# Kollective

# Kollective Integration with Microsoft Stream, Teams and Yammer

### Insuring flawless delivery of video in the modern workplace

TECHNICAL BRIEF

## WHAT IS MICROSOFT STREAM

Microsoft Stream is an Enterprise Video service where people in your organization can upload, view, and share videos securely. Microsoft Stream also makes it easy to share comments on a video, tag timecodes in comments and descriptions to refer to specific points in a video and discuss with colleagues. Microsoft Stream works well with other Office 365 apps like Teams, SharePoint, OneNote, and Yammer. With these collaborations, customers get single sign-on (SSO) between Microsoft Stream and various products making it easy to get the same great Stream experience across various solutions.

Microsoft Stream acts as an application within the O365 suite, but also as a video platform that delivers video in all the O365 applications. Whether you are using one or many of the components within the O365 portfolio, be assured that Kollective has the ability to power video delivery within your network for all of these Microsoft components.

The best thing about Kollective's integration is that with a small amount of configuration within your estate, all of the video delivered in Microsoft O365 applications will be delivered via Kollective, insuring your videos, no matter the source, are delivered to the edge, reaching your most remote employees. With the increasing number of use cases possible and the huge increase in the ability for users to self-serve video content on these platforms, our market experience shows that a company that starts to use video will see this usage grow over time.

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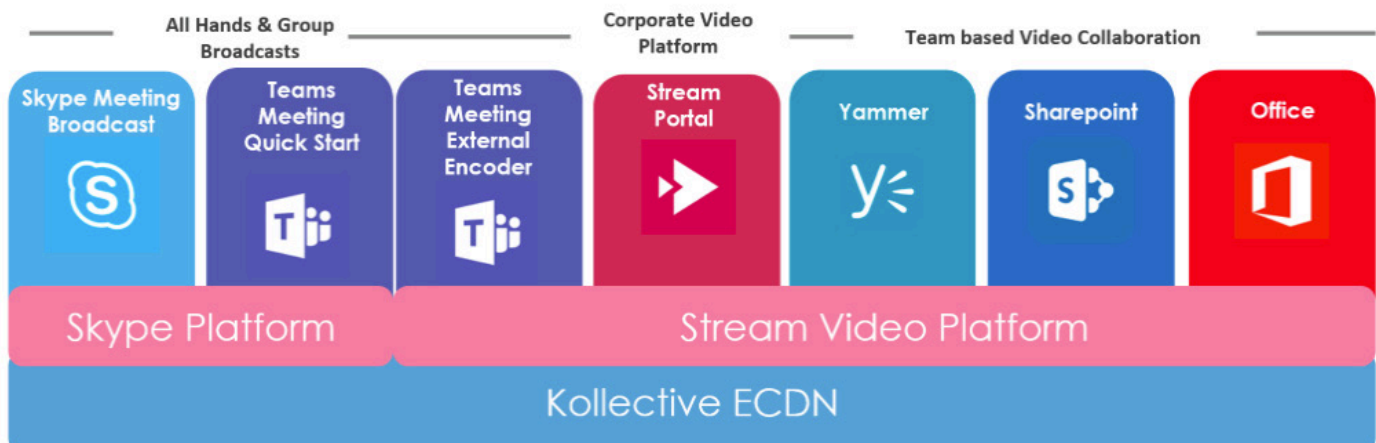
## STREAM PLATFORM - USE CASES

### Live streaming for executive communications

When communicating your corporate strategy, rolling out new products or during a crisis, nothing is more compelling for employees than hearing directly from the CEO or department head. The most cost-effective way to do that is via video. Seeing leaders on screen and being able to interact via Q&A helps build employee engagement and message comprehension. What better way to communicate business results or updated strategic plan or a new product release than via video?

Live events in Microsoft O365 applications like Microsoft Stream, Microsoft Teams, Skype Meeting Broadcast and Yammer enable users to broadcast video and content to large online audiences. Microsoft 365 live events bring live video streaming to a new level, encouraging connection throughout the entire engagement lifecycle with attendees before, during, and after live events. You can create a live event wherever your audience, team, or community resides, using Microsoft Stream, Microsoft Teams, or Yammer.

