

LHCOPN update

LHCOPN meeting - Fermilab
30th October 2018
edoardo.martelli@cern.ch

LHCOPN



Latest news

CH-CERN

- LHCOPN routers upgrade:

- two Juniper QFX10002 are in production
- already connecting LHCOPN links
- they will replace the two existing Brocade MLXE. Migration of links has started.

- 2nd network hub in Preveessin (FR) site:

- CERN routers migration completed
- GEANT and ESnet have already installed equipment there
- SURFnet, NORDUnet and PSNC are working on the installation of their equipment

Latest news

IT-INFN-CNAF

- First 100G link to CERN deployed. Using GEANT Milan-Geneva fibre
- Previous 4x10G links bounded together and used as backup link
- Second 100G link to CERN will be delivered in ~December 2018. It will follow the path Milan-Marseille-Geneva

DE-KIT

- Deployed 100G link to CERN. Provided by SWITCH and BELWUE
- Previous 2x10G links bounded together and used as backup link

Latest news

FR-CC-IN2P3

- Deployed 100G link to CERN. Provided by RENATER

NL-T1

- Waiting for SURFnet new PoP to migrate to 100Gbps link

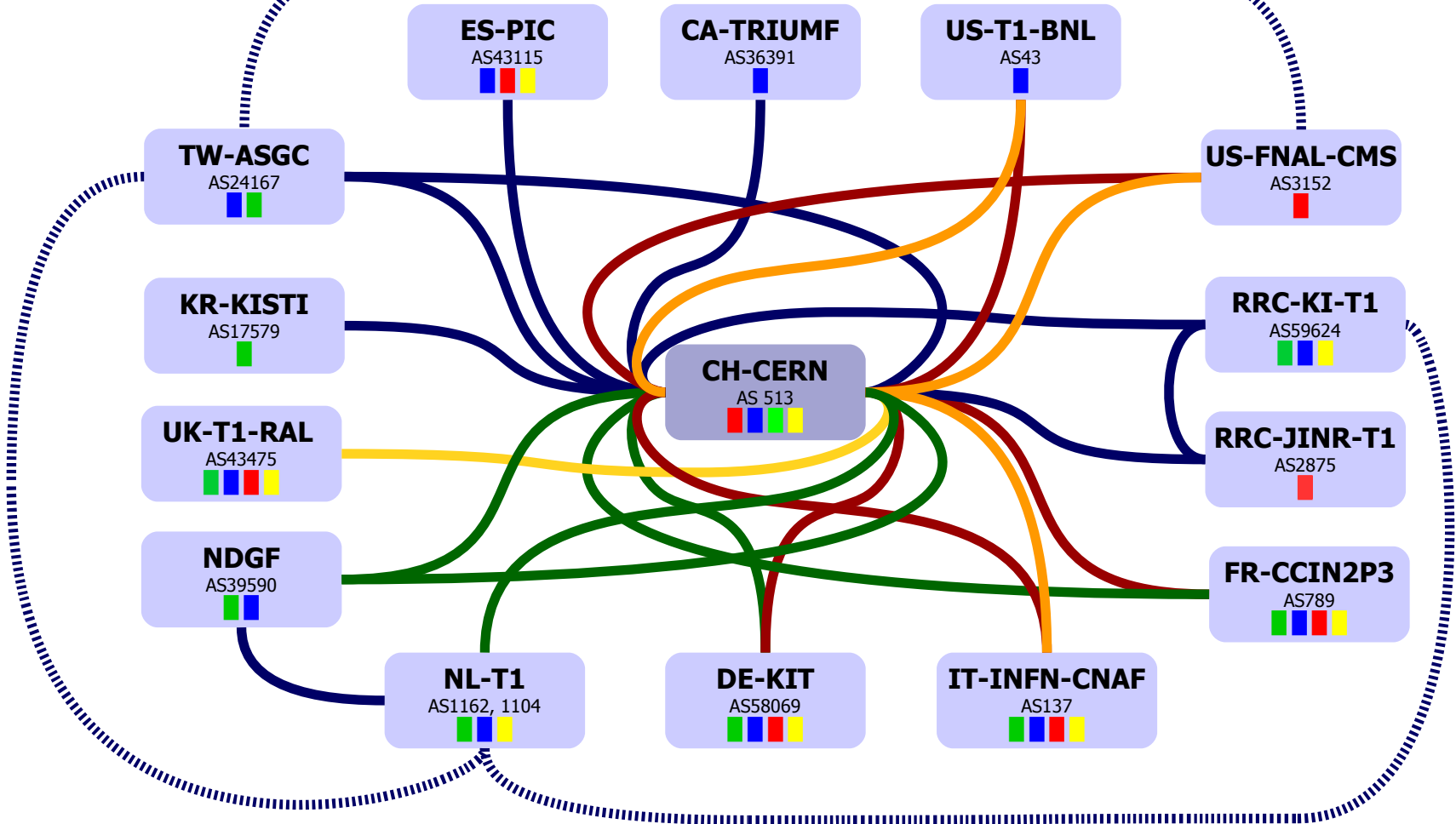
Latest news

[Input from Tier1s in the audience]

ProtoDUNE to use FNAL LHCOPN links

- Notified WLCG Management and Overview Boards
- More details in the next presentation

LHCOPN



	T0-T1 and T1-T1 traffic		10Gbps
	T1-T1 traffic only		20Gbps
	= Alice		30Gbps
	= Atlas		40Gbps
	= CMS		100Gbps
	= LHCb		

edoardo.martelli@cern.ch 20181025

Ref: <https://twiki.cern.ch/twiki/bin/view/LHCOPN/OverallNetworkMaps>

LHC Schedule 2018 Q3-Q4

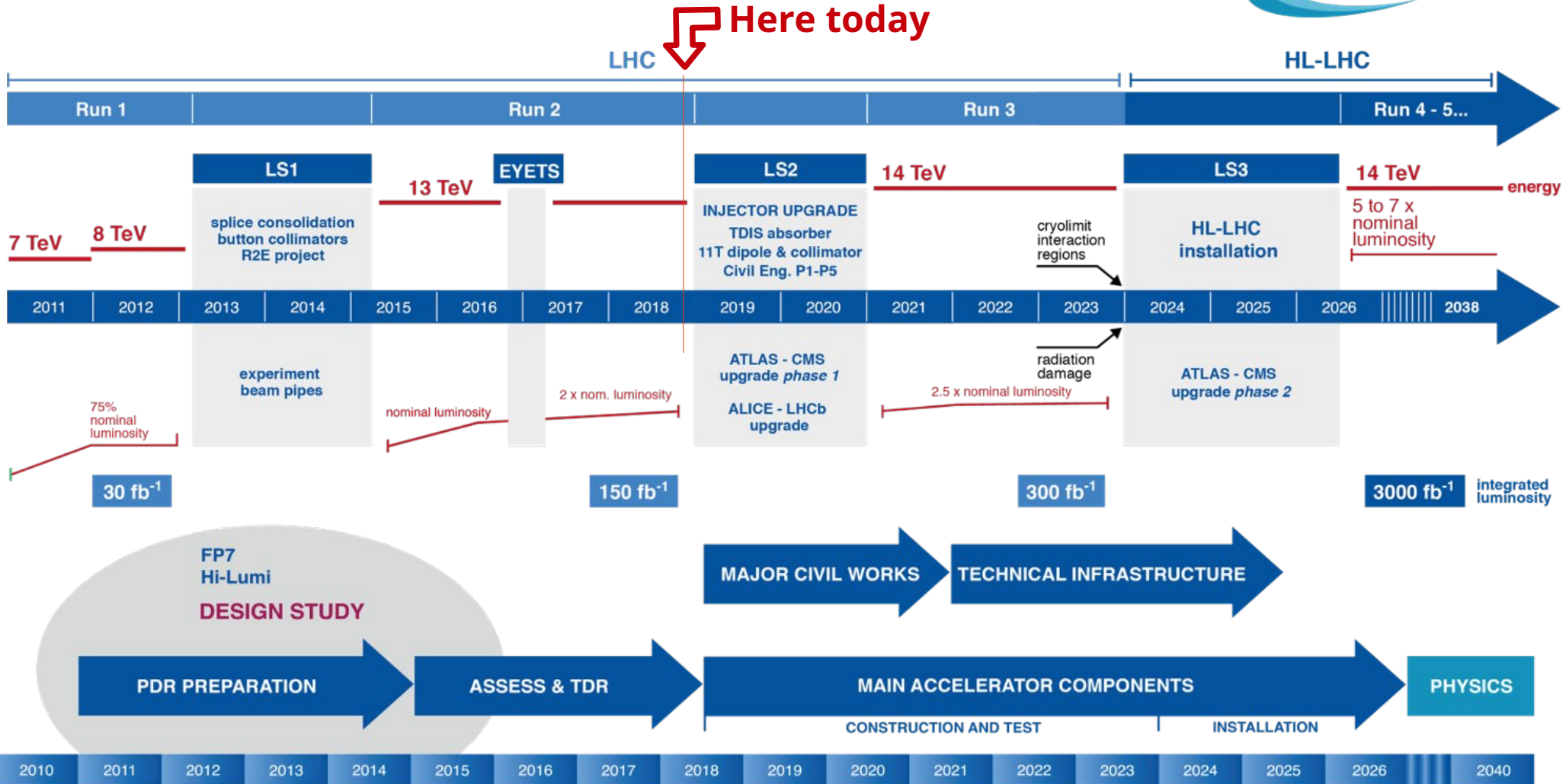
	July			Aug				Sep					
Wk	27	28	29	30	31	32	33	34	35	36	37	38	39
Mo	2	9	16	23	30	6	13	20	27	3	10	17	24
Tu				MD 2									
We												TS2	
Th										Jeune G.			
Fr											MD 3		
Sa													
Su													

