CDN Trends from Akamai's perspective

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Akamai Technologies

BKNIX Peering Forum 2021

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Akamai

Experience the Edge

Agenda

Traffic Trends

- Traffic trend in Global, APAC and Thailand

Challenges under Pandemic

- Internet congestions
- Deployment difficulties

Mitigations

- Capacity upgrade
- Content delivery adjustments

Lesson Learnt and Looking Ahead

- Build Ahead, Better collaborations with ISPs
- CDN Evolution

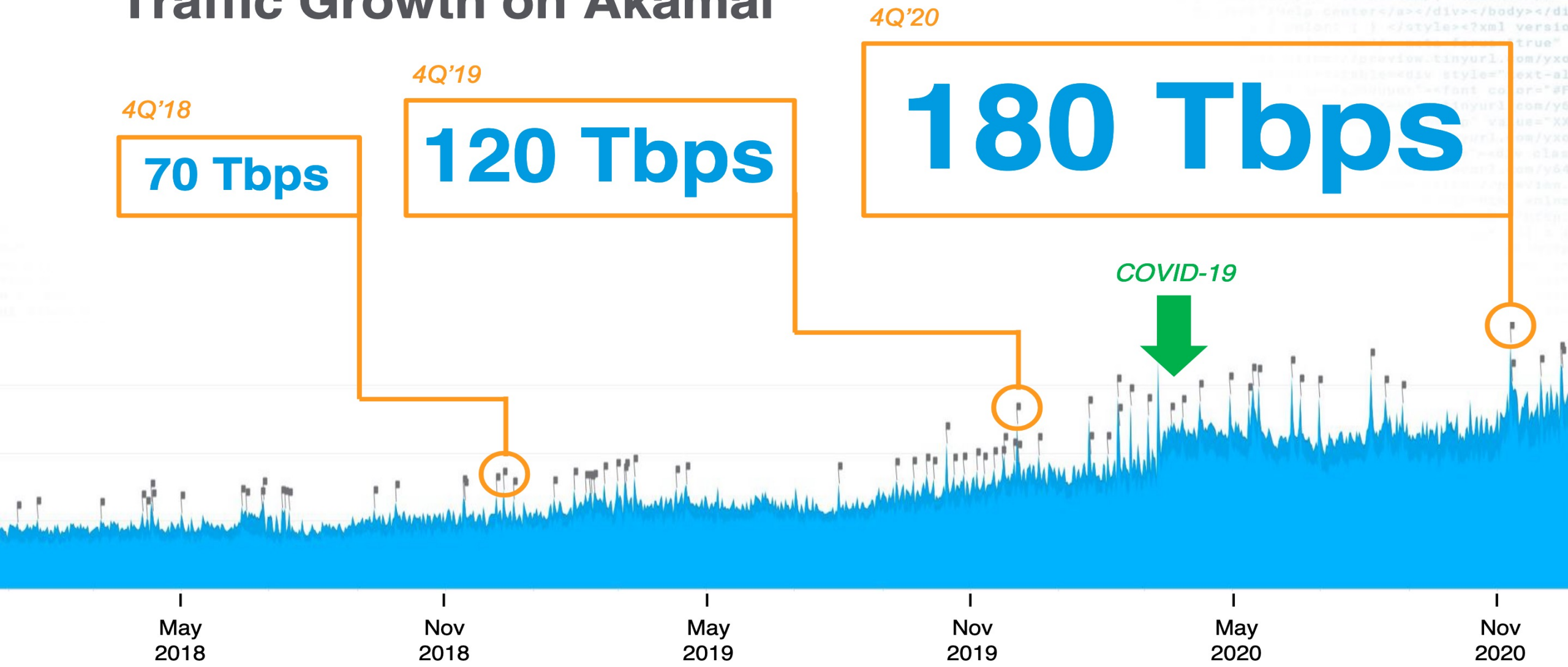
Akamai in Thailand

- Akamai deployment and peering connections in Thailand

Traffic Trend since 2020

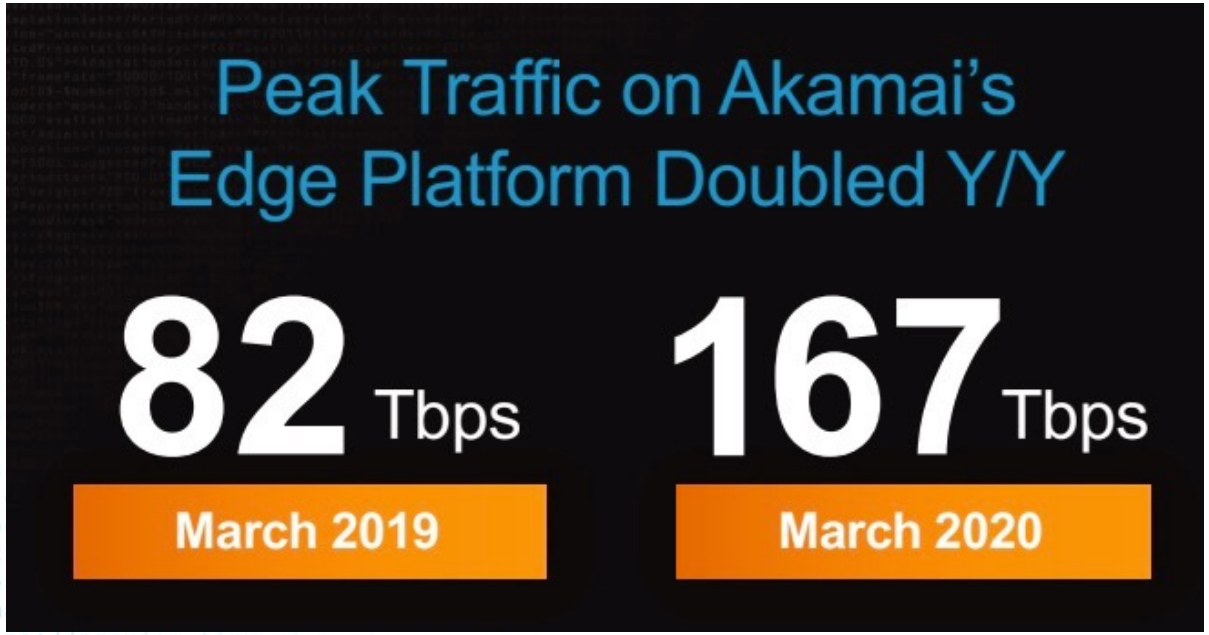
- Global Traffic Trend
- APAC Traffic Trend
- Thailand Traffic Trend

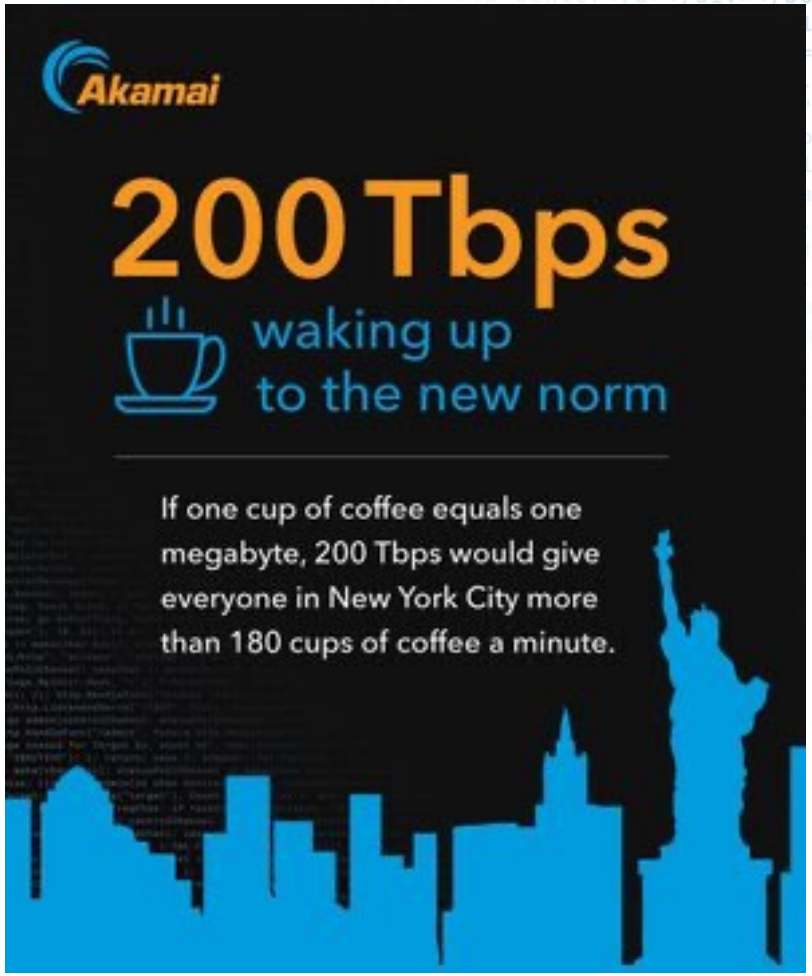
Traffic Growth on Akamai



Akamai served traffic (Global)

