



Challenges in XMPP and SIP interoperability

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Hello

- I'm Saúl, a SIP guy
- @saghul
- Passionate about VoIP, SIP, XMPP and Real Time Communications
- Had a blast at XMPP summit!

AG Projects

- SIP Infrastructure for providers
- Focused on Open Standards
- ❤️ Open Source



Building a SIP to XMPP gateway

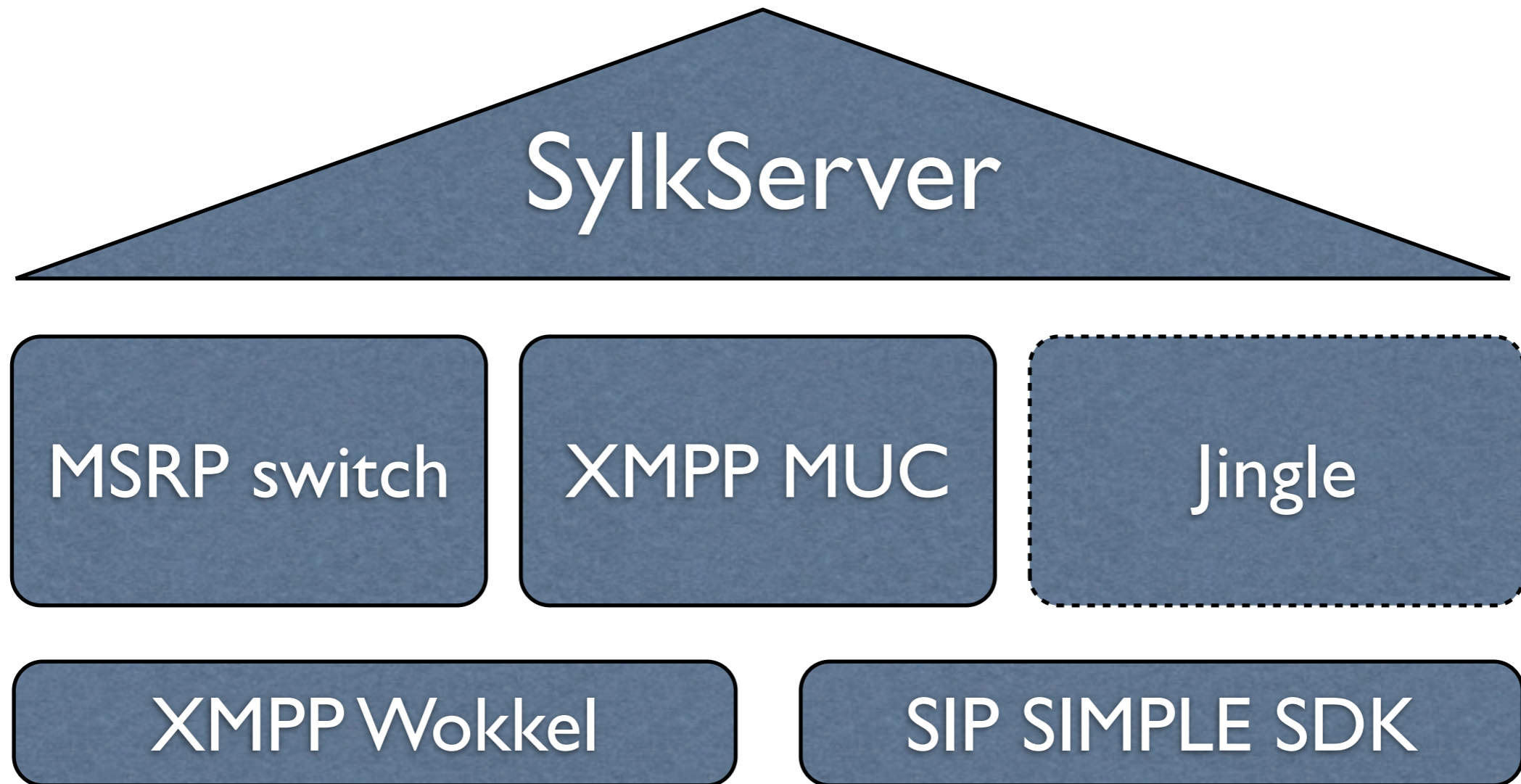
Motivation

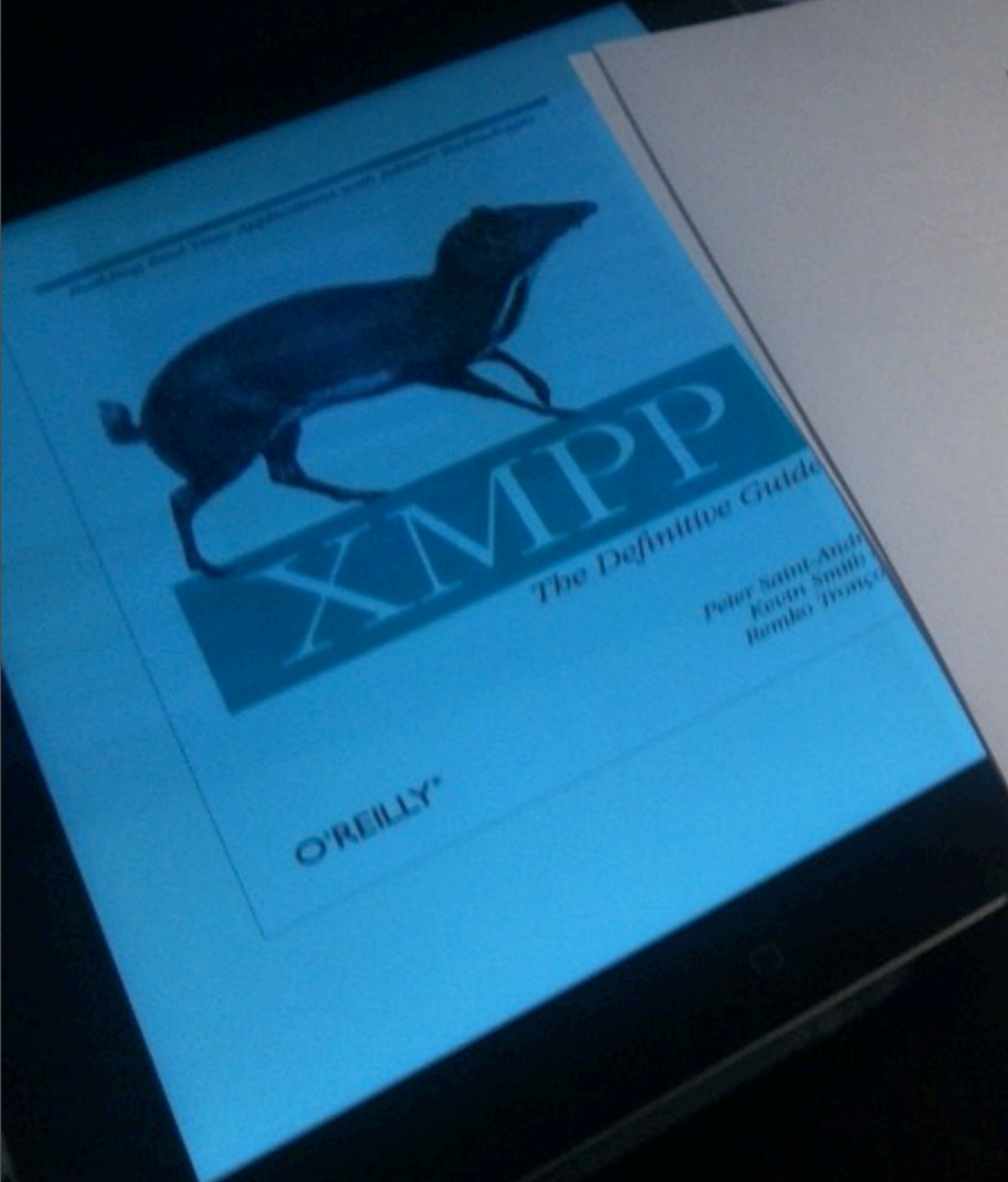
- Every Real Time Communications service uses SIP or XMPP at the border
- XMPP opens the door to millions of IM users
- Existing projects didn't properly fill the gap
- World domination


