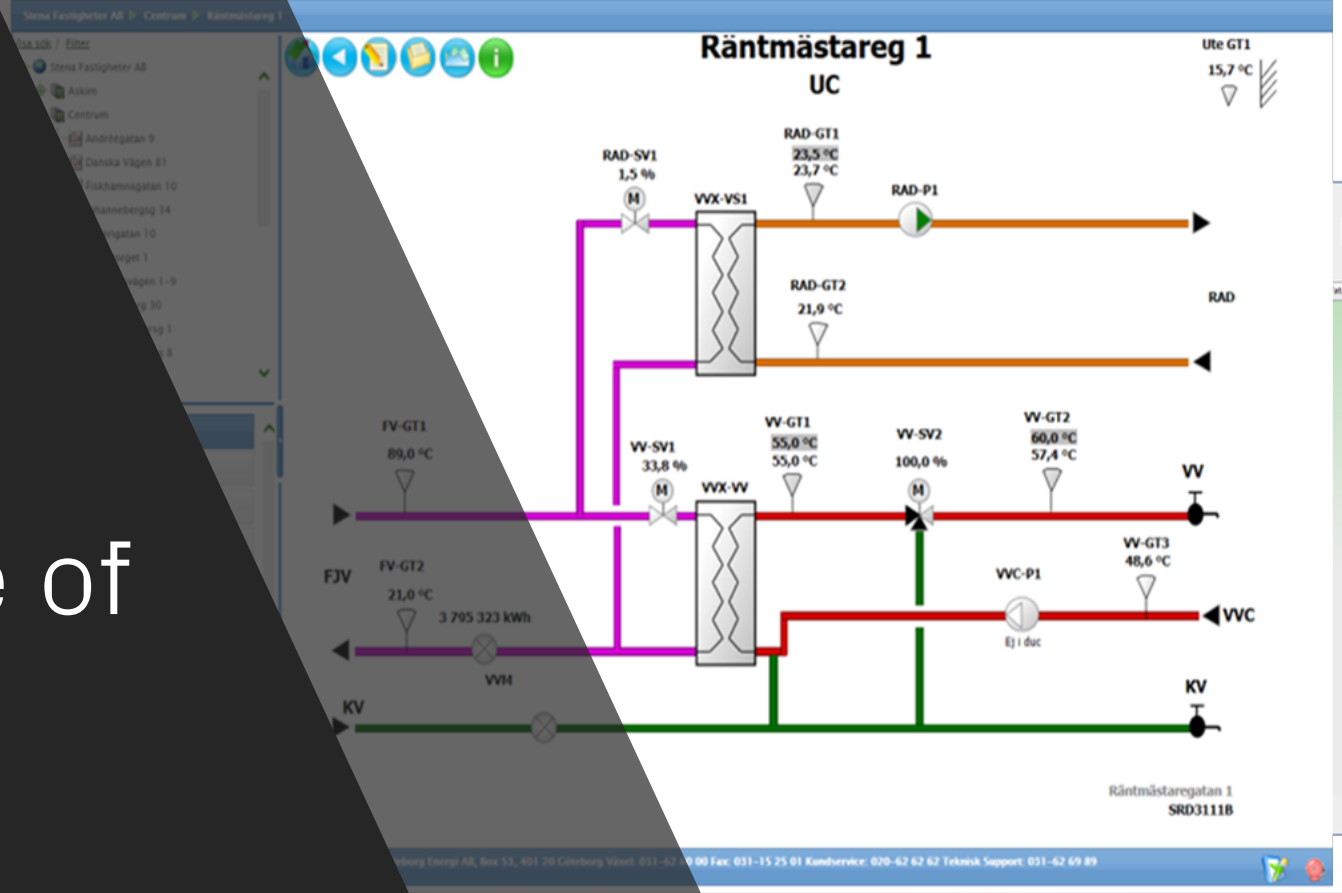
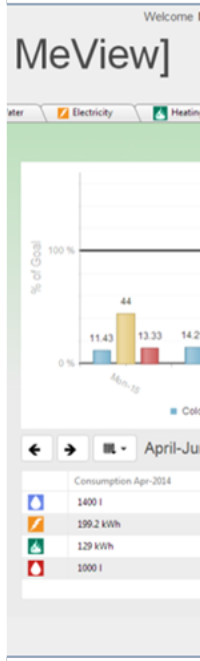
Me

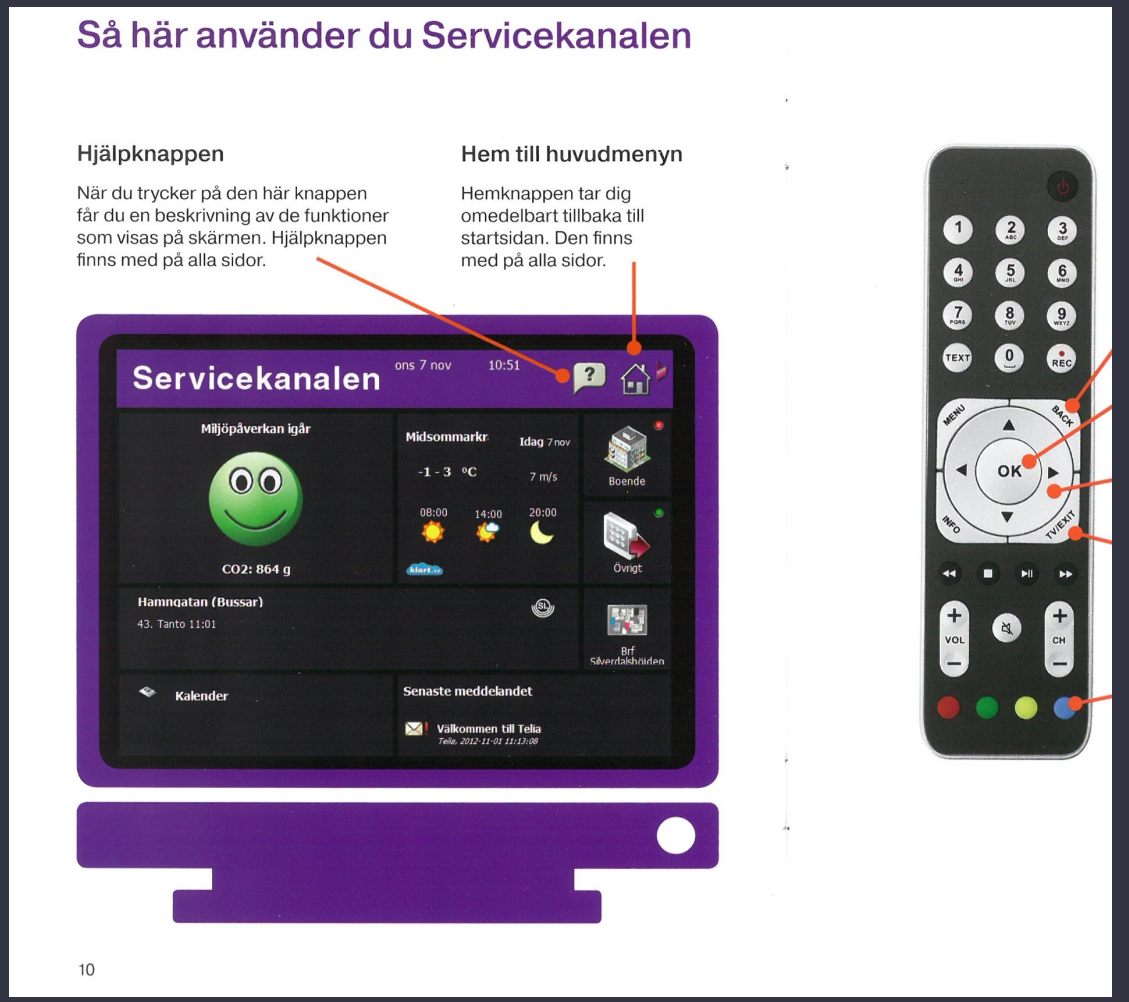
20 Years experience of Building Automation





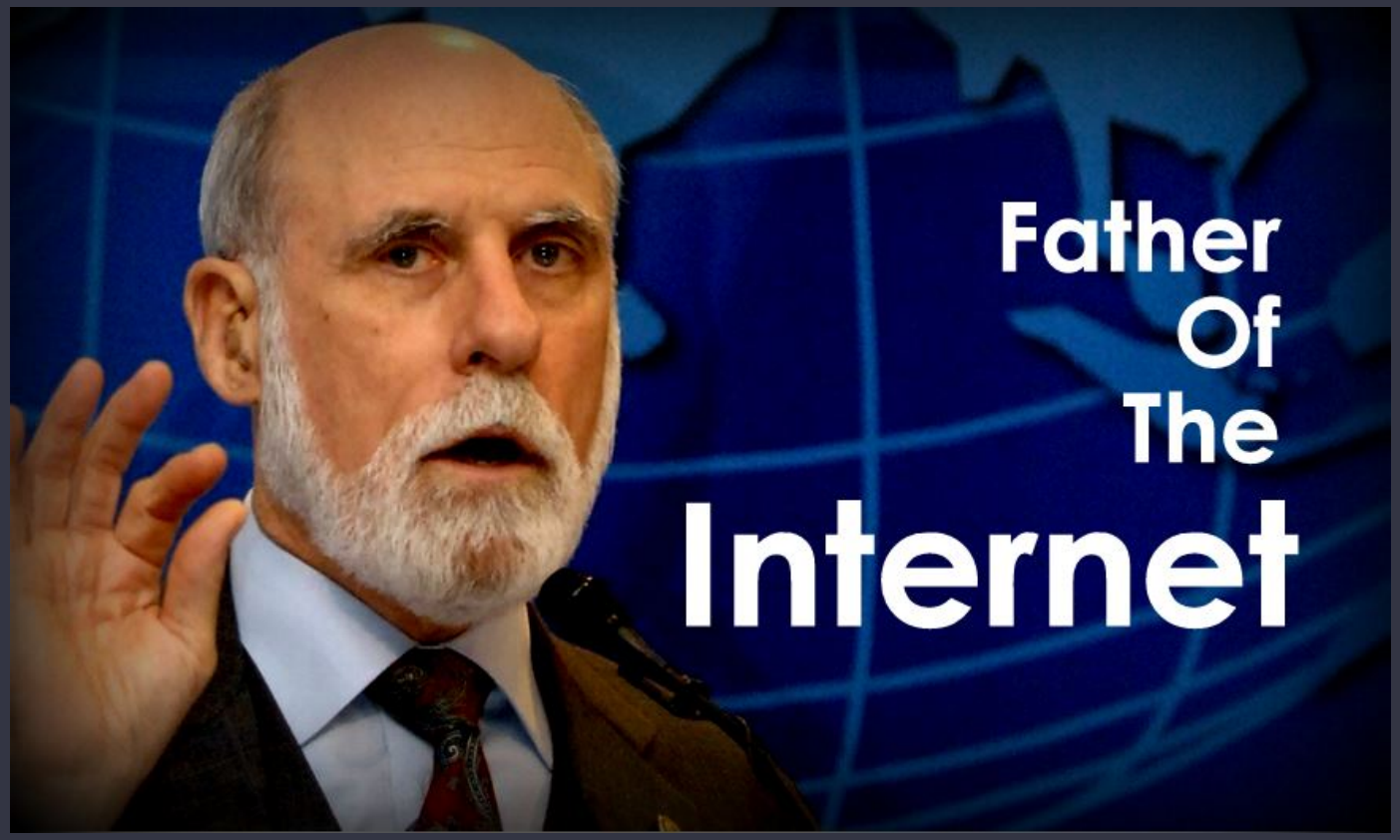
2007

Telia Servicekanalen
Den smarta vägen till kommunikation med hushållen
...kolla elförbrukningen
...boka tvättid
...kolla busstider
...meddelande till boende
Telia


Så här använder du Servicekanalen
Hjälpknappen
När du trycker på den här knappen får du en beskrivning av de funktioner som visas på skärmen. Hjälpknappen finns med på alla sidor.
Hem till huvudmenyn
Hemknappen tar dig omedelbart tillbaka till startsidan. Den finns med på alla sidor.
Servicekanalen
ons 7 nov
10:51
Miljöpåverkan igår
CO2: 864 g
Midsommarkr
-1 - 3 °C
Idag 7 nov
7 m/s
08:00
14:00
20:00
Boende
Övrigt
Hamngatan (Bussar)
43. Tanto 11:01
Kalender
Senaste meddelandet
Välkommen till Telia
10
OK
BACK
MENU
INFO
TV/EXIT
TEXT
REC
VOL
CH

Internet of Things

Ambassador



“I would not propose HTTP for IOT interoperability either for a lot of reasons.”
– Vint Cerf (email to me)

Member of ISO/IEC/IEEE WD 21451-1-4

Standard for a Smart Transducer Interface for Sensors, Actuators, and Devices - eXtensible Messaging and Presence Protocol (XMPP) for Networked Device Communication.

