



Akamai and IPv6

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Agenda

01 Akamai Connected Cloud

Global infrastructure and deployment in Vietnam

02 Akamai and IPv6

History, traffic growth and motivations

03 Akamai IPv6 deployment

How we enable IPv6, IPv6 mapping and IPv6 infrastructure

04 Why IPv6

Scale, address management, performance and compliance

05 Drivers of IPv6 Growth

Content, network providers, devices and policy support

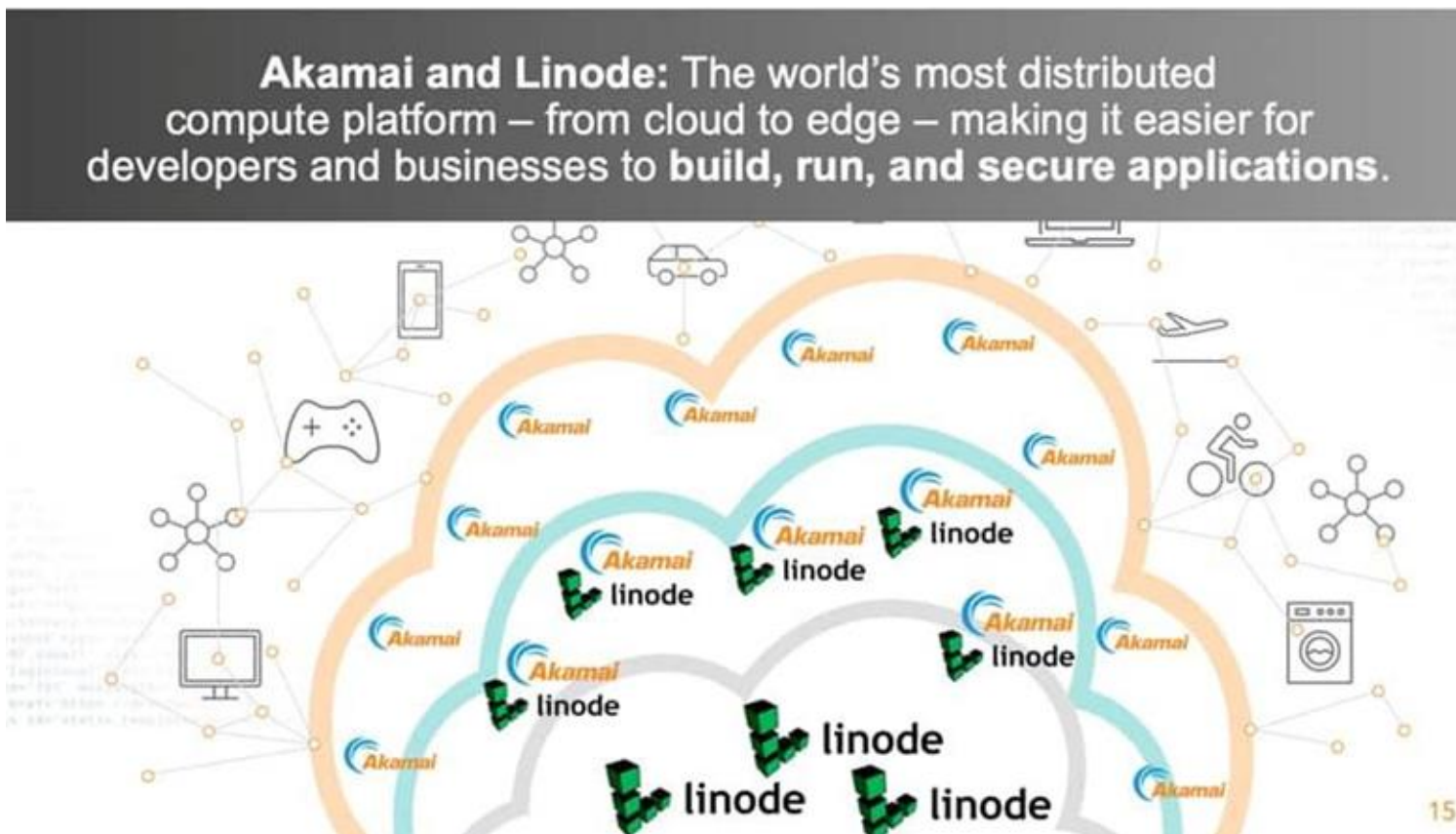
06 IPv6 Measurement

Global trends and adoption in Vietnam

Akamai Introduction

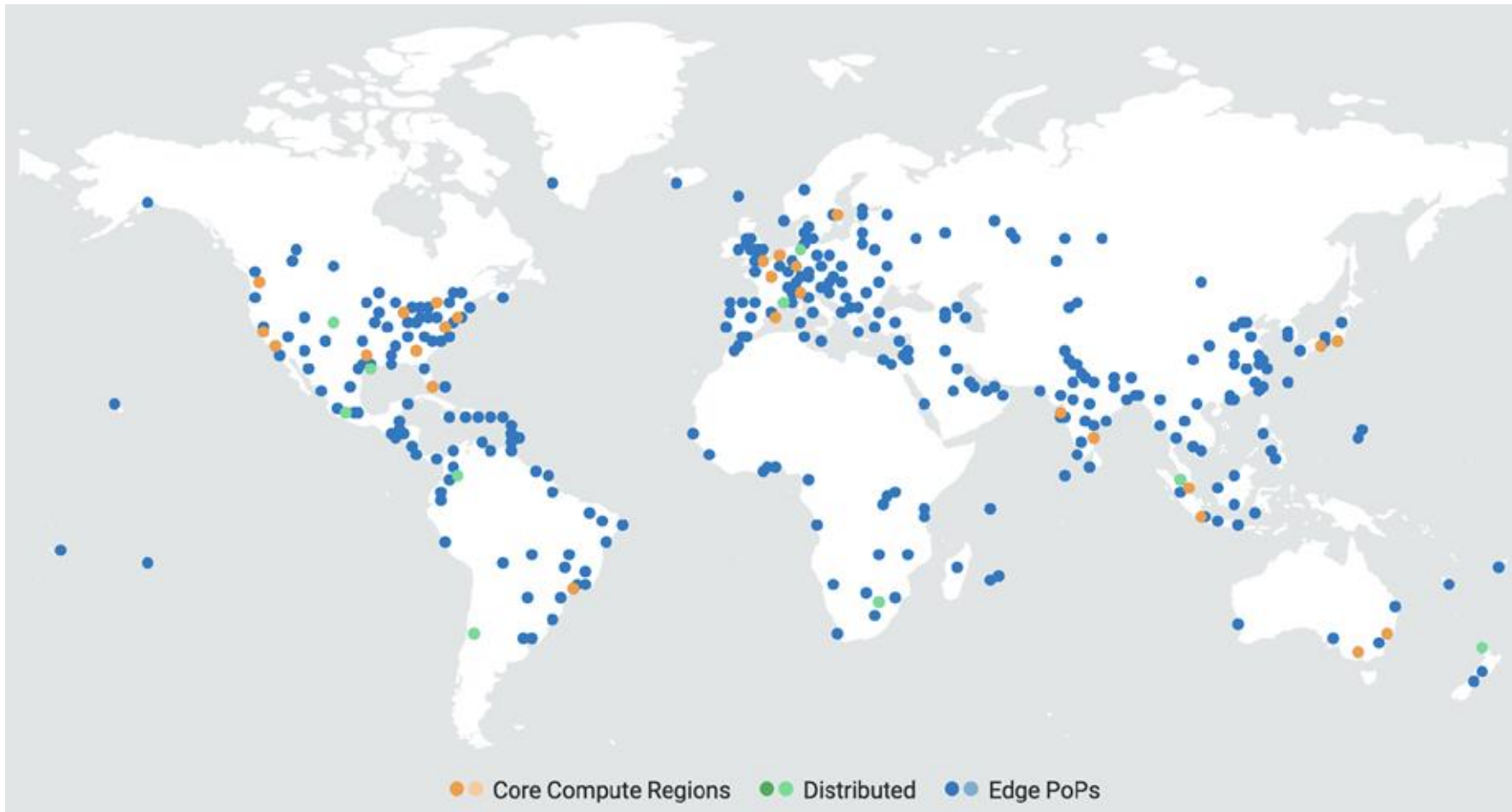
Who is Akamai?

Akamai Connected Cloud is a massively distributed edge and cloud platform that keeps experience close to users – and threats farther away



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Akamai Global Cloud Infrastructure



Core sites

A full set of cloud computing services designed for scale.



Distributed sites

Compute capabilities in difficult-to-reach locations.



Edge sites

The world's largest network edge platform and content delivery network.

4,400+ edge PoPs

1,200+ networks

130+ countries

1+ Pbps edge capacity

250+ Tbps CDN traffic

Akamai Connected Cloud deployment in Vietnam

- Inside major ISP networks
- Located in 3 cities
 - Hanoi
 - Da Nang
 - Ho Chi Minh City



Akamai and IPv6

- IPv6 on Akamai: history and growth
- Motivations for enabling IPv6:
 - Business driven
 - Customer driven
 - Internet resources driven

IPv6 on Akamai: a brief history

- IPv6 client-to-edge HTTP support first launched in 2011
 - Deep (and default-on!) IPv6 support across most CDN, Security, Compute (Linode), Media, Web Performance, DNS, and other products...
 - Customers are encouraged to dual-stack. However many remain IPv4-only for their own reasons
-
- Member of World IPv6 Launch on 6th June 2012.

Growth in IPv6 traffic on the Akamai CDN

	World IPv6 Launch (2012)	Ten Years Later (2022)	14 Years Later (2026)
Peak IPv6 Traffic	~1 Gbps	41 Tbps	88 Tbps

2012 May 31: Launching Forward with IPv6

<https://www.akamai.com/blog/performance/launching-forward-with-ipv6>

2018 Jun 6: Six Years Since World IPv6 Launch: Entering the Majority Phases

<https://www.akamai.com/blog/performance/six-years-since-world-ipv6-launch>

2020 Feb 13: At 21 Tbps, Reaching New Levels of IPv6 Traffic

<https://www.akamai.com/blog/performance/at-21-tbps-reaching-new-levels-ipv6-traffic>

2022 Jun 6: 10 Years Since World IPv6 Launch

<https://www.akamai.com/blog/trends/10-years-since-world-ipv6-launch>

Motivations for enabling IPv6

Business driven:

- Internet's ever-expanding audience
- Growing demand for IoT connectivity

Customer driven:

- Helping our customers with a smooth transition to IPv6 without impacting performance or requiring disruptive changes to their original networking infrastructure.