Foundation


- SIP SIMPLE SDK for SIP
- Wokkel for XMPP
- Python programming language

End Product





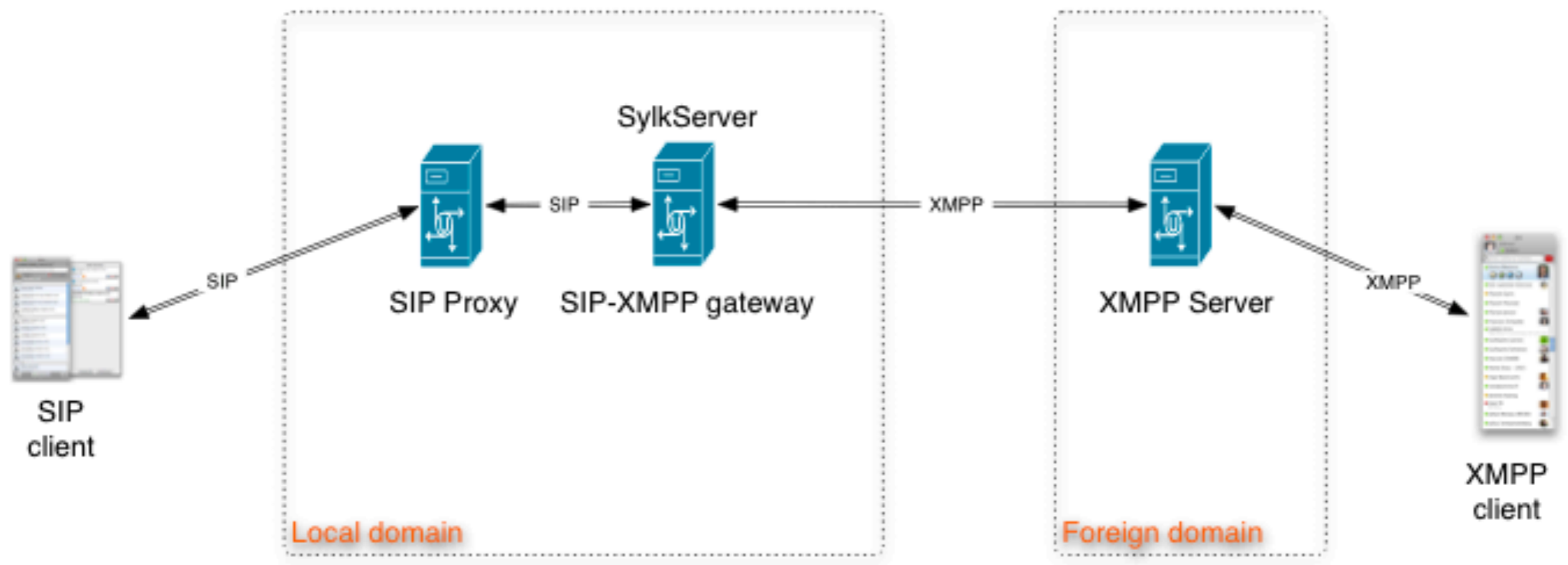

XMPP
XEP-0177: Jingle
Joe Bada
mailto:jbada@google.com
xmpp:jbada@google.com
Joe Bada
mailto:jbada@google.com
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This specification defines a Jingle transport method that results in program associations via the User Datagram Protocol (UDP). This transport method uses the Interactive Connectivity Establishment (ICE) methodology, which provides NAT traversal.


XMPP
XEP-0176: Jingle ICE-UDP Transport Method
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Scott Ludwig
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https://xmpp.org/specifications/jingle-ice-udp/1.0/2009-06-10/Sean Egan
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xmpp:robert.mcqueen@collabora.co.uk
2009-06-10
Version 1.0
Status Type Short Name
Draft Standards Track jingle-ice-udp
This specification defines a Jingle transport method that results in program associations via the User Datagram Protocol (UDP). This transport method uses the Interactive Connectivity Establishment (ICE) methodology, which provides NAT traversal.

