LHCOPN Ops WG report

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On behalf of LHCOPN ops WG

LHCOPN meeting, 2009-08-31, Vancouver
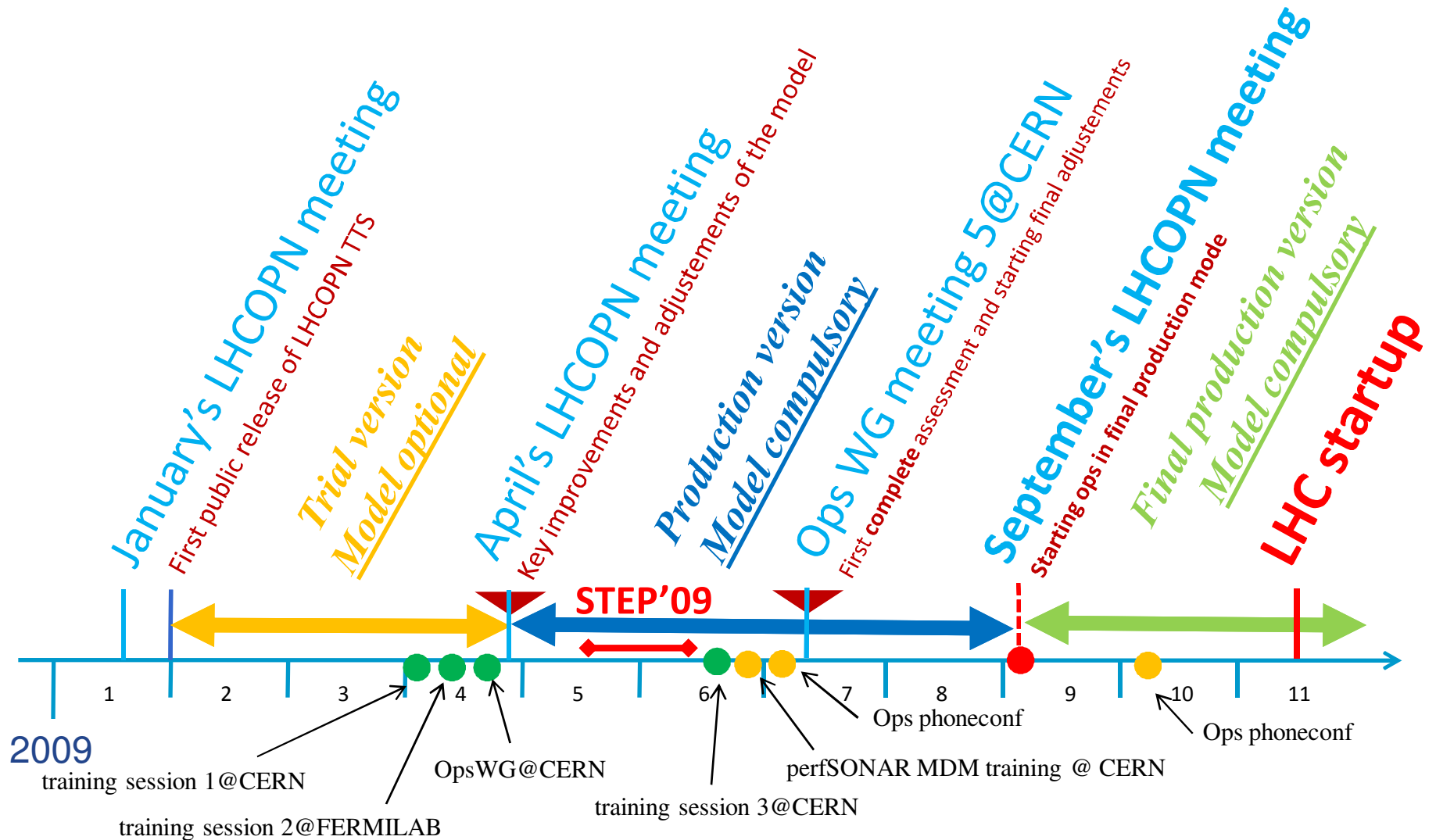
www.eu-egee.org

CCIN2P3

e-infrastructure

Enabling Grids for E-sciencE

- **Since last meeting**

- **Operation status / roadmap**
  – Full scale testing of the model

- **Area of improvements / pending things**
  – Tools
  – Processes
  – KPIs

- **What's next**

Enabling Grids for E-sciencE

- **LHCOPN meeting in Utrecht 2009-04-21**
  - http://indico.cern.ch/conferenceDisplay.py?confId=50345
  - Operations switched to production version
    - All sites then participating
  - Twiki to be reviewed
  - GGUS to be improved regarding training's feedbacks
  - KPI for Ops missing
  - Ops phoneconf to appear
  - Low involvement in Ops WG
   - To be mutualised with LHCOPN meetings

Enabling Grids for E-sciencE

- **LHCOPN and Grid interactions: Round two – 2009-05-26**
  - http://indico.cern.ch/conferenceDisplay.py?confId=59320

- **Training session III at CERN – 2009-06-16/17**
  - http://indico.cern.ch/conferenceDisplay.py?confId=58448
  - NDGF, NL-T1, UK-T1-RAL

- **Ops phoneconf – 2009-07-02**
  - https://twiki.cern.ch/twiki/bin/view/LHCOPN/2ndJuly2009

- **Ops WG meeting 5 – 2009-07-07**
  - http://indico.cern.ch/conferenceDisplay.py?confId=62318

Operations – Current status

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Enabling Grids for E-sciencE