Pairing the Kollective Enterprise Content Delivery Network (ECDN) with the Microsoft Stream Video platform allows your live events to reach the furthest endpoint with no network disruption. Employees can watch a "jitter-free" live stream of a CEO or division head, making for a great experience for employees and for the executive on stage.

The Kollective integration seamlessly supports the demands of video on-demand by delivering the live streaming files to the endpoints without any additional physical infrastructure, without any impact on the corporate network and with minimal operational overhead. As the Kollective platform acts as a single "virtual distribution point", and self-orchestrates to ensure containment and efficiency, an automated ringed approach is easily achieved without special considerations for location, network or server capacity.

### Video on demand for learning & development

Video based learning and development systems act as the cornerstone for most onboarding and ongoing employee training programs in global enterprises. Creating and sharing videos in the applications of O365 like Microsoft Stream, Yammer and SharePoint make it easy for employees to access training videos. Using these same applications also ensures that L&D or HR teams can track important viewership metrics.

Imagine that there is a required compliance training that all of your global employees need to complete by a specific date. Even if HR publishes the training video months in advance, the majority of employees wait until the very last minute to watch the video. If HR sends a final reminder email, and more than 50% of your employees try to access that video at the same time, what does that do to your network? In an instant your network is forced to move video files to thousands of employees at the same time.

By enabling the Kollective ECDN in addition to Microsoft Stream, you can rest assured that no matter when your employees access any recorded videos, no matter the age, your network is protected. Employees can watch any recording, improving the adoption of video-based training and learning across your organization. Your networking teams need not worry about increasing video traffic streaming through the network and wreaking havoc on your business-critical bandwidth.

## Delivery Insured with Microsoft Azure + Kollective

Even with the Azure Content Delivery Network architectures, it's not always possible to overcome the congestion issues associated with hosting events for tens of thousands of viewers. This is where Kollective excels, providing a Software Defined Enterprise Content Delivery Network (SD ECDN) that easily integrates with any Microsoft O365 application via Microsoft Stream. With this stack in place, enterprise video is as simple as "webcam and-go."

Most of your internal users are already familiar with Microsoft's suite of tools. In the instance that an organization must rapidly create a livestream, such as an urgent CEO message to the entire workforce, they can use Microsoft Teams to do so and then share the content via the Microsoft Stream platform. Kollective supports the entire solution, making it possible to deliver content immediately to as many viewers as necessary.

