

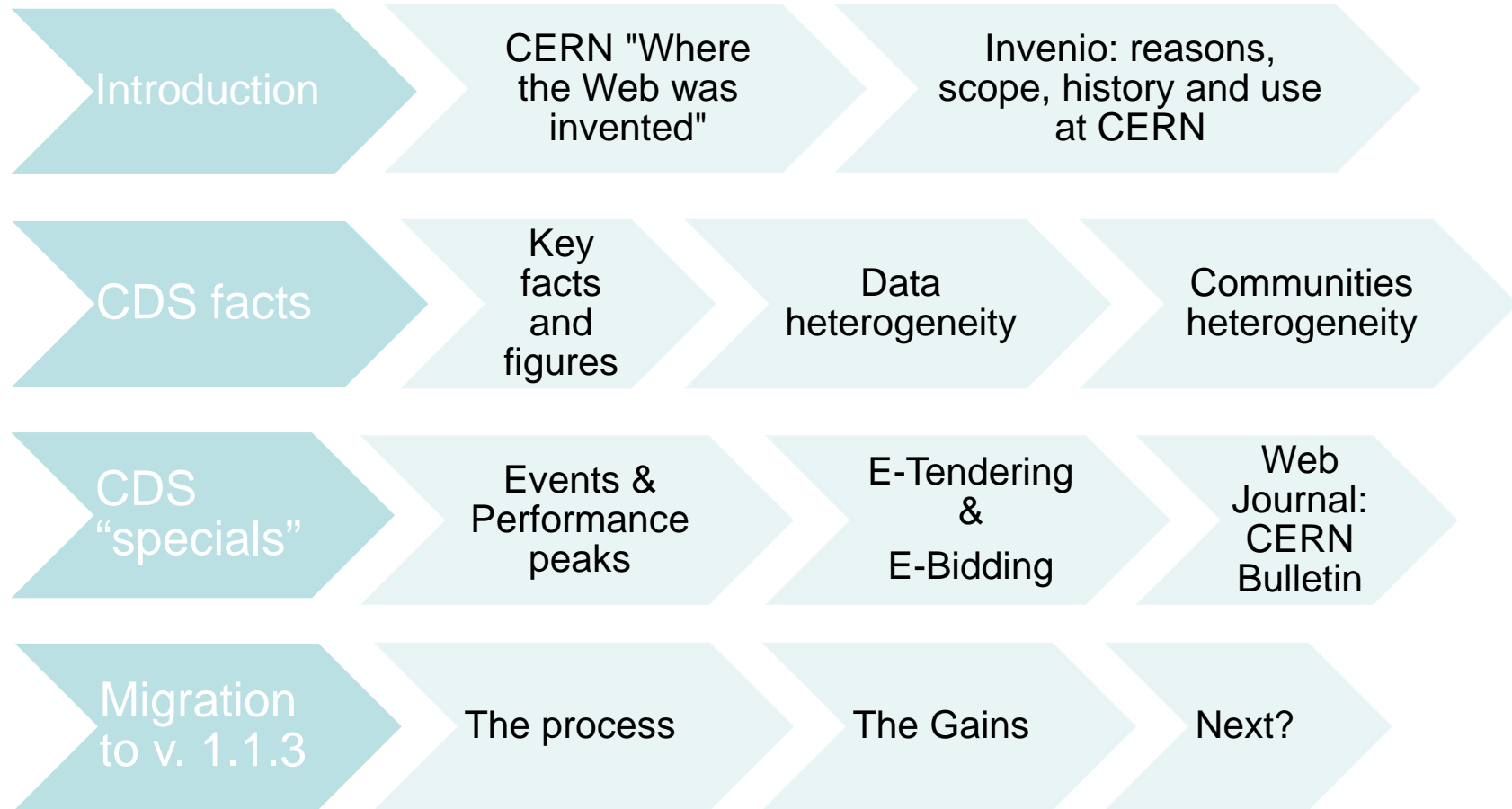
Since  
last week

# CERN Document Server on Invenio 1.1.3

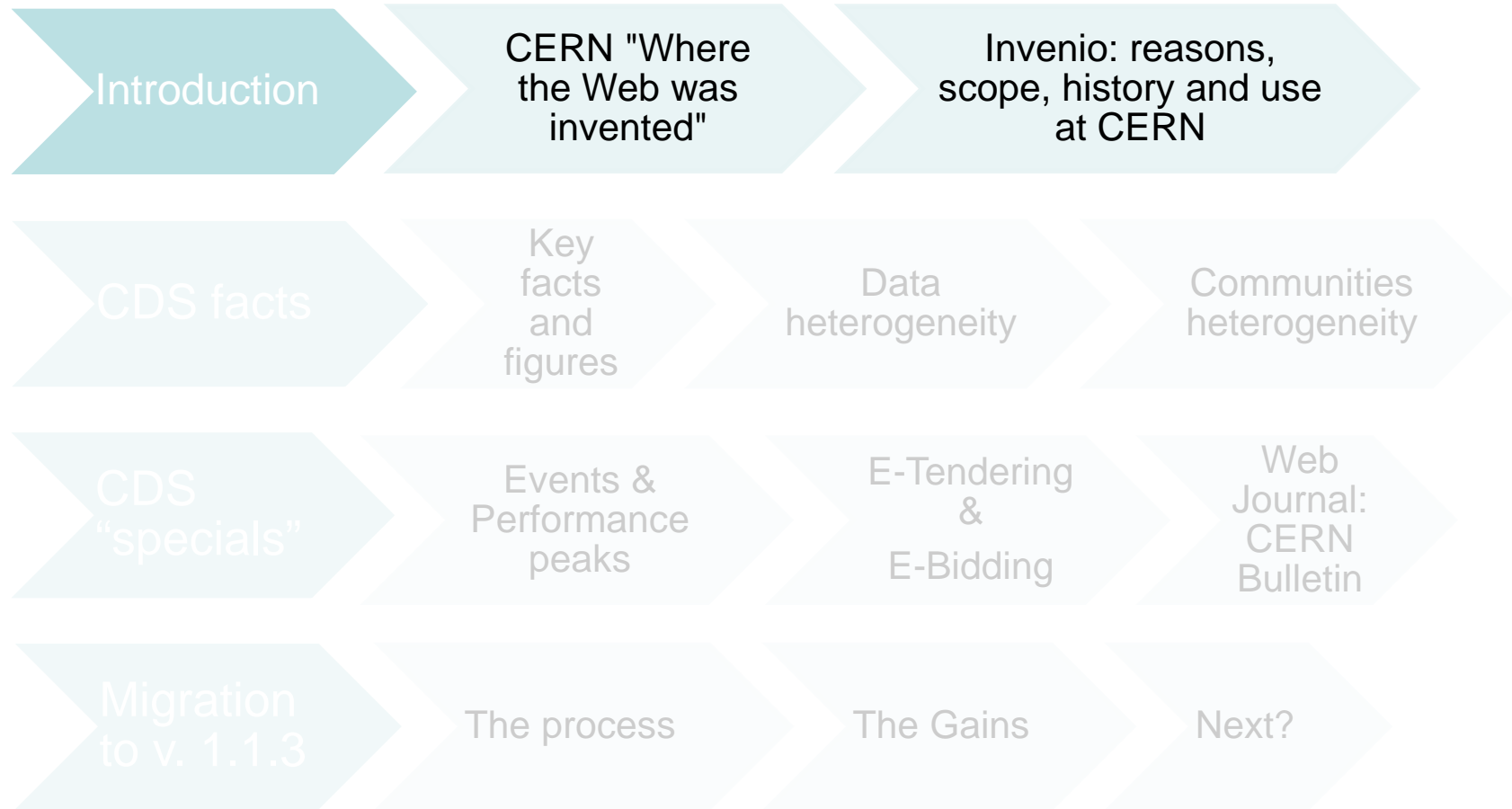
CERN's open source Document Repository information system

Flavio Costa – Jean-Yves Le Meur  
CERN IT Dep.

# Agenda



# Agenda



# Presentation

- CERN: Where the web was invented

Vague but exciting ...

CERN DD/OC

Tim Berners-Lee, CERN/DD

Information Management: A Proposal

March 1989

## Information Management: A Proposal

### Abstract

This proposal concerns the management of general information about accelerators and experiments at CERN. It discusses the problems of loss of information about complex evolving systems and derives a solution based on a distributed hypertext system.

