

LHCOPN update

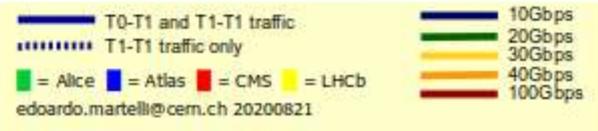
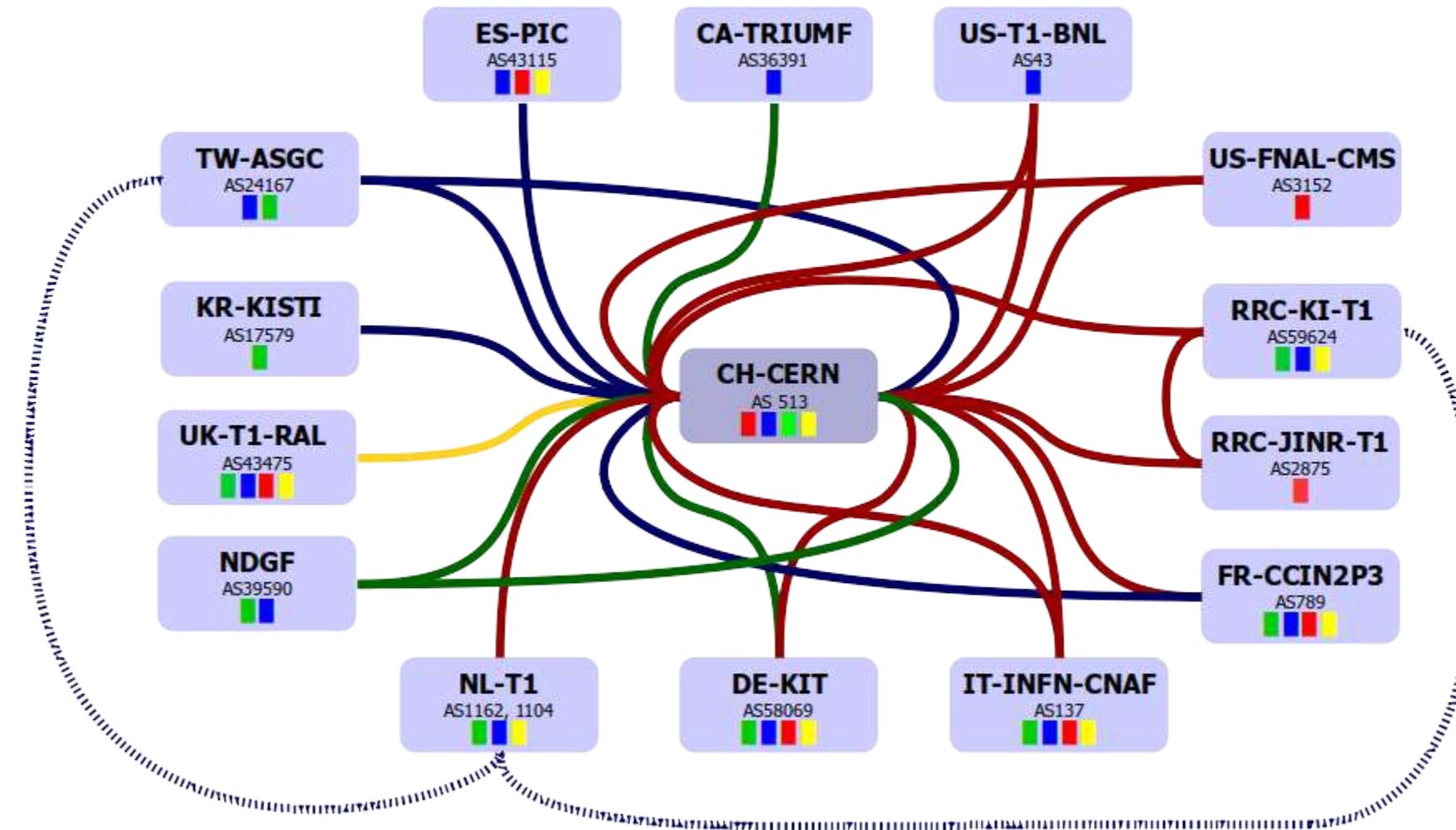
LHCOPN virtual meeting #45