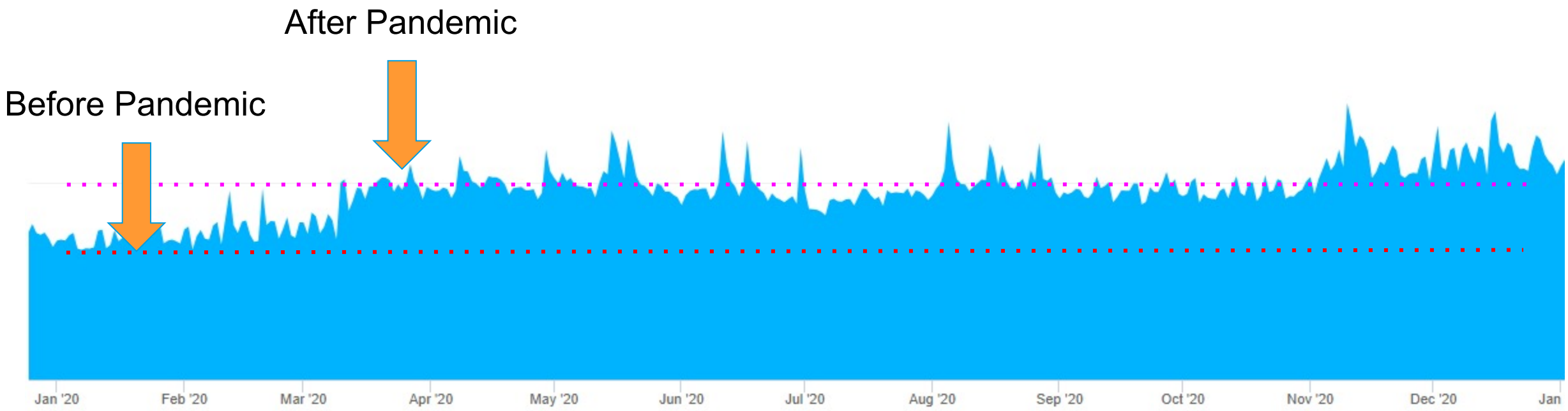
Global Akamai Traffic is up ~30% over March 2020 and reached to 200T in March 2021
(Typical Monthly growth: ～3%)





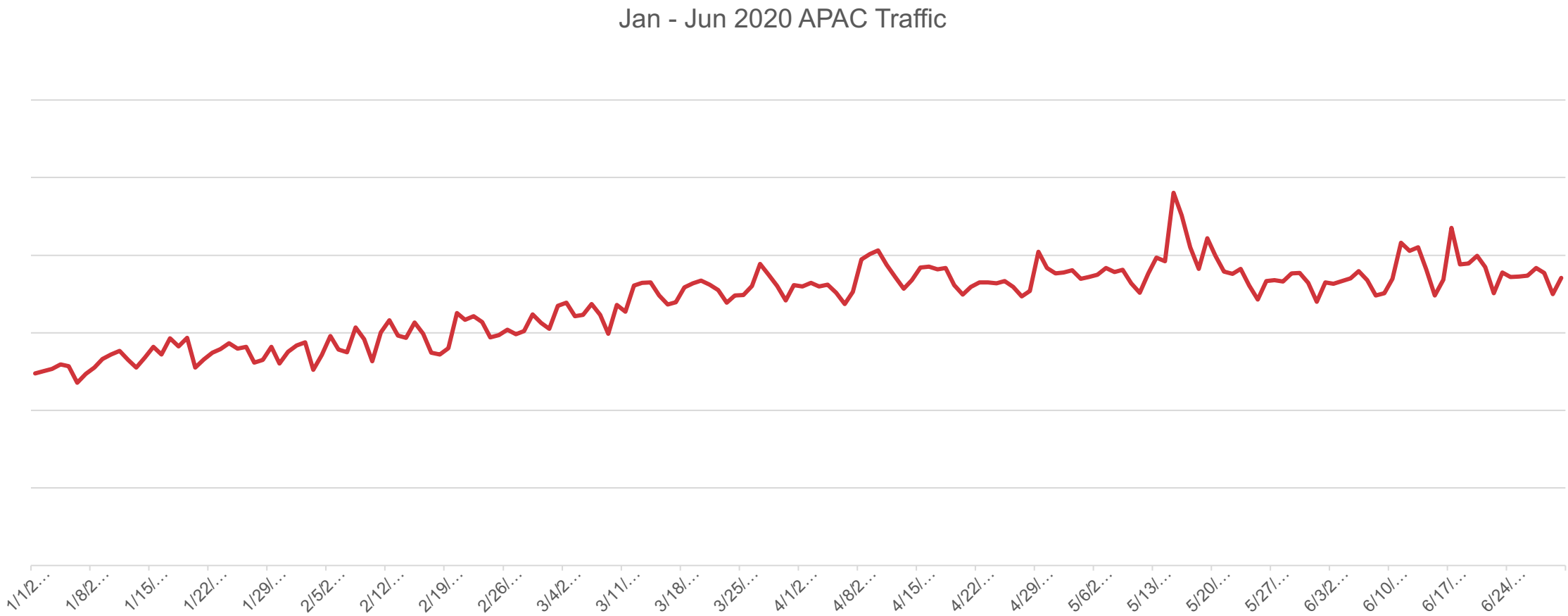
https://blogs.akamai.com/sitr/2020/04/the-building-wave-of-internet-traffic.html
https://blogs.akamai.com/2021/03/akamai-focused-on-whats-next-following-new-traffic-milestone.html

