



# Interoperable multi conferencing technology as a basis for an open, global web conferencing network



Ministério da  
**Cultura**

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**Educação**

Ministério da  
**Ciência, Tecnologia  
e Inovação**



<http://mconf.org>

Ubuntunet 2013  
Kigali, Rwanda

*Valter Roesler – presenter*  
*Felipe Cecagno*  
*Leonardo Crauss Daronco*  
*André Marins*  
*Michael Stanton*

# What is Mconf?

- A global scalable opensource multiconference system for web and mobile devices
- **Sponsors:**
  - RNP, the brazilian NREN (National Research and Education Network) – **main sponsor**
  - CLARA (Cooperación Latino Americana de Redes Avanzadas)
  - UFRGS (Federal University of Rio Grande do Sul)



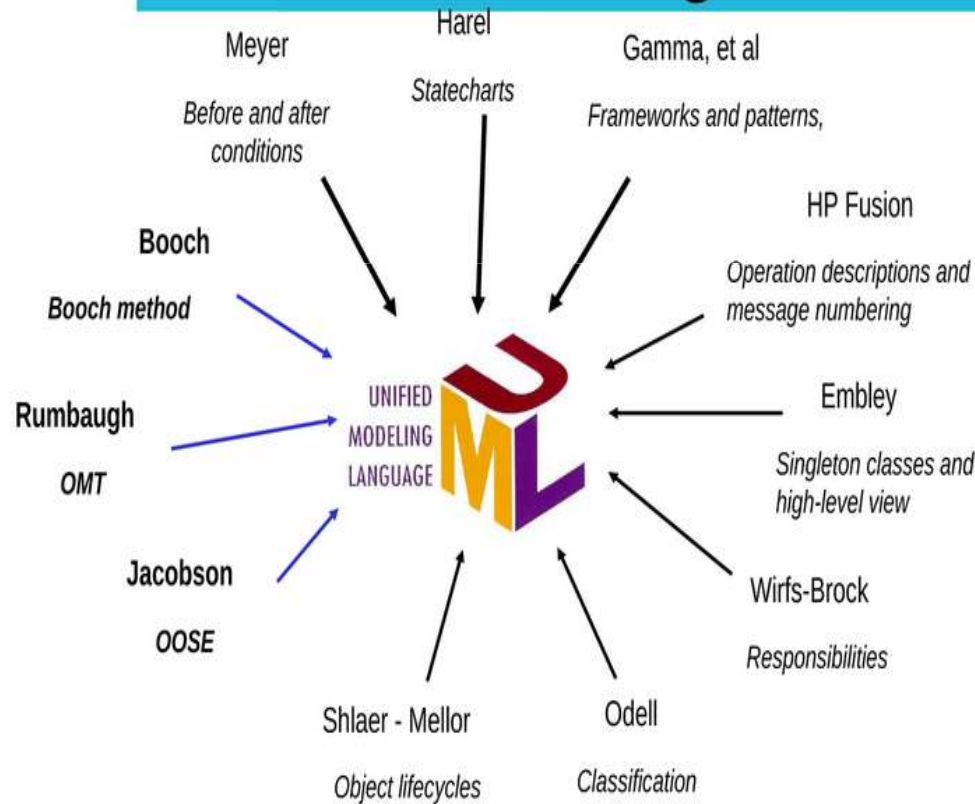
## WHY Mconf?

- **Webconference service for the NREN clients:**
  - Universities
  - Academic hospitals
  - ...



# Example service 1: streaming classes to hundreds of people simultaneously with recordings

## Origens da UML



©Pimenta2013

**MAURICIO RODRIGUES CRUZ:** A aula inicia em 15 minutos

**Claudinei:** Prof Valter, estou assistindo remotamente e ainda estou vendo o slide "Bom curso a todos!"

**Claudinei:** Agora estou vendo. Até o vídeo.

**MAURICIO RODRIGUES CRUZ:** Pedimos aos alunos que não compartilhem suas cameras para o público neste momento.

**MAURICIO RODRIGUES CRUZ:** Neste momento temos uma pausa, voltaremos em alguns minutos

**MAURICIO RODRIGUES CRUZ:** Neste momento vamos reiniciar a aula



# Example service 2: remote defense of thesis and dissertations



# Example service 3: second medical opinion

**Usoários**

Papê	Nome	Status
	Fabio Rafael Dan	
	Valdelírio Venites	

**Interlocutores**

- Fabio Rafael Damasceno
- Valdelírio Venites

**Bate-papo**

Todos +

Para entrar na conferência de áudio a partir de um telefone SIP, disque 75524.

Se você precisa ajuda para usar esta aplicação veja a documentação.

