

## Next Generation HQ Videoconferencing Service for the LHC

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Presented by

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- CERN IT to offer a Video Conferencing service
  - Centrally funded and operated
    - clear and structured processes from development to production
  - For all CERN collaborators
  - Based on the Vidyo product
  - With parallel EVO support during a transition buffer



- Company Overview
  - 180+ people
    - 60+ in R&D
    - Specific QA Teams
- Industry traction
  - 5 OEMs (including Google)
  - 25 service providers worldwide
  - 100s of enterprises



- Google (using Vidyo API and SDK)
  - Google+ Hangouts
- CSPs (more similar to CERN's use case)
  - Elisa.com (one of US biggest service providers)
  - Videra.com (Nordic service provider) worldwide clients
    - Very similar to CERN number of routers (16) and ports online (1500)
  - Arkadin.com, Orange, Wind (Europe)
  - KDDI.com (Japan)
    - Not only on desktops: 100s of Vidyoroom systems deployed
- More Recently:
  - NASA, Twitter

- Universal videoconference system
  - Desktops (Windows, MacOSX, selected Linux flavors)
  - VC Rooms (H.323/SIP based VC rooms)
  - Mobile devices (iOS and Android)
  - Phones
- Strong points
  - Very Good A/V quality and resilience/adaptability to poor network conditions
  - Extensible and scalable architecture
  - Very Good integration possibilities
    - Indico, Recording/Webcast
  - Simple interface

- Main features
  - Up to 8 videos displayed – last speakers
  - Screen and window sharing
  - Recording/Webcast
  - Coming in next releases: SSO, chat

- CERN Service:
  - 20000 users
  - Simultaneous & Scalable
    - 800-1600 connections
    - 21-168 H323 (rooms)
    - 12 recordings





Thomas Baron (10476429)

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The\_Roots\_of\_the\_LHC\_Technology\_CERN\_Centennia\_indico\_16184' – PIN protected



Join Room



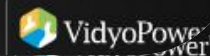
Room Links

Connected:

No participants

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11:25 - 11:35

Indico 10'

11:35 - 11:40

Public Screens 5'

11:32 - 11:40

Public Screens 5'