Internet resources driven:

- IPv4 is going to run out soon... and expensive!

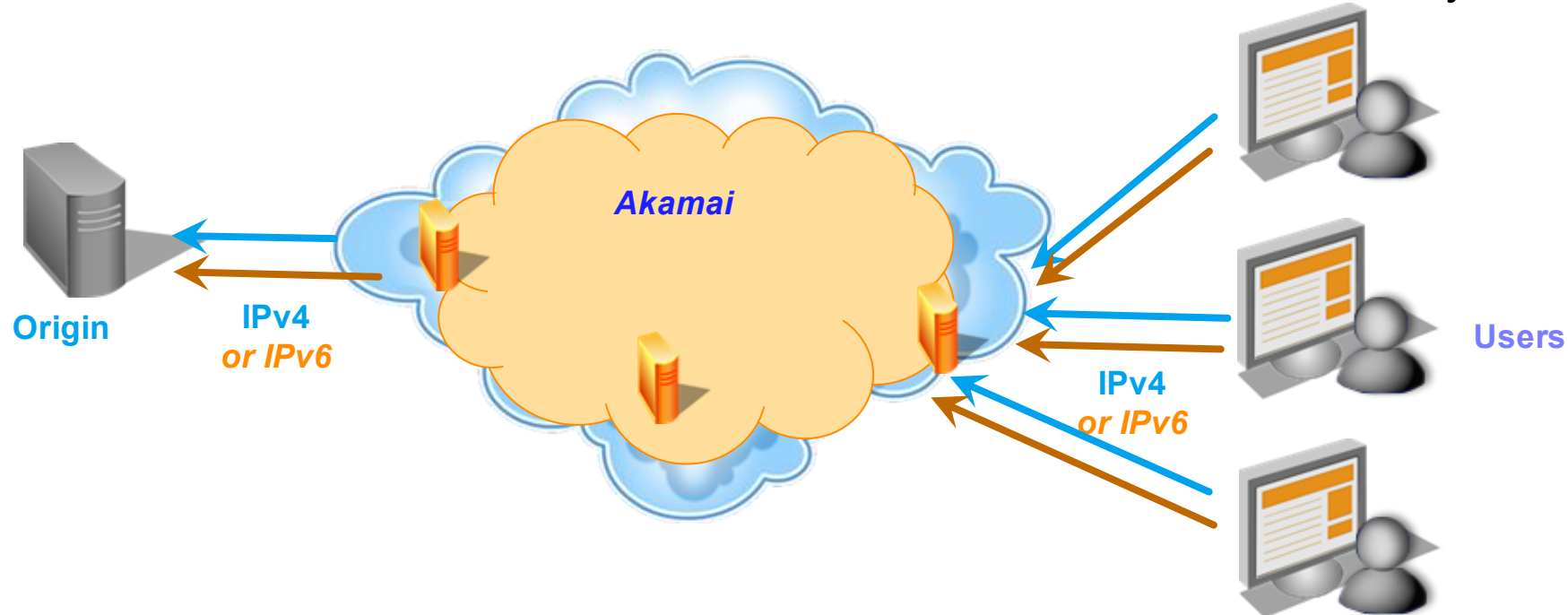
In reality, it is usually a mix of different motivations...

