



CHEP 2013 – Amsterdam – October 14th – 18th 2013

Vidyo for the LHC

Status Update

Thomas Baron – *AV and Collaboration services section leader*

Joao Fernandes – *Video conference service manager*

CERN IT department



- Chronology
- Vidyo at CERN:
 - Use cases
 - Scale and infrastructure
- Integrations
- Reporting & Monitoring
- Future plans

April 1999

S	M	T	W	T	F	S
				1	2	3
				7	8	9
			6	14	15	16
	4	5	13	21	22	23
	11	12	20	28	29	30
	18	19	27			
	25	26				

CHRONOLOGY

Chronology

- Long experience with videoconference
- VRVS/EVO service since the late 90s
- Built on the requirements of HEP community
- Tender needed in 2008 following the service change of business model
 - Setup of a committee with representatives of major user communities
 - Establishing requirements
 - Informal market survey
 - Only two products could cope with specs
 - Pilot for 6 months
- **Selection of Vidyo in 2011**
- 1st January 2013: end of EVO desktop system support at CERN

REMOTE COLLABORATION AT CERN

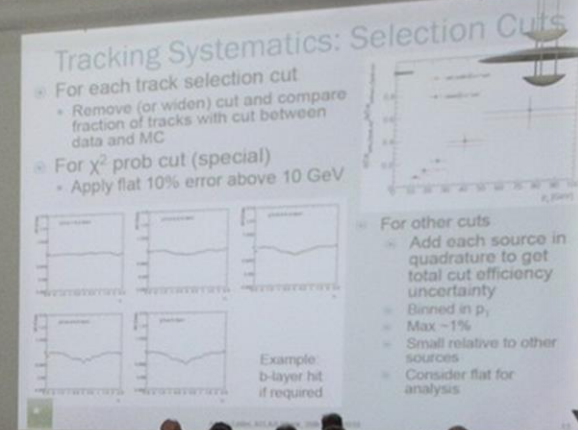


USE CASES

- **Daily work meetings**
- *Typically involves:*
 - *Meeting Rooms and desktops*
 - *Around 20 participants*
- *Frequency:*
 - *250 per day*

USE CASES

- **Collaboration meetings**
- *Typically involves:*
 - *Meeting Rooms and desktops*
 - *Around 100-250 participants*
- *Frequency:*
 - *Around 2-4 per month*



USE CASES

- **Outreach events (masterclasses, virtual visits)**
- *Typically involves:*
 - *Meeting Rooms*
 - *Around 10 participants*
- *Frequency:*
 - *Around 1 per week*



USE CASES

- **Remote Operation Centers**
- *Typically involves:*
 - *Rooms*
- *24/7 connection of all institutes involved in control and monitoring*



USE CASES

- **Remote Teaching**
- *2 dedicated rooms*



OTHER USE CASES

- **Job interviews**
 - *Typically involves:*
 - *Desktops*
- **Point 2 point discussions**
 - *Typically involves:*
 - *Desktops*
 - *Replaces chat or phone*

VIDYO AT CERN: SCALE AND INFRASTRUCTURE



Vidyo @ CERN

- Service in production since December 2011
- Strong points for CERN
 - Multiplatform capabilities
 - Not only desktops but extension to mobiles and tablets
 - Integration with H323/SIP protocols
 - Extensible (several hundreds in a single meeting)
 - Natural interactions
 - very low latency and excellent lip sync
 - Good A/V quality and resilience/adaptability to poor network conditions
 - Simple interface
 - Good integration possibilities

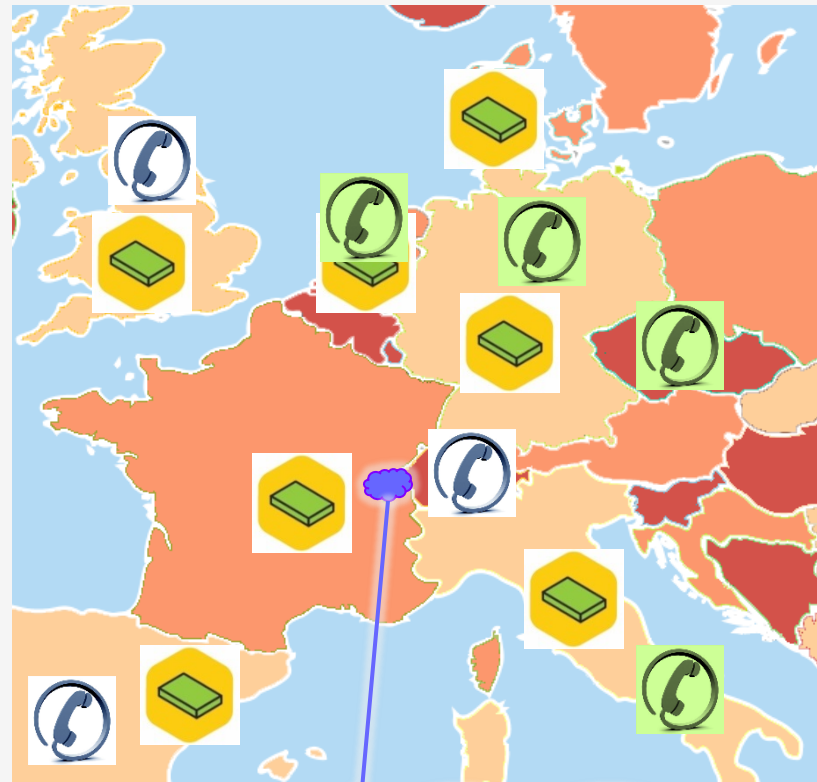
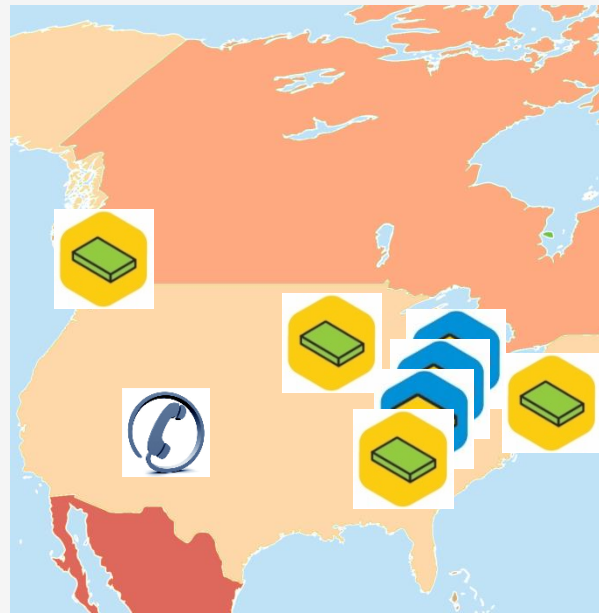


