

IDC MarketScape: Worldwide Commercial Content Delivery Network Services 2022 Vendor Assessment

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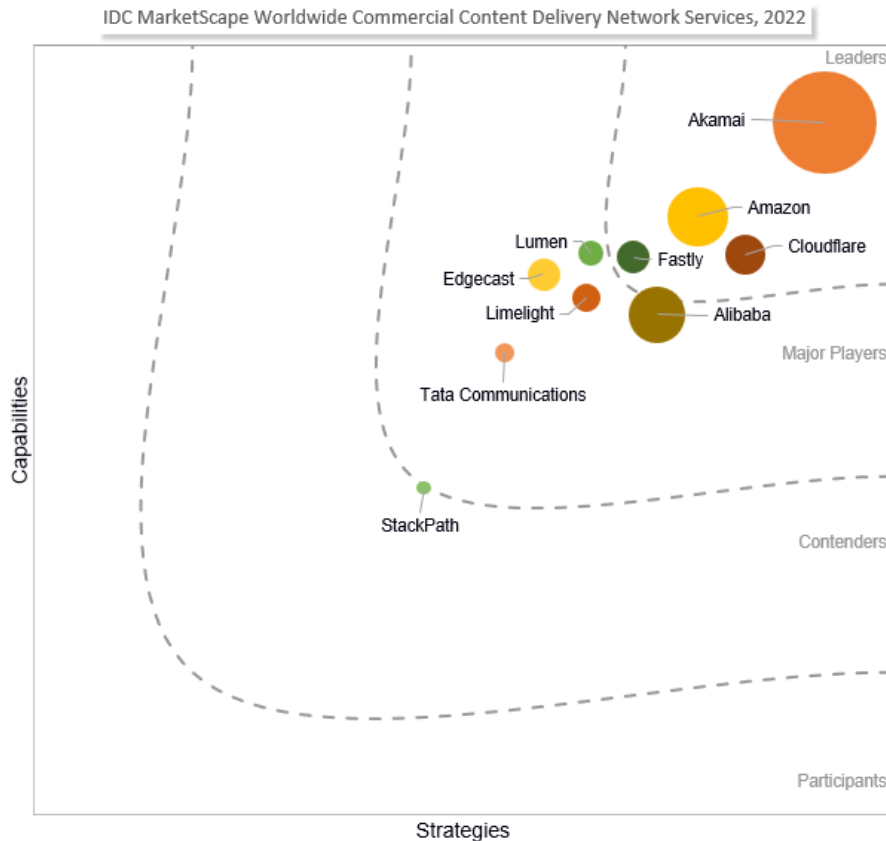
Melissa Fremeijer-Holtz

THIS IDC MARKETSCAPE EXCERPT FEATURES AMAZON

IDC MARKETSCAPE FIGURE

FIGURE 1

IDC MarketScape Worldwide Commercial Content Delivery Network Services Vendor Assessment



Source: IDC, 2022

Please see the Appendix for detailed methodology, market definition, and scoring criteria.

IN THIS EXCERPT

The content for this excerpt was taken directly from IDC MarketScape: Worldwide Commercial Content Delivery Network Services 2022 Vendor Assessment (Doc # US47652821). All or parts of the following sections are included in this excerpt: IDC Opinion, IDC MarketScape Vendor Inclusion Criteria, Essential Guidance, Vendor Summary Profile, Appendix and Learn More. Also included is Figure 1.

IDC OPINION

This IDC study utilizes the IDC MarketScape methodology to evaluate commercial content delivery network (CDN) providers. IDC identified 10 providers by scale and scope that provide CDN services across the globe. The intent of this study is to provide a comparative view of these CDN providers in terms of their capabilities to offer CDN services and strategies to grow and innovate in this evolving marketplace.