Ensuring capability to deliver in difficult to reach areas such as Latin America, South Africa and China can be a challenge to reach via the Azure CDN.
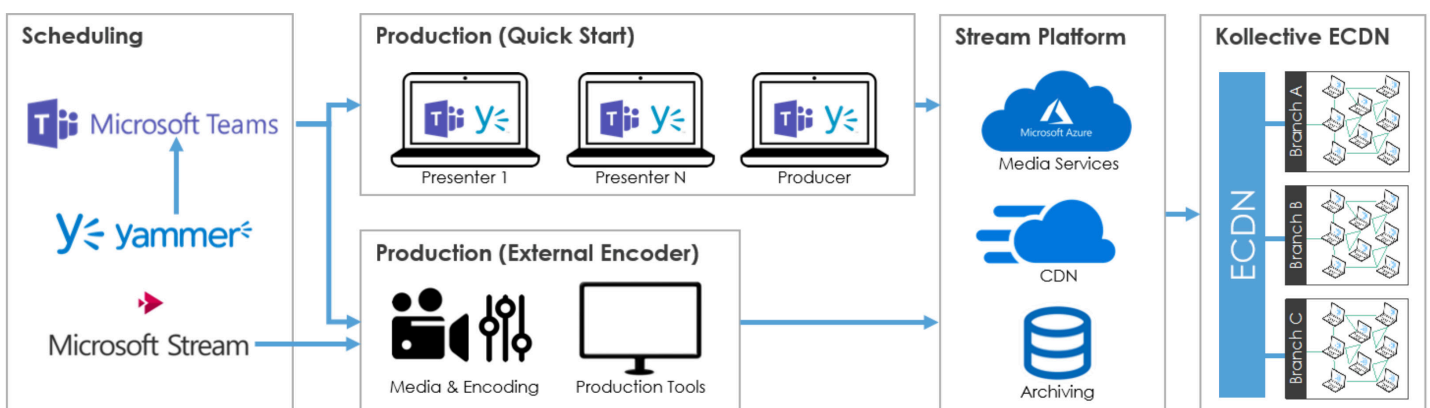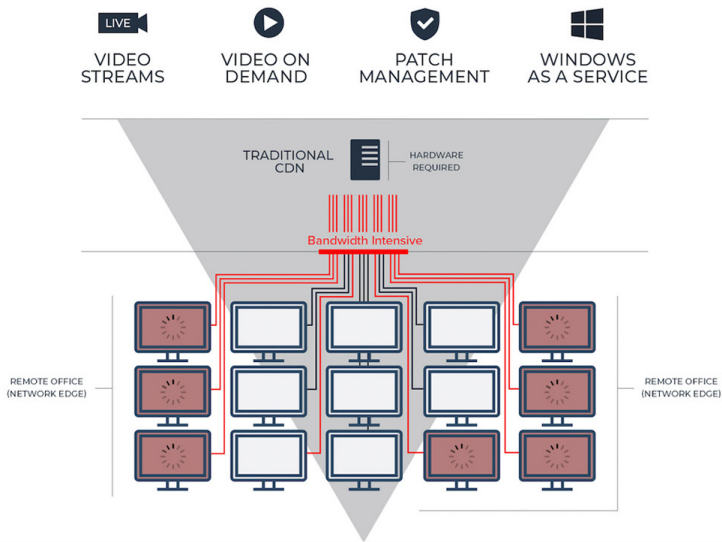


# KOLLECTIVE ECDN

The Kollective Enterprise Content Delivery Network (ECDN) enables enterprises to distribute large content such as live streaming video and video on-demand to every employee device without impacting the network, and without additional investment in physical infrastructure or servers. The Kollective ECDN can be used
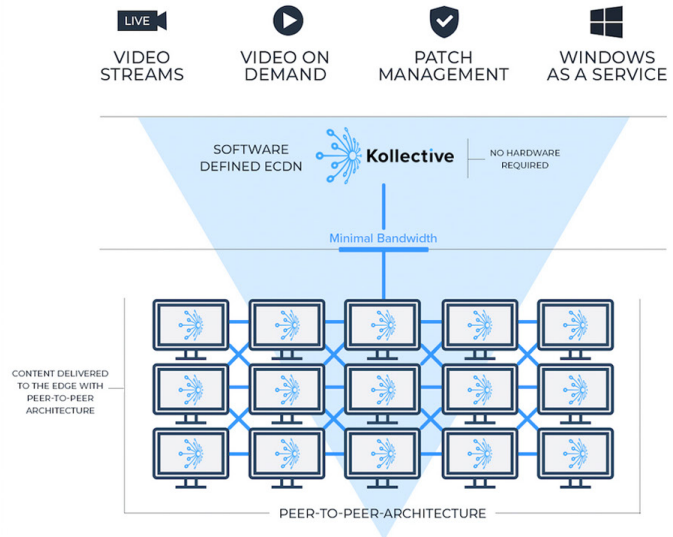
as an alternative to the traditional server-based mechanism for video distribution. Through its cloud-based architecture, network efficiencies, ability to self-optimize, and work completely in the background, the Kollective solution provides the following additional benefits to the communications and networking teams:

## WITHOUT KOLLECTIVE
### (Hardware Required)

## WITH KOLLECTIVE
### (Software Defined, No Hardware Required)



Without Kollective, each endpoint will download the video file from the nearest distribution point server. With the size of a live streaming video, this needs to be done at each location to avoid excessive load on the WAN links. The traditional approach is not only expensive, both short term and long term, but imposes a significant maintenance and operational overhead on the enterprise.

