Experience on deploying a new remote pop during COVID-19 Restriction

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No we didn't lose a bet, we really had to deploy !

Our Initial plan :
- Deployment was planned in Q3 this year

Covid 19 :
- Due to the situation, we had our customers pushing us to deploy before because they needed it

Customers request :
- Need to be in production before end of May
- Need at least 2 weeks to deploy and test
- Need one week to validate

So when all this started ?
- On 7th of April, we are confident to have everything on time despite the situation, so we launched the project

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CHALLENGE ACCEPTED

So basically we have less than 6 weeks to deploy a pop, during the worse period possible for us with :

- Travel ban
- No datacenter access
- Global component shortage
- Risk on health

OK, we signed , so what next ?

- Datacenter : rack negotiation
- Carrier for Waves : Negotiation, Working on the design / KMZ / and delivery
- Working with IXP as well to have peering ports
- Get the hardware : Routing, Security, switching, cabling…
- And much more

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So what we decided to to ?

- Almost impossible to get 100% of the hardware in time so we decided to re-use some

- **Servers** : Use our "beta Lab" to deploy our compute
  - Mostly use as high perf lab for "new future Stuff"
- **Routing** : Using our "old" QFX10K instead of MX10k
  - Mostly use in our second lab for testing and additional onsite spare parts
  - Servers : Use our "beta Lab" to deploy our compute

- **Staging** : We decided to send all the hardware to Raphael's house to do the staging, why ?
  - Dedicated office room with enough space to do all the staging
  - 60 Amp contract (it's help when you need to power up to 16 amps)
  - We didn't want to have any of the staff to get out

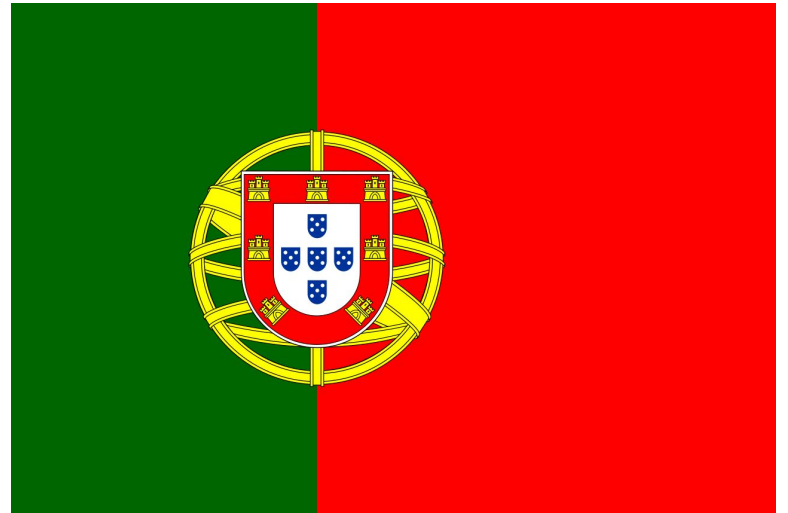**Volterra**

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So where is the new pop ?

