Deploying a Backbone in APAC - an update

What happened over the past 6 months

FRNOG37 – April 14th 2023

Pierre-Yves Maunier
p.maunier@f5.com

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Where we come from

An update since FRNOG36

BACK IN SEPTEMBER 2022

https://media.frnog.org/FRnOG_36/FRnOG_36-6.pdf

Quick Recap from FRNOG36

Q1 2020

APAC Deployment

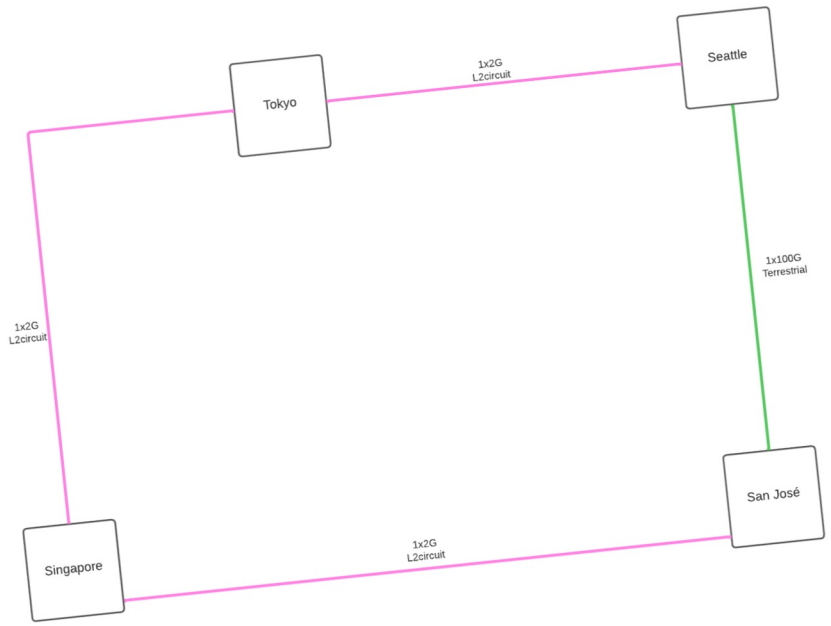
Q1-2020

Started with L2circuit with cost efficiency and resilience in mind

It was horrible : unreliable, frequent packet loss, hard down, latency increase etc

