Akamai

E-Book

Betting on the Edge

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Executive Summary

The online sports betting industry is one of the most dynamic and competitive markets in the world. With no restrictive contracts in place between players and operators, operators focus on delivering a great player experience to avoid churn. Churn not only drives an immediate loss in revenue but also incurs significant costs to reacquire players.

The executives interviewed for this report described observability across the value chain as a key obstacle in understanding the player experience. Moreover, despite efforts to rectify this challenge by implementing point-monitoring solutions, the issues persist.

In addition to observability, timely delivery of data to and from a player's device is also a common challenge, especially during high peak events. Poor connectivity creates stale or even dead data, which has significant consequences for the player experience.

Sports betting operators have limited, often complex options to minimise the impact of these challenges and are still looking for cost-effective solutions in the difficult operating environment presented by COVID-19. This paper identifies that by extending the delivery network 'edge' into a player's device, near real-time observability across the entire technical value chain can be dramatically improved. Moreover, by moving key operational processes to the edge, operators can not only reduce the impact of poor connectivity on the player experience, but also ensure they are best placed to take advantage of 5G latency improvements.

Observability, timely delivery of data, and poor connectivity are among the challenges sports betting operators face.

Introduction

The online sports betting market has grown substantially over the past decade. Fueled by the ubiquity of smartphones and the availability of good mobile connectivity, the industry is estimated to be worth $59.6 billion (2020 pre–COVID-19), with a compound annual growth rate of 11.5%. Despite significant industry consolidation, it remains one of the most dynamic and fiercely competitive markets in the world.

One of the unique attributes of the industry that makes the growth rates even more remarkable is the lack of any restrictive contracts between players and operators. A player can churn in a matter of seconds – presenting an immediate loss of revenue for the operator and a significant potential future cost to gain back the player. It is estimated that in the United Kingdom, the cost for marketing to reactivate a customer can be as much as £400. Moreover, as markets mature, the problem becomes even more challenging with fewer new customers available to offset any losses incurred. For marketing and product teams, this becomes a daily battle. With every aspect of the brand experience capable of impacting churn and bad reviews able to hamper new customer acquisition, millions of pounds are at risk.

Akamai's research has identified that a poor betting app performance is one of the major reasons for customer churn. Sports betting operators support this view, with the majority stating that player experience is a key strategic pillar underpinning all aspects of their business. Typically managed by the marketing and product teams, player experience drives a common thread across business operations. For those companies who get it right, the rewards are clear. For those who get it wrong, brand oblivion awaits.

Those tasked with delivering a consistently great experience face some major challenges. The environment that operators find themselves in is complex, to say the least, with myriad technologies and third parties forming the delivery value chain. Moreover, the average operator is likely to have direct control over less than half the technology that their service depends on even where development has been 'brought in house'.

> ## Poor betting app performance is one of the major reasons for customer churn.

Our sports betting customers have told us that silos are the norm, observability is generally low, data access is often slow time rather than real time, individual player experience is poorly understood or at best implied by indirect analysis, and answers are hard to come by when problems do arise. In the words of one executive interviewed for this e-book, 'It's sometimes absolute chaos when something goes wrong'. Meanwhile, players care little about the challenge's operators face – they see a brand and hold that brand accountable for the entire experience, good or bad.

