

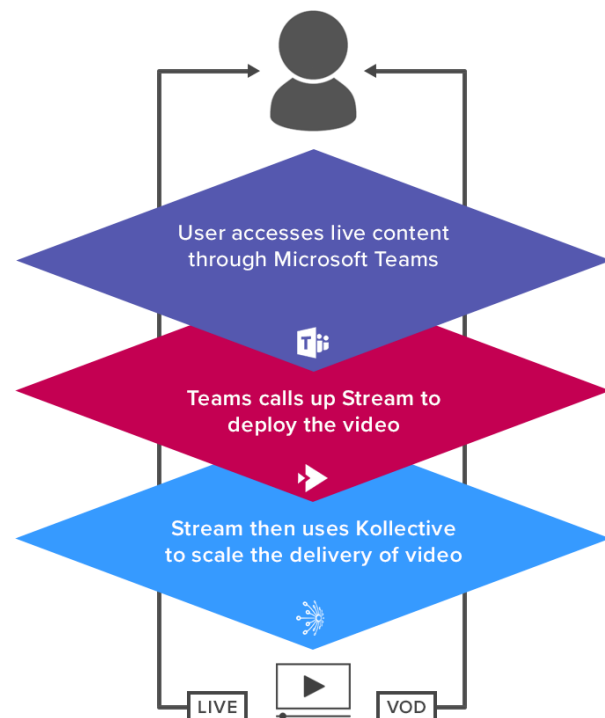


## KOLLECTIVE + MICROSOFT STREAM

A powerful partnership that scales video across your enterprise

Modern organizations rely on live video meetings and video on demand to share information, connect teams and engage their global workforce. If you're currently using or have previously used Skype Meeting Broadcast (SMB) powered by Kollective, then you know that success goes beyond content – reliable delivery is a critical piece of the puzzle.

With the transition to Microsoft Stream and Teams live meetings, the same idea applies. As a longtime Microsoft partner, we're proud to help your IT and Communications teams take advantage of our integration to ensure that your enterprise video efforts reach your audience without trouble.

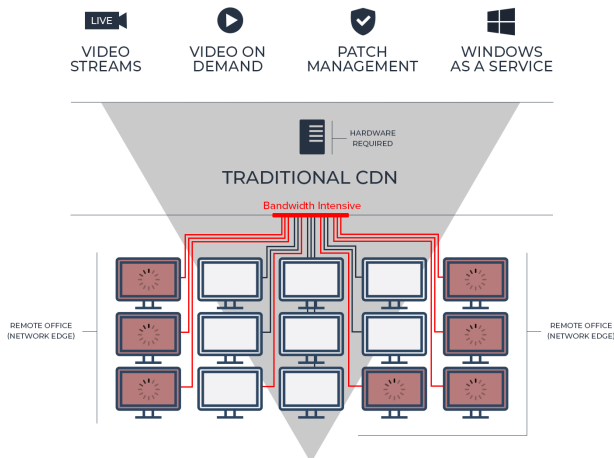


## THE VIDEO DELIVERY CHALLENGE

As more business technologies become IP-based, demands on the corporate network increase and bandwidth becomes constrained. One common and problematic scenario is an all-hands live video featuring a key executive. This generates substantial network traffic from the backbone out to the edge, which can easily result in saturated WAN links and the disruption of critical business functions.

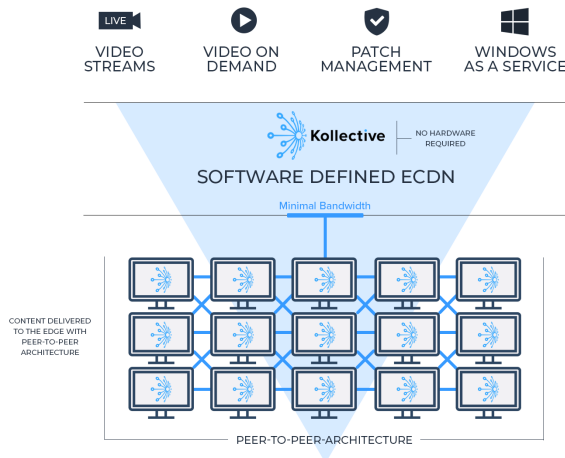
This practice often requires purchasing and deploying expensive hardware caches, WAN optimizers, streaming-server repeaters and other devices that can be prohibitively expensive. In order to overcome these video delivery challenges, video application software has to be optimized to deliver high-quality video and accommodate large meetings.