We worked with the provider to try to improve the situation with no results

After a few months we looked at other solutions



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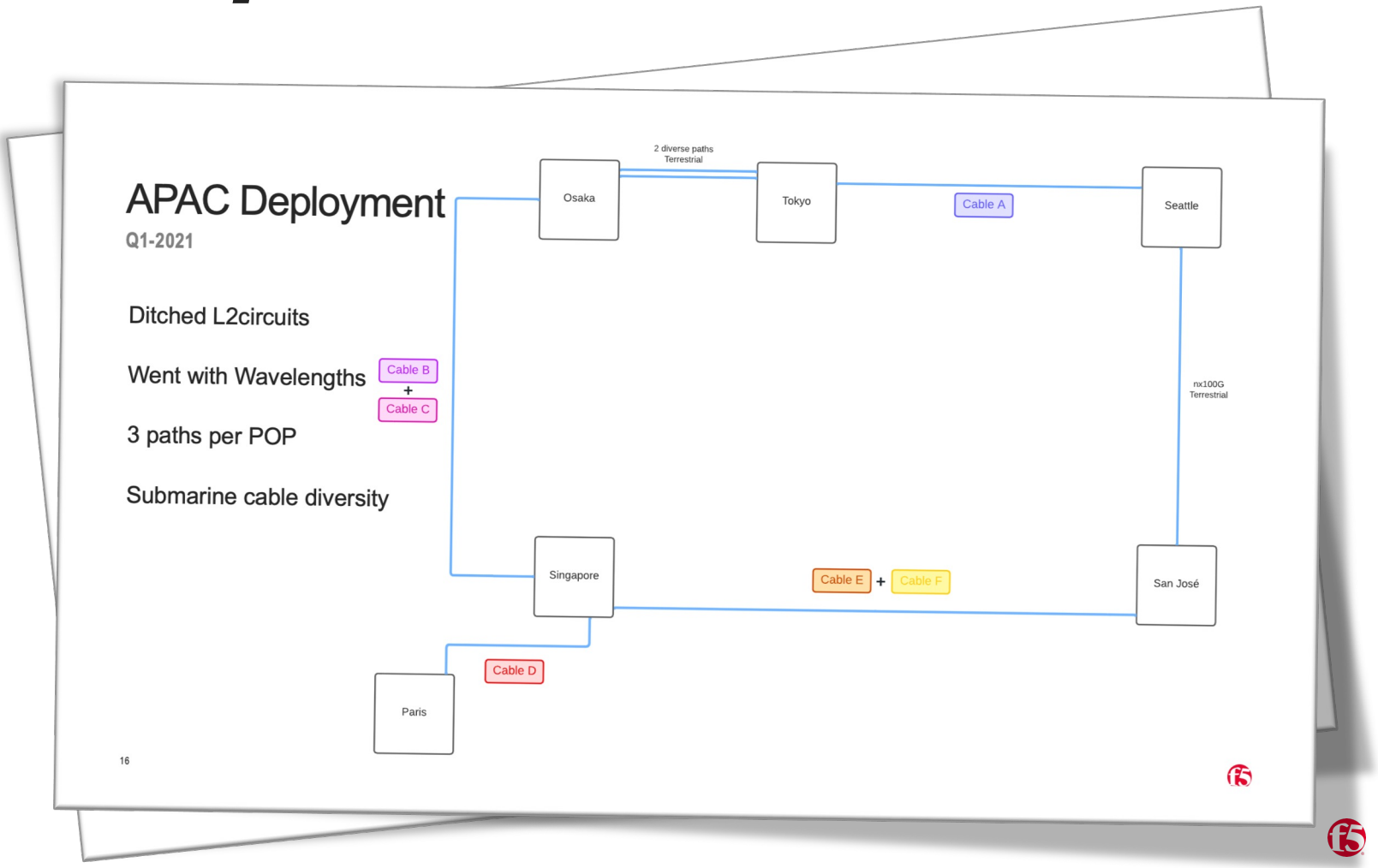
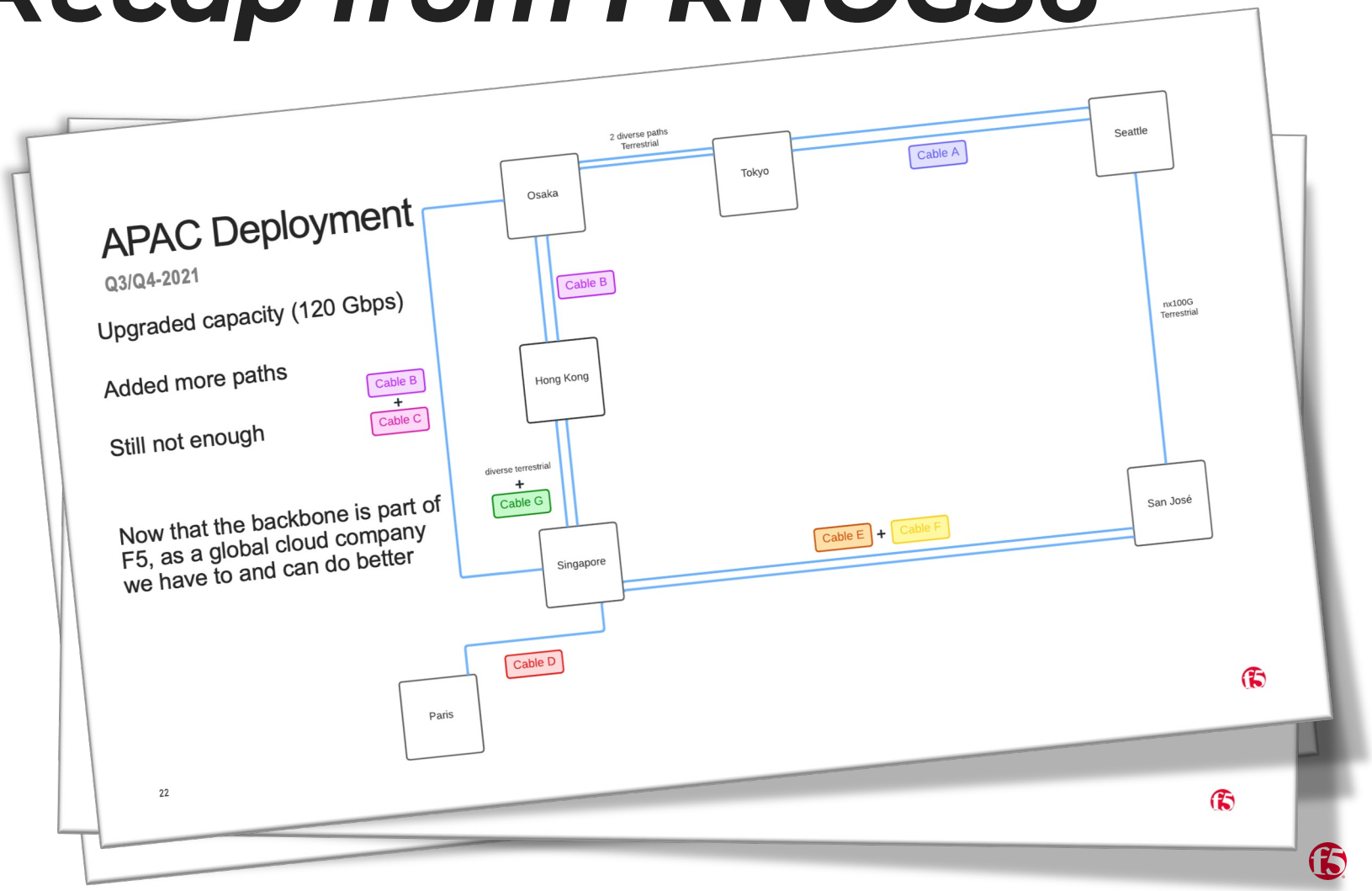
Quick Recap from FRNOG36