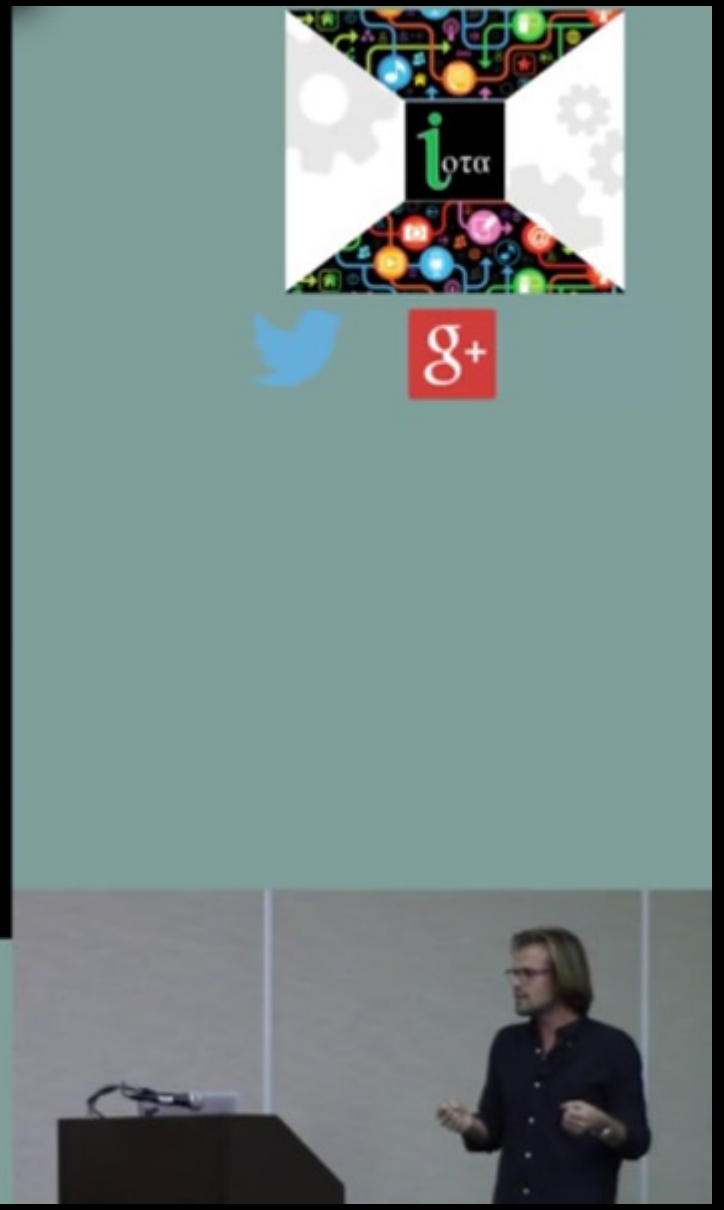
Committee of ISO/IEC JCT1/WG10

This work item specifies IoT conceptual reference model, and reference architecture from different architectural views, common entities, and interfaces between IoT domains.

Lead at IoT Special Interest Group

XMPP

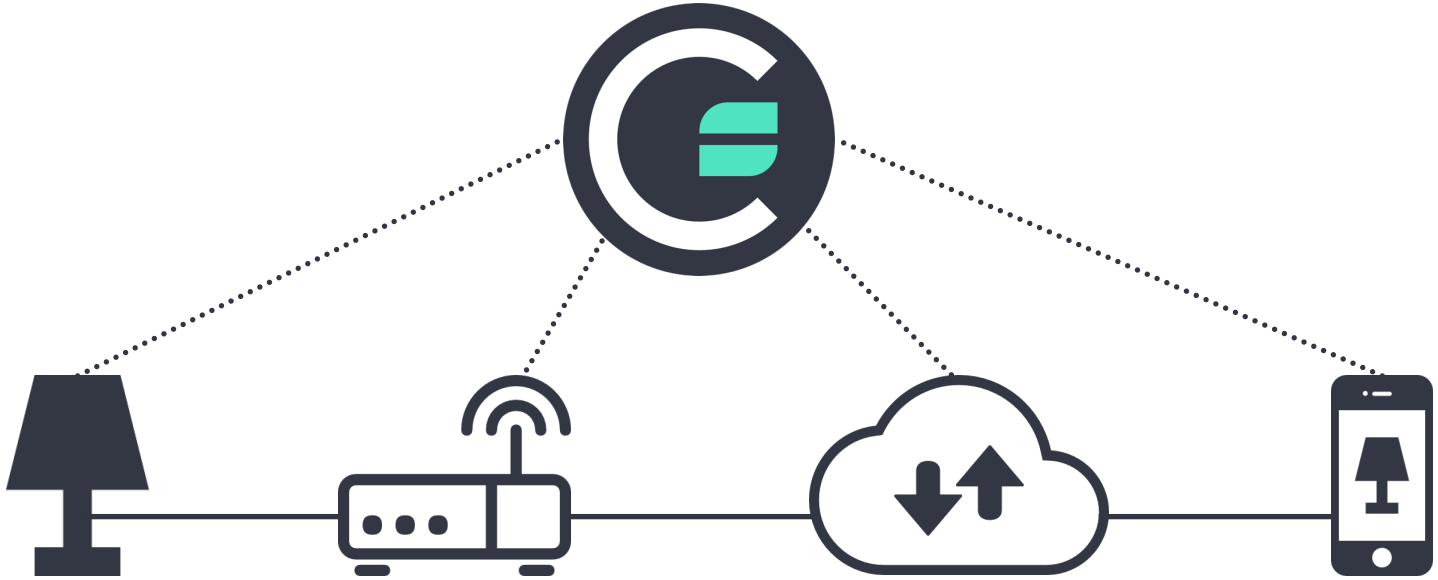
XMPP
XMPP
XMPP
XMPP

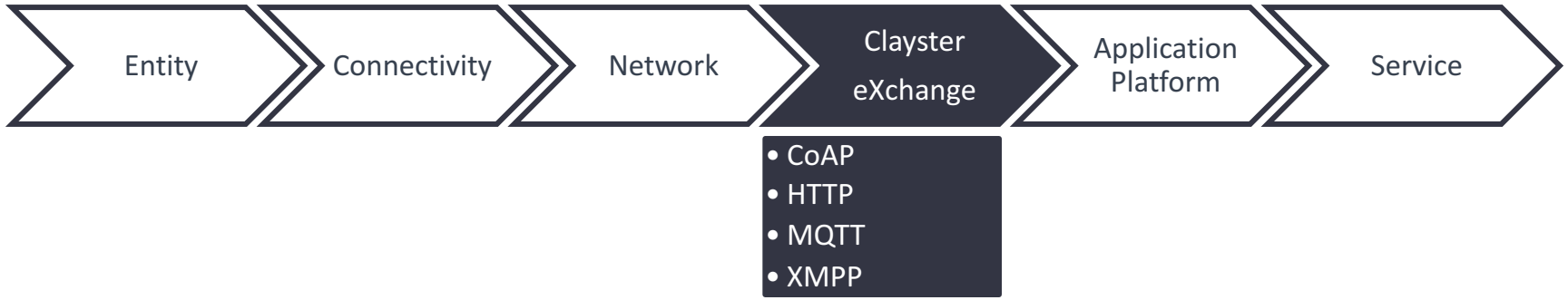

ιοτα

Clayster

Give Physical a Secure Digital Life.

Clayster eXchange (TTP): ”It represents an entity that can broker trust relationships between entities that may belong within the same administrative domain or outside. The TTP may also facilitate in providing credential registration as well as credential requisition services.” – oneM2M





