

IPv6: updates and news from Sites in Spain

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HEPiX IPv6 Working Group - in person

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PIC Tier-1 (history)



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Feb 2013: Joined the gridftp testbed of **HEPiX IPv6 Working Group**

Jun 2013: Enabled dual-stack on production **perfSONAR** boxes

Aug 2013: **Testing dCache** dual-stack compatibility

May 2015: New main FW in production fully IPv6 compatible

Jan 2016: Testing our non IPv6 compatible batch system (**Torque/Maui**) with **dual-stack CREAM-CE** and **Compute Nodes** (CNs)

Apr 2016: Production **dCache headnodes** (SRM, gridftp, gsidcap | dcap, xrootd) and ATLAS, CMS, LHCb and ATLAS Tier-2 **dCache pools**

May 2016: Testing IPv6 in **HTCondor** and **HTCondor-CE**
CMS local **PhEDEx nodes** and **CMS xrootd redirectors**

Mid 2017: **HTCondor-CEs** in dual-stack

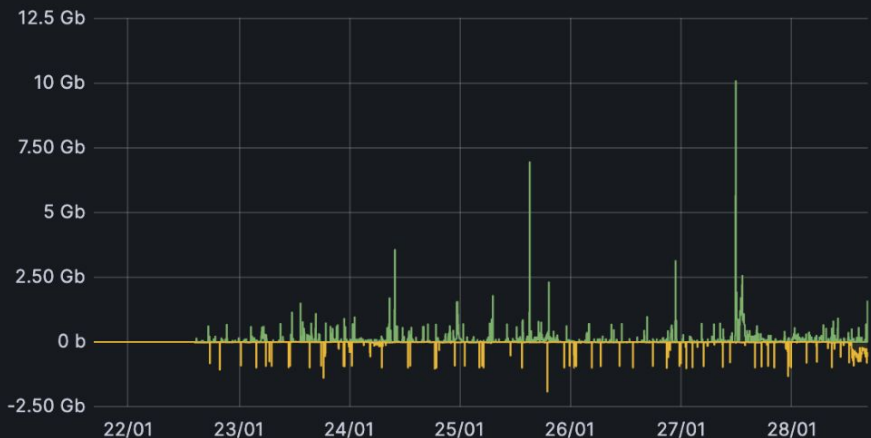
End 2017: **50% of CNs in dual-stack.** Since then, new CNs in dual stack
Spring 2020 [75%] - Spring 2021 [85%] - Spring 2022 [98%]

2022: Ipv4 and Ipv6 **traffic separated in the LHCOPN**

Mid 2023: **'special' CNs** (GPU-equipped + high mem) to dual stack + **ARC-CEs**

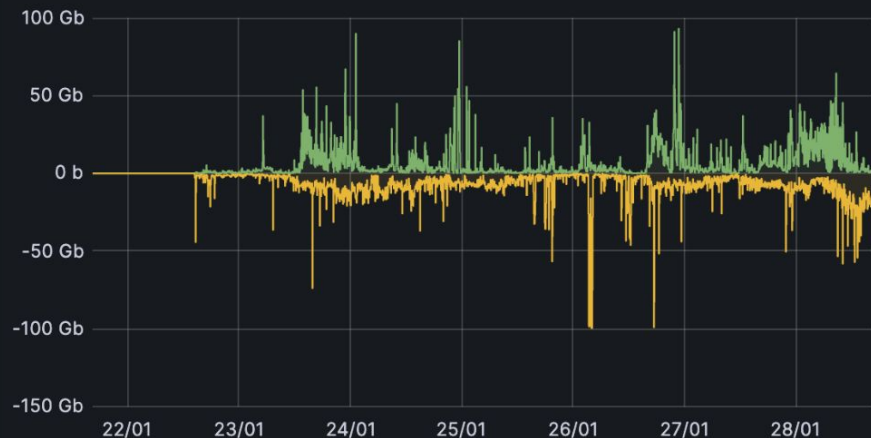
PIC Tier-1 (LHCOPN)

LHCOPN ES-PIC 100G IPv4 - R1 v3520



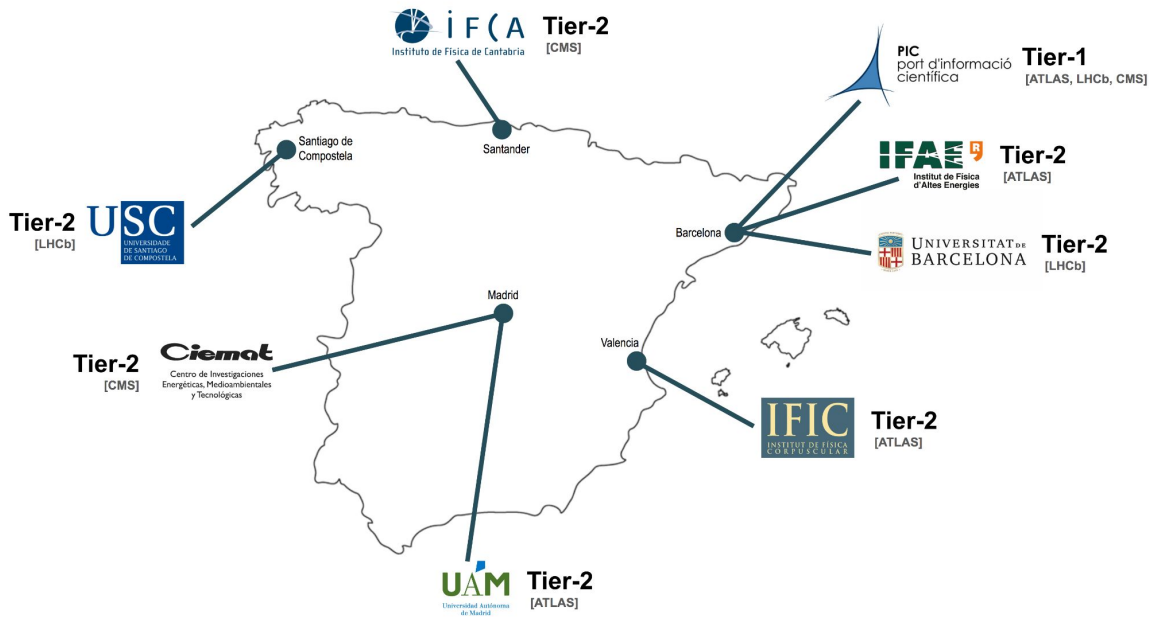
	min	max	avg	current	total
in - PIC to CERN	0 b	10.1 Gb	92.6 Mb	1.59 Gb	185 Gb
out - CERN to PIC	0 b	1.92 Gb	50.6 Mb	581 Mb	101 Gb

LHCOPN ES-PIC 100G IPv6 - R1 v3521



	min	max	avg	current	total
in - PIC to CERN	0 b	93.1 Gb	5.89 Gb	902 Mb	11.8 Tb
out - CERN to PIC	0 b	99.5 Gb	6.91 Gb	15.3 Gb	13.8 Tb

Deployment of IPv6 in Spanish WLCG sites



Feedback collected (yesterday!) Services in dual-stack

IFAE: idem as PIC

IFIC: Compute Nodes
Storage
CEs

CIEMAT: Compute Nodes
Storage
CEs

CMS XRootD redirectors

IFCA: All CMS services dual-stack
Other projects + Cloud in Ipv4
[migration will start soon]

UAM: Compute Nodes
Storage
CEs

I will ping sites to update GGUS tickets

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