Here today

	Oct			Nov				Dec					
Wk	40	41	42	43	44	45	46	47	48	49	50	51	52
Mo	1	8	15	22	29	5	12	19	26	3	10	17	Xmas 24
Tu					MD 4	Ion setting up		MD 5					
We		Special physics run								Powering Tests Magnet Training			
Th					TS3		LHC Pb- Pb Ion run				Long Shutdown 2		
Fr													
Sa				MD 4									
Su													

https://beams.web.cern.ch/sites/beams.web.cern.ch/files/schedules/LHC_Schedule_2018.pdf

HL-LHC plan



Long Shutdown 2

Maintenance period of two years, starting on December 2018

- Perform major maintenance and consolidation
- Increase injector reliability and lifetime to cover HL-LHC run until ~2035
- Increase intensity in the injectors to match HL-LHC requirements
- Anticipate HL-LHC work

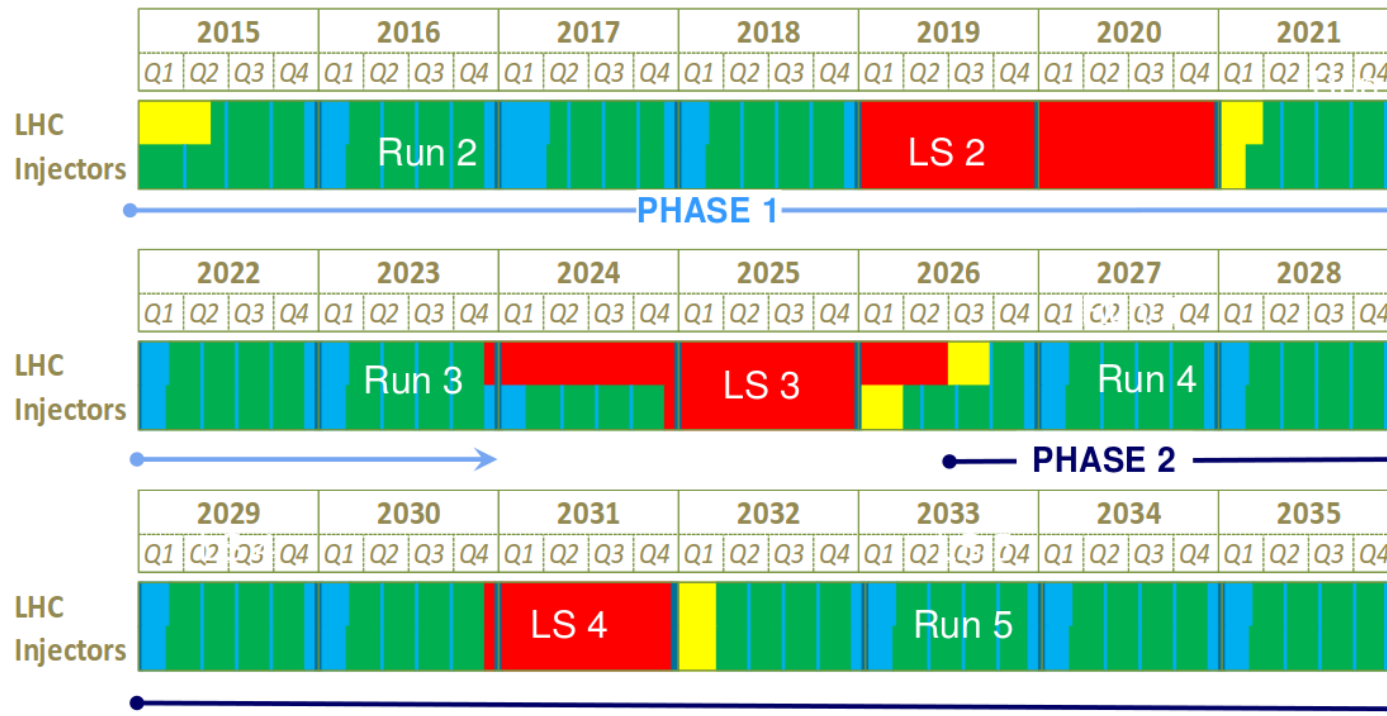
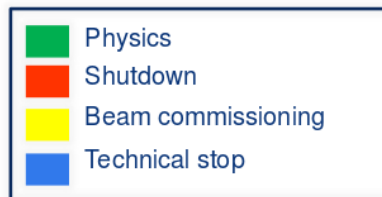
CERN Network upgrades during LS2