Akamai IPv6 deployment

- How we enable IPv6
- IPv6 mapping
- IPv6 infrastructure

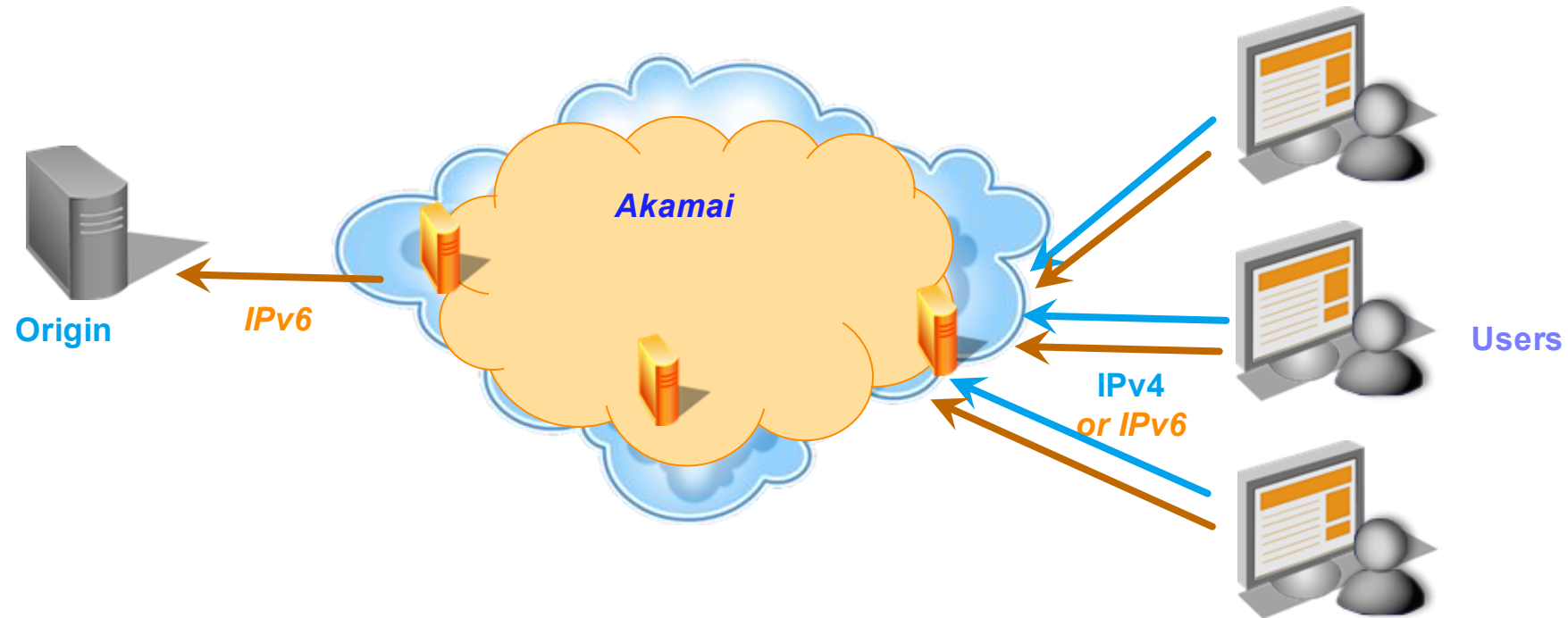
How we enable IPv6

- Enable dual-stack on edge servers
 - Terminate IPv4 and IPv6 connections on edge servers
 - Can go forward to customer origin via IPv4 (or IPv6)
- Customer content
 - In the past, customer hostnames could be dual-stacked
 - Since 2016, enable dual-stack for all customer hostnames by default



IPv6-only origin

- Now support IPv6-only origin



How Akamai IPv6 mapping works: An example

Example of Akamai IPv6 mapping

Notice the different A / AAAA records for different RR queries:

```
VN% dig www.akamai.com a
```

```
www.akamai.com. 3600 IN CNAME www.akamai.com.edgekey.net.
```

```
www.akamai.com.edgekey.net. 20 IN A 23.36.145.131
```

```
www.akamai.com.edgekey.net. 20 IN A 23.36.145.123
```

```
VN% dig www.akamai.com aaaa
```

```
www.akamai.com. 3594 IN CNAME www.akamai.com.edgekey.net.
```

```
www.akamai.com.edgekey.net. 20 IN AAAA 2402:800:6150:1bb::1724:9183
```

```
www.akamai.com.edgekey.net. 20 IN AAAA 2402:800:6150:1bb::1724:917b
```

Akamai IPv6 infrastructure

IPv6-only for internal point-to-point links

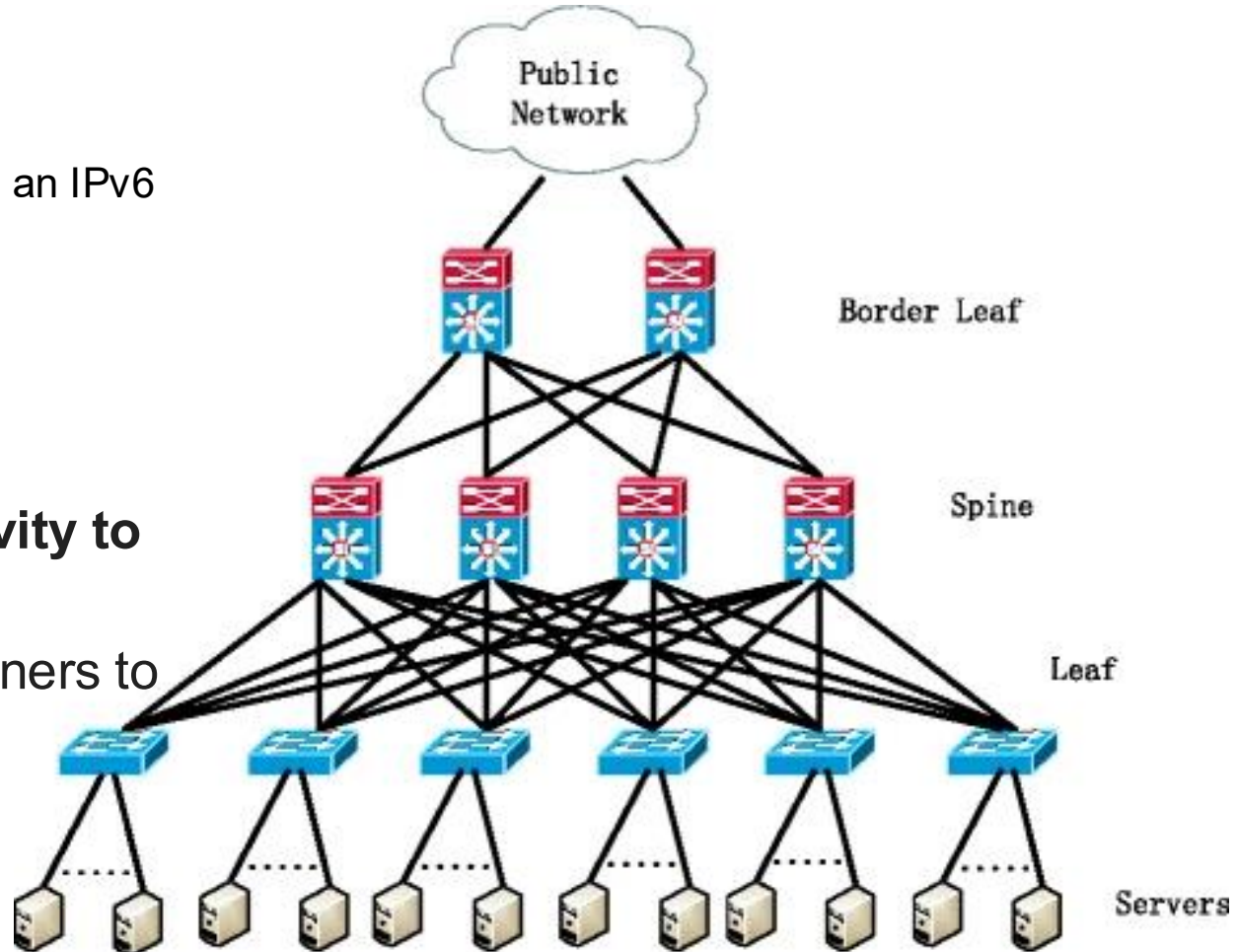
- Support RFC8950
 - Advertising IPv4 Network Layer Reachability with an IPv6 Next Hop
 - <https://www.rfc-editor.org/info/rfc8950/>
- No IPv4 on links between Leaf and Spine