CERN Vidyo Service Scale

- 18000 users
- 800-1600 simultaneous connections
- Up to 168 simultaneous H323/SIP
- 11 Phone access points worldwide
- 12 simultaneous recordings
- 2 VidyoPanoramas (CERN site)



CERN Vidyo Worldwide Service Topology



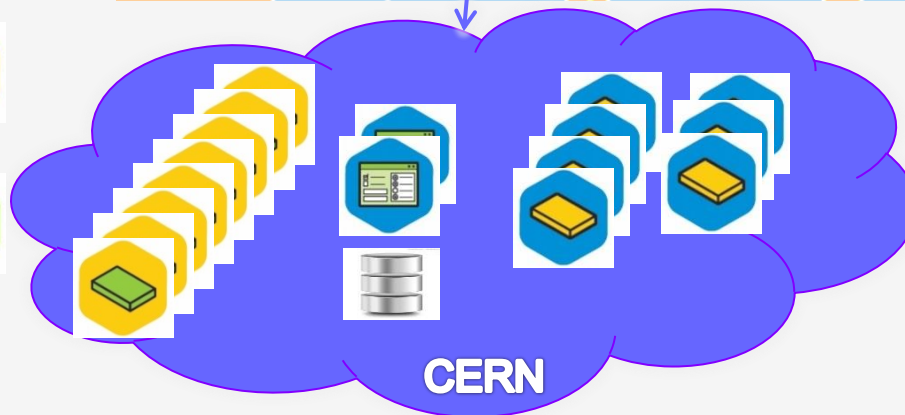
2 Portals



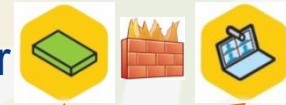
20 Routers



10 GWs



Router



Proxy



16



Vidyo: Usage Evolution

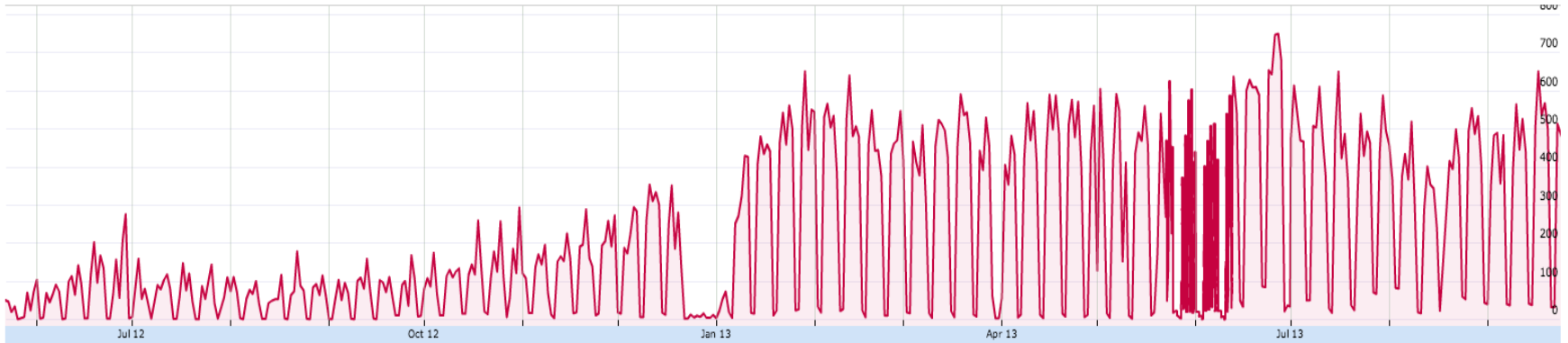
Maximum Simultaneous Connections (System wide)

Last update: Tue Sep 24 2013 17:22:48 GMT+0200 (CEST)

Zoom: 1' 5' 1h 1d 5d 1m 3m 6m 1y Max

00:00 September 24, 2013

● Maximum Simultaneous Connections 478



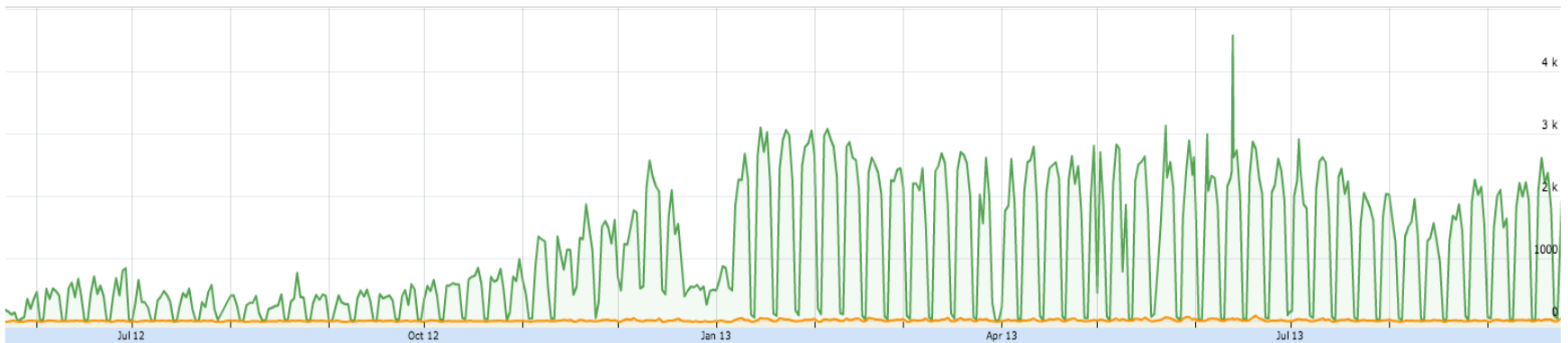
Total Number of Connections

Last update: Tue Sep 24 2013 17:22:48 GMT+0200 (CEST)