The commercial CDN market is a mature market that carries a substantial portion of the world's internet traffic. In IDC's *Worldwide Content Delivery Networks Forecast, 2021-2025* (IDC #US47308021, March 2021), IDC projects this market to reach \$18.8 billion by 2025 at a five-year CAGR of 17.1%. CDNs have thrived in their ability to deliver media and web content to end customers within stringent performance parameters. They are the key enablers of the rise of video streaming, both on demand and live. They are fundamental to ecommerce as more enterprises rely on them to execute online commerce within acceptable quality of service (QoS) parameters including latency, performance, and high availability. CDNs have become an essential tool to handle the demands created by the massive amount of web content and large downloads on the internet today. Enterprises turn to commercial CDNs for handling content delivery pertaining to five broad segments:

- **OTT video:** This is the largest segment delivering on-demand and live video streams.
- **Web, email, and data:** This segment manages the delivery of static and dynamic web pages as well as email and data.
- **Online gaming:** The primary focus is on cloud-hosted multiplayer games.
- **File sharing:** This includes over-the-air (OTA) updates and IoT content.
- **Security:** CDN security includes web application firewall (WAF), DDoS prevention, bot management, identity management, DRM, and other secure access technologies.

The commercial CDN market is evolving with the advent of a new breed of competitors that capitalize on emerging technologies such as virtualization, DevOps, and peer to peer (P2P) along with simplified pricing models to compete against established legacy players. Virtualization is ushering in a new breed of software-dominant players.

A larger transformation of the CDN industry is underway with the move toward edge applications delivery. CDNs are rediscovering their roots as edge providers. CDNs are architected as highly distributed networks with points of presence (POPs) deployed as close to the end users to meet these stringent QoS parameters and ensure scalable distribution of content through caching servers. CDN providers are keenly aware of market opportunities with edge compute and the potential for disruption by nontraditional players.

Several forces are contributing to this strategic shift by CDN toward edge application delivery:

- **Macroeconomic:** The COVID-19 pandemic has accelerated a trend toward online ecommerce, cloud adoption, and demand for video streaming. Edge compute will optimize how CDNs respond to these forces that will ultimately drive higher CDN traffic.
- **Customer preferences and expectations:** Several IDC conducted surveys indicate that customer experience is one of the best drivers of competitive advantage. Offering compelling customer experiences through personalization, interactivity, and high fidelity will depend on edge compute for proper execution.
- **Emergence of low-latency use cases:** The appeal of edge compute is its ability to deliver low-latency services that provide advantages related to operational process efficiencies, enhanced reporting and analytics, and opportunities for more engaging online interactions. IDC's most recent managed edge services forecast foresees a high growth market for CDN edge. IDC expects CDN edge to reach \$882 million in 2025 at a CAGR of 41.9%.
- **New streaming protocols:** Streaming protocols such as low-latency HLS, WebRTC, and QUIC are emerging to improve live video streaming latency and reduce the gap between traditional TV distribution and live streaming.
- **Competitive landscape:** The competitive landscape is changing rapidly. Service providers spanning CDNs, communication service providers (SPs), hyperscalers, and managed SPs are targeting edge compute opportunities. The boundaries between these players will blur as they pursue opportunities outside their traditional market.
- **Rise of mobility:** CDN providers cannot rely mostly on fixed-line connectivity to deliver content. Collaboration with 5G providers will become an important consideration and strategic imperative.
- **Edge programmability:** CDNs have been at the forefront of providing programmability at their CDN POPs. These capabilities included some form of JavaScripting, open APIs, and SDKs to support developers. Edge compute has propelled CDN providers to expand their programmable interfaces to include support for standardized and open source JavaScripting and support for popular languages such as Python and WebAssembly.

CDN security services underpin all aspects of content delivery. CDN security services are emerging as an important revenue driver for CDN providers. Several CDN providers already provide a wide range of security services while others are expanding collaboration with traditional security vendors or expanding their portfolio inorganically.

This research helps uncover the ingredients that drive growth and differentiation in this marketplace. Enterprises will be better informed in their decision to deploy CDN services and selection of CDN providers. The key selection criteria to be explored in this research focuses on current capabilities and future strategies.