Gateway design

- **Transparent**, no need to craft special URIs to route between the two universes
- **No configuration**
- Server vs Component

SIP - XMPP gateway architecture as an XMPP server



Previous work

- Various drafts by Peter St.Andre (2008)
 - draft-saintandre-sip-xmpp-core-01
 - draft-saintandre-sip-xmpp-presence-02
 - draft-saintandre-sip-xmpp-im-01
 - draft-saintandre-sip-xmpp-chat-03
 - draft-saintandre-sip-xmpp-groupchat-01

Address translation

- XMPP JIDs have a resource field
- SIP GRUU (RFC 5627)

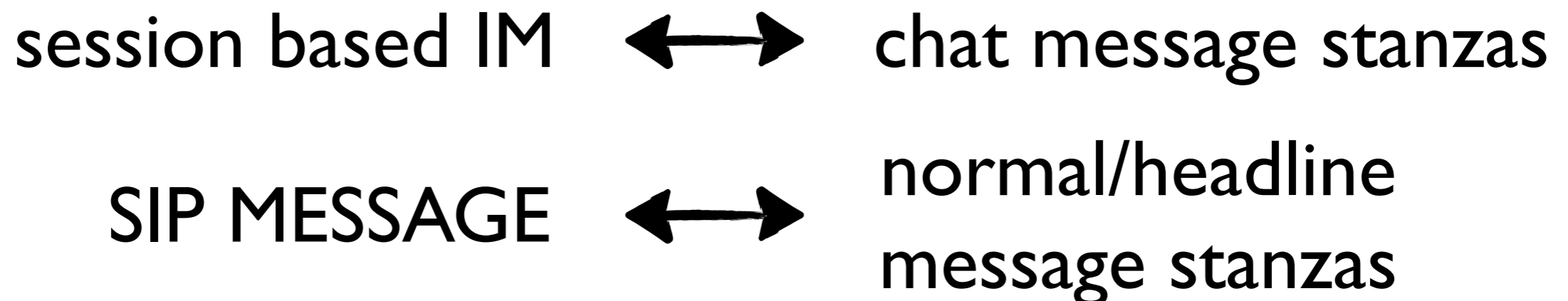
alice@example.com/hfje390



sip:alice@example.com;gr=hfje390

Chat translation

- Different message stanza types: normal, chat or headline
- Two IM modes in SIP: pager mode and session based