Zoom: 1' 5' 1h 1d 5d 1m 3m 6m 1y Max

00:00 September 24, 2013

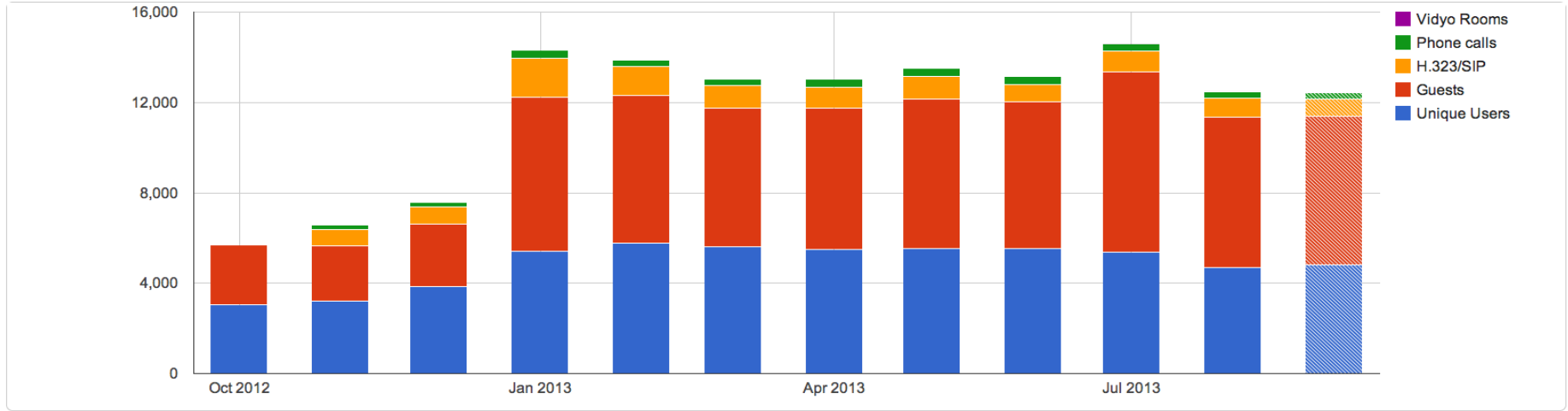
● PointToPoint Calls 57 ● Conference Calls 1.99 k



Vidyo: Usage Evolution

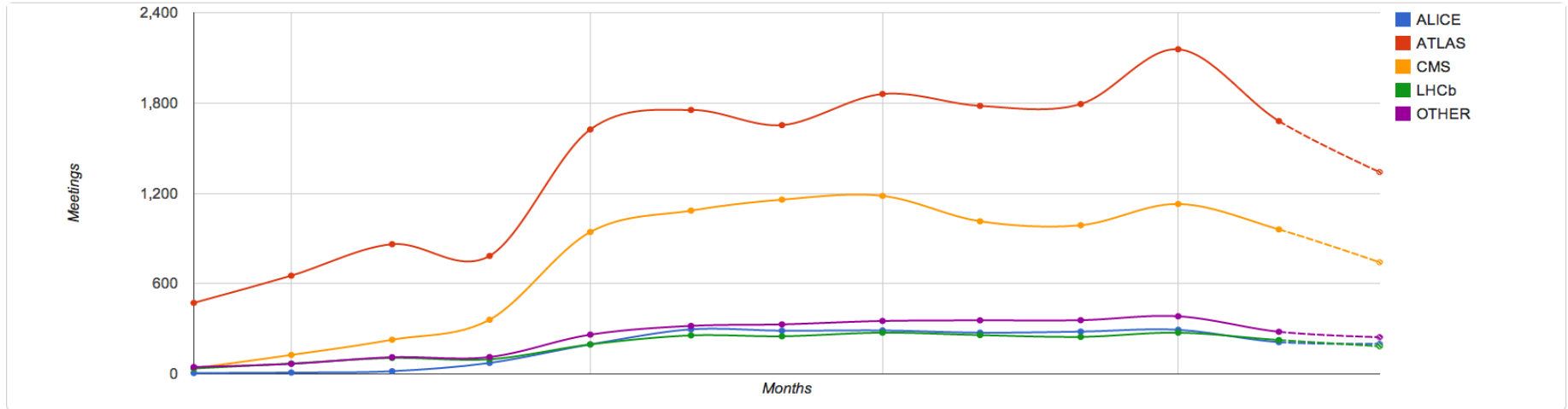
Distinct users per Month

Last update: Tue Sep 24 2013 17:24:48 GMT+0200 (CEST)



Meetings per Month

Last update: Tue Sep 24 2013 17:24:48 GMT+0200 (CEST)