With the Kollective approach, there are no distribution point servers required. The Kollective agent collectively creates a single virtual distribution point spanning all nodes such that content like video files are sent only once over a WAN link. The platform is highly resilient with very low operational overhead.

## Kollective's ECDN has several benefits:

- **Ability to support increasing video while reducing the impact on the network.**

- **No additional hardware required, reduction in distribution points by up to 99%.**

- **Event analytics and network analytics that are easy to access and immediately actionable.**

- **Automatically adjusting to changes in traffic patterns and physical changes in your network.**

# STREAM INTEGRATION

The following diagram illustrates the data flow of the Kollective integration with Microsoft Stream:
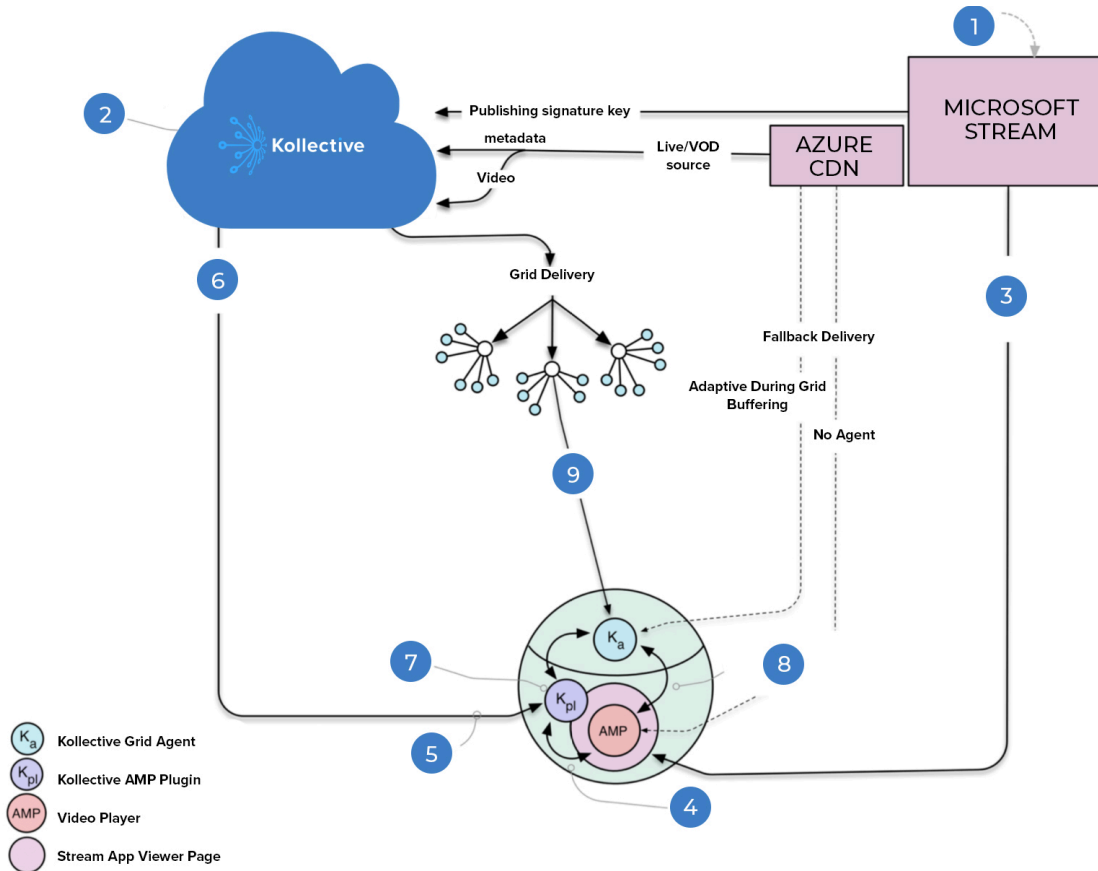


**1.** Provision Stream tenant with Kollective license key.

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

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

**4**. Stream app initializes Kollective plugin with video delivery request. Plugin detects Kollective agent, directs AMP to fallback to CND if agent is missing.