Dual-stack edge servers and IPv6 connectivity to external networks

- We continue to encourage our network partners to enable IPv6 with Akamai

IPv6 for cloud services

- Support IPv6 over Virtual Private Cloud (VPC)





Why IPv6

- Enable scale
- Simplify address management
- Better performance
- Compliance requirements

Why IPv6?

- Enable scale!
 - ISP/Carrier networks, especially new and growing ones
 - Needed for Cloud growth
- Simplify address management, including in Enterprises
 - Even RFC1918 is increasingly hard to manage
 - Zero Trust security is easier with a flat IPv6 space than overlapping IPv4
 - Operating an IPv6-only network will be simpler than operating a dual-stack network.
- Enable new capabilities not possible with constrained IPv4
 - Plus, enabling IPv6 for content can improve performance
- Meet compliance requirements of governments and others

IPv6 performance

Could be better than IPv4

- Fewer middle boxes between handset and the Internet
- Avoids the need for network address translation (NAT)
- Bypass transparent proxy
- [Facebook performed a study in 2015](#) that showed that websites load 10%–15% faster over IPv6.
- Apple announced during the [Worldwide Developers Conference 2020](#) that median connection setup times are 1.4x faster when IPv6 is in use when compared with IPv4.

Drivers of IPv6 growth

- Content availability
- IPv6 in network providers
- End-user device support
- Government support

Drivers of IPv6 growth

- Content availability
 - Customers opting in to have their sites, content, and applications permanently available dual-stacked.
- Availability of IPv6 from network providers
 - IPv6 in ISP production networks, e.g. Reliance Jio and Telstra mobile
 - More Enterprises and Organizations that have had IPv6 deployed
- End-user device support
 - Desktop and laptop OS and client software support IPv6
 - Home routers / gateways support IPv6
 - 4G / 5G smartphones support IPv6

Drivers of IPv6 growth

- Government support
 - IPv6 awareness among governments in the AP region is very high
 - Many initiatives from governments have been implemented
 - Vietnam target 100% IPv6 adoption by 2030 and phase out IPv4 by 2032
 - Partnership between the public and private sectors in various forms
 - Developing national policies and guidelines and roadmaps to enable IPv6
 - Enabling IPv6 in government networks
 - Mandating for IPv6 readiness in government procurement for ICT goods and services
 - Raising IPv6 awareness among key people in the government and industry
 - Providing timely skill up training
 - Monitoring IPv6 deployment measurement and share information with industry
 - Include the necessity of IPv6 deployment in ministerial statements
 - Continuous engagement with industry will help