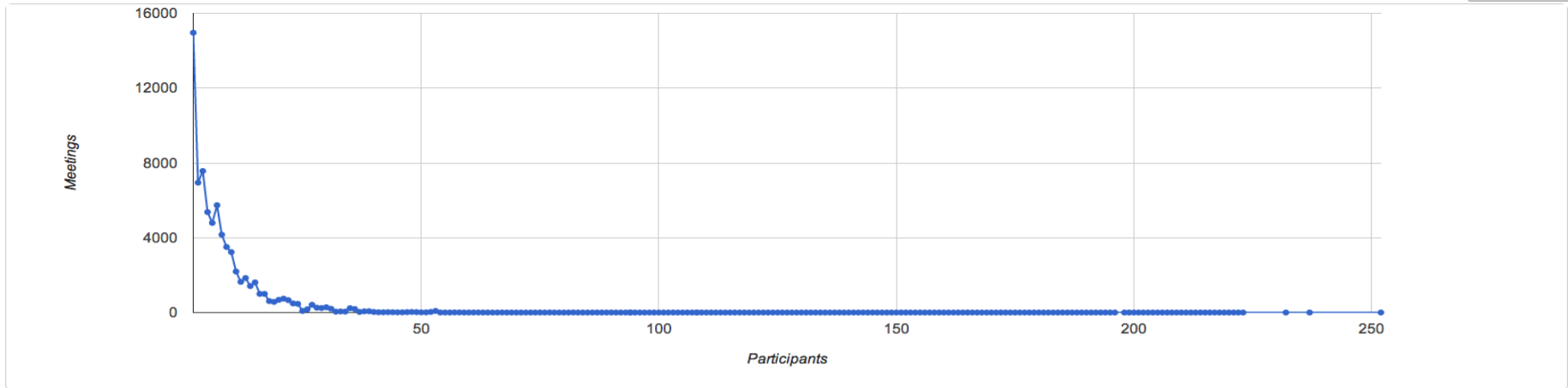


Vidyo: Usage Evolution

Participants per Meeting

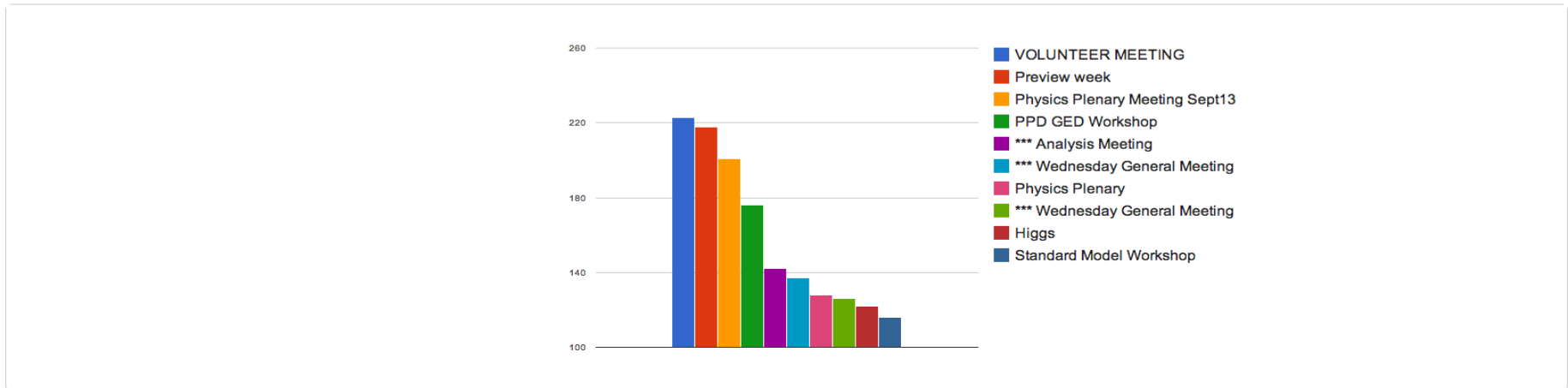
Last update: Tue Sep 24 2013 17:26:48 GMT+0200 (CEST)

Toggle log scale



Max Number of Participants per Meeting - top 10 meetings of the year

Last update: Tue Sep 24 2013 17:26:48 GMT+0200 (CEST)



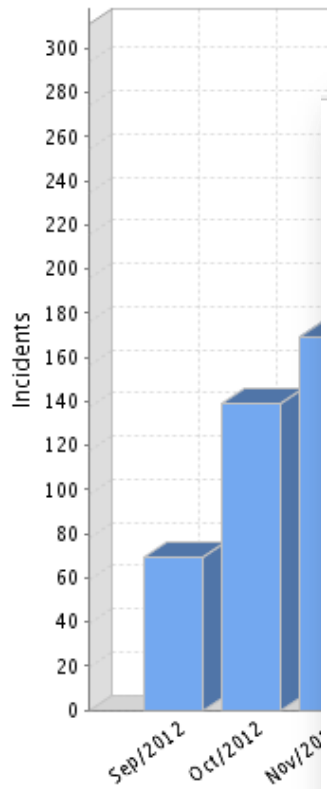
Usage Evolution

- Current peaks
 - Simultaneous connections: ~750
 - Number of people in one meeting: 252
 - Phone usage: 100k minutes in 1 month
 - More than 3200 meetings per month
 - More than 5000 distinct users and 3000 Guests per month
 - More than 28000 clients have been installed (mobile and desktop)
 - Average of 1 million of vidyo minutes per month

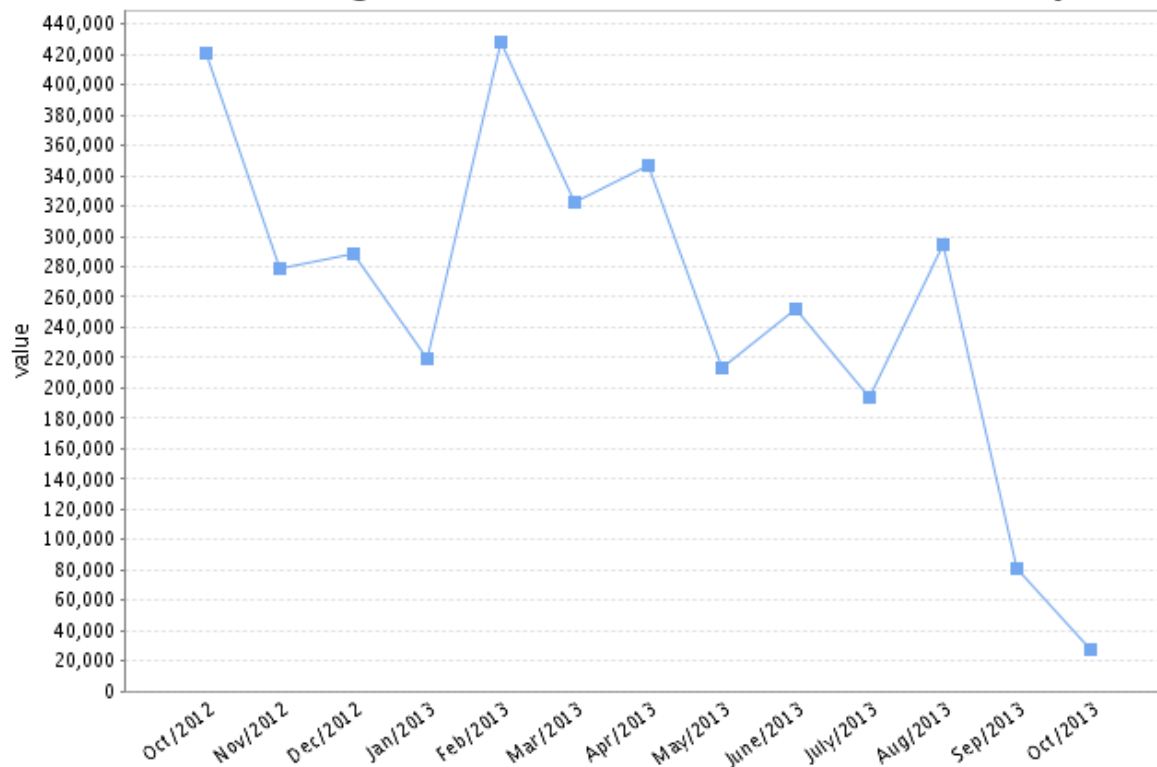


Support Evolution

Vidyo Incident Stats

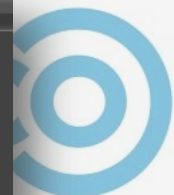


Incident average absolute resolution time FE = Vidyo





INTEGRATIONS



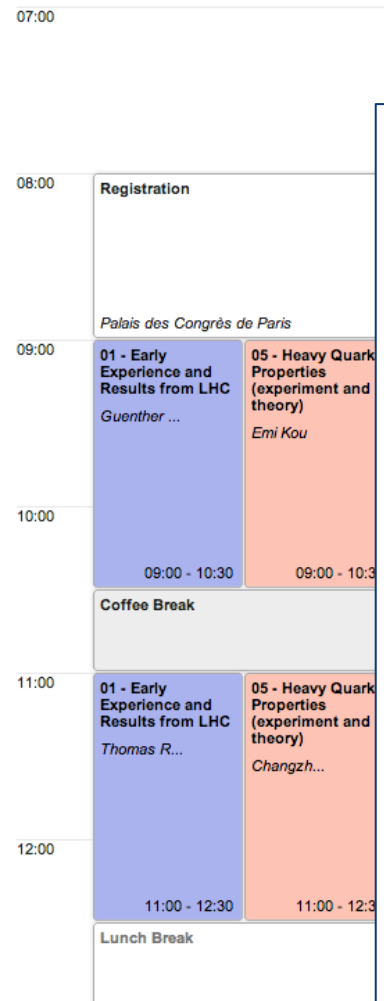
CERN Collo
Climate
by Thomas S
Thursday, 2
at CERN (S