**5.** Kollective plugin sends signed delivery request to Kollective auto-publishing server.

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

**7.** Plugin users URN to construct local host stream URLs and supplies them to AMP.

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

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

# WHY KOLLECTIVE + MICROSOFT STREAM, TEAMS, & YAMMER

## 1. Accessible and actionable analytics

Understanding the impact of an event, or on-demand video is a critical part of building a successful internal communications plan or training program. With Kollective, customers can see what content is being consumed while knowing that all employees, no matter their location, have the same great experience. The Kollective platform delivers more actionable, role-based insights than any other ECDN provider, in an easy to digest dashboard.

With the Stream integration, content creators are able to see Kollective analytics from within the video by clicking on the analytics link. From there, they will see the event summary dashboard and can easily navigate to any other reports on live or VOD content.
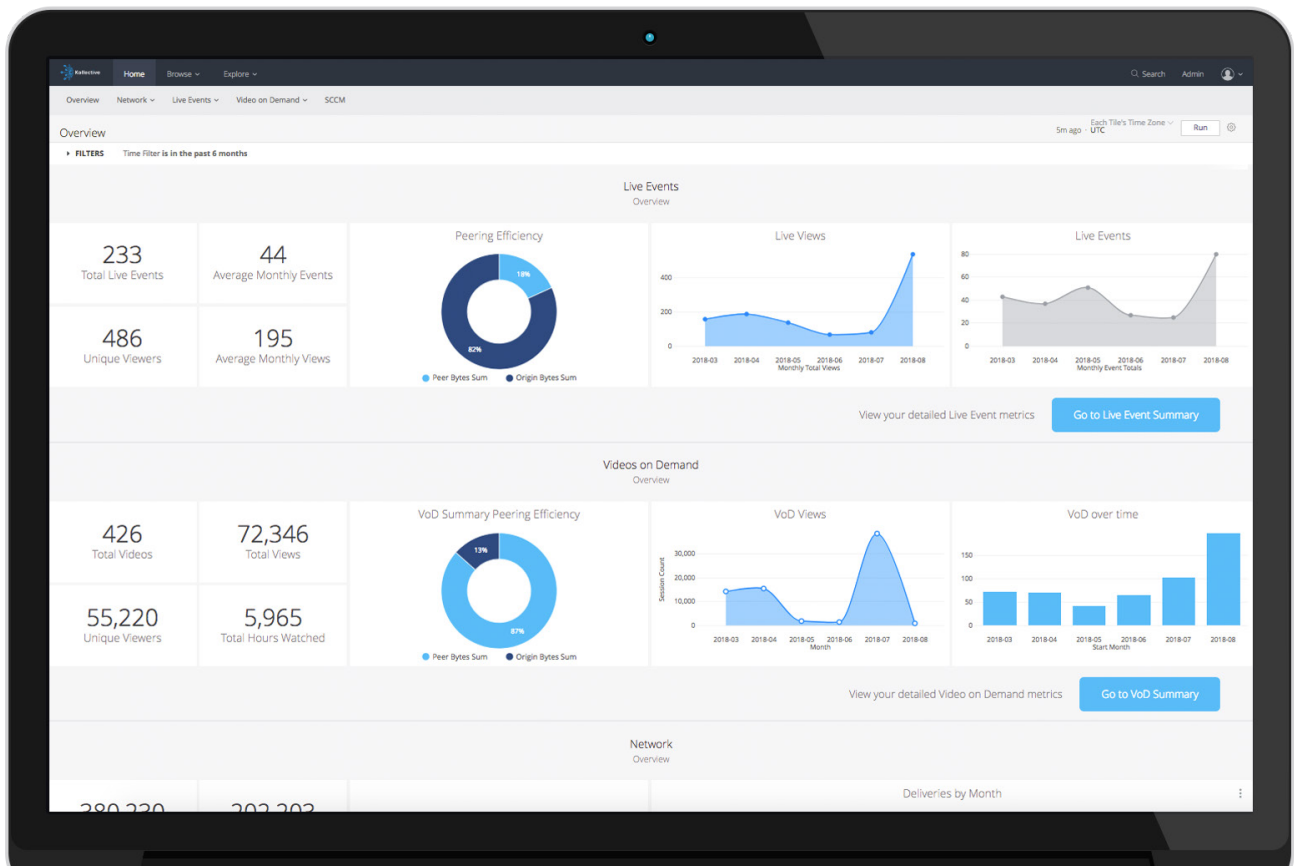


