



WaveOne

The whole web become a realtime collaboration platform

Erlang Factory 2010

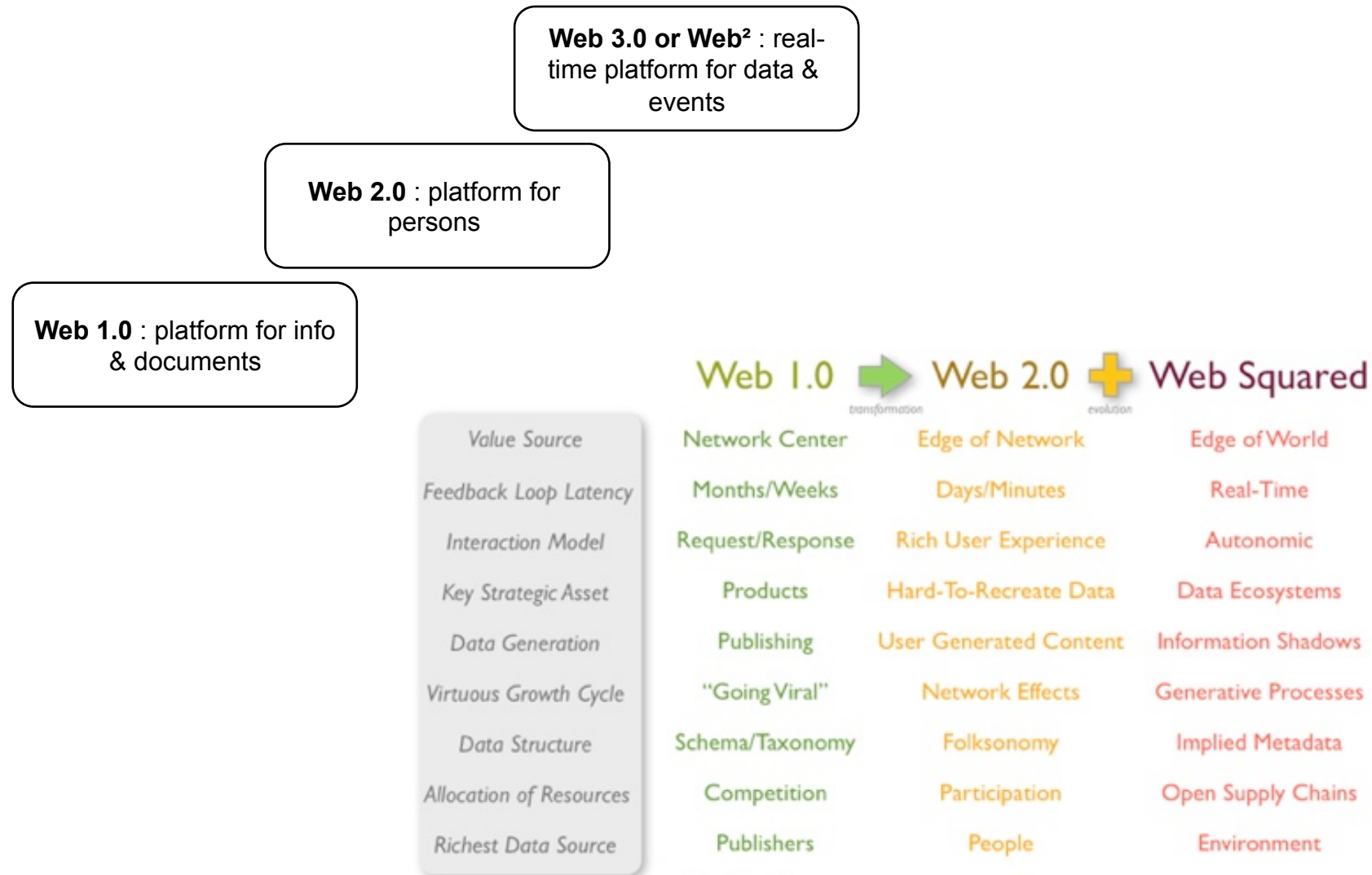
ProcessOne delivers scalable and robust systems to support creative Instant Messaging applications www.process-one.net



Building the real time web: Initial problem

ProcessOne delivers scalable and robust systems to support creative Instant Messaging applications www.process-one.net

Realtime web: A natural trend of the web



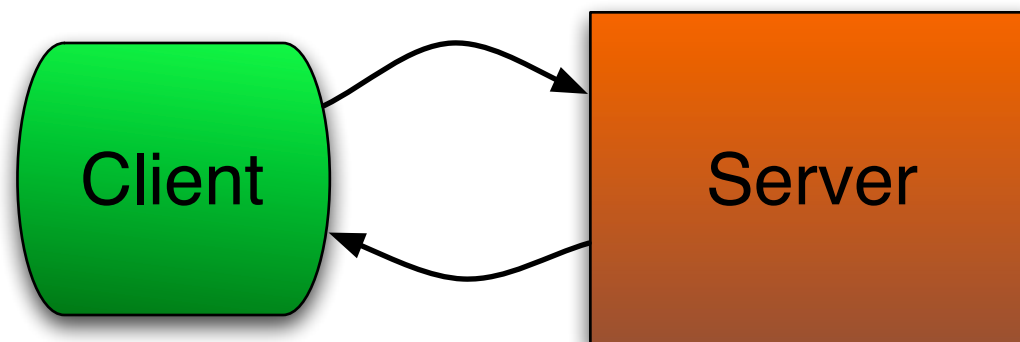
CC BY Source: Dion Hinchcliffe, 2009. <http://hinchcliffeandcompany.com>

Build with inadequate technologies

- ☞ **Inadequate** technologies have been used for that.
- ☞ HTTP is **ubiquitous** so it has been used as a basis.
- ☞ **request and response** paradigm, not adequate for **push**
 - ☞ Push is the basis of realtime web:
 - ☞ = distribution of event coming from the server or another client.
- ☞ **AJAX** has been invented to **simulate push**, but it is a hack on a technology which is not adequate.
- ☞ Most services that claim to be real time are not trully real time.
- ☞ Example Twitter:
 - ☞ No push: polling based. A client need to send requests frequently to the server to check if there is new content.
 - ☞ Event received are most of the time delayed.

HTTP limitations

- Request and response mechanism.
- AJAX work around add an overhead with lots of HTTP headers.
- Lack of addressing scheme: You cannot address a user: You cannot only send content back to an HTTP connection.
- Architecture simple but not very flexible:



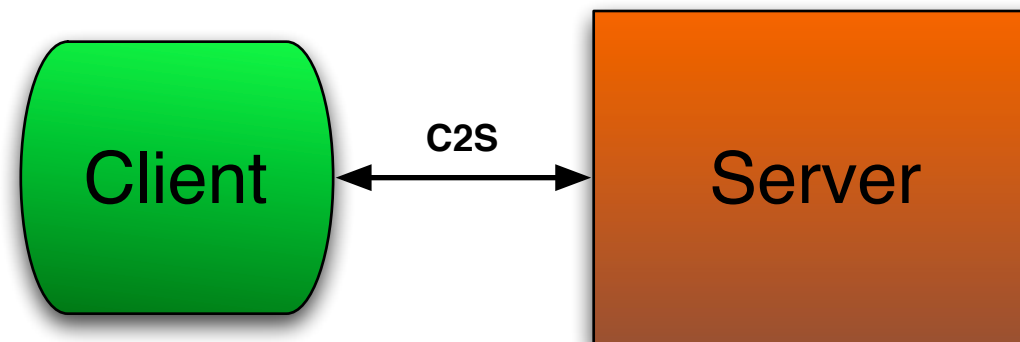


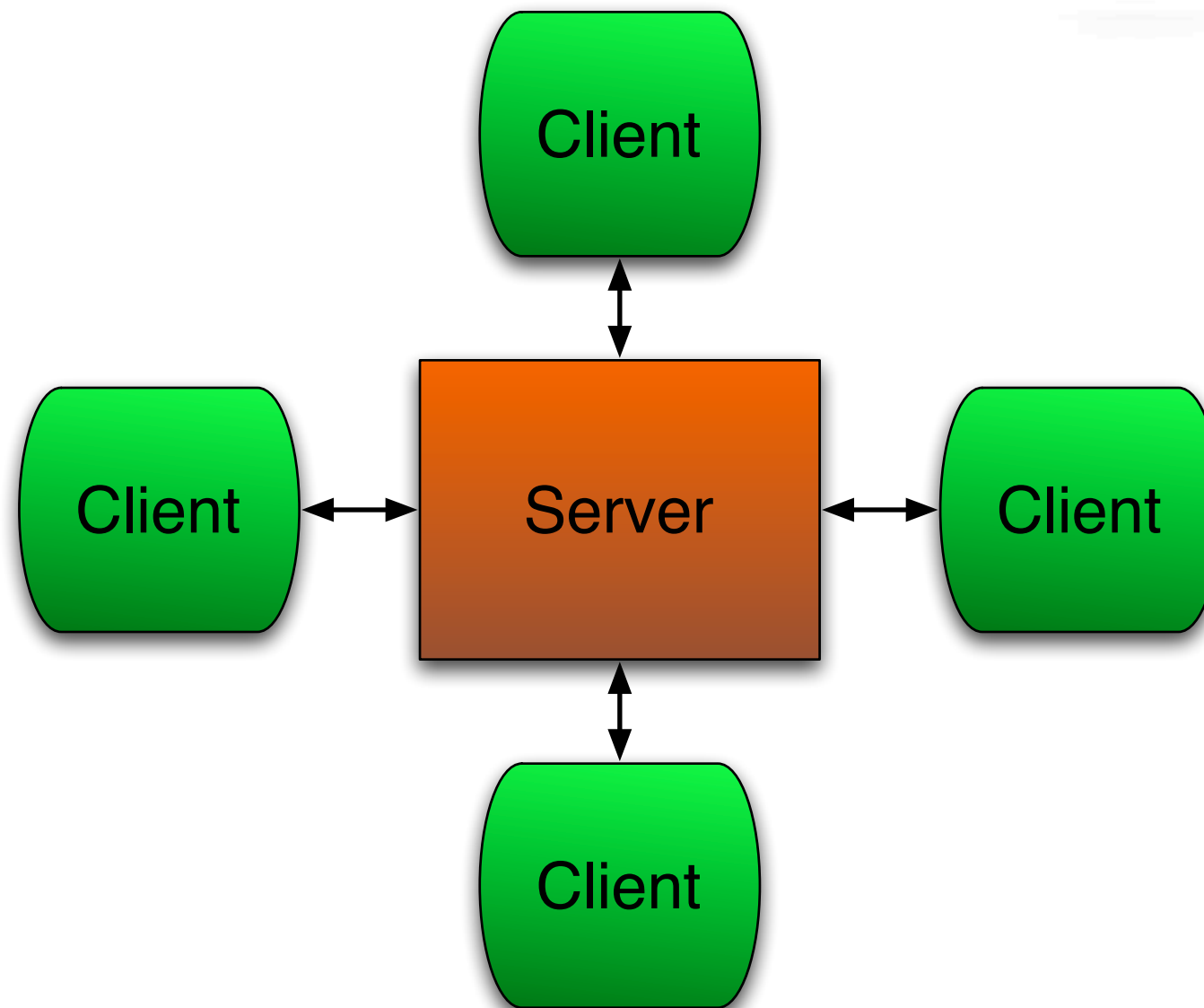
XMPP: emerging solution for realtime user interactions

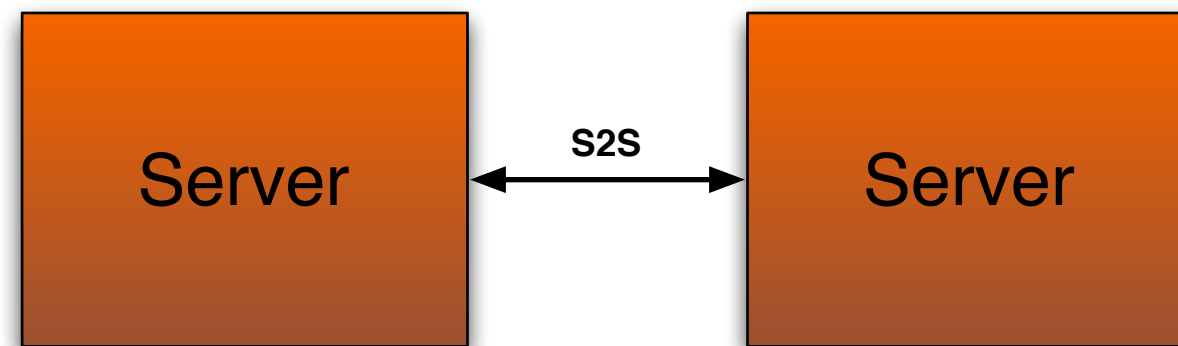
ProcessOne delivers scalable and robust systems to support creative Instant Messaging applications www.process-one.net

