



EUR(O)VISION FLOW

OPERATED BY EBU

THE FUTURE OF CONTENT DELIVERY

SIMPLE SMART
INNOVATIVE
FUTURE-PROOF
INTUITIVE
MODULAR
TECHNOLOGY



MULTI-CDN

THE IDEAS BEHIND EUROVISION FLOW

With a Multi-CDN setup, the content provider improves quality whilst reducing costs for online delivery. The service is based on a strategy of using multiple CDNs in a single service to optimize data flows from the content provider to the end user.

By switching HTTP traffic between different CDNs, based on real-time performance data and business parameters, limitations of a single CDN distribution can be overcome. Stacking of CDNs improves redundancy, increases availability and capacity which improves the audience's quality of experience whilst driving costs down. From a cost perspective, it makes sense to allocate as much traffic as possible to a single supplier, but this creates an operational risk as all traffic is run through a single arrangement. These limitations are overcome with Eurovision FLOW.



KEY BENEFITS OF EUROVISION FLOW



- **Higher quality for online delivery**
Ability to switch between “best of breed” CDNs based on performance using cutting-edge technology
- **Better value for money**
Economies of scale at market leading rates
- **Increased redundancy**
Access to multiple CDNs and no single point of failure
- **Access to new technology**
Switching technology, advanced metrics and future platform development
- **Access to integrated value added services**
Origin services, analytics, encoding, transcoding, security at the edge
- **Reduced administration and infrastructure costs**
FLOW simplifies tech stack and avoids vendor lock-in
- **Long-term strategic advantages**
Future-proof and adapt in line with your roadmap

KEY OBJECTIVES

NO SINGLE POINT
OF FAILURE



REDUCE THE COST
THAT CONTENT
PROVIDERS ARE FACING



UNRIVALLED
CAPACITY



IMPROVE
QUALITY
OF ONLINE
DELIVERY



ROBUST
NETWORK





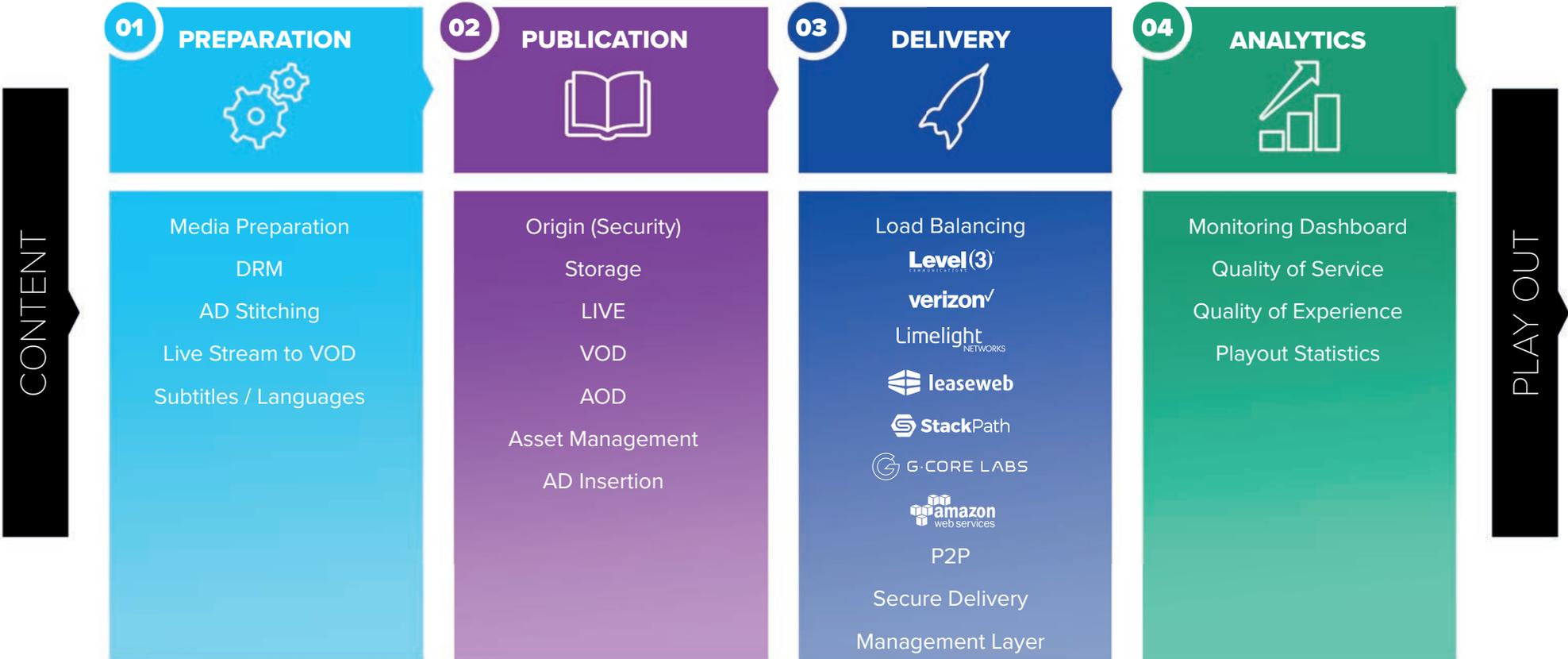
EUROVISION **FLOW PROVIDES** **A MULTI-CDN PLATFORM** COMPRISING A NUMBER OF DIFFERENT ELEMENTS