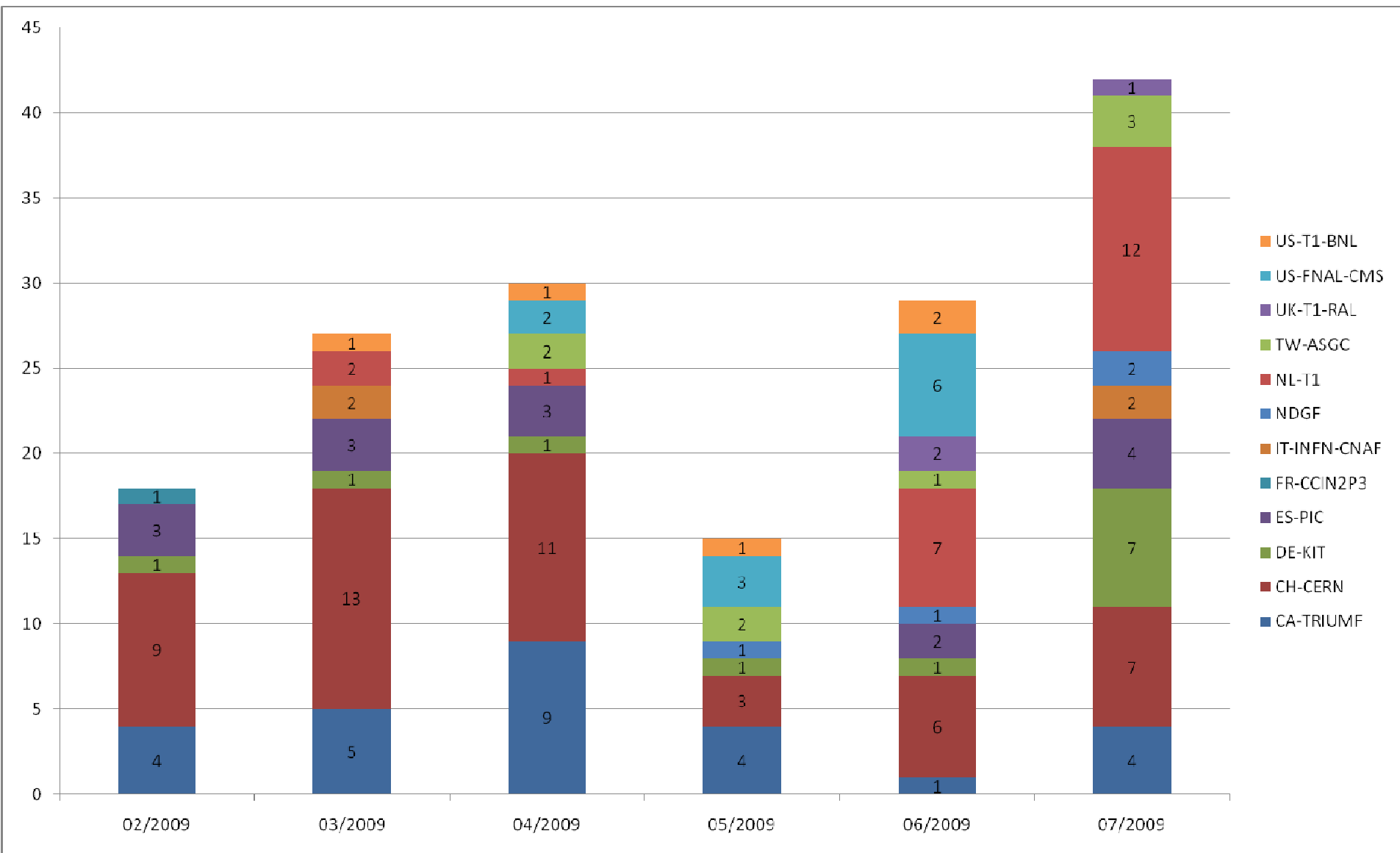|	Trained	R/W Access to the twiki verified	Access to the TTS verified	Started Ops production mode	Review of twiki
CA-TRIUMF	2009-04-08	2009-04-30	2009-04-30	2009-04-30	Partial 2009-06-19
CH-CERN	2009-04-02	2009-02-04	2009-02-04	2009-02-04	
DE-KIT	2009-04-02	2009-02-23	2009-02-04	2009-02-23	
ES-PIC	2009-04-02	2009-08-12	2009-02-04	2009-02-04	2009-08-12 (Twiki access issue)
FR-CCIN2P3	2009-04-02	2009-02-04	2009-02-04	2009-02-04	
IT-INFN-CNAF	> 2009-09		2009-03-25		
NDGF	2009-06-16	2009-07-14	2009-07-06	2009-07-14	
NL-T1	2009-06-16	2009-06-19	2009-03-20	2009-06-19	
TW-ASGC	2009-04-08	2009-06-03	2009-04-13	2009-06-03	
UK-T1-RAL	2009-06-16	2009-06-23	2009-06-19	2009-06-23	
US-FNAL-CMS	2009-04-08	2009-06-22	2009-05-04	2009-06-22	
US-T1-BNL	2009-04-08	2009-05-27	2009-05-08	2009-05-27	

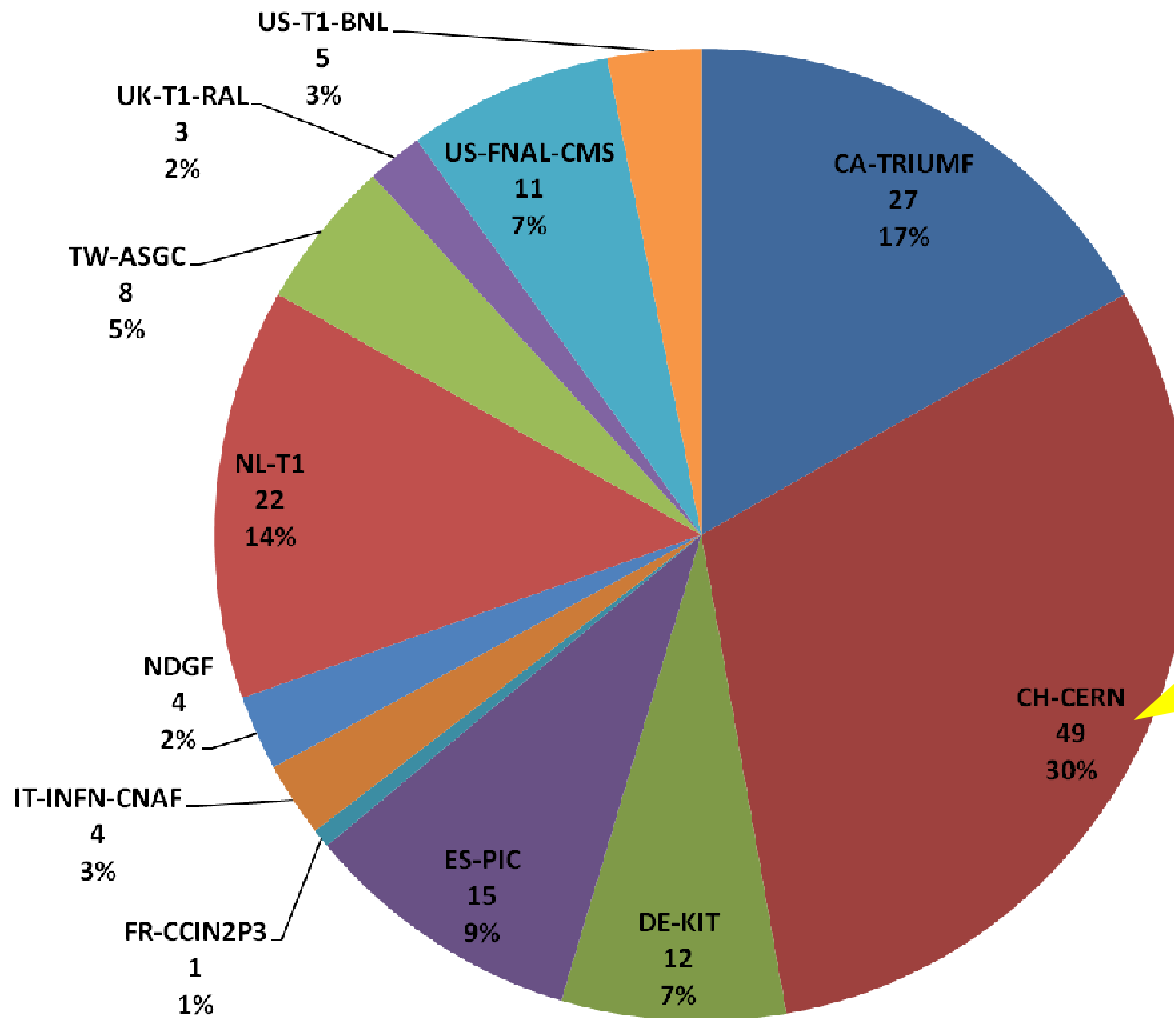ALL sites have verified access to the TTS

