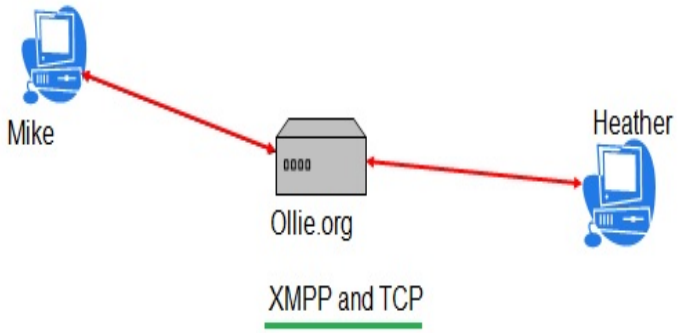
XMPP Core Overview



• XMPP is an open protocol for streaming XML elements in order to exchange messages and presence information in close to real time.
• XMPP protocol works as per typical client server architecture, in which XMPP client utilizes XMPP server using TCP socket.

XMPP Addressing Scheme

JID - Jabber Identifier
format: [node@]domain[/resource]

• Domain Identifier:
-Only Required identifier of JID.
-This is the networking gateway or primary server with which all entities connect.
-Not always a server, can be service that is addressed as sub domain of a server.

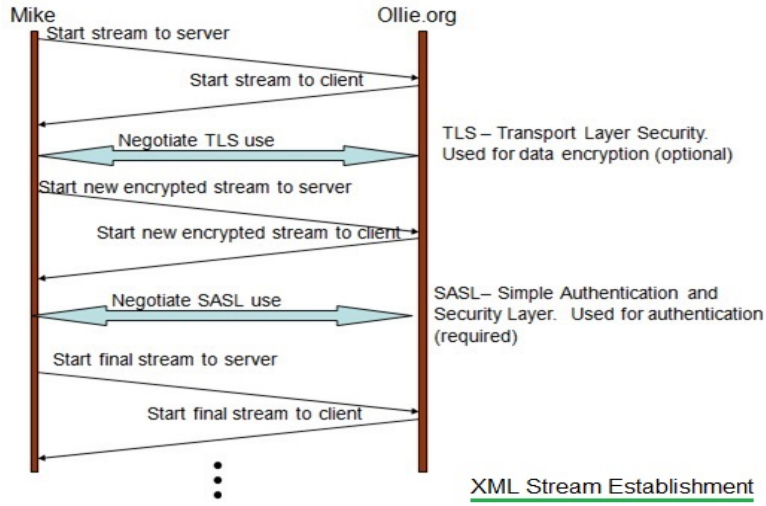
• Node Identifier:
-optional secondary identifier.
-It represents a client or chat room.
-It is called a "bare JID" and is of the form <node@domain>.

• Resource Identifier:
-It is optional tertiary identifier.
-It represents a specific session, connection or object.
-It is typically defined by a client implementation.

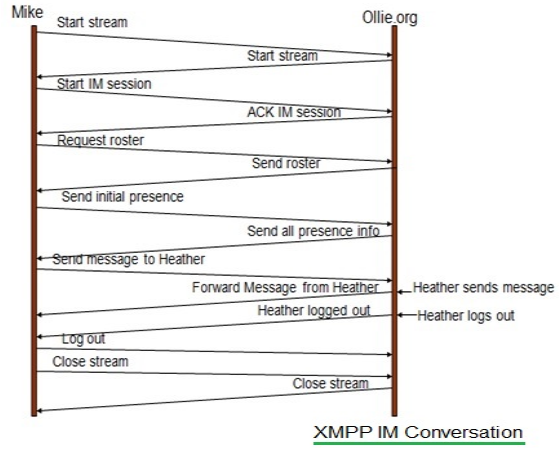
• Communication is broken into stanzas.
• Stanzas are short contained XML messages which are sent between **XMPP client** and **XMPP server**.
• Stanzas come in three types viz. Presence, IQ and Message

Basic structure of Stanzas is as follows.
<[Stanza type][from="][to="][type="][id="]>
<child element>
<sub-child element>
</child element>
</Stanza type>

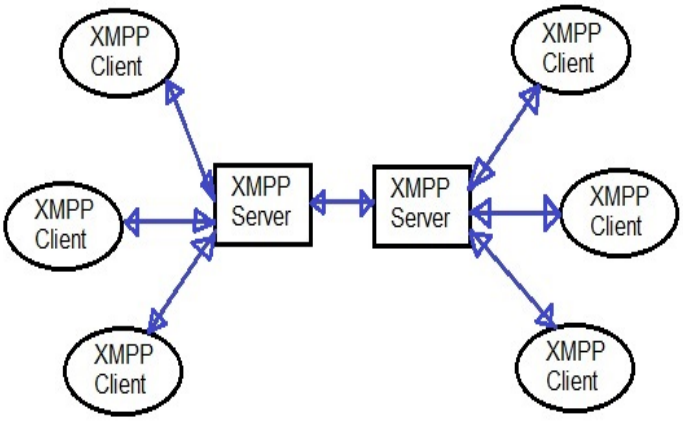
XMPP Protocol between XMPP Server and XMPP Client



The figure-2 depicts XML message exchanges between client "Mike" and server "Ollie.org" .



Instant messaging is used as means for immediate message transmission and reception to online users.



Following are features of XMPP protocol used between XMPP client and XMPP server for communication:

• XMPP uses port number 5222 for client to server (C2S) communication.

• XMPP uses port number 5269 for server to server (S2S) communication.

• Discovery and XML streams are used for S2S and C2S communications.
• Uses security mechanisms such as TLS and SASL.
• There are no intermediate servers for federation unlike E-mail.

The features of XMPP viz. addressing, scalability, Federation and security are ideal for Internet of Things (IoT) applications. Federation is a feature by which two business domain users can talk to each other.
Example: connectivity from thermostat to web server which can be later accessed easily using mobile phone.