

draft-sato-xmpp-software- message-01.txt

Considerations of software generated message on XMPP

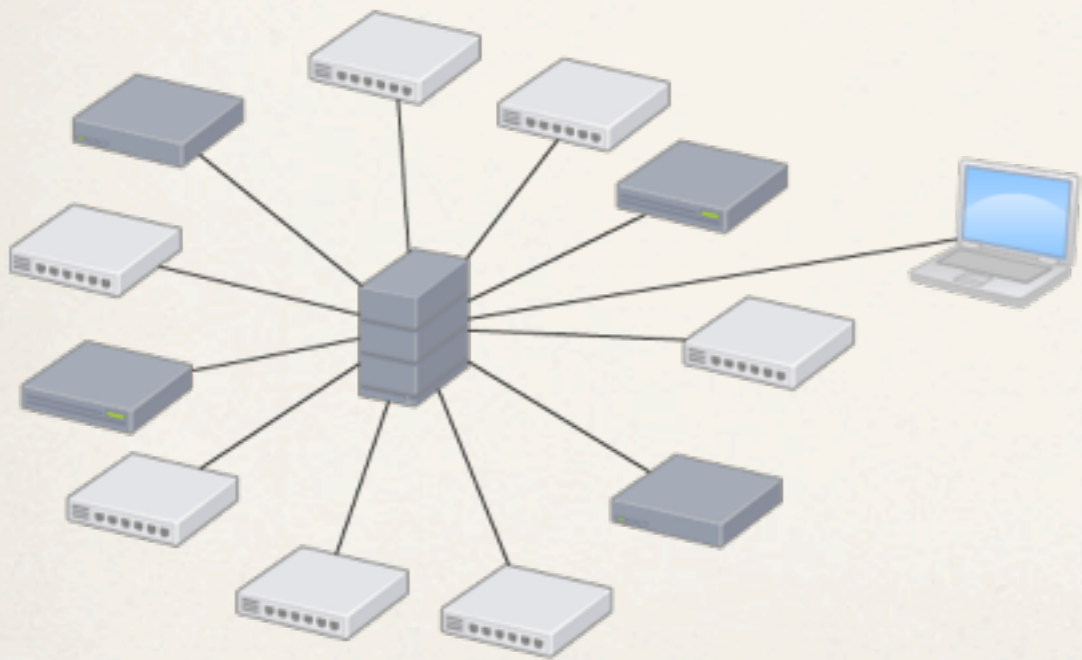
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Motivation

- ❖ More and more software uses XMPP as Transport Layer of their data flow
-

Example1:

- ❖ Connect and configure more than 10k access router through agent software via XMPP MUC.



Example2:

- ❖ XMPP for home electronics.
- ❖ In a situation which many home electronics (multi vendor) are connected to network and runs XMPP agent software.
- ❖ If we could stop what we don't need and get what we want, it would be good. And it is different from DoS attack defence (because it only matters with reducing data amount)

Problems

In Example1:

- ❖ When type “show version”, some Router reply with “show version” in it.
- ❖ then, software runs out of control.

In Example2:

- ❖ Since the devices which will be connected is diverse and many, we should have standard.
- ❖ Moreover, there should be zero-config system will be useful for home electronics for using filtering and so on.