Global Traffic Trend Jan-Dec 2020

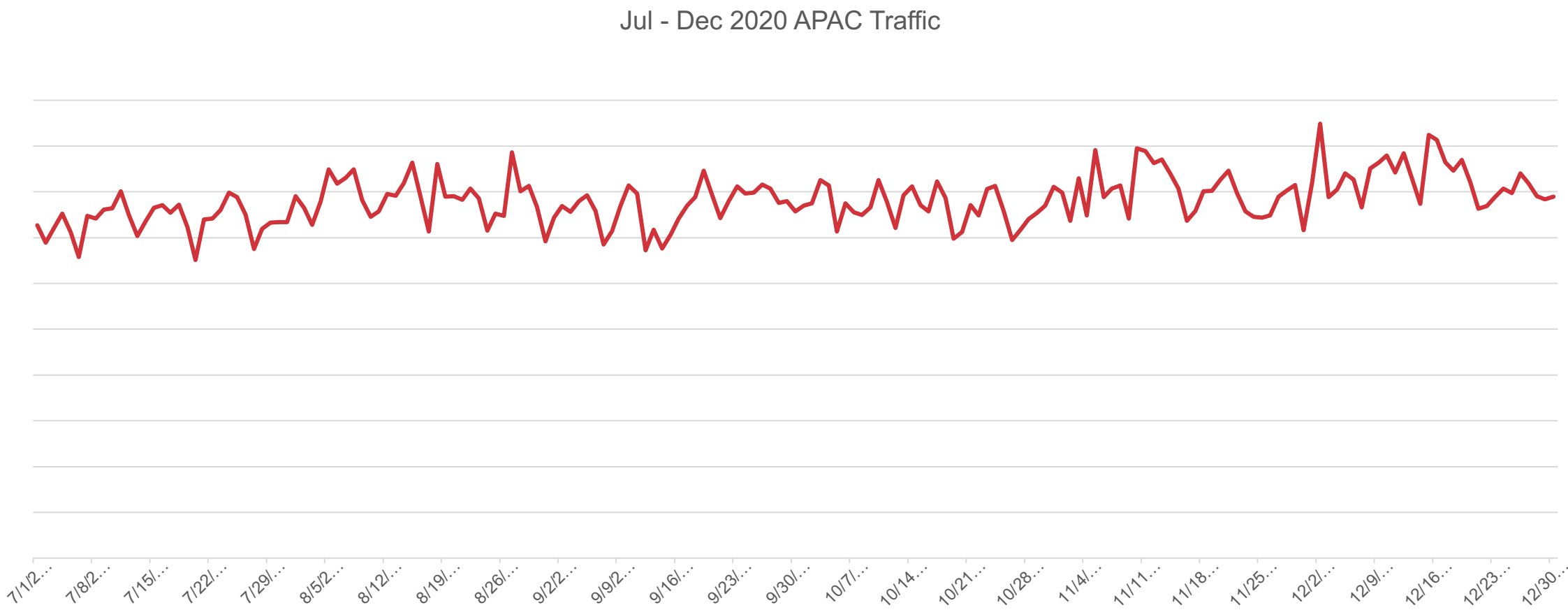


30% traffic increase since Pandemic started in March 2020

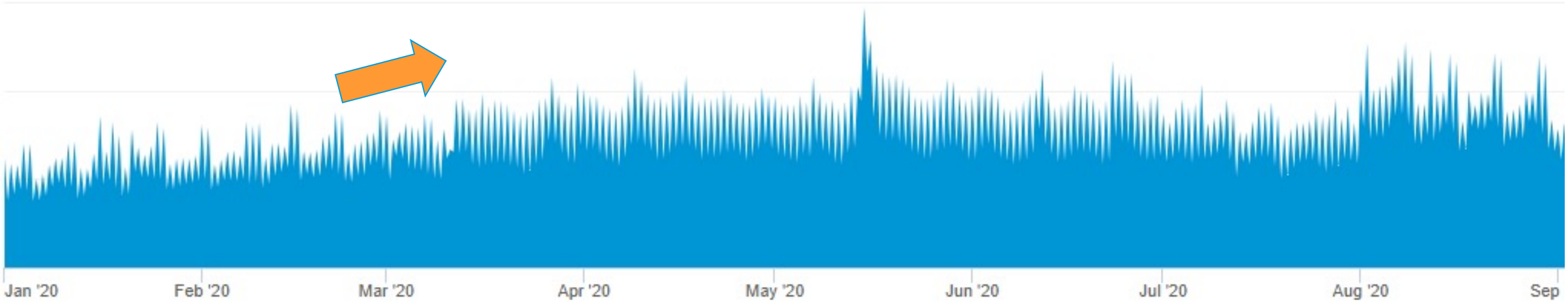
APAC Traffic Trend during Jan-Jun 2020



APAC Traffic Trend during Jul-Dec 2020

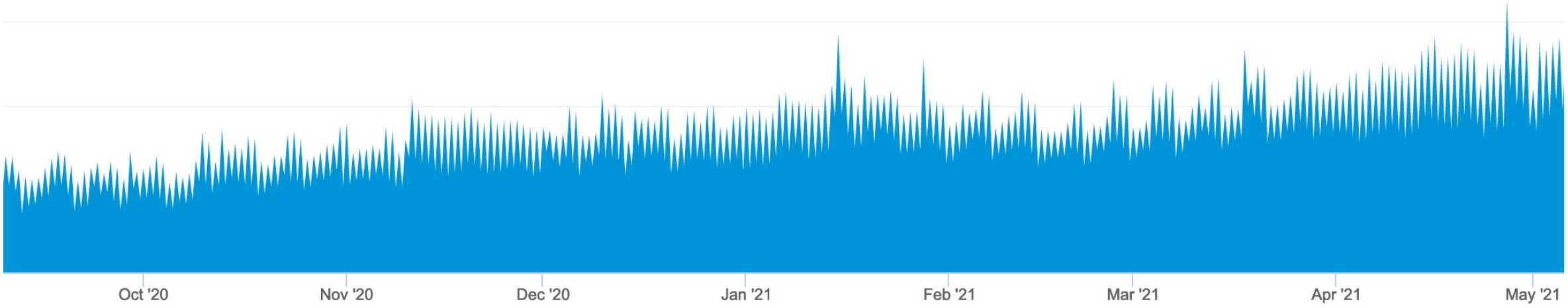


Thailand Traffic Trend from Jan to Sep 2020



30% traffic increase since Pandemic started in March 2020

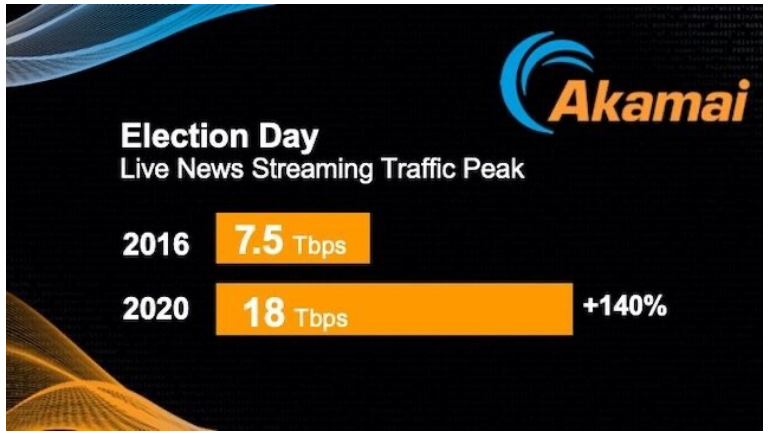
Thailand Traffic Trend from Sep 2020 to May 2021



Steady traffic growth in 2021

Observations on Traffic Increase

1. COVID-19 Pandemic
   - Work / Learn / Entertainment from home, remote communications, etc.
2. Improve in Internet connection
   - FTTH, 5G, etc.
3. Increase in Internet population and devices
   - Internet penetration, Starlink, IoT, etc.
4. Grow in Internet content
   - Social Media, VOD, Streaming event, Gaming, e-Commerce, etc.
5. Expand in content size
   - OS / Software / Games updates, HD Videos, etc.



Challenges and Mitigations under Pandemic

- Challenges
- Mitigations
- Akamai's response during COVID-19

Challenges (Internet Congestions)

Internet congestions in various places

1. Between ISPs
   - Rapid demand increase in a short time, congestions between ISPs

2. Narrow band last mile
   - Low bandwidth access

3. End-user aggregation points
   - Bottleneck on broadband / mobile aggregation points

4. Backbone network
   - Congestions within ISPs' backbone network

Challenges (Deployment)

Deployment difficulties

1. Hardware availability

   Shutdown / restriction of IT-related parts factories, etc. (country where lockdown is implemented) -> Delay in equipment

2. Logistics

   Logistics suspension (lockdown country)

3. Installation

   Restriction on movement of workers (country where lockdown is implemented)