This e-book will unpack some of the challenges faced by marketing, product, and technical teams in sports betting. We will show that by adopting new edge monitoring capabilities, betting operators can improve observability, improve service quality, and provide real time insight into individual player experience.
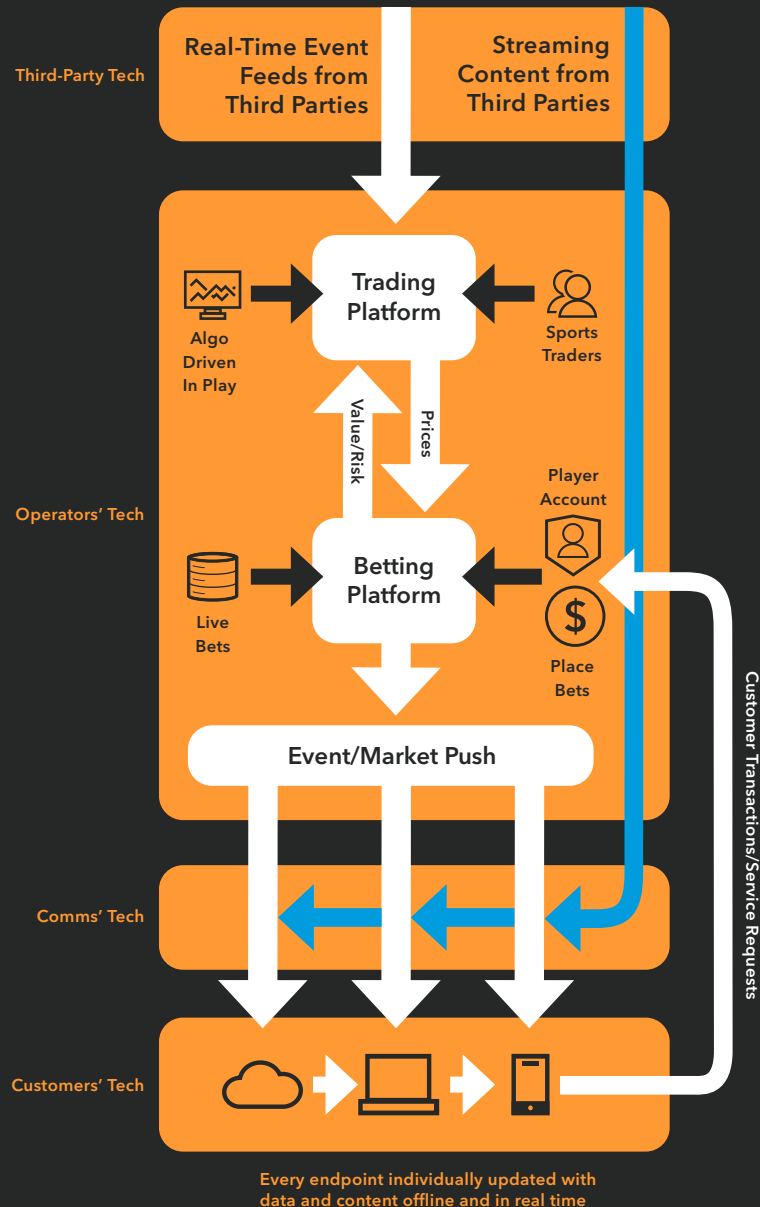
Complexity (and Cost) Everywhere

To understand some of the challenges faced by operators when delivering a great player experience, it's useful to look at a conceptual end-to-end sports betting delivery chain.

The first thing that stands out is how many parties are involved and how few of them the operator directly controls.

Sports Betting End to End

Third-Party Tech

Real-Time Event Feeds from Third Parties

Streaming Content from Third Parties

Operators' Tech

Algo Driven In Play

Trading Platform

Sports Traders

Value/Risk · Prices

Player Account

Live Bets

Betting Platform

Place Bets

Event/Market Push

Comms' Tech

Customers' Tech

Customer Transactions/Service Requests

Every endpoint individually updated with data and content offline and in real time

There are four main blocks of capability. Each designed, operated, and owned by a different party. From top to bottom:

THIRD-PARTY DATA PROVIDERS

These organisations provide the near real-time updates that feed the operators' systems with event and market data vital to generating timely, accurate, and competitive pricing.

OPERATOR PLATFORM

This is a critical and core part of the chain. Sitting between the third-party data providers and customers, it translates sports events into bettable markets and allows customers to place bets on the results. For some operators, this is managed in-house. For others, the systems are outsourced to specialist organisations.

COMMUNICATION PROVIDERS

These providers supply and operate the ever-changing mesh of mobile or fixed connectivity and internet connection points. This supports the distribution of the online sports betting service but cannot be controlled in any way by the operators. *The aim must always be 'last app standing' as bandwidth diminishes — efficiency of usage is vital*.

CUSTOMER TECHNOLOGY

This includes mobile and fixed devices, predominantly smartphones, that are subject to variable coverage but also host a swath of other services that can compromise the devices' ability to provide the full player experience.

Like many other internet businesses, the operator's service is delivered through numerous components, a complex chain of third-party software and infrastructure. Unlike other businesses, however, a break or small degradation at any point along that chain can disrupt the player experience catastrophically, either at an individual level or at an audience level. As an Akamai customer commented, 'It's actually testament to the engineering and operational expertise behind all of these elements that it works at all, let alone as well as it does'.