16th September 2020

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LHCOPN



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

Numbers

- 14 Tier1s + 1 Tier0
- 12 countries in 3 continents
- Dual stack IPv4-IPv6
- 1.1Tbps to the Tier0

Latest news

CH-CERN:

- Tender for construction of data-centre extension. Offers being evaluated
- Replacement of legacy Brocade routers in data-centre still on-going and to be completed by end 2020
- LHCONE link to GEANT being upgrade to 2x100G
- IP link to GEANT being upgrade to 2x100G

UK-T1-RAL:

- 100G provisioned by GEANT and JANET. RAL and CERN are configuring it

CA-TRIUMF:

- New 20G connection to SFU by CANARIE, GEANT, SURFnet

Treceroute help

CERN has added strings -LHCOPN- or -LHCONE- to DNS names of addresses used for LHCOPN/ONE interfaces. Done to help users who were always wondering which network was used.

Example:

```
traceroute to 206.12.1.1 (206.12.1.1), 30 hops max, 60 byte packets
[...]
1  1513-c-rbrmx-2-ns6.cern.ch (128.142.17.1)  0.272 ms
2  1513-b-rjux1-2-hb5.cern.ch (172.24.32.77)  0.856 ms
3  1513-e-rjuxm-1-ce1.cern.ch (192.65.197.2)  1.026 ms
4  lhcopn-triumf-v2125.cern.ch (192.16.166.190)  150.015 ms
5  206.12.1.1 (206.12.1.1)  149.201 ms
```

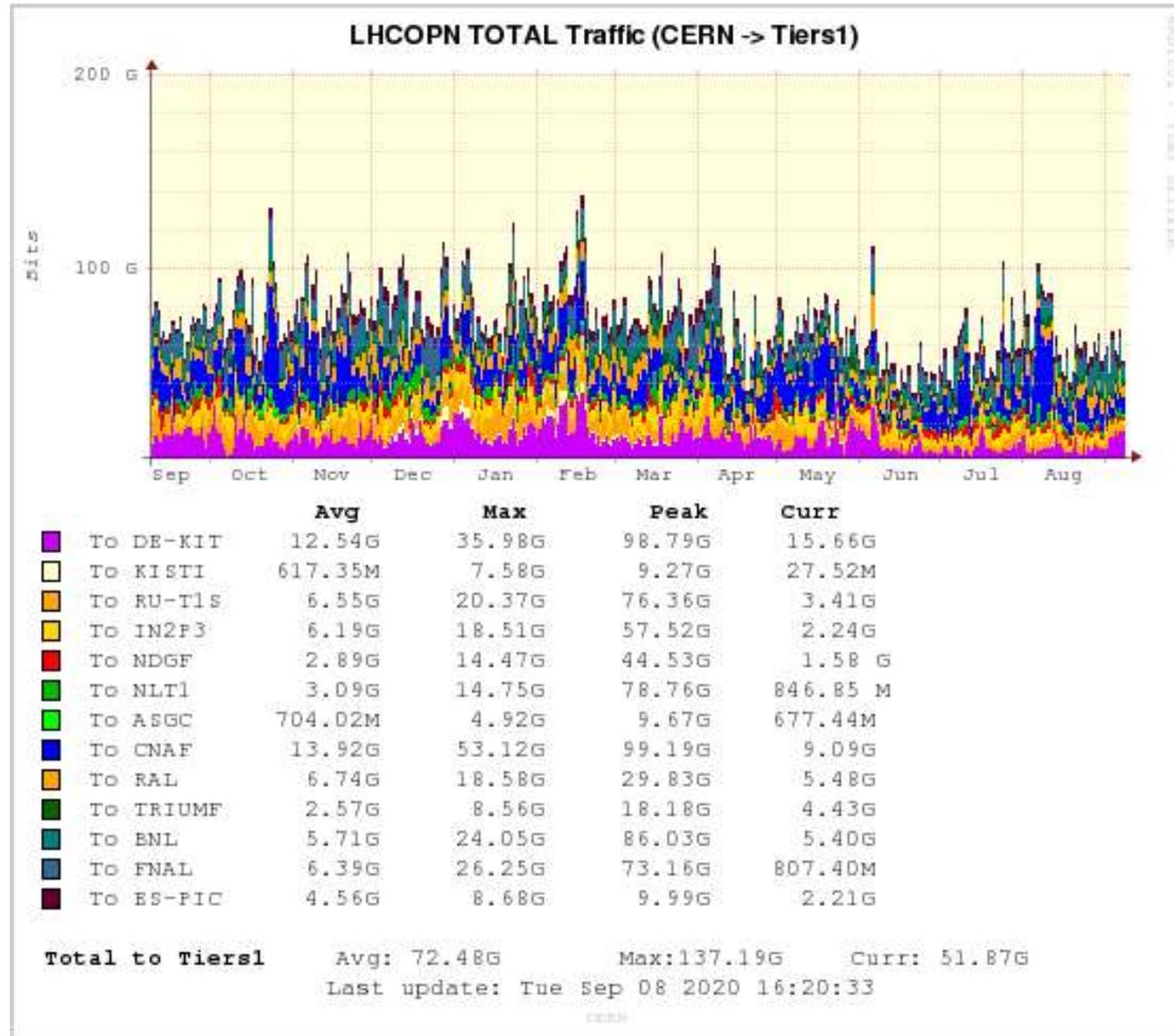
GEANT had done it already for LHCONE:

```
traceroute to 90.147.16.1 (90.147.16.1), 30 hops max, 60 byte packets
[...]
3  1513-e-rjuxm-1-ce1.cern.ch (192.65.197.2)  1.338 ms
4  geant-lhccone-gw.mx1.gen.ch.geant.net (62.40.126.217)  0.547 ms
5  garr-lhccone-gw.gen.ch.geant.net (62.40.126.202)  7.152 ms
6  rx2-mi1-rx2-mi2.mi2.garr.net (90.147.80.10)  27.960 ms
```

