# IBM Enterprise Content Delivery Network

Deliver internal video at scale

IBM

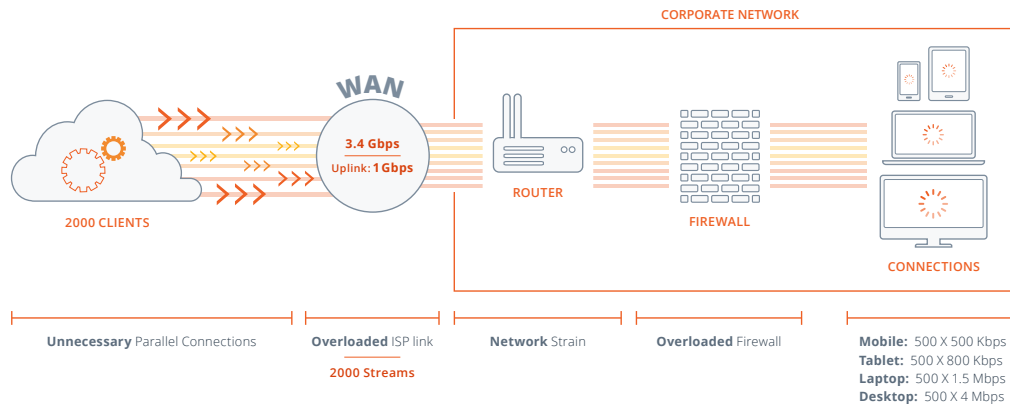# IBM® Enterprise Content Delivery Network

With IBM® Enterprise Content Delivery Network (ECDN), you can relieve the bottlenecks associated with delivering streaming video to single or multiple locations within your organization's network.

How Enterprise Content Delivery Network works

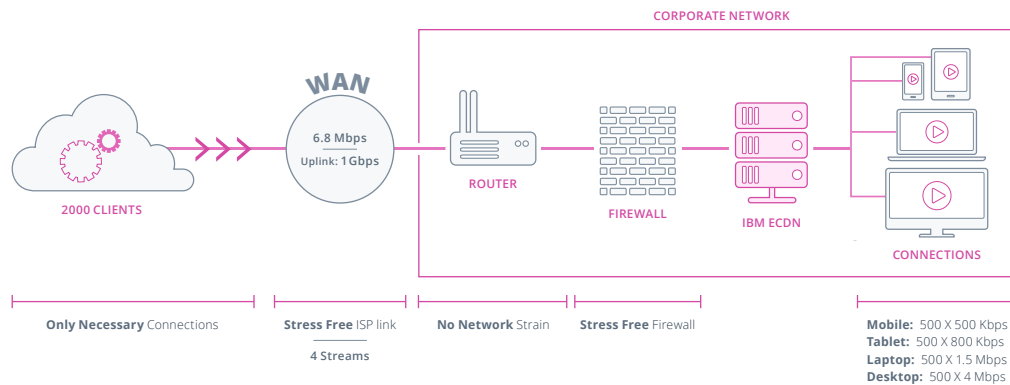CAPTURE → TRANSCODE → DELIVER → WATCH → MEASURE

eCDN   Global CDN
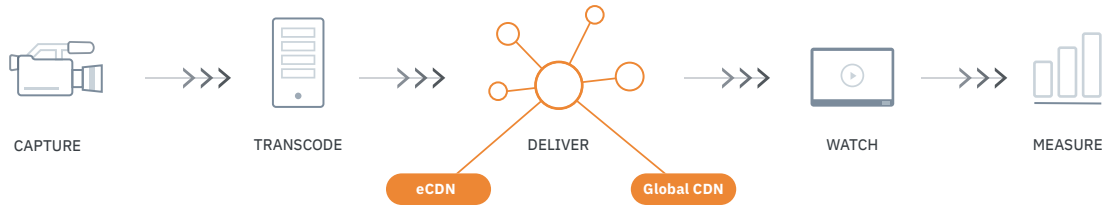
ECDN servers are delivered as virtual appliances and are deployed close to the target audience, inside the corporate network. As a result, ECDN helps reduce the number of streams that need to be downloaded over the WAN. Video streams are downloaded once and then distributed internally on the local network.