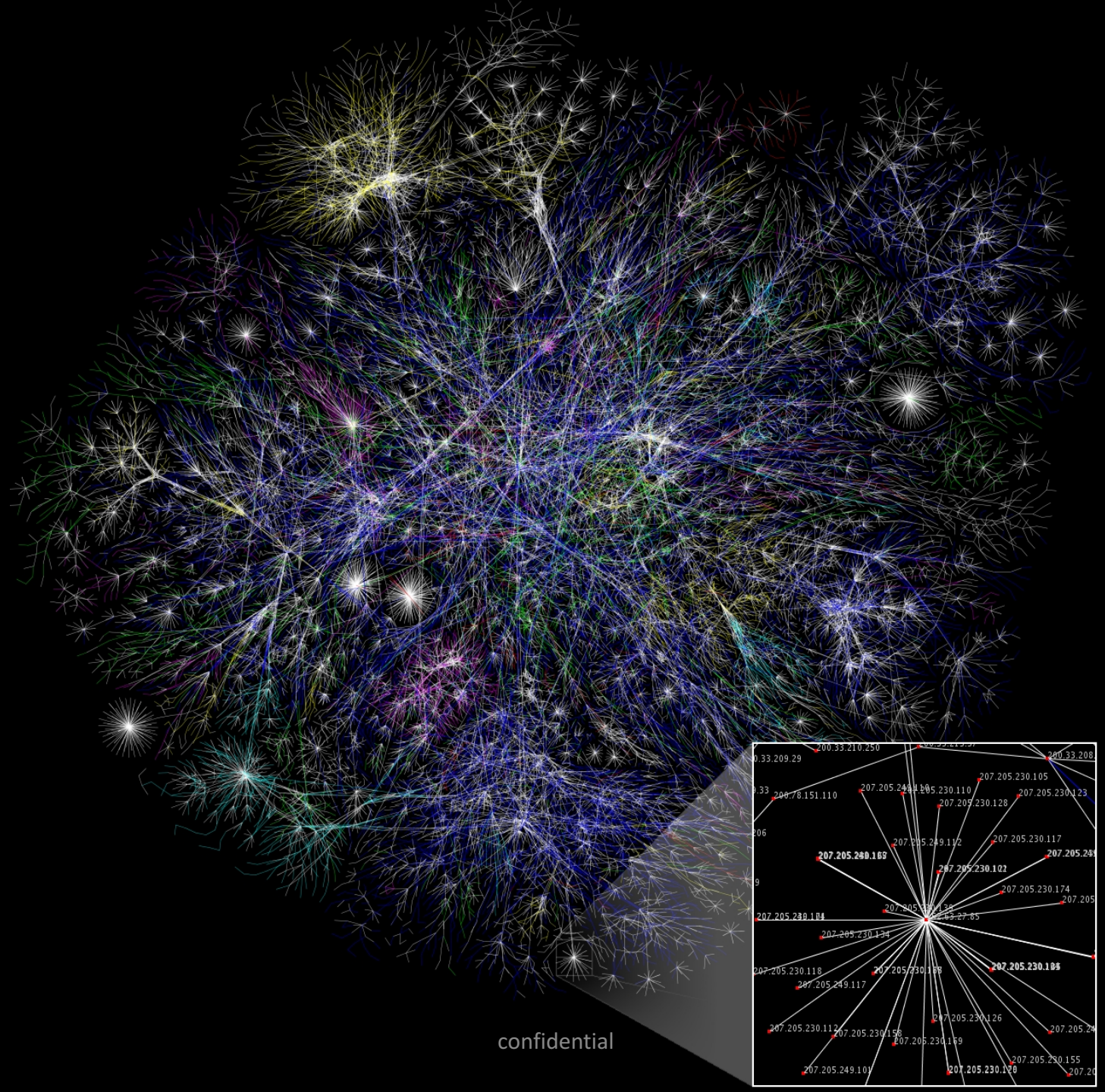
RISK ASSESSMENT —

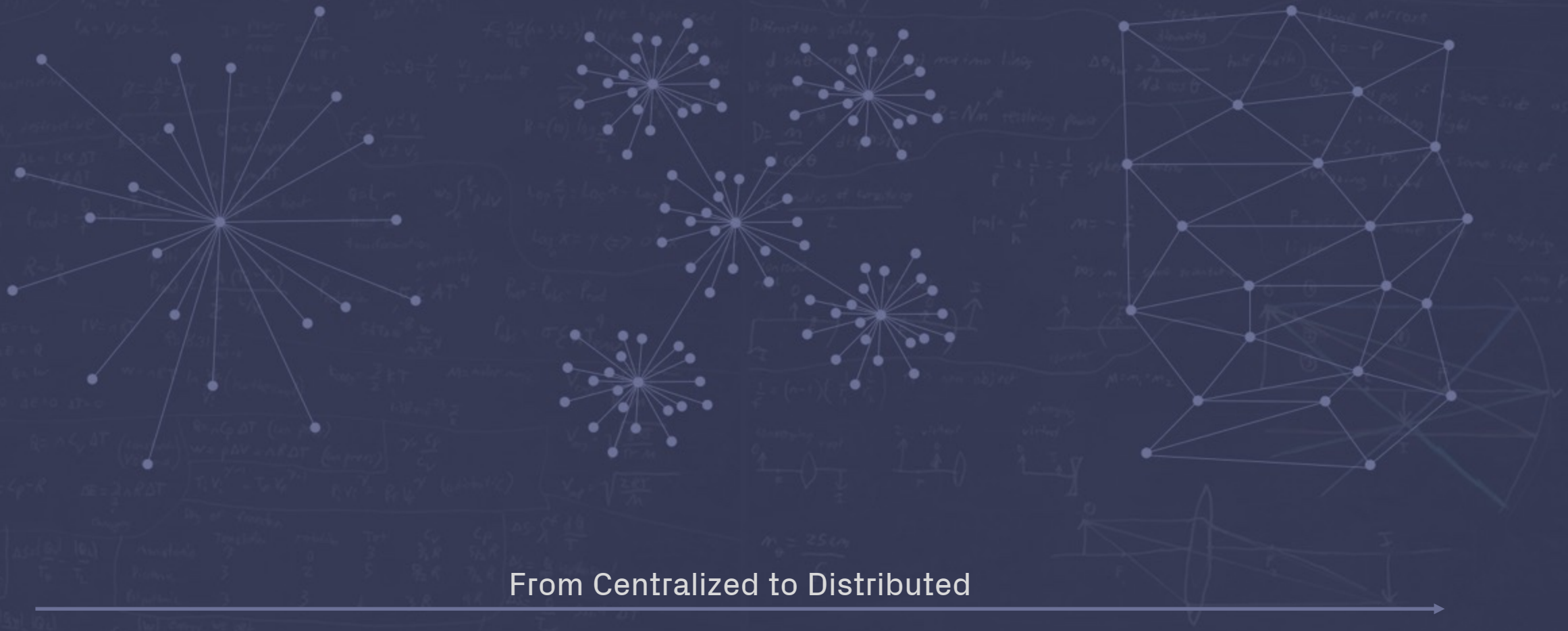
Brace yourselves—source code powering potent IoT DDoSes just went public

Release could allow smaller and more disciplined Mirai botnet to go mainstream.

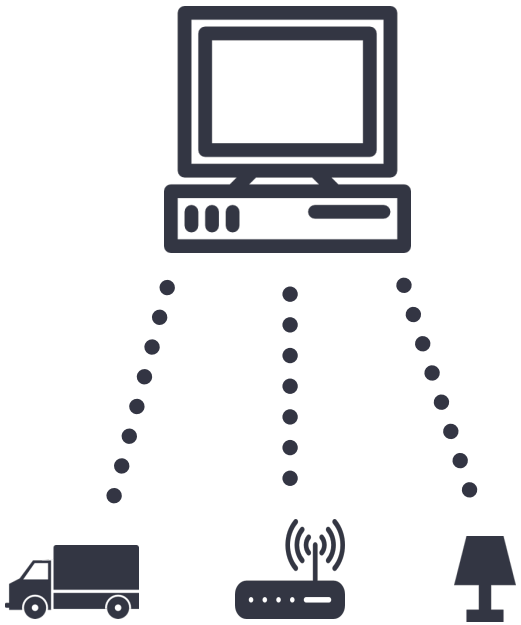
DAN GOODIN - 10/3/2016, 12:39 AM

Michael Theis


200.33.210.250
207.205.230.105
207.205.230.110
207.205.230.123
207.205.230.128
207.205.230.117
207.205.230.174
207.205.230.134
207.205.230.118
207.205.249.117
207.205.230.126
207.205.230.155
207.205.249.101


From Centralized to Distributed

One – To – One



Yesterday

One – To – Many

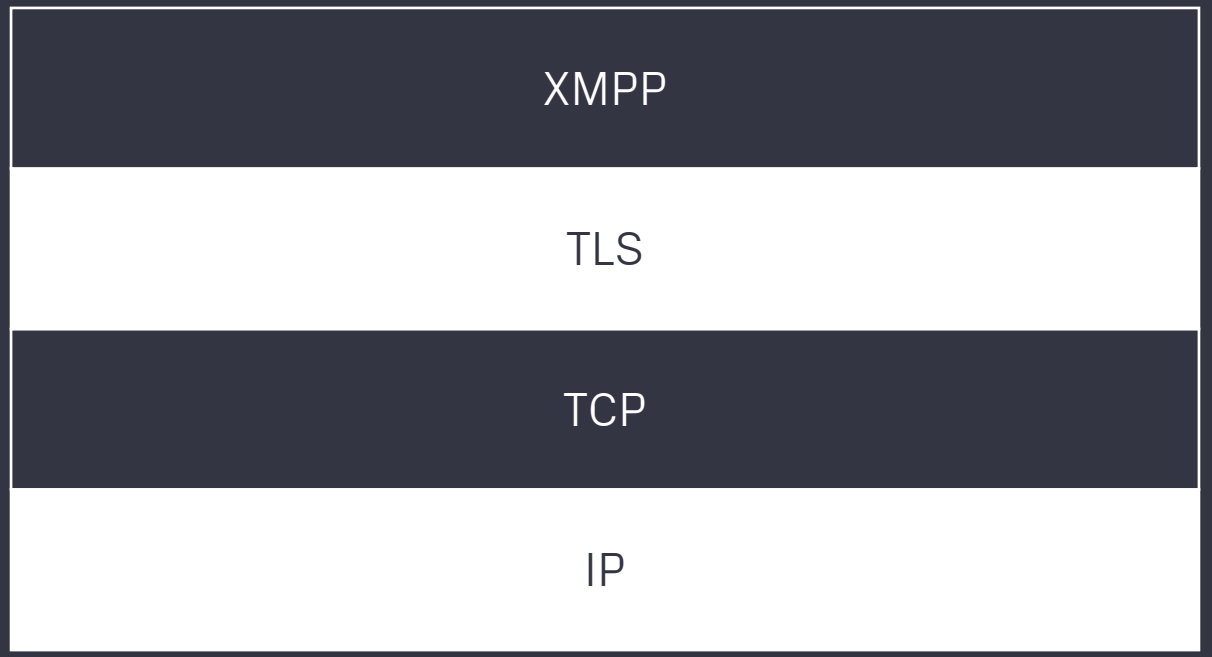
Today

Many – To – Many

Tomorrow

XMPP

e**X**tensible **M**essaging and **P**resence **P**rotocol


XMPP
TLS
TCP
IP

Why XMPP

Open

The XMPP protocols are free, open, public, and easily understandable.

Standard

The Internet Engineering Task Force (IETF) has formalized the core XML streaming protocols as an approved instant messaging and presence technology.

Proven

The first Jabber/XMPP technologies were developed by Jeremie Miller in 1998.

Decentralized

The architecture of the XMPP network is similar to email. No single point of failure. No central master server.

Secure

Robust security using SASL and TLS has been built into the core XMPP specifications. The XMPP developer community is actively working on end-to-end encryption to raise the security bar even further.

Extensible

Anyone can build custom functionality on top of the core protocols; to maintain interoperability, common extensions are published in the XEP series.

