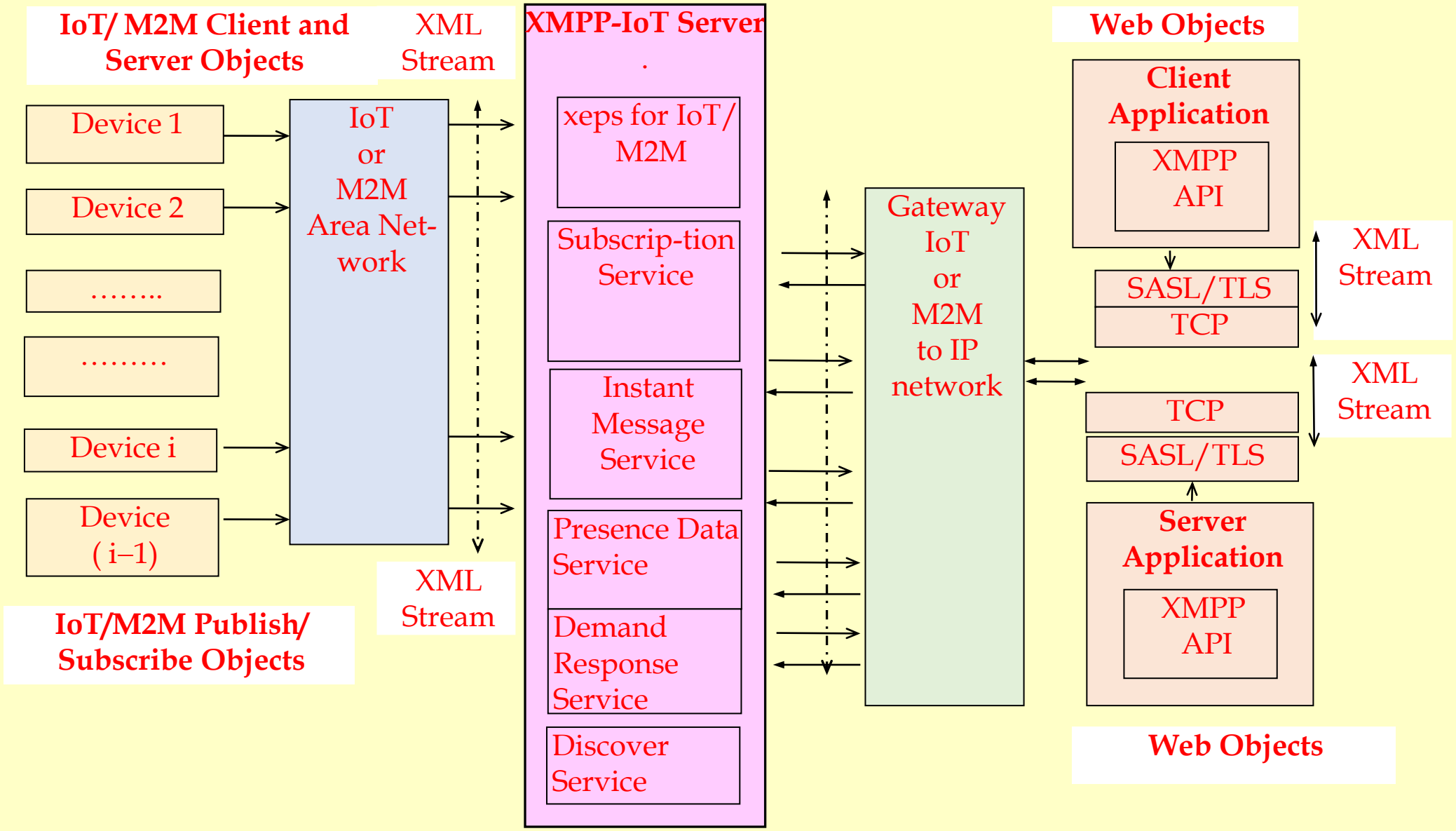

Fig. 3.7 Use of XMPP and XMPP Extension Protocols for IoT/M2M and web objects for the messaging, presence notifications, responses on demand and service discoveries using XML streams

Chatting and multi user chat (MUC) after creation of chat room

- Different users at an instance in chat room can do IMs.
- Messages notify *presence* for the IMs (instant messaging) to one or many at same time.

XMPP-IOT xeps

- Extends the use of XMPP to IoT and machine to machine messaging

XML Elements in XMPP

- Uses XML and the XML elements sent in open-ended stream within the tag <stream> and corresponding end tag </stream>

XML stanzas (elements)

- XMPP are of three basic types:

1. message,
2. presence and
3. iq (information/query, request/response),

XMPP five basic Attributes

to = (recipient JID in RFC 6122 format), [JID means Jabber ID, (means XMPP ID similar to an email ID)

from = (sender JID in RFC 6122 format),

type = (element type),

XMPP Attributes

xml.lang = (language of XML streams),

id= unique ID assigned to each stanza, *message*, *presence* and *iq* (information/query or request/response),

XMPP

- Anyone can set XMPP server by following the standards recommended and using the XSF xeps
- for example, XMPP-IoT server, XMPP M2M server for messaging between the machines.]

XMPP Authentication Security and Supports

- Authentication by SASL/TLS, and
- Support from Intelligent and Business analyst Applications and processing through XMPP server and gateway for connecting device network with IP network

Summary

We learnt

- XMPP an RFC standard XML based
- XMPP specifies the Instant Messaging (IM) and Presence
- IMs from present (subscribed entities) at a chat room
- XMPP tags and Attributes

End of Lesson 6 on Extensible Messaging and presence (XMPP) protocol