Q1 2021



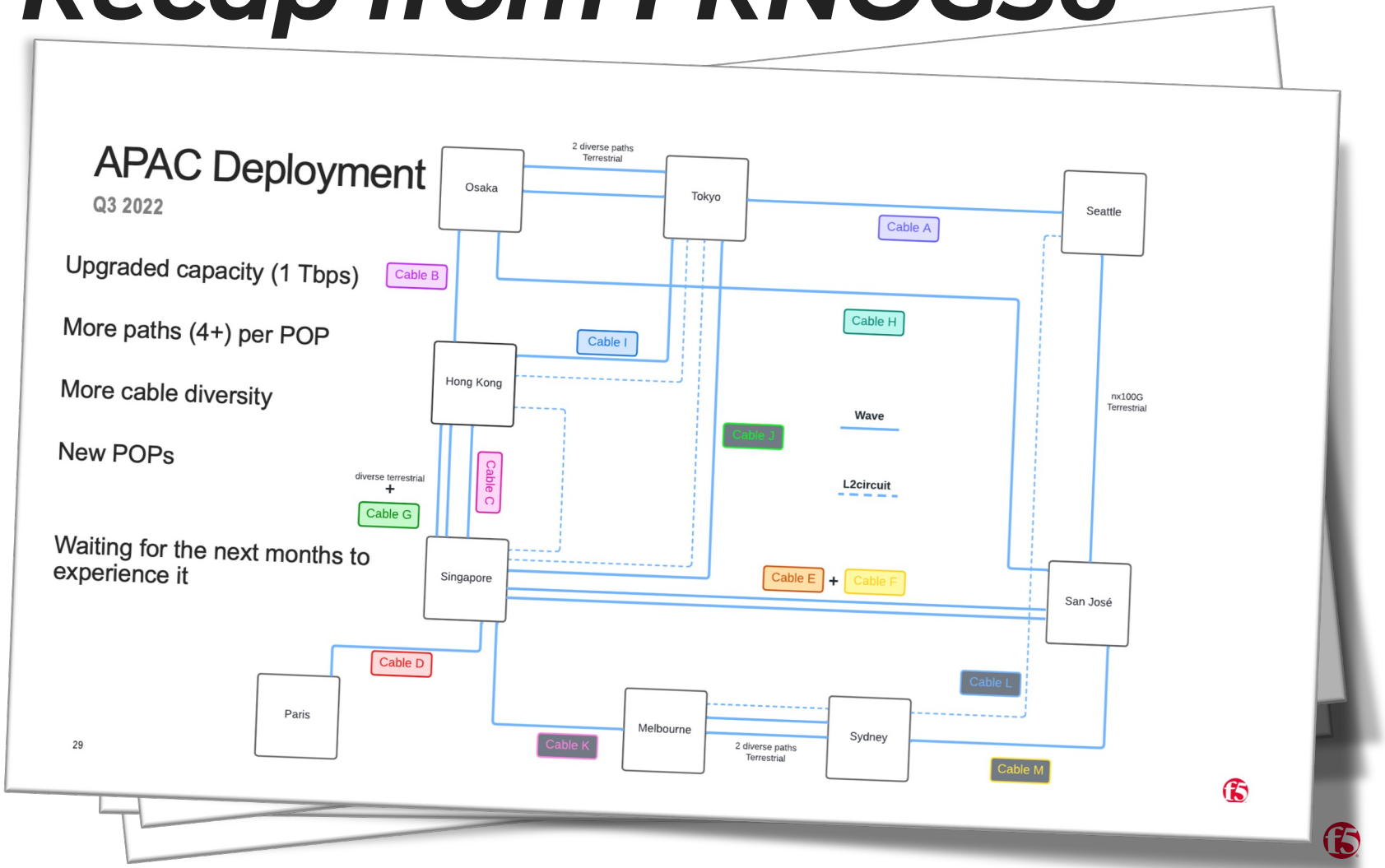
Quick Recap from FRNOG36

Q4 2021



Quick Recap from FRNOG36

Q3 2022



6 months later

APAC Experience

EXPERIENCE

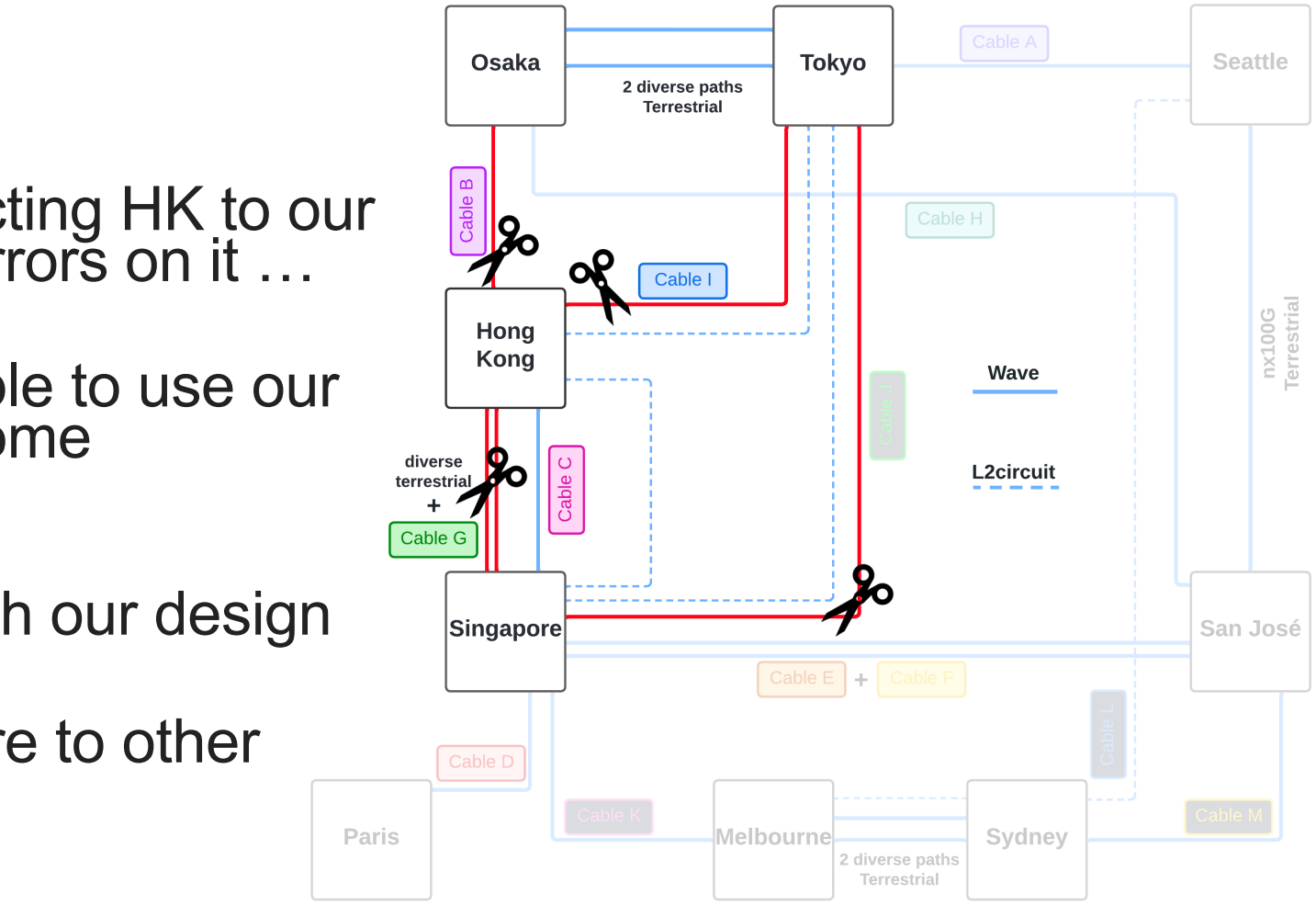
- Like before, outages last for ever
- No POP downtime due to circuits availability issue …
- …But we had a close call (twice)
- 4 out of 5 circuits down (4 differents paths) were related to our Hong Kong POP