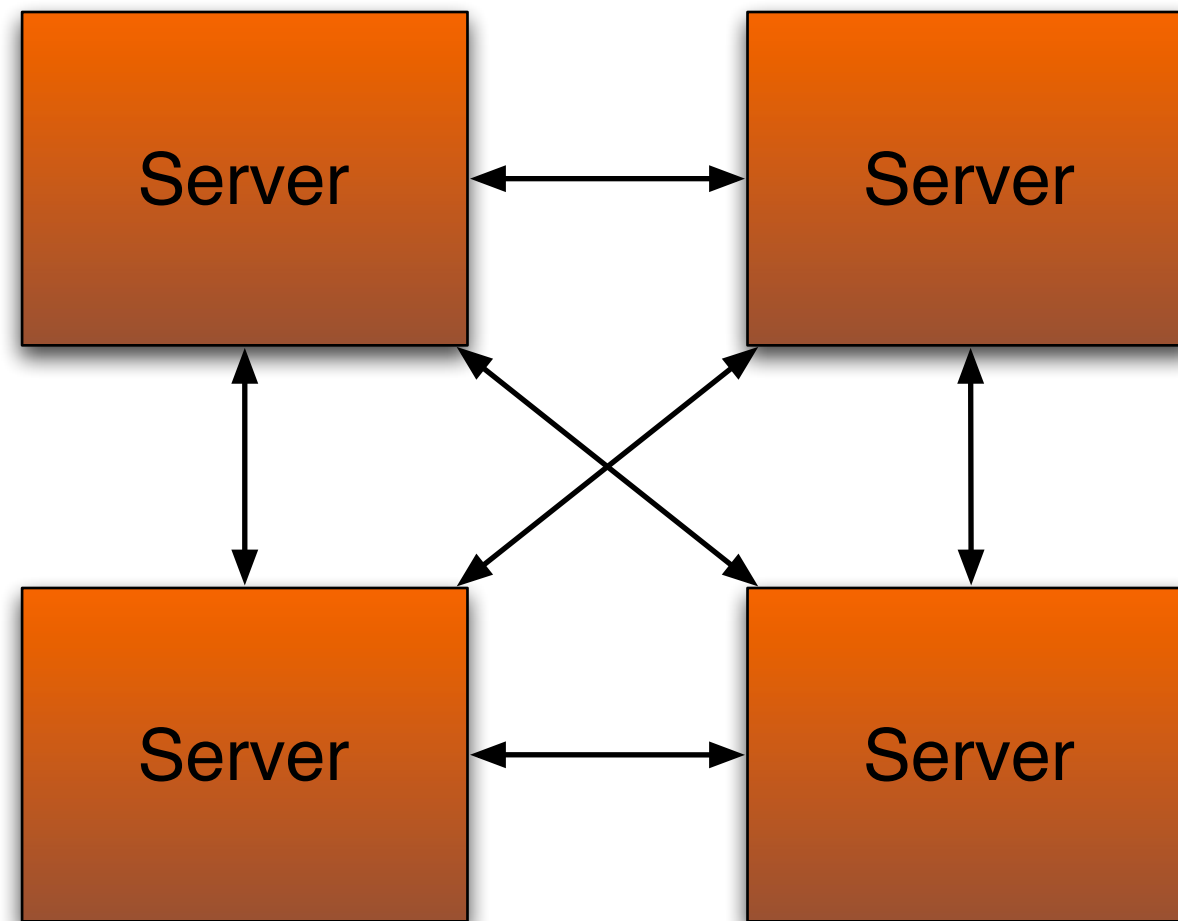
Emerging protocol for realtime web: XMPP

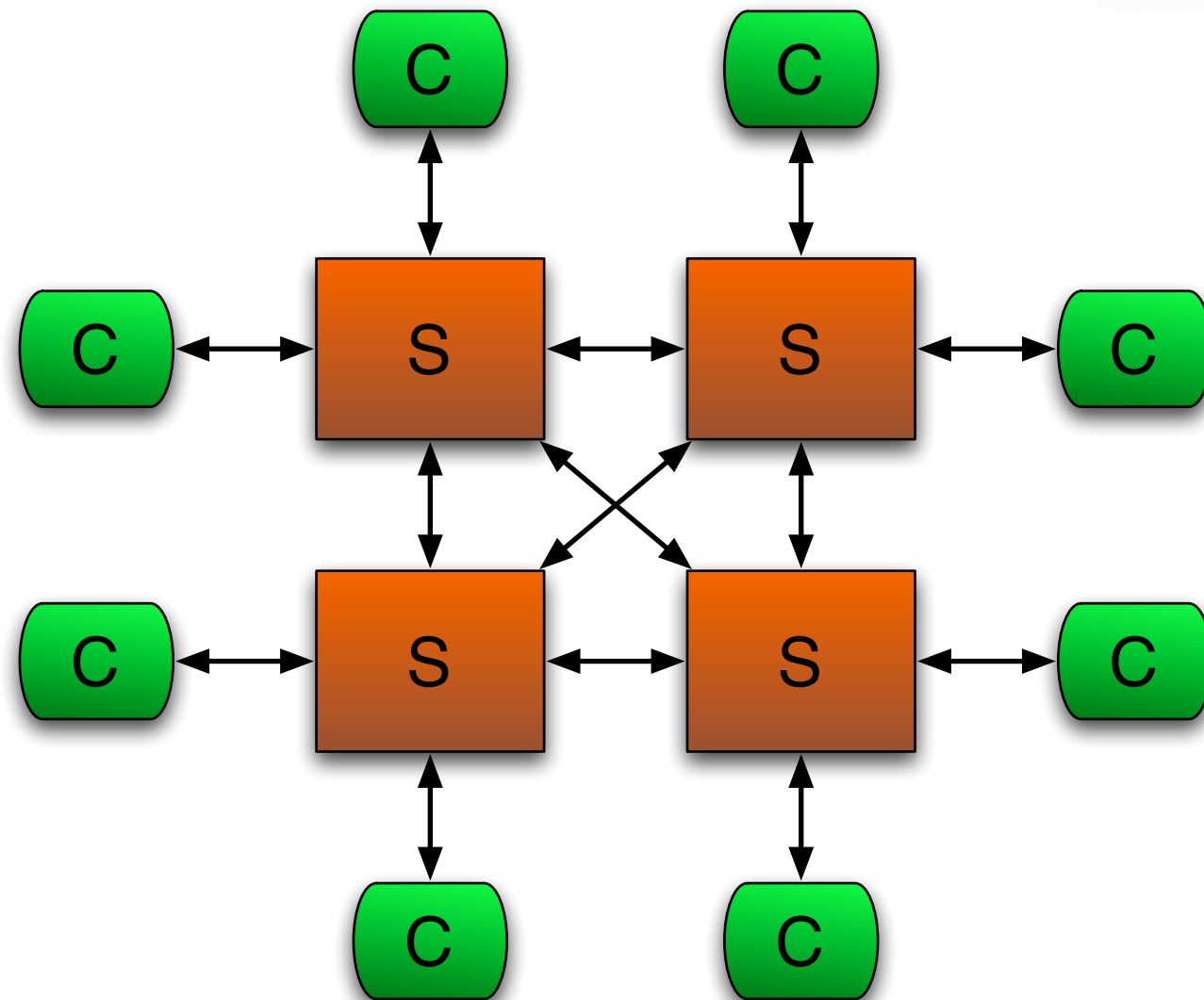
- ☞ XMPP = eXtensible Messaging and Presence Protocol
 - ☞ Protocol is formerly know as Jabber
 - ☞ **IETF** standard
- ☞ **Connected protocol** relying on a session. It means you can send but also receive information seamlessly.
- ☞ **Addressing scheme**: Each user can be reached by a message from any point in the network with his unique ID: JID.
- ☞ **Federated**: It means you can send information across services and across users through servers.
- ☞ It supports realtime message distributions that can covers the full scope of need to build realtime web:
 - ☞ Can optionally use **HTTP** as transport layer (Bosh).
 - ☞ Can use sophisticated and flexible **event distribution** mecanism (pubsub).
 - ☞ Can support all types of devices including **mobile**.
 - ☞ Can support **flexible** architecture.











Demonstrating the power of XMPP for real time web

- 🗨️ **Collecta**: it is transforming Twitter and other social networking publication into true real time events.
- 🗨️ **Chesspark**: Play chess over XMPP in the browser.
- 🗨️ **Wordpress**: Distribute blog post in real time over XMPP.
- 🗨️ **BBC**: Live distribution of radio program in real time.
- 🗨️ **OneWeb**: Browser interaction tool. Control your browser and share bookmark in real time -> Demo.
- 🗨️ In all cases, the technology used is XMPP and pubsub. Oneweb also uses adhoc commands. Chesspark uses groupchat (multi user chat rooms).