Chat translation

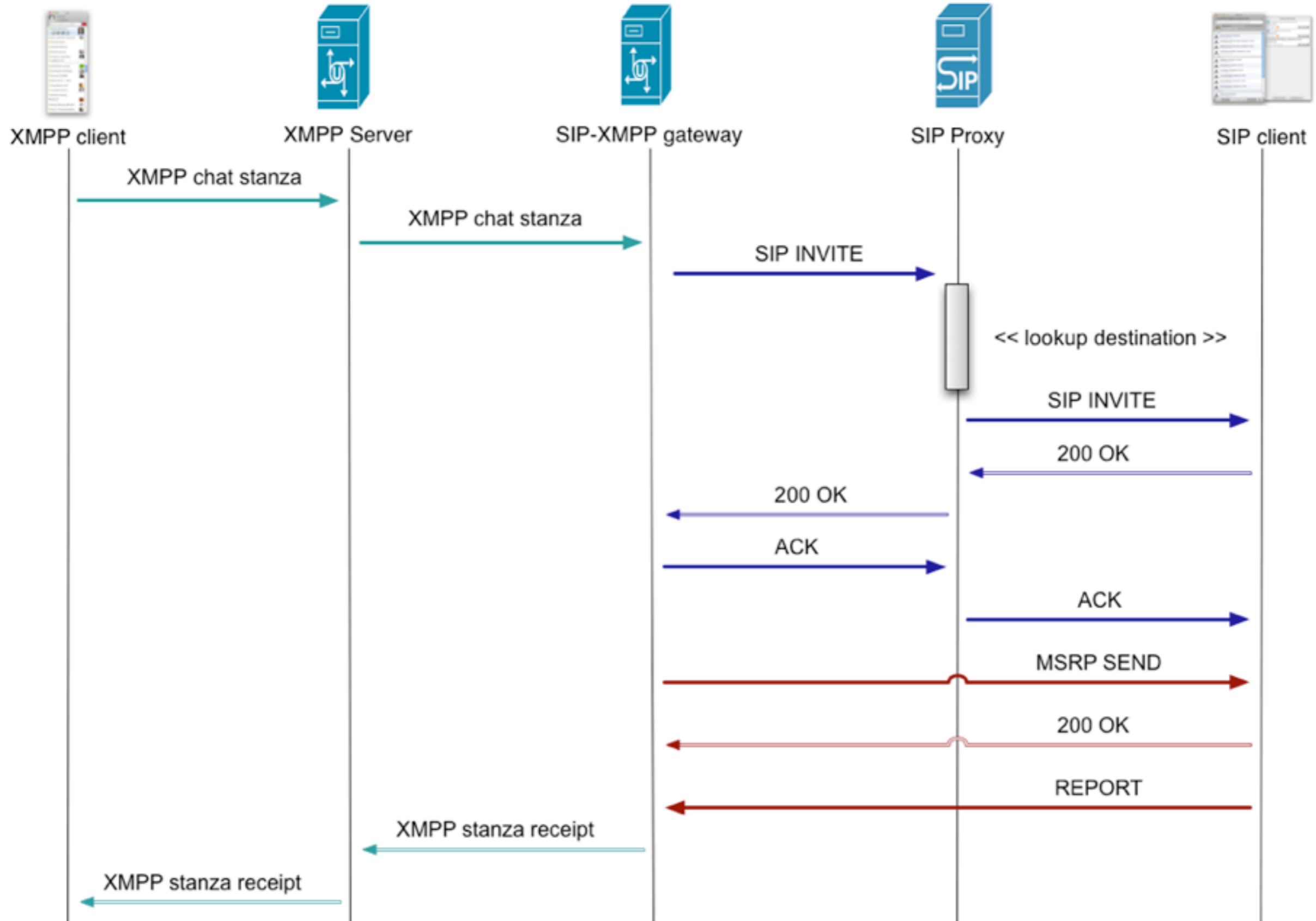
- Not all XMPP clients use explicit sessions
- Any clients implementing XEP-0155?
(formal sessions)
- Not all clients implement XEP-0201
(thread usage)

Use heuristics to detect if 2 endpoints
are engaged in conversation

Chat translation

- Good support for XEP-0085 (chat states)
- Timing based session teardown is not always desired
- XEP-0184 (receipts) are useful for acknowledging message delivery in MSRP (REPORT method)