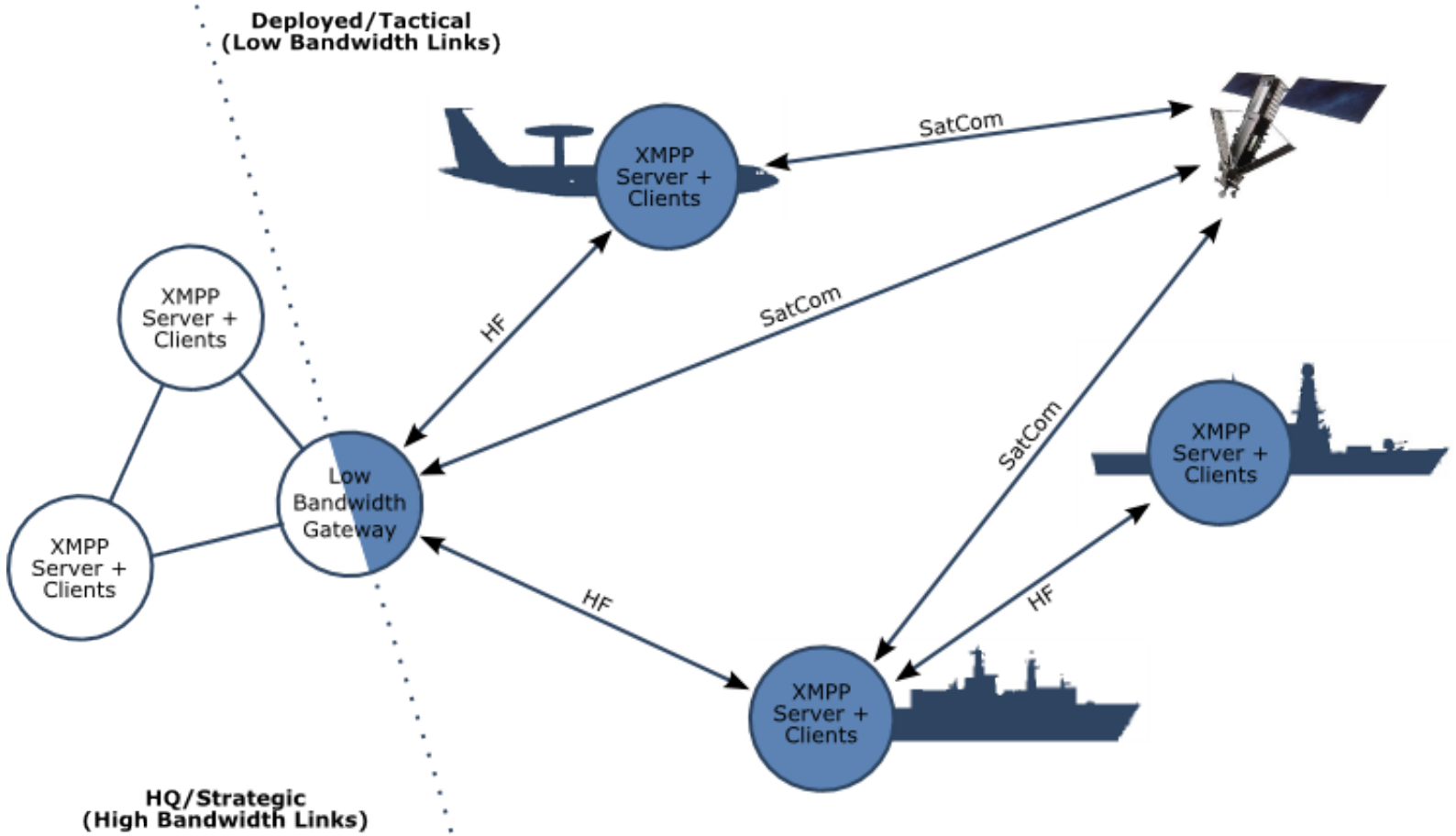
“WhatsApp uses a customized version of the open standard eXtensible Messaging and Presence Protocol (XMPP)” – Wikipedia

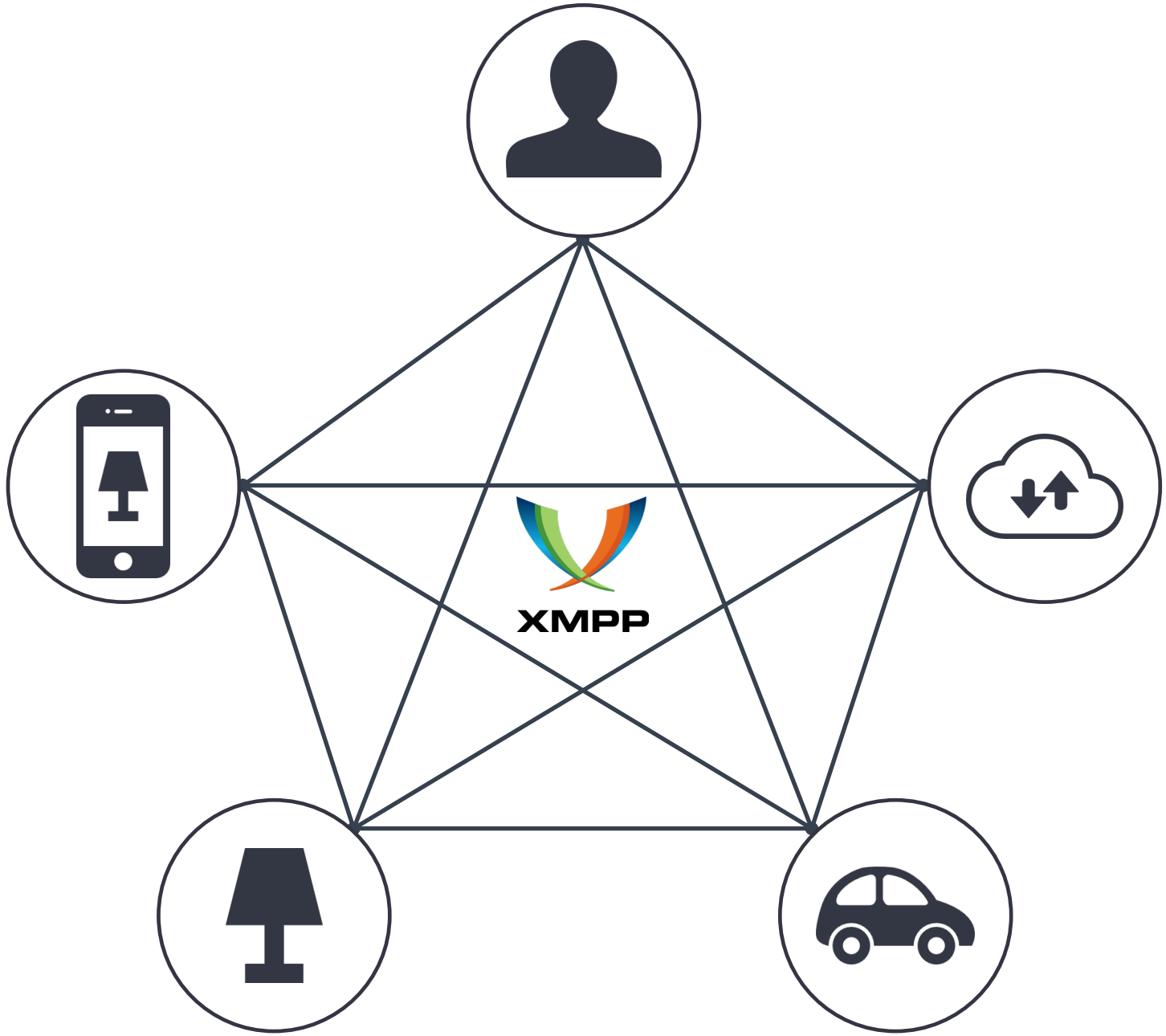
“It supports over 800 million active users and 30 billion messages daily and is an iconic example of a reliable and scalable messaging solution.” – Erlang Solutions

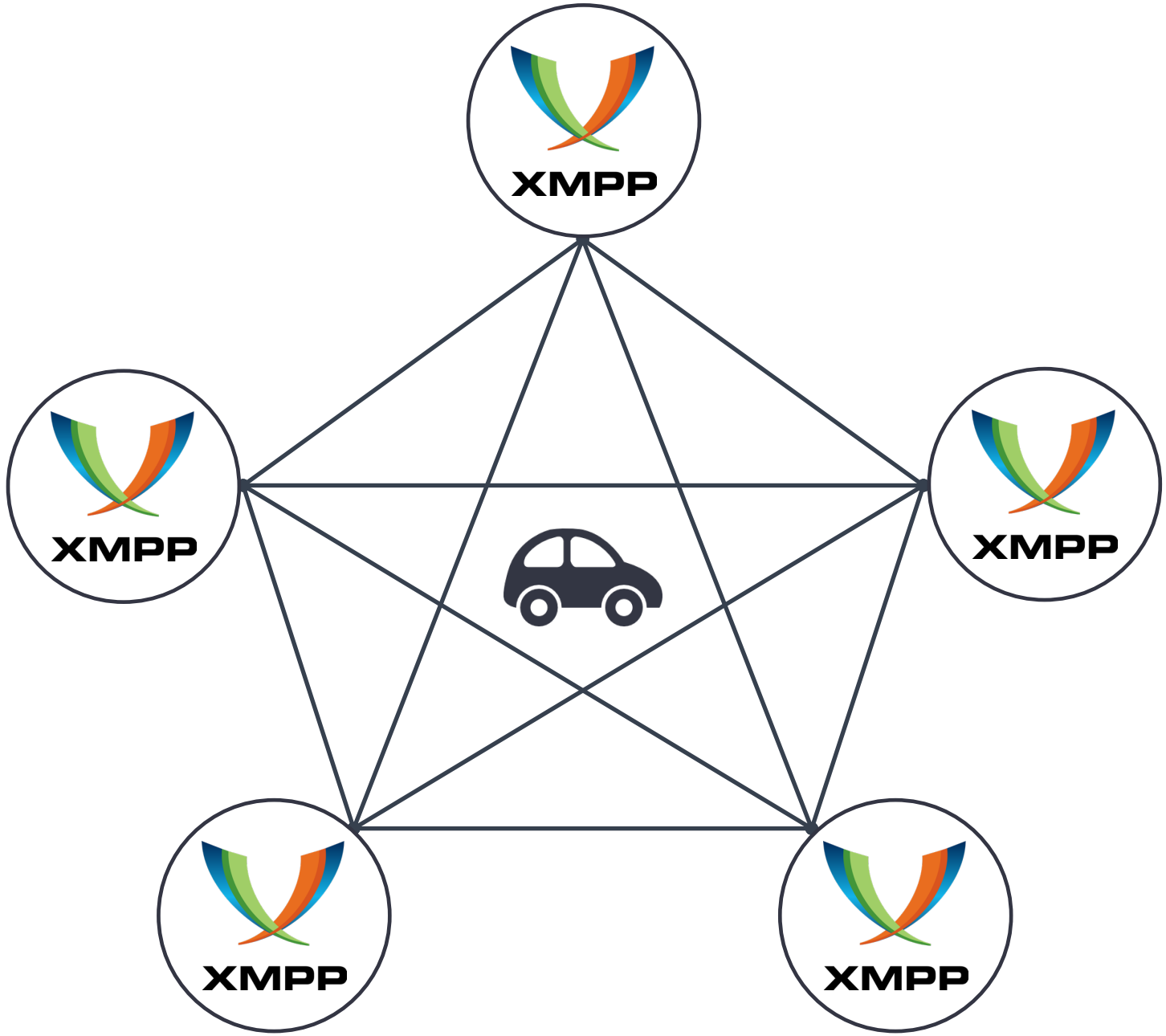
“How would you build a chat service that needed to handle 7.5 million concurrent players, 27 million daily players, 11K messages per second, and 1 billion events per server, per day?”