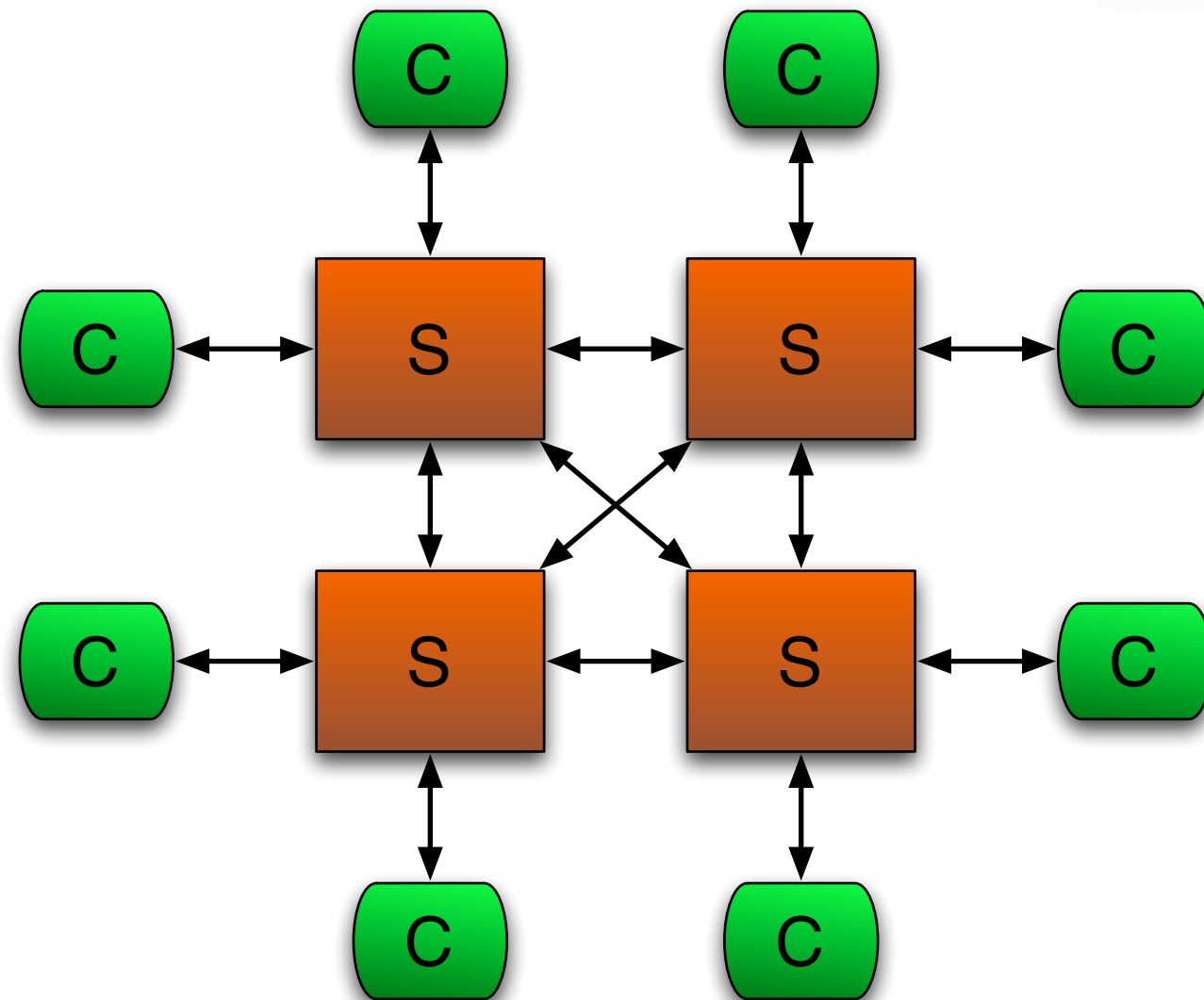


Google Wave: emerging solution for realtime user interactions

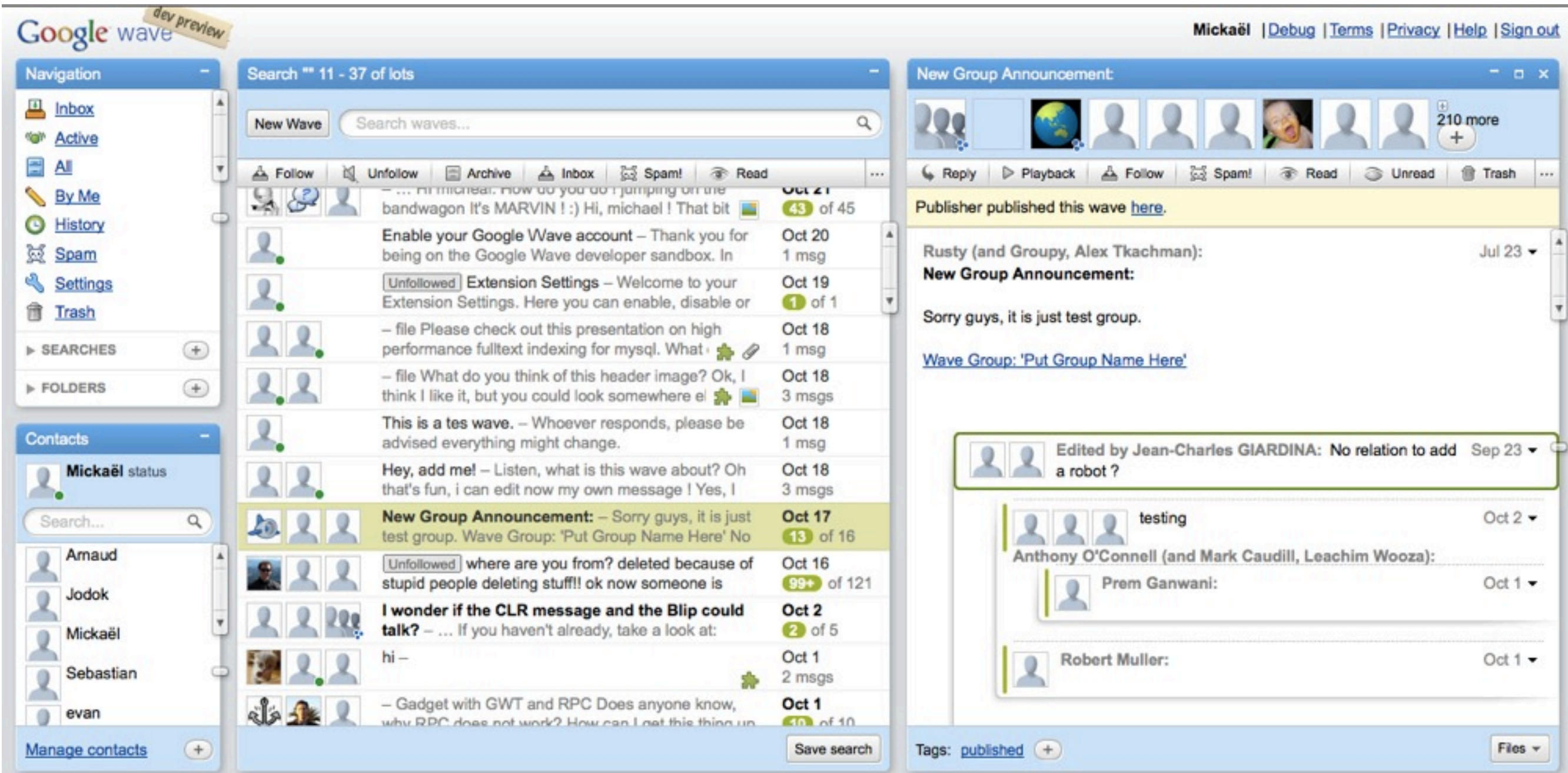
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What is Wave ?

- 🔊 A Wave is a real-time social web **object**.
- 🔊 This « Webject » is a social element that can be **dynamically shared & embedded** with any web services like blogs, wikis, ... in real time. Reply, archive, edit and add are available at any point in time in the process.
- 🔊 **Versioning**: The playback function lets anyone rewind the Webject to see who waveleted, blipped what and when. all history is kept.
- 🔊 A blended mix of Wave **extensions** : gadgets (run an app), robots (run smart-automated conversation participant), that could be accessed within Wave Inbox.
- 🔊 **Federation**: There is no central server. You can use your own wave server, participate and invite people to wavelet on your server. Federation is based on XMPP.
- 🔊 **Open** protocol: People are encouraged to implement their own client and server.



Wave client by Google



The screenshot displays the Google Wave web application interface. At the top, the Google Wave logo and a 'dev preview' badge are visible. The top right shows the user 'Mickaël' with links for Debug, Terms, Privacy, Help, and Sign out.

Navigation Sidebar (Left):

- Navigation:** Includes links for Inbox, Active, All, By Me, History, Spam, Settings, and Trash. Below these are sections for SEARCHES and FOLDERS.
- Contacts:** Shows a list of contacts: Arnaud, Jodok, Mickaël, Sebastian, and evan. A 'Manage contacts' link is at the bottom.

Main Wave List (Center):

Search: 11 - 37 of lots

Wave 1: New Wave. Search waves... (43 of 45)

Wave 2: Enable your Google Wave account – Thank you for being on the Google Wave developer sandbox. In (1 of 1)

Wave 3: Extension Settings – Welcome to your Extension Settings. Here you can enable, disable or (1 of 1)

Wave 4: Please check out this presentation on high performance fulltext indexing for mysql. What (1 of 1)

Wave 5: What do you think of this header image? Ok, I think I like it, but you could look somewhere el (3 of 3)

Wave 6: This is a tes wave. – Whoever responds, please be advised everything might change. (1 of 1)

Wave 7: Hey, add me! – Listen, what is this wave about? Oh that's fun, i can edit now my own message ! Yes, I (3 of 3)

Wave 8: New Group Announcement: – Sorry guys, it is just test group. Wave Group: 'Put Group Name Here' No (13 of 16)

Wave 9: where are you from? deleted because of stupid people deleting stuff!! ok now someone is (99+ of 121)

Wave 10: I wonder if the CLR message and the Blip could talk? – ... If you haven't already, take a look at: (2 of 5)

Wave 11: hi – (2 of 2)

Wave 12: Gadget with GWT and RPC Does anyone know, why RPC does not work? How can I get this thing up (10 of 10)

Wave Detail View (Right):

New Group Announcement:

Publisher published this wave [here](#).

Rusty (and Groupy, Alex Tkachman): Jul 23

New Group Announcement:

Sorry guys, it is just test group.

[Wave Group: 'Put Group Name Here'](#)

Edited by Jean-Charles GIARDINA: No relation to add Sep 23

testing Oct 2

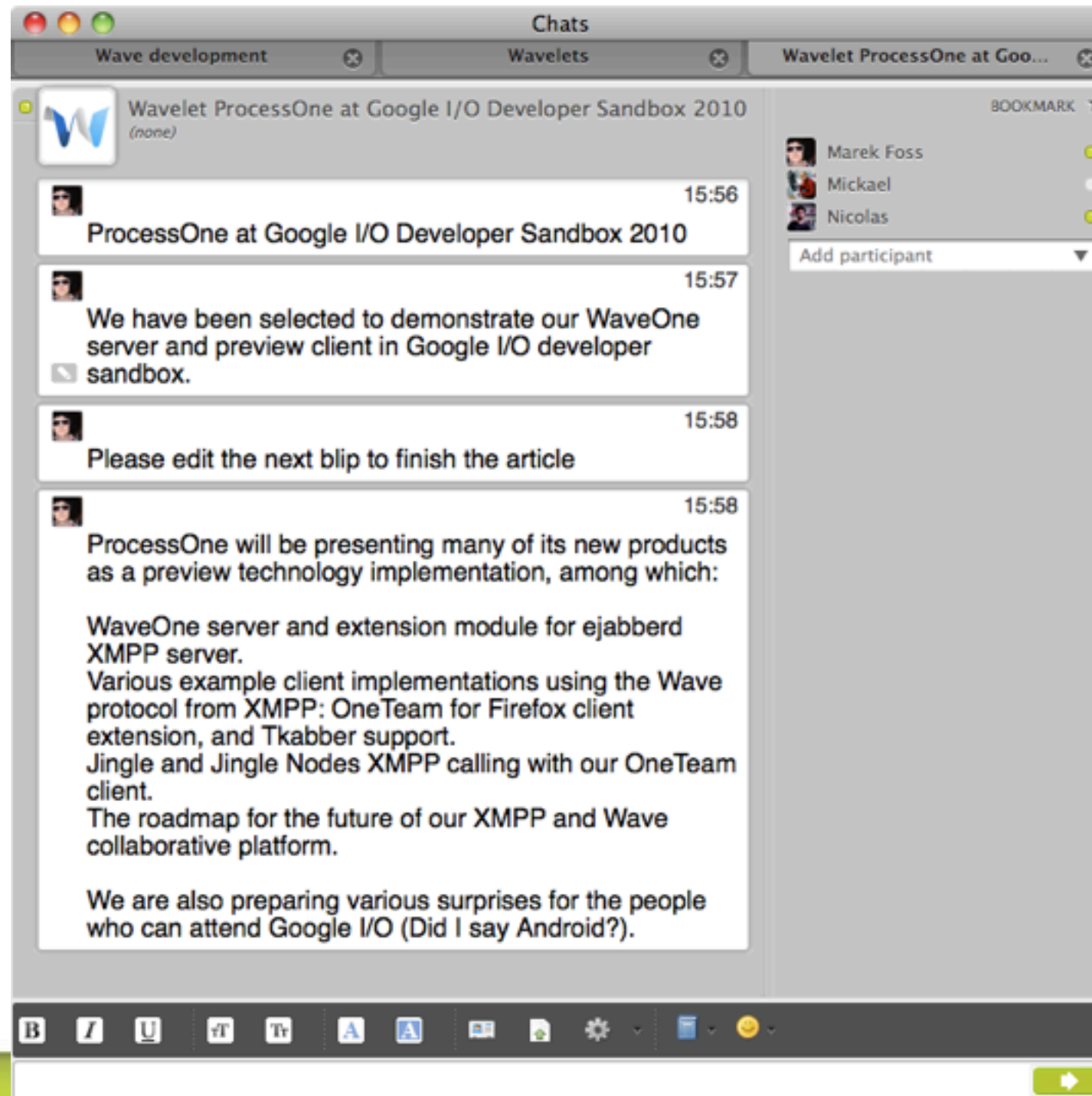
Anthony O'Connell (and Mark Caudill, Leachim Wooza): Oct 1

Prem Ganwani: Oct 1

Robert Muller: Oct 1

Tags: [published](#) Files

Wave client by ProcessOne



Terminology

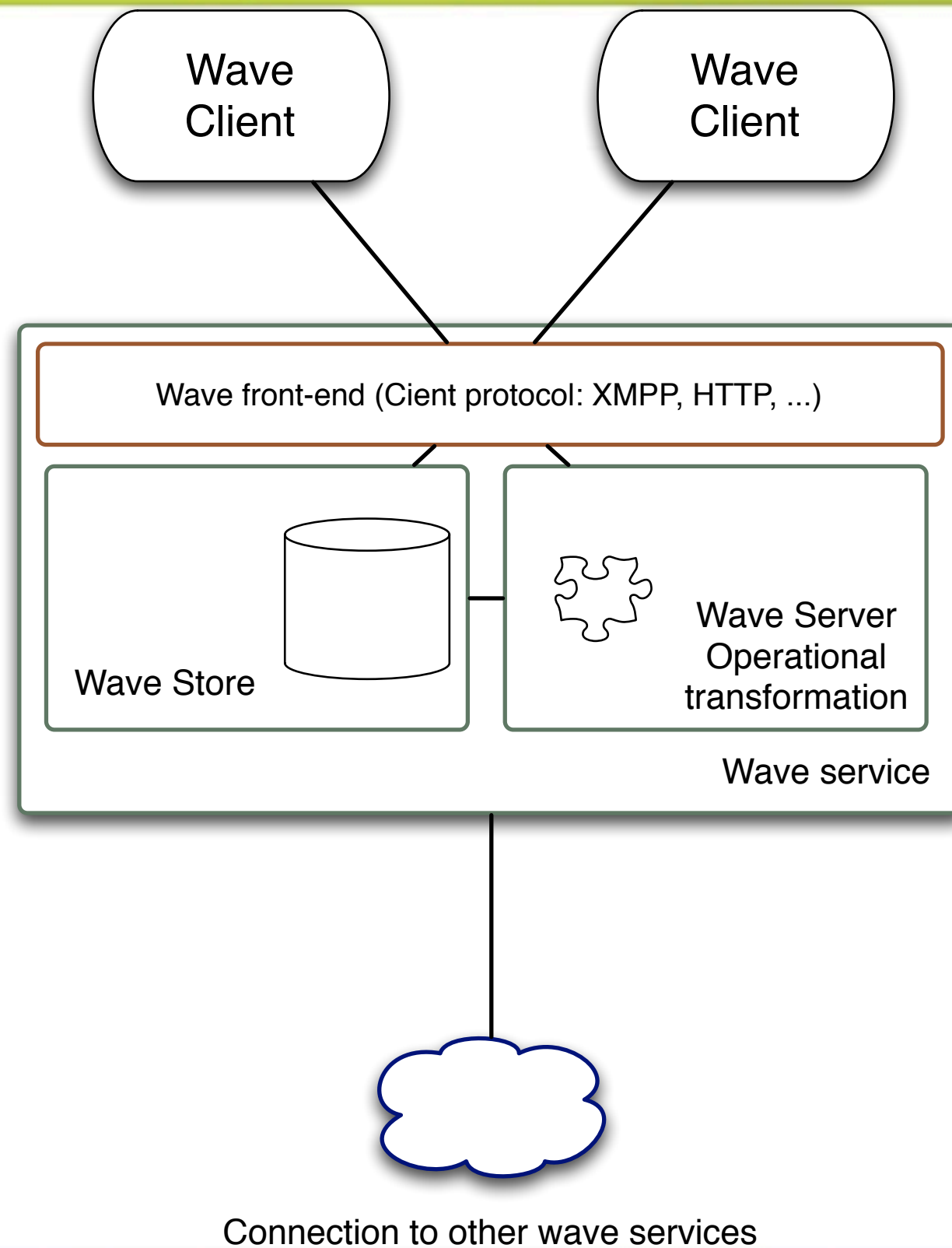
🗨️ **Wave:** a collection of wavelets

🗨️ **Wavelet:** a collection of named documents and participants, and the domain of operational transformation. Operational transformation is the mathematical model that allows merging concurrent changes.