Fabio... consegue me ouvir? 09:43

consegue ler isto? 09:45

seu Valdelírio? 09:46

<https://mconf.ufrgs.br/webconf/00209429> 10:03

**Janela de videos**

- Fabio Rafael Damasceno (yx)
- Valdelírio Venites

**TelessaúdeRS**

*Programa Nacional Telessaúde Brasil Redes*

Núcleo de Telessaúde Técnico-Científico do Rio Grande do Sul  
Universidade Federal do Rio Grande do Sul - UFRGS  
Faculdade de Medicina - FAMED  
Programa de Pós-Graduação em Epidemiologia - PPGPEI

Logos: Rio Grande do Sul, COSEMS RS, Prefeitura de Porto Alegre, BRASIL, UFRGS, CUNICEX, GHC

100% 400%

1/27

(c) 2013; Mconf-Live compilação mconf-live0.3.3RC2 - Para mais informações acesse <http://mconf.org>

[Up: 190.6 Kbps | Down: 159.7 Kbps] Default

# Example service 4: remote meetings

The screenshot shows a web browser window with the following elements:

- Browser Tabs:** "Problem loading page", "Bem-vindo à Rede da UFRGS", and "MconfLive".
- Address Bar:** "rnp-bsb.mconf.org/client/MconfLive.html".
- Page Header:** Includes "English", "Help", and "Logout" buttons.
- Video dock:** A grid of 28 video thumbnails, each with a name and a close button (X). The thumbnails show various participants in a meeting room, including a color calibration chart and a news article thumbnail.
- Footer:** "(c) 2012, Mconf-Live build mconf-live0.2 - Mconf Node - For more information see <http://mconf.org> - Powered by BigBlueButton" and a "\* Custom layout" button.

# Mconf desktop clients

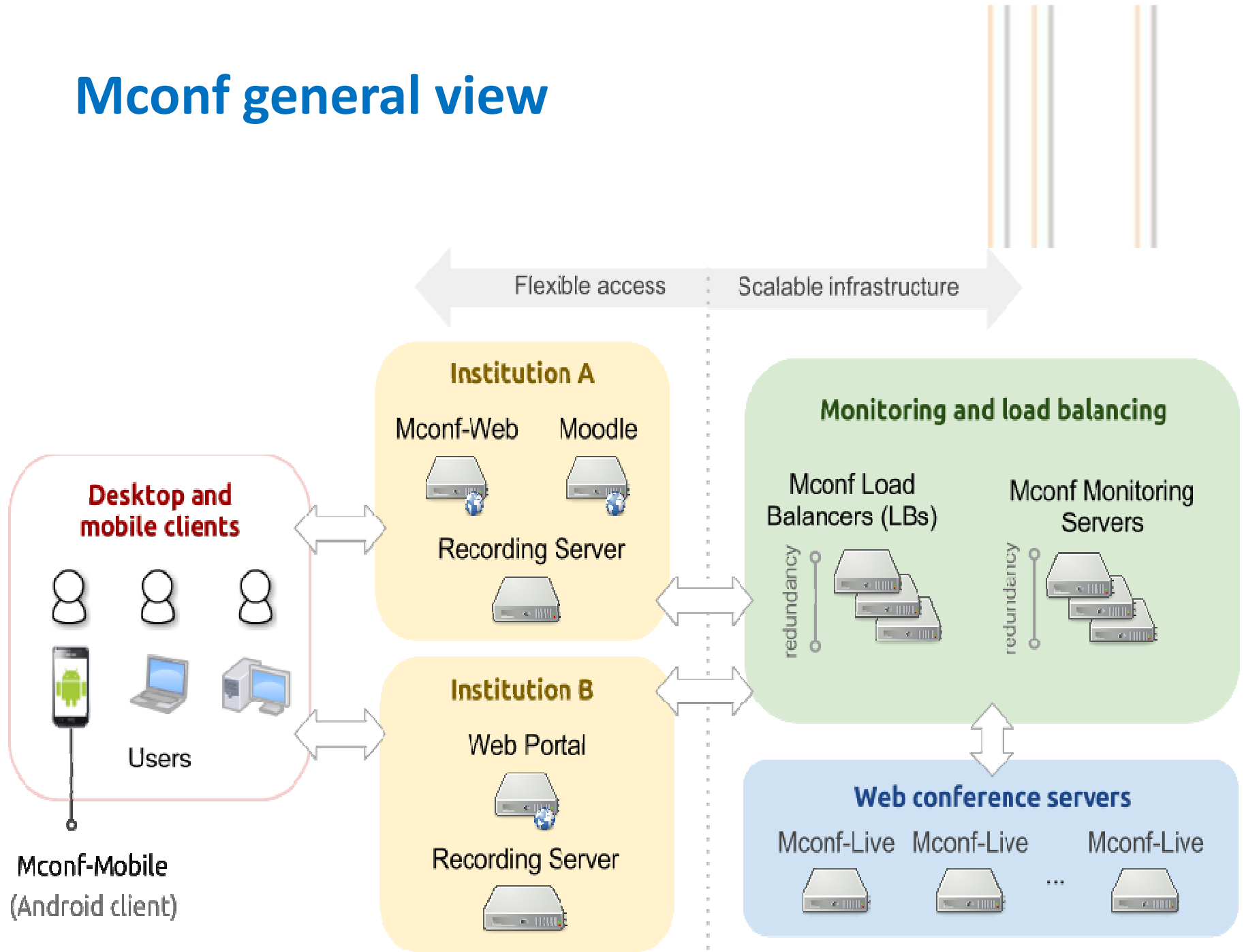
- Fork of BigBlueButton
- Partnership with Fred Dixon's team

