CERN

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
1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30
31

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

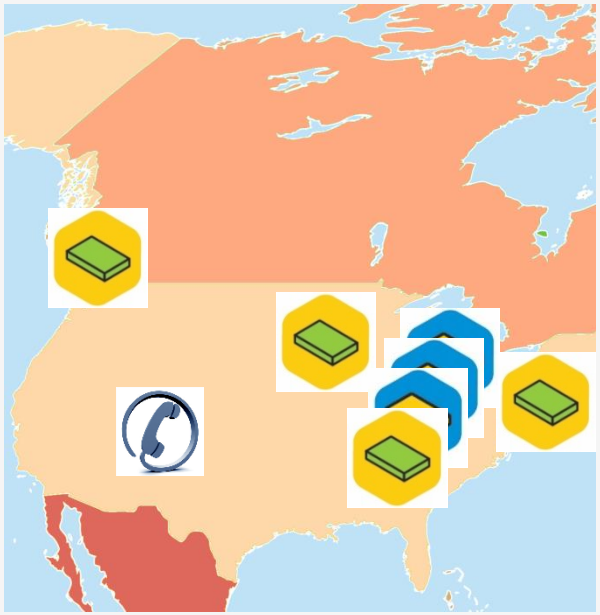
Vidyo@CERN

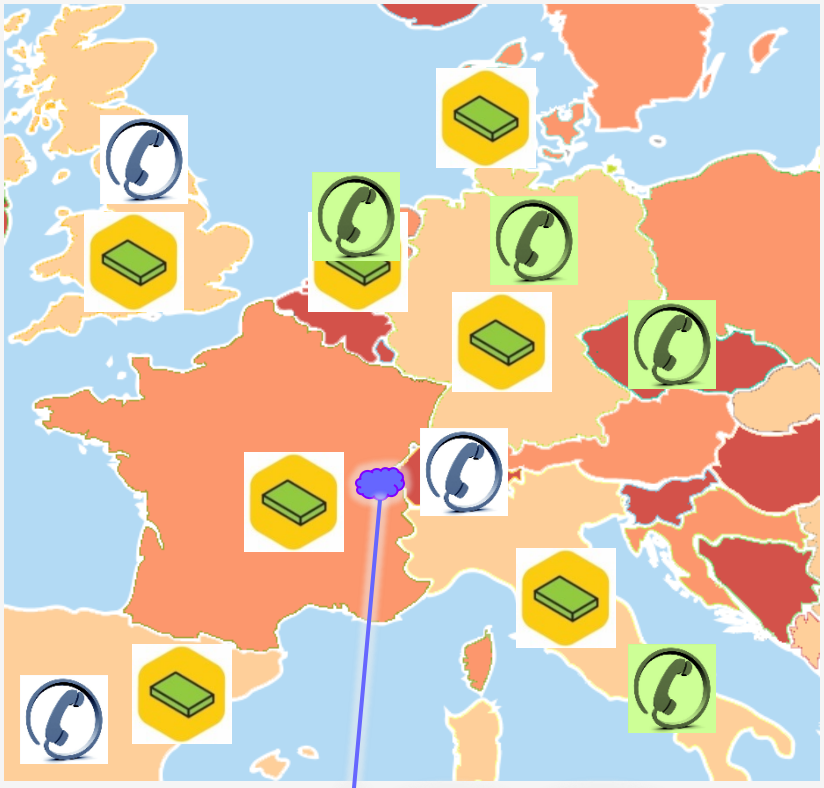
- Service in production since December 2011
- Strong points for CERN
  - Multiplatform capabilities
    - Not only desktops but extension to mobiles and tablets
  - Integration with H323/SIP protocols
  - Extensible (several hundreds in a single meeting)
  - Natural interactions
    - very low latency 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