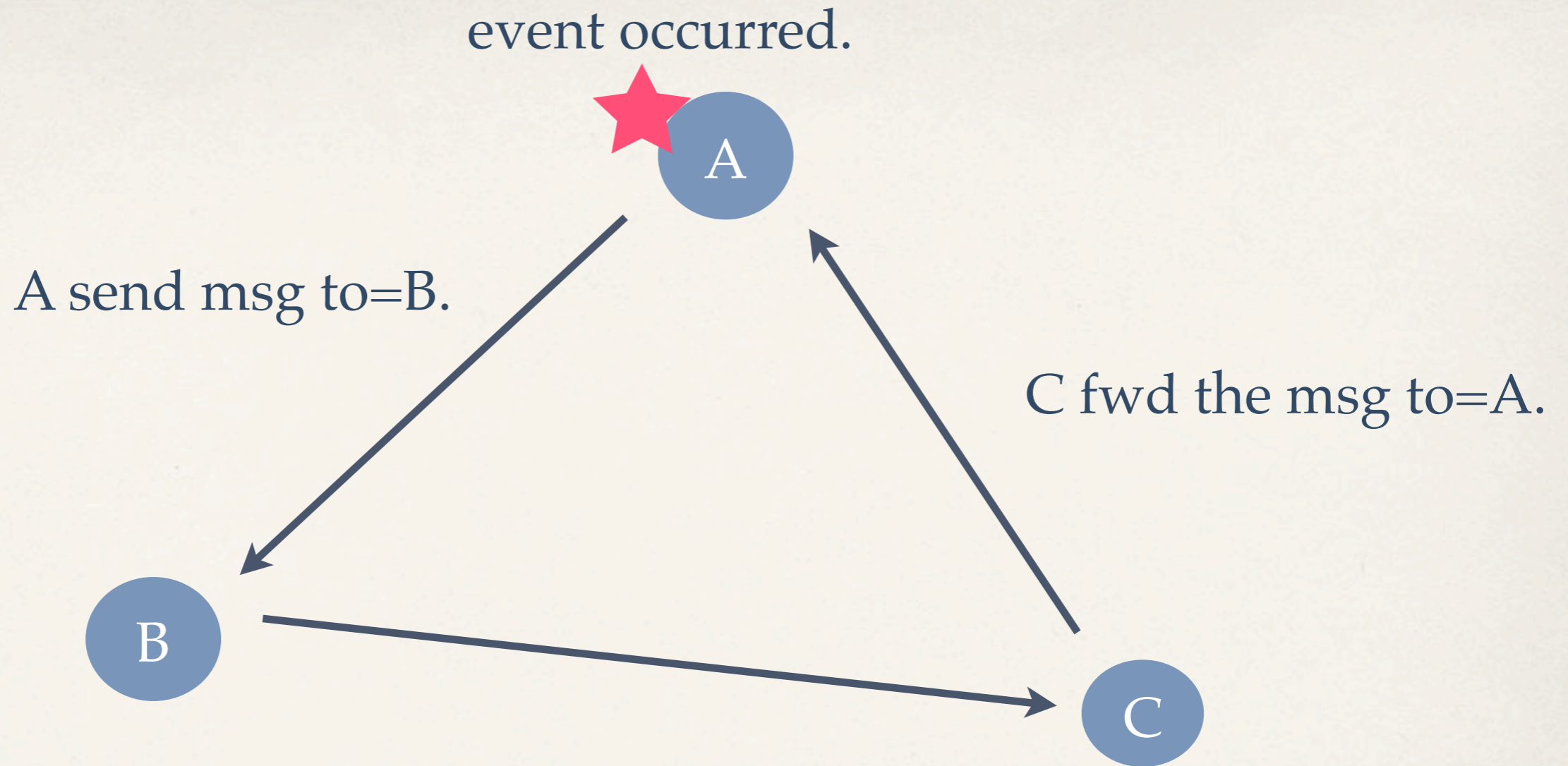
<msg from="a@ex.com" to="b@ex.com"> hello </msg>

<msg from="b@ex.com" to="a@ex.com"> hello </msg>

<msg from="a@ex.com" to="b@ex.com"> hello </msg>

<msg from="b@ex.com" to="a@ex.com"> hello </msg>

If both a and b are softwares made by same organisation, this is definitely a software bug.



B ask C "can't write log msg, what should I do?"