In the great city of Lisbon in Portugal !
Equinix was the natural choice in Lisbon, so it's Equinix LS1
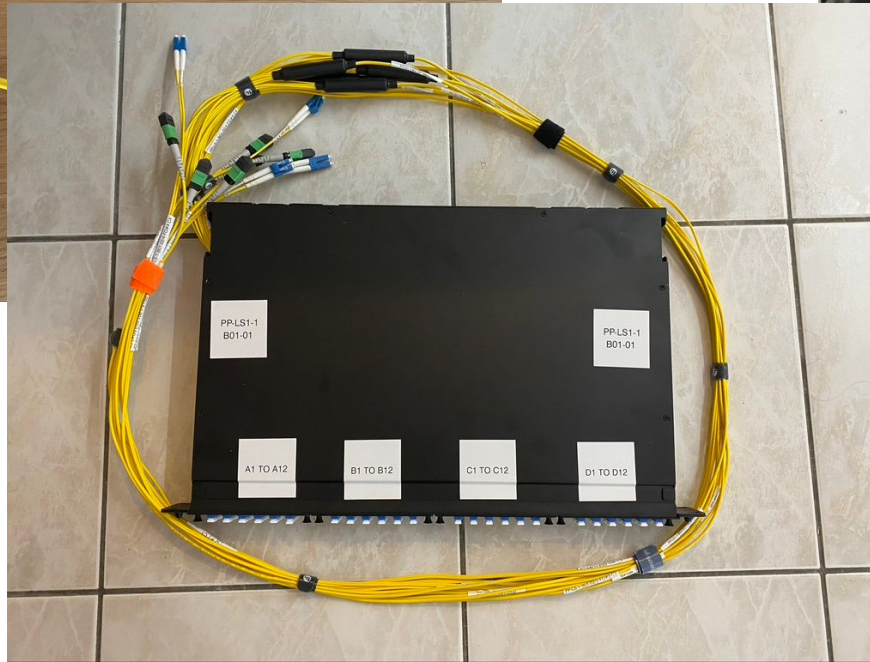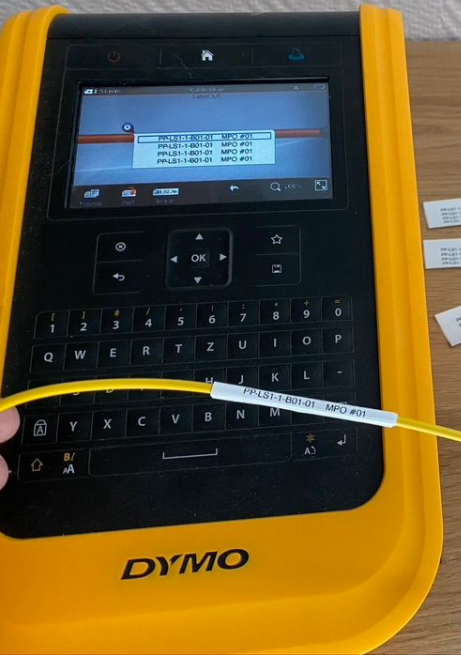100G ring to Paris and with a potential drop on one path in Madrid as it's planned
later in Q3

Ready for shipping

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Well we shipped some stuff but what next ?

- We prepared all equipment before shipping, the goal is to get access to the management & OOB network as soon as possible (opengear console access, routers management, …)

  With remote access we can debug in case of issues (check signal level, check ports, …)

 => Can be done with backbone circuits from Paris or the local OOB port
  => We only need to have one cross connect up to get access to the PoP

- Describe step by step what they need to do
  (and try to not forget all the small details we are used to do)


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What are our expectation ?

- We are using the same rack design all around the world (standard BoM, easy maintenance, easy deployment)

- But usually deployment is done by our team (we deployed 3 PoPs in US and 2 PoP in Asia in Q4 last year)

- It was our first remote-hands deployment…
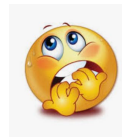
  And we have good and bad experiences with datacenter remote hands

  The goal was to reproduce this ===>

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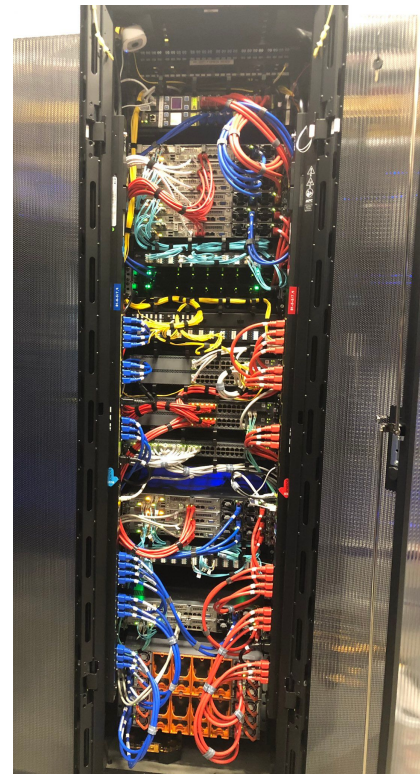
April 30th 2020 - Shipping from Paris

- Hardware shipped from Paris on 29th
    - ⚠️ One of our partner had an issue with one of his carrier (one of the big one). They decided to change the way to charge the shipping based on volume and not on weight (and vice/versa) to increase the cost. He had a bill that jumped from 6k to 27k ! So we looked at it very closely !

- Arrived in Lisbon the 30th

- Friday - 1st may - Public Holiday almost everywhere in Europe !

- Week-end - No installation on Friday and week-end !

- Monday 4th - Special day in Portugal,
  Not enough people on site to deploy

ONE DOES NOT SIMPLY

DEPLOY ON FRIDAY AND WEEK-END

makeameme.org

Shipment arrived, now time to work !

