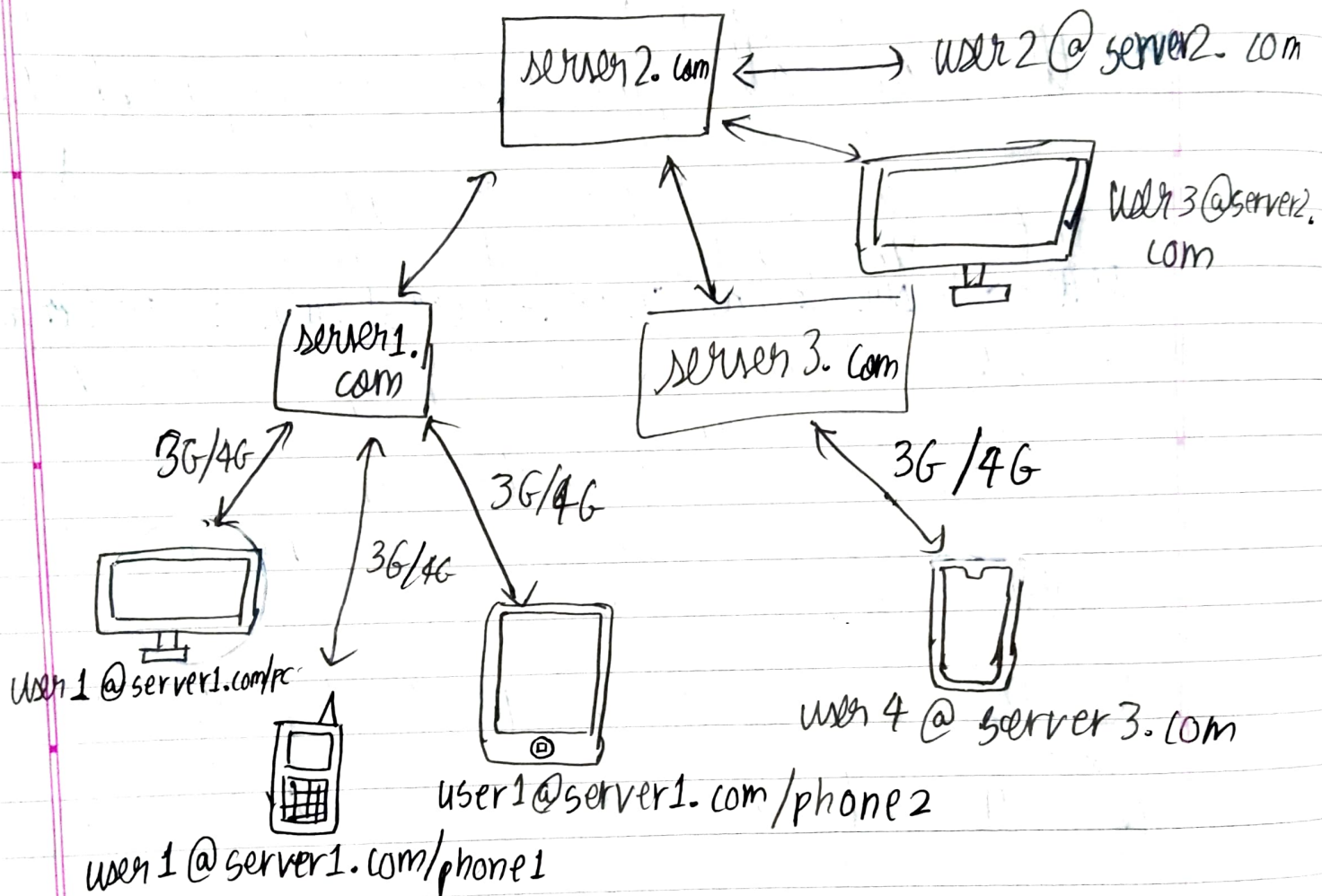# The XMPP Protocol

Visualize a network of clients and servers connected (wired OR wirelessly (3G/ 4G)) to exchange data.