“IPv4 is on the sunset path”, Czech Republic



Reliance Jio - an IPv6-only carrier network

Jio

IETF109: IPv6-only adoption challenges and standardization requirements

Ramesh Chandra, VP
Network Planning & Engineering, Reliance Jio

19th Nov 2020



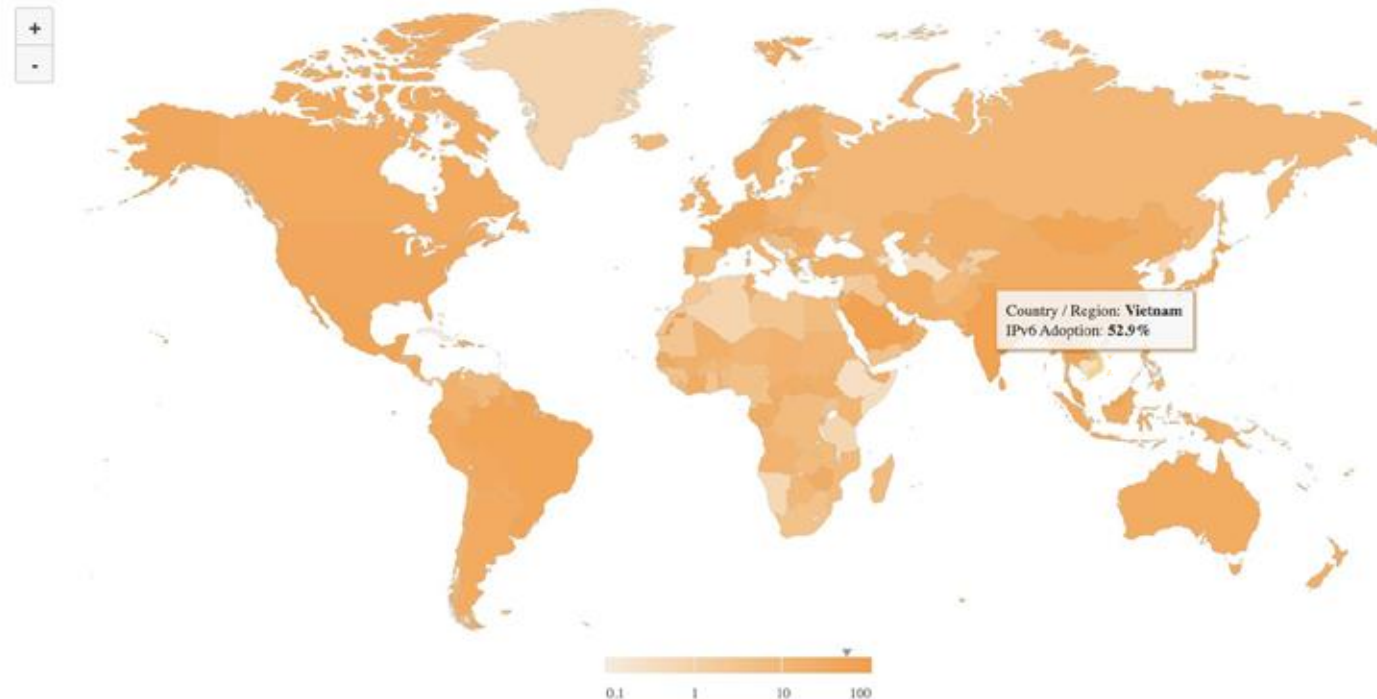
IPv6 measurement

- IPv6 Adoption Visualization
 - Vietnam overall
 - Major ISPs in Vietnam
 - Viettel
 - VNPT
 - FPT
 - Mobifone

IPv6 adoption

Akamai's globally distributed Intelligent Platform allows us to gather massive amounts of information on many metrics, including connection speeds, attack traffic, network connectivity/availability issues, and IPv6 growth/transition progress, as well as traffic patterns across leading Web properties and digital media providers.

