![VideoFlow logo — seeing is believing]

Lowering the Cost of Content Contribution

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Chapter 1.   Introduction

Now that transmitting video content over public Internet is growing in numbers and maturity, broadcasters, network operators and content distributors are leveraging the benefits and cost saving of the Public Internet era. Accessibility to Public IP networks is fast and easy. Add new services or additional deployments immediately with short notice. Long acknowledged as the lowest cost transport network for video streaming to the home, the public Internet has enabled services like YouTube, Flicker and many others to offer video streaming directly to the home viewer. However, using the Internet to stream broadcast quality video 24/7 poses an immense challenge. Riddled with inherent complexities such as security, packet loss, jitter fluctuation and general statistical behavior, the public Internet makes multicast streaming a serious challenge.

VideoFlow DVP10 can substantially reduce the cost of content contribution by providing a new scheme for live content contribution over public internet. The DVP10 is designed for 24/7 service operations as well as for occasional use in live events like sports and news events as well as live concerts and conferences. The DVP10 can fit in any contribution network you may have. Its support of multi point-to-point architecture provides a manageable and reliable solution. Up to ten DVP10 devices can connect to a single DVP100 each through a private and secured VPN link. Similar to the DVP100, the DVP10 includes VideoFlow's 3V technology providing a 100% error free high quality live content contribution solution.

Chapter 2. The DVP10 solution

The DVP10 is an excellent choice for delivering high quality video over Public internet. As a member of the DVP family, the DVP10 is leveraging VideoFlow's 3V technology to provide reliable and secured error and jitter-free live video stream over the public internet.
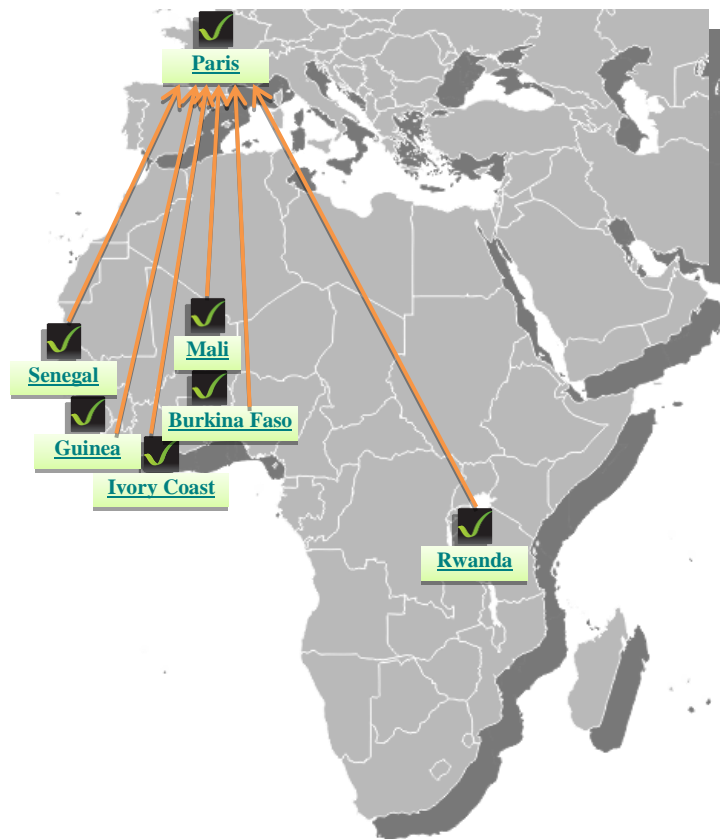

Figure 1: Lowering the Cost of Live Video Contribution with DVP over the Public Internet

The DVP10 is perfect for standalone operation. Housed in a small form factor chassis, the DVP10 is easy to use and configure. Its 12V power inlet enables connecting it to any vehicle lighter power jack, which makes it perfect for newsgathering contribution. The DVP10 can fit in rack mount when required.

The DVP family designed as client server architecture to provide 100% protection against the statistical nature of the public internet including packet loss, congestion, and delay variation (packet jitter). The DVP establishes secured and protected VPN tunnel form server to client over the public internet.