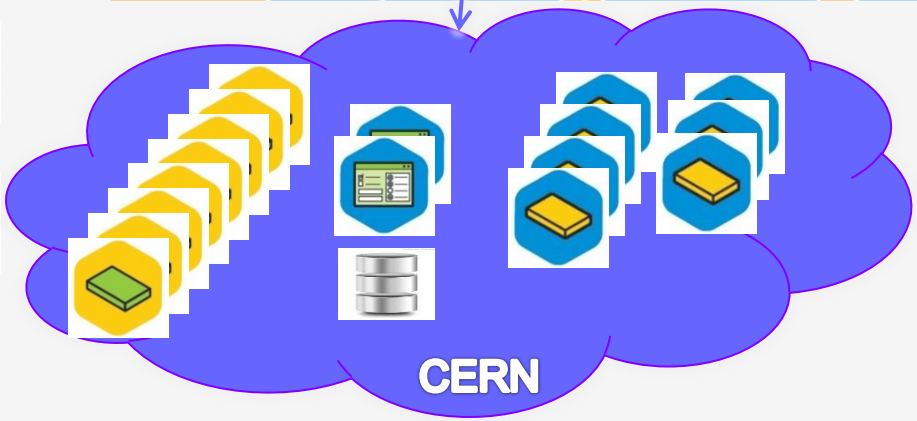




2 Portals

20 Routers

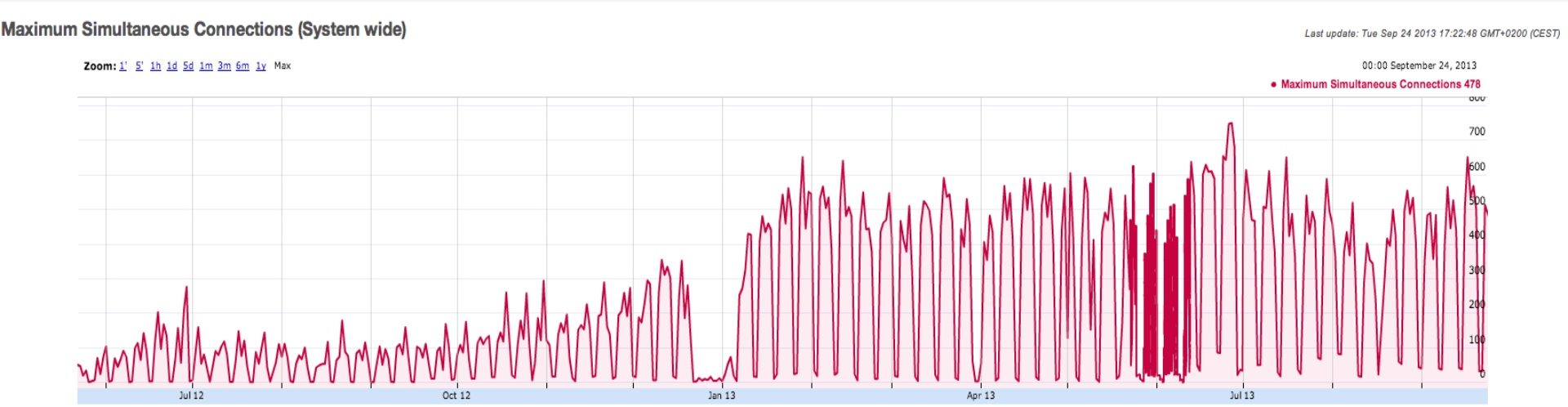
10 GWs

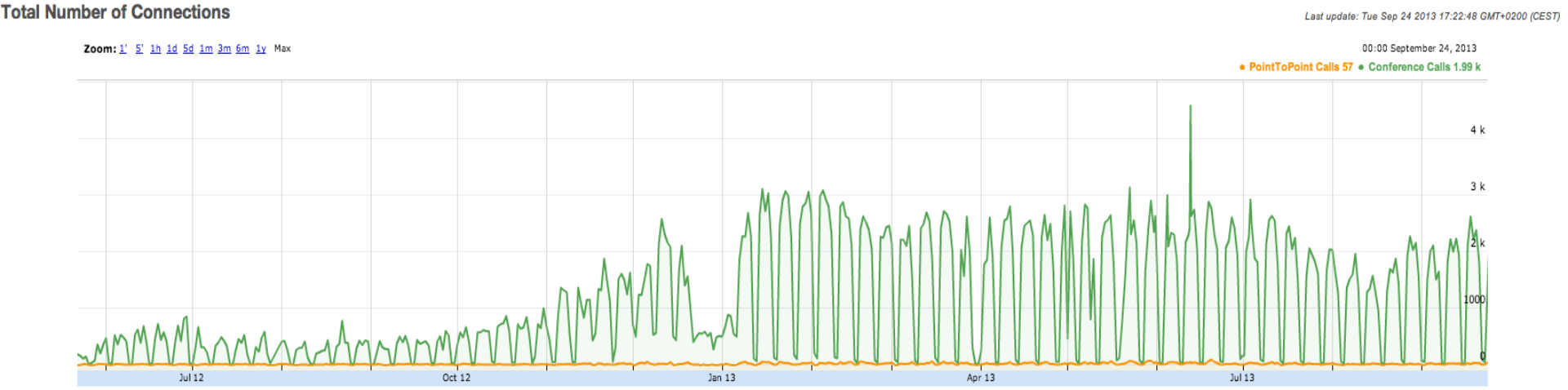


Router

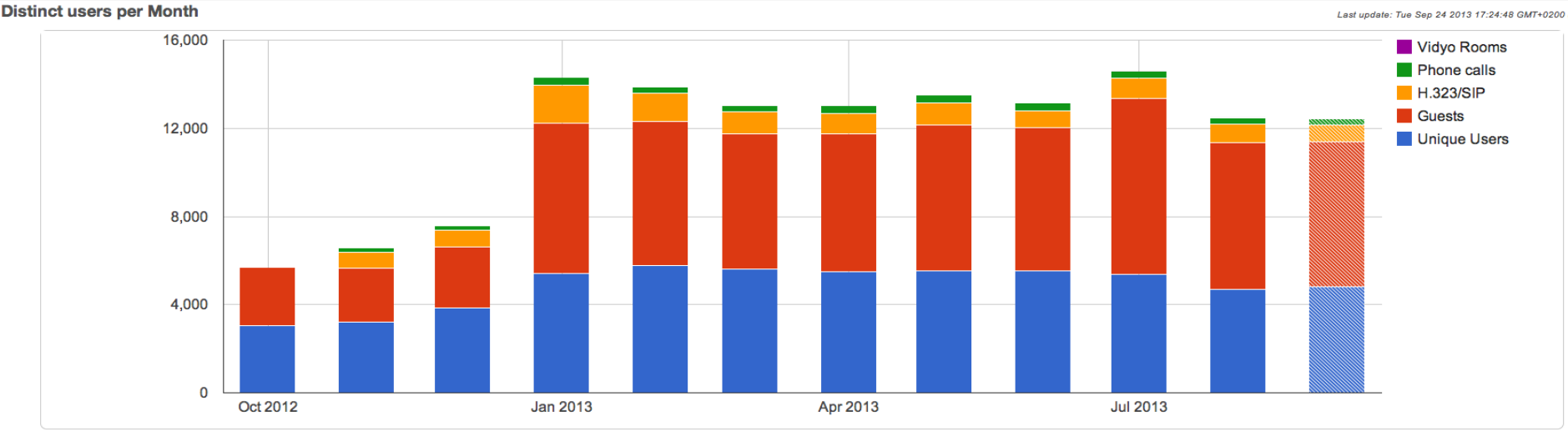
Proxy

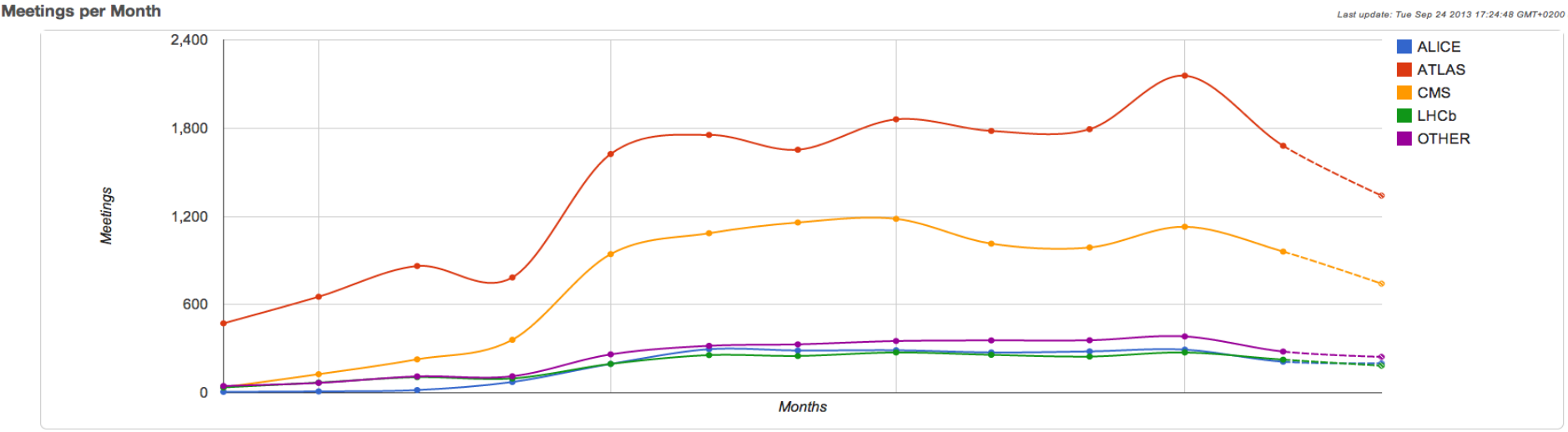