- 01.** CDN capacity from a range of global and local commercial suppliers integrated into a single redundant solution for live and on-demand video/audio.
- 02.** A switching layer across different CDN suppliers, allowing customers to use their own and / or FLOW CDN capacity in a more flexible manner (a single point of integration for customers to engage with CDNs).
- 03.** Metrics provided to content providers to assist in their OTT decision making and strategy (this allows customers to switch traffic between different CDNs based on dynamic switching rules).
- 04.** The switching platform delivers a redundant setup without a single point of failure whilst stacking the capacity of different CDNs.

EUROVISION FLOW (END-TO-END)

CONTENT DELIVERY PLATFORM

Ground-breaking solution backed by 24/7 monitoring to ensure optimum quality and performance whilst creating greater cost efficiencies.



01

PREPARATION

When it comes to preparing content for delivery, the FLOW Platform sets the standard for ease of use, speed, cost and flexibility.



DIGITAL RIGHTS MANAGEMENT



MEDIA PREPARATION



AD STITCHING / LIVE TO VOD



SUBTITLES / LANGUAGES



MEDIA PREPARATION

FLOW Media Manager makes it effortlessly easy to encode, transcode, repackage and compress media in the delivery process:

Analog-to-digital or digital-to-digital conversion to prepare video and audio files for online distribution.

DIGITAL RIGHTS MANAGEMENT (DRM)

Flow Media Manager enables you to control access to copyrighted material:

- Google Widevine
- Microsoft Playready
- MDC Marlin
- Adobe Flash Access
- Apple Fairplay
- Advanced Encryption Standard (AES)

AD STITCHING

Server-side ad insertion, also known as “dynamic ad insertion” or simply “ad stitching”, is a technology that lets publishers stitch their video and ad content together on the CMS level rather than on the level of the browser (pre roll, post roll, mid streams all supported).

LIVE STREAM TO VOD

Publish VOD from a Live Stream with minimal latency. We provide real-time video and audio encoding for linear pay-TV broadcast and live streaming to new media platforms. The software-based solution performs simultaneous processing of multiple video outputs, delivering the high-quality, high efficiency performance required for formatting live video for any device.

SUBTITLES / LANGUAGES

Let FLOW take control of multi-language and subtitle support of your publication files.

02

PUBLICATION

When it comes to publishing content across your network, the FLOW Platform sets the standard for ease of use, cost-effective and robust delivery.