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Enabling Grids for E-sciencE

January's LHCOPN meeting
First public release of LHCOPN TTS

Trial version
Model optional

April's LHCOPN meeting
Key improvements and adjustements of the model

Production version
Model compulsory

Ops WG meeting 5@CERN
First **complete** assessment and starting final adjustements

September's LHCOPN meeting
Starting ops in final production mode

Final production version
Model compulsory

LHC startup

STEP'09

2009

1   2   3   4   5   6   7   8   9   10   11

training session 1@CERN

training session 2@FERMILAB

OpsWG@CERN

training session 3@CERN

perfSONAR MDM training @ CERN

Ops phoneconf

Ops phoneconf

Enabling Grids for E-sciencE

- **Accesses**
  - ~ 10k pages seen / month
  - 85% of visits (~8500/month!) are on the page
    - https://twiki.cern.ch/twiki/bin/view/LHCOPN/NamingConventionAndLinksIDs
  - Average is 36 pages edited/month

- **Way to request R/W access simplified and documented**
  - https://twiki.cern.ch/twiki/bin/view/LHCOPN/LHCOPNtwikiAccess

- **Information on the twiki <u>must</u> be reviewed**
  - Data access and holidays have interfered, round 2 ASAP

Enabling Grids for E-sciencE
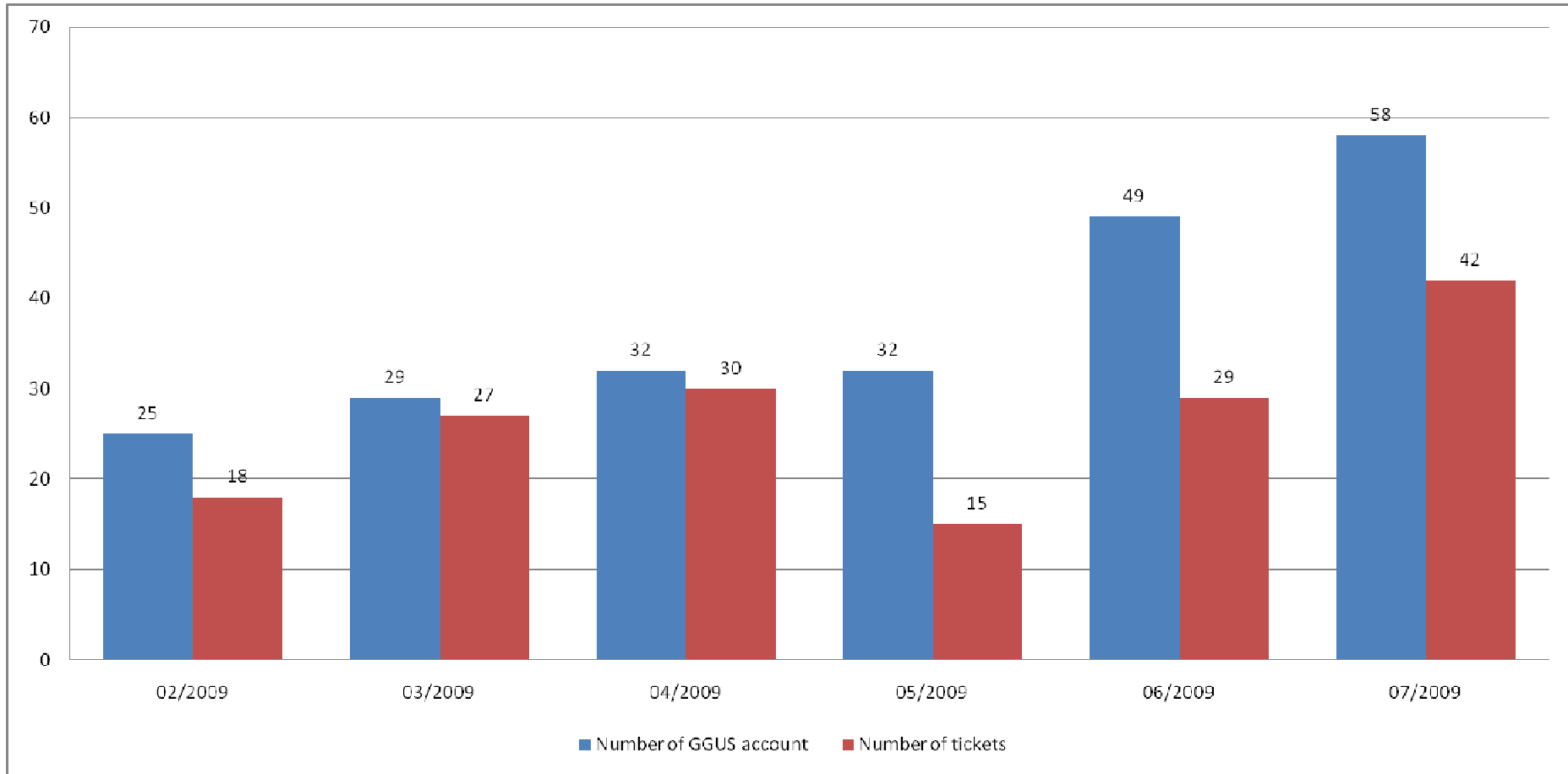
- **161 LHCOPN tickets in 6 months**