“Making it work meant starting with XMPP as a base for chat. WhatsApp followed the same strategy. Out of the box you get something that works and scales well...” - http://highscalability.com/

Military Grade Security

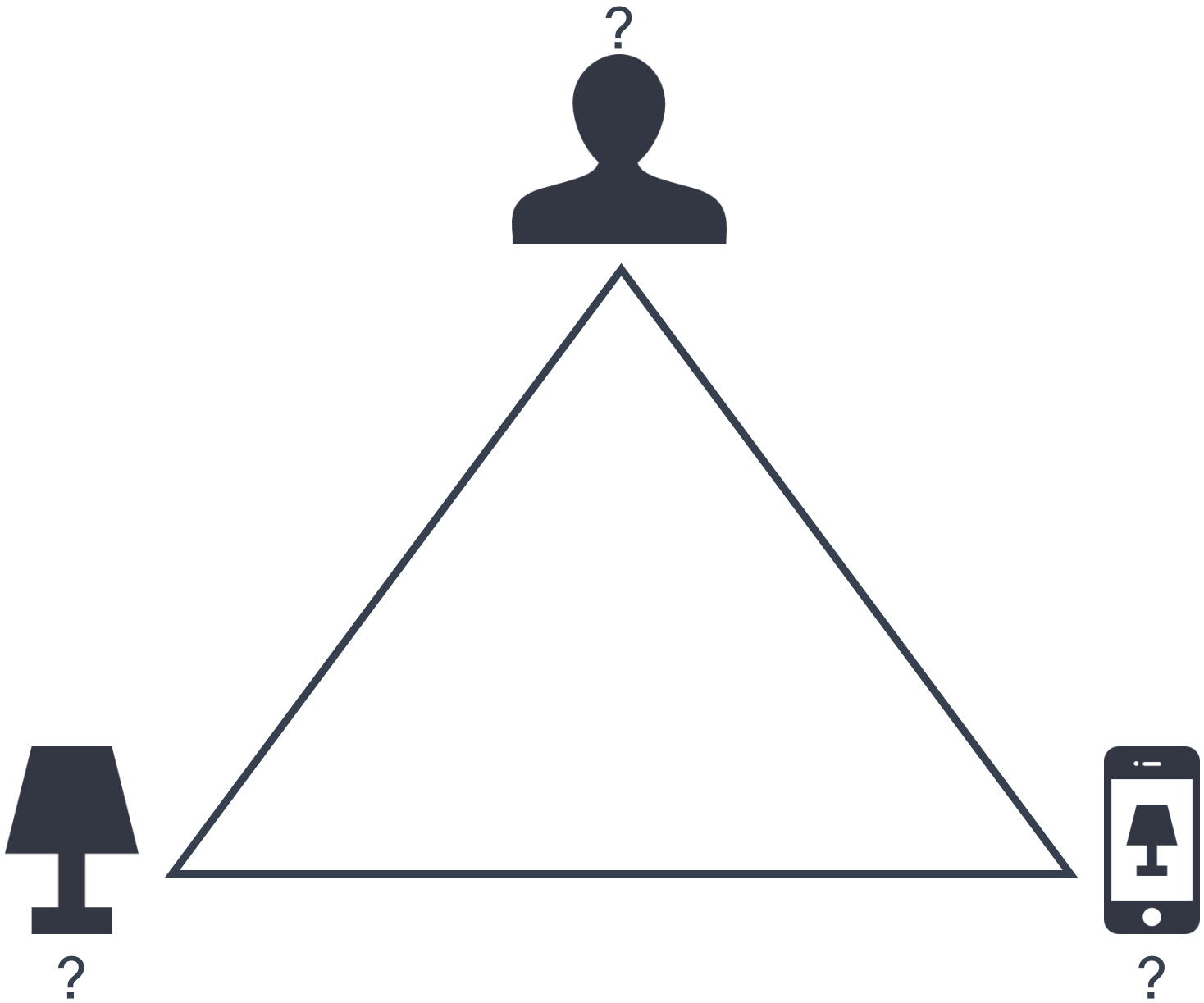



XMPP


XMPP
XMPP
XMPP
XMPP
XMPP

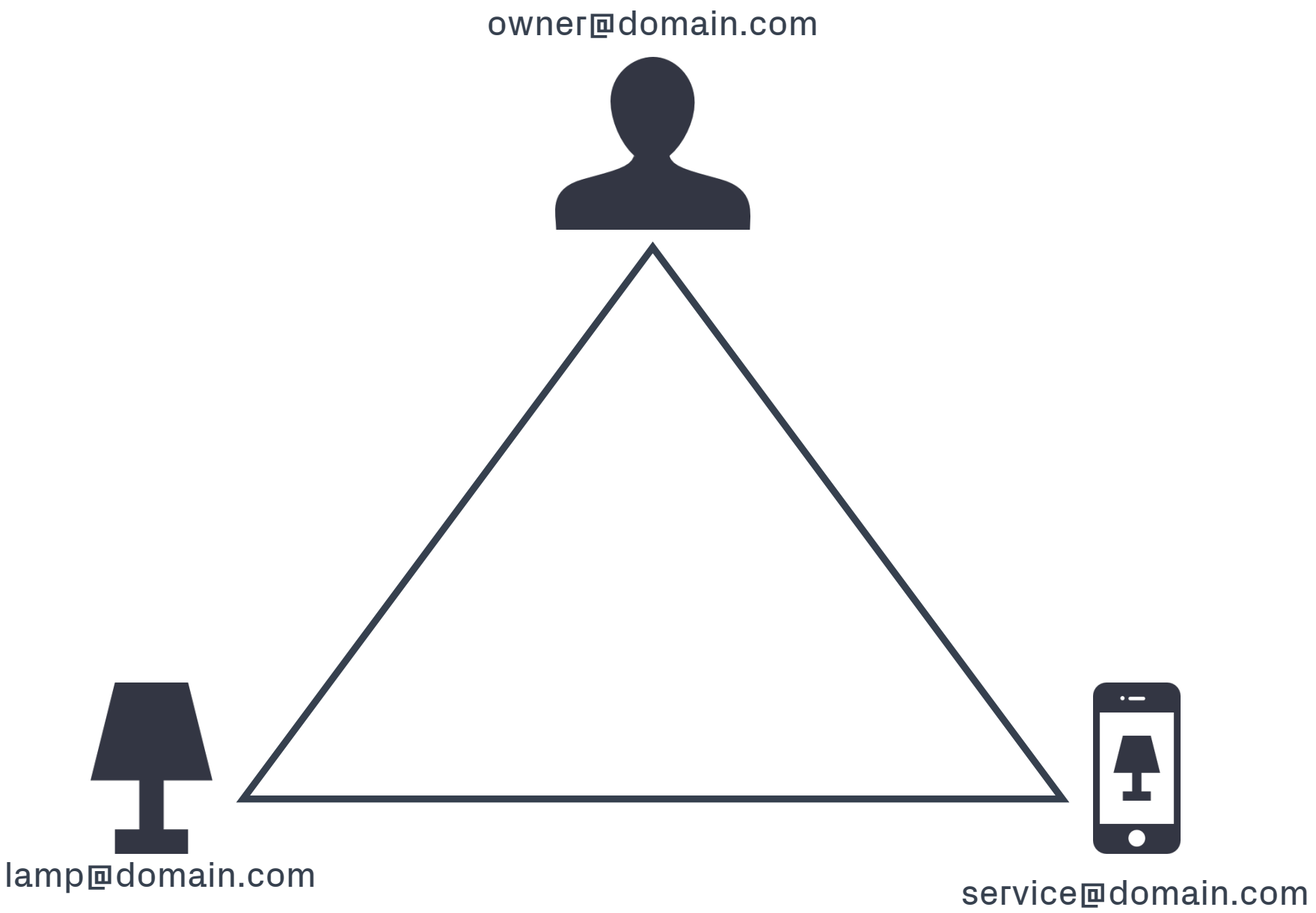
Identity, Security & Privacy

Identity

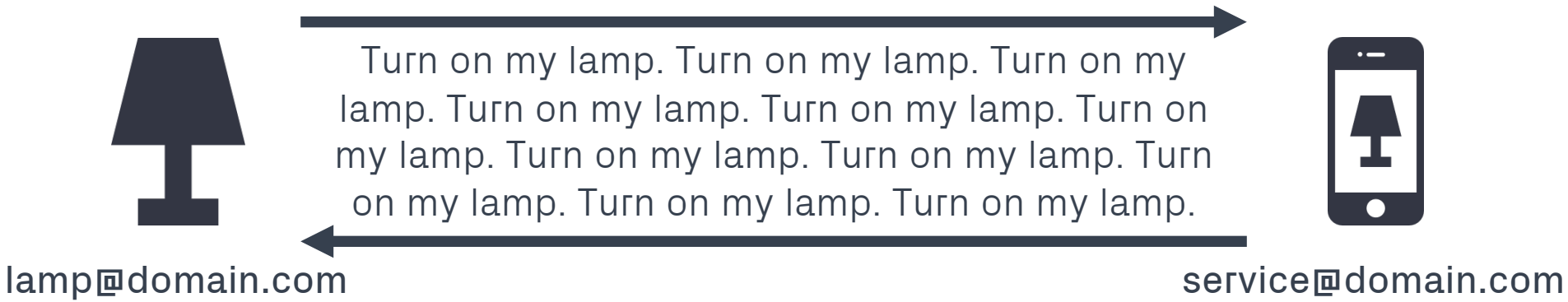


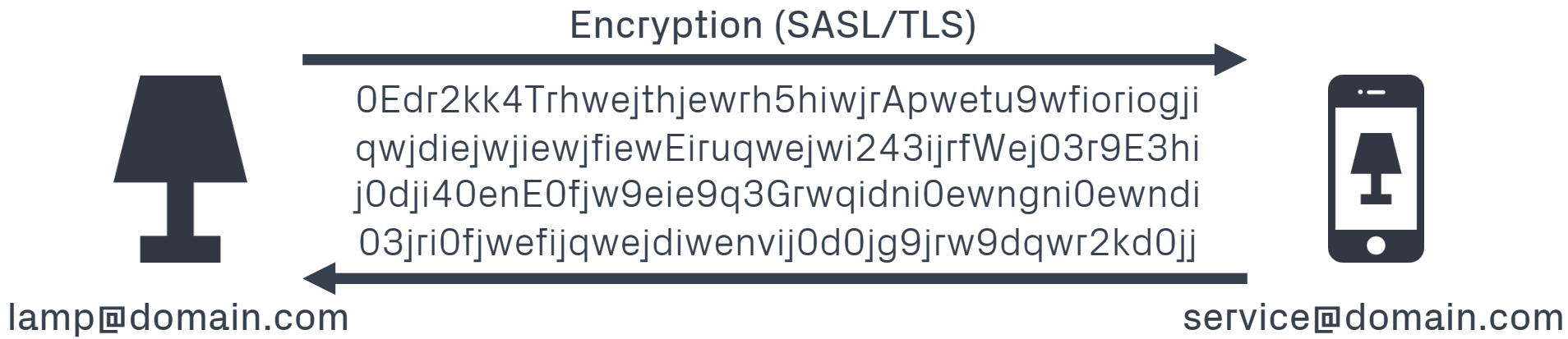
JID

name@domain.com

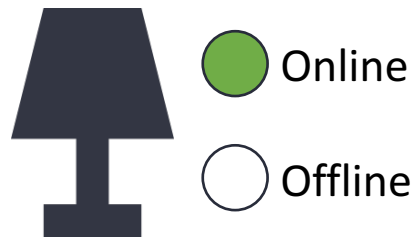

owner@domain.com
lamp@domain.com
service@domain.com

Security

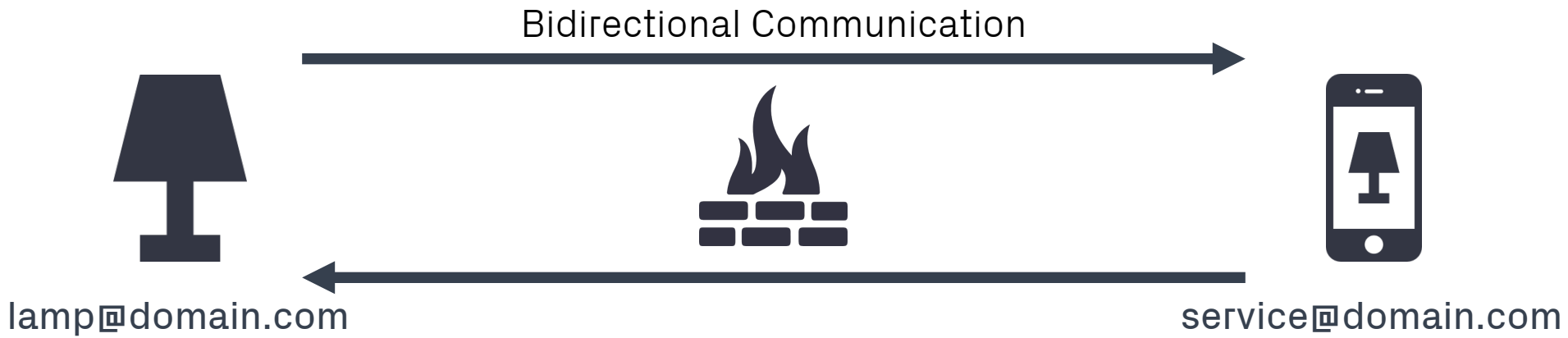

Turn on my lamp. Turn on my lamp. Turn on my lamp. Turn on my lamp. Turn on my lamp. Turn on my lamp. Turn on my lamp. Turn on my lamp. Turn on my lamp. Turn on my lamp. Turn on my lamp.
lamp@domain.com
service@domain.com