ORIGIN (SECURITY)



STORAGE (LIVE / VOD / AOD)



ASSET MANAGEMENT



AD INSERTION



ORIGIN (SECURITY)

- The Origin has secure ingest of streams and has security features when interacting with external CDNs.
- Origin shielding is included as matter of course and only those CDNs that are whitelisted will be able to access the streams.
- HTTPS delivery is also included as a basic feature, so that the streams are delivered in a secure manner.
- In order to provide an additional security layer, the origin server can be protected against DDOS / WAF attacks in a quick and easy manner.

STORAGE (LIVE / VOD / AOD)

- Easy to integrate – Simple yet comprehensive RESTful API means Live Capture is easy to use and integrates with existing workflows. Web interface offers an intuitive platform to create, package and deliver content.
- Comprehensive – Dynamic real-time transcoder can produce any number of outputs across a wide range of complexities and formats.
- Resilient – Deployed to multiple AWS availability zones in a single region by default, Live Capture can also be deployed active across two AWS regions for enhanced resilience.
- Logging and trimming console – Edit and log live video anywhere, anytime. No special video formats needed; just provide a live HTTP stream and Live Capture facilitates the trimming in the cloud. Edits and logs are frame-accurate.
- Expandable – Unlimited video storage available. Live Capture integrates with Cloud MAM for complete asset management and workflow.
- Affordable – Live Capture offered as SaaS and billed on an output basis; only pay for what you use.

ASSET MANAGEMENT

A simple storage and process flow for the streams is available. The setting of publication windows are adhered to, and if an instant delete is required, the system is completely controlled by the client. It can be integrated into the system flow with the client's CMS.

AD INSERTION

Ad insertion is provided if required and customised for client. The ad insertion can be dynamic if required. Pre roll, post roll and mid stream can all be included.

03

DELIVERY

When it comes to delivering content, the FLOW Platform sets the standard for simplicity, intuitive, future-proof technology.



LOAD BALANCING



MULTI-CDN



SECURE DELIVERY



MANAGEMENT LAYER



LOAD BALANCING

The FLOW Platform provides automated, predictive, and cost-optimal routing of your apps, video, and content across CDNs. Traffic switching (HTTP / DNS) is guided by a range of different performance metrics (RUM / QoS / QoE).

MULTI-CDN

The FLOW Platform provides a true Multi-CDN delivery experience with the best CDNs in the market.

Level(3)
COMMUNICATIONS

verizon

Limelight
NETWORKS

G-CORE LABS

leaseweb

amazon
web services

StackPath

This mix of the leading global CDNs provides a solution that is second to none. It reduces costs while improving performance.

The FLOW Platform removes any single point of failure in the online delivery chain. By stacking the capacity of multiple CDNs, the network has capacity to deliver the most demanding amounts of traffic at anytime in any location. This protects you from overloading the network, whilst ensuring a seamlessly robust network.

This is all managed and looked after by Eurovision in our Headquarters in Geneva, Switzerland with our 24/7 monitoring station.

SECURE DELIVERY

DRM, HTTPS, WAF, DDoS, Origin Shielding, Edge delivery using the technological advantages of a Multi-CDN Network.

MANAGEMENT LAYER

A single interface to manage your CDNs, which makes operating a multi-CDN environment simple.

This management layer allows you to operate your existing CDN contracts in conjunction with FLOW CDNs.

04

ANALYTICS

With the FLOW Platform you get the industry's most advanced analytical tools giving you a powerful competitive advantage.



MONITORING DASHBOARD



QUALITY OF SERVICE



QUALITY OF EXPERIENCE



PLAYOUT STATISTICS



MONITORING DASHBOARD

24/7 support and monitoring dashboard provides in-depth insights in operations and a guaranteed service continuity. It consists of an advanced toolset to control operations, perform diagnostics, troubleshooting and alerts engineers when necessary.