Kollectives Analytics Overview Dashboard showing high-level KPIs for Live Events as well as Video on Demand. Note the option to deep dive into a full summary for each channel.
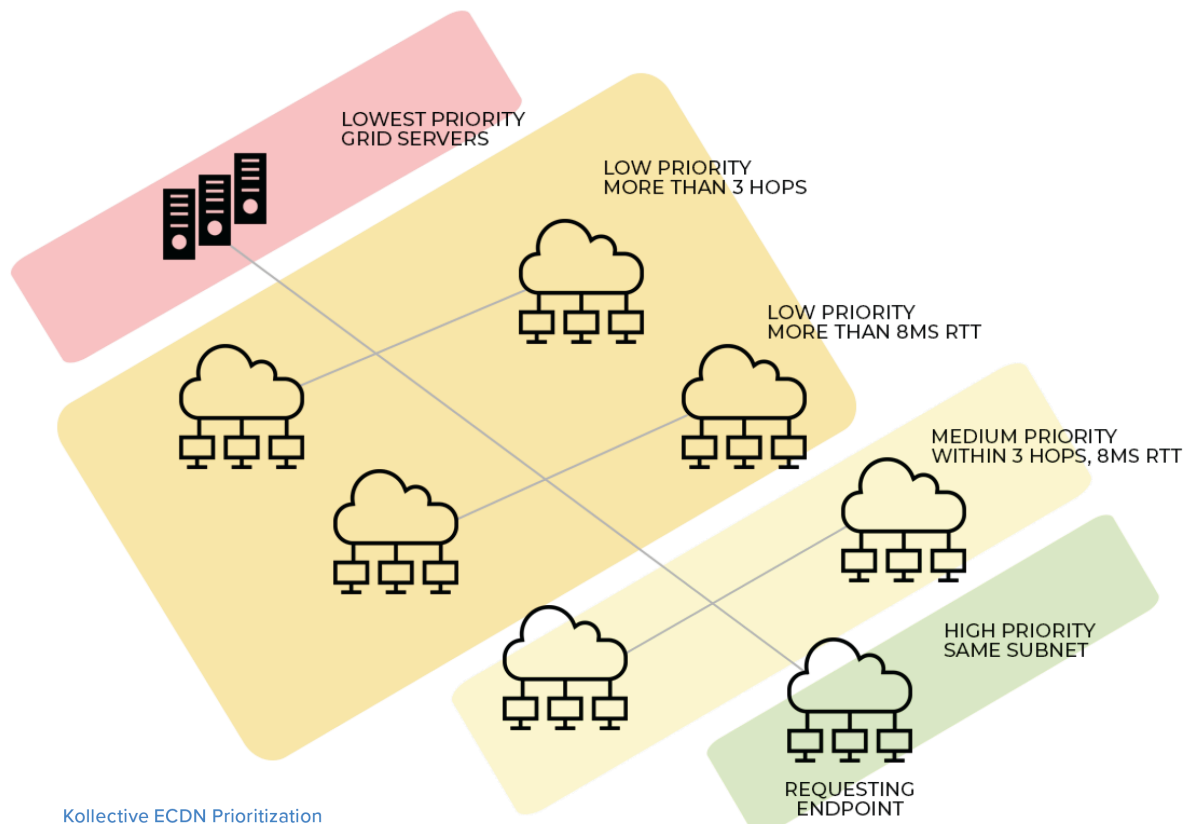
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## 2. Scale without additional effort