### TRADITIONAL CDN (Hardware Required)



Under the traditional CDN model each endpoint is sent an asset which can cause bottlenecks in your network and slow down bandwidth.

### ENTERPRISE CDN (Software Defined, No Hardware Required)



Using Kollective's software defined enterprise CDN enables you to send one asset and then it is shared through peering. This ensures your bandwidth is preserved without any business disruption and requires no additional hardware.

## YOUR NEW VIDEO STACK

Microsoft initially met this enterprise video challenge with Skype Meeting Broadcast, which we helped scale for large meetings. Now Microsoft is evolving its video creation, sharing and storage offerings with Stream and empowering live meetings with Teams.

Cloud-based technologies from Microsoft Azure provide vital technical infrastructure to deliver robust performance Teams live meeting. These technologies include Azure Media Services for live streaming and Azure Content Delivery Network (CDN) to support any device that viewers might be using.

But Content Delivery Network architectures can't always overcome the congestion issues associated with

hosting events for tens of thousands of viewers. This is where Kollective comes in, providing a Software Defined Enterprise Content Delivery Network (SD ECDN) that easily integrates with any O365 application via Stream.

With this stack in place, enterprise video becomes as simple as "webcam-and-go." Most of your internal users are already familiar with Microsoft's suite of tools. So in the instance that they need to rapidly create a livestream – consider an urgent CEO message to the entire workforce – they can use Teams to do so and then share the content via the Stream platform. Kollective supports the entire solution, making it possible to deliver content immediately to as many viewers as necessary.

## KOLLECTIVE PLATFORM BENEFITS

Our platform, a SD ECDN is a software-based network that orchestrates both an enterprise's network infrastructure and its end-user devices into an adaptive, continuously optimizing, fully distributed content cache and delivery system. Its formation and operation are fully software-defined, providing the flexibility, agility, and central control commonly afforded by software-defined systems.

### Kolcollective's SD ECDN helps battle common video challenges by providing:

#### **Congestion Reduction**

Stream a high-quality, live video meeting to all employees reliably, without impacting your network.

#### **Network Intelligence & Control**

Every computer acts as a content server. Characteristics of the network functions are automatically configured via the smart platform to determine the key attributes of the network's function.