4. Data Center access

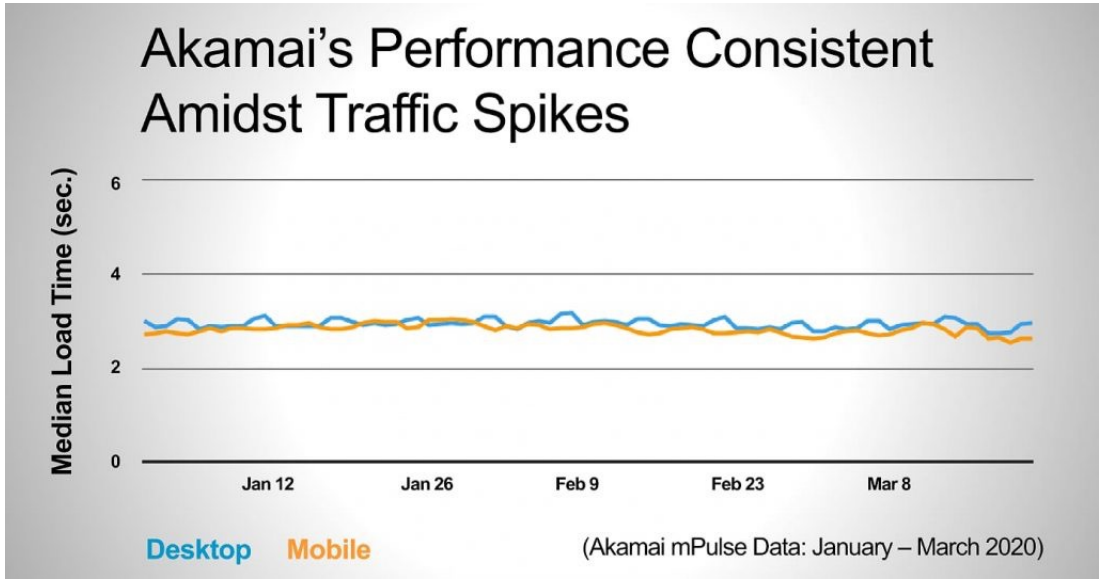
   Restricted access to the data center

5. Provider availability

   Work restrictions within telecommunications carriers due to state of emergency, etc. -> Delay in capacity procurement

Mitigations

1. Adding capacity urgently
   - IX / PNI / Transit
   - Build backbone to avoid Internet congestions
2. Upgrade cache nodes
   - Deploy ahead of demand, reduce future deployment effort
   - Accelerate cache nodes capacity increase
3. More distributed cache nodes
   - Deploy in tier-2 cities
   - Reduce ISP's backbone traffic
   - Better experience for end users



Akamai COVID-19 response

1. Traffic restraint requests from several government agencies
- e.g., European regulators
2. Co-operate with content owners to consider and implement countermeasures
- switch to SD video during peak hours, adjust bitrate of OTT customers
3. Adjust download event distribution time zone
- reducing gaming software downloads at peak times
4. Limit distribution bandwidth for each session for large-scale downloads

More Information on:

https://www.akamai.com/uk/en/support/covid-19-preparedness-statement.jsp

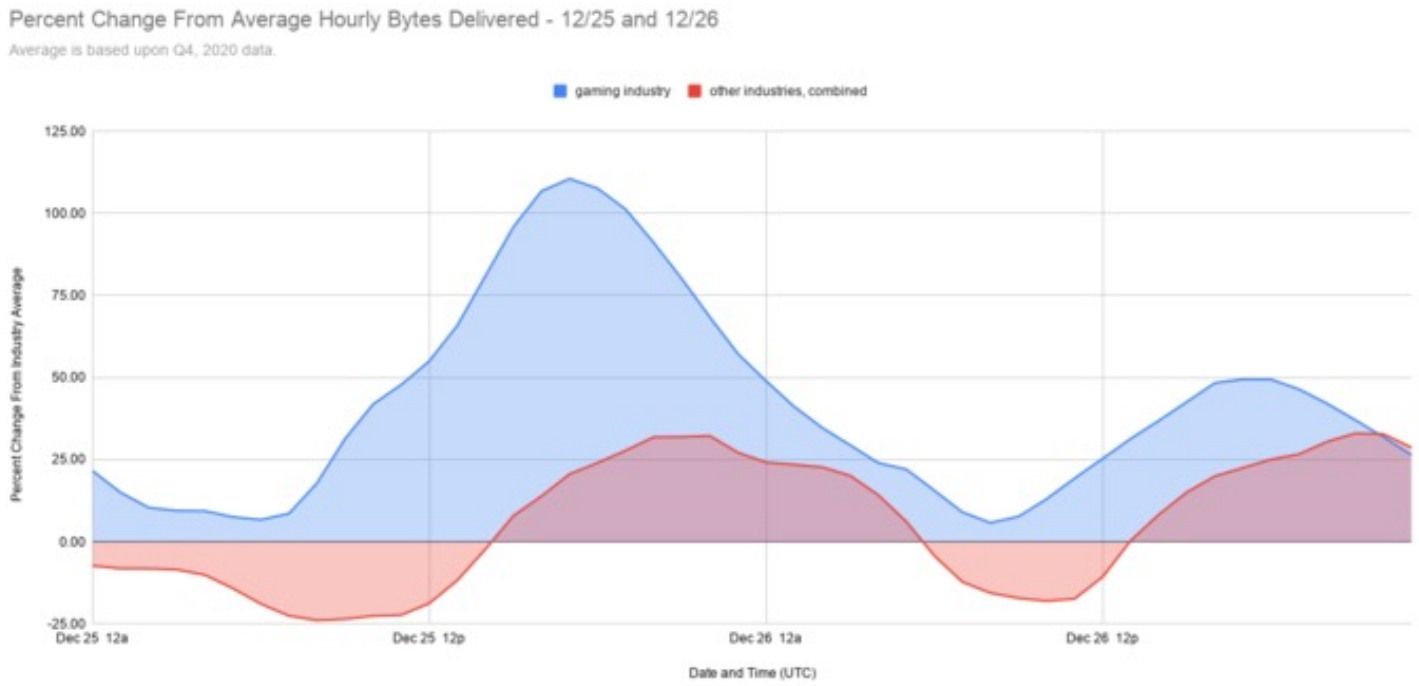
https://blogs.akamai.com/2020/03/working-together-to-manage-global-internet-traffic-increases.html