QUALITY OF SERVICE (QOS)

An extensive combination of performance metrics derived from the full distribution chain and third party monitoring networks. Metrics can be accessed through graphical user interface, API, or FTP as tailored or generic reports. The available data set consists of raw and aggregated CDN logs, network probe reports, Real User Monitoring (RUM), Origin-to-playout analytics, and the following Quality of Service (QoS) metrics retrieved from playout devices:

- Videos Watched
- Total Time Watched
- Avg Duration Per Video
- Avg Video Start Time
- % Of Videos Start Failures
- % Of Videos Start Failures
- Rebuffering Ratio
- Average Bitrate
- Average Response Time
- Average Throughput

QUALITY OF EXPERIENCE (QOE)

The QoE data delves into further details focusing on user experience and behaviour with your sites and applications:

- Overall score
- Playback failures
- Time for first frame
- Exits before video start
- Player/page load time
- Rebuffer Percentage
- Rebuffer Frequency
- Seek time
- Upscale Percentage
- Downscale Percentage
- Browser
- Browser Version
- Country
- Operating System
- OS Version
- Player Name / Player Version
- Player Software / Player Source Type
- Source Hostname
- Stream Type
- Video Title / Video Series

PLAYOUT STATISTICS

Advanced playout metrics are available to track user behavior over your distribution outlets. FLOW facilitates raw or processed CDN playout logs or can collect all player states, and provide detailed reports through interactive user interfaces.

CDN SWITCHING

The CDN overlay technology itself is a switching layer to load balance traffic between different CDNs based on dynamic switching rules. A play request from an end user generates a call in the content providers' backend to the switching platform for a recommendation for the optimal CDN to use for the IP-address involved. The resolved redirect URL or URI path allows the media player to start buffering the content from the intended cache inside the CDN network.

Before real-time performance metrics can be applied efficiently one could only use static load balancing with fixed business rules to direct traffic based on volume, access ISP or specific capabilities of a network. Dynamic switching changes the game and allows actual performance metrics (QoS, QoE, RUM) to be used to automate real time CDN recommendations.

REDUNDANCY

The switching platform provides a redundant setup without a single point of failure. If one of the connected CDNs is not available, the traffic will be automatically switched to the others.

Results to date prove 100% availability at all times that there were at least two CDNs available.

WAYS TO INTEGRATE YOUR **DELIVERY MECHANISM** WITH EUROVISION FLOW

3 WAYS TO CONNECT TO **EUROVISION FLOW** SWITCHING PLATFORM

01

RE-DIRECT:

Using DNS method as a
redirect server

02

PLAYER API:

Simple JSON Restful calls
providing new URL

03

CMS API:

Integration with switching layer
to generate URLs



TRAFFIC SWITCHING
CAN BE GUIDED BY
**A RANGE OF DIFFERENT
METRICS AND INPUTS**

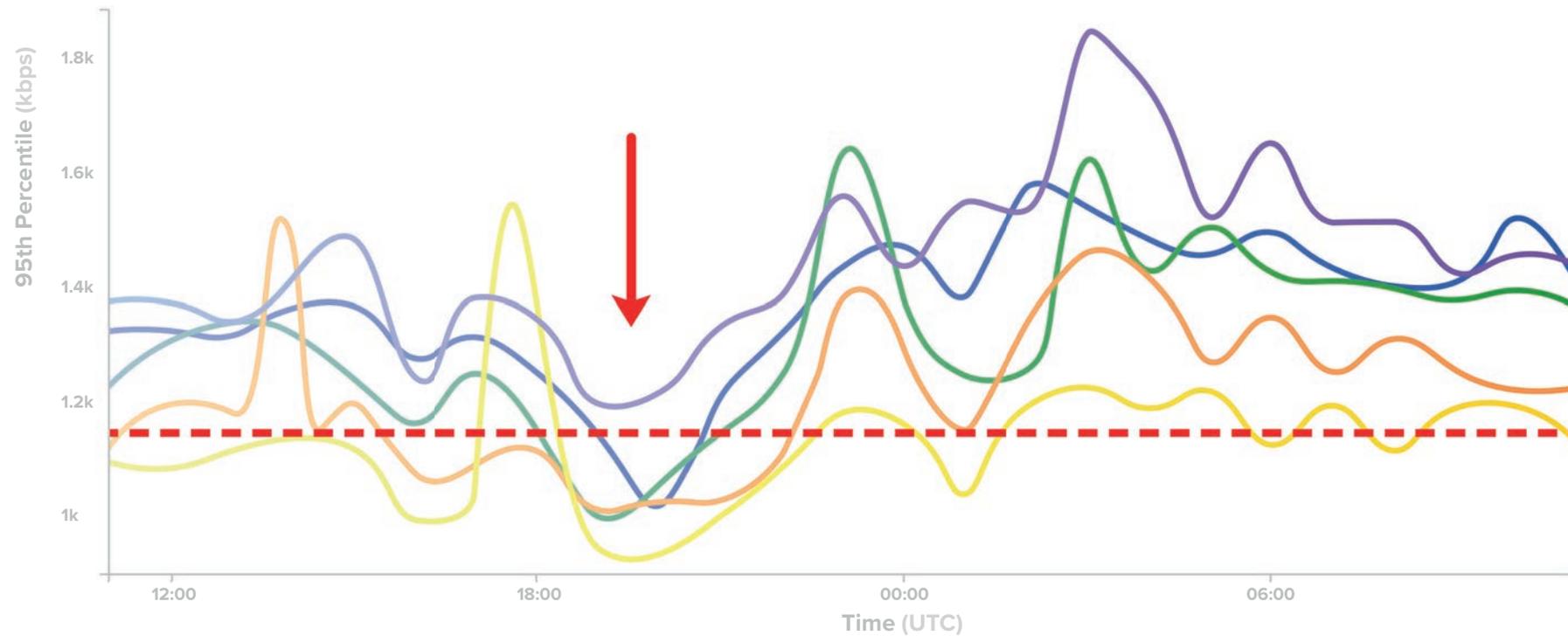
METRICS AND INPUTS
FOR LOAD BALANCING

Static rules			Dynamic rules	
Fixed parameters that do not frequently change			Parameters informed by (near) live data	
Volume	IP address	Device type	Price	QoS / QoE
<p>Fixed proportion of requests allocated to different delivery methods</p> <p>Example</p> <p>30% of requests to CDN 1, 20% to CDN 2, 15% to CDN 3, 35% to CDN 4</p>	<p>Delivery based on cross-reference of an IP address</p> <p>Example</p> <p>An IP address can be accessed via a private peering relationship with an ISP, and should be used</p>	<p>Different devices may require different file formats that may be better served by one CDN versus another</p> <p>Example</p> <p>CDN 1 may support a specific device class</p>	<p>In some instances, commercial CDN providers offer variable costs that can inform price-sensitive switching</p> <p>Example</p> <p>If CDN 1 and CDN 2 perform equally the one with the lower price can be used</p>	<p>CDNs are ranked on basis of real time performance metrics (RUM)</p> <p>Example</p> <p>If CDN 1 has a lower throughput or higher access time, playout will flow through CDN 2</p>

PERFORMANCE

A Multi-CDN setup allows to switch to the best performing CDN when required.

The red dotted line represents a minimal required performance for a specific video to play without interruption. At peak time (red arrow) the switching layer would switch traffic to the purple CDN to avoid service interruption. But at most times, and this is confirmed by the pilot, more than one CDN can deliver better than minimally required allowing to switch traffic for commercial reasons to a specific CDN.



FLOW GLOBAL

MULTI-CDN

NETWORK

North America:

Anchorage	Guadalajara	Harlingen	Louisville	Troy	Nassau
Honolulu	Spokane	Reynosa	Indianapolis	Springfield	Pompano Beach
Vancouver (3)	Veracruz	Veracruz	Knoxville	Worcester	Deerfield Beach
Harbor Point	Salt Lake City	Omaha	Los Angeles (8)	Boston (4)	Boca Raton
Seattle (8)	Las Vegas	Council Bluff	Lexington-Lafayette	New York (8)	West Palm Beach
Bellevue	Phoenix (4)	Bethany	Middletown	Philadelphia	Melbourne
Portland	Tucson	Kansas City	Cincinnati	Baltimore	Washington
Hillsboro	Santa Teresa	Tulsa	Dayton	D.C. (4)	Winter haven
Salem	Ciudad Juarez	Plano	South Bend	Charlottesville	Titusville
Eugene	El Paso	Dallas (8)	Chicago (8)	Richmond	Gainesville
Bandon	Helena	Bryan	Madison	Norfolk	Savannah
Medford	Bozeman	Lake Charles	Milwaukee	Harrisonburg	Charlestone
Redding	Billings	Baytown Lafayette	Houston	Augusta	Augusta
Manchester	Casper	Houston	Green Bay	Columbia	Columbia
Chico	Cheyenne	Sugar Land	Grand Rapids	Spartanburg	Spartanburg
Reno	Boulder	Corpus Christi	Battle Creek	Wilmington	Wilmington
Sacramento	Grand Junction	Lansing	Baton Rouge	Fayetteville	Fayetteville
Roseville	Colorado Springs	Tyler	Rocky Mount	Guatemala city	Guatemala city
Arden-Arcade	Albuquerque	Monroe	Danville	Kingston	Kingston
Oakland	Stratford	Shreveport	Columbus	St. Juan	St. Juan
San Francisco	Amarillo	Little Rock	Kalamazoo	Santo Domingo	Santo Domingo
San Mateo	Lubbock	Bentonville	Saginaw	St. Croix	St. Croix
Modesto	Midland	Springfield	Livonia	Providence	Providence
San Jose (8)	Abilene	Des Moines	Southfield	Boise	Boise
Palo Alto	Round Rock	Owatonna	Detroit	Nashville	Nashville
Sunnyvale	Austin	Minneapolis (4)	Deadborn	Memphis	Memphis
Salinas	San Antonio	Eagan	Elyria		
Fresno	Laredo	Eau Claire	Cleveland		
San Luis Obispo	Monterrey (2)	Cedar Rapids	Mentor	Chattanooga	Chattanooga
Grover Beach	Queretaro (2)	Maryland Heights	Youngstown	Greenville	Greenville
Bakersfield	Mexico City (2)	St. Louis Bowling	Pittsburgh Erie	Atlanta (6)	Atlanta (6)
Lompoc	Grand Island	Green	Buffalo	Macon	Macon
Burbank	Lincoln	Sikeston	Winchester	Tallahassee	Tallahassee
Santa Barbara	Salina	Jackson	Ashburn (2)	Ocala	Ocala
San Bernardino	Topoka	Mobile	Niagara Falls	Orlando	Orlando
Riverside	Wichita	Pensacola	Toronto (5)	Tampa	Tampa
Orange County	Arkansas City	Brent	Rochester	Clearwater	Clearwater
San Diego	Oklahoma City	Montgomery	Syracuse	Saint Petersburg	Saint Petersburg
Anaheim	Wichita Falls	Ferry pass	Utica	Sarasota	Sarasota
Carlsbad	Fort Worth	Birmingham	Albany	Fort Myers	Fort Myers
Tijuana	Waco	Manchester	Montreal	Miami (8)	Miami (8)
Mazattan	McAllen	Shelbyville	Burlington	Fort Lauderdale	Fort Lauderdale

Latin America:

Santa Marta	Lima (2)
Cartagena	Lurin
Barranquilla (2)	Arequipa
Maracaibo	Saita
Guacara	Tucuman
San Jose	San Juan
Colon	Valparaiso (2)
Esterillos	Santiago
Balboa	San Rafael
Panama	Rio Cuarto
Medellin (3)	Bahia Blanca
Manizales	Comodoro
Pereira	Rivadavia
Valledupar	San Luis
Cucuta	Rio Grande
Valencia	Mar Del plata
Caracas	Las Toninas
Port of Spain	Buenaventura
Puerto La Cruz	Boise
Puerto Ordaz	Nashville
Barquisimeto	Memphis
Armenia	
Buenaventura	
Popayan	
Pasto	
Esmeraldas	
Bogota (2)	
Villavicencio	
Ibague	
Neiva	
Ibarra	
Calli / Quito	
Lago Agrio	
Coca	
Cayambe	
Manta	
Cuenca	
Guayaquil	
Loja	
Piura	
Chiclayo	
Trujillo	
Chimbote	