Maybe other operators could do it as well?

LHCOPN

LHCOPN traffic - last 12 months

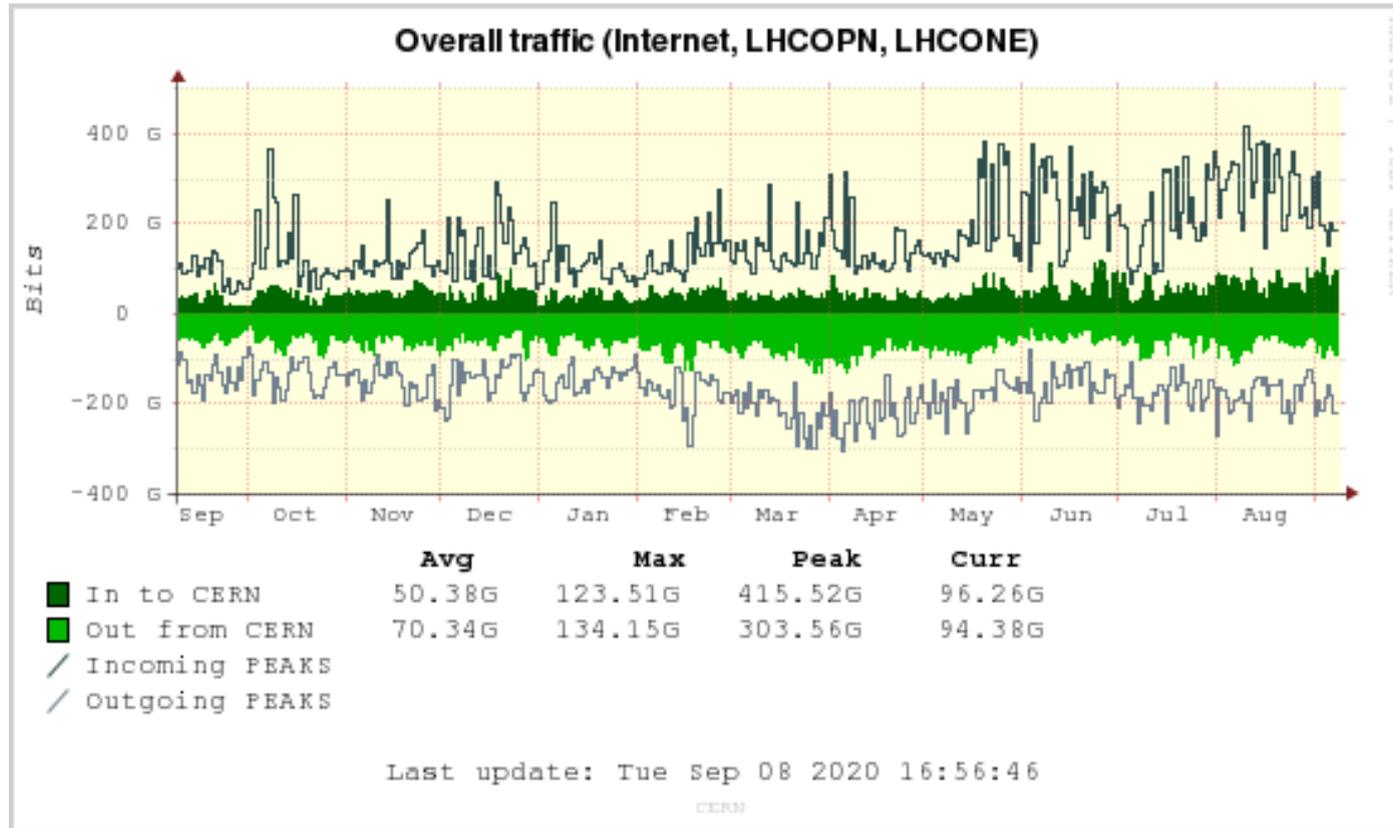


Numbers

Moved ~286 PB in the last 12 months
+12% compared to previous year

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