🗨️ **Blip:** Conversational message

🗨️ **Conversation model:** «document format»

How it works ?



The protocols used in Wave

- ☞ Low level wave Protocol – Protocol Buffer (protobuf)
- ☞ Federation Protocol – XMPP
- ☞ Robot Protocol – JSON
- ☞ Client-Server Protocol – Websocket client but can be XMPP as well.
- ☞ Gadget API – OpenSocial
- ☞ Wave Embedded API – Javascript

Difference with XMPP pubsub

☞ The two technologies looks similar:

- ☞ They are built to distribute events to several participant at the same time
- ☞ They are based on XMPP

☞ But they have major differences:

- ☞ The core of wave protocol is protobuf (binary) whereas pubsub is XMPP (XML).
- ☞ Wave is XMPP as one of the possible transport for client and only transport for federation.
- ☞ Pubsub is made to distribute events
- ☞ Wave is made to edit a common shared memory space. Distributed events is a side effect.

☞ Wave and XMPP complete each other because they have different goals.

What is currently being done missing ?

- ☞ Wave is still a **work in progress** by the community but in one year huge progress have been made.
- ☞ Google Wave implementation is out of private testing. Anyone can create an account.
- ☞ True client protocol has been proposed:
 - ☞ Websocket based
 - ☞ We used XMPP
- ☞ New, simpler, non real time protocol to access the store are being designed.
- ☞ Better integration with the XMPP protocol.
- ☞ More usage examples.
- ☞ Better ecosystem: Bots, Widget, Server and client.

ProcessOne Wave server

- ☞ Already implemented for running a wave service:
 - ☞ Wave **store**, with indexing and search of content
 - ☞ Wave **server** (Operational transform)
 - ☞ ejabberd **XMPP** server plugin to run Wave server
 - ☞ Client **protocol** over XMPP
 - ☞ Federation with servers like the fedone example implementation proposed by Google
 - ☞ Federation with Google Wave in both directions
- ☞ Currently being worked on:
 - ☞ More flexible and more scalable storage engine
 - ☞ Robot and Gadget integration
 - ☞ Extra protocol for simpler interactions with wave store
 - ☞ OpenSocial server to allow developing gadgets in Erlang



The end

ProcessOne delivers scalable and robust systems to support creative Instant Messaging applications www.process-one.net

Useful Links

 XMPP: xmpp.org

 Wave:

 wave.google.com

 www.waveprotocol.org

 ProcessOne: www.process-one.net



WaveOne server and Firefox WaveOne client

Collaborating in realtime on the web

Google I/O 2010

ProcessOne delivers scalable and robust systems to support creative Instant Messaging applications www.process-one.net

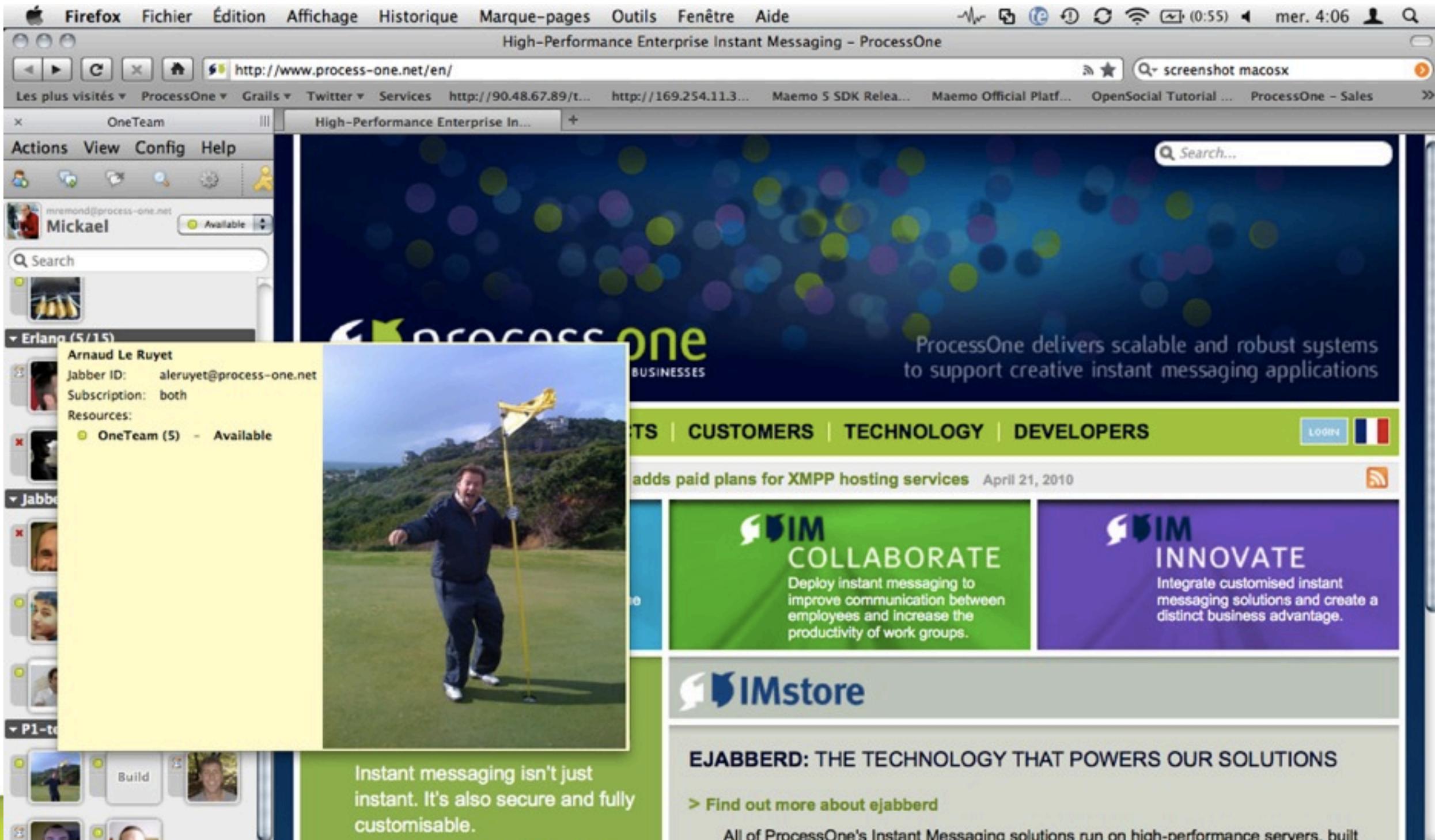
Use case introduction - Collaborating around WaveOne product launch

- ☞ ProcessOne launches its new WaveOne product and need to get organized for the launch at Google I/O conference.
 - ☞ Mickaël Rémond and Arnaud Le Ruyet working together with an account on ProcessOne XMPP and Wave server @process-one.net. They have one week left to work jointly on the PR before sending it to the Com Agency.
- ☞ Vanessa Clark works for ProcessOne's partner Spark, a PR agency. She use a Wave account provided by Google.
- ☞ As you may have understood, these 3 persons must collaborate in order to publish on time the PR

Mixing Wave and XMPP

- ☞ WaveOne client uses XMPP (extensible Messaging and Presence). Thus all features of XMPP are available from the client:
 - ☞ Notice that we reuse our XMPP contact list that we are using for standard chat and VoIP (jingle-based).
 - ☞ The avatar of Arnaud (/Mickaël) is thus available, coming from the contact description (Vcard).
 - ☞ The user ID of Arnaud (/Mickaël) is from @process-one.net domain.

Mixing Wave and XMPP



The screenshot shows a Firefox browser window with the ProcessOne website open. The browser's address bar displays `http://www.process-one.net/en/`. The website features a dark blue header with the ProcessOne logo and tagline: "ProcessOne delivers scalable and robust systems to support creative instant messaging applications". Below the header, there are navigation links for "TS | CUSTOMERS | TECHNOLOGY | DEVELOPERS" and a "LOGIN" button. A news section highlights "adds paid plans for XMPP hosting services" dated April 21, 2010. Two main promotional boxes are visible: "IM COLLABORATE" (Deploy instant messaging to improve communication between employees and increase the productivity of work groups) and "IM INNOVATE" (Integrate customised instant messaging solutions and create a distinct business advantage). At the bottom, there is a section for "IMstore" and "EJABBERD: THE TECHNOLOGY THAT POWERS OUR SOLUTIONS".

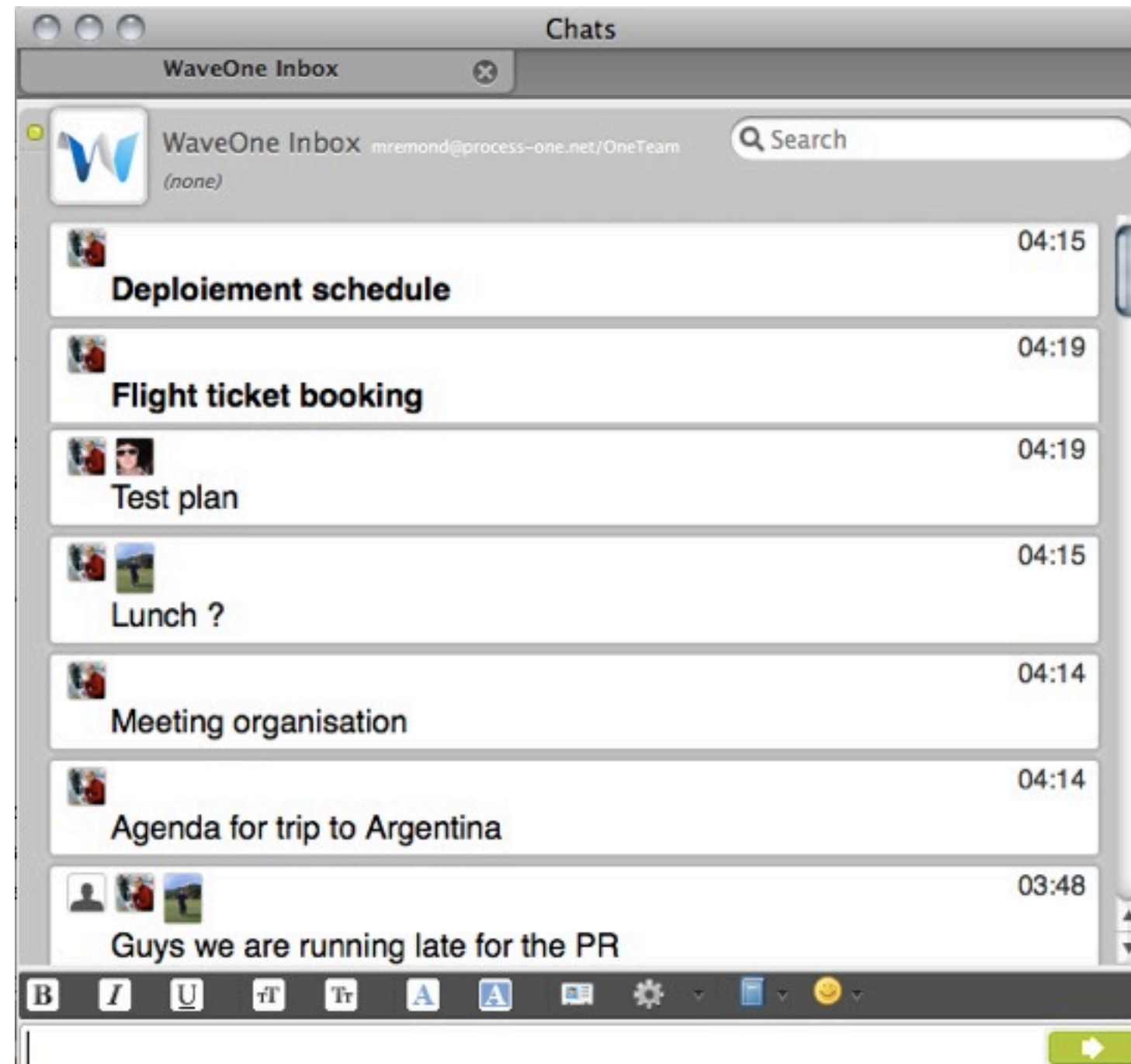
Overlaid on the left side of the browser window is a Jabber client interface. It shows a list of contacts, including "Mickael" (mremond@process-one.net) and "Arnaud Le Ruyet" (aleruyet@process-one.net). A detailed view of Arnaud Le Ruyet is shown, including his Jabber ID, subscription status, and resources. A small image of a man on a golf course is also visible within the client interface.