This IDC MarketScape provides an overview of strengths and challenges of these 10 providers in providing commercial CDN services. This study also captures some key takeaways that are beneficial to all ecosystem players, technology providers, service providers, and enterprises.

The key takeaways from this IDC MarketScape include:

- Most CDN providers have on average doubled their peak traffic capacity (measured in terabits per second) in the past two years coinciding with the start of the pandemic.
- All global CDN providers are eyeing expansion in the Asia/Pacific and Latin America (LATAM) regions due to huge pent-up desire for video streaming, ecommerce, and online gaming.
- We are witnessing a shift toward a more extensive portfolio of services that span media, web, gaming, security, and emerging edge services, reducing a historically strong focus on media

delivery. Although media dominates from a traffic perspective, it is largely a lower margin business and is being commoditized.

- Large content providers (e.g., large studios) are not yet keen on programmability at the edge due to their focus on availability, footprint, and performance. With extensive competitive pressures among the video streaming players, delivering content on time with acceptable quality of experience is paramount. With no portability standards among multi-CDNs, media companies will be challenged to rely on single vendor programmable platform. We believe that media companies will pivot to innovative edge services such as personalization and interactivity as they pursue incremental monetization opportunities.
- End customers continue to value direct customer support and ability to access technical resources especially during adverse network conditions. Customer support augmented with predictive analytics will be highly valued by end users.
- Price can be an effective competitive tool at the lower end of the market with CDN providers attracting new customers with free trial services. In addition, transparency, predictability, and incentive packages are increasingly introduced and valued by enterprise customers.
- The CDN services market can benefit from better and near-real-time analytics as well as more access to the data source. This is an area that CDNs have been slow to capitalize on its revenue potential.
- China is a challenging market to serve due to regulatory issues. Partnerships with local providers are key for ability to serve the market.
- A common service-level agreement (SLA) parameter is 100% availability. Besides basic "follow the sun" support and tailored SLA response times, enterprises value global coverage, local technical support, and omni-channel communication.
- For large media companies, a multi-CDN architecture is highly desired not only from price competitiveness but more from availability and performance perspectives.
- Innovation at the edge and incorporation of programmability, DevOps, open source, virtualization, and APIs are key to long-term differentiation.
- Security is critical to all segments, with particular importance to web delivery and an increasing importance to media content delivery.

IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

This IDC MarketScape included providers from all regions that met the following criteria:

- Commercial CDN providers with global presence in North America (NA); Europe, the Middle East, and Africa (EMEA); and Asia/Pacific (APAC) regions
- CDN providers with a minimum of \$50 million of annual revenue

Providers that primarily resell CDN services have not been included in this document.

ADVICE FOR TECHNOLOGY BUYERS

Media companies and enterprises face several choices in their effort to select a CDN provider. These include the type of provider whether large incumbents or new emerging players and, in some cases, the choice to build a private CDN network. A single CDN or multi-CDN architecture is an additional consideration. Most enterprises are looking for a strategic partner than can adapt to their business

needs. At IDC, we believe that enterprises should consider the following in their choice of a CDN provider to drive better business outcomes:

- **Scale and footprint matching customer needs:** The scale, footprint, and ability to expand are key considerations for global enterprises that serve customers in multiple regions and are on a continued expansion path.
- **Innovation and programmability at the edge:** As the edge is transforming to be the new center for global ecommerce, a hub for rich media customer experience, and delivery of IoT content, enterprises should consider CDN providers that are the forefront of innovation at the edge. This includes programmability, open APIs, support for DevOps, virtualization, and a self-service portal to enable quick development on services.
- **Price visibility and reliability:** Enterprises are demanding improved transparency to CDN pricing and predictability of monthly charges. They should look for CDN providers that support both aspects of CDN services pricing.
- **Rich analytics:** Analytics can provide key insights into customer behaviors, predict traffic demands, and ensure adherence to SLAs. Enterprises should consider CDN providers that provide rich and real-time analytics complemented by AI/ML tools to extract maximum benefits from the data.
- **Performance:** With the proliferation of real-time video streaming and demands of global ecommerce, enterprises choice of a CDN provider will include consideration of peak capacity, latency, and availability. Latency is particularly relevant to the delivery of live events to minimize delay between traditional TV distribution and streaming.
- **Open systems platform:** Enterprises should consider CDN providers that employ open systems platform technologies and minimize proprietary applications. Portability of applications across multivendor platforms is a key concern for enterprises.
- **5G connectivity:** With emergence of 5G as a WAN connectivity option, enterprises should seek CDN providers that collaborate with 5G providers to extend the CDN reach, especially in emerging markets with suboptimal fixed connectivity.
- **Multi-CDN support:** Support for multi-CDN architecture is a key consideration of large media companies to manage peak traffic demands, improve overall availability, and expand geographic reach.
- **Security:** Security is a table stake for content delivery and critical when choosing a CDN provider. As IoT is moving from traditional datacenter computing to the edge, CDN vendors have a huge opportunity to leverage their presence at the network edge. Providing secure and reliable over-the-air updates, for example, will be valued by enterprises.

VENDOR SUMMARY PROFILES

This section briefly explains IDC's key observations resulting in a vendor's position in the IDC MarketScape. While every vendor is evaluated against each of the criteria outlined in the Appendix, the description here provides a summary of each vendor's strengths and challenges. The vendors are listed in alphabetical order.

Amazon

Amazon is positioned in the Leaders category in the 2022 IDC MarketScape for worldwide commercial CDN services.

Amazon started offering its CDN services, CloudFront, in November 2008. It has since grown to over 300 points of presence deployed in 13 regional edge caches in 69 cities across 30 countries. Amazon CloudFront has been expanding in terms of peak capacity exceeding 100Tbps and growing regionally especially in LATAM, EMEA, and APJ regions. Amazon CloudFront serves a large customer base with hundreds of thousands of active customers across most industry segments. The top 5 segments are media and entertainment, gaming, software and internet, retail/ecommerce, and adtech.

Amazon CloudFront offers a comprehensive set of CDN services that caters to enterprises and the developer community. Developers have access to several tools such as AWS CloudFormation, CodeDeploy, CodeCommit, and AWS SDKs to configure and deploy their workloads with Amazon CloudFront. In addition, customers can also engage AWS Professional Services and partners from AWS Partner Network for onboarding, migration, or special projects.

Amazon CloudFront suite of services and growth strategy is built on three main pillars:

- **Security services:** CloudFront's goal is to maintain industry-leading security compliance and highly configurable security features. New security features include supporting new compliance standards, supporting ECDSA certificates for viewer connections, new TLSv1.2_2021 policy, and WAF.
- **Media-rich content delivery:** CloudFront is enhancing video-rich content delivery to address growth in media and entertainment, education, government, and other industries. This also includes introduction of new hardware to achieve higher performance and new software capabilities including new caching algorithms, Layer 4 load balancing, and content base routing.
- **Edge compute:** Edge compute is gaining attention. CloudFront is supporting both Lambda@Edge (L@E) and CloudFront Functions. L@E deals with complex running functions such as rendering, manifest manipulation, visitor prioritization, and integrating third-party bot detection. CloudFront Functions deal with highly scalable and time-sensitive applications such as authentication, URL redirects, and HTTP header manipulations.

CloudFront is evolving its capabilities to address three key trends: availability, multi-CDN, and managed services. On the availability front, the goal is to reduce outages and ensure resiliency in case of point failures. On multi-CDN, CloudFront is driving toward common standards with common media client data, common access token, and supporting Streaming Video Alliance (SVA) APIs. CloudFront is expanding its partner network, enhancing live event support, and improved intra/interregional communication to better support global customers.