- **Nearly 60 accounts**
  – Average is 5 account per site (Min: 2, Max: 17)

Enabling Grids for E-sciencE
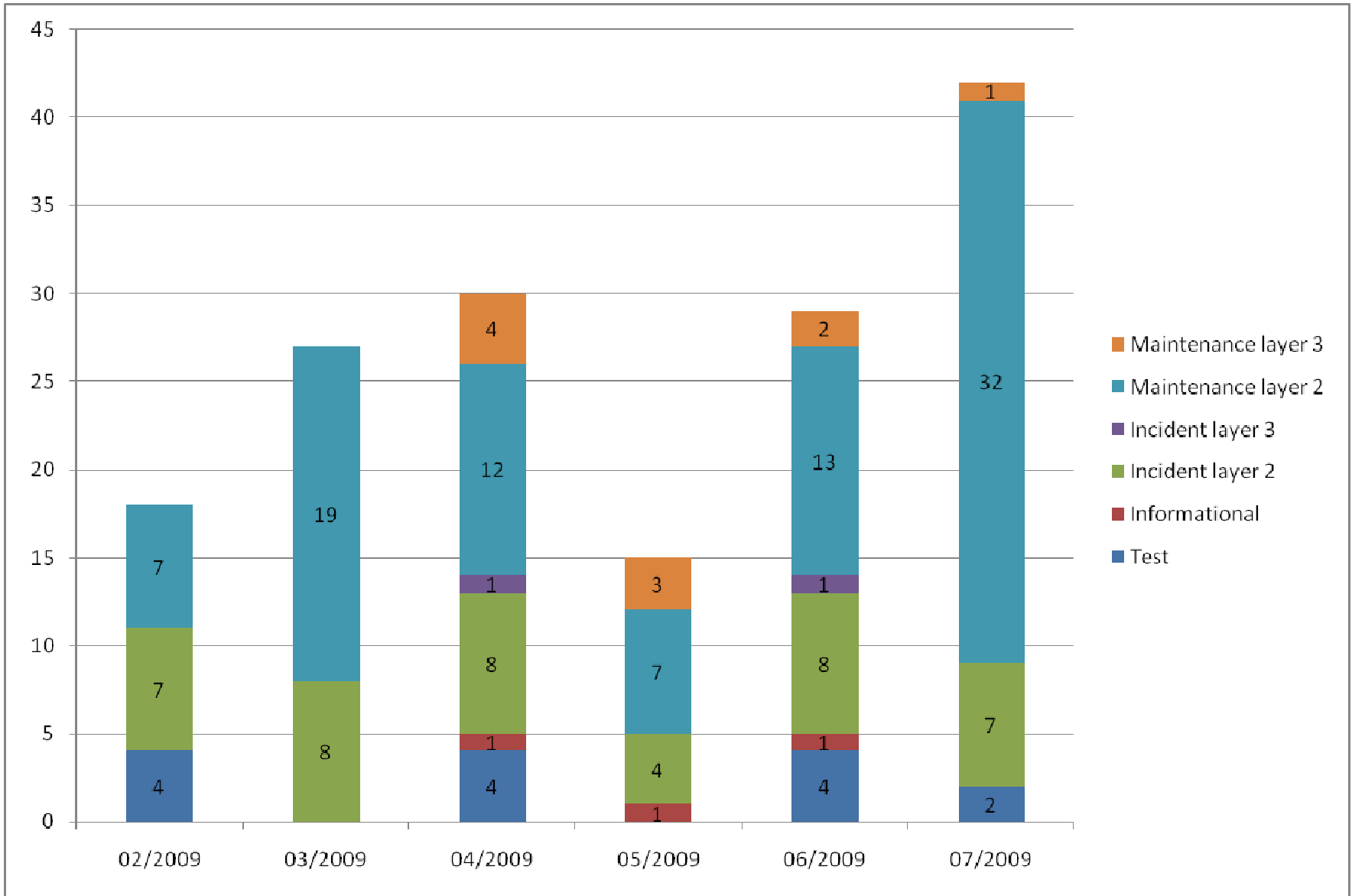