Thu 22/07 Fri 23/07 Sat 24/07 Sun 25/07 Mon 26/07 Tue 27/07 Wed 28/07 All days

Print PDF Full screen Detailed view Filter

Thu 22/7

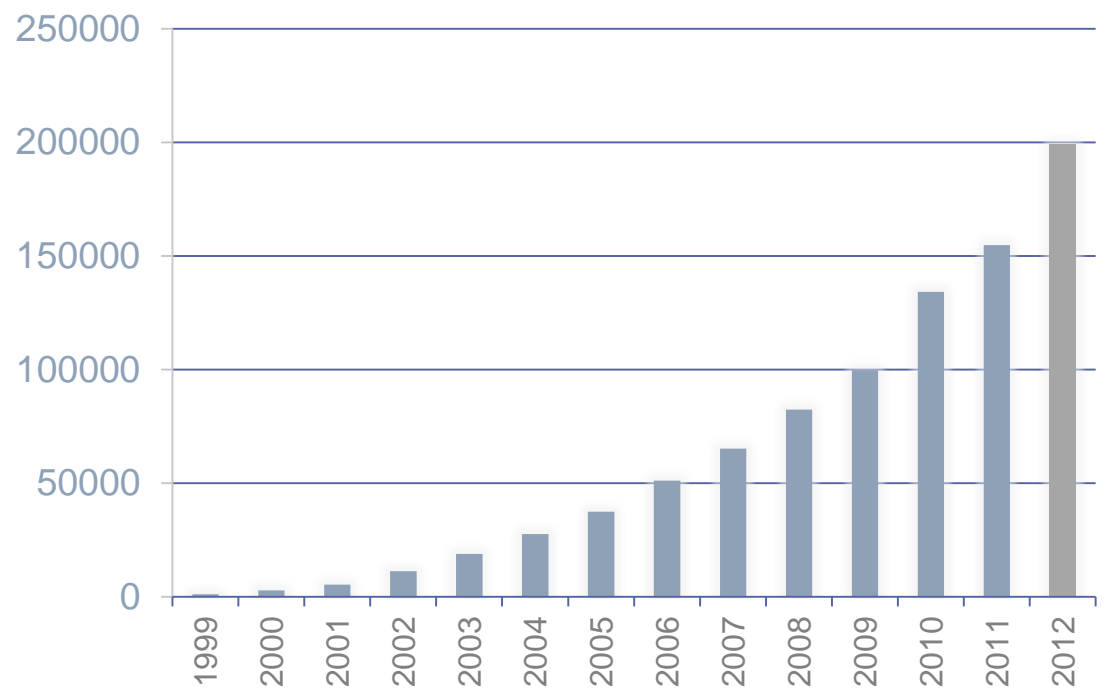
Salle Maillot Salle 242 Salle 251 Salle 252A Salle 252B Salle 253



Manage

wake of
hat are

Talks per year



Indico Integration

The screenshot displays the Indico web interface for an event titled "AVC section meeting" on January 18, 2012. The interface includes a top navigation bar with the Indico logo, user information (logged in as Baron, T.), and a search bar. A breadcrumb trail shows the path: Home » Departments » IT » Groups » CIS » Audio Visual & Conferencing Services » Section Meetings » AVC section meeting. The event details are shown in a blue header, followed by a "Videoconferencing" section with tabs for Recording Request, Webcast Request, Recording Manager, Electronic Agreement, and Managers. A "Participants" list includes Thomas Baron, Joao Correia Fernandes, Marek Domaracky, Jose Benito Gonzalez Lopez, Franck Joubertjean, and Loic Lavrut. The "Video Services" section provides details for the video public room, including room name, extension, moderator, and dial-in numbers for various locations. A "Schedule" section lists the event agenda for Wednesday, 18 January 2012, with items such as "General Section Information 5'", "Conference Rooms Service 10'", "Videoconference Service 10'", "Indico 10'", and "Public Screens 5'".

INDICO
Integrated Digital Conference

Europe/Zurich English Logged in as Baron, T. Login as... Logo

Home Create event Room booking Administration My profile Help

Home » Departments » IT » Groups » CIS » Audio Visual & Conferencing Services » Section Meetings » AVC section meeting

AVC section meeting 18 Jan
Created by Thomas Baron

Event actions
Clone Lock Switch to event page

General settings
Timetable
Material
Room booking
Chat Rooms
Video Services
Participants
Evaluation
Advanced options
Lists
Protection
Tools
Logs

AVC section meeting
Wednesday, 18 January 2012 from 11:00 to 12:00 (Europe/Zurich)
at CERN (513-R-055)

Videoconferencing Recording Request Webcast Request Recording Manager Electronic Agreement Managers

Participants Thomas Baron; Joao Correia Fernandes; Marek Domaracky; Jose Benito Gonzalez Lopez; Franck Joubertjean; Loic Lavrut

Video Services Vidyo public room : AVC_section_meeting Join Now! | Hide info

Room name	AVC_section_meeting
Extension	9172989
Moderator	Thomas Baron
VidyoVoice phone numbers	Dial Phone Numbers + Extension + "#" key: (CH) +41225330322, (US) +18665777460, London (UK) +442030510622, Prague (CZ) +420228880755, Madrid (SP) +34911233708, Tokyo (JP) +81345790501
Description	AVC section meeting
Auto-join URL	https://vidyoportal.cern.ch/flex.html?roomdirect.html&key=N7GG5kNzH1X

Wednesday, 18 January 2012

11:00 - 11:05	General Section Information 5' Speaker: Thomas Baron (CERN)	▼
11:05 - 11:15	Conference Rooms Service 10'	▼
11:15 - 11:25	Videoconference Service 10'	▼
11:25 - 11:35	Indico 10'	▼
11:35 - 11:40	Public Screens 5'	▼

CERN

Access from CERN Meeting Rooms

IT-CIS Management Meeting (03 October 2012)

IT-CIS Management Meeting (0...)

cern.ch https://indico.cern.ch/conferenceDisplay.py?confid=211435

Restricted Europe/Zurich T. Smith

IT-CIS Management Meeting

Wednesday, 3 October 2012 from 14:00 to 16:00 (Europe/Zurich) at CERN (513-1-024)

Participants Thomas Baron; Jean-Yves Le Meur; Tibor Simko; Tim Smith

Video Services Vidyo public room : IT-CIS_Management_Meeting [Hide info](#) | [Join Now!](#) | [Connect 513-1-024](#)

Room name IT-CIS_Management_Meeting
Extension 9211435
Moderator Tim Smith
VidyoVoice phone numbers Dial Phone Numbers + Extension + "# key: (CH) +412253...
+442030510622, Prague (CZ) +420228880755, Mas...
Description CIS Planning
Auto-join URL https://vidyoportal.cern.ch/flex.html?room...