Deployment Procedure – Part 1

1/ Deliveries

All the equipment and cables for the installation have been delivered last week:

   a) **Ticket Number - 1-**
https://www.dhl.

4 x Flight cases, 2 x Eaton PDU, 2 HPE Servers and 2 boxes.

   b) **Ticket Number 1-**
https://www.ups.com

3 boxes with cables

1/ Installation of the equipments in the rack

Please use the following schema:

« PP-LS1-1-B01-02 » (yellow background) is the Equinix MMR patch panel.

Use the tab below to find in which box is the equipment

Equipment	Box
PP-LS1-1-B01-02	Equinix MMR Patch Panel (already there)
core01.ls1.lis (QFX10002)	CASE 2
core02.ls1.lis (QFX10002)	CASE 1
GOLGOTH-01	CASE 2 (Check S/N CZ
GOLGOTH-02	CASE 2 (Check S/N CZ
SW01.OOB	CASE 1
SW02.OOB	CASE 1
SW01.DMZ	CASE 3
SW02.DMZ	CASE 3
OPENGEAR01 (acorus)	CASE 1
FW01.BACKEND	CASE 3
FW02.BACKEND	CASE 3
PP-LS1-1-B01-01	CASE 3
HPE DL380 #1	HPE Box
HPE DL380 #2	HPE Box
PT1-I-OBCR01 (Opengear)	CASE 1
PT1-I-OBFW01 (40F)	CASE 4
PT1-I-OBFW02 (40F)	CASE 4
PT1-I-CORE01 (EX4600)	CASE 4
PT1-I-CORE02 (EX4600)	CASE 4
PT1-I-PFW01 (100F)	CASE 3
PT1-I-PFW02 (100F)	CASE 3
PT1-I-OBSW01 (EX3400)	CASE 4
PT1-I-OBSW02 (EX3400)	CASE 4
Cable Organizer	In the Fiber Store delivery

3/ PDU Installation

Install the two Eaton PDU in the rack (rear).
One on each side of the rack.

- Put a "Source RED" label on the PDU on the right
- Put a "Source BLUE" label on the PDU on the left

- We have a procedure with detailed step like this one

- Where to find each equipment and cable

- Which cable color to use

- ....

Some cabling informations

4/ Copper cabling

Don't hesitate to use cable ties... to have the cleanest cabling possible.

a) SW01.DMZ

SW01.DMZ	Connect To	Cable Color
ge-0/0/0 (copper 0)	FW01.BACKEND port WAN1	Grey
ge-0/0/1 (copper 1)	FW01.BACKEND port WAN2	Grey
ge-0/0/22 (copper 22)	PT1-I-OBFW01 (40F) port 2	Grey

b) SW02.DMZ

SW02.DMZ	Connect To	Cable Color
ge-0/0/0 (copper 0)	FW02.BACKEND port WAN1	Grey
ge-0/0/1 (copper 1)	FW02.BACKEND port WAN2	Grey

c) Between SW01.DMZ & SW02.DMZ

At the rear of either SW01.DMZ and SW02.DMZ, there are two QSFP+ ports.
You will find two 0,5-meter QSFP+ DAC like the one bellow in the storage box.

Please connect port 0 of SW01.DMZ to port 0 of SW02.DMZ, then port 1 of SW01.DMZ to port 1 of
SW02.DMZ using those two DACs.

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Some cabling informations

7/ Fiber Cabling

Below is a visual representation of the patch panel « PP-LS1-1-B01-01"

PP-LS1-1-B01-01

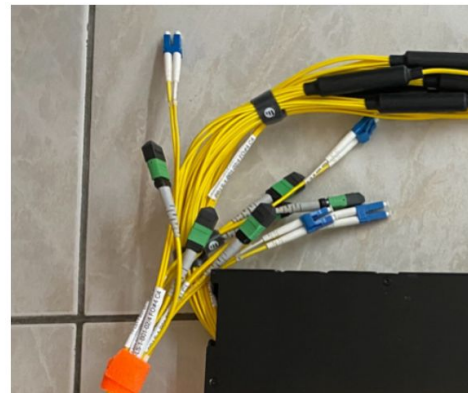| A7	A8	A9	A10	A11	A12		B7	B8	B9	B10	B11	B12		C7	C8	C9	C10	C11	C12		D7	D8	D9	D10	D11	D12
A1	A2	A3	A4	A5	A6		B1	B2	B3	B4	B5	B6		C1	C2	C3	C4	C5	C6		D1	D2	D3	D4	D5	D6