Without IBM ECDN 2000 client use case

CORPORATE NETWORK

WAN
3.4 Gbps
Uplink: 1 Gbps

2000 CLIENTS   ROUTER   FIREWALL   CONNECTIONS

Unnecessary Parallel Connections   Overloaded ISP link   Network Strain   Overloaded Firewall

2000 Streams

Mobile: 500 X 500 Kbps
Tablet: 500 X 800 Kbps
Laptop: 500 X 1.5 Mbps
Desktop: 500 X 4 Mbps

With IBM ECDN 2000 client use case

CORPORATE NETWORK

WAN
6.8 Mbps
Uplink: 1 Gbps

2000 CLIENTS   ROUTER   FIREWALL   IBM ECDN   CONNECTIONS

Only Necessary Connections   Stress Free ISP link   No Network Strain   Stress Free Firewall

4 Streams

Mobile: 500 X 500 Kbps
Tablet: 500 X 800 Kbps
Laptop: 500 X 1.5 Mbps
Desktop: 500 X 4 Mbps

Features

IBM ECDN was built to support large-scale viewership of high quality streaming video within complex corporate internal network environments.

Reduced network strain on WAN & MPLS links
Avoid expensive WAN and ISP link upgrades and protect your organization from occasional bursts in traffic. Organize ECDN servers in multi-tier hierarchical topologies to optimize delivery over your MPLS networks.

Support for multicast delivery
Use your multicast network, if available, to deliver live video streams. Use your regular unicast network to deliver video on demand (VOD) streams to all devices including mobile platforms.

Cost saving
Postpone or possibly even eliminate the need of network capacity upgrades.

Improved video quality, no buffering issues
Don't tolerate low quality videos or buffering. Release high quality video content with crisp image quality and fluid motion over existing infrastructure to all locations.

Cost saving
Postpone or possibly even eliminate the need of network capacity upgrades. Selectively enable persistent caching of VOD content to secondary disks in ECDN servers.

Low maintenance
Your subscription includes all updates including feature upgrades and security patches, which will be done by IBM, allowing you to focus on your business. IBM ECDN service is GDPR compliant and follows strict enterprise security best practices.

Monitor performance
Web portal shows live monitoring dashboards where you can see health check results, and number of concurrent users connected to each ECDN server. IT administrators can see detailed metrics like network, memory, CPU, and disk usage too.

Historical usage reports
You can retrieve usage reports for any duration in the past two years.

Firewall support
Use ECDN in conjunction with firewalls, requiring port 80 (HTTP) and port 443 (HTTPS) to be opened toward select IBM owned destinations in the Internet. No inbound ports are required to be open.

Install multiple instances
Horizontally scale ECDN servers by installing one or more additional instances. Player will auto-balance the load among the available ECDN instances.

Mobile delivery
Support viewing on desktops and mobile devices via cloud transcoding to deliver an HLS (HTTP Live Streaming) stream.

Automatic routing logic
Pull video content for each viewer from the closest node with virtually no disruption to normal delivery over a worldwide network.

Built-in administration
Manage ECDN deployment through a web-based panel that is accessible by modern browsers, including tablets.

Use cases

- ✓ CxO Town hall meetings
- ✓ Training & Sales enablement
- ✓ Internal meetings

Cloud installation and configuration

IBM ECDN server is a virtual appliance that runs on virtualized infrastructure such as VMware ESXiTM, Microsoft Hyper-V® or KVM hypervisors that support the Open Virtualization Format. Installation of the ECDN servers takes virtually minutes and can be deployed to existing hardware.
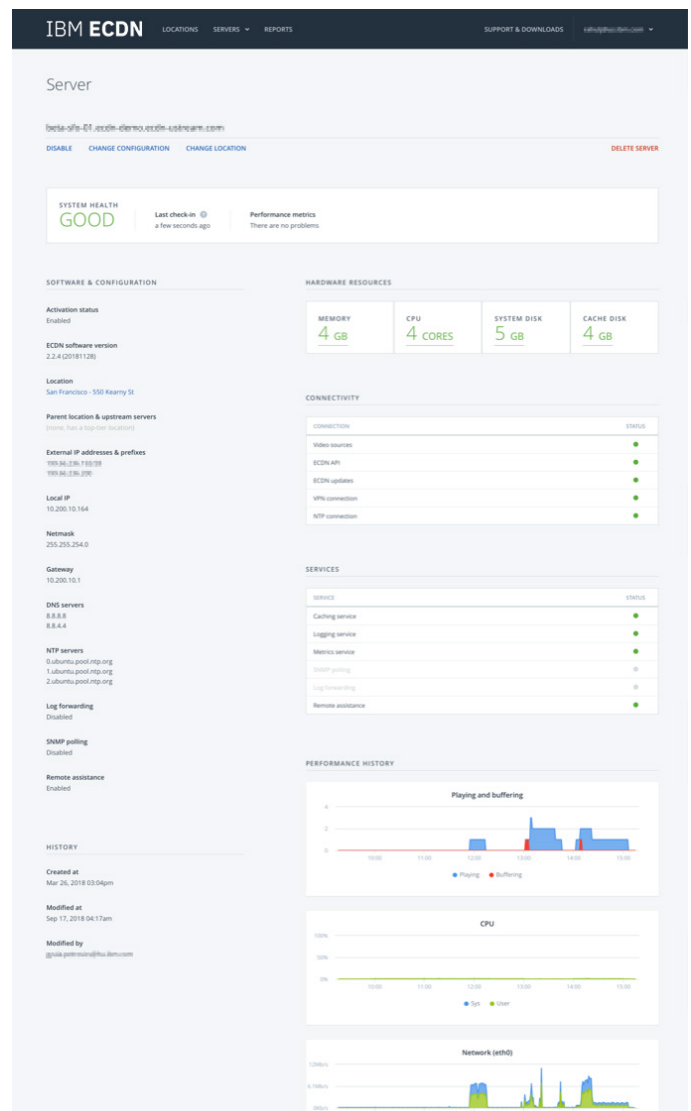
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Deployment steps