The screenshot displays the Mconf desktop client interface within a Google Chrome browser window. The browser's address bar shows the URL `mconf-live1.ufrgs.br/client/MconfLive.html`. The interface is divided into several sections:

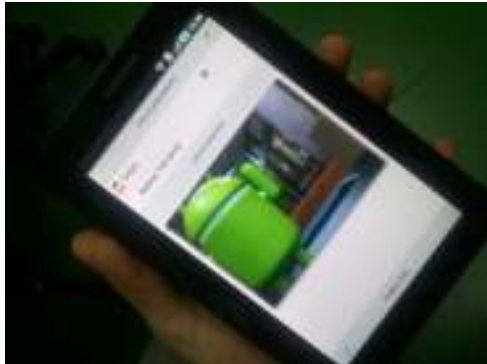
- Users List (Usários):** A table on the left lists participants with columns for Role (Papéis), Name (Nome), and Mute (Mudo). The list includes Valter Roesler, Felipe, JOSÉ LUIS DA, Leonardo Darré, Itz, Lucas Jones, and Mauricio Cruz.
- Video Window (Janela de vídeos):** A grid of video thumbnails for participants: Leonardo Darré (largest), Valter Roesler, Mauricio Cruz, Lucas Jones, Felipe, JOSÉ LUIS DA, and Itz.
- Group Chat (Bate-papo):** A chat window on the right showing a public chat with messages such as "Bem-vindo(a) à conferência VALTER ROESLER!" and "Para entrar na conferência de áudio e partir de um telefone SIP, digite 72701.".
- Slide Presentation (Apresentação):** A central slide titled "Welcome to Mconf" with the text "A global scalable open source multiconference system for web and mobile devices" and the website `mconf.org`. It also includes a footer: "powered by BigBlueButton (bigbluebutton.org)".
- Share Screen (Tela compartilhada):** A small window at the bottom left showing a list of items to be shared, including "Ata de reunião" and "1. Definições gerais".

At the bottom of the interface, there is a status bar with copyright information: "(c) 2013 Mconf-Live [compleção mconf-live0.4] - Para mais informações, acesse <http://mconf.org> - Mconf-Live é baseado no BigBlueButton." and network statistics: "[Up: 146.0 Kbps | Down: 789.7 Kbps]".