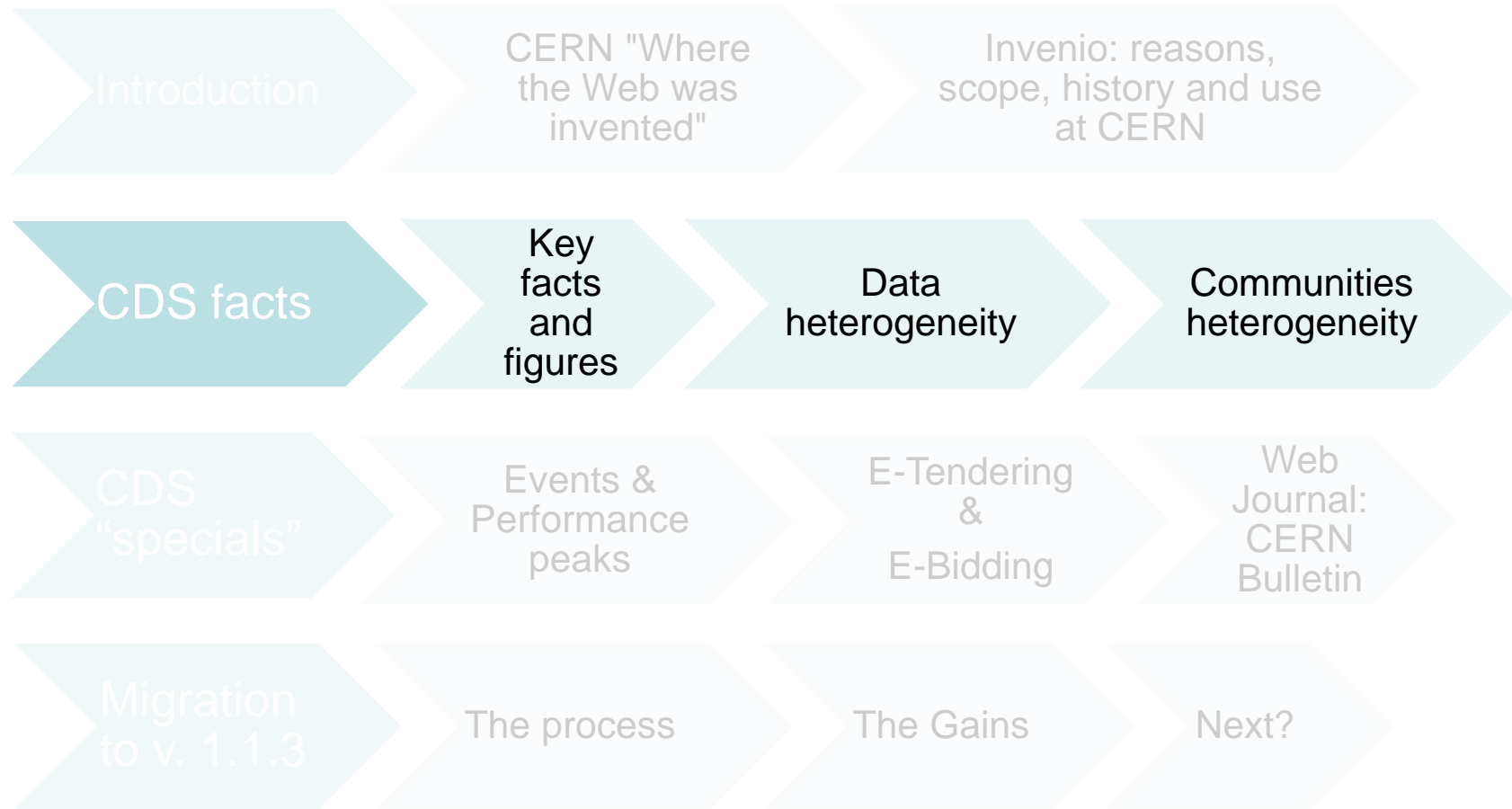
## Open Access:

- Background: CERN Convention (1953) contains:
  - “... the results of its experimental and theoretical work shall be published or otherwise made generally available”: an early Open Access manifesto
- Open Access  $\neq$  no more access management
  - Copyright acceptance workflows
  - Publication workflows; logins, ACLs (Access Control Lists)
- Changing the publishing model
  - Spiralling subscription costs, falling subscriptions
  - Pay to create, not download: Open Access
  - SCOAP3: <http://www.scoap3.org>
    - 3-way partnership: scientists, libraries, publishers

# Presentation

- History:
  - 1991: SPIRES (SLAC) First database available on the web
  - 1993: First web catalogue of documents (pre-prints) at CERN, ancestor of Invenio
  - 2002: Invenio is available as Open Source software (GNU-GPL)
  - Today Invenio is being co-developed by an international collaboration comprising institutes such as [CERN](#), [DESY](#), [EPFL](#), [FNAL](#), [SLAC](#)
  - 2012: SPIRES is replaced by INSPIRE on Invenio

# Agenda



# CDS key facts and figures

## Institutional Repository for CERN:

- ~1'000 Digital Collections, both with digital origin or converted from a physical media
- Around 1.5M records
  - 500k with full text
  - 150k with links to external full text



# CDS key facts and figures

## Institutional Repository for CERN:

- Around 100 submission basic workflows
- Around 8'000 registered and 40'000 unregistered users
- 30k distinct visitors per month

# CDS key facts and figures

Digital Library, definition by DL.org: "An organisation, which might be virtual, that comprehensively collects, manages and preserves for the long term rich Information Objects, and offers to its Actors specialised Functions on those Information Objects, of measurable quality, expressed by Quality Parameters, and according to codified Policies."

Digital Library <===> Institutional Repository (Wikipedia: Digital Library)