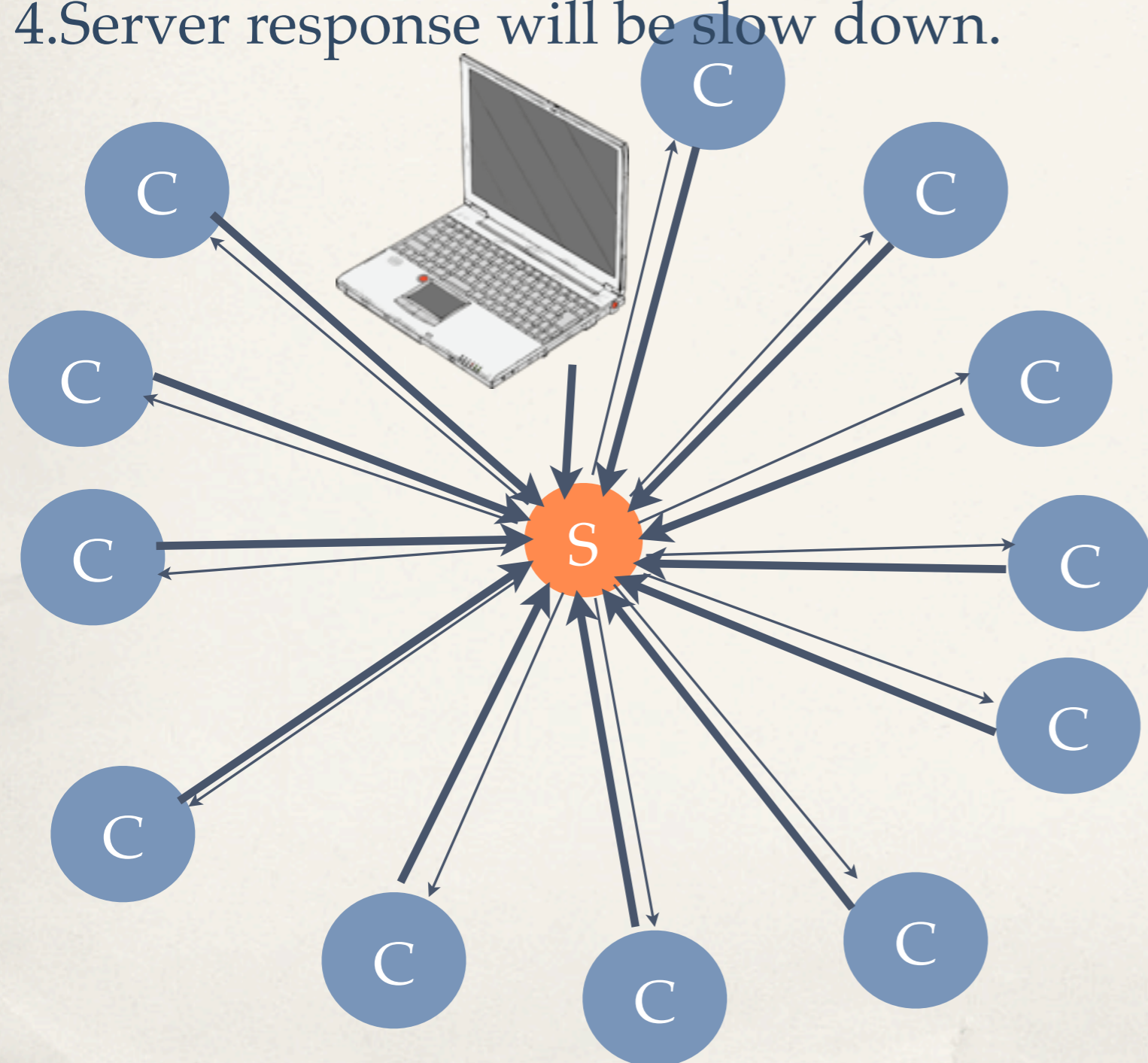
(B doesn't know whether C is a human or bot)

In fact, C is bot.

a and b are software from same organisation. c is from another software made by other organisation. In this case, is this just a software bug?

A server and many clients.

1. Many clients (more than 10k) are connected to sever.
2. A client sends messages to other clients.
3. Many clients responds.
4. Server response will be slow down.



Human:
show version;

Client1:

```
hoge Operating Software System
hoge 7233 Software, Version 12.0
(5)WC2, RELEASE SOFTWARE (fc1)
Compiled Tue 23-Oct-01 12:26 by
hoge
```

```
ROM: Bootstrap program is hoge
boot loader
```

```
Switch uptime is 1 hour, 24
minutes
```

```
System returned to ROM by power-on
System image file is
"flash:hoge.img"
```

```
hoge processor 829mhz with 3951 mb
memory
```

```
Processor board ID hoge001
Last reset from system-forget
```

```
Processor is running beginner
edition
```

```
hoge enabled
hoge feature required
24 FastEthernet/IEEE 802.3
interface(s)
```

```
32K bytes of flash-simulated non-
volatile configuration memory.
hoge registered number :3941312
```

client2:

```
hoge Operating Software System
hoge 7233 Software, Version 12.0
(5)WC2, RELEASE SOFTWARE (fc1)
Compiled Tue 23-Oct-01 12:26 by
```