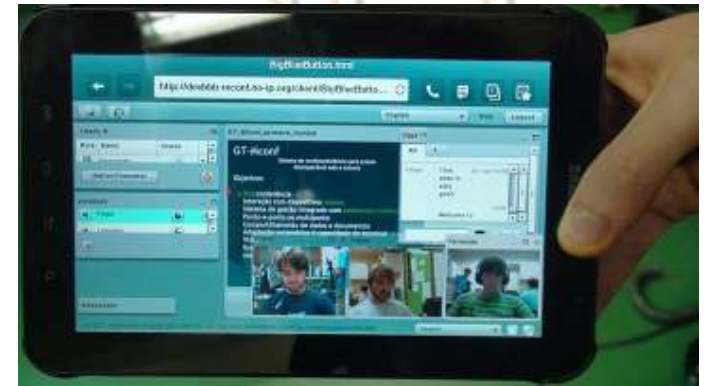
# Mconf general view



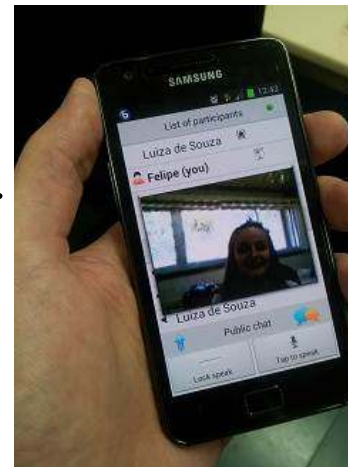
# Mconf mobile clients



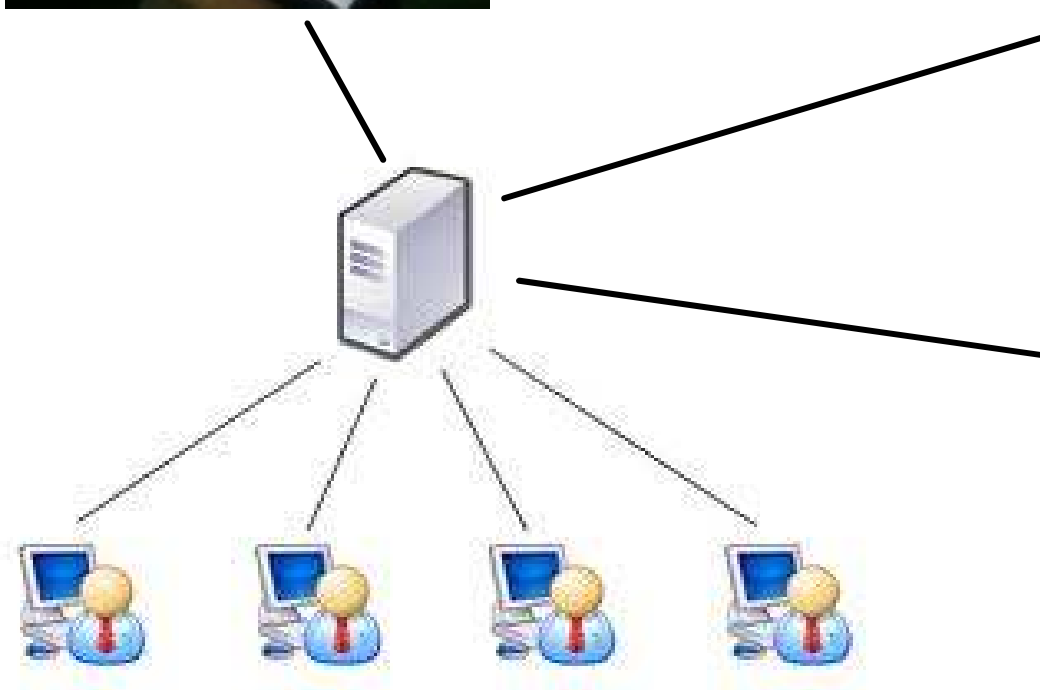
Galaxy Tab app



Galaxy Tab web



Galaxy S



# Mconf Web portal: <http://mconf.org>

**Mconf** *beta* Welcome, Valter Roesler All spaces | My Home Inbox (0) Profile Account Logout

My Home

**My webconference room**

[Join](#) Valter Roesler (not running) [Invite](#) [View Invite URL](#) [Edit](#)

**My spaces**

Coordenação do Pi... 4 members	DownUnder 4 members	GT-Mconf 3 members
GT-Streaming 9 members	I9access 3 members	MConF Start Page 3 members
Malu Personal 3 members	Mconf Público 8 members	PRAV 22 members
Teste 2 members	WRNP 14 members	ki 2 members

**Recent activity...**

**Create new space**

**My Calendar (GMT+01:00)**  
Today You have no events

**My Inbox (0)**  
There are no messages

Mconf All rights reserved. - [Help](#) - [Send us feedback!](#)  
You can find us at: [Project website](#) - [Google Code](#) - [GitHub](#)

This website is based on VCC (Global Plaza)  
Version: 0.7/deploy/1203aa

Switch language: English - Español - Deutsch - Français - Português (Brasil)

- Permanent room
- User
  - Community

Approximately  
**4000 users** and  
**1400**  
communities

# RNP (Brazilian NREN) web portal

<http://mconf.rnp.br>

Federated Access

The screenshot shows the Mconf web portal interface. The browser address bar displays <https://mconf.rnp.br>. The page header features the Mconf logo on the left and a login form on the right. The login form includes fields for "E-mail ou usuário" (containing "valter.roesler@gmail.com") and "Senha" (containing "\*\*\*\*\*"), with a "Login" button. Below the login form, there is a link for "Esqueceu sua senha?". A red arrow points from the text "Federated Access" to the "Login" button. The main content area contains two columns of text. The left column describes the project and provides contact information. The right column encourages users to create an account and includes a "Registre-se" button.

**Mconf** *beta*

E-mail ou usuário  Senha

[Esqueceu sua senha?](#)

Teste experimental de acesso ao Mconf via Federação CAFe  comunidade acadêmica federada

Este website é parte do projeto Mconf, sistema em desenvolvimento no grupo de pesquisa PRAV da UFRGS em parceria com a RNP. Ele foi desenvolvido com base no sistema Global Plaza e integrado ao sistema de webconferência BigBlueButton. Para mais informações, acesse o website do projeto clicando aqui.

**Contate-nos: [mconf@mconf.org](mailto:mconf@mconf.org)**

Crie uma conta para acessar comunidades privadas e criar suas próprias webconferências

# Belnet (Belgium) Mconf web portal

**Belnet**  
dedicated connectivity

Login using federation

Mconf<sub>beta</sub>

This website is part of the project [Mconf](#), currently being developed in the research group [PRAV](#) from [UFRGS](#) in partnership with [RNP](#). It was developed based on [Global Plaza](#) and is being integrated with the webconference system [BigBlueButton](#). For more information, access the project website [clicking here](#).

Contact us: [mconf@mconf.org](mailto:mconf@mconf.org)

Current statistics: 6 users, 3 spaces, 0 active meetings

## Popular public spaces

No public spaces found.

## Last active spaces

No meetings in progress right now.

# Web portal of Hololsoft – Egypt

اسم المستخدم:  كلمة المرور:

سجل ... حتى تتمكن من انشاء مجموعاتك الخاصة،  
وتتمكن من عقد اجتماعات مرتبه


الإحصائيات الحالية: المستخدمون 1, المجموعات 0, اجتماعات نشطة 0


## المجموعات العامة

لا يوجد ساحات عامة

## اخر أنشطة المجموعات

لا يوجد اجتماعات في الوقت الراهن

Supported by: Holol Soft | 

مساعدته   
ارسل لنا ملاحظاتك وتعليقاتك

# Mconf-Live servers in RNP



# Mconf-Live servers – Academic global network

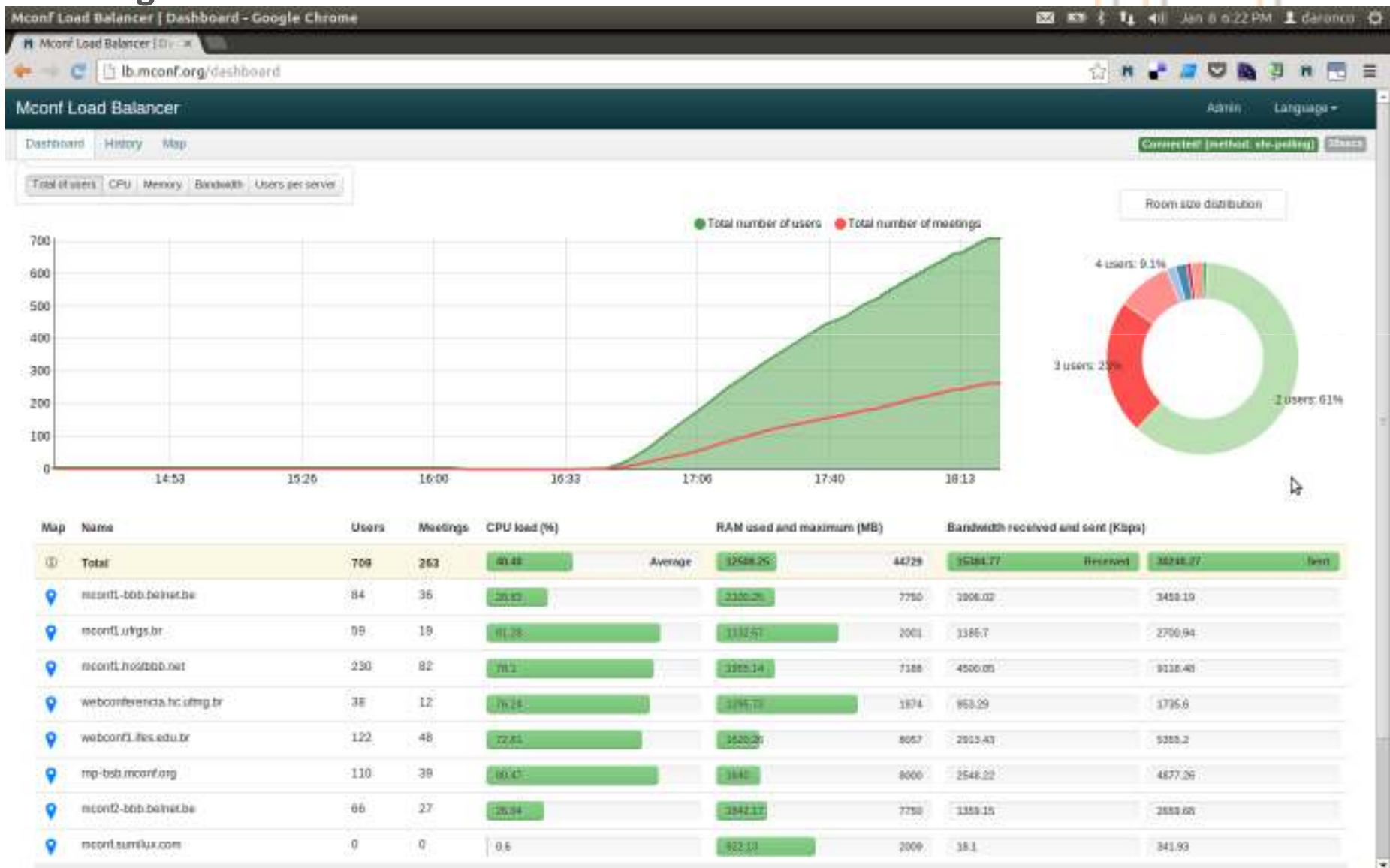
- **23 servers**

- Latin America: Brazil (12), Colombia
- North America: USA: California and 2 somewhere (Cloud Amazon)
- Europe: Belgium – Belnet (2) and Germany
- Central America: Costa Rica (2)
- Asia: Thailand and Singapore