This PC

Wednesday, 3 October 2012

14:00 - 14:05	Review of previous Minutes 5'	<input checked="" type="checkbox"/>
	Speaker: Tim Smith (CERN)	
14:05 - 14:25	Communications from Dept Meetings 20'	<input checked="" type="checkbox"/>
	Speaker: Tim Smith (CERN)	
14:25 - 14:45	Budget and Personnel 20'	<input checked="" type="checkbox"/>
	Speaker: Tim Smith (CERN)	
14:45 - 15:05	TEDxCERN planning 20'	<input checked="" type="checkbox"/>
	Speaker: Thomas Baron (CERN)	

Powered by Indico



Access from non-CERN H323/SIP



Report from HEPIX Spring 2012 Meeting
chaired by Ignacio Reguero
Friday, 11 May 2012 from 10:00 to 12:00 (Europe/Zurich)
at CERN (513-1-024)

Manage ▾

Vidyo Services Vidyo public room : Report_from_HEPIX_Spring_2012_Meeting Join Now! | Hide info

Room name	Report_from_HEPIX_Spring_2012_Meeting
Extension	9173825
Moderator	Ignacio Reguero Make me moderator
VidyoVoice phone numbers	Dial Phone Numbers + Extension + "#" key: (CH) +41225330322, (US) +18665777460, London (UK) +442030510622, Prague (CZ) +420228880755, Madrid (SP) +34911233708, Tokyo (JP) +81345790501
Description	ITTF
Auto-join URL	https://vidyoportal.cern.ch/flex.html?roomdirect.html&key=iFD1szUaeVf

2 IVRs available: CERN and Internet2 (US)



Integrations

- CERN users database
 - Using LDAP link option on portal
- CERN Indico server
 - Direct calls to Vidyo web service APIs
- CERN Vidyo dashboard
 - Direct SQL queries to CDR DB
- Infrastructure monitoring interface
 - Added Nagios to all servers
 - Calls to the CDR and Vidyo DB

REPORTING AND MONITORING



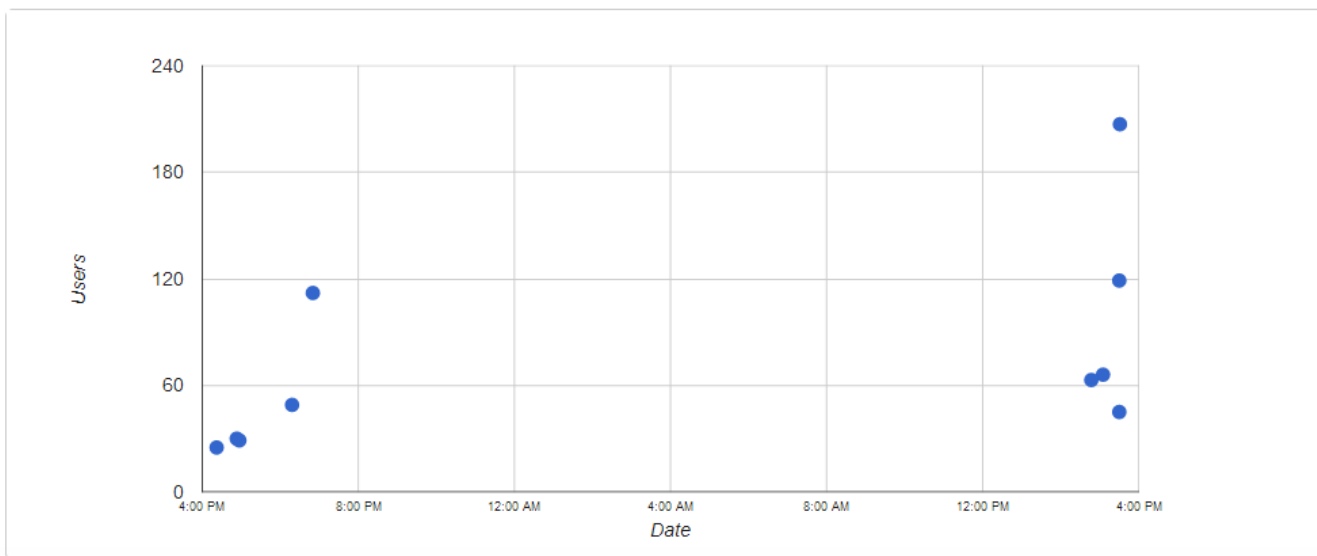
Reporting

- Developed in-House
 - Live web reporting tool for users and managers
 - Queries to the Vidyo CDR DB
 - Using Open source tool to analyze web accesses
 - Google Charts API for data display

Max Number of Participants per Meeting - top 10 meetings last 24 hours

Last update: Tue Sep 17 2013 15:32:45 GMT+0200 (W. Europe Daylight

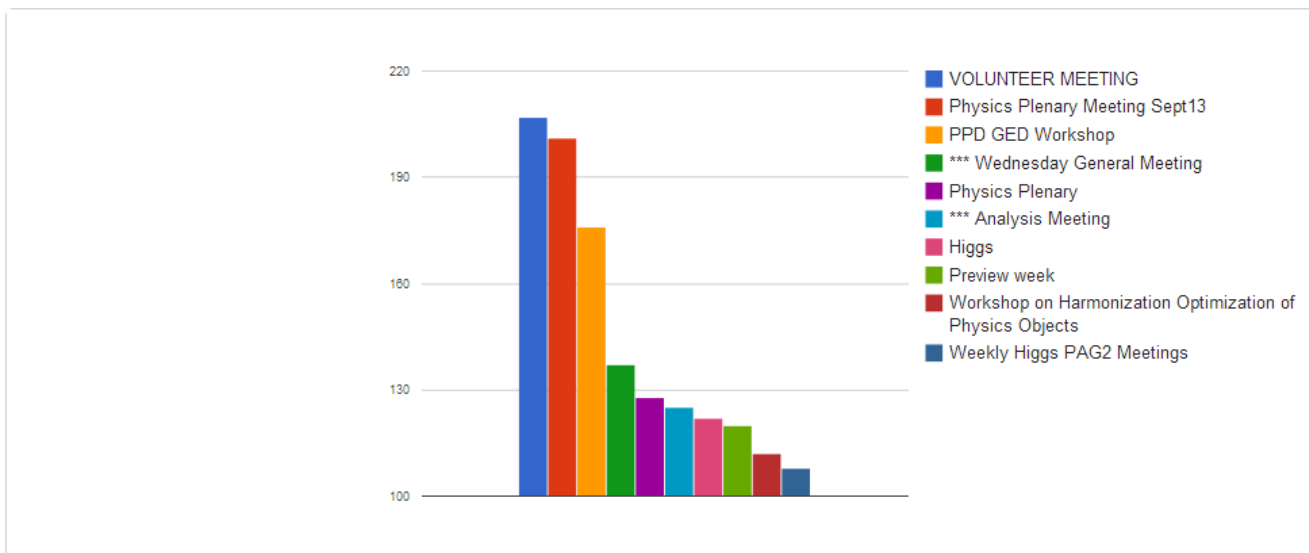
Time)