- LHC control network (TN): new routers and higher redundancy
- WIFI: complete deployment
- Campus network: start deployment of new architecture
- Datacentre: complete replacement of Brocade routers, deployment of new architecture
- Firewall: New higher capacity firewall

Long term planning

LHC roadmap: according to MTP 2016-2020 V2

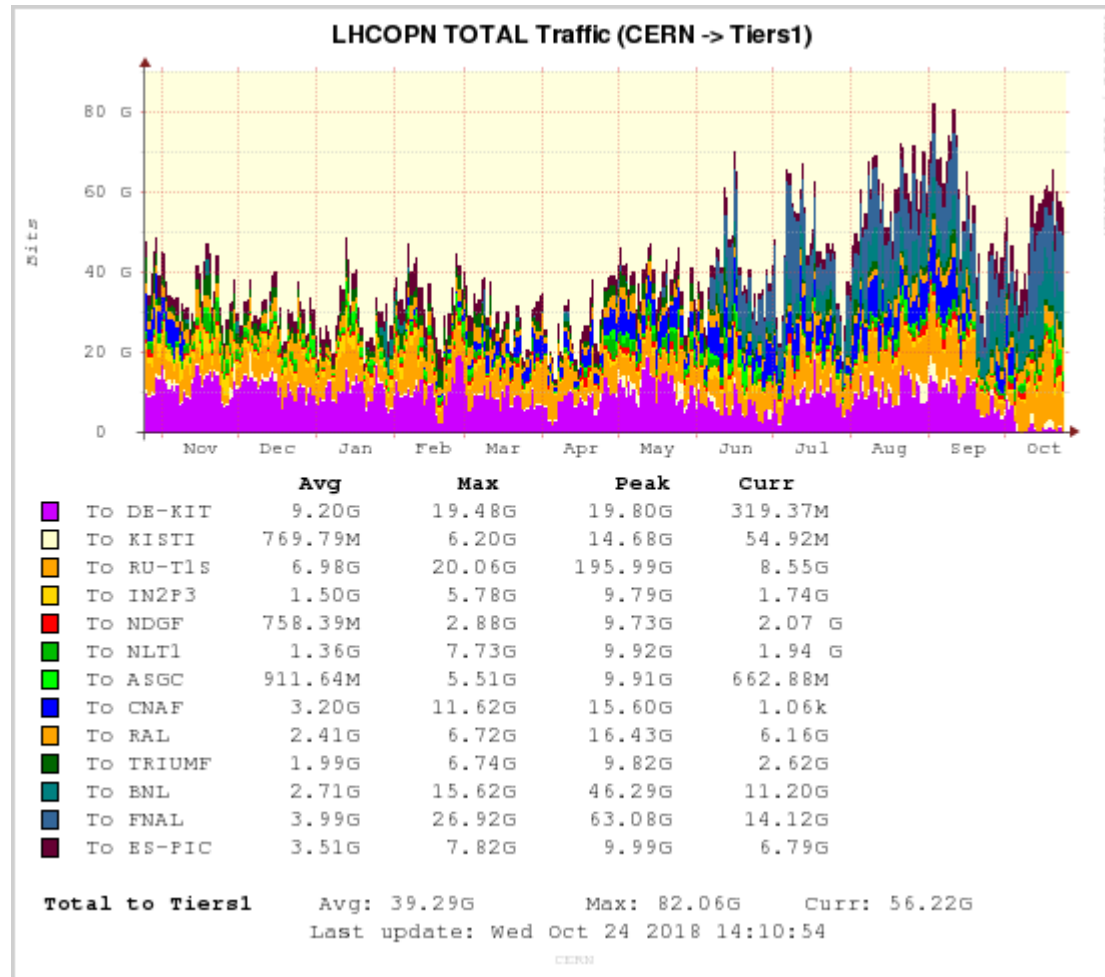
LS2 starting in 2019 => 24 months + 3 months BC
 LS3 LHC: starting in 2024 => 30 months + 3 months BC
 Injectors: in 2025 => 13 months + 3 months BC