Encryption (SASL/TLS)
0Edr2kk4Trhwejthjewrh5hiwjrApwetu9wfioriogji
qwjdiejwjiewjfiewEiruqwejwi243ijrfWej03r9E3hi
j0dji40enE0fjw9eie9q3Grwqidni0ewngni0ewndi
03jri0fjwefijqwejdiwenvij0d0jg9jrw9dqwr2kd0jj
lamp@domain.com
service@domain.com

Presence


Online
Offline

Bidirectional


Bidirectional Communication
lamp@domain.com
service@domain.com

IoT XEP

Interoperability

Discovery &
Provisioning

Sensor Data
& Control

Concentrator

Registry

Registry
Id: lamp@domain.com
Vendor_Id: 23d1g2knflkd
Serial: 2302401530142104 1
Capabilities: On/Off, Energy Consumption, etc.
lamp@domain.com
exchange@domain.com

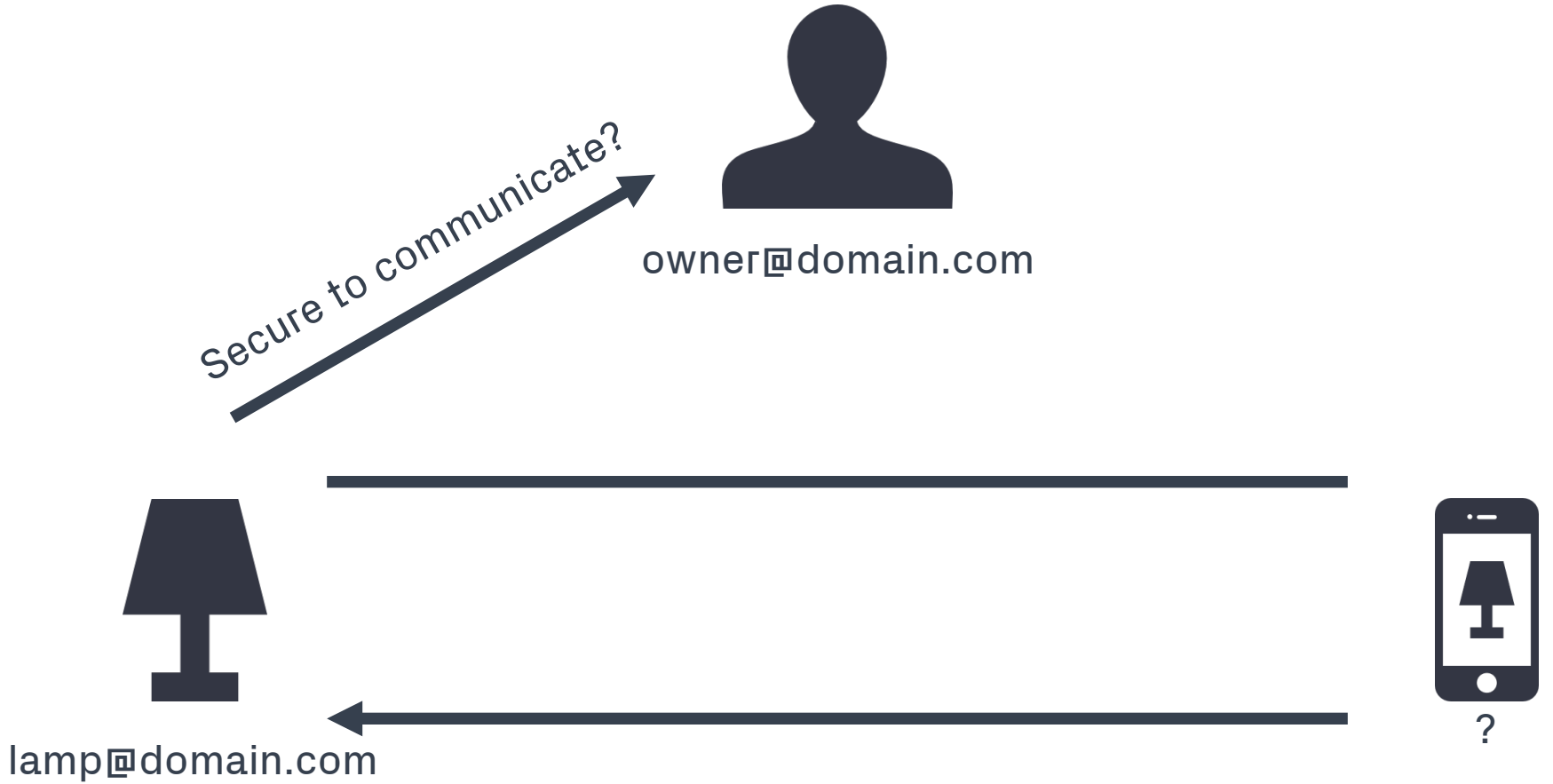
```
<iq type='set'
      from='thing@example.org/imc'
      to='provisioning.example.org'
      id='1'>
     <register xmlns='urn:xmpp:iot:provisioning'>
         <str name='SN' value='394872348732948723'/>
         <str name='MAN' value='www.ktc.se'/>
         <str name='MODEL' value='IMC'/>
         <num name='V' value='1.2'/>
         <str name='KEY' value='4857402340298342'/>
     </register>
  </iq>
```