SIP Infrastructure Experts



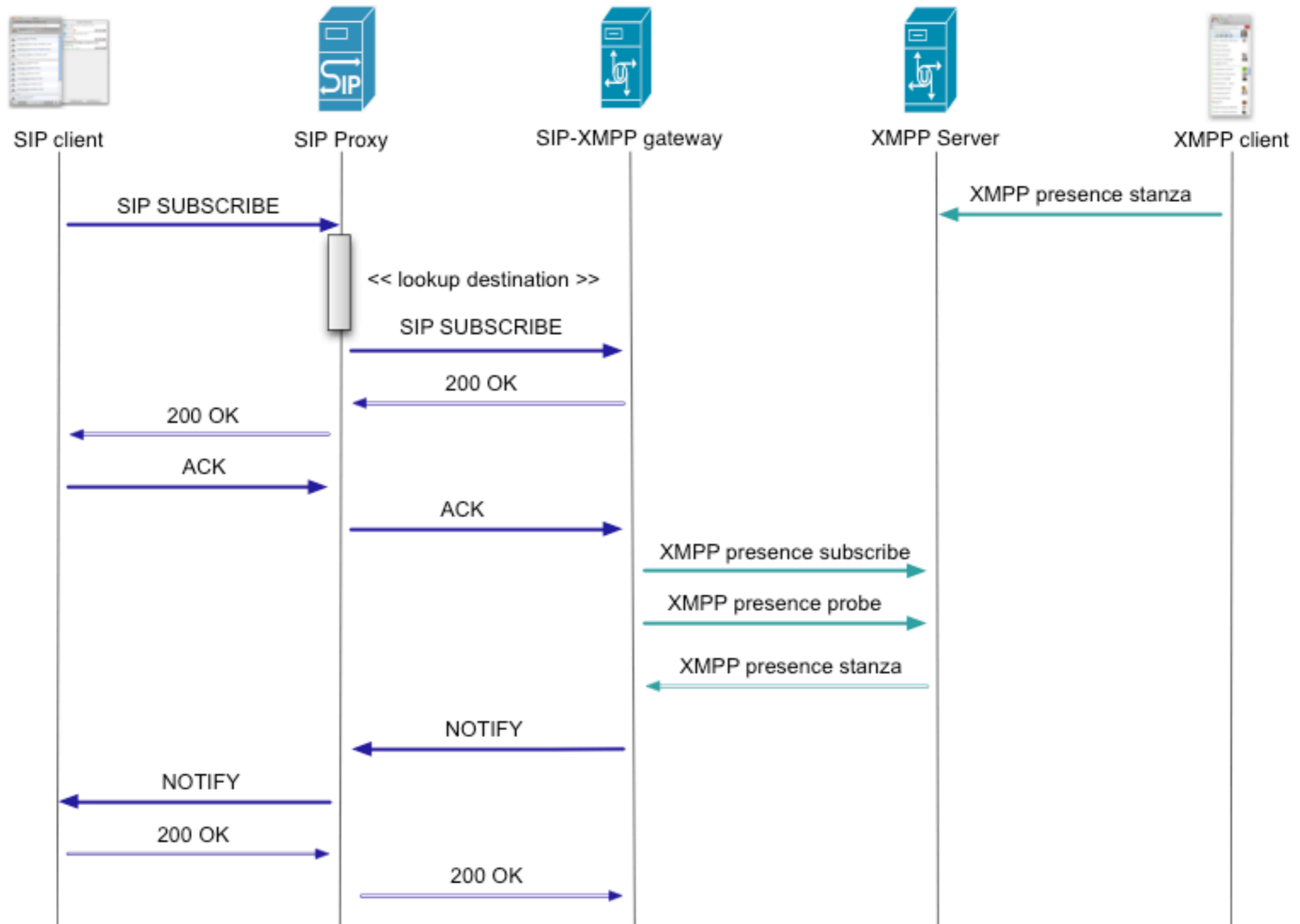
Presence translation

- SIP encapsulates presence state in a single document
- XMPP has `<presence/>` and PEP