Lessons Learnt and Looking Ahead

- Build Ahead
- Better collaboration with ISPs
- Working with content customers
- CDN Evolution

Lessons Learnt

1. Build ahead, event traffic is new norm
2. Better collaboration with ISPs
3. Work with customers to adjust content delivery

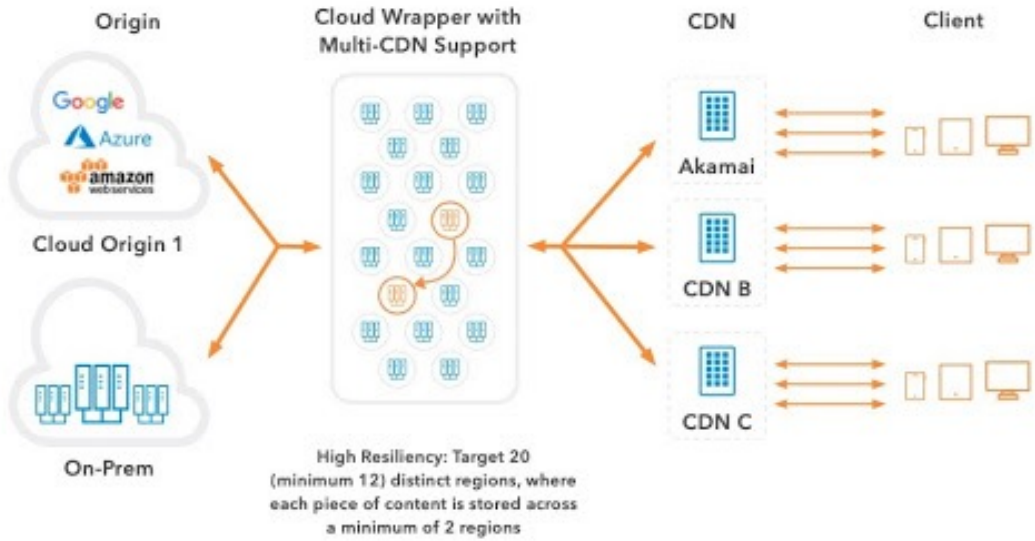


Gaming industry-related traffic compared to all other industries delivered by Akamai on December 25 and 26 compared to the overall Q4 average

https://blogs.akamai.com/2020/10/stuck-inside-the-world-turns-to-online-gaming.html

CDN Evolution

- **CDN and Origin Infrastructure**
  - Connection with various cloud services
  - Reduce cloud egress traffic
- **Infrastructure between CDNs**
  - Origin offload, Multi-CDNs
- **Direct connection with customers**
  - Improve first mile connectivity
  - Secure connection
- **Building an Akamai backbone network**
  - Better Akamai internal traffic connectivity
- **Metro / city > between cities, within regions > between regions**
  - Extended Akamai backbone network, improve node-to-node traffic