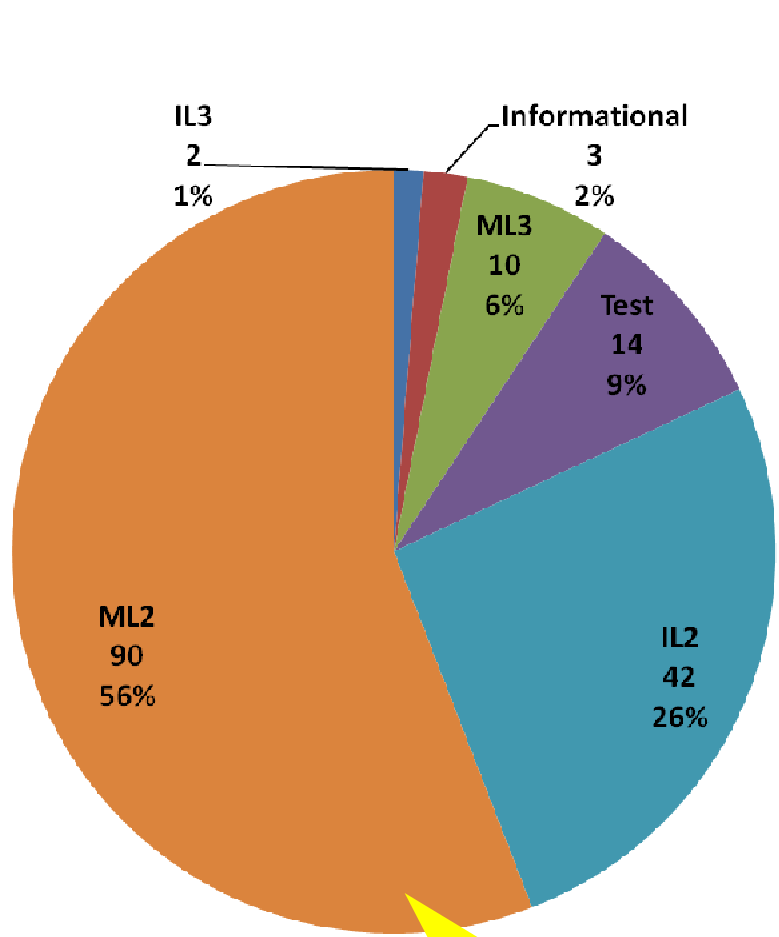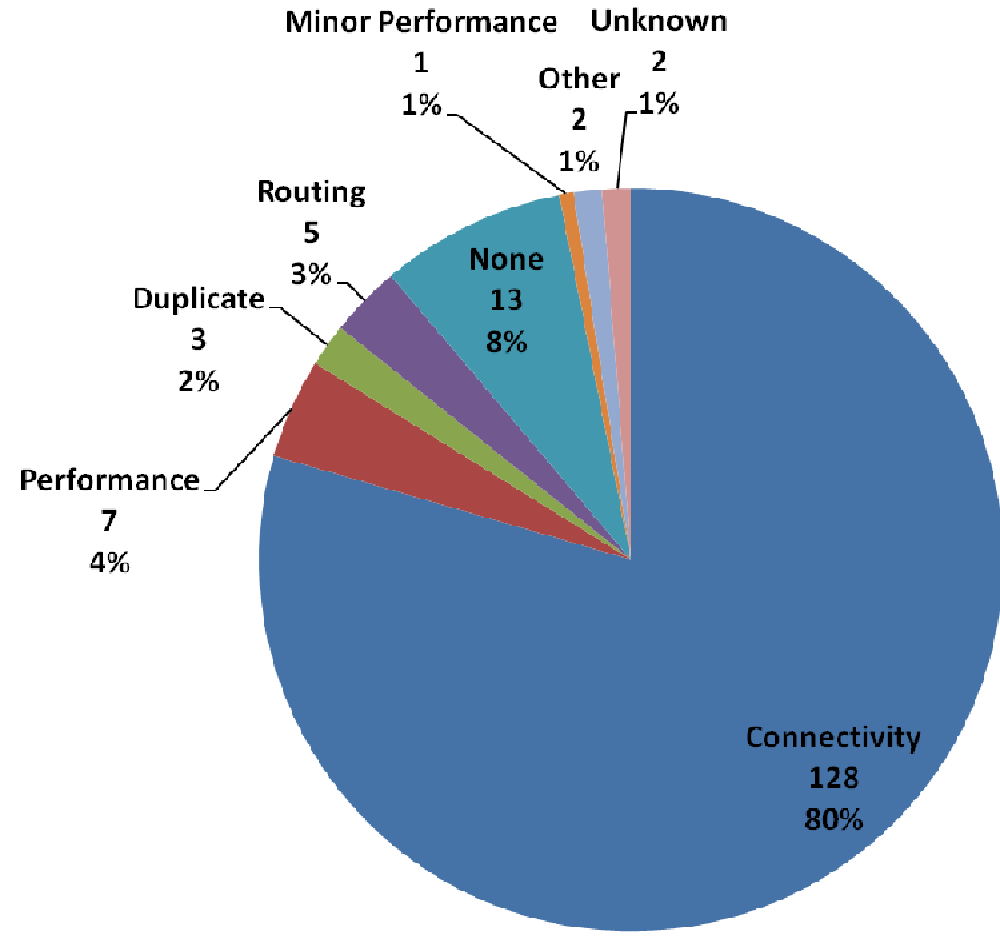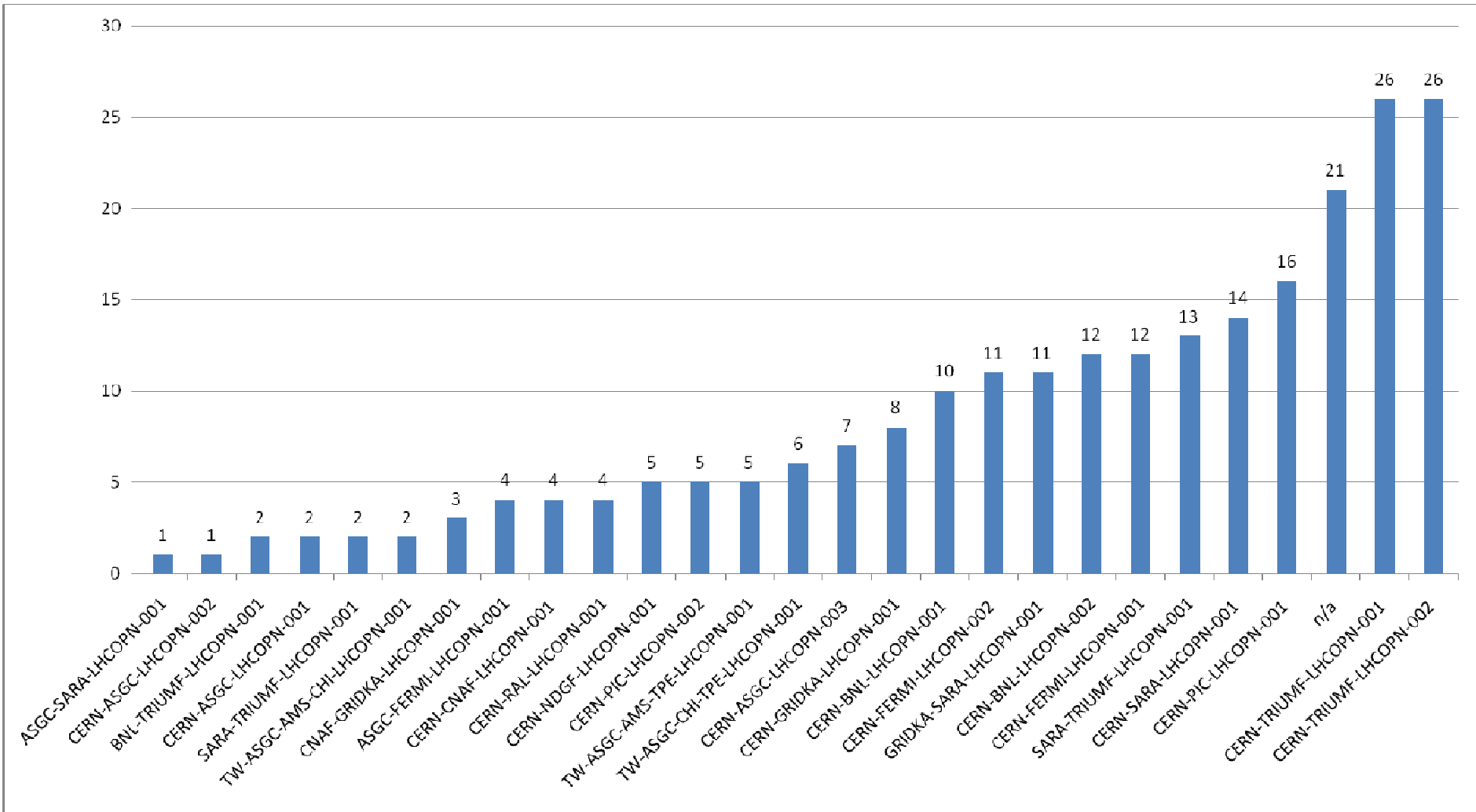