CloudFront offers three pricing tiers:

- **Free tier:** New AWS customers receive 50GB data transfer out and 2,000,000 HTTP and HTTPS requests each month for one year.
- **On demand:** pricing for this tier is based on actual usage of the service and can vary based on the region. Charges accrue on two primary usage types: data transfer out (internet/origin) and HTTP/HTTPS requests. Other charges may apply for optional features such as invalidation requests, field-level encryption requests, and using dedicated IP address to serve custom SSL certificates.
- **Discounted pricing:** Discounted pricing is available for customers willing to commit to a minimum 10TB of data transfer per month for 12 months or longer.

CloudFront has several different GTM motions including a self-serve on-demand model, reseller/OEM model, and integration with different AWS services that use CloudFront. AWS has an extensive network of developers, system integrators, consultants, and resell partners across the globe.

CloudFront proactively engages its customer base and their account management teams to get a pulse on the well-being and satisfaction of their customers. For years, CloudFront has conducted annual surveys to its broad base of on-demand customers seeking feedback on all aspects of the services from user experience, pricing, feature functionality, and wish list asks. CloudFront compare the results to prior surveys and incorporate the feedback into their annual planning.

Amazon has a target to be powered with 100% renewable energy by 2030 and is on a path to reach 100% renewable energy by 2025. Amazon has reached 65% renewable energy across their businesses in 2020 and became one of the world's largest corporate purchasers of renewable energy.

Strengths

Amazon CloudFront has been expanding its peak capacity, geographic coverage, and media delivery in response to market demand and recent sales momentum. Its broad portfolio and leverage of other AWS capabilities has helped it differentiate its offerings. Some of the key differentiating factors include:

- **Expanded security portfolio:** CloudFront's aim is to develop and offer the most advanced security capabilities to CDN customers. These include seamless layered security, free custom SSL certificates, field-level encryption, and comprehensive security compliance certifications.
- **AWS integration:** CloudFront is deeply integrated with the AWS ecosystem. This includes origin access identity (OAI), integration with AWS Shield and AWS WAF, integration with AWS Elemental Media Services, multiple integrations with Identity and Access Management (IAM), AWS CloudTrail, and AWS Config, free data transfer from all AWS Origins such as EC2 and S3, free SSL certificates through AWS Certificate Manager, and the same familiar pay-as-you-go pricing common to most AWS services.
- **Network scale:** Amazon CloudFront is leveraging the network scale of AWS to expand its presence and provide CDN services that are more resilient to failures, improve performance, and meet strict SLA commitments.
- **Ease of programmability:** CloudFront is highly programmable, with full-featured, self-service APIs, and Lambda@Edge integration. Amazon CloudFront provides developers access to several tools such as AWS CloudFormation, CodeDeploy, CodeCommit, and AWS SDKs to configure and deploy their workloads with Amazon CloudFront.
- **Improved media delivery:** CloudFront delivers mission-critical, live, and video on demand (VOD) streaming services. CloudFront integrates seamlessly with media origins such as Elemental Media Services, EC2, and S3. There are cost advantages related to integrating with these AWS services.

Challenges

Being part of the largest ecommerce and cloud provider in the world brings many advantages to CloudFront. It has technology leverage with AWS providing CDN services for PrimeVideo, taking advantage of end-to-end media capability of AWS such as Elemental, and leveraging AWS customer base especially those with S3 relationships. Amazon CloudFront does, however, face competition from existing CDN players, new entrants, and other cloud providers. They have historically faced stronger competition in the media delivery space as relationships take time to develop and, in some cases, competition with PrimeVideo could be an issue.

The extensive portfolio of services that CloudFront provides in addition to auxiliary services from AWS especially security services could be difficult to architect and consume. There is an inherent reliance on partner ecosystem to ensure an easier journey from design to implementation. We believe Amazon CloudFront could benefit from the following recommendations:

- Simplify the sprawling portfolio of services to develop an easier implementation and consumption model for end users.
- Continue to innovate with AI/ML technologies across the whole value chain of content delivery and reporting.
- Extend media delivery capabilities to large studios and media content providers.
- Develop additional alliances and partners to tackle interoperability issues among CDN providers.