The further operations go beyond the direct sphere of control, the more difficult it becomes to monitor and optimise the customer experience. Much to the chagrin of a Marketing Director who spends millions of dollars creating a brand, a simple failure can have very costly consequences.

To respond to these unique challenges, operational teams have historically had little choice but to add even more technology:

- **to address specific optimisations to improve the quality of service to player devices and other endpoints, such as in store terminals, or**

- **to provide visibility at specific points in the value chain, which support further optimisation**

The net effect of this approach, albeit inadvertently, is to compound the complexity. Put simply, with the presence of many more moving parts and transition points to facilitate, the problem snowballs and becomes harder to fix.

To further complicate matters, executives have explained that optimisations can often reflect an operator's organisational structure. This can result in different groups implementing technology that deals with the tactical needs of their team rather than operating within a strategic framework. Examples include marketing teams installing tools that report on application statistics, such as app flyer; or technology teams installing tools to meet their operational objectives, such as new relic.

The obvious unintended result is to create a series of disconnected data silos across the value chain that do not accurately convey the player experience. Consequently, observability degrades and the cognitive load on operational teams grows commensurately.

Executives have explained that this comes to a head during a major incident such as stale pricing, which can be triggered by failure at any point of the chain. In many circumstances, the only viable response is to 'call everyone' and manage the ensuing chaos. Unfortunately, this can often lead to elongated recovery times, impacting players even further, and often the issue is never fully understood, raising the potential for it to happen again.

This also doesn't address the lower-level everyday incidents that happen to smaller groups or individual players and often go unnoticed and unaddressed, such as phone resources causing failure, but that drive churn on an ongoing basis.

Finally, to compound the operational challenges, point solutions add individual cost that often looks reasonable in isolation. However, the total cost of ownership is often substantial albeit not always apparent because of the number of different budget lines that the point solutions sit within across the organisation.

The player, on the other hand, desires one consistent, seamless, and cohesive experience backed up by first-class rapid customer service if things go wrong.

Wait – What About 5G?

The emergence of 5G technology represents a huge opportunity to improve the online betting experience. While much has been written about the step change in bandwidth and device density, less has been written about two other 5G characteristics:

- latency (or rather lack of it)
- seamless integration between fixed and mobile communications

In the context of mobile networks, *latency* is the term used to describe the time lag between a request leaving the mobile device and being processed ready for further action to be taken. Designed to support future real-time applications, 5G will eliminate more than 90% of the response delay introduced by 4G networks. This is significant because the slowest link in the chain suddenly shifts from being between the device and mobile network to the interaction between the edge (in the form of the mobile radio network), and today's largely centrally hosted sports betting services.

Put simply, the timing dynamic between the device, network edge, and processing core will be materially changed.

In the future those who are hosting their services closer to the network edge and the player will be able to respond faster than services that are centrally hosted. The principle is well proven in the high-speed, algorithmically driven, financial stock markets where automated trading is prevalent – time is money and milliseconds count when machines step into the arena. Conceptually, it's possible to visualise Football Bet in-Play operating in a similar manner. It is one example of where the enhanced speed of response offered by 5G technology could be exploited within betting to support the player experience.

There's a big *but*, however – 5G uses more complex and advanced traffic routing and load-sharing algorithms that enable its latency, device density, and bandwidth performance to be delivered. This represents a real challenge for operators who have traditionally seen network routing optimisation as 'something that just works'. Reliably routing services within country borders and across continents in pursuit of the best possible player experience is no simple task, particularly with next-generation networks.

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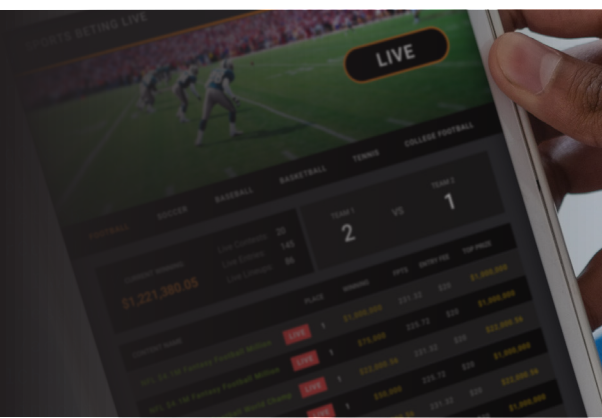
If It's That Hard – How Did We Manage to Get Here?