APAC Last 180 days circuits availability from 2022-10-13 to 2023-04-11

APAC Experience

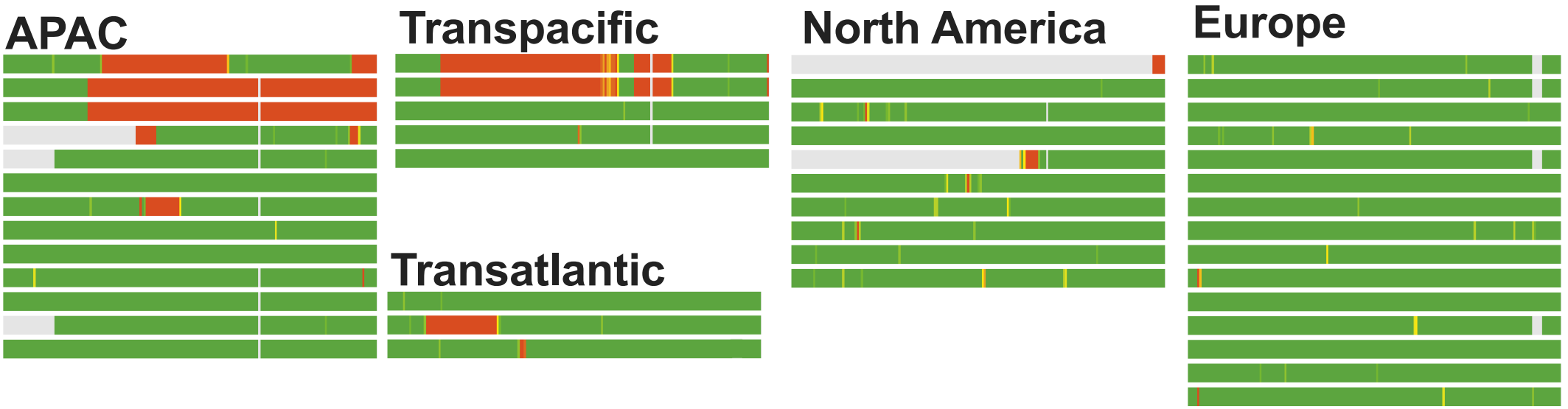
EXPERIENCE

- The last circuit connecting HK to our backbone had CRC errors on it …
- Thankfully we were able to use our Layer2 backup with some adjustments
- So far we're happy with our design
- How does this compare to other regions ?