1 — Network assessment and capacity planning

IBM + Customer

2 — Define deployment architecture

IBM

3 — Customer ECDN account provisioning

IBM

4 — Register public IP addresses

IBM

5 — Define locations to IP address mappings in portal

Customer

6 — Define ECDN servers in portal

Customer

7 — Create corresponding ECDN VM instances

Customer

8 — ECDN testing

Customer

9 — Use ECDN in production

Customer

Assessment and portal

Before ECDN deployment, IBM will work with your networking team to understand the topology of your enterprise network and collect and document the details during a network assessment. Data collected will include number of employees per office locations, public egress IP addresses, available bandwidth etc. Based on the data, a deployment proposal will be defined identifying how many ECDN servers are needed for each location. Your ECDN account will be provisioned along with logins to the web portal. IBM will register all public egress IP addresses in your account.

The ECDN servers are managed through the web portal. In the web portal, you will define the locations and their corresponding egress IP addresses. Next define the ECDN server instances in each location as identified in the deployment proposal.

In your enterprise IT infrastructure, you will create the ECDN VM instances for each server definition in the web portal. Once provisioned and started, each ECDN server instance will send their health check status to the IBM ECDN cloud platform. The status along with the ECDN server configuration details can be seen in the web portal.

System requirements

Hardware environment	Dedicated (recommended) or shared
Hypervisors	Hypervisors with OVF support: • VMware ESXi v6.5 • Microsoft Hyper-V R2 2012 • KVM
ECDN server Guest OS	Ubuntu Linux 16.04 LTS
Hypervisor network interface	1Gbps or 10Gbps
ECDN server VM configuration	Minimum: 1 vCPU (2 vCPUs recommended), 4GB RAM, 4GB disk You may optionally attach a secondary disk to enable persisting the cache contents to disk
Network connectivity	In case of 1Gbit/s NIC ~ 200 users In case of 10Gbit/s NIC ~ 2,000 users
Maximum viewers supported per server	It depends on host hypervisor NIC capacity, number of concurrent streams and their resolution. Example: • One ECDN server with 1Gbps NIC streaming one 1080p (~ 3Mbps) broadcast can support approx. 265 viewers. (1000Mbps capacity – 20% overhead = 800Mbps that can support (800 – 3) / 3 Mbps = 265 viewers) • One ECDN server with 10Gbps NIC streaming one 1080p (~ 3Mbps) broadcast can support 2665 viewers.

Summary

Using IBM Watson Media's ECDN, combined with IBM Enterprise Video Streaming, organizations can create targeted video assets for specific audiences without concerns for congesting local connections. "All hands" meetings, and other employee communications, can be achieved and can target all employees, both local and off-premise. ECDN offers enterprises a comprehensive internal video solution that can be used to serve restricted content to employees and stakeholders helping enterprises avoid the worry about individual setups or corporate network strain.

Additional ECDN related information

- ECDN support site:
  http://ibm.biz/ecdn-support-center
- Support for delivery over multicast networks data sheet:
  https://www.ibm.com/downloads/cas/O5GAKWWR
- Deploying ECDN on Cisco 4000 Series Integrated Service Router (ISR 4000):
  https://www.ibm.com/downloads/cas/ZR80AJOD
- Deploying ECDN with AT&T Flexware:
  https://www.ibm.com/downloads/cas/RQ6QNAMG