>> SINERGY <<

- 30k distinct visitors per month

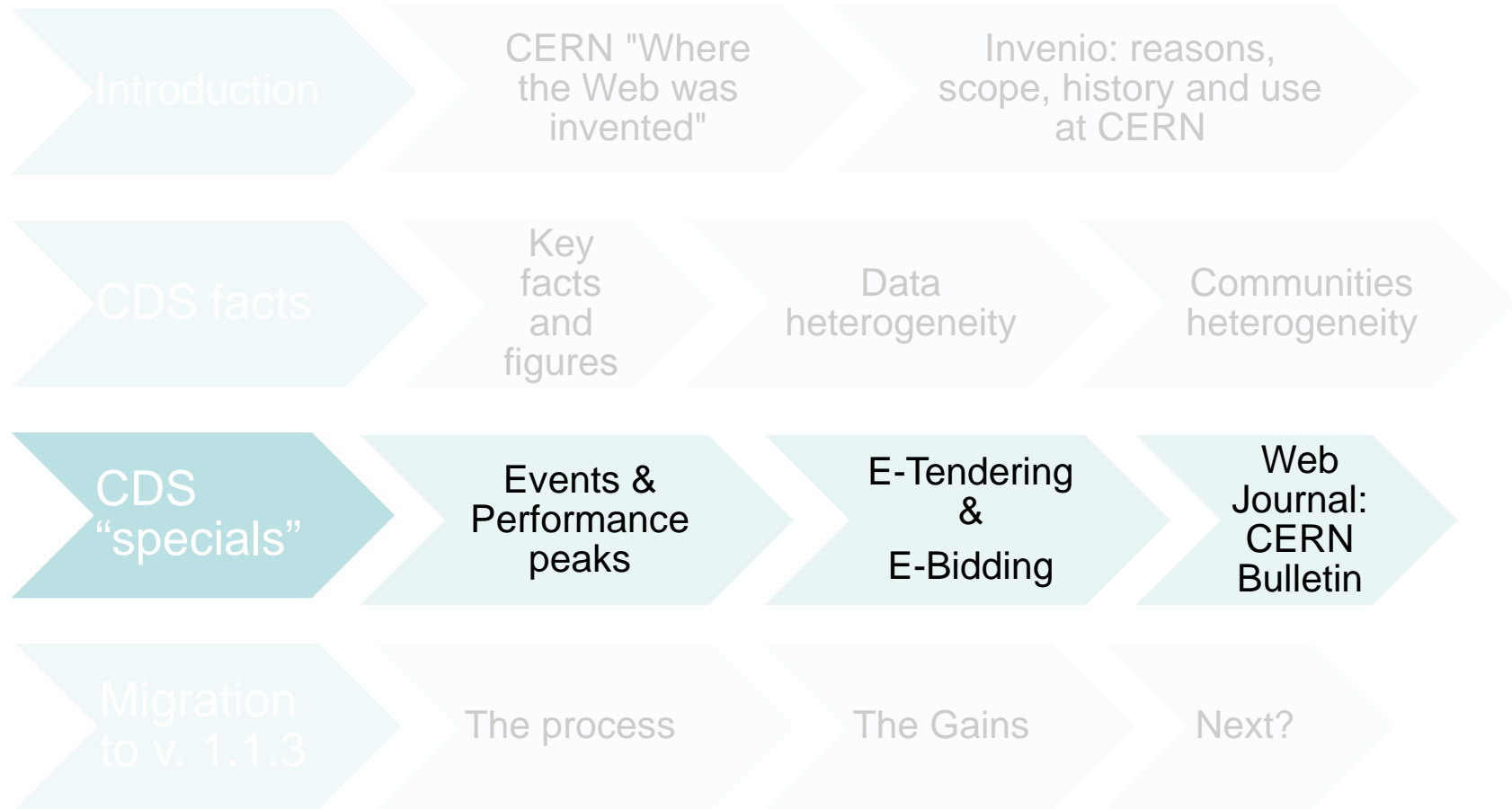
# CDS: Data heterogeneity

- CERN Institutional Repository
- Subject Repository for Particle Physics (=> Inspire)
- Physical collections
  - Library and Book Shop
- Preprints, “postprints”, theses
- Conference proceedings, lecture objects
  - Slides and recordings
- Experiment Support material
  - Photos, videos, animations
- Reusable information
  - Data in tables, figures , plots
  - Correlation matrices
  - Data (high-level objects)

# CDS: Communities heterogeneity

- Library (curation, administration...)
- Particle Physics users (CERN Experiments, Collaborations, ...)
- CERN Institutional Repository (archive, web sites documents, ...)
- Document management (including administration, e-tendering/e-bidding, CERN Council and governing bodies...)
  - Multimedia Document Assets Management

# Agenda



# Events & Performance peaks

Peaks: ex.: Nobel Prize, Open Days, *Higgs discovery*, LHC Startup

Sustained ~230 web requests/second and rate peaks of up to 800 requests/second

Sustained DB processing peaks of ~ 10,000 queries/second

CERN Document Server

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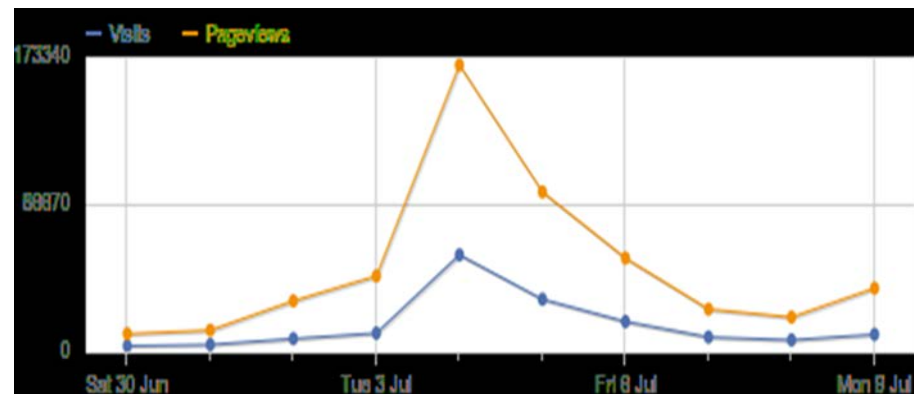
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Add to Search

Search collections:  
CERN Document Server

Sort by: latest first desc - or rank by - Display results: 10 results split by collection Output format: HTML brief