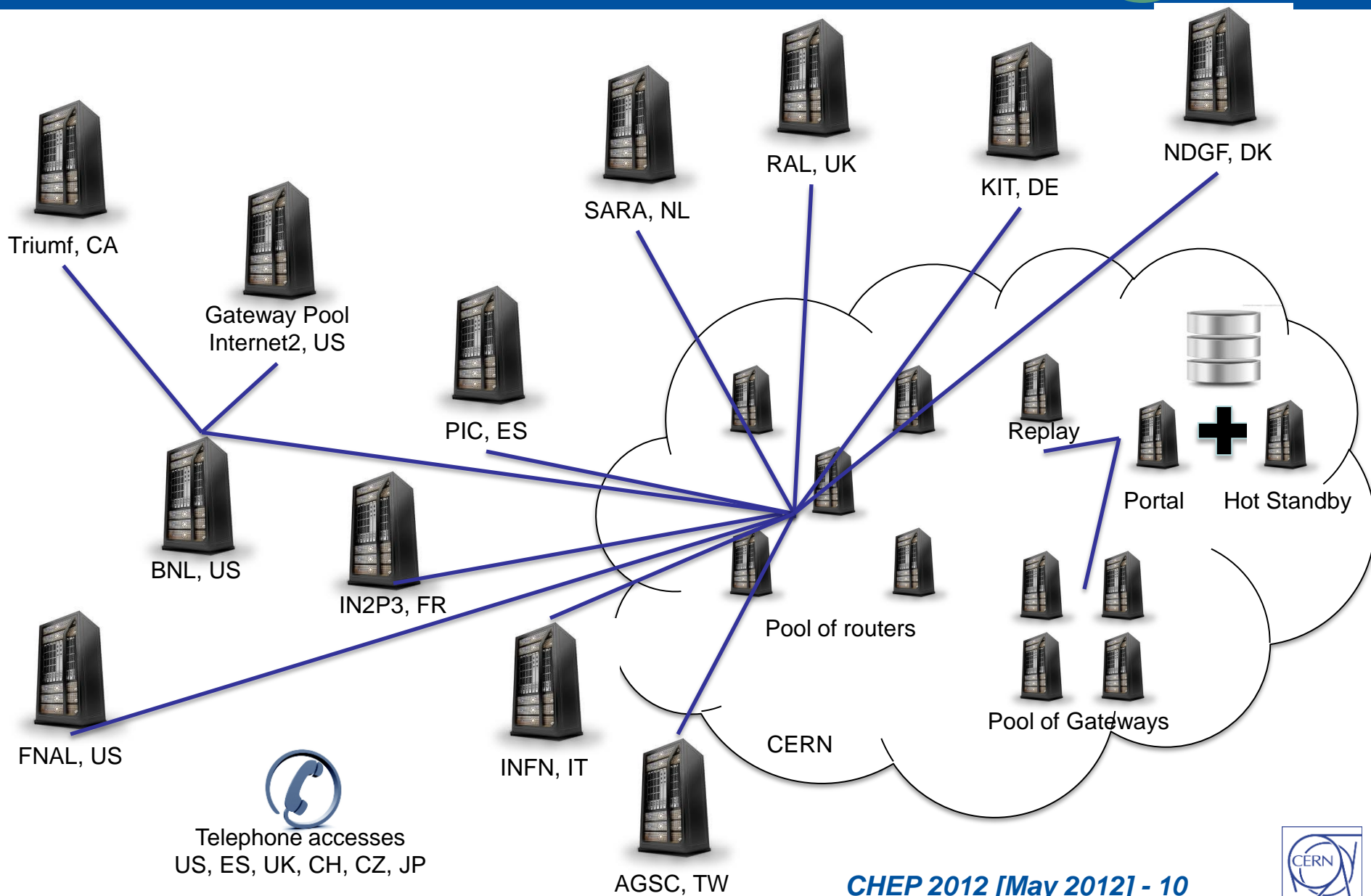
- MultiPoint meetings
- Point2Point calls
  - Pure Vidyo or Vidyo/H323/SIP/Phone
- Scenarios
  - Public outreach
    - Masterclasses 2012
  - Remote Operation Centers
    - CMS Centers Worldwide
  - Remote Lecturing
  - Recruitment interviews



- Main Portal at CERN
  - Live failover
- Vidyo routers
  - CERN
  - Each of the WLCG Tier-1 centers
- H323 gateways (load balanced)
  - CERN
  - Internet2
- Phone Gateways
  - CERN, Switzerland - +41 225330322
  - Tokyo, Japan - +81 345790501
  - US - (866) 577-7460
  - London, United Kingdom - +44 2030510622
  - Prague, Czech Republic - +420 228880755
  - Madrid, Spain - +34 911233708