MMR:

- Connect a single mode fiber between PP-LS1-1-B01-01 port A1 and the Equinix MMR patch panel port 2
- Connect a single mode fiber between PP-LS1-1-B01-01 port A2 and the Equinix MMR patch panel port 1
- Connect a single mode fiber between PP-LS1-1-B01-01 port B1 and the Equinix MMR patch panel port 3
- Connect a single mode fiber between PP-LS1-1-B01-01 port C3 and the Equinix MMR patch panel port 5

SW01.DMZ/SW02.DMZ

- Connect a single mode fiber between SW01.DMZ port xe-0/2/2 (3rd SFP+ port) and the Equinix MMR patch panel port 4
- Connect a single mode fiber between PP-LS1-1-B01-01 port A10 and SW01.DMZ port xe-0/2/0 (1st SFP+ port)
- Connect a single mode fiber between PP-LS1-1-B01-01 port A11 and SW01.DMZ port xe-0/2/1 (2nd SFP+ port)
- Connect a single mode fiber between PP-LS1-1-B01-01 port B10 and SW02.DMZ port xe-0/2/0 (1st SFP+ port)
- Connect a single mode fiber between PP-LS1-1-B01-01 port B11 and SW02.DMZ port xe-0/2/1 (2nd SFP+ port)

We need now to connect the cables to the routers optics:
- Connect MPO #1 to core01.ls1.lis port 6
- Connect MPO #2 to core01.ls1.lis port 7
- Connect MPO #3 to core01.ls1.lis port 8
- Connect FO #1 to core01.ls1.lis port 13
- Connect FO #2 to core01.ls1.lis port 17

- Connect MPO #4 to core02.ls1.lis port 6
- Connect MPO #5 to core02.ls1.lis port 7
- Connect MPO #6 to core02.ls1.lis port 8
- Connect FO #3 to core02.ls1.lis port 13
- Connect FO #4 to core02.ls1.lis port 17

May 5th 2020 - Tuesday

Installation can now start. They have all the equipment, they have the checklist now they can start.

- All devices racked and powered

- No hardware failure, 100% of the shipped hardware are ok

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May 6th 2020 - Wednesday

-    Copper & fiber cabling of the rack

-    11:30PM End-to-end cabling of our backbone circuit to Paris with Equinix in live !

-    WE CAN PING from PARIS ! :)

# May 7th 2020 - Thursday - Finish Line

- Some small work still remaining like :
    - PDU config
    - Cross connect of the OOB port
    - IXP port check end 2 end
    - One or 2 fiber to check

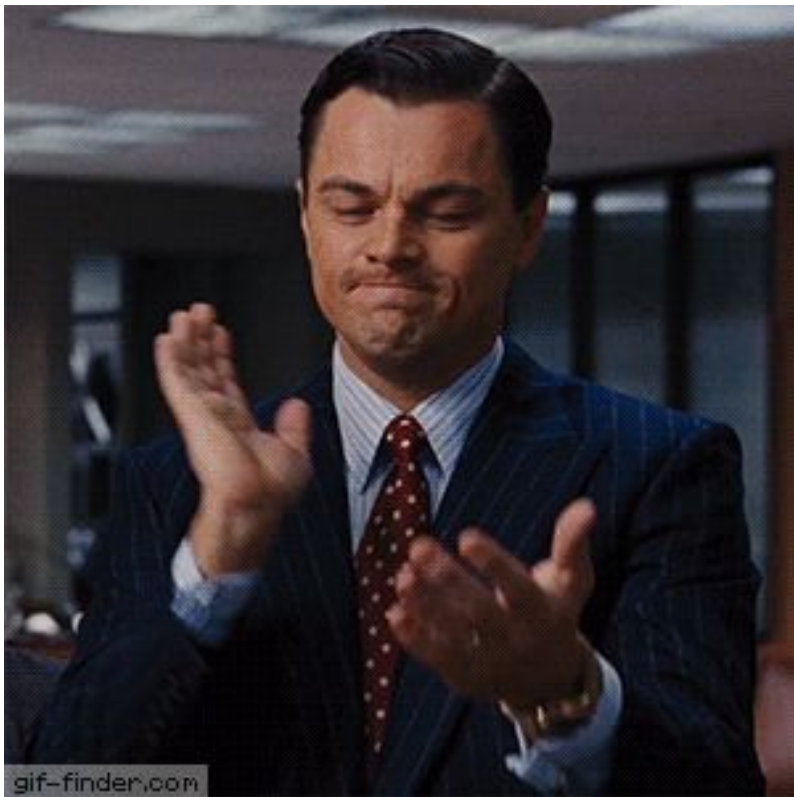- We are all set, everything is working as expected

So during Covid-19, we were able to deploy a full pop including waves between 2 countries in less than a month !