The search for the Higgs boson  
Higgs seminar 2012 (video), other resources on Higgs announcement in 2012  
Interviews (2012): Peter Higgs & François Englert

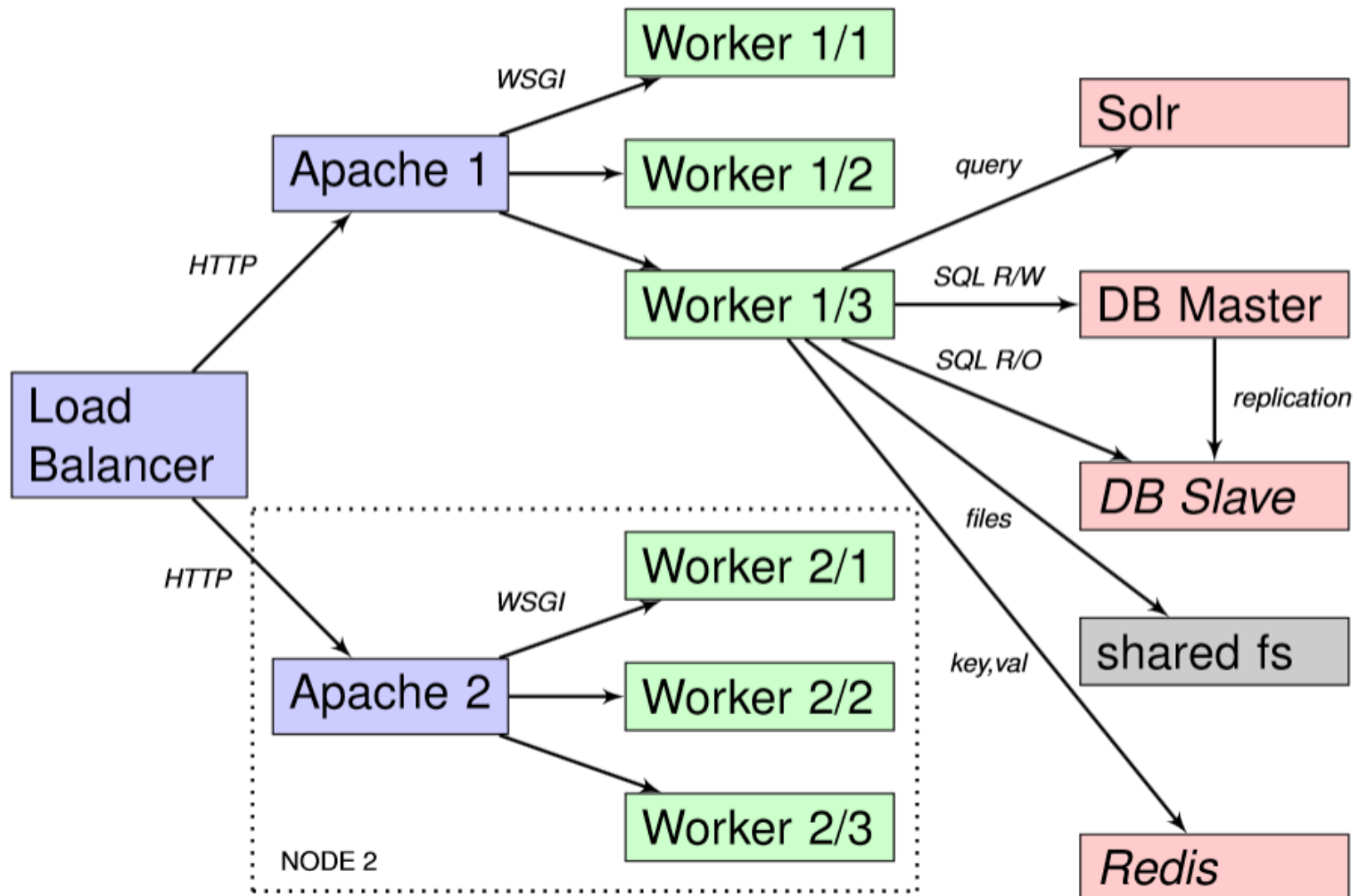


OR 2014 - Helsinki - 13 June 2014

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# Events & Performance peaks: architecture

- 800 hits per sec on CDS during Higgs seminar July 4th



# E-Tendering & E-Bidding – B2B



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## e-tendering -

Report number	MS-3797/PH
Title	<b>Exhibitions at CERN Visit Points</b>
Dispatch date (yyyy-mm-dd)	2011-07-05
Reply date (yyyy-mm-dd)	2011-08-02