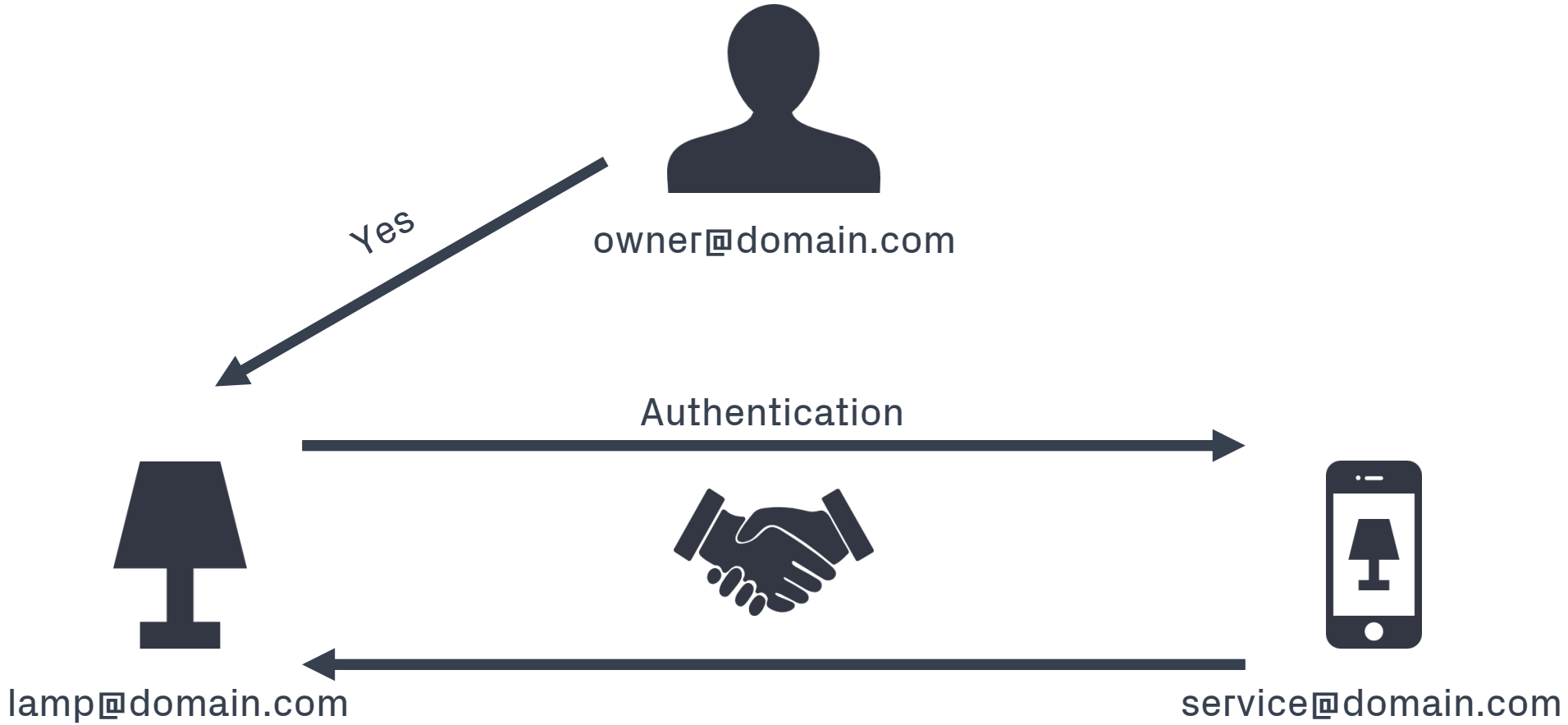
Ownership

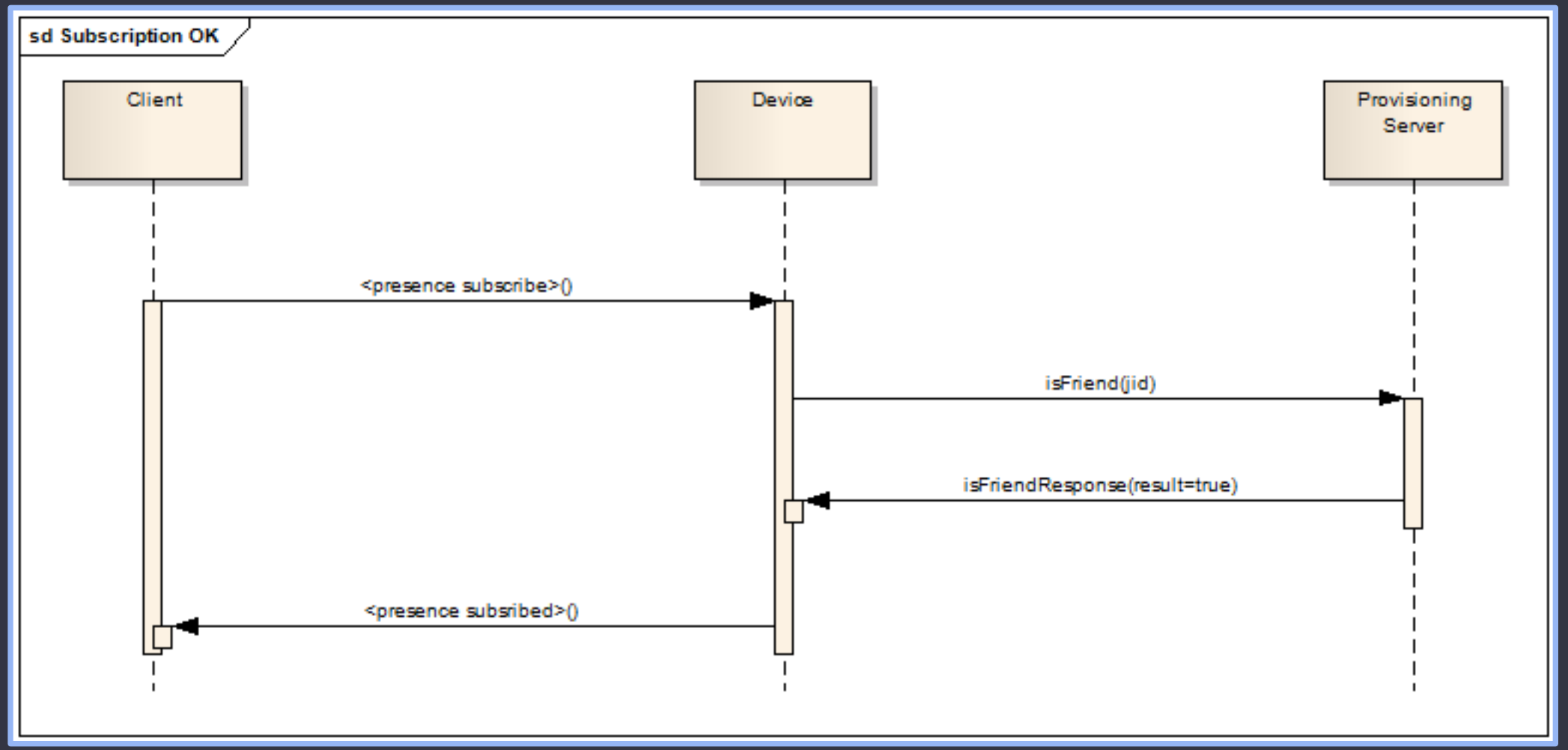
Claim
lamp@domain.com
owner@domain.com

```
<iq type='set'
       from='provisioning.example.org'
       to='thing@example.org/imc'
       id='5'>
      <claimed xmlns='urn:xmpp:iot:provisioning'
                          jid='owner@example.org'/>
</iq>
```

Authentication


Secure to communicate?
owner@domain.com
lamp@domain.com
?


Yes
owner@domain.com
Authentication
lamp@domain.com
service@domain.com


sd Subscription OK
Client
Device
Provisioning Server
<presence subscribe>()
isFriend(jid)
isFriendResponse(result=true)
<presence subsribed>()

```
<iq type='get'
       from='thing@example.org/imc'
       to='provisioning.example.org'
       id='9'>
      <isFriend xmlns='urn:xmpp:iot:provisioning'
            jid='client1@example.org'/>
</iq>
```

```
<iq type='result'
       from='provisioning.example.org'
       to='thing@example.org/imc'
       id='9'>
      <isFriendResponse xmlns='urn:xmpp:iot:provisioning'
            jid='client1@example.org' result='true'/>
</iq>
```

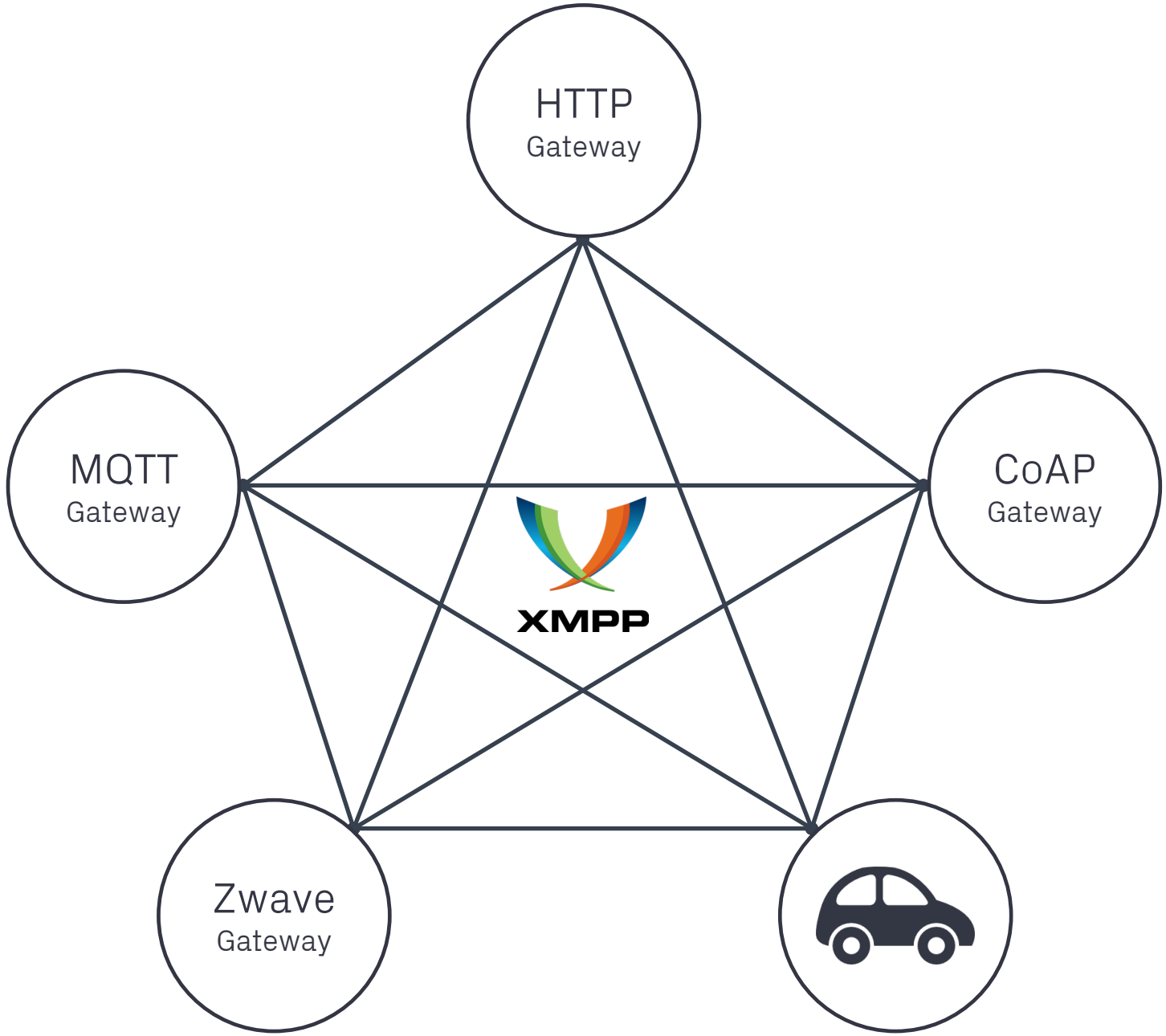
Read & Control

```
<iq type='get'
      from='client@example.org/amr'
      to='device@example.org'
      id='S0006'>
     <req xmlns='urn:xmpp:iot:sensordata' seqnr='6' momentary='true'>
        <node nodeId='Device04'/>
        <field name='Energy'/>
        <field name='Power'/>
     </req>
  </iq>
```

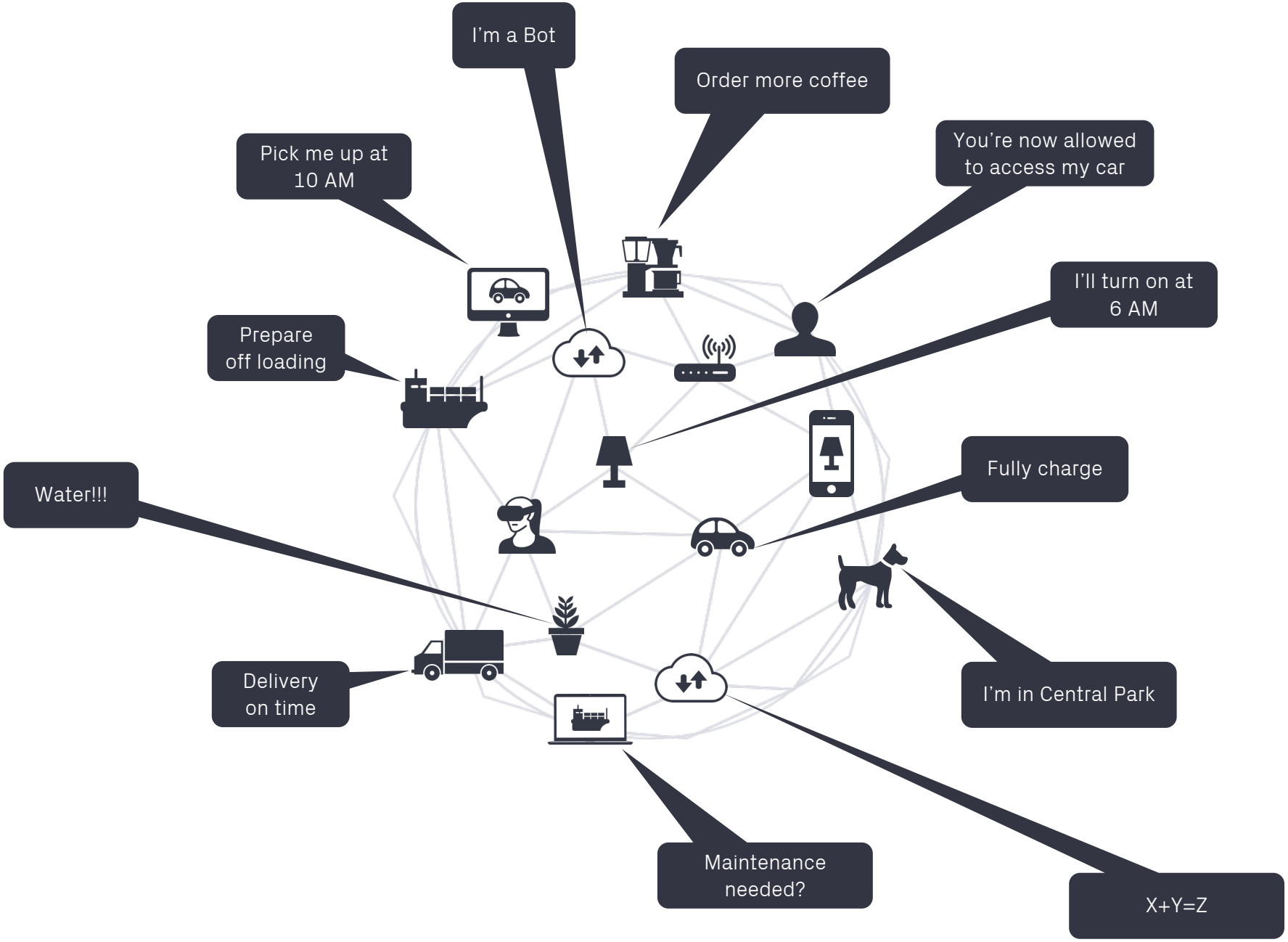
```
<iq type='result'
       from='device@example.org'
       to='client@example.org/amr'
       id='S0006'>
      <accepted xmlns='urn:xmpp:iot:sensordata' seqnr='6'/>
   </iq>
```

```
<message from='device@example.org'
            to='client@example.org/amr'>
      <fields xmlns='urn:xmpp:iot:sensordata' seqnr='6' done='true'>
         <node nodeId='Device04'>
            <timestamp value='2013-03-07T22:03:15'>
               <numeric name='Energy' momentary='true' automaticReadout='true' value='12345.67' unit='MWh'/>
               <numeric name='Power' momentary='true' automaticReadout='true' value='239.4' unit='W'/>
            </timestamp>
         </node>
      </fields>
   </message>
```