Microsoft is encouraging and enabling more and more video creation across its O365 applications: Microsoft Stream, Microsoft Teams, Yammer, SharePoint, and Skype Meeting Broadcast. The proliferation of video across the enterprise will cause strains on the network. Kollective's EDCN will help scale that video and insure that video curation and sharing grow within the organization. By using the Kollective for Microsoft Stream integration, any video that's shared can be accessed by as many employees without risk to the network. Kollective is a self-optimizing platform that will guarantee the most efficient, timely and complete delivery; dynamically redistribute load based on-network changes within the guidelines set by the Platform Controller.
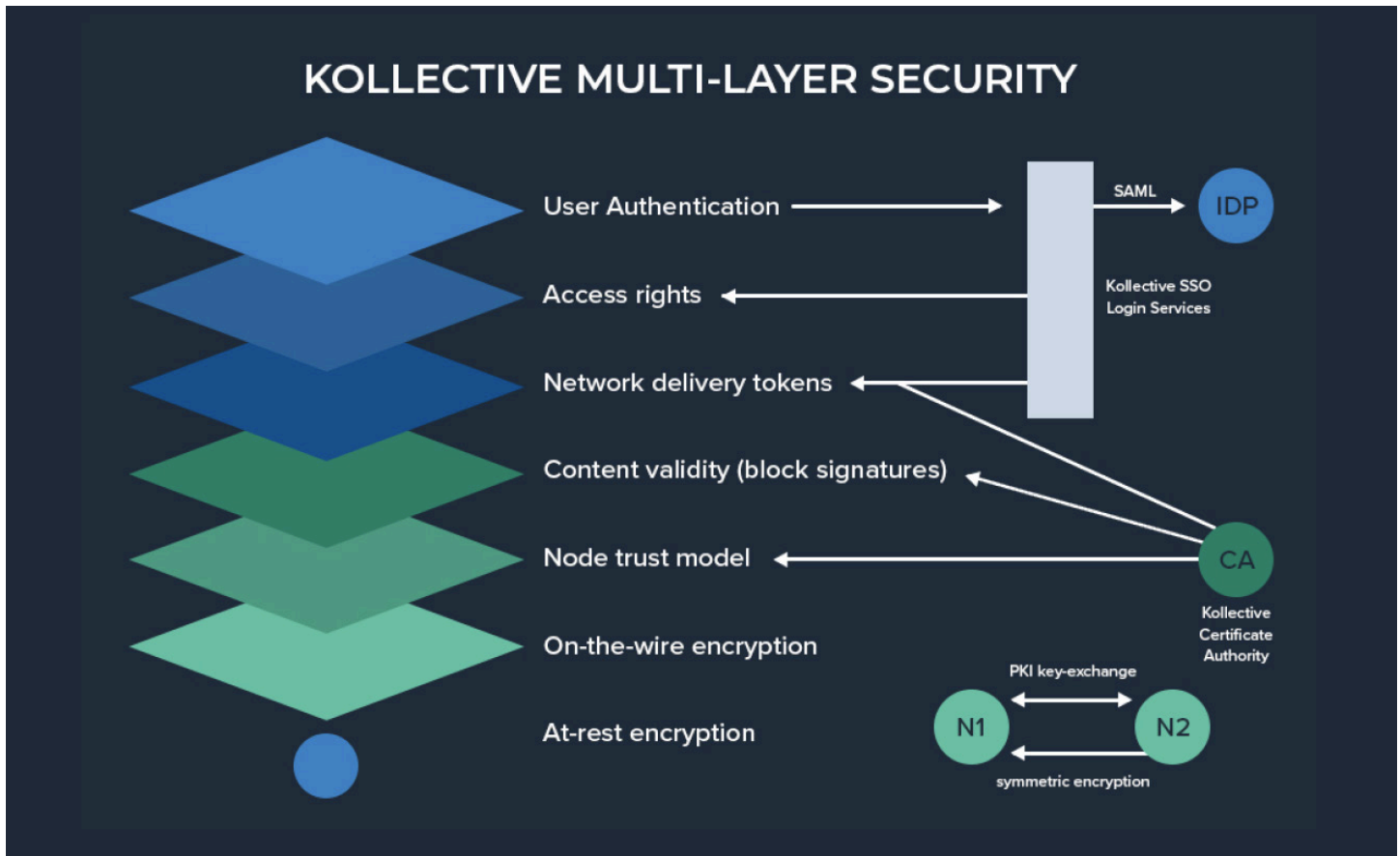
## 3. Network efficiency