### Files

#### Cover Letter :

[MS-3797 Cover Letter.pdf](#) [361.0 KB] 05 Jul 11 15:31, version 1

#### List of Firms [restricted access] :

[MS-3797 Firms.pdf](#) [5.0 KB] 05 Jul 11 15:33, version 1

#### Qualification Criteria :

[MS-3797 Qualification Criteria.pdf](#) [107.0 KB] 05 Jul 11 15:31, version 1

#### Technical Questionnaire :

[MS-3797 Technical Questionnaire.doc](#) [125.0 KB] 05 Jul 11 15:33, version 1

[MS-3797 Technical Questionnaire.pdf](#) [200.0 KB] 05 Jul 11 15:33, version 1

#### Technical Specification :

[MS-3797 Technical Description.pdf](#) [961.0 KB] 05 Jul 11 15:31, version 1

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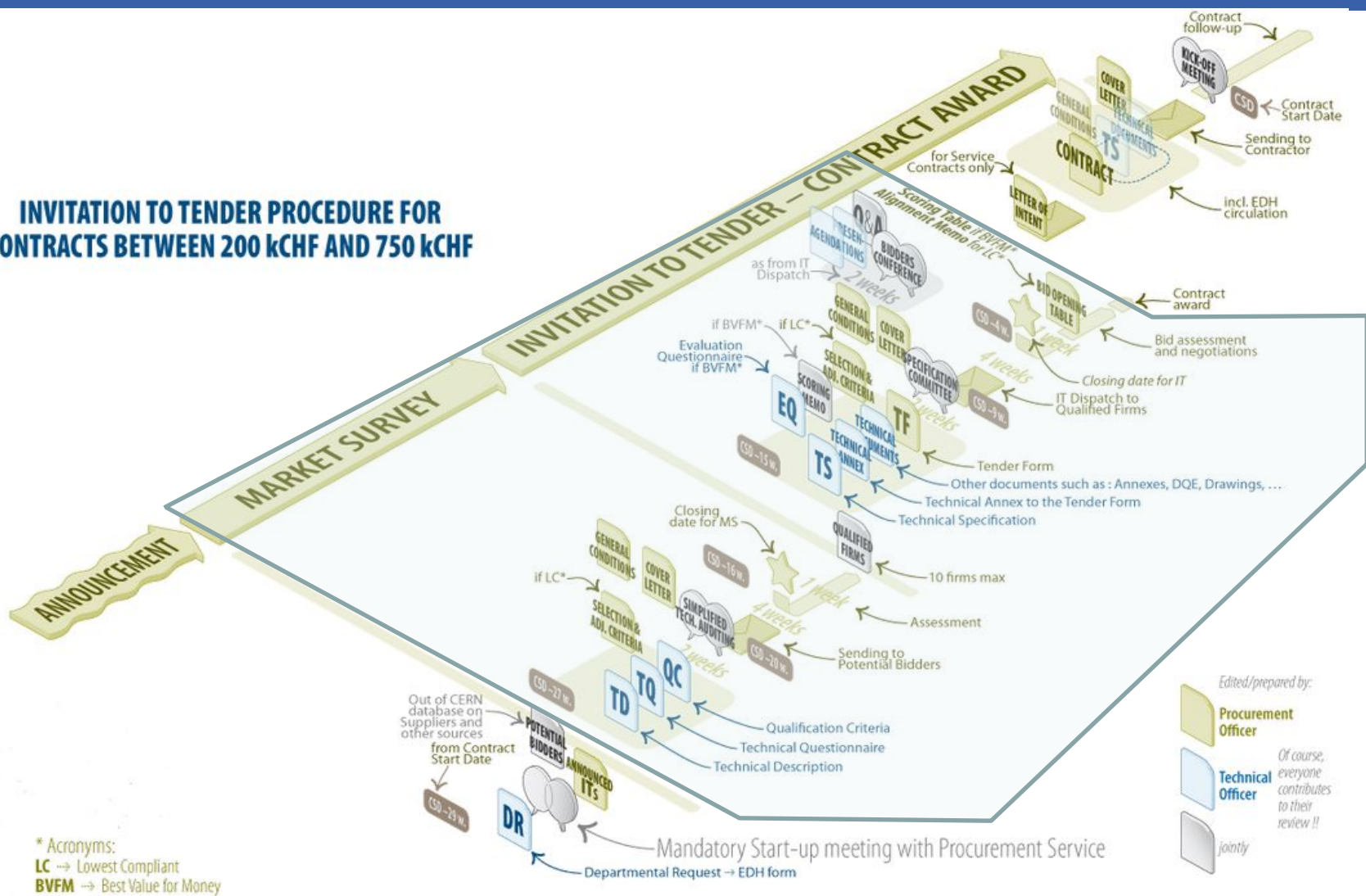
Record created 2011-07-05, last modified 2011-07-05

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# E-Tendering & E-Bidding – B2B

## INVITATION TO TENDER PROCEDURE FOR CONTRACTS BETWEEN 200 kCHF AND 750 kCHF



\* Acronyms:  
**LC** → Lowest Compliant  
**BVFM** → Best Value for Money

Edited/prepared by:  
**Procurement Officer**  
**Technical Officer**  
 Of course, everyone contributes to their review!!  
 jointly

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### INTERVIEW WITH CÉDRIC VILLANI

On 21 May this year, CERN had the pleasure of welcoming the mathematician Cédric Villani as part of the series of lectures organised by the *Groupement des Français du CERN*. The *CERN Bulletin* took the opportunity to ask him a few questions.



*Cédric Villani (left), at SM18, alongside Frédéric Bordry, head of CERN's Technology Department, is the director of the Institut Henri Poincaré and professor at the Université Claude Bernard Lyon 1. He was awarded the Fields Medal in 2010 for his work on Landau damping and the Boltzmann equation.*

***CERN Bulletin:*** This is your first visit to CERN – how have you found it?

***Cédric Villani:*** It has been instructive and moving, both because of the theoretical research that CERN makes possible and because of the technological feat that it represents – truly a technological work of art!