Operational teams from across sports betting companies are acutely aware of these challenges and have spent years managing them. In the words of one executive: 'The teams have delivered great results despite the challenges, but it feels like we're putting sticking plasters over the strategic challenges'.

In a fast-moving, dynamic, and commercially focused sector such as online sports betting, operators are very adept at finding point solutions to these challenges. However, the tendency to deploy isolated solutions means they come at the cost of increasing operational complexity – which, if left unchecked over time, will ultimately translate into declining customer experience coupled to operational and technical debt.

Delivering observability is a good example of this conundrum. The desire is to understand the individual player experience and be able to take the appropriate actions depending on how that experience is changing over time. To date, the main solution available has been to 'slice' the end-to-end chain and deploy various toolsets to observe those slices. Theoretically, it's possible to stitch these together, apply an overlay, and gain the desired end-to-end visibility. In practice, as experienced operators know, this is fraught with challenges.

- The complexity – and hence the cost, time, and risk – of integrating so many components is high; in practice it rarely happens because of other priorities

- Maintaining consistency of operation and fidelity of measurement across so many elements from so many providers and tracking so many users is a constant struggle that compromises trust in the reliability of the data

- The approach is predicated on the ability or the permission to deploy a capability to observe a specific part of the service; inevitably, there are parts of the chain where that is not possible (for example, the connectivity from the operator's systems to the customer's device)

Often the solution is to use human integration and intelligence to stitch the picture together albeit while sacrificing the responsiveness required to truly manage the experience in near real time.

> **The tendency to deploy isolated solutions can increase complexity, which will ultimately translate into declining customer experience.**

And 5G?

Because 5G is a relatively new technology, operators have been testing their infrastructure and operational practices so that they are well placed to take advantage of the overt benefits that 5G offers. Moreover, in many markets around the world, this technology offers an exciting new opportunity to dramatically change the way players engage with betting applications. At the same time, however, the challenges that 5G brings to the sports betting environment, especially in the United States, are just being understood. To date there have been no viable options for operators to solve this particular predicament.

Fiendishly Complex to Elegantly Simple

Faced with the complexity of the sports betting landscape, developments in edge networking and edge compute technology now provide operators with a real alternative for resolving these challenges and almost certainly reducing the technical overhead.

By improving the quality, breadth, and availability of observable player data in near real time, operational teams can proactively manage the player experience. Moving the edge onto devices provides operational teams with the ability to identify problem areas anywhere in the workflow. Marketing teams can understand where strategic investments need to be prioritised to reduce churn, and executives can have a holistic picture of their operating environment.