First wave of press release ...

- 🗨️ Mickaël creates a wavelet on WaveOne.
- 🗨️ Mickaël creates the basic content in 3 elements (blips):
 - 🗨️ The PR title,
 - 🗨️ The explanation
 - 🗨️ The draft of the ProcessOne internal document and sharing them with Arnaud

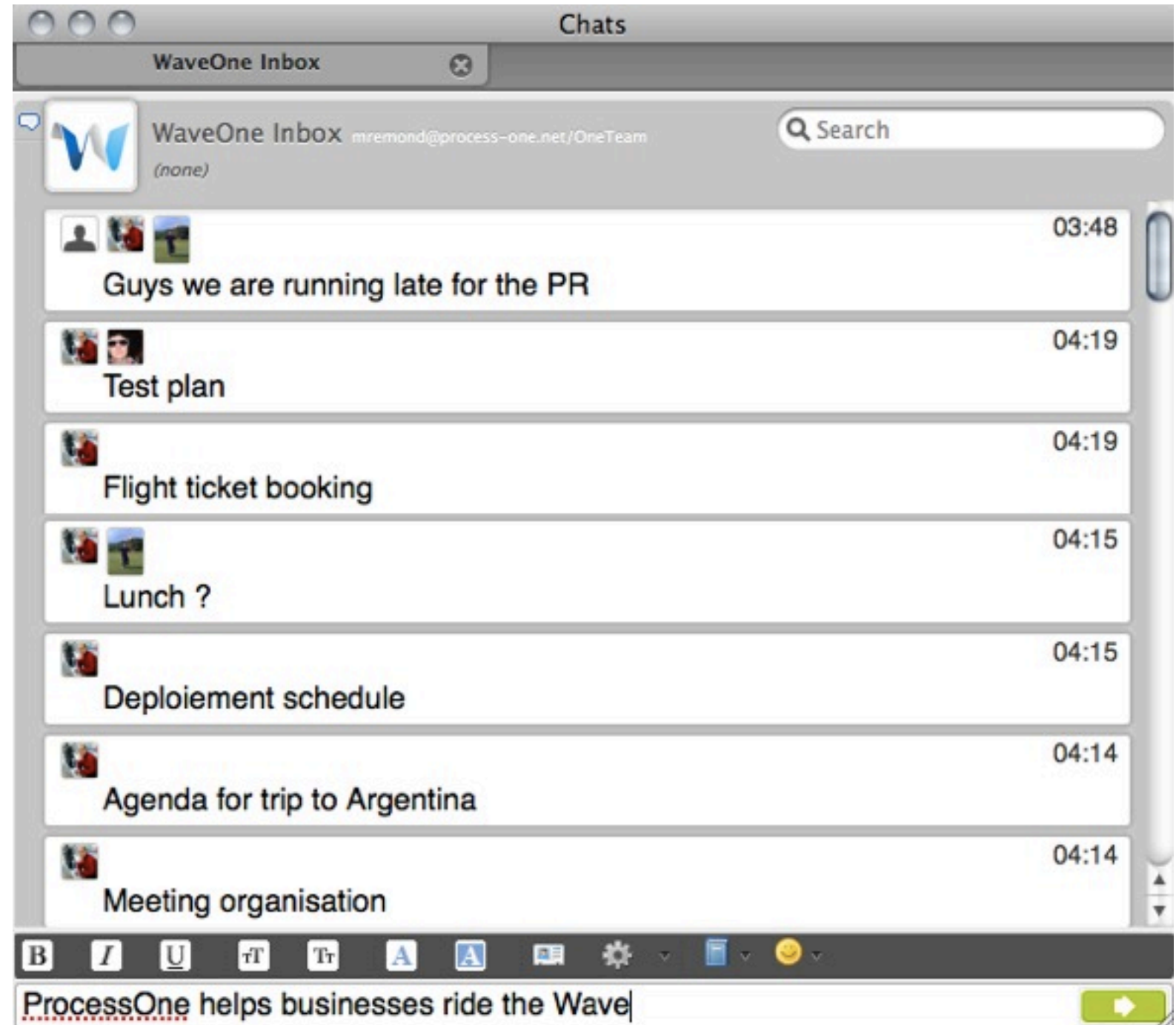
First wave of press release ...

The inbox



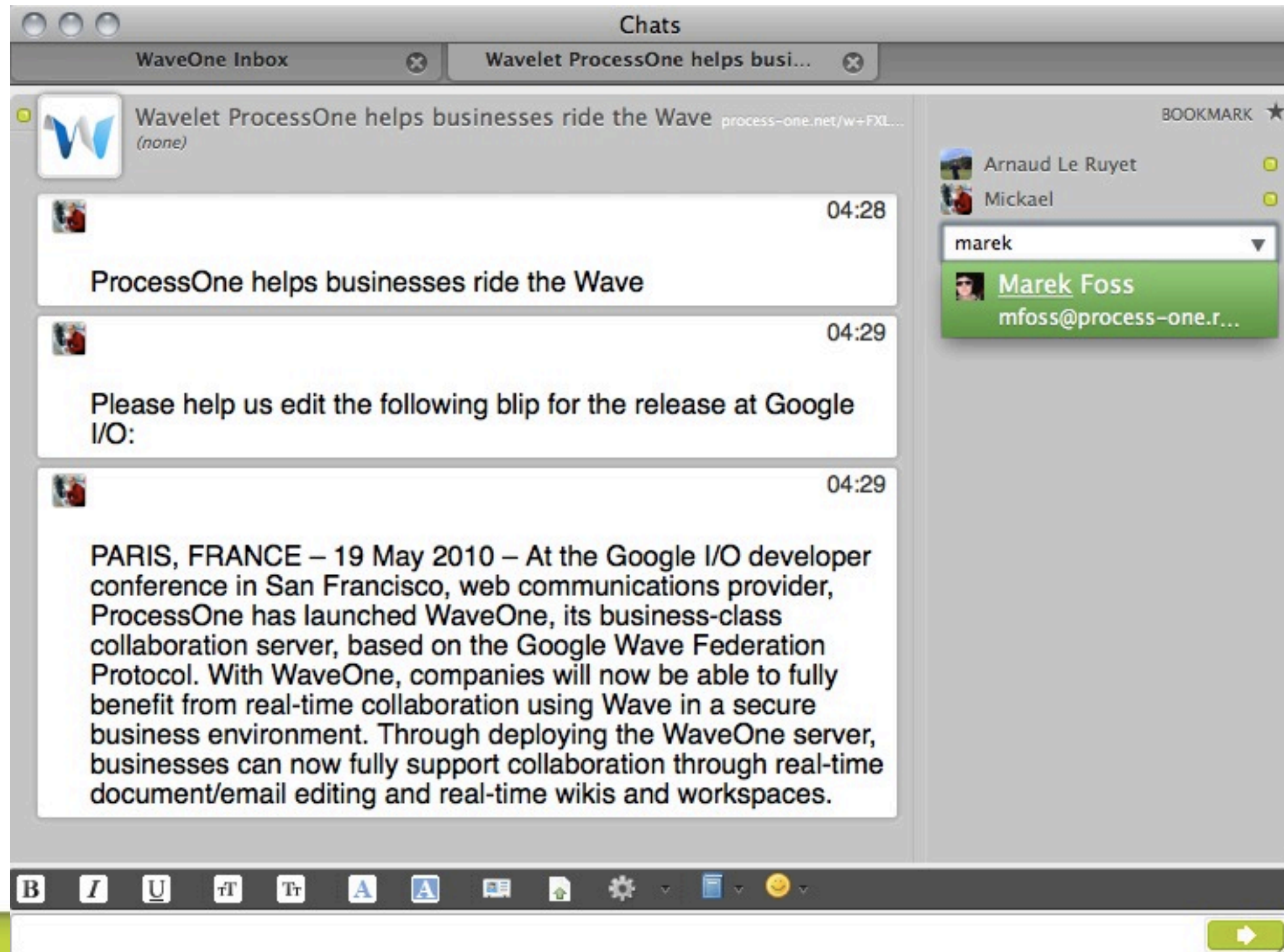
First wave of press release ...

Creating the wavelet



First wave of press release ...

Creating the
content /
adding
participants



The screenshot shows a Google Wave chat window titled "Chats" with two tabs: "WaveOne Inbox" and "Wavelet ProcessOne helps busi...". The main chat area displays a message from "Wavelet ProcessOne helps businesses ride the Wave" (none) at 04:28. The message content is a press release draft:

ProcessOne helps businesses ride the Wave

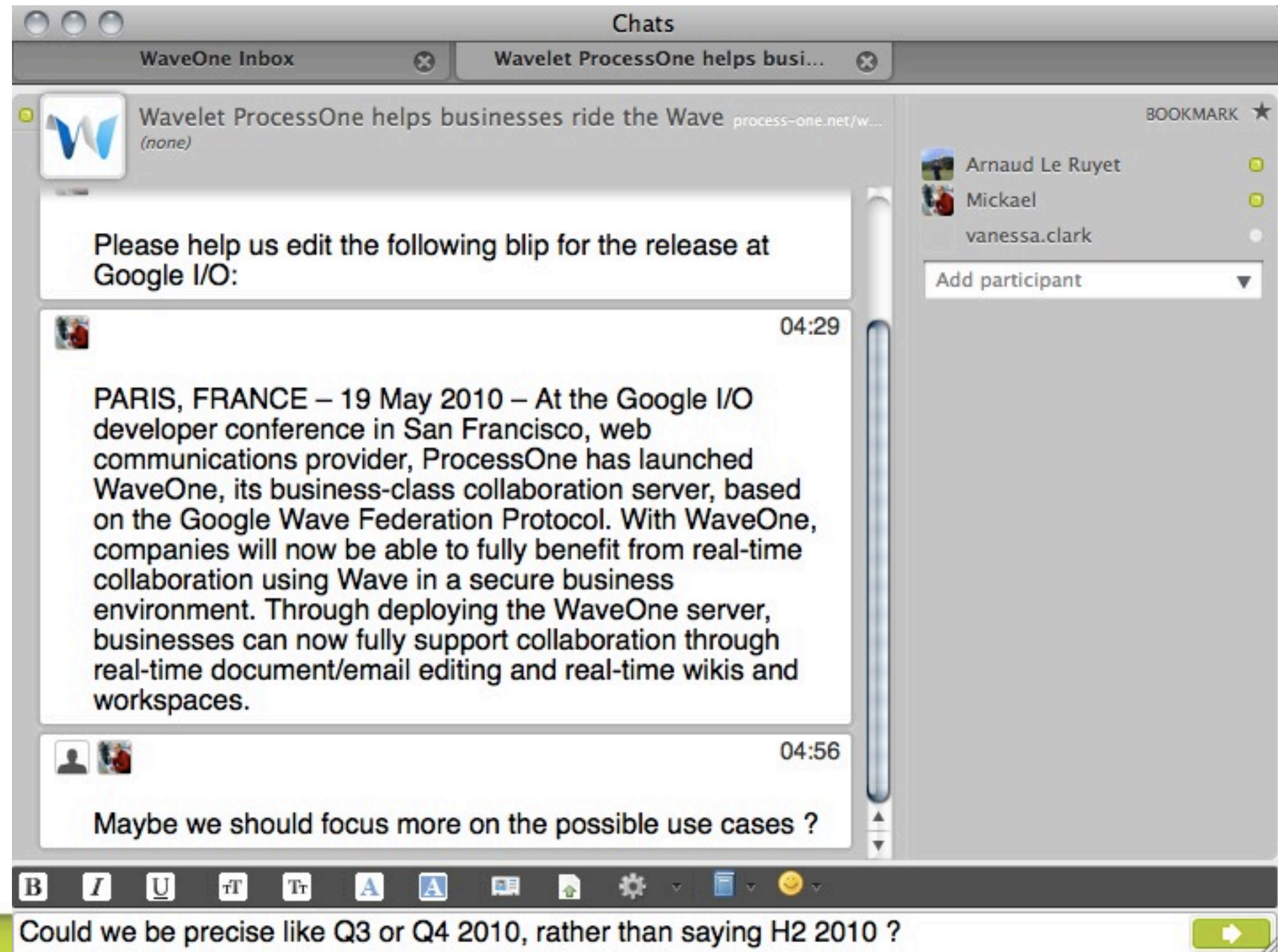
Please help us edit the following blip for the release at Google I/O:

PARIS, FRANCE – 19 May 2010 – At the Google I/O developer conference in San Francisco, web communications provider, ProcessOne has launched WaveOne, its business-class collaboration server, based on the Google Wave Federation Protocol. With WaveOne, companies will now be able to fully benefit from real-time collaboration using Wave in a secure business environment. Through deploying the WaveOne server, businesses can now fully support collaboration through real-time document/email editing and real-time wikis and workspaces.