***CERN Bulletin:*** You are currently working on Riemannian geometry problems. Is there any link between this work and the research carried out at CERN?

***Cédric Villani:*** All the work that I've done in mathematical physics builds on classical



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<p>English title: Interview with Cédric Villani</p>	<p>French title: Rencontre avec Cédric Villani</p>								
<p>English article:</p> <div style="border: 1px solid gray; padding: 5px;"> <p>On 21 May this year, CERN had the pleasure of welcoming the mathematician Cédric Villani as part of the series of lectures organised by the <i>Groupe ment des Français du CERN</i>. The <i>CERN Bulletin</i> took the opportunity to ask him a few questions.</p>  <p><b>CERN Bulletin: This is your first visit to CERN – how have you found it?</b></p> <p><b>Cédric Villani:</b> It has been</p> </div>	<p>French article:</p> <div style="border: 1px solid gray; padding: 5px;"> <p>Le 21 mai dernier, le CERN a eu le plaisir d'accueillir le mathématicien Cédric Villani dans le cadre du cycle de conférences organisées par le <i>Groupe ment des Français du CERN</i>. Le <i>Bulletin du CERN</i> était sur le coup. Rencontre.</p>  <p><b>Bulletin du CERN : C'est votre première visite au CERN... Verdict ?</b></p> <p><b>Cédric Villani :</b> Ce fut instructif et émouvant, à la fois à travers les recherches théoriques que le CERN</p> </div>								

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BUL-2012-112

**INTERVIEW WITH CÉCILE VILLANI**

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On 21 May this year, CERN had the pleasure of welcoming the mathematician Cécile Villani as part of the series of lectures organized by the *Department des Français de CERN*. The CERN Bulletin took the opportunity to ask her a few questions.



Cécile Villani (left), at CERN, alongside François Davery, head of CERN's Technology Department, is the director of the Institut Henri Poincaré and professor at the Institut Claude Berthod Lyon 1. He was awarded the Fields Medal in 2006 for his work in London, Göttingen and the Mathematics Institute.

**CERN Bulletin:** This is your first visit to CERN - how long have you been here?

**Cécile Villani:** It has been interesting and exciting, both because of the theoretical research that CERN makes possible and because of the technological fact that it represents - only a technological visit of art.

**CERN Bulletin:** You are currently working on Riemannian geometry problems. Is there any link between this work and the research carried out at CERN?

**Cécile Villani:** All the work that I've done in mathematical physics builds on classical physics problems - problems that do not require me to draw on quantum mechanics, relativistic mechanics, infinitesimal or infinite quantities. In this sense, my work is completely unrelated to CERN's research. That said, a page in the history of physics is being written here each day, and one can't help being interested.

**CERN Bulletin:** CERN enjoys an undeniably cosmopolitan working environment. Do you think that this is an asset for scientific research?

**Cécile Villani:** European cooperation comes into its own when there is a large project to be realized for which it is really essential to pool our expertise, whether the CERN, ITER or EOL and so on. CERN is a very good example of what the continent of Europe can do when they join forces.

**CERN Bulletin:** The discovery of the Higgs boson is the successful culmination of many years of research. What are your thoughts on the subject?

**Cécile Villani:** The discovery of the Higgs boson is an extraordinary accomplishment: the verification of that theory had required the deployment of considerable resources; it is great, especially, all of this technology built to serve the human mind. Putting it rather more grandly, we would say that it is a real triumph of the human mind over what we don't understand. After the event, others will say that it was a bit of a let-down in the end, as it is exactly what was expected. What are we going to do next? There are questions in my high energy colleagues to answer that question, they will find wonderful projects to take on and fascinating theories to test.

**CERN Bulletin:** If you could encounter the science to one of the greatest of mathematical physics, which one would you choose?

**Cécile Villani:** Physics, without a doubt. What is its ultimate mathematical question? That's an essential question. It's not a yes or no question - we know that these questions come - it's more a question of how. For mathematicians, the most important question is often "Why is such-and-such a phenomenon true?" rather than "Is this phenomenon true?"

**CERN Bulletin:** What would you be doing if you hadn't passed mathematics?

**Cécile Villani:** as a child, my passion was palaeontology. It's a very difficult discipline, involving a lot of painstaking work. Imagination, tenacity and rigour are the three qualities of both the palaeontologist and the mathematician. In mathematics, imagination is perhaps the most important; in palaeontology, it is undoubtedly tenacity.