Vidyo: Usage Evolution





Vidyo: Usage Evolution



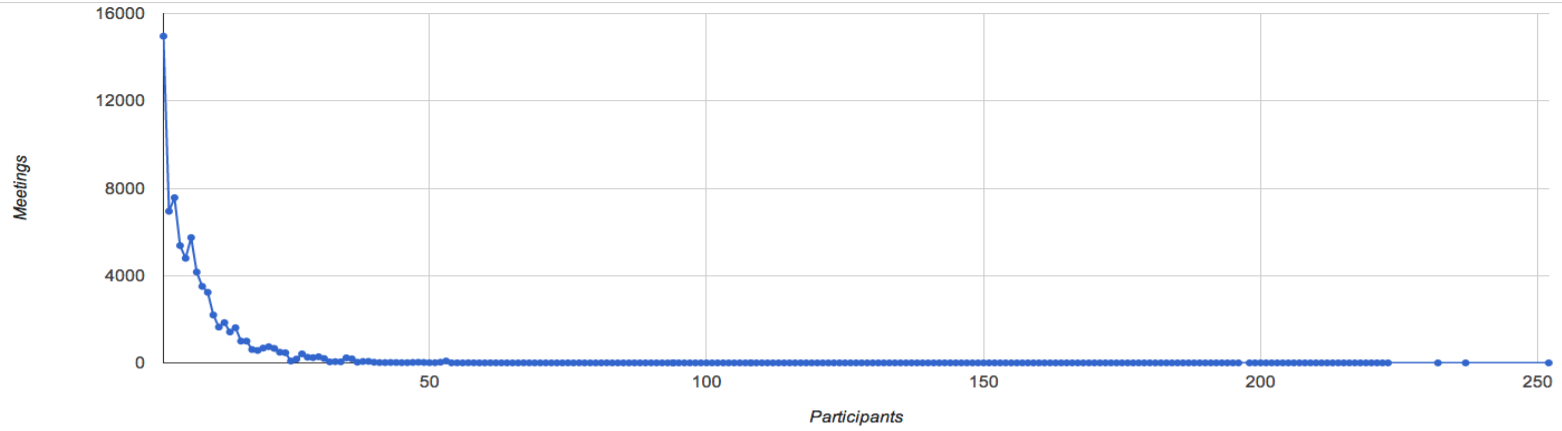


Vidyo: Usage Evolution

Participants per Meeting

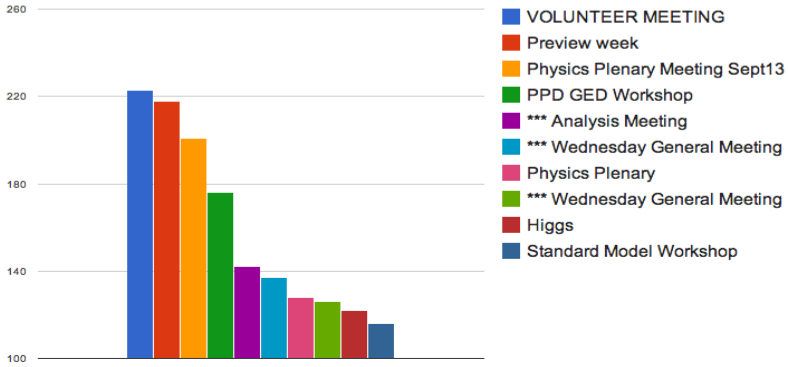
Last update: Tue Sep 24 2013 17:26:48 GMT+0200 (CEST)