# Scalability – load test in Jan 2013 (lb.mconf.org)

- Balancing method: Geoposition and CPU load
- Figure: 709 users in 7 servers

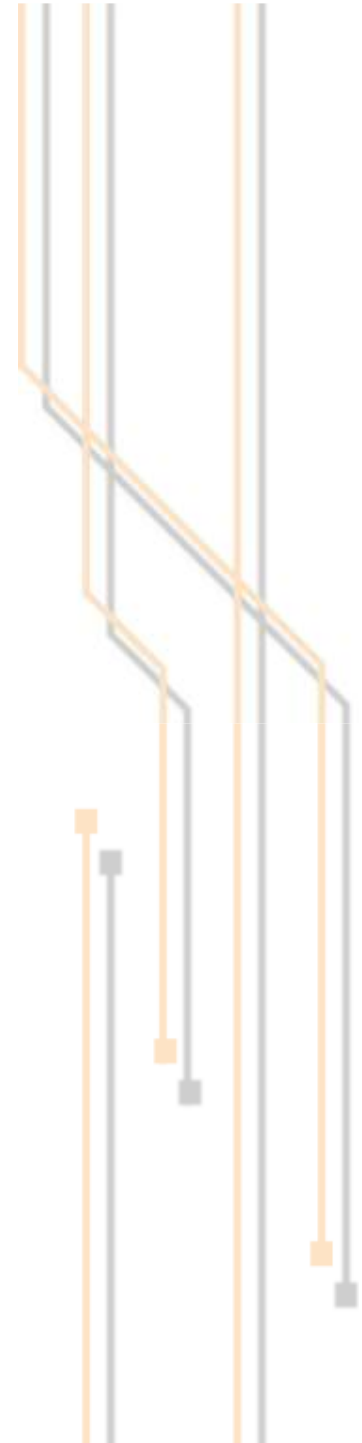


## Advantages of Mconf approach

- **Scalable solution:** allow thousands of users (and servers) spread in different regions (cities, countries, continents)
- **Institutions can keep their own use policies and visual identity:** users access the webconference rooms through their institutions portal
- On the top of that, it is *open source*



# Managing issues of a big global network



## Managing issues

- How to keep all the servers up-to-date and with the same software version, yet at the same time with custom themes and institution-based configurations?

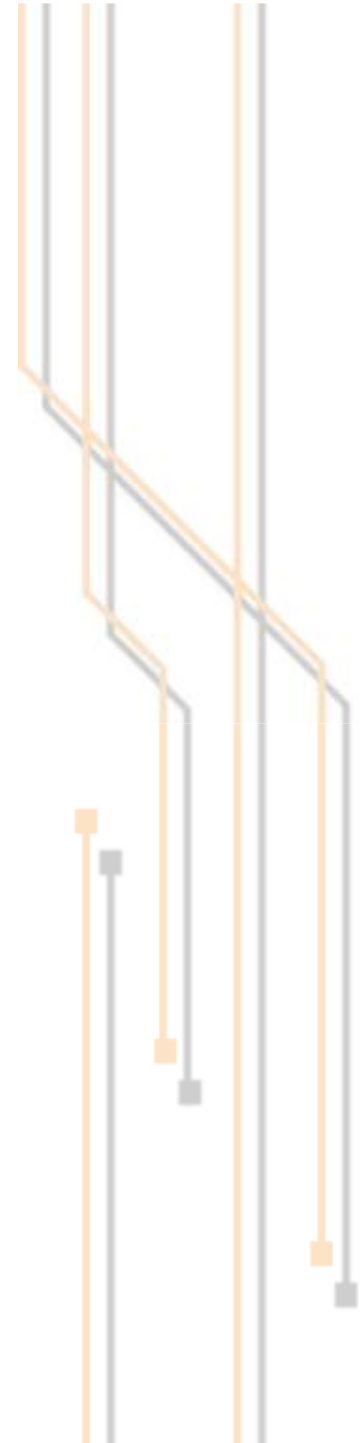
*We use a script with opscore chef that updates all servers with a click*



## Managing issues

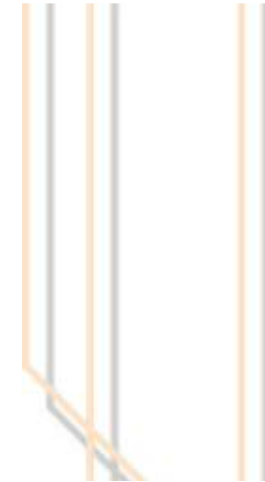
- How to generate real-time and historical usage statistics of the entire network and also for individual institutions?

*Executed by the load balancer*



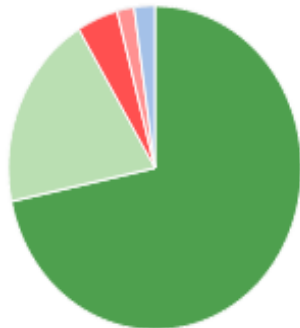
# Mconf usage reports

- Filtering by institution, group of institutions, entire network
- Filtering by period of time (month, week, ...)



Number of meetings	265
Average meeting duration	23.83 minutes
Average maximum number of users	1.2516
Maximum number of simultaneous users	16