100% of the configs were functional, we didn't had to ask for ... remote hands configuration :)

Final Installation
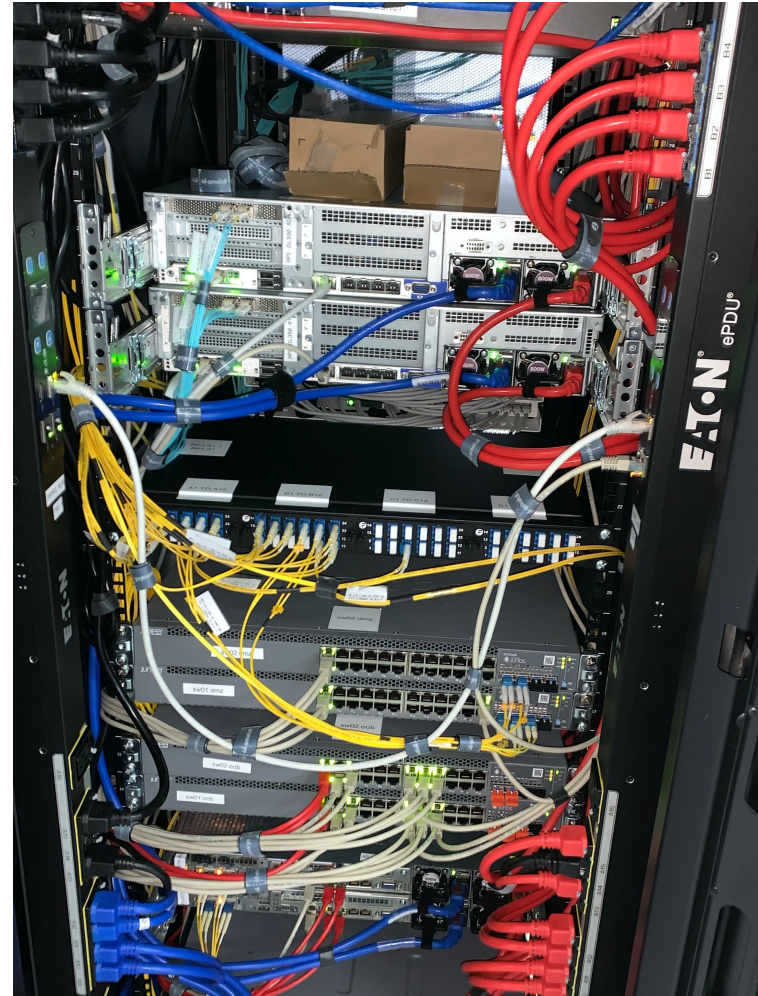
Great Job Guys, you did it !

Equinix staff did a wonderful job, from Sales, Senior Management to Datacenter tech

The Equinix LS1 staff commitment was just incredible. They just did all we asked and even more !

Big thanks to them !

Lesson learned

Why it was a success ?

⇒ The company is designed for this : Since we started, the default for us was to work remote ! So we were ready. You can't just in one day move from a daily work office routine to a full remote design !

⇒ We had enough hardware in lab to test/debug and this was the key to be in time to deploy and meet the date

⇒ Improving our procedure after every installation

⇒ Having a good relationship with your vendor is key

⇒ Need for speed/price/quality : You have to have high expectation, this include investment in resources BEFORE you need it !

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And warning

Even if it a success, we always need to improve and learn for errors :

⇒ Not all the people in the company can do this, so we need to find a way to not rely on 3 or 4 people, this need to scale

⇒ Need to find a design where we don't have to do the full staging first

⇒ It's not all about technical people, we need to have the sales/pre-sales to anticipate about timing. When your team know you can solve "everything" they rely on you, and this can be problematic !

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Thanks for listening !

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