Toggle log scale



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

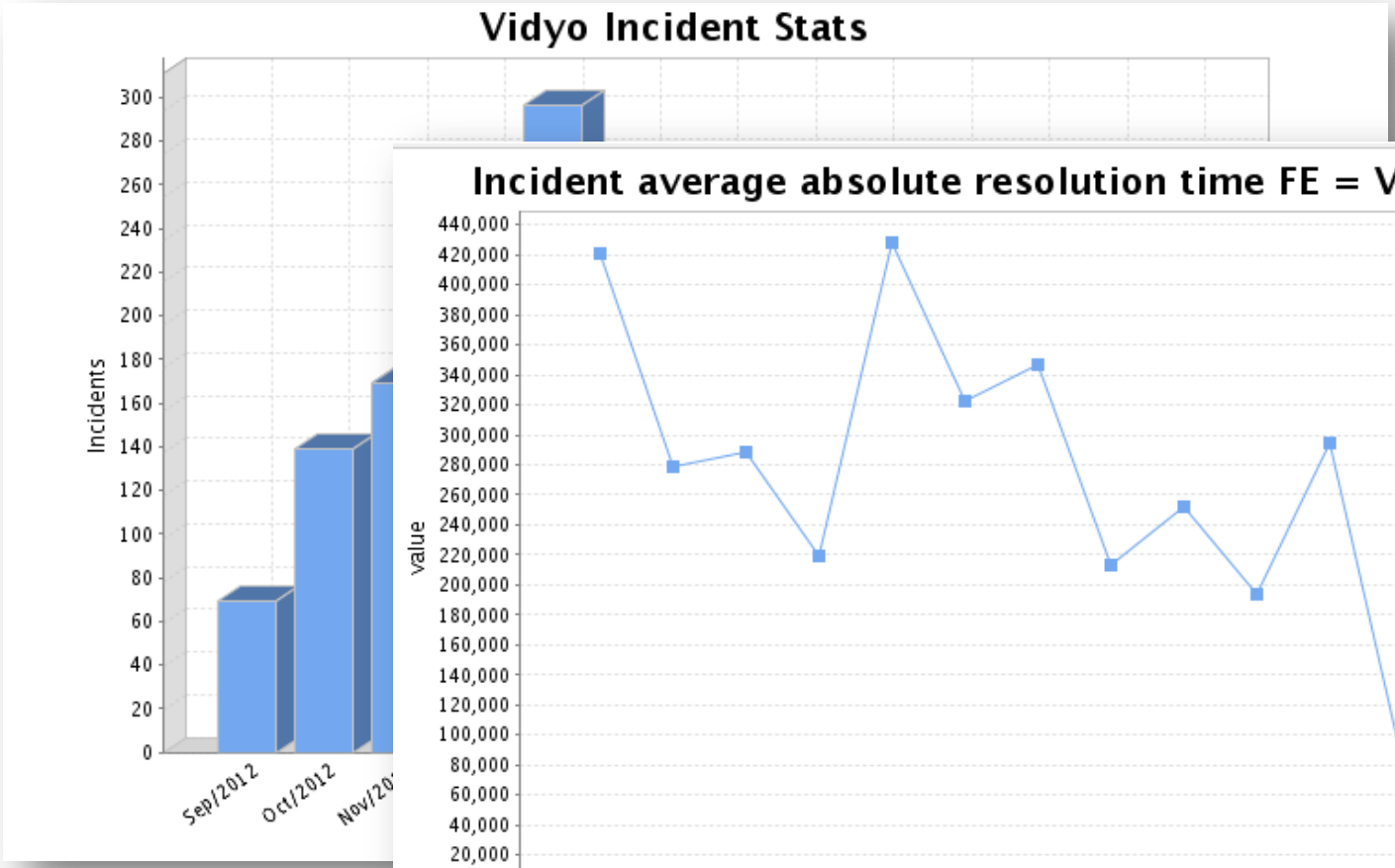
Last update: Tue Sep 24 2013 17:26:48 GMT+0200 (CEST)

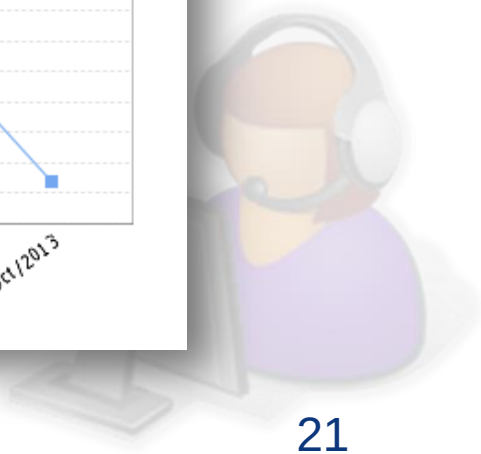


Usage Evolution

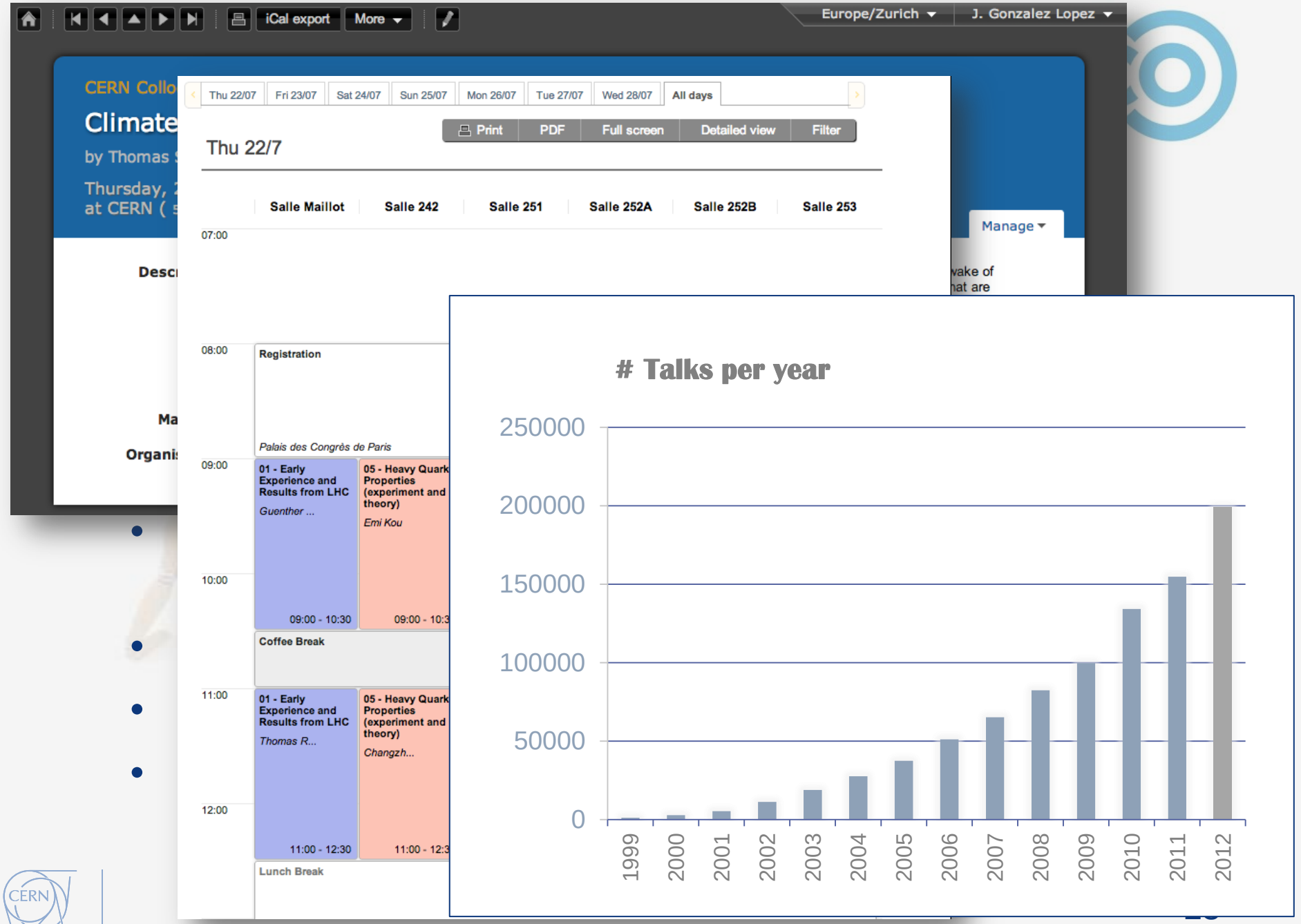
- Current peaks
  - Simultaneous connections: ~750
  - Number of people in one meeting: 252
  - Phone usage: 100k minutes in 1 month
  - More than 3200 meetings per month
  - More than 5000 distinct users and 3000 Guests per month
  - More than 28000 clients have been installed (mobile and desktop)
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