IPv6 Adoption By Country / Region

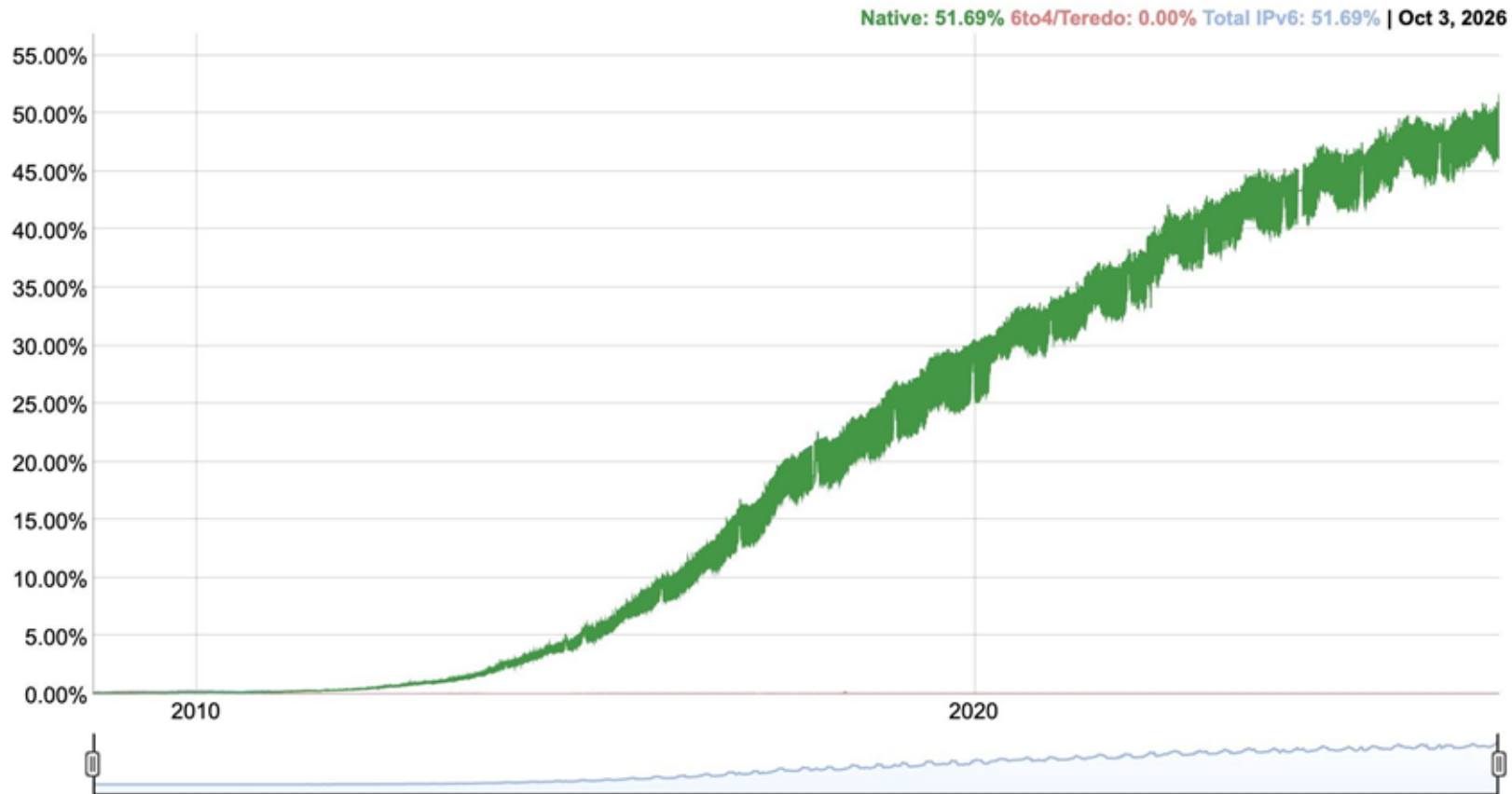


Source: <https://www.akamai.com/security-research/ipv6-adoption-visualization>

IPv6 global traffic : over 50% threshold

IPv6 Adoption

We are continuously measuring the availability of IPv6 connectivity among Google users. The graph shows the percentage of users that access Google over IPv6.



Source: <https://www.google.com/intl/en/ipv6/statistics.html?yzh=28197>

IPv6 Adoption Visualization

A regularly updated view into the metrics can be found in the “IPv6 Adoption Trends by Country and Network” visualization. (as of 5th October 2026)

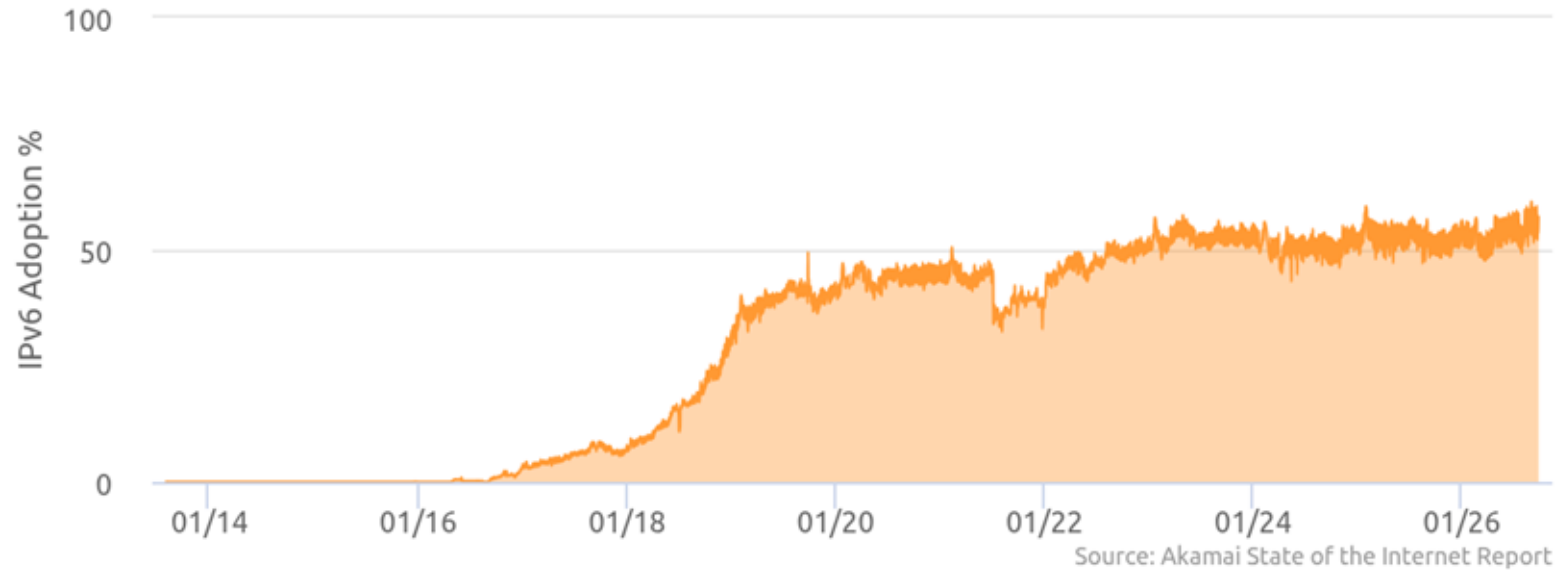
- Top 10 by Networks

✓ RANK	IPV6%	NETWORK
1	87.3%	Reliance Jio Infocomm Limited
2	76.4%	Bharti Airtel Enterprise Ltd.
3	61.4%	Comcast Cable
4	65.3%	AT&T Communications Americas
5	65.7%	Verizon Business
6	54.2%	Charter Communications Inc - TWC
7	83.1%	T-Mobile
8	62.8%	Deutsche Telekom Germany
9	57.1%	UniNet SA de CV
10	52.7%	SpaceX