*Integration of SIP infrastructure with several HEP institutes ongoing*

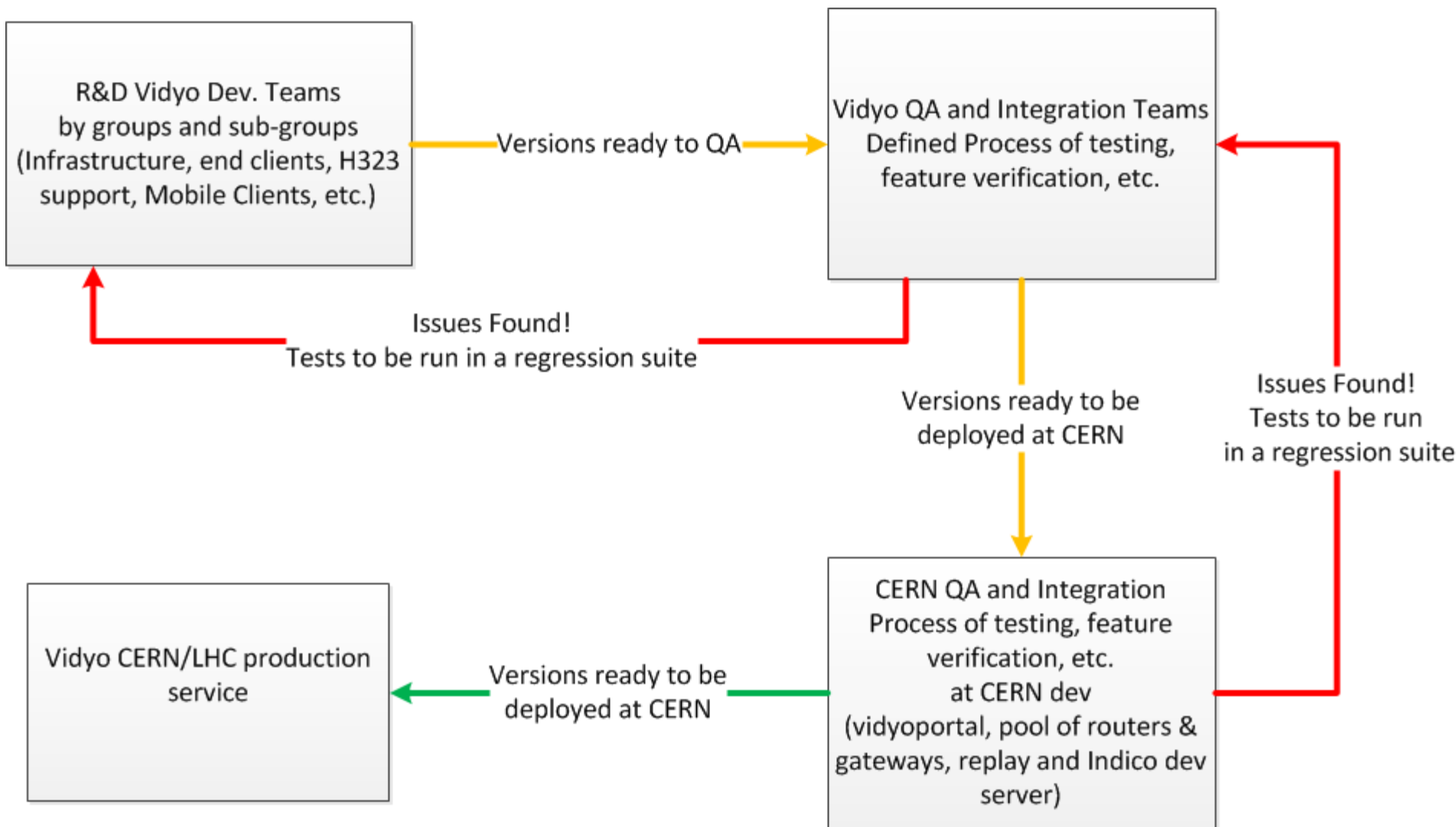
# Worldwide Service Topology



- Started December 2011 (version 2.1):
  - Aimed for full capacity
    - licenses, ports, gateways, routers, phone access points
  - Service-Desk support line setup
- From March 2012 (version 2.1.4)
  - Full Capacity
  - Extended Linux Support (Fedora, Debian)
  - Manual Automute for public rooms
  - Migration of major meetings

- Versions 2.2.1 from July 2012
  - Targeted integrations
    - AV Automute & Moderation in Indico, Webcast/Recording
  - Consolidation of Linux clients
    - Generic package for all supported distros
  - Vidyo Gateway with IVR (Interactive Voice Response)
    - for H323/SIP dial in
  - Skype access prototype
  - Virtualization of the router infrastructure (VMware and Amazon)
    - Instant scalability of the system virtually anywhere in the world
  - Portal Federation
    - Communication between CERN portal and others deployed in HEP
- Version 2.2.2 (beta from Set. 2012)
  - Targeted integrations: SSO, Chat
- (Realistic) Transition Plan
  - Aim is to have more than 80% before end of Q3 2012
  - As a transition buffer: support for EVO through 2012

# Development and QA processes



- Roadmap for 2012
  - List of features to be supported with versions published
    - <http://information-technology.web.cern.ch/services/fe/developments/vidyo-features-roadmap>
- All CERN registered users (as of 1<sup>st</sup> Jan 2012) authorized
  - Almost 20k accounts
- Masterclasses 2012 (from Feb. 27<sup>th</sup> to March 24<sup>th</sup>)
  - Hands-on Particle Physics event for approx. 6000 students
  - 119 institutes participating from 28 countries
- Vidyopanorama Trial



# Masterclasses in action



Vidyo Masterclasses\_2012\_VC2\_CERN



Quiz Question Sheet

How much of our universe is made of matter or energy, about which we know almost nothing about?