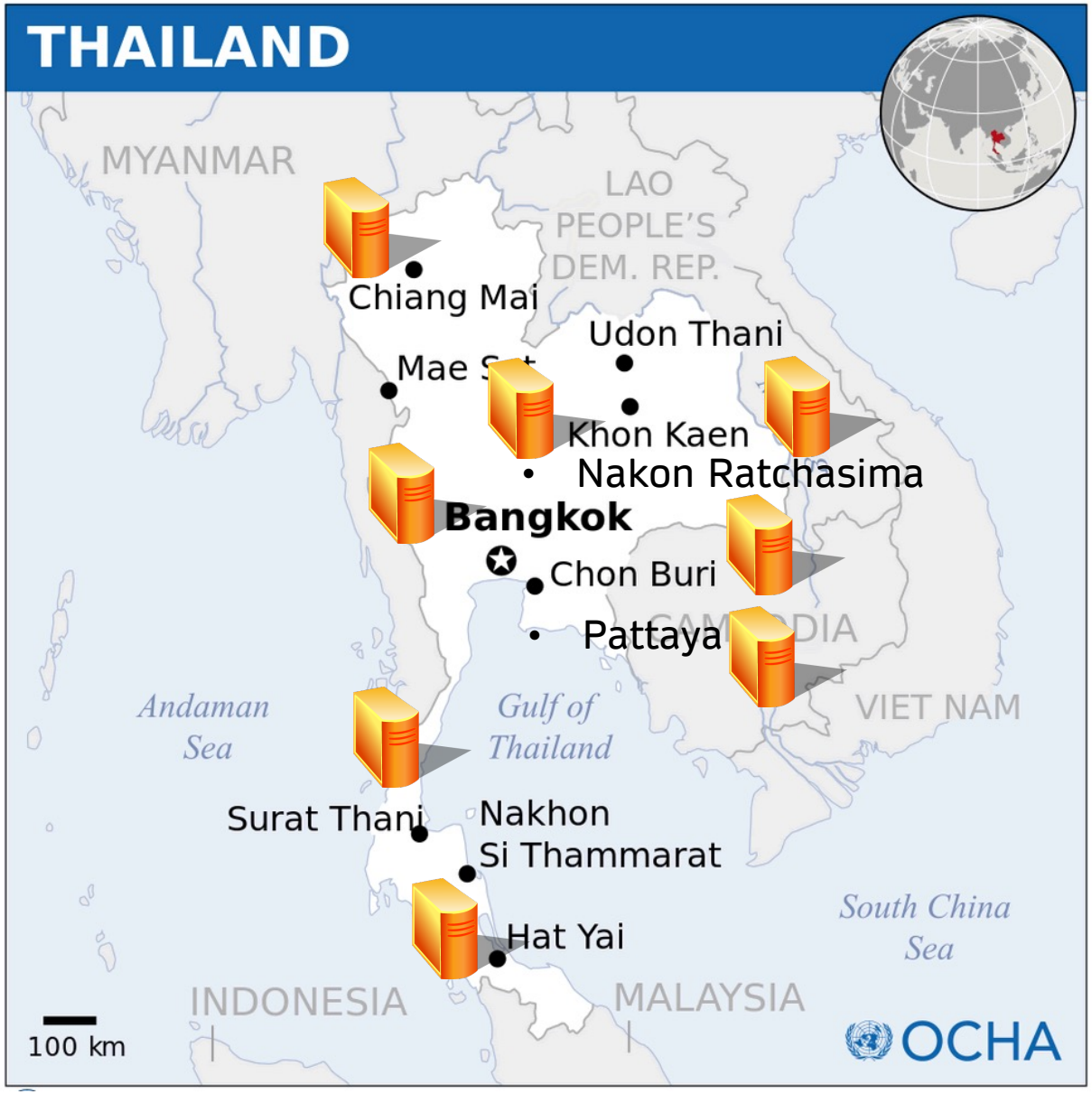


Akamai in Thailand

- Akamai's CDN deployment in Thailand
- Akamai peering connections in Thailand

Akamai deployment in Thailand

- Inside major ISP networks, located in 8 cities
  - Bangkok
  - Chiang Mai
  - Khon Kaen
  - Nakon Ratchasima
  - Chonburi
  - Pattaya
  - Surat Thani
  - Hat Yai
- > 90% in-country traffic delivery



Akamai peering connections in Thailand

Akamai is partnering with varies IX in Thailand to send traffic to IX members

1. BKNIX

- Connected since Sep 2016

2. BBIX Thailand

- Connected since Sep 2020

3. TH-IX

- Will connect in Jun 2021

This does not mean you will see all Akamai traffic

The Akamai node connecting to IX is aimed to serve major content to IX members.

Summary

Akamai Traffic Trend

- Drastic increase during pandemic in first half 2020, then steady growth
- Thailand traffic is growing

Challenges

- Internet congestions, bottlenecks, deployment difficulties

Mitigations

- Capacity upgrade, bitrate and protocol optimizations

Lesson Learnt and looking into future

- Build ahead, better collaboration with ISPs
- CDN is evolving

Akamai deployment in Thailand

- Wide coverage in varies cities, IX connections

Questions?

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More information:

Peering: https://as20940.peeringdb.com

SOTI Report: https://www.stateoftheinternet.com

Akamai Blog: https://blogs.akamai.com

End

Thank You!

ขอบคุณ!

Please Stay Safe & Healthy!