Europe:

Stockholm (7)	Amsterdam (8)	London (8)
Malmö	Beverwijk	Manchester (3)
Göteborg	Haarlem	Newcastle
Helsinki (3)	Antwerp	Leeds
Oslo	Rotterdam (3)	Sheffield
Copenhagen (2)	Milan (6)	Liverpool
Tallin	Palermo	Norwich
Frankfurt (8)	Turin	Birmingham
Sydt	Rome	Cambridge
Hamburg	Paris (6)	Swansea
Berlin	Rouen	Bristol
Hanover	Caen	Slough
Bremen	Rennes	Woking
Düsseldorf (3)	Lannion	Milton Keynes
Paris (6)	Bordeaux	Brighton
Hamburg	Lyon	Plymouth
Leipzig	Toulouse	Bude
Dresden	Monaco	Truro
Munich (2)	Marseille (4)	Whitesands
Berlin	Madrid (8)	Moscow
Stuttgart	Bilbao	Riga (2)
Kehl	Barcelona	Barnaul
Ludwigshafen	Madrid (8)	Kazan
Nuremberg	Valencia	Khabarovsk
Poznan	Lisbon	Kiev
Warsaw (3)	Sofia	Krasnoyarsk
Katowice	Bucharest	Minsk
Krakow	Istanbul	Moscow
Prague (3)	Koln	Novosibirsk
Brno	Belgrad	Orel
Vienna (5)	Zagreb	Saint Petersburg
Ivancice	Wexford	Pavlodar
Bratislava	Kilmore Quay	Yekaterinburg
Budapest (2)	Dublin (3)	Vladivostok
Basel	Belfast	Omsk
Geneva	Inverness	Ljubljana
Zurich (4)	Aberdeen	Rostov-on-Dor
Brussels (3)	Dundee	Ufa
Luxembourg (3)	Edinburgh	
Bredde	Glasgow	
Reykjavik	Carlsile	
	York	

Asia:

Beijing	Djibouti
Seoul (6)	Nairobi
Shanghai (2)	Mombassa
Hong Kong (7)	Johannesburg (6)
Hanoi	Cape Town (3)
Bangkok (2)	
Kuala Lumpur (2)	
Jakarta	
Surabaya	
Bangalore	
Mumbai (3)	
Taipei (3)	
Tokyo (7)	
Manila (2)	
Guam	
Jeddah	
Dubai	
Tel Aviv	
Bishek	
Singapore (3)	
Osaka (3)	
Chennai (2)	
New Dehli (2)	
Baghdad	
Kuwait city	
Doha	
Fujairah	
Muscat	

Africa:

Australasia:

Melbourne (5)
Sydney (7)
Auckland
Brisbane
Perth
Wellington

TESTIMONIALS



- **“USING EUROVISION FLOW, ERT HAS SUCCESSFULLY REDUCED COSTS WHILE PROVIDING A HIGH QUALITY, RELIABLE AND EFFICIENT SERVICE AROUND THE WORLD”**

ERT (GREECE)

- **“WITH EUROVISION FLOW SERVICE WE’VE ENTERED THE WORLD OF SMART, DYNAMIC, RELIABLE AND COST EFFECTIVE ONLINE CONTENT DELIVERY”**

HRT (CROATIA)

- **“HAVING A HIGHLY RELIABLE STREAMING INFRASTRUCTURE AT A REASONABLE COST IS A MUST FOR ANY PUBLIC BROADCASTER”**

VRT (BELGIUM)

- **“HAVING A GREAT PARTNERSHIP WITH OUR EUROPEAN BROADCASTING COLLEAGUES ALLOWS US TO USE AFFORDABLE AND CUTTING EDGE TECHNOLOGY PLATFORMS”**

NPO (NETHERLANDS)

CONTACT

If you would like to discover more on how we can add value to your business, please visit www.eurovisionflow.com and take a look at our film and web page. For further details please get in touch.



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