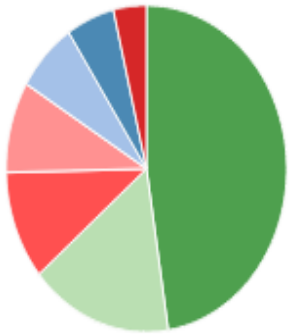
Room distribution



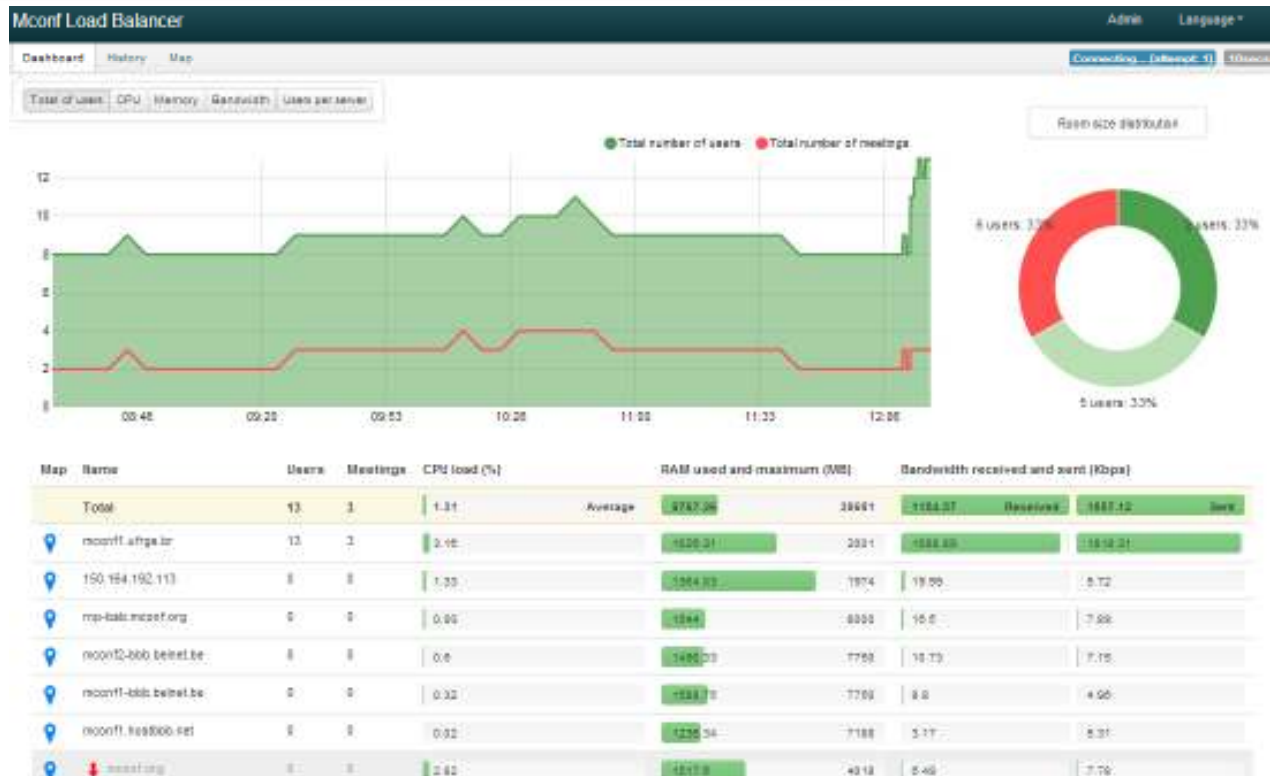
	Room size (number of users)	Number of meetings	Percentage
■	1	190	71.6981 %
■	2	52	19.6226 %
■	3	12	4.5283 %
■	5	5	1.8868 %
■	6	2	0.7547 %
■	4	1	0.3774 %
■	7	1	0.3774 %
■	10	1	0.3774 %
■	15	1	0.3774 %

# Mconf statistics and usage reports

Number of meetings per server



Server name	Number of meetings	Percentage
mconf1.ufrgs.br	163	47.5219 %
150.164.192.113	56	16.3265 %
mnp-bsb.mconf.org	37	10.7872 %
mconf.org	31	9.0379 %
mconf2-bbb.belnet.be	24	6.9971 %
mconf1-bbb.belnet.be	19	5.5394 %
mconf1.hostbbb.net	13	3.7901 %