APPENDIX

Reading an IDC MarketScape Graph

For the purposes of this analysis, IDC divided potential key measures for success into two primary categories: capabilities and strategies.

Positioning on the y-axis reflects the vendor's current capabilities and menu of services and how well aligned the vendor is to customer needs. The capabilities category focuses on the capabilities of the company and product today, here, and now. Under this category, IDC analysts will look at how well a vendor is building/delivering capabilities that enable it to execute its chosen strategy in the market.

Positioning on the x-axis, or strategies axis, indicates how well the vendor's future strategy aligns with what customers will require in three to five years. The strategies category focuses on high-level decisions and underlying assumptions about offerings, customer segments, and business and go-to-market plans for the next three to five years.

The size of the individual vendor markers in the IDC MarketScape represents the market share of each individual vendor within the specific market segment being assessed.

IDC MarketScape Methodology

IDC MarketScape criteria selection, weightings, and vendor scores represent well-researched IDC judgment about the market and specific vendors. IDC analysts tailor the range of standard characteristics by which vendors are measured through structured discussions, surveys, and interviews with market leaders, participants, and end users. Market weightings are based on user interviews, buyer surveys, and the input of IDC experts in each market. IDC analysts base individual vendor scores, and ultimately vendor positions on the IDC MarketScape, on detailed surveys and interviews with the vendors, publicly available information, and end-user experiences in an effort to provide an accurate and consistent assessment of each vendor's characteristics, behavior, and capability.

Market Definition

The content delivery network (CDN) facilitates the secure and timely delivery of content to end users. Content typically includes time-sensitive streaming video, static and dynamic websites, large files such as over-the-air (OTA) updates, and medical imaging. CDN deploys a set of services to ensure the delivery of content on multiple display formats within well-established performance and quality-of-service metrics such as latency, jitter, and throughput.

A CDN is typically architected with geographically dispersed network of cache or proxy servers, deployed centrally and in edge servers. A cache server manages requests from end users and presents content initially coming from an origin server. CDNs may replicate or store multiple copies of internet content including web objects (text, graphics, and scripts), downloadable objects (media files, software, and documents), applications (ecommerce and portals), live streaming media, on-demand streaming media, and social networks. In summary, CDNs are the transparent backbone of the internet in charge of content delivery.

LEARN MORE

Related Research

- *IDC FutureScape: Worldwide Future of Connectedness 2022 Predictions* (IDC #US47438921, October 2021)
- *Market Analysis Perspective: Worldwide Managed Edge and Content Delivery Services, 2021* (IDC #US47307321, September 2021)
- *Transformation of CDN into Edge Application Deliver* (IDC #US48205021, September 2021)
- *Worldwide Managed Edge Services Forecast, 2021-2025* (IDC #US47308121, August 2021)
- *IDC's Forecast Scenario Assumptions for the ICT Markets, April 2021* (IDC #US47665121, May 2021)
- *Managed Edge Services Defined* (IDC #US47304121, February 2021)

Synopsis

This IDC study presents assessment of 10 CDN vendors that provide commercial CDN services on a global basis. The assessment is based on their current capabilities and future strategies for delivering CDN services. This is the second comprehensive analysis by IDC on this mature but transforming market, and it provides insights to enterprises deciding on choices of CDN vendor.

"The CDN market is transforming in response to new market dynamics that demand innovation spanning real-time and on-demand video streaming, AR/VR, AI/ML, edge services, and security. Enterprises are evaluating CDN providers beyond their technical capabilities on the merits of a transparent commercial framework and comprehensive support services. Appealing to the development community to accelerate development of innovative edge services is becoming an important aspect to competitive advantage." – Ghassan Abdo, research vice president, Worldwide Telecommunications

About IDC

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