CERN total traffic



Numbers

Sent out ~275 PB in the last 12 months

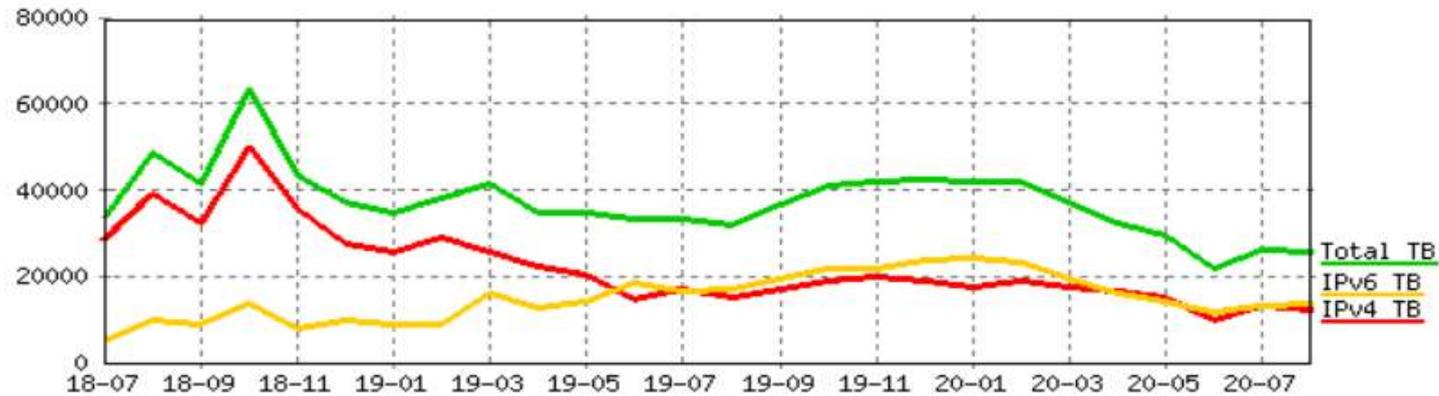
-3% compared to previous year

Ref: <https://netstat.cern.ch/monitoring/network-statistics/ext/?q=CERN&p=EXT&mn=01-Total-Internet-traffic&t=Yearly>