By using the scale of edge networking, operators can reduce the impact of an overly complex operational and technical landscape on the player experience, reducing issues such as poor or stale data delivery. Moreover, edge technology offers an agile and cost-effective way to support true gameplay personalisation and can help operators speed their time to market in a cost-effective way.
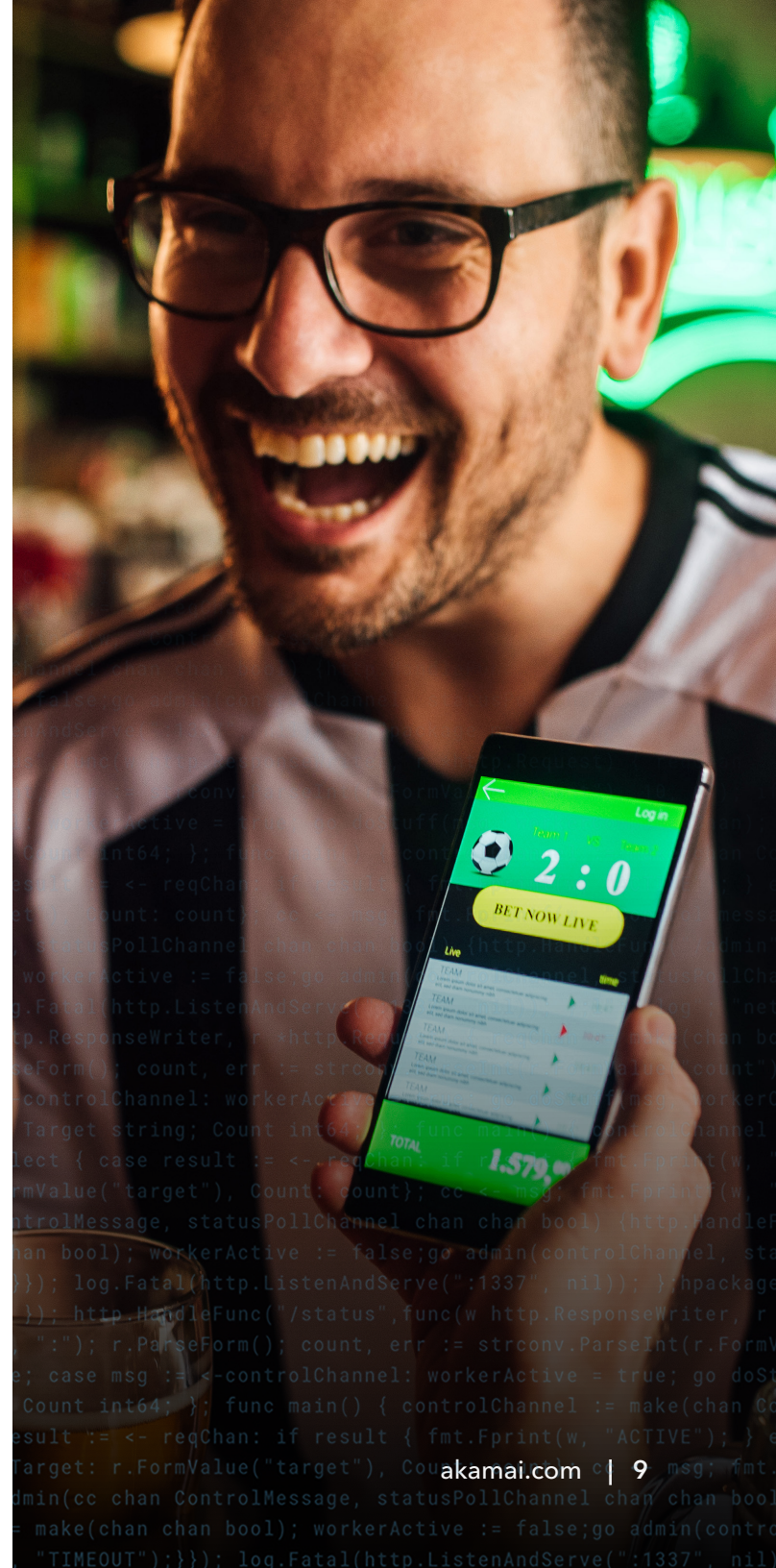
Gain an Edge

For many years, best practice in digital service design has been to embrace the concepts of compact, modular, distributed, open, and loosely coupled services. Infrastructure has become elastic and software defined.

In most industries, this is fine. But in sports betting there are additional considerations. Infrastructure is largely concentrated in central data centres, connected to fat fibre pipes that receive traffic from myriad networks and devices. However, the location and footprint of these large central services is suboptimal.

Betting operators are familiar with the concepts of content caching and serving closer to the player using content delivery networks. Today, these are typically used to ensure rich media assets, such as jockey silks and gaming imagery, are displayed in a vibrant manner by optimising the use of device capability and bandwidth.

Edge computing takes this to a new level. It enables not just rich media to be placed closer to the users, but it also allows the processing of key application functions and storage of data to happen closer to the users. In fact, it's possible to extend the edge as far as the user's device by simply adding the appropriate SDK into an operator's application, which improves monitoring.

And that has a profound and positive impact on the complexity and observability of the operation. By deploying edge technology into their app, the operator gains a virtual direct connection between any centrally hosted system and the player's device. This unified connection carries all necessary information backwards and forwards. No more

independent websocket, data push, streaming, and rich media delivery infrastructure to manage and no requirement for different communication interfaces for betting applications. They can all use the same high-performance channel to ensure that an operator's app remains the 'last one standing' should bandwidth diminish or degrade.