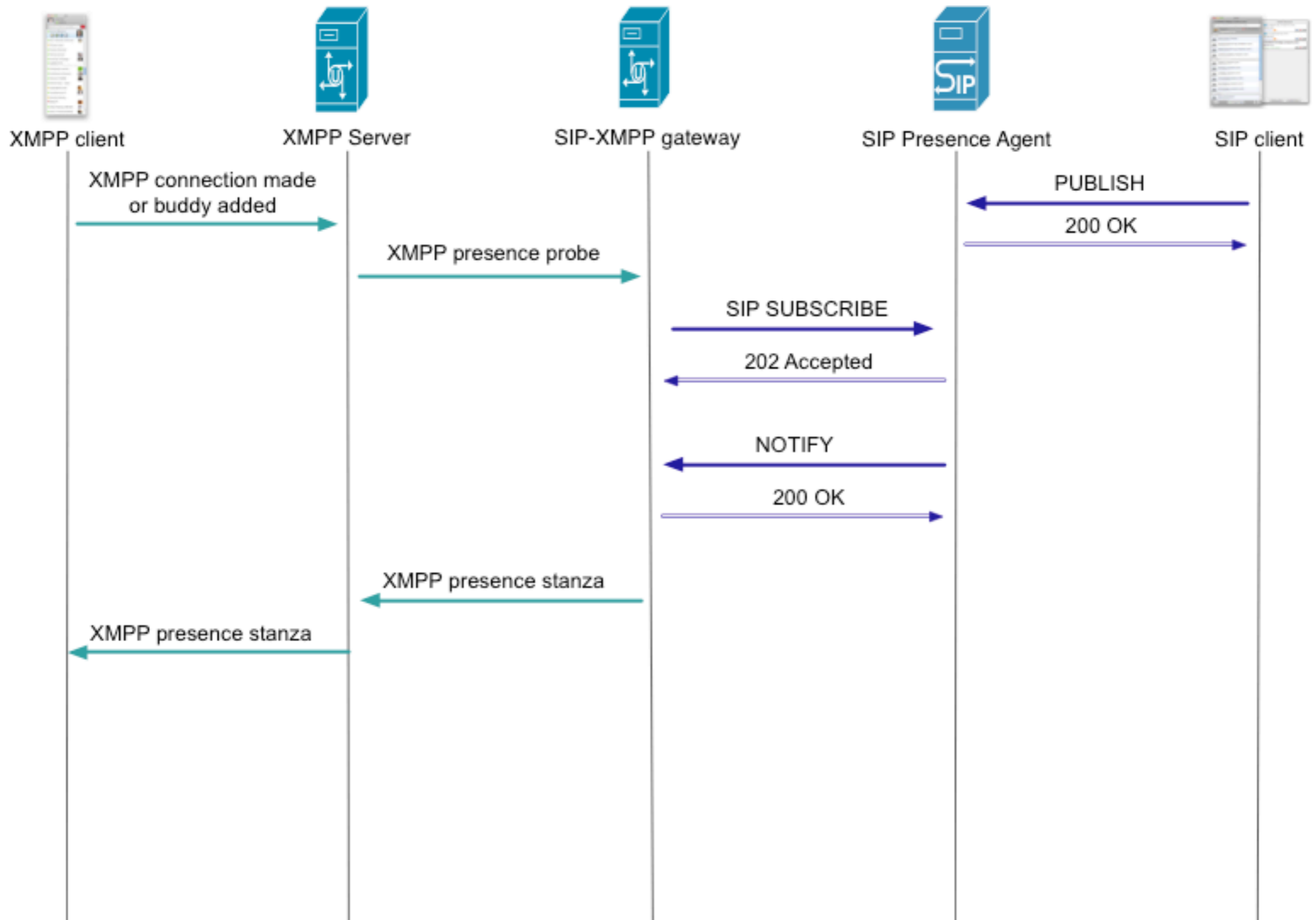
Presence translation

- XMPP resource can't be used as PIDF tuple ID (as with GRUU)
- Fewer presence states in SIP
 - Extension to PIDF with 'available', 'busy', 'away' states - maybe use <show/> directly