2

A	13%	C	100%
B	96%	D	32.8%

MC Moderator CERN



## Video Conference



New technology: Vidyo service

- test sessions: 24.1. – 24.2. (stragglers until 14.3.)
- Huge support from VC-team at CERN during tests and M'classes

### Moderators say:

- ☺ Good performance
- ☺ Very good quality
- ☺ Better sharing feature
- ☺ Better stability
- ☺ Possibility to mute noisy participants
- ☹ No chat function → will come soon
- ☹ Automatic start with sound and video
- ☹ No visual indication of who is speaking
- ☹ No central control of screen sharing



- ATLAS Weekly
  - From 50 to 100 participants
    - Generally very good feedback from the 1<sup>st</sup> session
- ATLAS EB
- ATLAS Workshop for EU strategy
- ALL US CMS Meeting
- Other meetings small/medium size are smoothly moving (and staying):
  - ATLAS Distributed Computing
  - HEPIX, GDB, SUSY, Tilecal

- High End Telepresence Room in IT AMPHI
  - At a fraction of the normal cost
  - Lots of screen space
    - Full HD dedicated screens (7)
      - From IPAD clients to H323 clients
      - Controlled via a tablet PC
  - To be ready before end of 2012
  - Other Use Cases
    - CMS Centers World Wide?
      - Already using Vidyo
    - ATLAS Remote Teaching Facility?





- More info:

<http://www.cern.ch/vidyo>

- Status page:

<http://service-vidyo.web.cern.ch/dashboard>

- Contact us at:

[vidyo-support@cern.ch](mailto:vidyo-support@cern.ch)

# Additional Slides

## *All Quantities scalable and pre-*

- *10000 registered users*
- *800 to 1600 simultaneous video connections from desktops*
  - Video connections over the whole VidyoRouter network
  - Several parallel Vidyo calls
  - *Up to 500 participants in one single meeting*
  - *Double capacity available* in case of passing the maximum thresholds
- *21 to 168 on the simultaneous H323/SIP connections*
  - depending on the quality offered
- *12 simultaneous sessions at SD resolution recordings*
  - per VidyoReplay server
- *Minimal bandwidth needed: 128 kbps upstream/downstream*
- *Minimal PC hardware specifications: PIV 1.6GHz with 1GB ram and 128MB Video Memory*



- AV quality
  - *Aggregated video resolution on VidyoDesktop client: 1080p 30FPS*
    - The resolution will vary according to the PC hardware and available bandwidth.
  - The audio codec the Vidyo client can currently provide is Speex ultra-wideband
    - Adaptable echo suppression built-in

*All desktop software client versions will be able to achieve these quality levels given the appropriate hardware support and bandwidth*

- Support: 1<sup>st</sup> line in SNow
  - 2<sup>nd</sup> line operations onsite Serco (trained), 3<sup>rd</sup> line CERN
    - Available via Phone (77777) + [vidyo-support@cern.ch](mailto:vidyo-support@cern.ch)
    - Normal working hours – out of hours on request
  - 2<sup>nd</sup>/3<sup>rd</sup> engineering under contract + 24h/5 user support
    - 10 people available via [vidyo-support@cern.ch](mailto:vidyo-support@cern.ch)

- Accounts
  - [Authorized users](#) can register to the CERN Vidyo service on the [CERN Account Management page](#), “Applications and Resources” section.
  - Once registered, users can login to the [CERN Vidyo portal](#) and book Vidyo resources from [Indico](#)
  - For meetings not needing an [Indico](#) event, meetings can be scheduled through Outlook
  - Registered users can use all the service features and can also invite non-registered users to remote meeting. Non-Registered users can always join as a “Guest”
- Officially Supported clients
  - Windows XP, Vista or 7, (32 and 64 bits)
  - Mac OS X “ Leopard” 10.5 or higher
  - Linux
    - SLC 5+ (32 and 64 bits)
    - Ubuntu (32 and 64 bits)
    - Fedora Core 14+ (32 and 64 bits)
    - Debian 5+ (32 and 64 bits)
  - *Mobile Clients*
    - Android-based devices (client available via the Android Market)
    - iOS devices (iPhones and iPads) via the AppStore
    - Recommended devices: Motorola Xoom, Motorola Atrix, iPhone4, iPad2
  - *H.323/SIP terminals*
  - *Phones*