82% of reported events are at L2
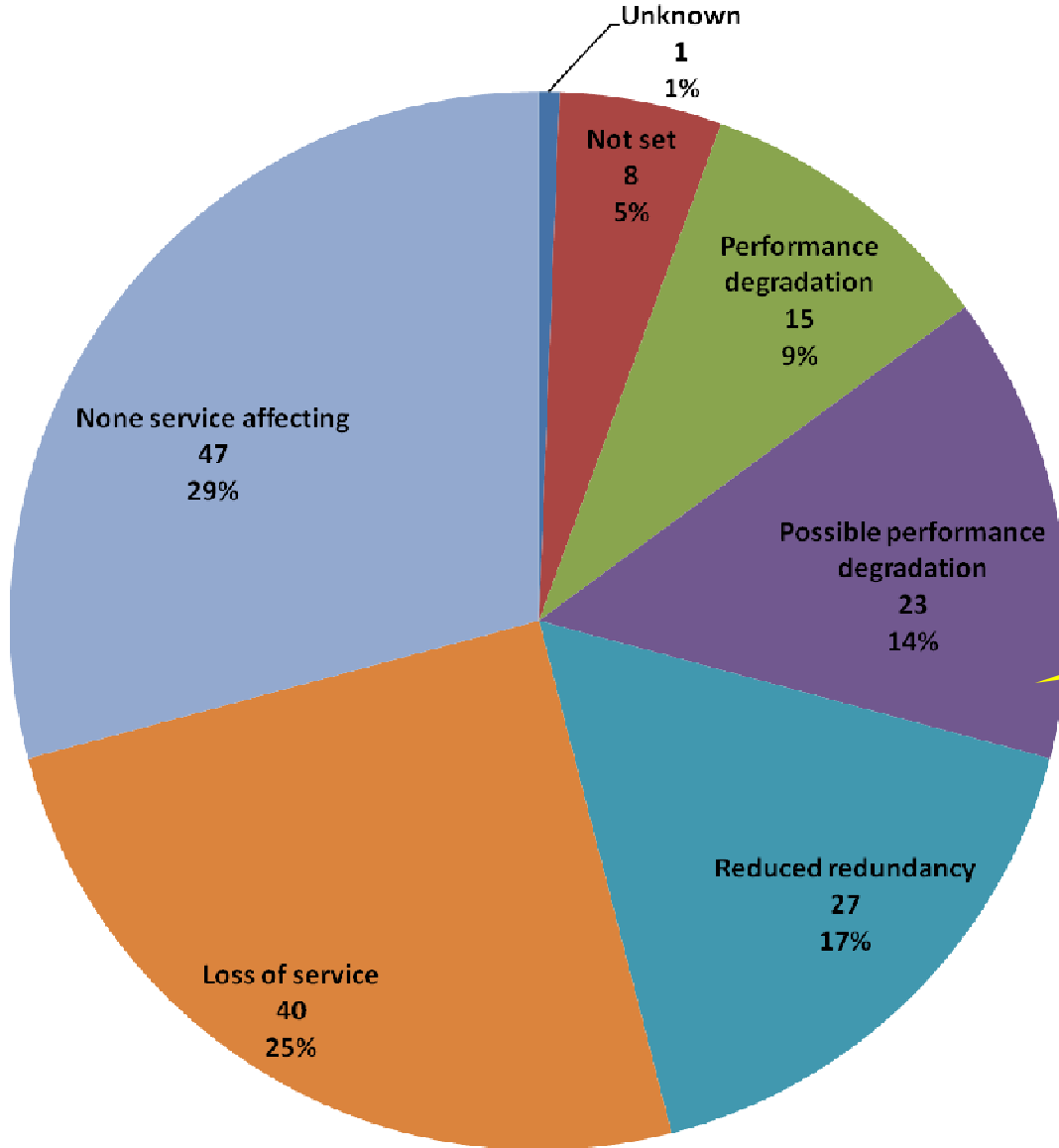
2/3 of events are without impact on service