server2.com ⟷ user2 @ server2.com

user 3 @server2.com

server1.com

server3.com

3G/4G

user1@server1.com/pc

3G/4G

3G/4G

3G/4G

user 4 @ server3.com

user1@server1.com/phone2

user1@server1.com/phone1

2 kinda devices

→ client devices - PC, phone, iOT sensor devices like fridge. or any other devices connected to exchange data

→ server devices — connected to client devices via wired or wireless links

Network of devices connected to exchange real-time data

XMPP (Extensible Messagin & Presence Protocol

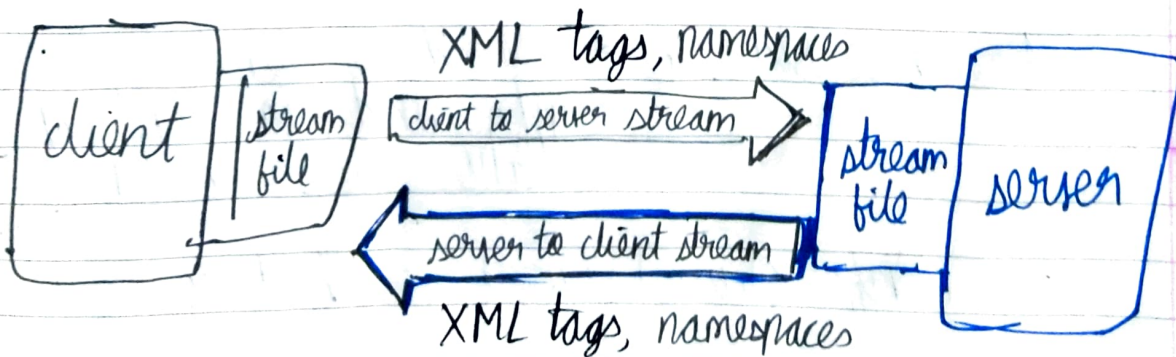- X → Extensible → Protocol extended by namespacing to have new features
- M → Messaging and → send 1 on 1, grp msgs.
- P → Presence → ...... online status. Covers users' online status. Used to do other stuff also.
- P → Protocol

Salient features abt XMPP:

① It is the std blueprint to build world chat sys.

② Uses XML (data format) → It has 1 very powerful strength - namespacing

③ Namespacing → allows extendin XMPP to do things it wasn't originally designed for.

④ It is a std that allows exchange of data.

XML tags, namespaces

client | stream file | client to server stream → | stream file | server

server to client stream

XML tags, namespaces

⑤ When a client connects to a server, some kinda pipe connec's open b/w the client & the server and it is thru this pipe that msgs

6) Client and server exchange data via sendin each other stream files. We keep a log of the files that are sent & recd, on the client & the server

7) Stream file → It is where we connect to to see what's really see what's happenin i.e. what the client sent, what the server responded with
XMPP gives a way to connect to this stream file

STANZA

the basic unit of comm." in XMPP

3 types of stanzas

① Message stanza → Used to send msg.

② Presence stanza → Used to send online status info and to control subscrip" status b/w contacts (friendship subscrip")

③ IQ (Info Query) stanza ⎡→ Used to get some info abt server
⎣→ Used to apply some settings

Smack :

An 'implem" of the XMPP protocol for client apps on Java SE compatible JVM.; and Android.

It is an open-source, battle tested library

NOTE :

(i) The most widespread use, of XMPP is for Instant Messagin (IM).
There are many XMPP servers on the internet, all linked up to each other.
This IM network is aka 'Jabber'

(ii) Unlike the original IM networks, XMPP does not require ppl to be usin the same IM service to chat with each other

eg:- if someone on jabber.org wants to add someone using gmail.com, on their contact list (called a 'roster' in XMPP), the servers auto-connect with each other.

(iii)

Uses of XMPP —
real-time comm"
→ instant msgin
→ presence
→ multi-party chat
→ voice & vid calls
→ collab"
→ lightwt. middleware
→ content syndica"
→ generalized routin of XML data