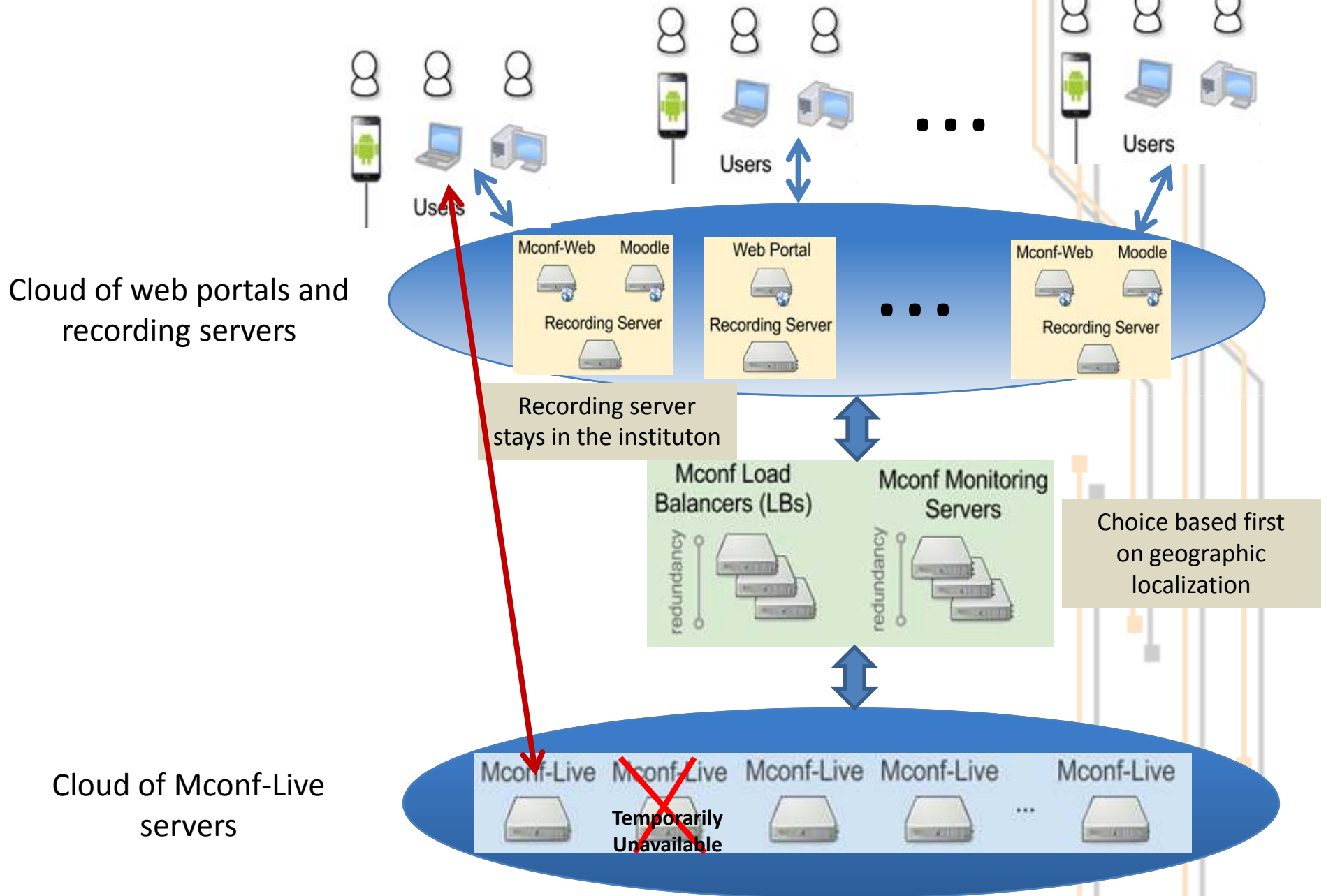


## Managing issues

- How to guarantee availability in case of a server crash?
- How to cope with surges in web conferencing traffic?
- How to manage web conferencing recordings of such a large number of users and institutions scattered around the world?



# Mconf architecture provides that



## Proposal of global integration

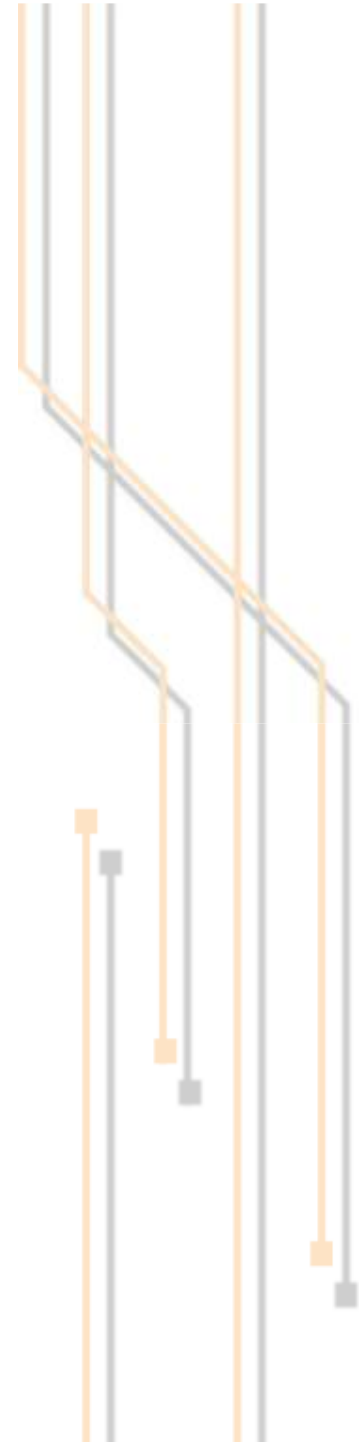
So, in short!!!

Mconf today is an open source global webconference network with a pool of servers globally distributed providing scalability and availability



# Proposal of global academic integration

- How to integrate (terms of use):  
<http://mconf.org/m/about/network/terms>
- The “fee” to enter the global webconference network is to offer one server
- The new versions are updated automatically through Opscode Chef
- Your users can access the webconference using your own web portal
- Cost is practically zero and your institution receives scalability and availability



## Why integrate? Benefits to your institution

- **High availability:** even if a server fails, there would be many others worldwide to host the room
- **Optimization of resources:** the idle servers during the night in one country could be used by other countries, and vice-versa
- **Low maintenance cost:** the maintenance of the load balancers is performed by the Mconf team. For the partner institution is practically zero cost
- **Monitoring / statistics / usage reports:** Dashboard and statistics available for everyone
- **Global collaborative environment:** more programmers improving the same *open source* tool

If it is so simple... why not?



A global scalable opensource  
multiconference system for web and mobile  
devices

<http://mconf.org>

Valter Roesler: roesler@inf.ufrgs.br  
mconf@mconf.org



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