Max Number of Participants per Meeting - top 10 meetings of the year

Last update: Tue Sep 17 2013 15:34:25 GMT+0200 (W. Europe Daylight

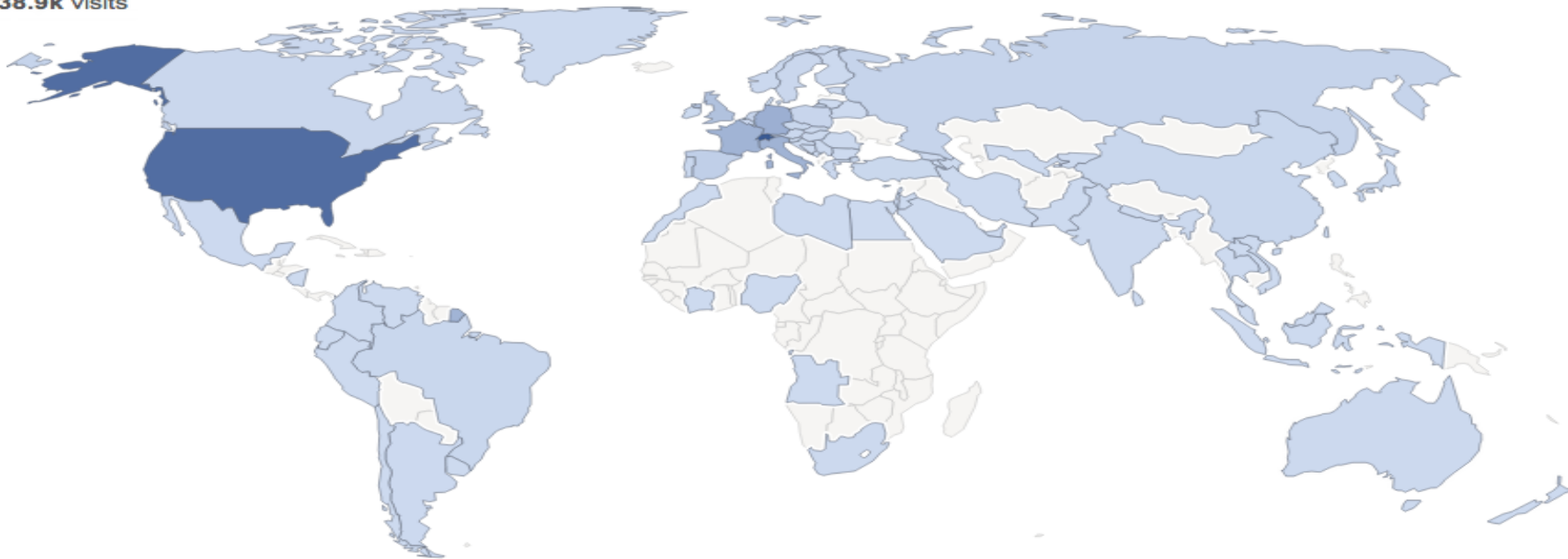
Time)



Toggle bar chart

Countries

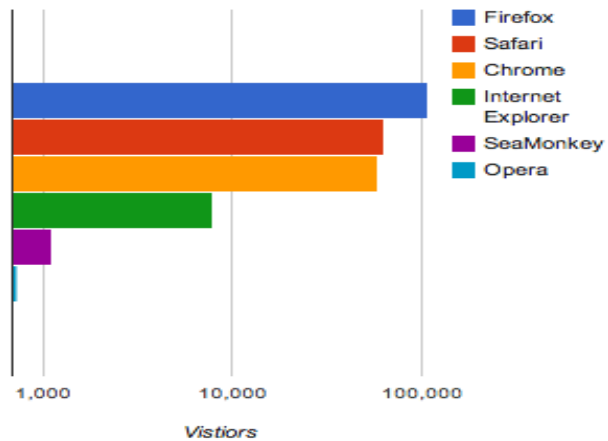
238.9k visits



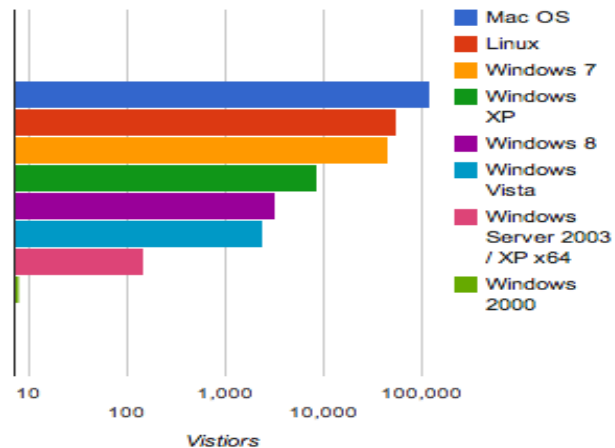
World-Wide

Visits

Browsers



Operating Systems



Monitoring

- **Developed in-House**
 - Live web infrastructure monitoring for managers
 - Open Source monitoring framework
 - Agents installed in each system component
 - Proxy server collecting data
 - Collects all system data:
 - Monitoring agents reports
 - CDR and Vidyo DB queries for usage
 - Google charts and maps API for data display
 - Using Django web framework