Support Evolution

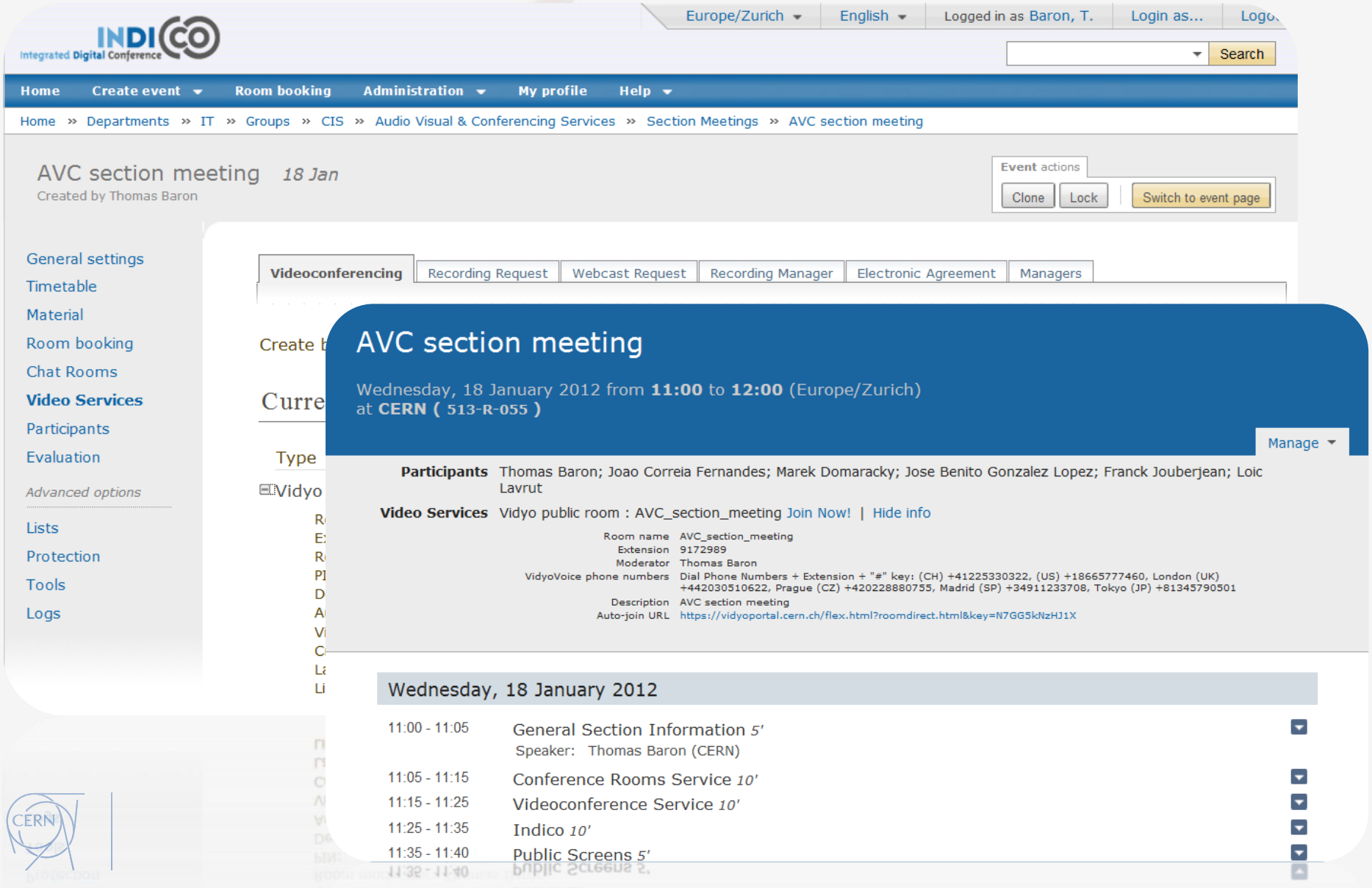




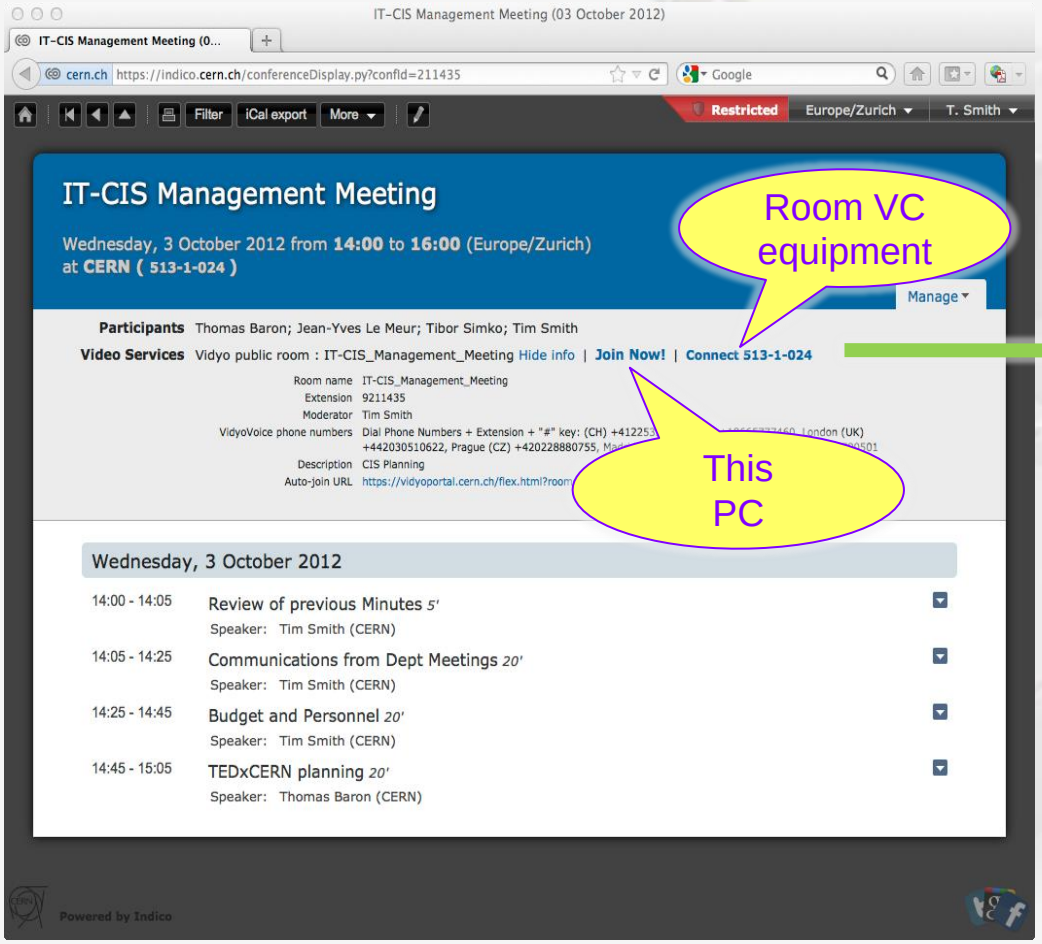
INTEGRATIONS


iCal export
More
Europe/Zurich
J. Gonzalez Lopez
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
07:00
08:00
Registration
Palais des Congrès de Paris
09:00
01 - Early Experience and Results from LHC
Guenther ...
09:00 - 10:30
05 - Heavy Quark Properties (experiment and theory)
Emi Kou
10:00
Coffee Break
11:00
01 - Early Experience and Results from LHC
Thomas R...
11:00 - 12:30
05 - Heavy Quark Properties (experiment and theory)
Changzh...
12:00
Lunch Break
Talks per year
250000
200000
150000
100000
50000
0
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012