APAC Experience

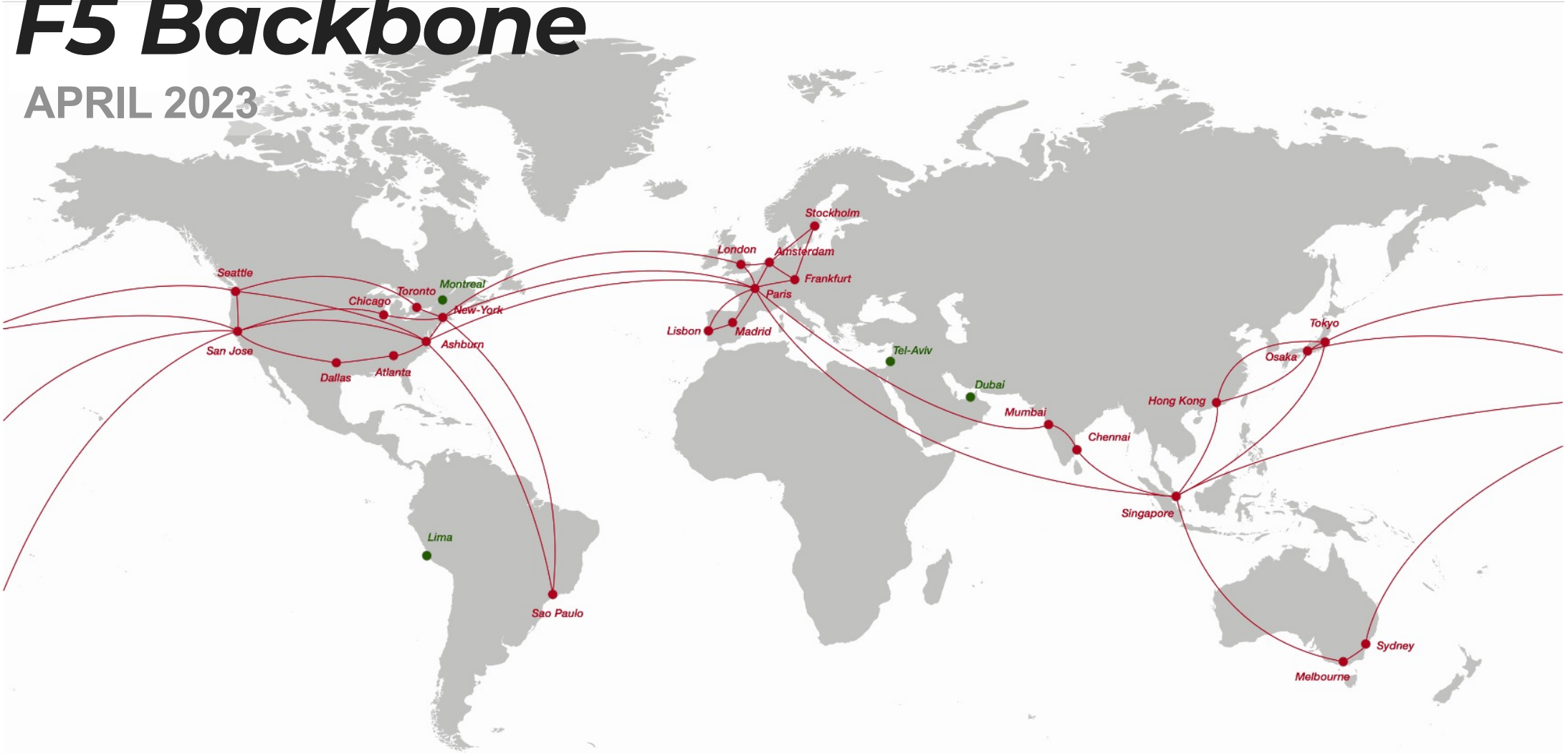
LAST 180 days circuits availability



- No surprise here, submarine cables means longer outages
- APAC and Transpacific outages usually last longer than Transatlantic
- North America / Europe (mostly terrestrial) are obviously more reliable (and way cheaper)