- Top 10 by Countries

✓ RANK	IPV6%	COUNTRY / REGION
1	100%	French Southern Territories
2	100%	Heard Island and McDonald Islands
3	97.6%	Christmas Island
4	88.4%	Western Sahara
5	88.3%	Bouvet Island
6	83.8%	Pitcairn
7	64.6%	South Georgia/South Sandwich Isl.
8	64.1%	India
9	61.8%	Saudi Arabia
10	56.9%	USA Minor Outlying Islands

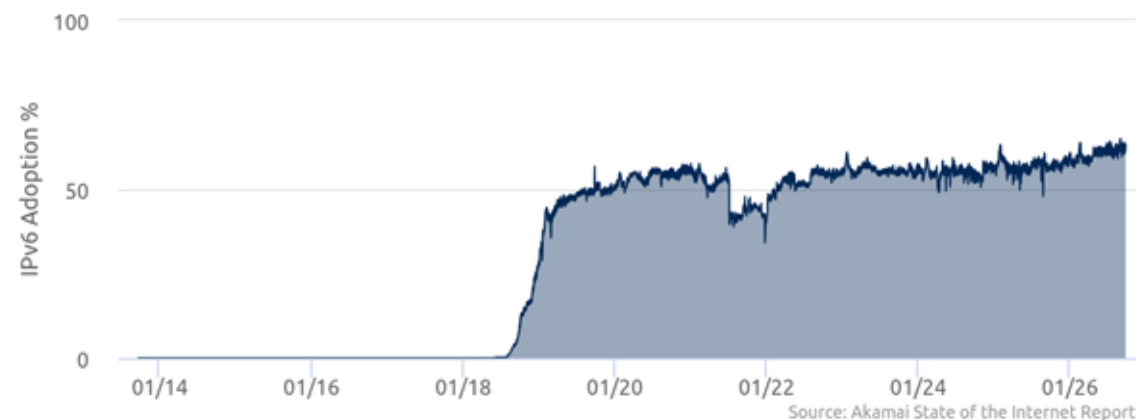
IPv6 Adoption Trends – Vietnam overall



IPv6 traffic has continued to growth steadily since September 2016

- IPv6 Adoption: 52.9% as of 5th October 2026
- Ranked 14th worldwide

IPv6 Adoption Trends – Major ISPs in Vietnam



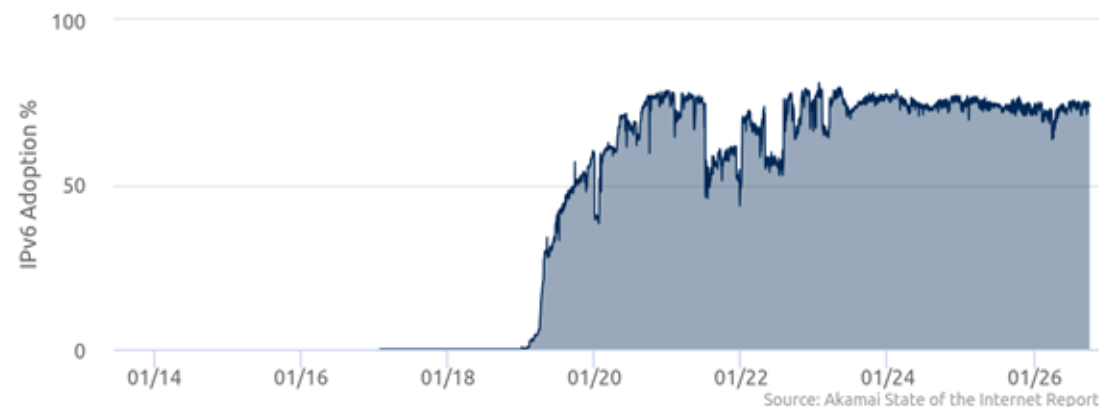
Viettel IPv6 Adoption: 61.1%



VNPT IPv6 Adoption: 43.7%



FPT IPv6 Adoption: 54.2%



Mobifone IPv6 Adoption: 74.1%

Summary

- **Akamai Connected Cloud**
 - Akamai Global Cloud Infrastructure and Akamai deployment in Vietnam
- **Akamai IPv6 history and deployment**
 - Akamai support on IPv6
 - IPv6-only infrastructure
- **IPv6 growth and adoption**
 - IPv6 enables networks to scale, simplifies address management, can improve performance and meets compliance requirements
 - Content, network providers, devices and policy drive adoption
 - IPv6 adoption in Vietnam reaches 52.9%

Questions?

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↔ Peering Information:

CDN Peering: <https://as20940.peeringdb.com>

Prolexic DDoS Mitigation: <https://as32787.peeringdb.com>

Cloud Compute (Linode): <https://as63949.peering.com>

🌐 IPv6 Information: <https://www.akamai.com/ipv6>

Cảm ơn (Thank You)!