Indico Integration



Access from CERN Meeting Rooms



Vidyo®

Access from non-CERN H323/SIP

2 IVRs available: CERN and Internet2 (US)

Vidyo®

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

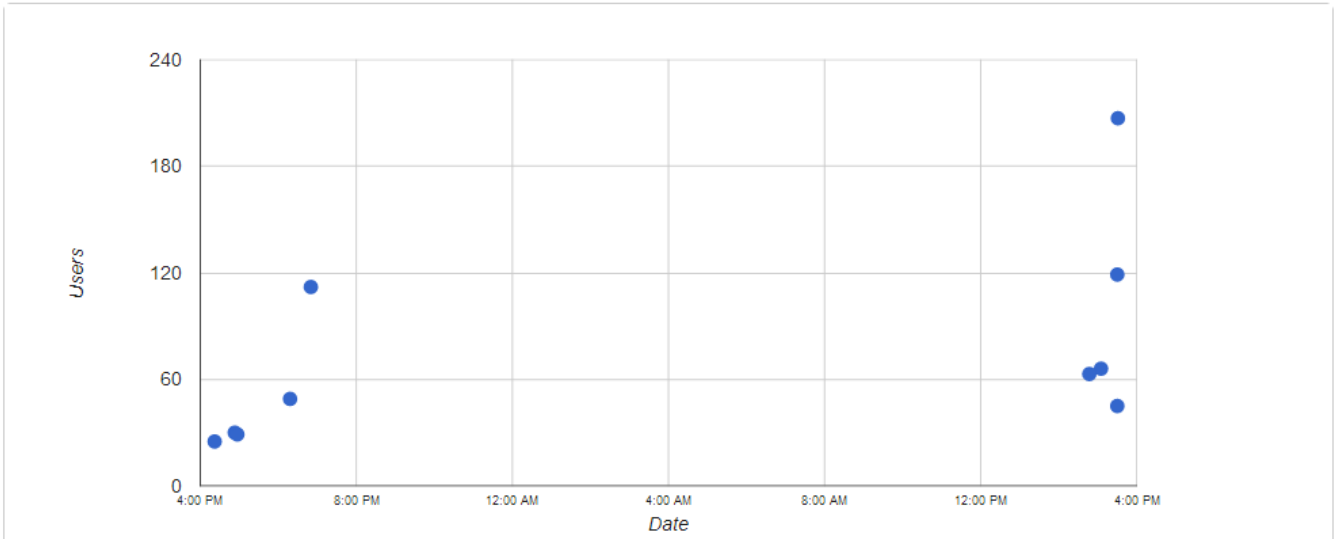
REPORTING AND MONITORING

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

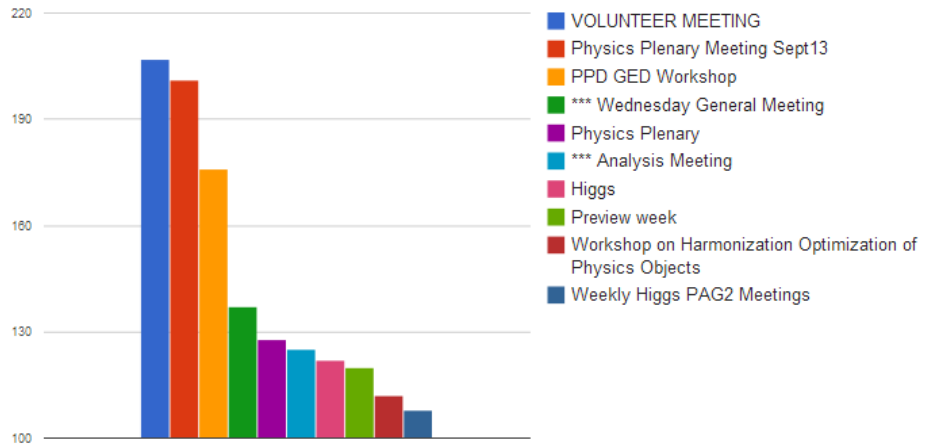
Max Number of Participants per Meeting - top 10 meetings last 24 hours

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)