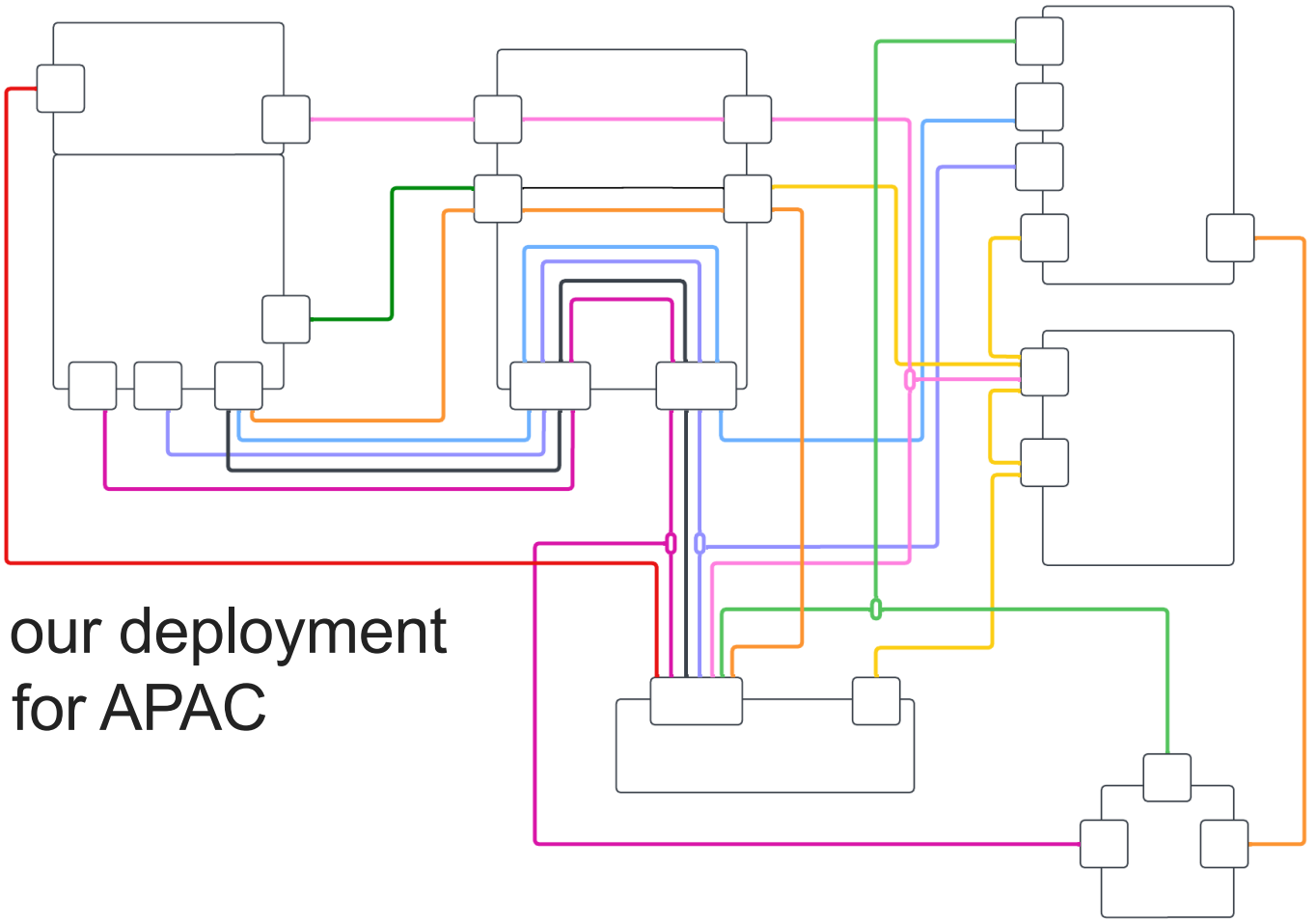
F5 Backbone

APRIL 2023



Middle East

WORK IN PROGRESS



CLS study is on going for our deployment in Middle East like we did for APAC

*CLS : Cable Landing Station

Our experience
What we've learned

Our experience

WHAT WE'VE LEARNED

- APAC is expensive, it accounts for approx. 50% of all backbone costs (transit/peering/circuits)
- Submarine cables outages can last for months increasing the probability of having multiple cable cuts during the same time window
- Requires a lot of path diversity, 4+ paths per pop gets you close to 100% availability but things can still go sideways

Our experience

WHAT WE'VE LEARNED

- We initially thought L2 backup was overkill with our diversity, turned out we used it multiple times
- It took a long time to study all routes (CLS+BMH+Terrestrial backhaul), but we think it was worth it
- Our circuits providers were always ready to help with backhaul modifications to increase terrestrial diversity
- Shipping hardware, dealing with customs is often difficult.

Thank You !

Questions ?