Concentrator


HTTP
Gateway
MQTT
Gateway
CoAP
Gateway
XMPP
Zwave
Gateway

Relationships


I'm a Bot
Order more coffee
Pick me up at 10 AM
You're now allowed to access my car
I'll turn on at 6 AM
Prepare off loading
Water!!!
Fully charge
Delivery on time
I'm in Central Park
Maintenance needed?
X+Y=Z

SDK

Example Code & Developer Kit

XMPP Internet of Things

Jump start with the most proven IoT infrastructure

Start Tutorial or Look into the basics Help out with the site

>10 years scalability and security

Takes the advantage of more than 10 years of profound scalability and security tests. There are massive amounts of servers and millions of users across the planet. That has run XMPP over many years. As from spring 2014 no public servers may run unencrypted

Truly open in all aspects

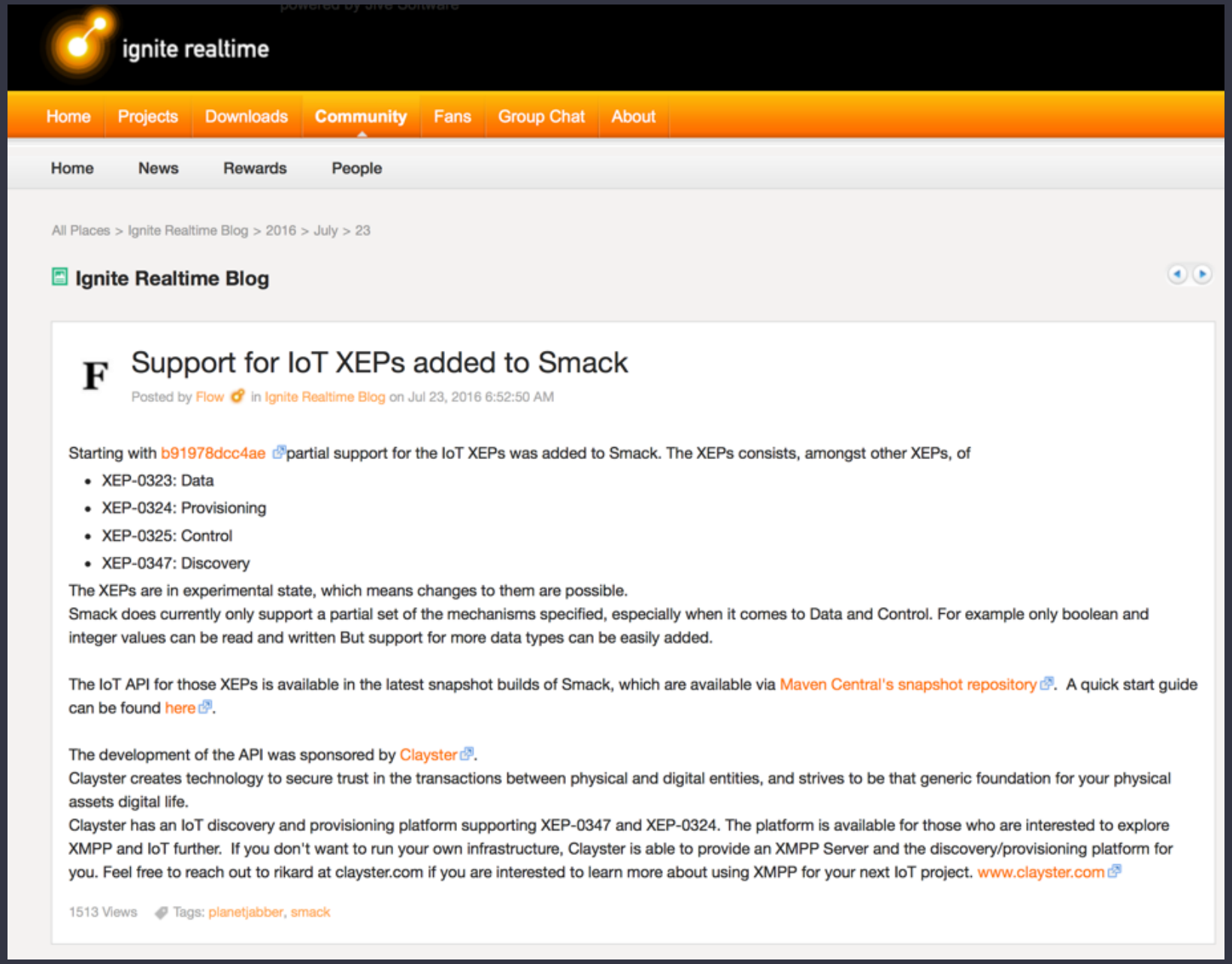
XMPP is an open community based IoT standard. No proprietary groups or memberships needed everything is on the XSF foundation site. There is only one point where changes are done

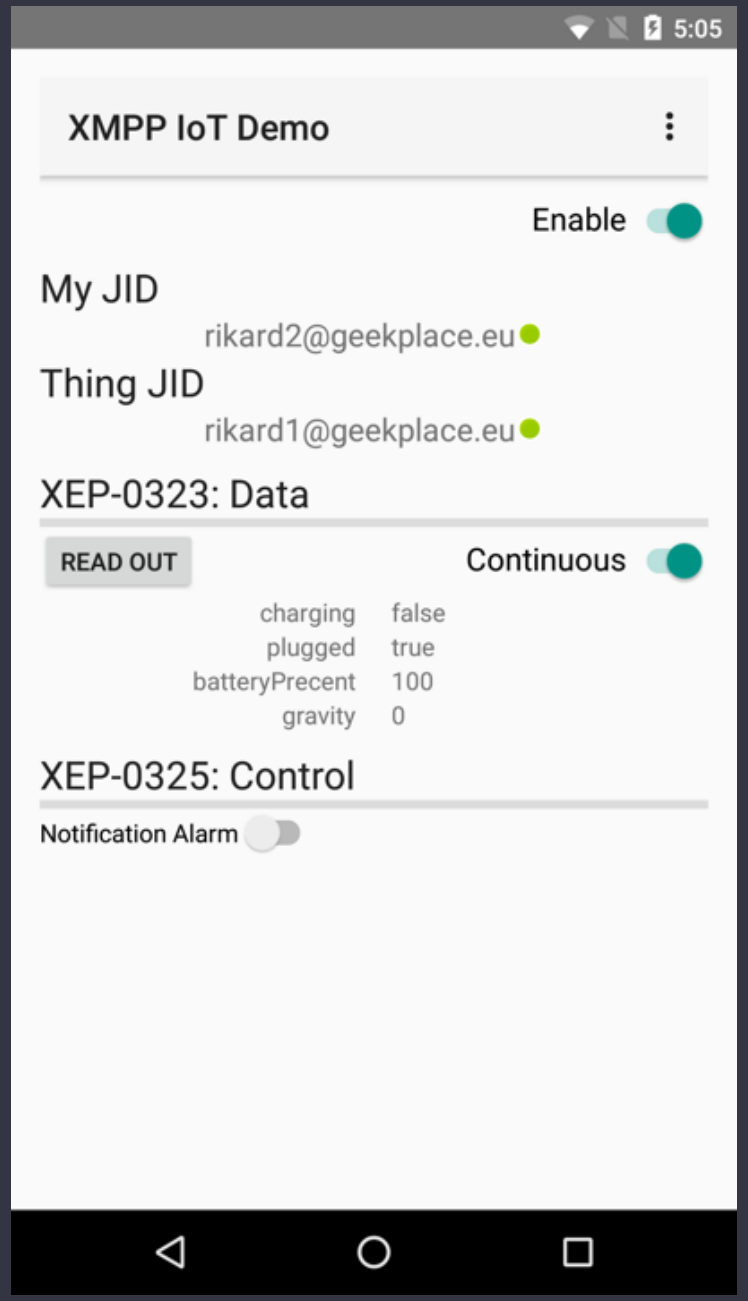
Every language

Software is available in any programming language, Servers, clients, toolkits even browser implementations. This makes it not only an easy start but also a future proof solution

Federation between businesses

Federation between servers is core functionality, gives you ability to share your systems and businessmodels with others without creating yet another REST api. Only hook up certificates and your business domain can talk to other companies anywhere on internet.


ignite realtime
Home
Projects
Downloads
Community
Fans
Group Chat
About
Home
News
Rewards
People
All Places > Ignite Realtime Blog > 2016 > July > 23
Ignite Realtime Blog
Support for IoT XEPs added to Smack
Posted by Flow in Ignite Realtime Blog on Jul 23, 2016 6:52:50 AM
Starting with b91978dcc4ae partial support for the IoT XEPs was added to Smack. The XEPs consists, amongst other XEPs, of
XEP-0323: Data
XEP-0324: Provisioning
XEP-0325: Control
XEP-0347: Discovery
The XEPs are in experimental state, which means changes to them are possible.
Smack does currently only support a partial set of the mechanisms specified, especially when it comes to Data and Control. For example only boolean and integer values can be read and written But support for more data types can be easily added.
The IoT API for those XEPs is available in the latest snapshot builds of Smack, which are available via Maven Central's snapshot repository. A quick start guide can be found here.
The development of the API was sponsored by Clayster.
Clayster creates technology to secure trust in the transactions between physical and digital entities, and strives to be that generic foundation for your physical assets digital life.
Clayster has an IoT discovery and provisioning platform supporting XEP-0347 and XEP-0324. The platform is available for those who are interested to explore XMPP and IoT further. If you don't want to run your own infrastructure, Clayster is able to provide an XMPP Server and the discovery/provisioning platform for you. Feel free to reach out to rikard at clayster.com if you are interested to learn more about using XMPP for your next IoT project. www.clayster.com
1513 Views
Tags: planetjabber, smack


5:05
XMPP IoT Demo
Enable
My JID
rikard2@geekplace.eu
Thing JID
rikard1@geekplace.eu
XEP-0323: Data
READ OUT
Continuous
charging false
plugged true
batteryPrecent 100
gravity 0
XEP-0325: Control
Notification Alarm

Sensor Data

This specification provides the common framework for sensor data interchange over XMPP networks.
http://xmpp.org/extensions/xep-0323.html

Provisioning

This specification describes an architecture for efficient provisioning of services, access rights and user privileges in for the Internet of Things, where communication between Things is done using the XMPP protocol.
http://xmpp.org/extensions/xep-0324.html

Control

This specification describes how to control devices or actuators in an XMPP-based sensor network.
http://xmpp.org/extensions/xep-0325.html

Concentrators

This specification describes how to manage and get information from concentrators of devices over XMPP networks.
http://xmpp.org/extensions/xep-0326.html

Discovery

This specification describes an architecture based on the XMPP protocol whereby Things can be installed and safely discovered by their owners and connected into networks of Things.
http://xmpp.org/extensions/xep-0347.html

http://www.xmpp-iot.org

https://community.igniterealtime.org/blogs/ignite/2016/07/23/support-for-iot-xeps-added-to-smack

https://blog.securitycompass.com/xmpp-swiss-army-knife-for-internet-of-things-iot-9eff783c44ba#.kl6tb66fi

Thank you for your time

rikard@clayster.com