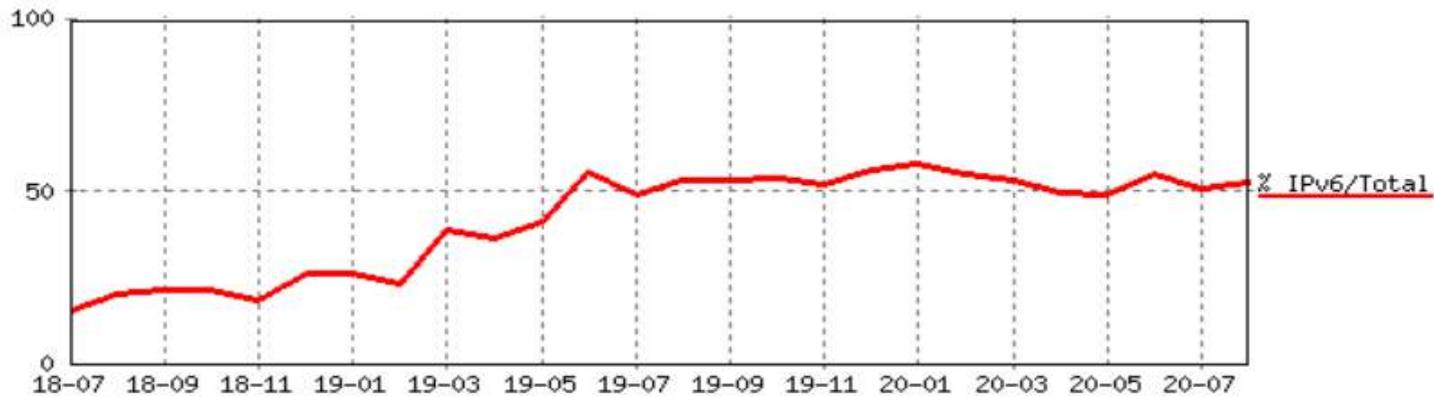
IPv4 vs IPv6

LHCOPN + LHCONE on the CERN routers

IPv4 and IPv6 traffic volumes month by month



Percentage of IPv6 traffic over the total

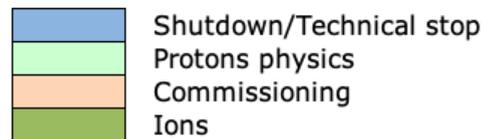
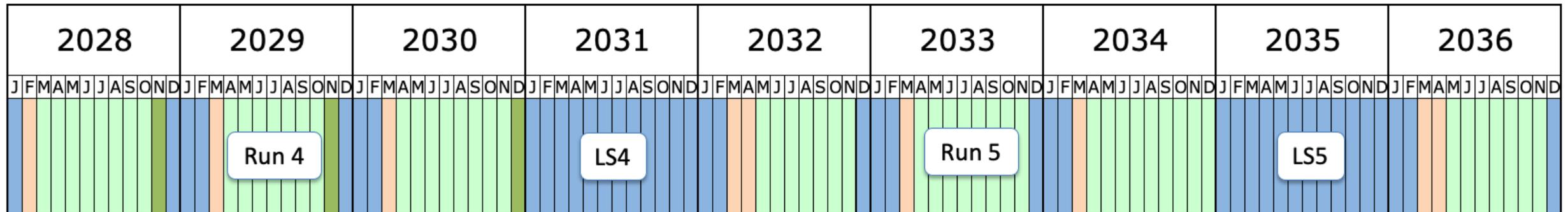


LHC new schedule after Covid-19

- On 12 June, the new schedule for the activities of Long Shutdown 2 (LS2) was unveiled.
- **The first test beams will circulate in the LHC at the end of September 2021**, four months after the date planned before the COVID-19 crisis.
- **The rest of CERN's accelerator complex will restart gradually from December 2020** onward. The various ISOLDE experiments and the experiments at the PS-SPS complex will therefore be able to start data taking as of summer 2021.
- **Run 3 of the LHC will start in March 2022**
- No changes have been made to the schedule beyond 2022.
Provided that ATLAS completes its upgrades during LS2, the 2023/2024 YETS will be a normal shutdown.
LS3 will start at the beginning of 2025.

<https://home.cern/news/news/accelerators/ls2-report-new-schedule>

LHC schedule as of December 2019



*LHC schedule presented in December 2019
(before lockdown)*

CERN and Covid-19 restrictions

- **On March 13th 2020, CERN moved to Safe Mode** with a maximum of 600 people working on site and only urgent works carried out
- Operations have gradually **restarted since the 18th of May** by allowing additional 500 people on site every week.
- Exceptional teleworking canceled since 1st of September 2020. People still allowed to telework 50% of their time.
- **Access for visitors still very limited**
- **Travels not allowed yet**

Questions?

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