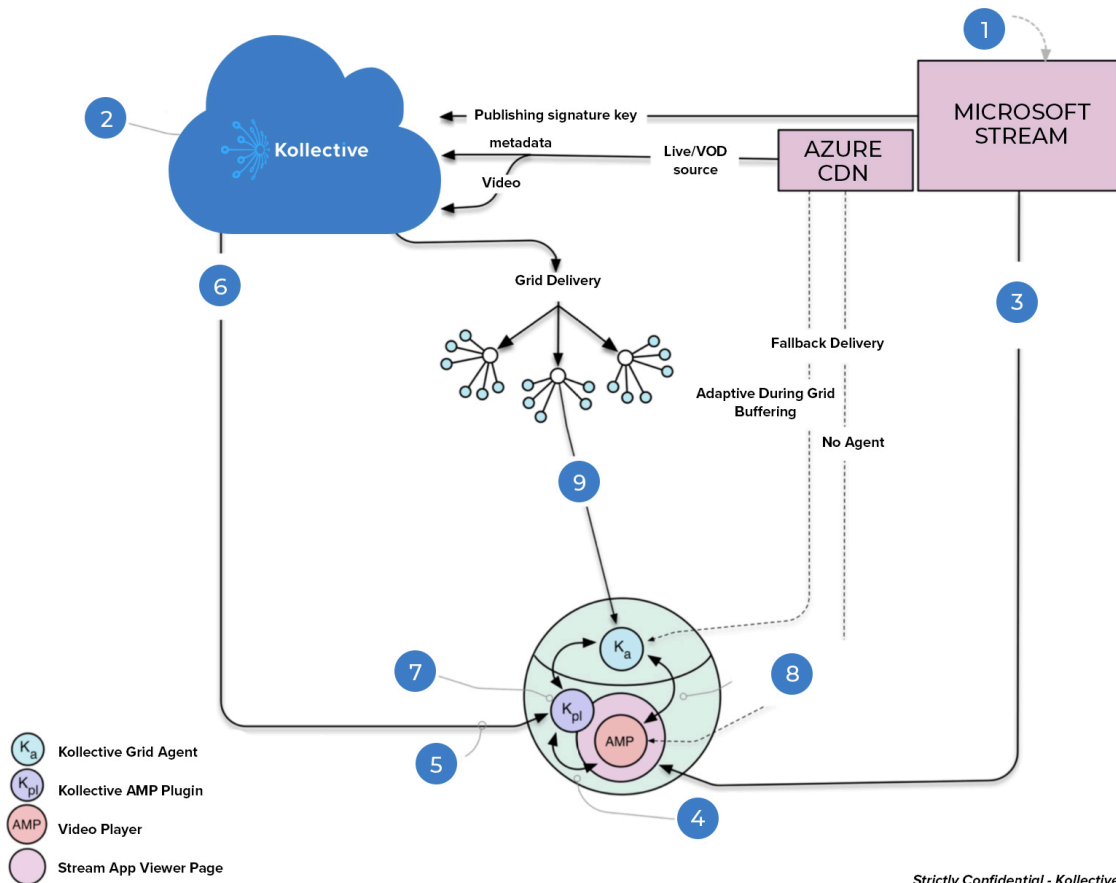
#### **Adaptive Response**

Guaranteed most efficient, timely, and complete delivery; dynamically redistributes load based on network changes within the guidelines set by the Kolcollective SD ECDN Controller.

## THE KOLLECTIVE AND MICROSOFT STREAM INTEGRATION

With the transition from Skype Meeting Broadcast to Teams, your users will now rely on Microsoft Stream to create and share video content, and Microsoft Teams live meeting to initiate video livestreams. In order to scale the live video delivery, IT support teams provision the tightly integrated Kolcollective SD ECDN, which is comprised of server and agent components. The availability of the SD ECDN delivery path is transparent to individual users, and the Kolcollective SD ECDN is activated as needed. The high-level architecture of the Kolcollective SD ECDN integration is described in Figure 1 on page 4.

The Kolcollective SD ECDN agent is integrated directly into Azure Media Player and uses either installed or web-based Microsoft applications. When Azure Media Player detects the Kolcollective SD ECDN agent running on the end-user device, the Player will stream live video directly from the agent. If an agent is not found, the video stream is sourced from the Azure CDN.



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## HOW IT WORKS

**Step 1:** Provision Stream tenant for Kollektive with Kollektive license key.

**Step 2:** Periodic retrieval of publishing signature public key.

**Step 3:** User opens Stream video page, Stream serves viewer page including Kollektive AMP plugin and signed video-delivery request.

**Step 4:** Stream app initializes Kollektive plugin with video delivery request. Plugin detects Kollektive agent, directs AMP to fallback to CDN if agent is missing.

**Step 5:** Kollektive plugin sends signed delivery request to Kollektive auto-publishing server.

**Step 6:** Server validates content-request signature and license keys. Auto-publishes content if first time encountered. Then returns delivery URN.

**Step 7:** Plugin uses URN to construct local host stream URLs and supplies them to AMP.

**Step 8:** AMP player connects to Kollektive agent's local host server, requesting video stream.

**Step 9:** Agent pulls video stream from peering grid, serving it to the AMP player.



## IMPROVED SECURITY

Kolletive's SD ECDN boasts robust security measures and authentication mechanisms. When integrated with Microsoft applications, the Kolletive SD ECDN also:

- Delivers video streams in a tunneled fashion, which does not require decrypting the streams on transit. This guarantees the utmost level of security, having encrypted streams flow uninterrupted through the Kolletive delivery network.
- Conducts agent detection over SSL (Secure Socket Layer). This removes the reliance on Adobe Flash, which is now considered unsafe by many organizations.

## KOLLETIVE PLATFORM VALUE

Once installed and configured, Kolletive's delivery solution for Stream and Teams live meetings is extremely simple to use. The Microsoft applications push content into the Kolletive SD ECDN, which in turn delivers the stream to all attendees.

The integration makes previously complicated enterprise video creation and delivery much more accessible. For example, one team may record and upload a training video via Stream that is mandatory viewing for all sales reps. Thanks to Kolletive, thousands of employees can watch the video without putting any undue stress on your network.

The introduction of Stream will likely boost the use of video by your entire organization, as more employees recognize the convenience and effectiveness of enterprise video. Our Stream/Teams integration ensures that your network is always protected and can effortlessly handle the increased demand.



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