> **By deploying edge technology into their app, the operator gains a virtual direct connection between any centrally hosted system and the player's device.**

It becomes possible to observe performance of the entire delivery chain and understand the actual experience that each and every player is receiving in near real time via open APIs. The operator can integrate these observations into their engagement systems (CRM, digital marketing, etc.) and customer support services. Operators could segment players by the quality experience being offered and even automate anti-churn measures should issues arise, retaining the customer before they have had the opportunity to move on.

Put simply, observability of the customer experience is materially enhanced for all operational groups and, more important, is now actionable within a meaningful time frame.

To illustrate, let's use the example of a player using an operator's betting app while attending a football match. Stadiums are challenging environments for connectivity, with so many people vying for the available bandwidth — be it mobile networks, stadium Wi-Fi, or both. In this scenario, the ideal situation is to have no need for connectivity at all, but this negates the interactivity and dynamic engagement that modern sports betting offers to players.

By deploying the edge onto the device, we can now optimise how we use the available bandwidth, and it starts before the customer enters the stadium. A significant amount of the content, particularly that which is known and subject to low rate of change, can be staged on the device in advance — the edge can utilise predictive algorithms to ensure the right content is available at the right time. For example, our customer is a football fan, so football shirts, pre-match content such as team sheets, and pundit video commentary need to be fully staged. Our customer, however, is not a horse racing fan, so the edge working with the systems of engagement would de-prioritise data, content, and

streaming relating to horse racing. But our customer loves cricket! It's the test match — our customer likes to watch the TV coverage on the app and have a flutter on the cricket in play markets. The edge will take all of this into account:

- **adjusting the resolution of the video stream and buffering video in the background on the device as bandwidth availability varies to ensure an optimum viewing experience**

- **prioritising and compressing market data and betting requests to ensure a seamless and timely flow of sports action and monetisation**

The stadium could even, if they wish, implement Akamai's edge technology into their Wi-Fi access points. This is a proven model and allows near instantaneous access to services without having to rely on often heavily contended and patch mobile signals. It offers highly contextual interaction and associated online retail opportunities.

Conclusion

Delivering a great online sports betting experience is a complex and nuanced task, but one that has the potential to make or break operators. There is overwhelming evidence to show that with continually rising player expectations, the advent of hyperfast mobile connectivity, and ever-increasing digital regulation, operators must take the next step on their development journey. As one executive commented, 'We really are at the very start of online sports betting and we've got a lot of work ahead of us'.

As identified in the e-book, there are several very immediate requirements that need attention to provide the right foundation for future development. Observability was an issue that resonated with many commentators. The common theme was one of 'overcomplexity' in the way operators had used several point solutions to achieve the desired goal. And finally, with the rapid growth of 'mobile first', sports operators face significant challenges to be the 'last app standing' because of patchy connectivity.

As highlighted in the e-book, embracing edge technology offers sports betting marketing and operational teams alike significant practical benefits in delivering a next-gen gameplay experience and the opportunity to drive real competitive advantage.

Edge technology helps sports betting operators:

- **Improve observability and strategic decision-making through the delivery value chain**

- **Move core functions closer to the players, providing a pathway towards fundamentally improving the gameplay experience and reducing issues**

- **Ensure operators are able to take full advantage of the promise of 5G**

It's with these very practical benefits in mind that the edge could provide the tipping point that sports betting operators have been looking for to drive real growth and scale into their operations.

With its unrivaled coverage, innovation, and collaboration with the sports betting industry, the Akamai platform provides operators with the tools to differentiate. The scale and reach of the Akamai Intelligent Edge Platform combined with unmatched expertise and always-on protection gives you a competitive edge your players can bet on.

To learn more visit www.akamai.com/bettingontheedge

Akamai secures and delivers digital experiences for the world's largest companies. Akamai's intelligent edge platform surrounds everything, from the enterprise to the cloud, so customers and their businesses can be fast, smart, and secure. Top brands globally rely on Akamai to help them realize competitive advantage through agile solutions that extend the power of their multi-cloud architectures. Akamai keeps decisions, apps, and experiences closer to users than anyone — and attacks and threats far away. Akamai's portfolio of edge security, web and mobile performance, enterprise access, and video delivery solutions is supported by unmatched customer service, analytics, and 24/7/365 monitoring. To learn why the world's top brands trust Akamai, visit www.akamai.com, blogs.akamai.com, or @Akamai on Twitter. You can find our global contact information at www.akamai.com/locations. Published 12/20.