On the right side, there is a "BOOKMARK" section with a list of participants: Arnaud Le Ruyet, Mickael, and Marek Foss (mfoss@process-one.r...). The bottom of the window features a rich text editor with various formatting options (B, I, U, T, Tr, A, A, etc.) and a send button.

First wave of press release ...

Other
internal
participant
add new blip
to comment
on wave



Chats

WaveOne Inbox Wavelet ProcessOne helps busi...

Wavelet ProcessOne helps businesses ride the Wave process-one.net/w...
(none)

Please help us edit the following blip for the release at Google I/O:

04:29

PARIS, FRANCE – 19 May 2010 – At the Google I/O developer conference in San Francisco, web communications provider, ProcessOne has launched WaveOne, its business-class collaboration server, based on the Google Wave Federation Protocol. With WaveOne, companies will now be able to fully benefit from real-time collaboration using Wave in a secure business environment. Through deploying the WaveOne server, businesses can now fully support collaboration through real-time document/email editing and real-time wikis and workspaces.






04:56

Maybe we should focus more on the possible use cases ?

BOOKMARK ★

Arnaud Le Ruyet
Mickael
vanessa.clark

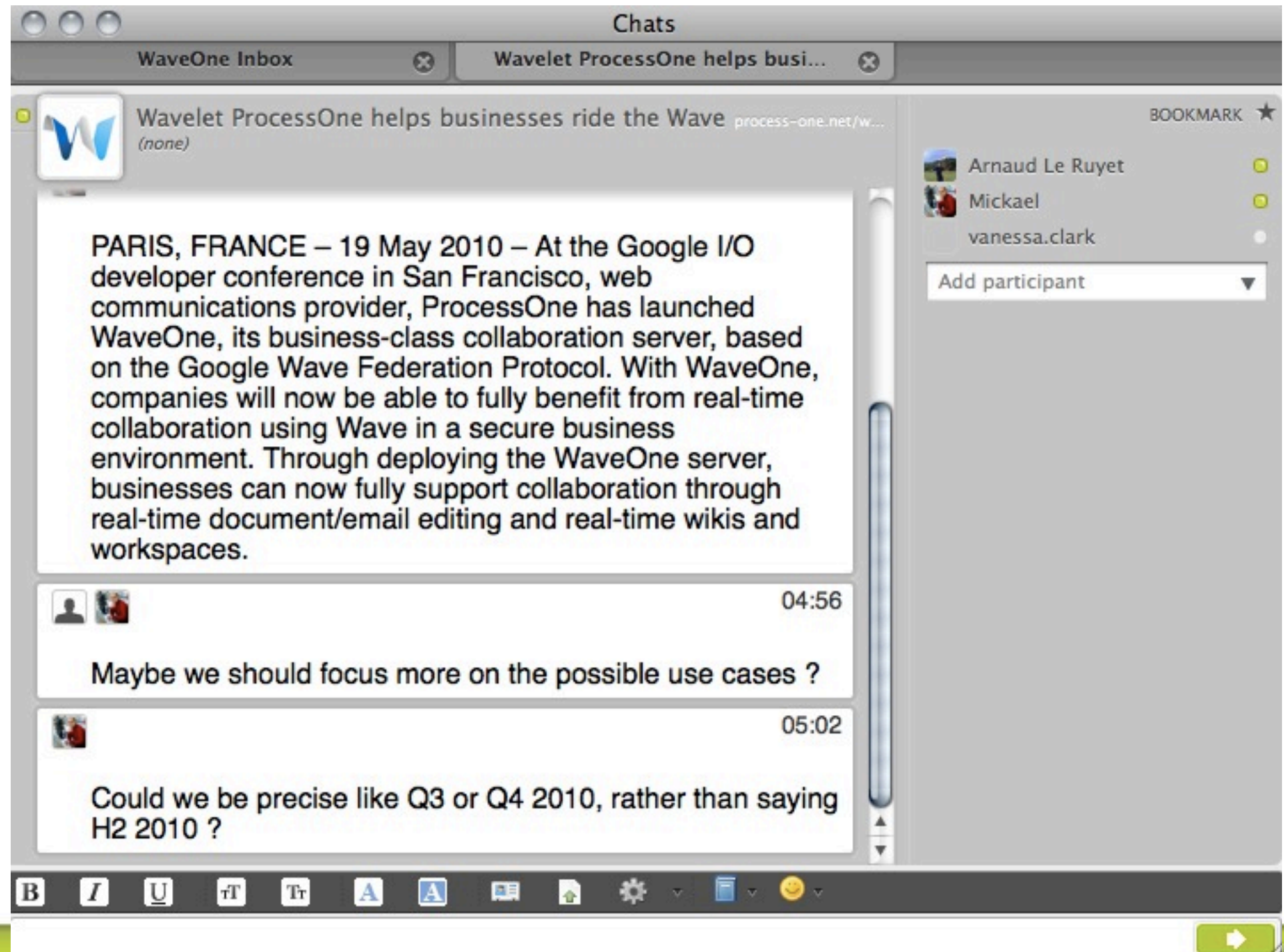
Add participant ▼

B *I* U **T** **T** **A** **A**     

Could we be precise like Q3 or Q4 2010, rather than saying H2 2010 ?

First wave of press release ...

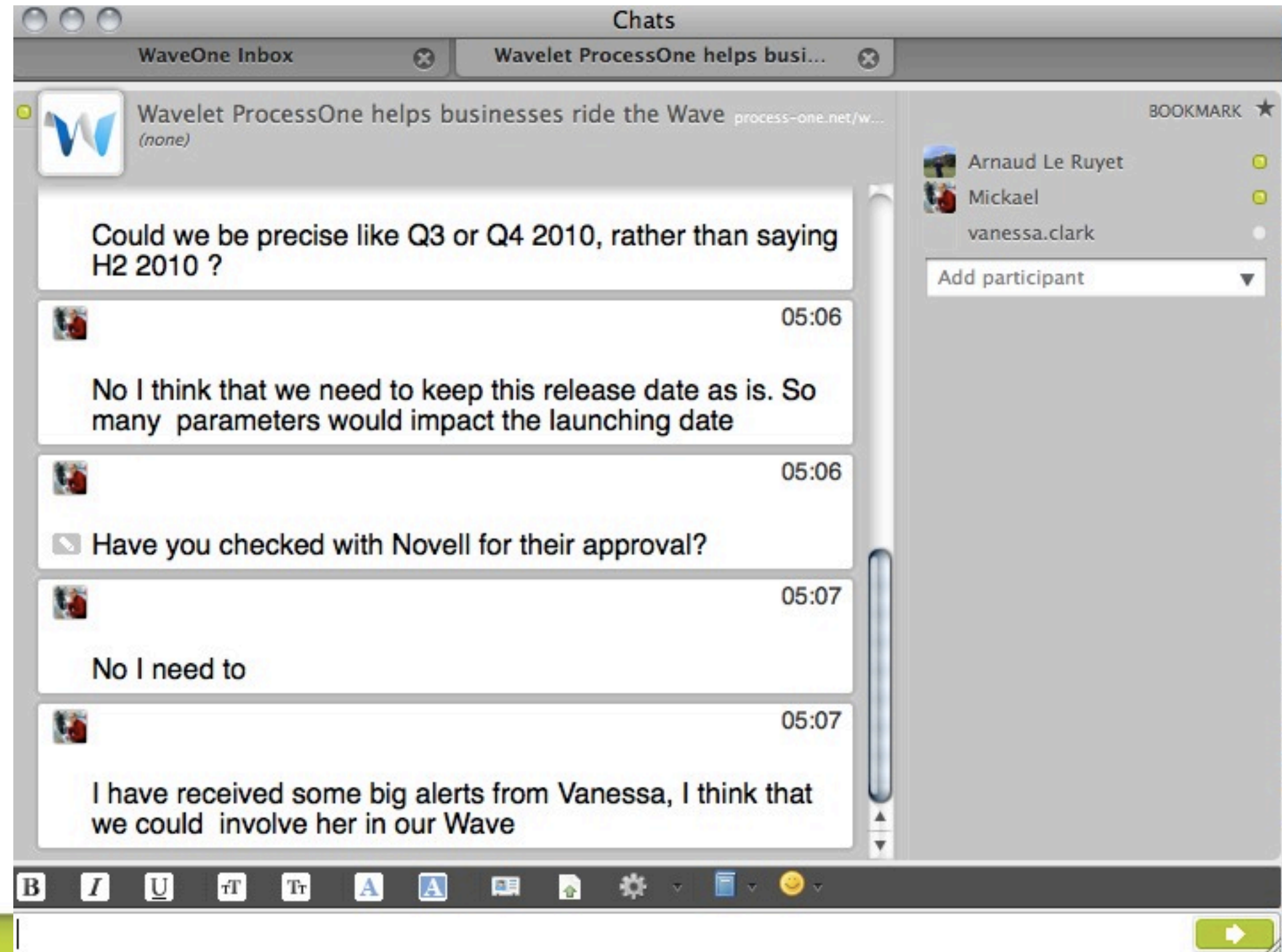
Blip appears
in
conversation



The screenshot shows a web browser window titled "Chats" with two tabs: "WaveOne Inbox" and "Wavelet ProcessOne helps busi...". The main chat area displays a message from "Wavelet ProcessOne helps businesses ride the Wave" (process-one.net/w...) with a blue wave icon. The message text reads: "PARIS, FRANCE – 19 May 2010 – At the Google I/O developer conference in San Francisco, web communications provider, ProcessOne has launched WaveOne, its business-class collaboration server, based on the Google Wave Federation Protocol. With WaveOne, companies will now be able to fully benefit from real-time collaboration using Wave in a secure business environment. Through deploying the WaveOne server, businesses can now fully support collaboration through real-time document/email editing and real-time wikis and workspaces." Below this, a conversation is visible. A participant (represented by a person icon) sends a message at 04:56: "Maybe we should focus more on the possible use cases ?". Another participant (represented by a person icon) responds at 05:02: "Could we be precise like Q3 or Q4 2010, rather than saying H2 2010 ?". On the right side, a sidebar shows a list of participants: "Arnaud Le Ruyet", "Mickael", and "vanessa.clark", each with a small profile picture and a status indicator (yellow dot for online, grey dot for offline). Below the list is a search bar labeled "Add participant". At the bottom of the chat window is a toolbar with various icons for text formatting (bold, italic, underline, text color, background color), a link icon, a file upload icon, a settings gear, and a smiley face icon. A green button with a right-pointing arrow is located at the bottom right of the chat window.

First wave of press release ...