Possible Solution

- ❖ TTL
- ❖ Path vector
- ❖ Back Pressure (bytes / minute limitation)
- ❖ Filtering: XEP - 0273

```
<msg from="a@ex.com" to="b@ex.com"> hello </msg>
```

```
<msg from="b@ex.com" to="c@ex.com"> hello </msg>
```

```
<msg from="c@ex.com" to="a@ex.com"> hello </msg>
```

```
<msg from="a@ex.com" to="b@ex.com"> hello </msg>
```

this can be solved by hop count, or TTL limit:

```
<msg from="a@ex.com" to="b@ex.com" hop_cnt="1"> hello </msg>
```

```
<msg from="b@ex.com" to="c@ex.com" hop_cnt="2"> hello </msg>
```

```
<msg from="c@ex.com" to="a@ex.com" hop_cnt="3"> hello </msg>
```

```
<msg from="a@ex.com" to="b@ex.com" hop_cnt="4"> hello </msg>
```

stop

<msg from="a@ex.com" to="b@ex.com"> hello </msg>

<msg from="b@ex.com" to="c@ex.com"> hello </msg>

<msg from="c@ex.com" to="a@ex.com"> hello </msg>

<msg from="a@ex.com" to="b@ex.com"> hello </msg>

this can be solved by path vector:

<msg from="a@ex.com" to="b@ex.com" path="a"> hello </msg>

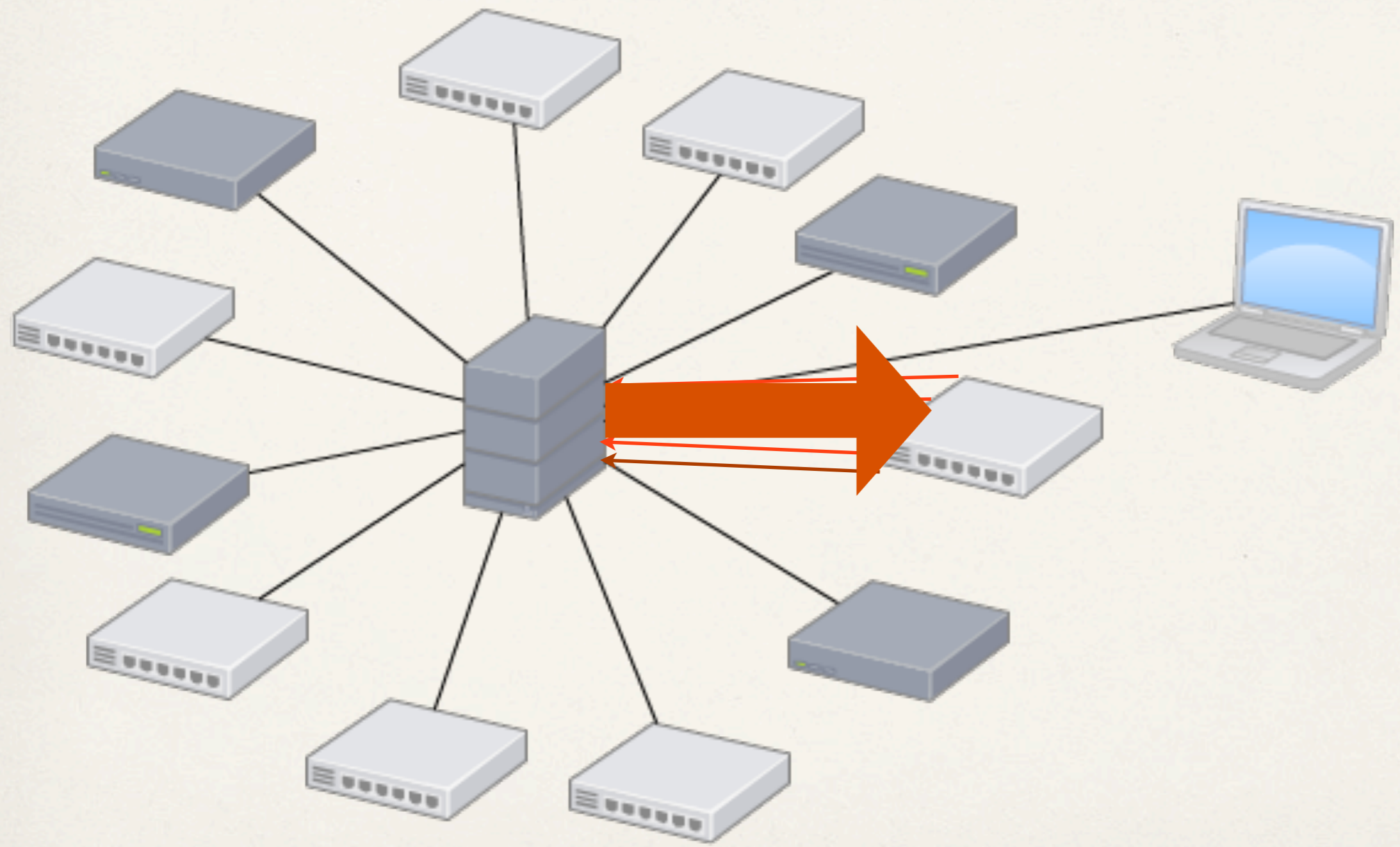
<msg from="b@ex.com" to="c@ex.com" path="a,b"> hello </msg>

<msg from="c@ex.com" to="a@ex.com" path="a,b,c"> hello </msg>

stop

An example of Back Pressure.