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Enabling Grids for E-sciencE

Enabling Grids for E-sciencE

> 10 days, #GGUS-48030,
cut on undersea cable

Enabling Grids for E-sciencE

80% of events in the TTS are impacting CH-CERN

Enabling Grids for E-sciencE
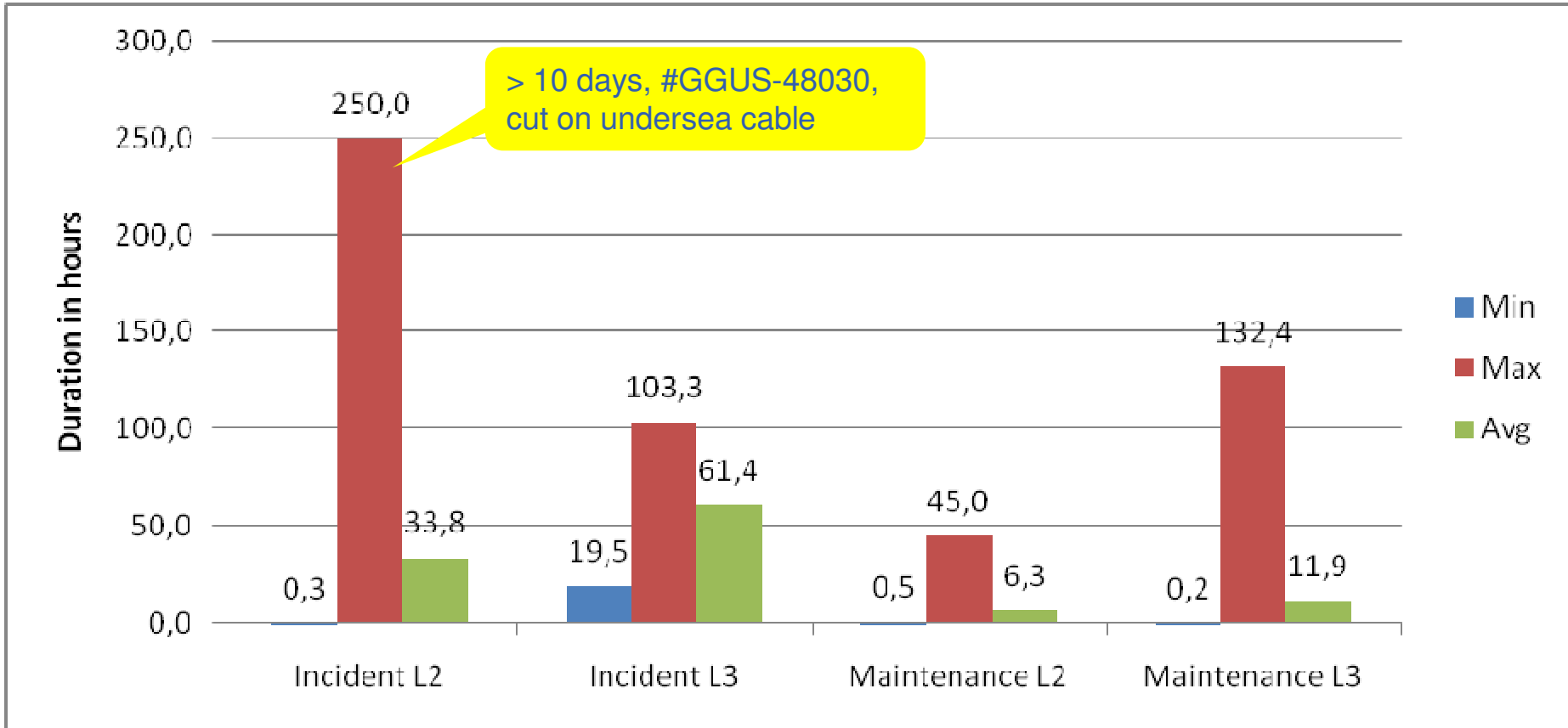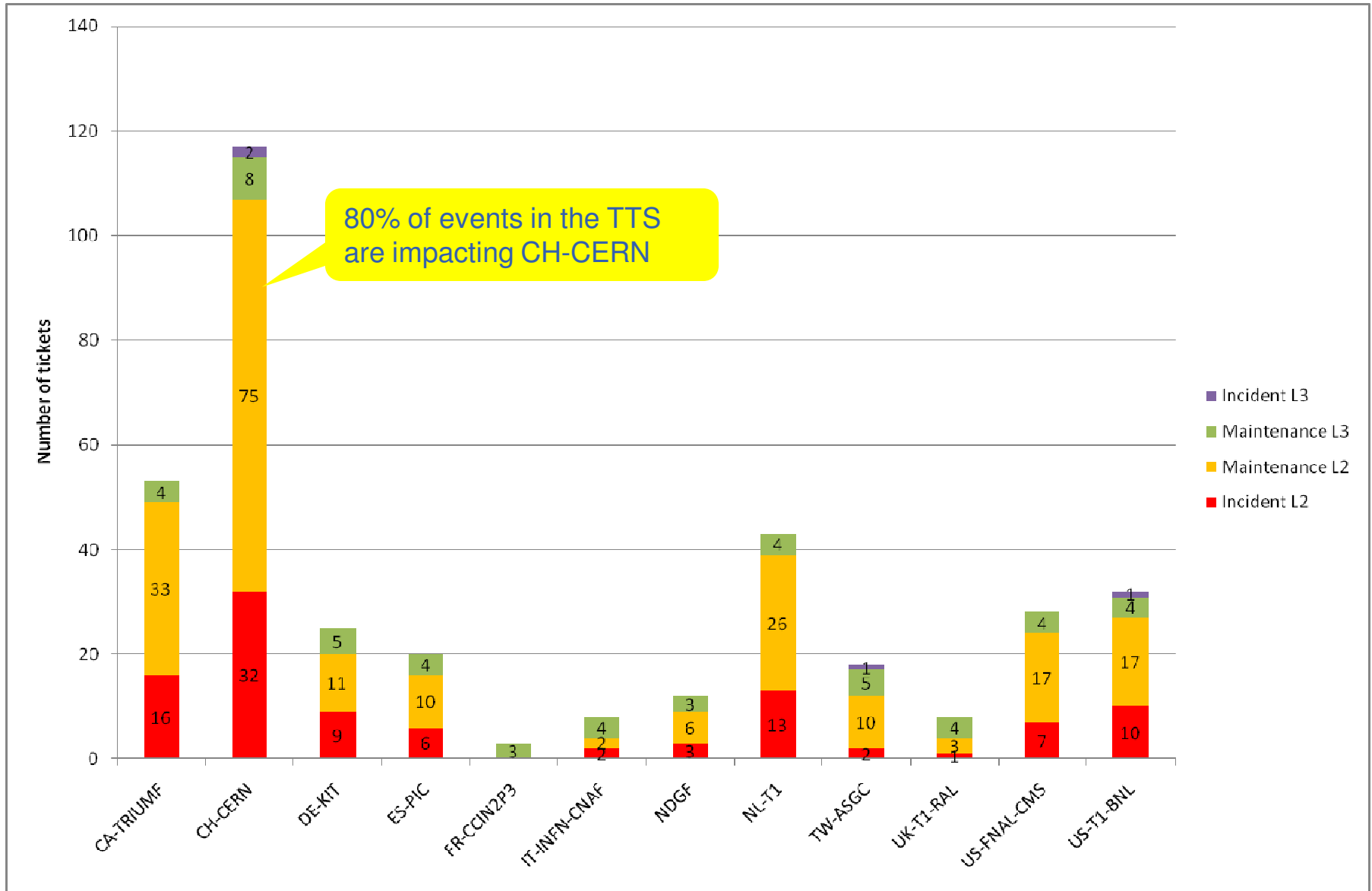
- **<u>Lot</u> of cosmetic details fixed**

- **Pdf output**   show/save search result as PDF

  – https://gus.fzk.de/pages/all_lhcopn.php?writeFormat=PDF&&maxnumber=last%20month&tstatus=any&siterelation=related&assignedtosite=TW-ASGC&simpacted=all&sort=desc

  – Could act as monthly report for sites

- **Added D-day reminder for scheduled maintenance**

  – Because they should be registered some time before in the TTS

  – Conflicting desire about reminders?