Overall usage summary

Users on most used routers

Endpoints on most used gateways

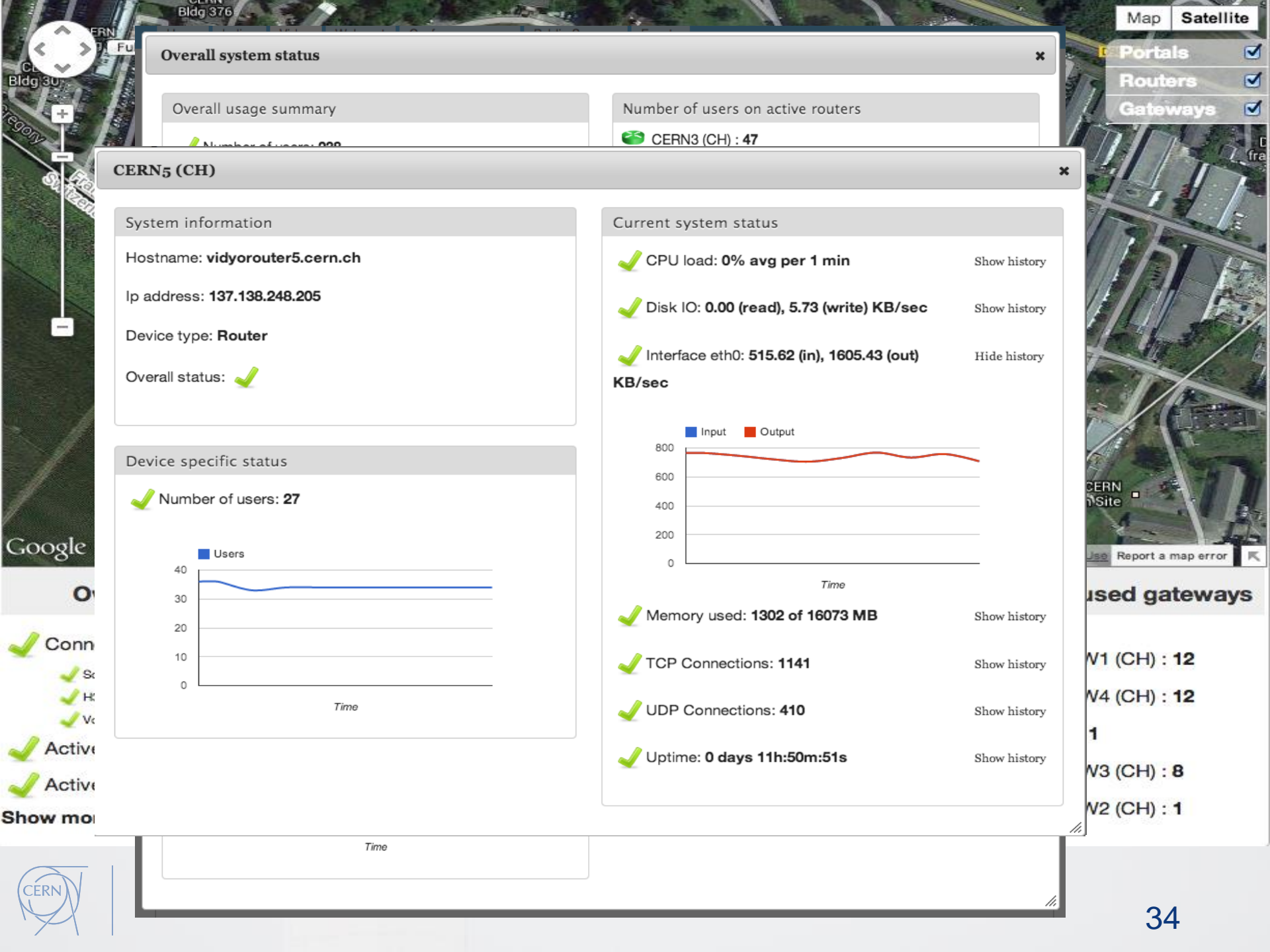
- ✓ **Connected users: 556**
 - ✓ Software clients: 513
 - ✓ H323/SIP clients: 40
 - ✓ VoIP clients: 3
- ✓ **Active conferences: 125**
- ✓ **Active pools: 5**

- 🌐 **KIT (DE) : 63**
- 🌐 **INFN (IT) : 53**
- 🌐 **PIC (ES) : 52**
- 🌐 **CERN2 (CH) : 52**
- 🌐 **CERN5 (CH) : 47**

- 🌐 **CERN Cluster1 GW1 (CH) : 12**
- 🌐 **CERN Cluster1 GW4 (CH) : 12**
- 🌐 **CERN IVR (CH) : 10**
- 🌐 **CERN Cluster1 GW3 (CH) : 8**
- 🌐 **CERN Cluster1 GW2 (CH) : 1**

Show more





- Map Satellite
- Portals
- Routers
- Gateways

Overall system status x

Overall usage summary

Number of users: 222

Number of users on active routers

CERN3 (CH) : 47

CERN5 (CH) x

System information

Hostname: **vidyorouter5.cern.ch**

Ip address: **137.138.248.205**

Device type: **Router**

Overall status: ✔

Device specific status

✔ Number of users: **27**

Current system status

- ✔ CPU load: **0% avg per 1 min** Show history
- ✔ Disk IO: **0.00 (read), 5.73 (write) KB/sec** Show history
- ✔ Interface eth0: **515.62 (in), 1605.43 (out) KB/sec** Hide history

- ✔ Memory used: **1302 of 16073 MB** Show history
- ✔ TCP Connections: **1141** Show history
- ✔ UDP Connections: **410** Show history
- ✔ Uptime: **0 days 11h:50m:51s** Show history

- used gateways
- V1 (CH) : 12
 - V4 (CH) : 12
 - 1
 - V3 (CH) : 8
 - V2 (CH) : 1





FUTURE PLANS

Future Plans

- October 2013
 - New Unified VidyoDesktop client with integrated chat and more
 - All Platforms
 - Up to 16 videos and 2 HD displays
 - Additional phone access points in CERN collaborating institutes
 - Recording feature available to all meetings
- Q4 2013 and beyond
 - Enrichment of UVD 3.0 with more features
 - Ultimate goal to merge VidyoPortal with UVD client
 - VidyoWeb (in browser client)
 - New VidyoSharing on I pads
 - Provides whiteboard and mark-up capabilities
 - Infrastructure virtualisation
 - Scalability tests to pave the way to possible service extensions
 - SSO/SAML support
 - Router Proximity

THANK YOU FOR YOUR ATTENTION!



Thomas Baron
Thomas.Baron@cern.ch



Joao Fernandes
Joao.Fernandes@cern.ch



www.cern.ch

Vidyo Service at CERN

- info:
 - <http://cern.ch/vidyo>
- status page:
 - <http://avc-dashboard.web.cern.ch/Vidyo>
- contact:
 - Joao.Fernandes@cern.ch
 - Thomas.Baron@cern.ch
 - vidyo-support@cern.ch