And the conversation goes on, iterating on the PR content edition

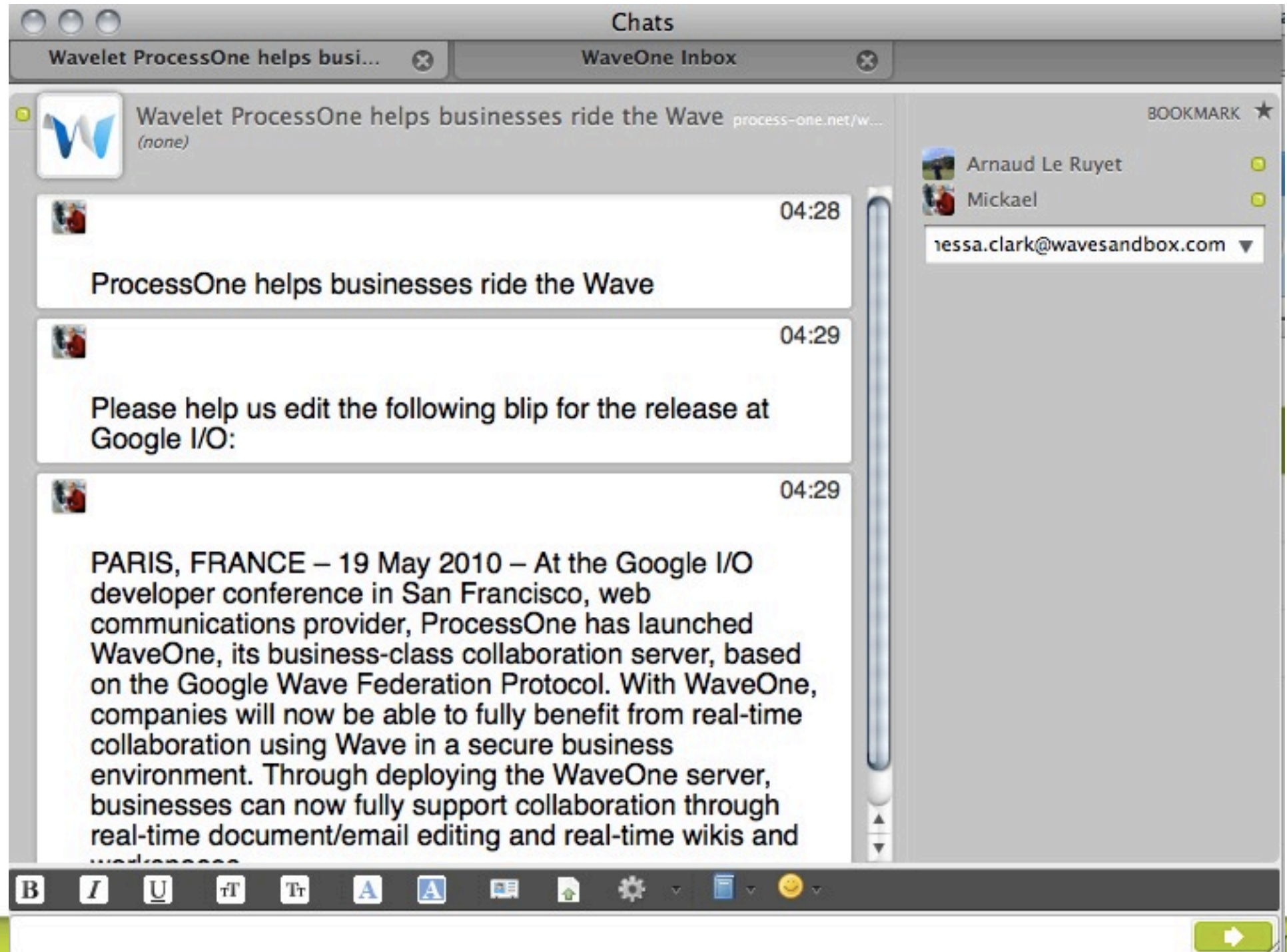


Federation and real time editing

- ✎ Mickaël, once both agree on the initial content, decides that it is fine to go ahead and includes the Vanessa Clark from the PR agency in the workflow.
- ✎ He adds vanessa.clark@wavesandbox.com as a participant of the same wave.
- ✎ She benefits from all the previous work and can participate directly to the discussion, to the current point.

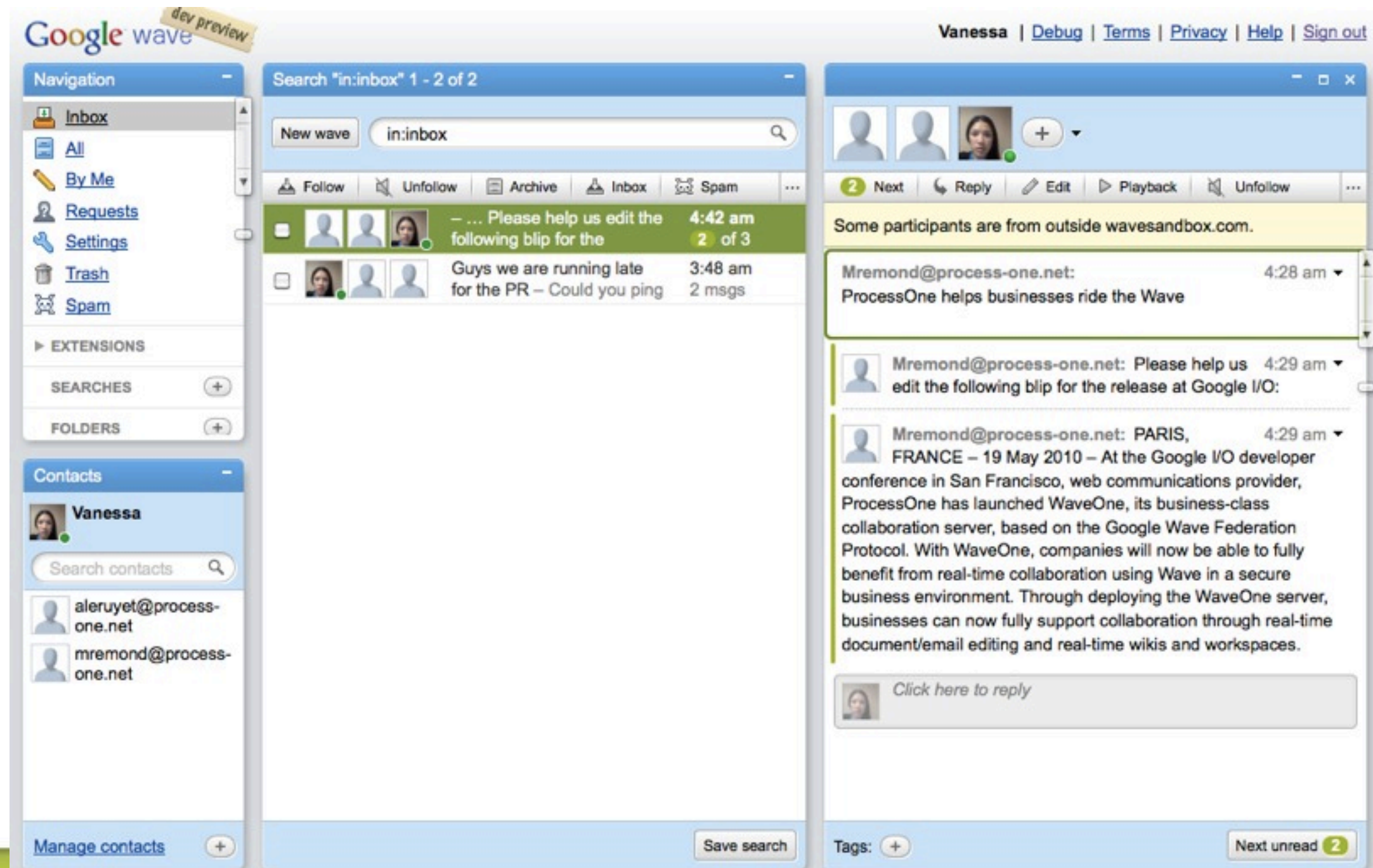
Federation and real time editing

Adding a
participant
from
another
wave
provider



Federation and real time editing

Other
participant
jump into
the
discussion



The screenshot shows the Google Wave interface with a "dev preview" badge. The top navigation bar includes "Vanessa | Debug | Terms | Privacy | Help | Sign out". The left sidebar contains a "Navigation" panel with links to "Inbox", "All", "By Me", "Requests", "Settings", "Trash", and "Spam", as well as "EXTENSIONS", "SEARCHES", and "FOLDERS". Below this is a "Contacts" panel showing "Vanessa" and two other contacts: "aleruyet@process-one.net" and "mremond@process-one.net". The main content area displays a search for "in:inbox" with results for "New wave" and "in:inbox". The conversation history shows a message from "Mremond@process-one.net" at 4:28 am: "ProcessOne helps businesses ride the Wave". Below this is a message from "Mremond@process-one.net" at 4:29 am: "Please help us edit the following blip for the release at Google I/O:". The right sidebar shows a "Click here to reply" button and a "Next unread 2" button. The bottom right corner displays the URL "www.process-one.net".

Firefox File Édition Fenêtre

Vanessa (1) - Google Wave

https://wave.google.com/a/wavesandbox.com/#restored:wave:process-one.net!w%252BFXLceOKUWNYQ

Les plus visités ProcessOne Grails Twitter Services http://90.48.67.89/t... http://169.254.11.3... Maemo 5 SDK Relea... Maemo Official Platf... OpenSocial Tutorial ... ProcessOne - Sales

OneTeam High-Performance Enterprise In... Mickaël - Google Wave Vanessa (1) - Google Wave

Actions View Co

WaveOne Inbox Wavelet ProcessOne helps busi...

Wavelet ProcessOne helps businesses ride the Wave (none)

Please help us edit the following blip for the release at Google I/O:

04:29

PARIS, FRANCE – 19 May 2010 – At the Google I/O developer conference in San Francisco, web communications provider, ProcessOne has launched WaveOne, its business-class collaboration server, based on the Google Wave Federation Protocol. With WaveOne, companies will now be able to fully benefit from real-time collaboration using Wave in a secure business environment. Through deploying the WaveOne server, businesses can now fully support collaboration through real-time document/email editing and real-time wikis and workspaces.

04:56

Maybe we should focus more on the possible use cases ?

Arnaud Le Ruyet Mickaël vanessa.clark

Add participant

BOOKMARK

Vanessa | Debug | Terms | Privacy | Help | Sign out

Some participants are from outside wavesandbox.com.

Mremond@process-one.net: Please help us edit the following blip for the release at Google I/O: 4:29 am

Mremond@process-one.net: PARIS, FRANCE – 19 May 2010 – At the Google I/O developer conference in San Francisco, web communications provider, ProcessOne has launched WaveOne, its business-class collaboration server, based on the Google Wave Federation Protocol. With WaveOne, companies will now be able to fully benefit from real-time collaboration using Wave in a secure business environment. Through deploying the WaveOne server, businesses can now fully support collaboration through real-time document/email editing and real-time wikis and workspaces. 4:29 am

Me and Mremond@process-one.net: Maybe we should focus more on the possible use cases ? 4:56 am

Done [Shift+Enter] Delete

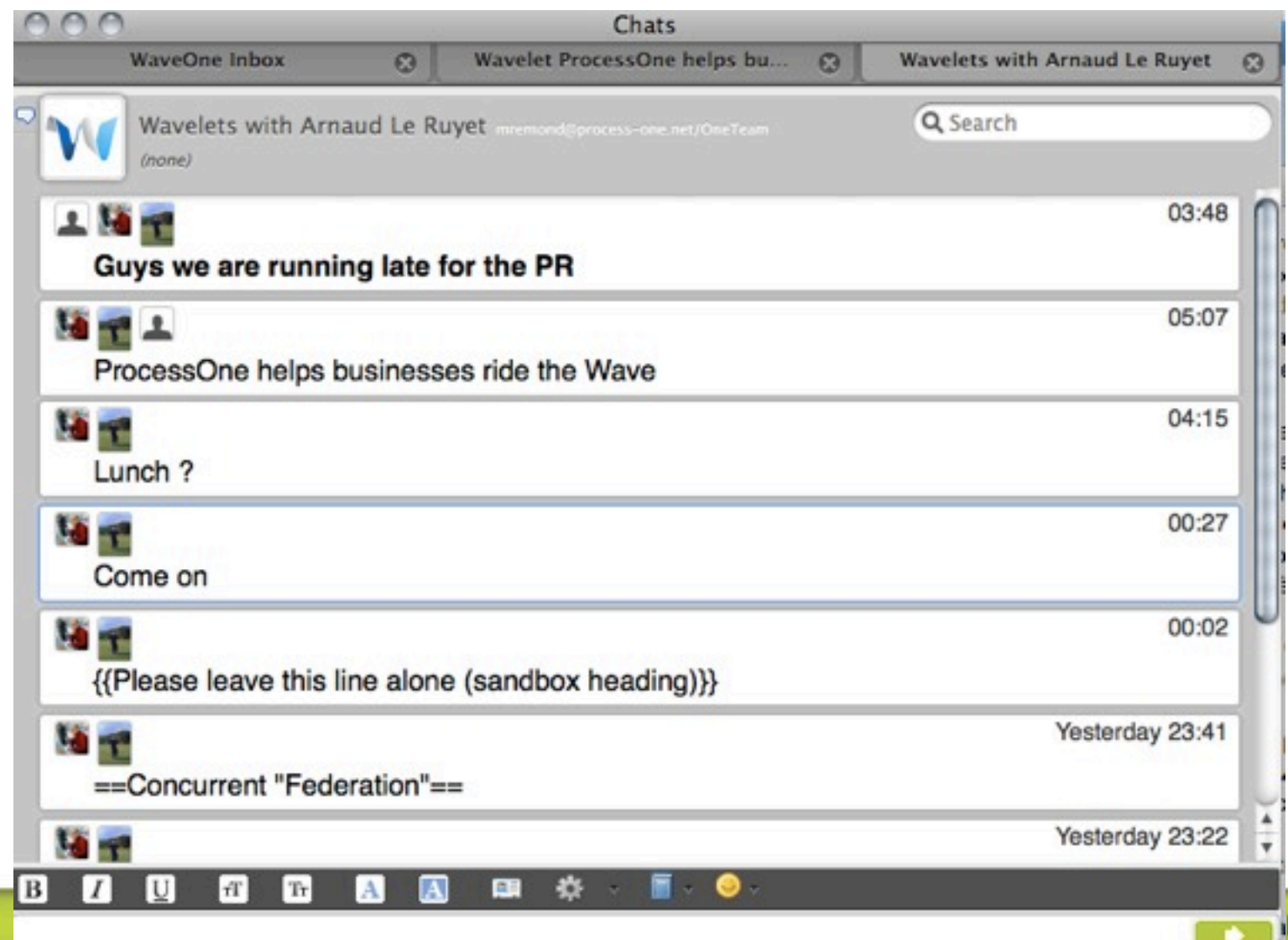
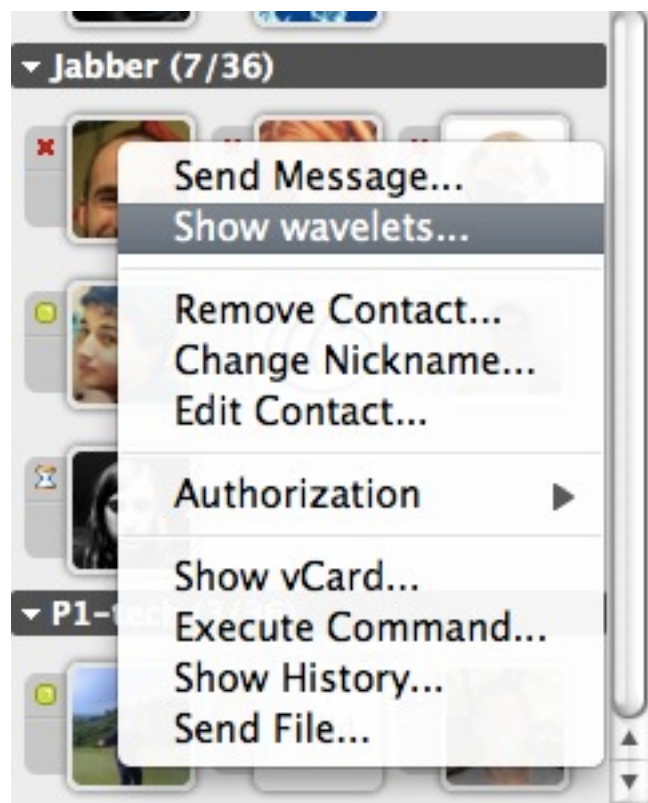
Manage contacts + Save search