The DVP10 will seamlessly make content contribution simpler and more cost effective achieved by a features set that makes it the solution of choice:

- 3V technology for high quality video
- IPsec security
- Firewall for Internet access safety
- Inbound management for any device on remote site like encoders, decoders, PCs, Laptops, etc.
- Low power for vehicles applications
- Cost effective

Chapter 3.   VideoFlow 3V Technology

The VideoFlow innovative DVP product line provides an innovative state-of-the-art solution for streaming over the public Internet. The DVP technology is a Client Server architecture optimized for video streaming over the public Internet. VideoFlow's DVP products provide seamless solution comprised of the following technologies:

- VPN tunnel to stream multicast

- VideoFlow Error Correction (VFEC) for recovering 100% of packet loss

- VideoFlow Adaptive Buffering (VFAB) compensating for packet jitter

The DVP is capable of creating a VPN tunnel between the Server (Protector) and the Client (Sentinel). The VPN tunnel enables multicast streaming across the public Internet. Since the VPN is created by the DVP, there is no need for additional network equipment or special services offered by the Internet Service Provider (ISP). This reduces both capital expenses and operating expenses. In contrast to other existing VPN solutions, VideoFlow's DVP will protect the quality of the video stream by applying VFEC and VFAB technologies. VideoFlow's VPN can run numerous streams in parallel over the public Internet making it a perfect solution for multicast users. Network equipment will not block video streams passing through the VPN tunnel. The Protector is able to create several VPN tunnels to different Sentinels enabling point to multipoint connections.

VideoFlow's innovative packet recovery technology guarantees 100% protection against packet loss using a robust algorithms suite that is transparent to the original transmitter and receivers, offloading the original sender for better scalability. VideoFlow uses patent-pending, state-of-the-art VideoFlow error correction (VFEC), a unique on-demand packet recovery technique. VideoFlow's patented packet recovery has multiple layers of protection techniques, all designed with a single goal, which is to recover lost packets using minimum bandwidth.

VideoFlow DVP product line offers a built in configurable buffering capacity ranging from 10ms-2000ms for each stream. The Buffer size design handles bursty traffic on one hand and lack of traffic on the other. The DVP can use the buffered video to play out jitter-free video despite high jitter figures, which characterize the public Internet.

In addition, VideoFlow's DVP guarantees reliability by invoking auto-box redundancy. The auto box-redundancy scheme is comprised of two identical sets of Protector and Sentinel. One set is active while the other remains "hot" in standby mode. If the active set fails, the hot standby kicks in without missing a beat to offer the ultimate content protection.

Furthermore, the DVP uses a standard RTCP channel for bidirectional communication between the server and its clients. This solution protects both unicast and multicast video content against single and bursty packet loss.

VideoFlow's DVP is the only solution that both delivers and protects multicast video over the public Internet, which is a major advantage for distributors. VideoFlow's 3V technology enable operators to deploy assured service using less bandwidth to stream video, thereby, reducing the cost of network elements like routers for opening VPNs and eliminating the need to use expense ISP provided premium services like their VPNs.

Chapter 4.   The Economy of Quality Video

The key to selecting any solution is a sound business case. While savings vary from deployment to deployment, the potential return on investment can be summarized as follows:

- Reduce Network Costs by using the Internet

  The Internet is being hailed as the next great thing in video streaming. While it does have drawbacks, such as random and unforeseen packet loss, the cost of using the Internet is much lower than other B2B solutions. VideoFlow's DVP enables multicast video streams over the public Internet with VPN, guaranteeing 100% protection against packet loss with VFEC and protection against excessive jitter with VFAB. All three technologies have been optimized to require the lowest possible bandwidth overhead while enabling the highest possible video quality.

- Reduce OPEX and CAPEX

  VideoFlow's DVP product line enables all types of distributors to use the public Internet as a viable transport for broadcast quality video 24/7 at a fraction of the cost of today's solutions. VideoFlow's VPN, VFEC, and VFAB integrated 3V technologies eliminate the need to add redundant network equipment and does not require customers to lease premium services like VPN from their ISP.

Chapter 5.   Conclusion

VideoFlow's DVP offers a simple, cost-effective solution that enables to broadcast quality, jitter-free multicast video streaming over the public Internet. The VideoFlow DVP solution reduces expenses traditionally coupled with live content contribution by reducing overhead expenses for additional bandwidth, the need for expensive VPN services and for high-end network equipment.

The DVP is offering lower cost accessibility to services for content contribution in occasional events including conferences, sport events, news events and more as well as lowering the cost of contribution services like public access TV and ethnic channels.