Unlike traditional distribution models, the Kollective system is aware of the network topology and delivers only one copy of a video to each office, regardless of the number of users, endpoints and subnets at that location. Topology information is managed by a central service that maintains a virtual network map of all the available peers and arranges communications between peers that are close to each other. This approach means that Kollective is not limited to sourcing content from peers that are only on the same subnet. Rather, the agent's request for files are provided with a prioritized list of peers that are at the same location and have all or parts of the content available.



LOWEST PRIORITY
GRID SERVERS

LOW PRIORITY
MORE THAN 3 HOPS

LOW PRIORITY
MORE THAN 8MS RTT

MEDIUM PRIORITY
WITHIN 3 HOPS, 8MS RTT

HIGH PRIORITY
SAME SUBNET

REQUESTING
ENDPOINT

Kollective ECDN Prioritization

KOLLECTIVE MULTI-LAYER SECURITY

User Authentication

Access rights

Network delivery tokens

Content validity (block signatures)

Node trust model

On-the-wire encryption

At-rest encryption

SAML — IDP

Kollective SSO Login Services

CA

Kollective Certificate Authority

PKI key-exchange

N1 ←→ N2

symmetric encryption

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

**1. 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 Kollective delivery network.**

**2. Conducts agent detection over SSL (Secure Socket Layer). This removes the reliance on Adobe Flash, which is now considered unsafe by many organizations.**

Content data is ingested into the Kollective SD ECDN using HTTPS upload. Upon ingest, the content data will be virus-scanned and encrypted, and in all cases, has a set of data-block cryptographic digests created that will be used later during delivery to validate content as it arrives at a receiver.

# SUMMARY & KEY BENEFITS

The Kollective integration with Microsoft Stream, Teams and Yammer scales the delivery of video in Office 365, keeping enterprise employees engaged and boosting productivity in the modern workplace. Kollective can offset up to 99% of bandwidth when streaming a live CEO townhall through Microsoft Teams, or video on-demand in Microsoft Stream and Yammer.

## Benefits summary

Kollective solves some of the biggest network challenges in the Enterprise, like:

• **Streaming a high quality, live video All Hands meeting to all employees reliably, without impacting the network.**

• **Measuring the results of video communications via O365 enterprise applications, like Microsoft Stream, Microsoft Teams, Yammer and SharePoint or the corporate intranet with thousands of videos.**

• **Moving large files around your network with ease. Need to make a 4GB Microsoft Office Update available to all employees in India? No problem.**

## Kollective technical benefits

• **Software-Defined Technology - Kollective's SD ECDN acts as an intelligent network. Every computer is a content server.**

• **Control Layer — Network becomes highly configurable: characteristics of the network functions are configured via software 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 SD ECDN Controller.**

• **A highly extensible and robust API enables integration with Microsoft Stream that scales video across the enterprise.**

> Using Kollective has allowed us to scale live video communications across our entire organization without impacting our network. Our employees love it because we finally have a live HD- quality stream. And our IT team loves it because it works perfectly with the Microsoft Office 365 suite of products that we already use.
>
> **- Zohab Qazi, IT Collaboration Services Manager, NXP Semiconductors**