Online 24/7 live linear streaming is not like broadcast; it has more challenges and requires a solution that is capable of handling 24/7 live linear streams to deliver flawless reliability and broadcast-level quality experiences to viewers. High-performance live linear streaming merits careful consideration with regard to scalability, cost, and interoperability.

To keep up with the demand for broadcast-level live linear video streaming, content distributors are faced with tremendous operational issues, such as having a consistent contribution, achieving broadcast reliability, minimizing delays, and quickly identifying and mitigating issues.

Challenges to Moving to a 24/7 Live Linear Environment
Akamai has delivered some of the world’s largest live streaming events for more than 18 years and some of the world’s most popular live linear OTT services, giving us a unique vantage point in architecting our live streaming solutions. One of the key lessons we’ve learned working with our media customers transitioning to live linear OTT is that live streaming is not at the level of broadcast. However, viewers increasingly demand an online experience that matches, or exceeds, that of broadcast. A closer look at the requirements to deliver high-quality live linear streaming reveals the challenges our customers face:

1. **Ingestion of content** needs to be 24/7 rather than just event based. How can this be achieved when the Internet is so unpredictable?
2. **Content delay** must be drastically reduced from its 30-60 second delay, between what the camera captures, and what is seen in the playback. To match true broadcast experiences, latency needs to be less than 10 seconds.
3. **Broadcast reliability** is expected by online viewers. When components fail, how can they be sure the end-user experience isn’t impacted?
4. **Visibility and transparency** are beneficial to the customers as they have a view into understanding how their live linear 24/7 stream is performing; if there is a problem, they can quickly address it.
5. **Secure transport** is important to customers. From ingestion to delivery, the content needs to be handled securely throughout the entire delivery chain.
6. **Alternative ways** to control and consume content is expected by online viewers.
7. **Increased complexity and operational costs** of live workflows has made it harder to manage rising viewer expectations.
8. **Efficiently reaching a large audience** while managing rising viewer expectations has become significantly harder with fragmentation of devices and formats.

This is why Media Services Live has new, purpose-built capabilities known as liveOrigin™ — designed to specifically overcome the challenges of 24/7 live linear broadcast online and give providers peace of mind that they won’t disappoint their viewers. Media Services Live focuses on the ingestion and origination of the customers’ most important asset — their live content.

**BENEFITS**

- Enable broadcast quality ingestion for 24/7 live linear streams in DASH/HLS/HDS format, no matter the unpredictable nature of IP
- Minimize delays between TV broadcast and online viewing, creating a seamless viewer experience
- Ensure broadcast-level availability so your 24/7 service stays up 24/7
- Quickly identify and react to stream health that is being ingested to address issues in near real time
- Transport content securely from encoder to viewers with end-to-end TLS support
- Provide a TV-quality experience online by maintaining and carrying over the features and functionalities that users expect from TV
- Simplify your live workflow while providing a smoother viewing experience on end-user devices
- Maximize your content distribution footprint, while minimizing the amount of processing and files required
By embracing the challenges our customers face, Akamai’s purpose-built new capabilities, known as liveOrigin™, provide unique benefits that our competitors don’t. liveOrigin™ is also fully compatible with Akamai’s Adaptive Media Delivery solution. Our modular architecture complements reliable, scalable ingestion and origination of content with high-performance delivery of live video content. Media Services Live was built to service all needs, and reliably handle the challenges of delivering a broadcast-quality 24/7 live linear experience, providing features such as:

**Ingest Acceleration:** Akamai has integrated proprietary acceleration technology within a highly distributed ingestion network. While mapping technology matches encoders to optimal entry points to route content, UDP-based acceleration improves the performance and throughput of ingestion. These capabilities add an additional level of robustness to overall contribution and improve the quality of the live feed even in cases of packet loss.

**Low Latency Support:** To reduce the delay between online and live linear broadcast, MSL has been designed to reliably handle small fragments of low latency video for HTTP-based streaming (HLS/HDS/DASH). Akamai can support 10-second end-to-end latency (1-2 seconds behind broadcast) reliably and at scale.

**Self Healing Network:** The product is built based on the principle that everything fails at some point and therefore is built with redundancy and self healing in mind. Akamai replicates content to multiple locations so if one is down or congested, it automatically shifts to another location. Akamai’s entry points use dynamic assignment to allow for encoders to be re-routed to other entry points when needed. The solution also ensures that components don’t get overloaded through high loads or DoS attacks and are only accessed by components with permission to do so, to ensure that 24/7 reliability of the content can be achieved.

**End-to-End Transport Layer Security (TLS) Support:** Akamai has added the ability to receive content over a TLS session from the encoder and maintain the delivery between components in the Akamai network (and out to end users) so that the content is transported securely end-to-end.

**Enhanced First Mile Reports:** Akamai provides near real-time monitoring and reporting capabilities to customers so they can have clear visibility of current streams, bitrates being ingested, fluctuations over the past hour, packet loss, latency, errors, etc. This will help customers understand how their live feeds are performing in the first mile and take relevant actions as needed.

**DVR and Archive:** By providing DVR and archiver functionality, it becomes possible to offer alternative viewing experiences including “live rewind” for the end user.

**Live Transcoding:** Transcode 24/7 live streams into the various bitrates and formats needed for a smooth viewing experience, while optimizing for picture quality using a single high-quality HLS stream.

**CMAF Passthrough:** Reach a wider online audience, simplify the content preparation process, and reduce storage and delivery costs. Use a single set of audiovisual files to reach both HLS and DASH-compatible devices.

**The Akamai Ecosystem**

Akamai makes the Internet fast, reliable, and secure. Our comprehensive solutions are built on the globally distributed Akamai Intelligent Platform™, managed through the unified, customizable Luna Control Center for visibility and control, and supported by Professional Services experts who get you up and running easily and inspire innovation as your strategies evolve.

Akamai reserves the right to require that Customer make certain technical configuration changes, which may impact links, URLs, or embedded Adobe Flash, Microsoft Silverlight, and/or Apple iPhone/iPad files deployed by Customer. Akamai will provide Customer with reasonable advance notification of any such required changes. Customer will be solely responsible for any possible disruption of the service resulting from its failure to comply with the requested changes. Customer grants Akamai permission and license to alter, modify, reformat, archive, transmit, cache, strip metadata, and otherwise manipulate live videos for which liveOrigin™ is leveraged and indemnifies Akamai from any losses associated with performing these licensed actions on behalf of Customer.