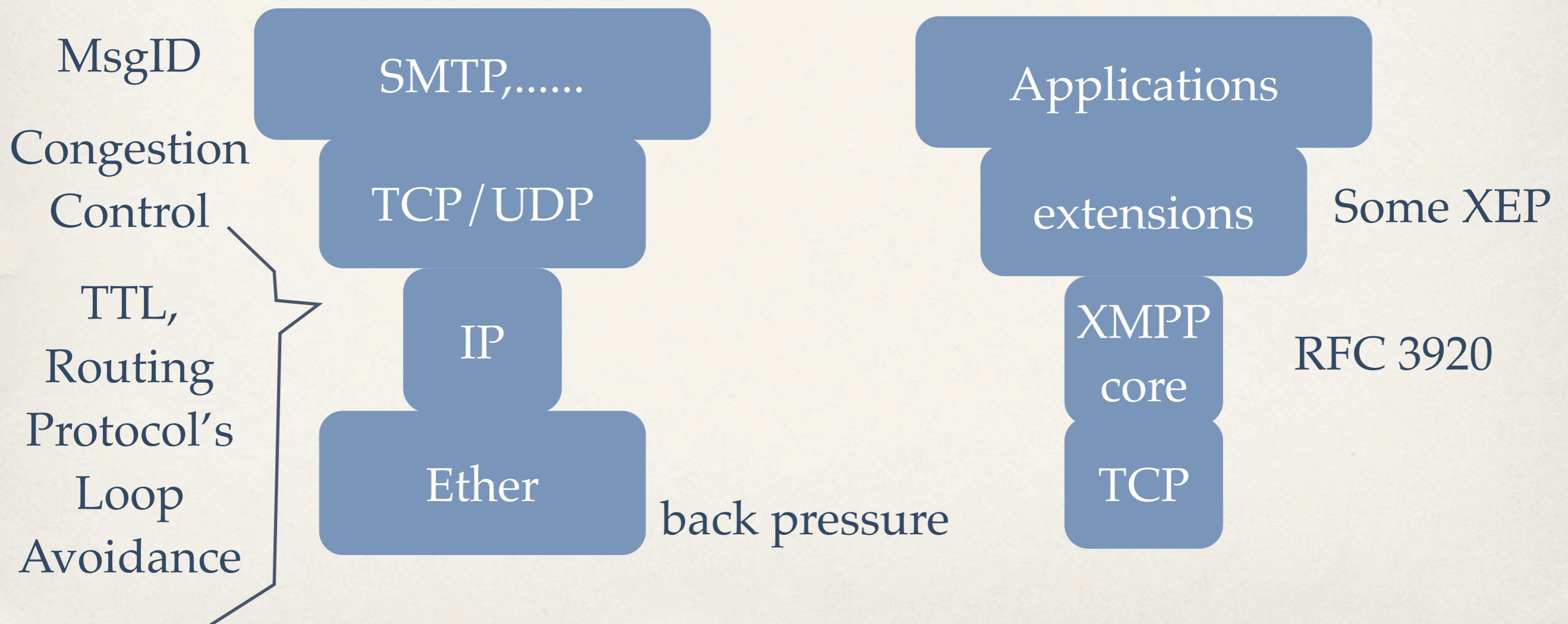
Ex:XEP-0205:Limiting the absolute size of stanza



Where can we solve this?

When we consider XMPP as transport protocol, where XMPP core and IP lies are similar.

There are solutions at upper layer and IP layer in IP, so we can consider XMPP could have these.



Next Step

- ❖ Continue?
 - ❖ If anyone want to collaborate with this, we will continue writing this draft.
 - ❖ Anyone ?
- ❖ Submit as XEP?
 - ❖ There are many possible solutions for these problem, so we can submit to XMPP Standards Foundation as XEP.
 - ❖ Some solution can be submitted as I-D to IETF.