Interview by Annie Schaeffer

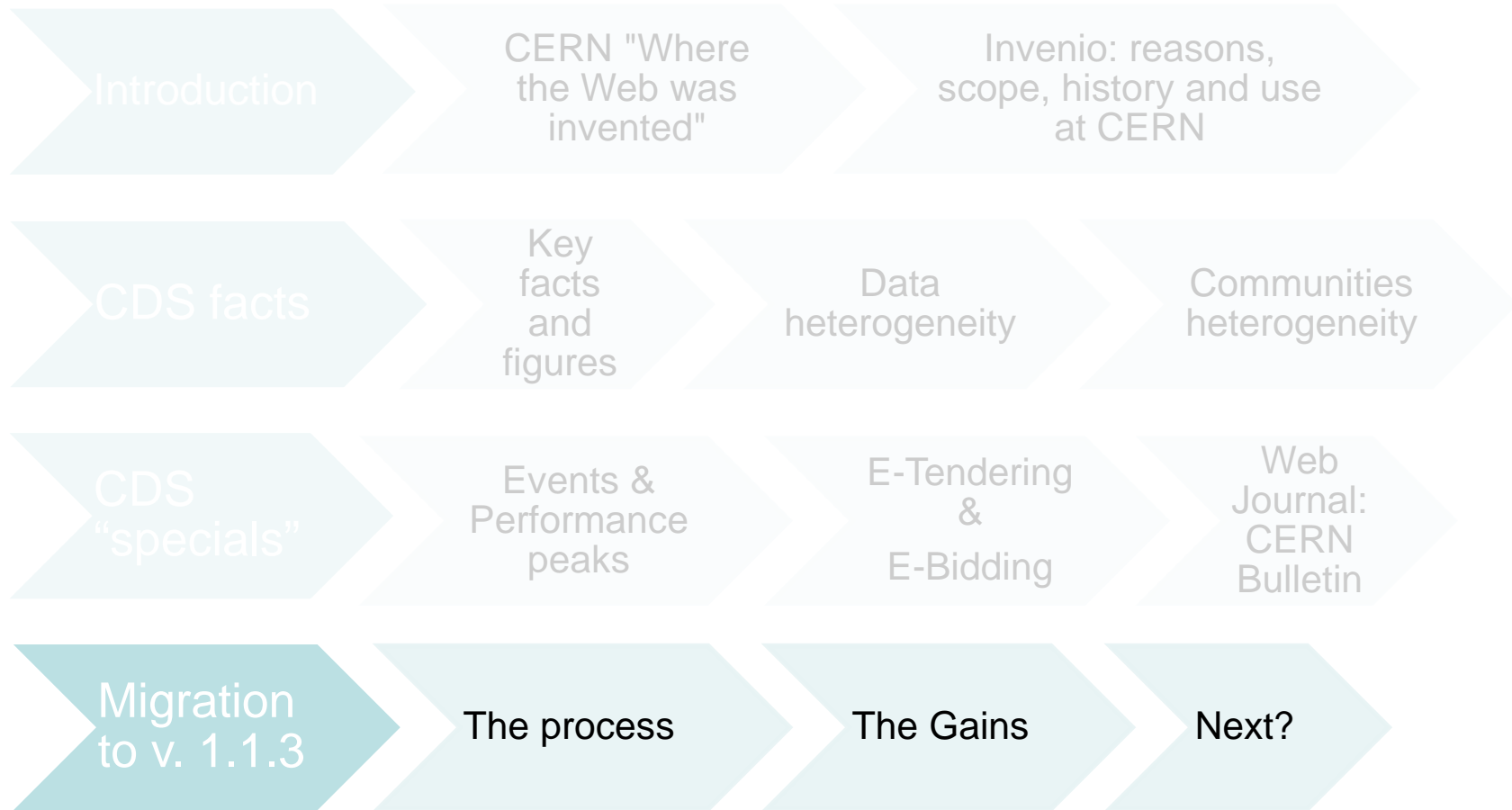
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# Agenda



# CDS migration to Invenio1.1.3

- From v. 1.1.1 to latest master
- On new servers managed with Puppet / SLC6
- Why ?
  - HW out of warranty!
  - SLC5 deprecated, missing libraries
  - Quattor phased out
  - Invenio v. 1.1.3 new features
    - BibSched
    - BibEdit
    - BibIndex
    - ...

# CDS migration to Invenio1.1.3

- Pre-Process:
  - One new node with recent dbdump used to re-compute all indexes
  - A temporary DB node set as slave of the production DB
  - Created a cds-ops git repo to manage the 'incubating' code
  - WNs set up with invenio (cds-ops) + cds overlay
- D-Day:
  - Production service stoppage (~3:30 h)
  - Run upgrade tables on the temporary DB node (1:30 h), set as new master DB node
  - Copied new pre-created indexes to the WN(s)
  - Switch the Load balancer to use the new nodes

# CDS migration to Invenio1.1.3

- Post-process
  - Some issues with the File management system
  - A few 'surprises', quickly fixed
- Lessons learnt
  - Globally smooth
  - Differences in Production and Pre-Prod environments always lead to 'surprises'
  - Downtime can hardly be avoided without losing some content, even in read mode
  - Relief to be on 1.1.3:
    - it enables deployment of many adds-on
    - it opens Next door!



# CDS migration to Invenio1.1.3

- On-going prototype
  - Change in Content: focus on institute content
  - Change in Design: no 'tree navigation' by default
  - Change in Features: personalisation at all levels  
→ collections, author pages, stats, etc.
- Based on
  - Users Feedback
  - Piwik Numbers
  - Users iterations



# THANK YOU!

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**<http://invenio-software.org/>**