Tags: + Next unread 2

Terminé mremond

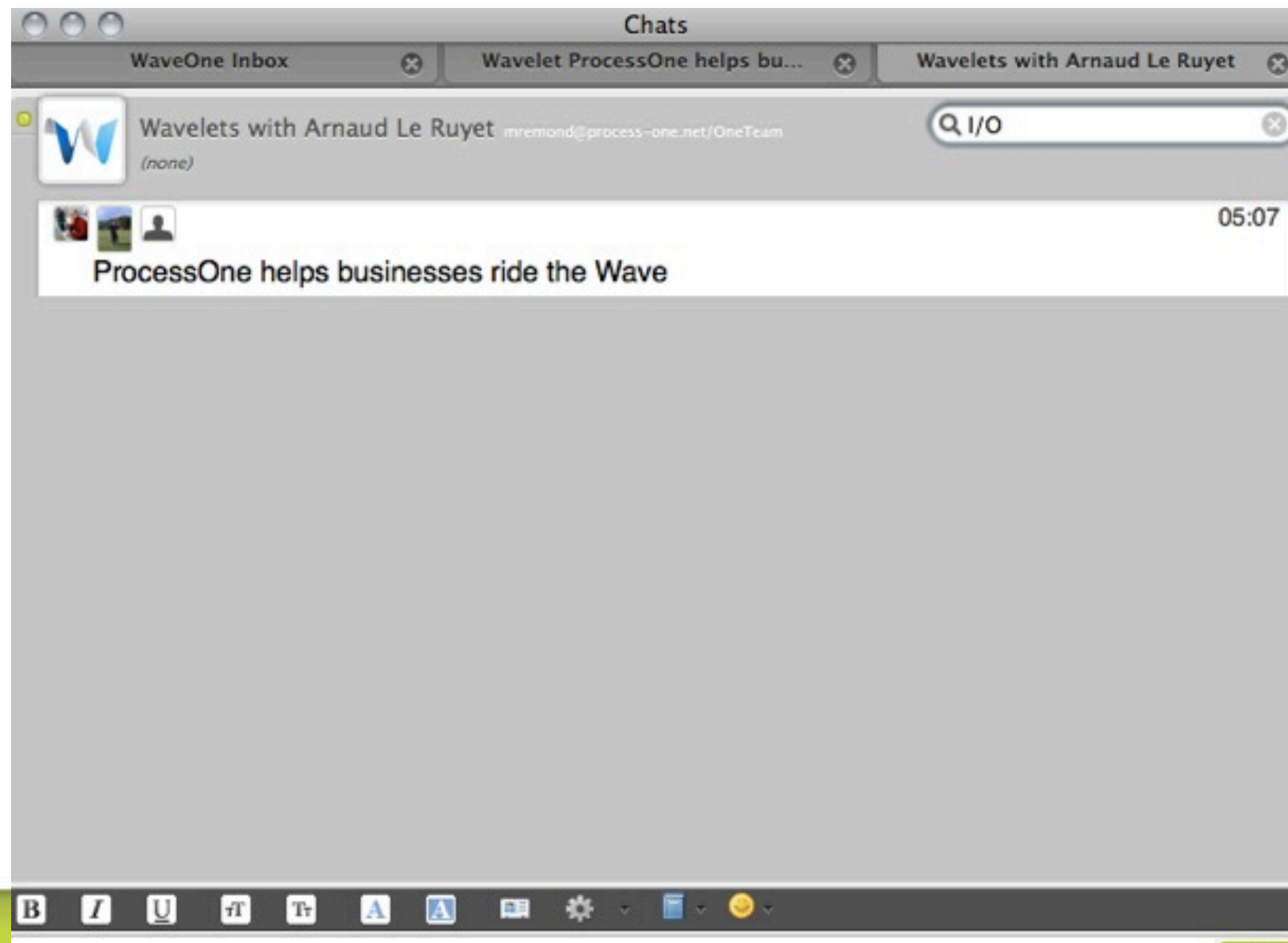
Searching and shortcuts

- ✎ Mickaël needs to search for conversation with one contact. For any of your contact, you can find the list of wave you had with them by opening WaveOne filtered inbox.



Searching and shortcuts

- 🔍 You can use the search field to search back for the wave you need to find based on keyword (plain text search).



TextArea shared editing: Wave the whole web

- 🗨️ The Press Release is finally done and has lead to articles on various sites.
- 🗨️ After managing the press briefing agenda with Wave, the team would like to collaboratively write comment to cheers the users on Techcrunch.
- 🗨️ Mickaël decides to start writing a comment on the blog and share it on wave immediately to write it with his team.
- 🗨️ He adds participants from internal and external wave service and they prepare the blog post live together.
- 🗨️ When the blog post is ready, Mickaël posts it.

TextArea shared editing: Wave the whole web

TechCrunch
FRANCE 

Share any
textarea to
edit content
together

Laisser un commentaire

Nom*

E-mail*

Site web

Ajouter

Commenting Options

Enter your personal information to the left, or sign in with your Facebook account by clicking the button below.

 **Connect**

Alternatively, you can **create an avatar** that will appear whenever you leave a comment on a Gravatar-enabled blog.

Retrouver

Share URL

Share on wave
Add participant to wavelet
Go to wavelet
Annuler

Couper
Copier
Coller
Supprimer

Tout sélectionner

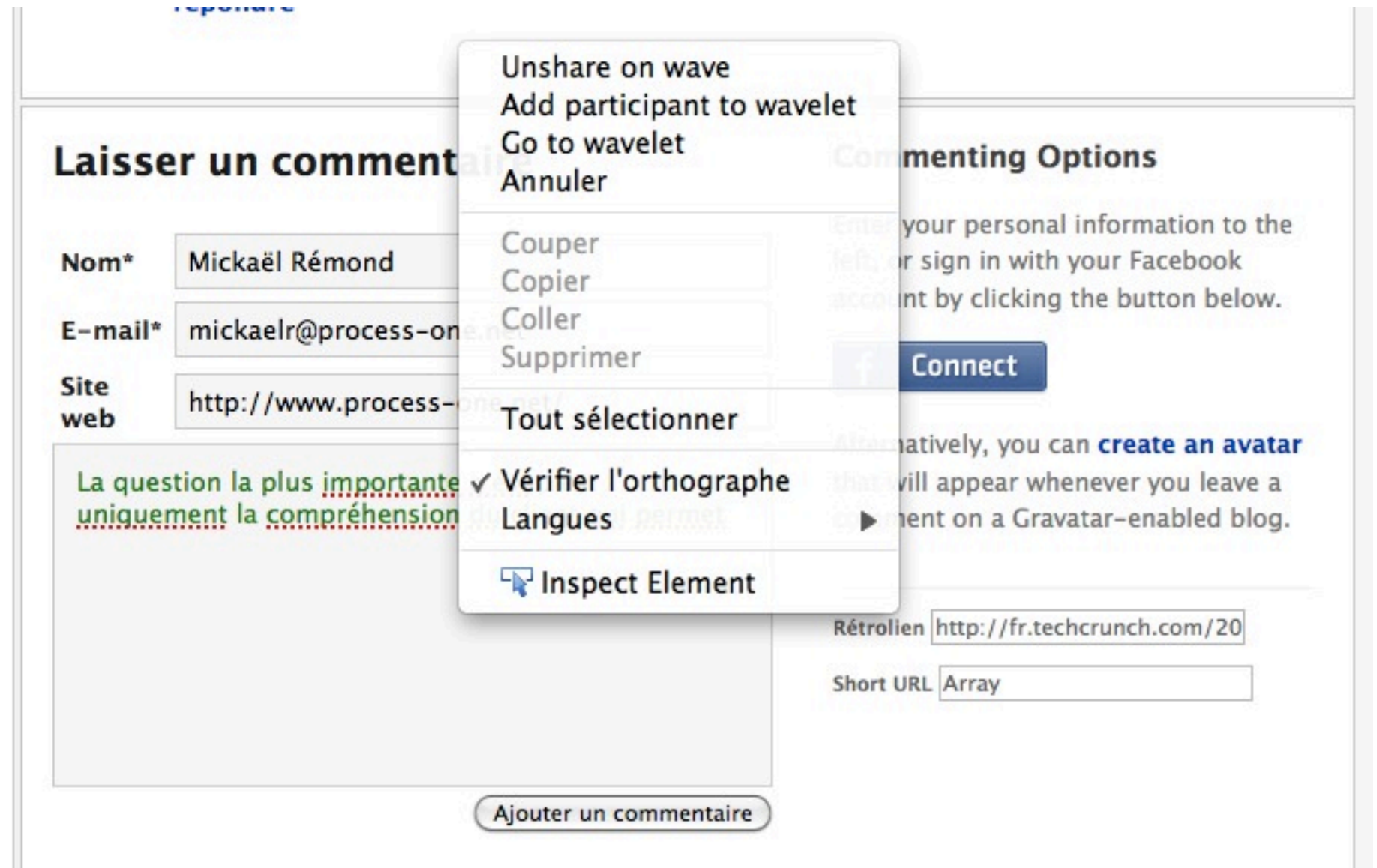
✓ Vérifier l'orthographe

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TextArea shared editing: Wave the whole web

Add
participants



The screenshot shows a web form titled "Laisser un commentaire" (Leave a comment). The form includes fields for "Nom*" (Name), "E-mail*", and "Site web" (Website). The "Nom*" field contains "Mickaël Rémond", "E-mail*" contains "mickaelr@process-one.net", and "Site web" contains "http://www.process-one.net". Below these fields is a large text area containing the text "La question la plus importante est uniquement la compréhension". A context menu is open over the text area, displaying options: "Unshare on wave", "Add participant to wavelet", "Go to wavelet", "Annuler", "Couper", "Copier", "Coller", "Supprimer", "Tout sélectionner", "✓ Vérifier l'orthographe", "Langues", and "Inspect Element". To the right of the form, there is a "Commenting Options" section with a "Connect" button and a "Rétrolien" (Backlink) field containing "http://fr.techcrunch.com/20". At the bottom of the form is a button labeled "Ajouter un commentaire".

TextArea shared editing: Wave the whole web

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ommentaire

Commenting Options

Nom* Mickaël Rémond
E-mail* mickaelr@process-one.net
Site web http://www.process-one.net/

Add Participant

Jabber ID of contact you want to add

essa.clark@wavesandbox.com ▼

Cancel Add

Notre vision

La question la plus importante n'est pas
uniquement la compréhension du client qui permet
de se déployer ...

onal information to the
with your Facebook
king the button below.

Alternatively, you can **create an avatar**
that will appear whenever you leave a
comment on a Gravatar-enabled blog.

Rétrolien

Short URL

Ajouter un commentaire

Select which
one you want
to work with

TextArea shared editing: Wave the whole web

Other can
jump in the
collaborative
edit from
WaveOne



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When ready,
the initial
user can
post the
changes

Laisser un commentaire

Nom*

E-mail*

Site web

La question la plus importante n'est pas
uniquement la compréhension du client qui permet
de se déployer ...

Thank you all.

Ajouter un commentaire

Commenting Options

Enter your personal information to the left, or sign in with your Facebook account by clicking the button below.

 **Connect**

Alternatively, you can **create an avatar** that will appear whenever you leave a comment on a Gravatar-enabled blog.

Rétrolien

Short URL