SIP Infrastructure Experts



SIP Infrastructure Experts



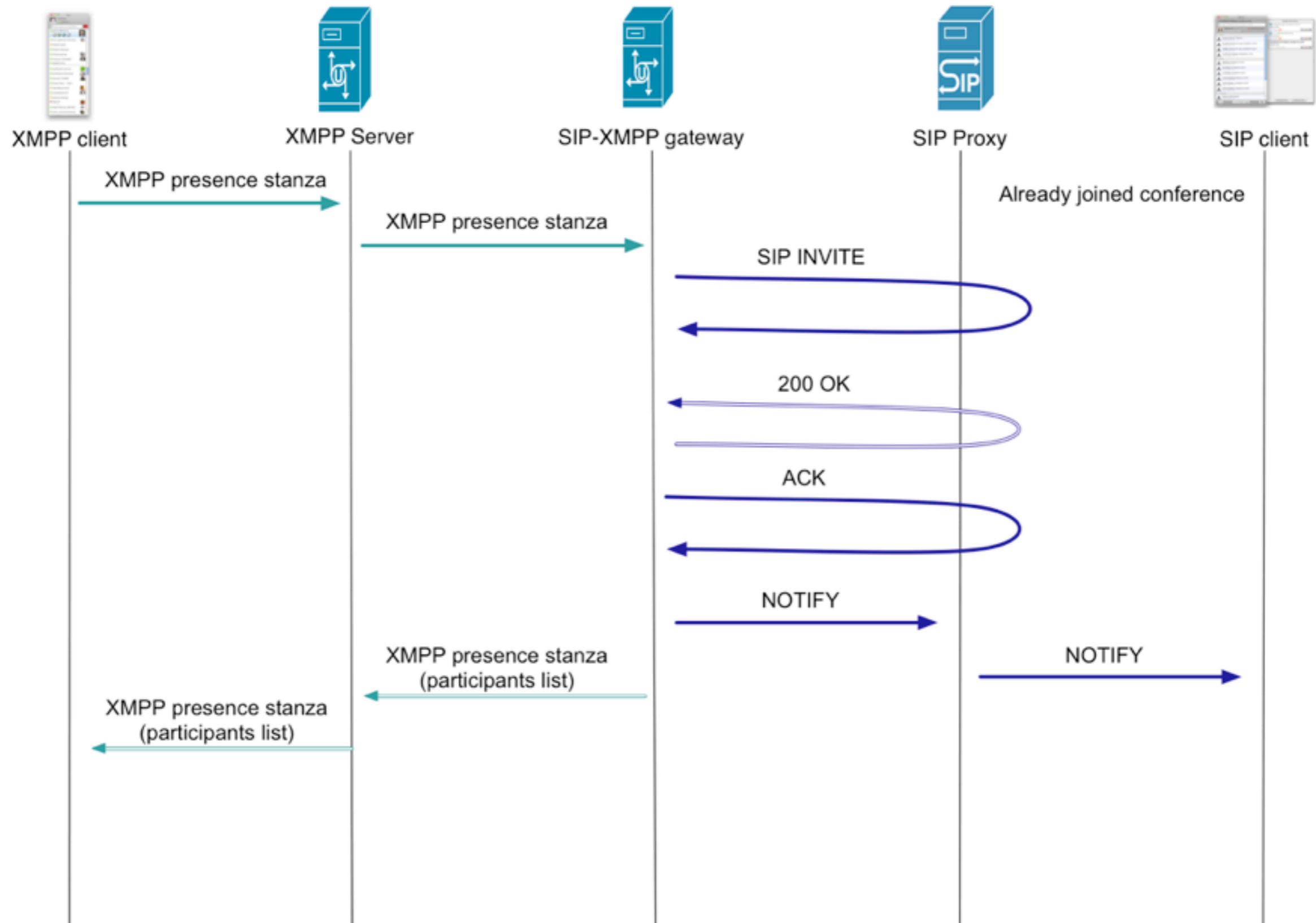
Multiparty chat translation

- Easiest part of them all!
- Limited to features offered in SIP
- Some XMPP endpoints require XEP-0030 (disco)
- In SylkServer the conference really takes place in SIP

Multiparty chat translation

- RFC4575 is used to translate participants list
- Ambiguity between SIP display name and nickname
- Not all clients deal well with nickname conflicts

SIP Infrastructure Experts



DEMO



ALL THE THINGS!



ACHIEVEMENT UNLOCKED

Built a working SIP - XMPP gateway

www.technology-ninja.com

Next steps

- Jingle (Gingle?)
- File transfer
- Conferencing: XEP-0298 (COIN)
- Work on XMPP - SIP interoperability drafts

Credits

SylkServer development was sponsored by NLNet and AG Projects as part of “The WormHole Project”

<http://nlnet.nl/news/2011/2011-awards.html>



AG Projects

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```
<presence type='unavailable'>  
    <status>Thank you!</status>  
</presence>
```



saul@ag-projects.com

twitter



@saghul



XMPP