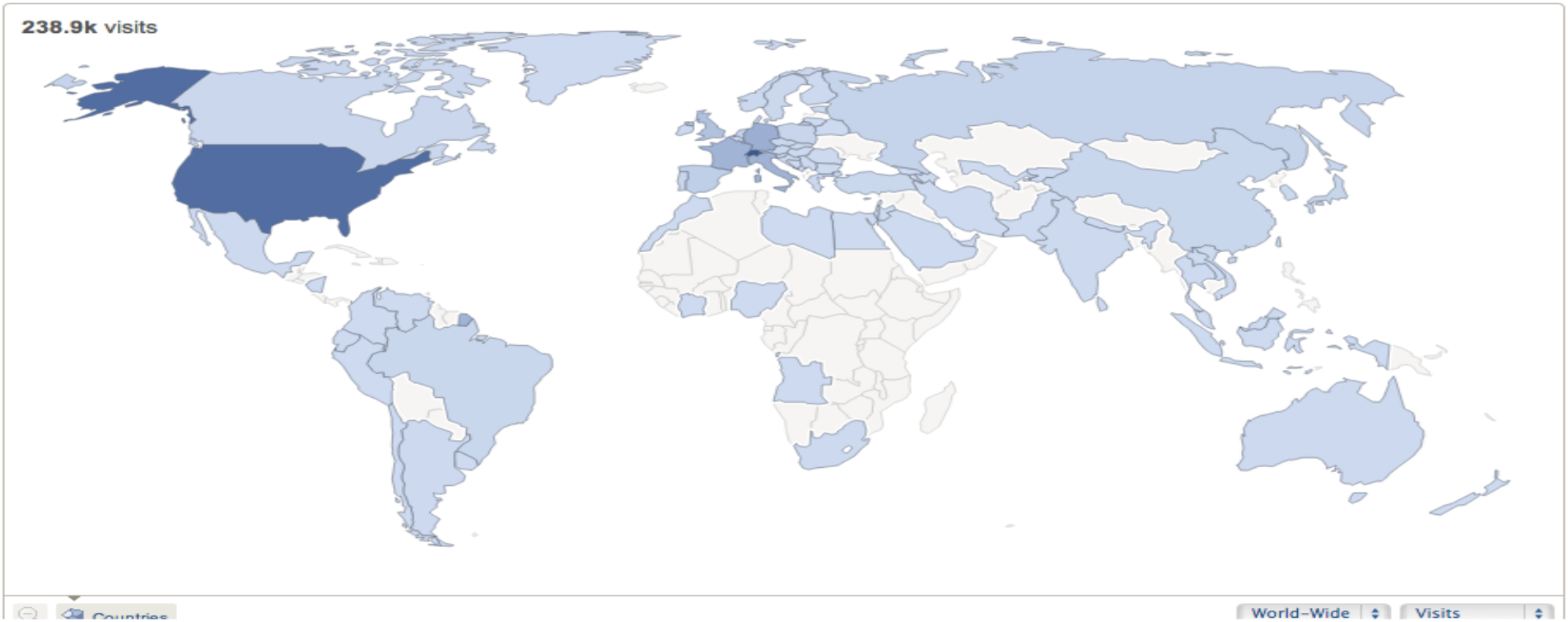


Visitors

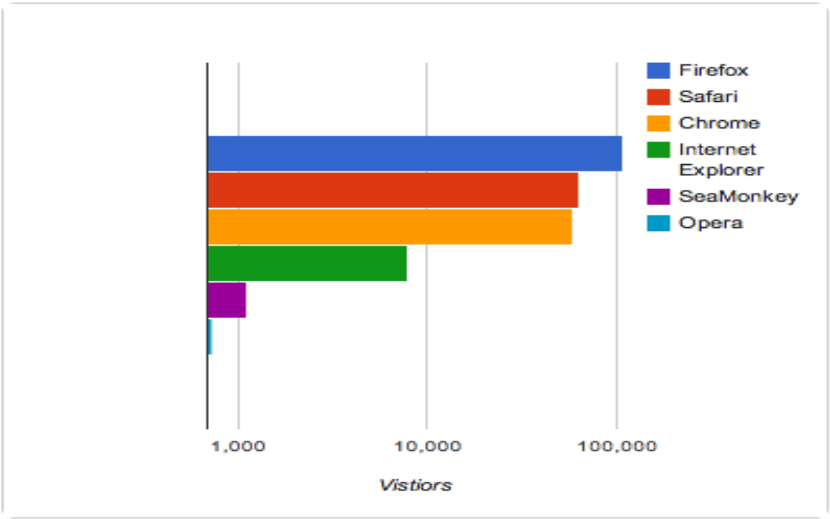
Visitors

Toggle bar chart

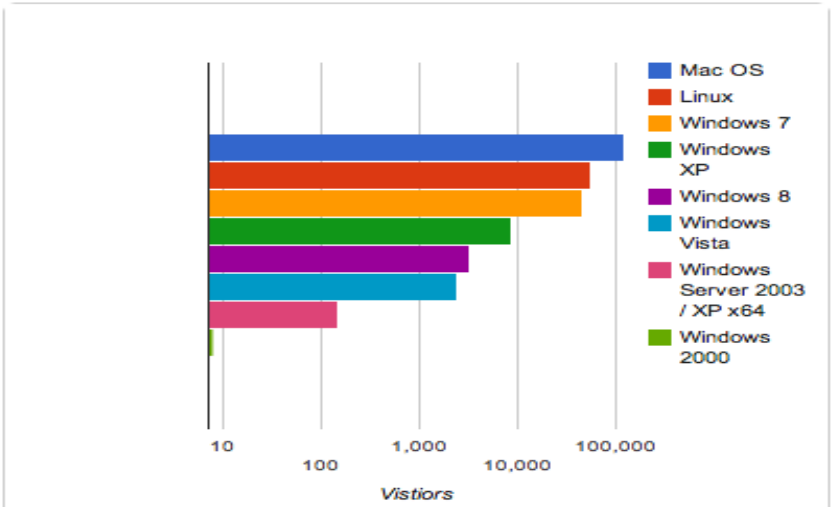
Countries



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

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

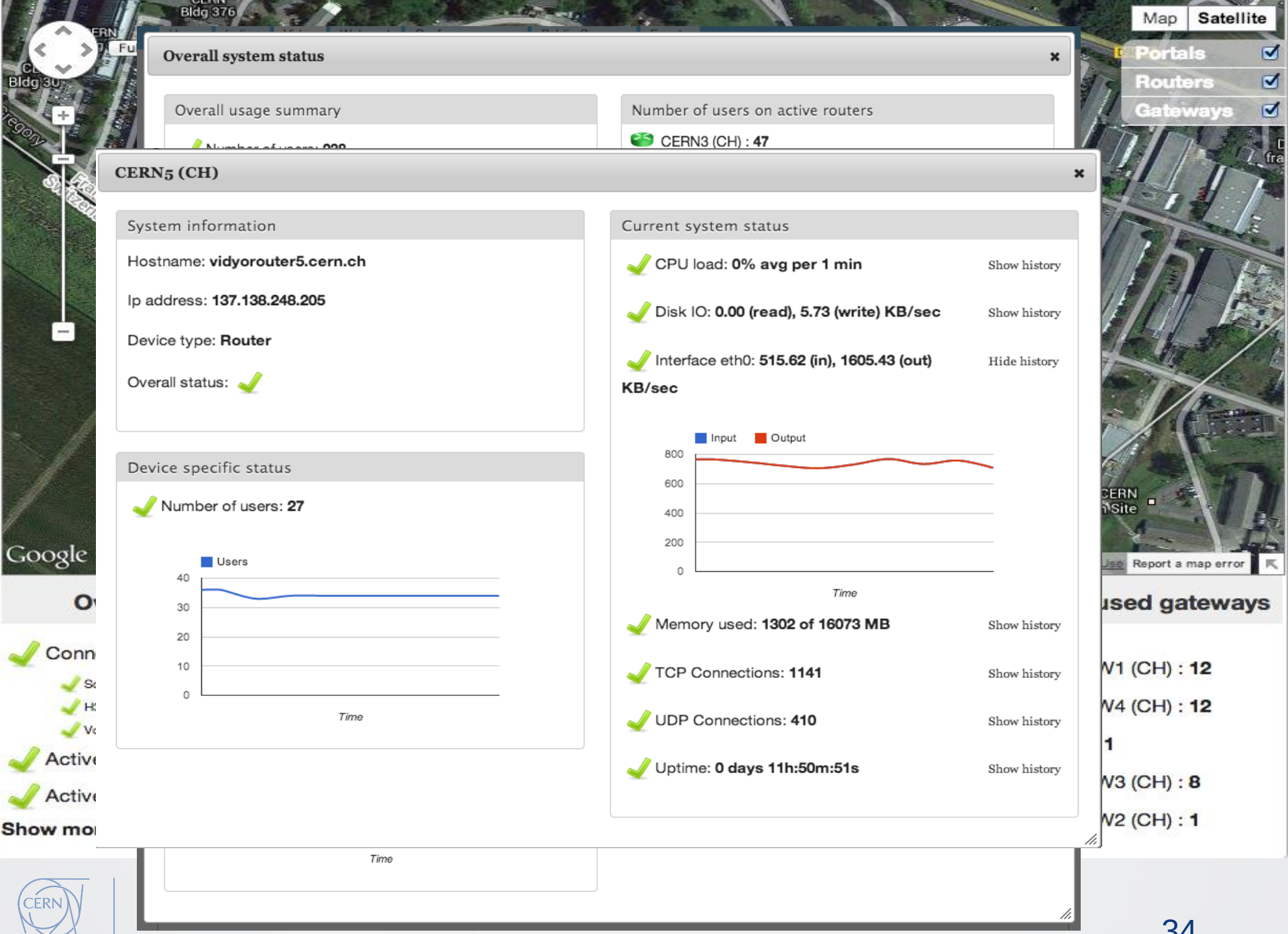
Show more

Users on most used routers

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

Endpoints on most used gateways

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


Overall system status
Overall usage summary
Number of users on active routers
CERN3 (CH) : 47
CERN5 (CH)
System information
Hostname: vidyorouter5.cern.ch
Ip address: 137.138.248.205
Device type: Router
Overall status:
Device specific status
Number of users: 27
Users
40
30
20
10
0
Time
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
Input
Output
800
600
400
200
0
Time
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
Time
Map
Satellite
Portals
Routers
Gateways
Report a map error
used gateways
W1 (CH) : 12
W4 (CH) : 12
1
W3 (CH) : 8
W2 (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 Ipads
    - 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