- **Dashboard really improved**

  – http://ggus.org/lhcopn

  – View only WLCG service impacting tickets

  – View only changes on the infrastructure ≈ CMDB

  – Auto refresh enabled every 5 minutes

  – See only tickets "related" to a particular site (assigned or impacting)

Enabling Grids for E-sciencE

- **Reached 97 requests on the status list**
  - https://twiki.cern.ch/twiki/bin/view/LHCOPN/GGUSstatusList
  - 8 open, 86 closed, 3 cancelled
  - 54% of requests are improvements, 22% bugs solving

- **Ongoing**
  - API to remotely handle GGUS tickets
    - Easing way processes are applied, thus acceptance
  - Ease tracking several actions (IP prefix changed...)
    - Clone this ticket and assign it to all impacted sites
      - *Parent ticket for submitting site, cloned tickets being child*
  - Ability to link standard GGUS tickets with LHCOPN tickets
    - Master/slave or parent/child relationship
  - Regular tickets
    - Backup tests, test tickets ensuring access to tools, …

Enabling Grids for E-sciencE

- **TTS in a very good shape, huge work was performed by GGUS team**
    – Thanks to them!
    – Major steps should be behind

- **Statistics to be taken carefully**
    – Maybe not yet fully significant

- **Field 'Service impacted' is very important as being sorting field for WLCG**

- **We only see what is reported**
    – Maybe far from infrastructure real behaviour...
    – Correlating with monitoring data is required

Enabling Grids for E-sciencE

- **Monitoring information really needed to correlate Ops and infrastructure behaviour**
  - BGP monitoring tool
    - Almost killed by backup through generic IP, using default routes, masking OPN failures
    - Hard to maintain (new routers, VRF etc.)
  - 'Something' to officially takes over BGP monitoring tool?
    - Expected 2010-01...

- **KPI for infrastructure somewhere?**
  - Which link is less reliable?
  - What is monthly availability of a site?

Enabling Grids for E-sciencE

- ## Raw correlation between ops and monitoring
  - Extracted from CERN's spectrum data
    - Central viewpoint, no T1-T1 links

- ## 28th of July → 21st of August
  - 186 events detected, 21 lasting more than 40 minutes
    - Event: BGP alarms (6), ping host (14) and ping router (1)

Kind of alarm	Element	Start UTC	End UTC	Duration (min)	Ops related
BGP peer alarm for	ES-PIC	2009-07-30 23:10:01	2009-07-30 23:52:01	42	#GGUS-50330
BGP peer alarm for	Site A-Backup	2009-08-14 04:15:01	2009-08-14 05:15:01	60	
BGP peer alarm for	ES-PIC	2009-08-15 06:05:01	2009-08-15 07:37:01	92	#GGUS-50949
BGP peer alarm for	Site A	2009-07-30 07:00:01	2009-07-30 08:52:01	112	
BGP peer alarm for	Site B-Backup	2009-07-29 02:05:02	2009-07-29 04:47:01	162	
BGP peer alarm for	US-T1-BNL-Backup	2009-08-06 03:40:01	2009-08-06 15:25:01	705	#GGUS-50798
ping router alarm for	Site B	2009-07-28 15:25:01	2009-07-28 18:52:01	207	

Enabling Grids for E-sciencE

- **Feedbacks from final training**
  - Processes are reasonable

- **Grid interactions being sorted out**
  - No key change for network community, now maturing in Grid world

- **How to reduce workload on network teams around LHCOPN ops?**
  - Maybe avoid putting all maintenances in the TTS
    - Wait meaningful statistics to see which efforts could really be spared
      - *Non impacting L2 maintenances?*
      - *Need to be clear and careful*
  - Ease actions with smart GGUS integration

Enabling Grids for E-sciencE

- **T1-T1 links: T1-T1 agreements**
  - Default responsibilities agreed and documented
  - https://twiki.cern.ch/twiki/bin/view/LHCOPN/NamingConventionAndLinksIDs#AnchorT1T1

T1-T1 links				
T1	**T1**	**Link ID**	**Bandwidth**	**Default Responsible site**
US-T1-BNL	CA-TRIUMF	BNL-TRIUMF-LHCOPN-001	1G	CA-TRIUMF
IT-INFN-CNAF	DE-KIT	CNAF-GRIDKA-LHCOPN-001	10G	IT-INFN-CNAF
NL-T1	CA-TRIUMF	SARA-TRIUMF-LHCOPN-001	1G	NL-T1
DE-KIT	NL-T1	GRIDKA-SARA-LHCOPN-001	10G	DE-KIT
DE-KIT	FR-CCIN2P3	GRIDKA-IN2P3-LHCOPN-001	10G	FR-CCIN2P3
NDGF	NL-T1	NDGF-SARA-LHCOPN-001	10G	NDGF

- **All links: Avoid overlap in action between sites**
  - Duplicate tickets etc.
  - Early opening, T0 vs T1, timezone, non acting sites, USLHCNET, infrastructure responsibility
    - No standard rule emerged, sites' agreements?

Enabling Grids for E-sciencE

- **Support for T1-T1 traffic is really unclear**
  - "Real physical layer is not matching political one"

- **Should we support 'pure' T1-T1 links in the LHCOPN?**
  (i.e T1-T1 links for the LHC community not allowed to carry T0-T1 traffic)
    + Benefit from existing tools, processes & communication channels
    – Complexifing routing & less deterministic network?
      - Predictable routing
    – More events
    – Diverting us from primary goal of LHCOPN?

Enabling Grids for E-sciencE

- **Twiki review**

- **Regular (6 months) tickets for testing access to information repositories**

- **Following correlation with network monitoring data**

- **Pure T1-T1 links supported by LHCOPN ops?**

Events:

- **Next ops phoneconf 2009-10-08**

- **Ops wg meeting**
  - Phoneconf and/or mutualised with next LHCOPN meeting

Enabling Grids for E-sciencE

- **Tools**
  - Really improved to closely match spirit of operational model

- **Processes**
  - Key lines are really fine
  - Few details to be adjusted or clarified
  - Grid interactions to be supported by sites

- **Huge progress in one year**
  - Design converged and implementation was done
  - Now lessons should come from practice
    - (Un)fortunately frequency of key events seems low