<https://lhc-commissioning.web.cern.ch/lhc-commissioning/schedule/LHC-long-term.htm>

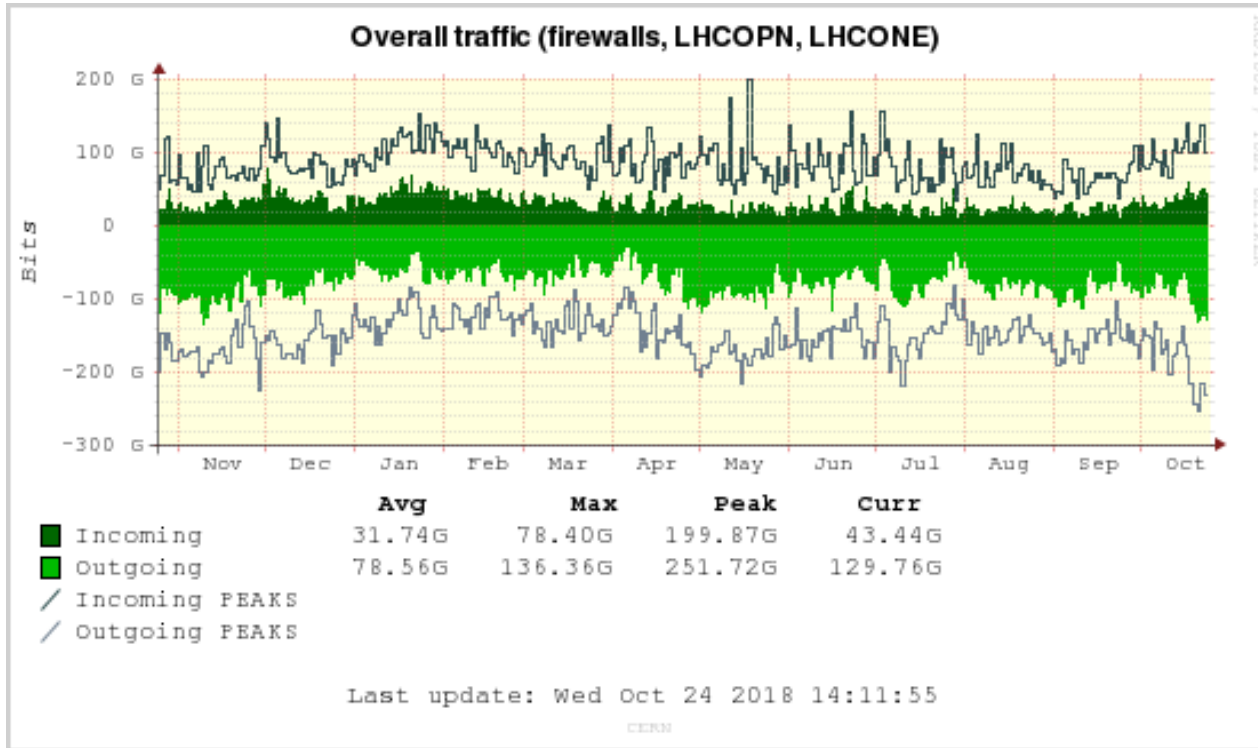
https://lhc-commissioning.web.cern.ch/lhc-commissioning/schedule/LHC%20schedule%20beyond%20LS1%20MTP%202015_Freddy_June2015.pdf

LHCOPN traffic - last 12 months



Ref: <https://netstat.cern.ch/monitoring/network-statistics/ext/?q=LHCOPN&p=LHCOPN&mn=00-Total-Traffic&t=Yearly>

CERN traffic - last 12 months



Ref: https://netstat.cern.ch/monitoring/network-statistics/ext/cache/CERN_01-Total-Internet-traffic-02-TOTAL_Yearly.png

Questions?

edoardo.martelli@cern.ch