Video Everywhere

HTE Infokom Oct. 2014 – Kecskemet, Hungary

VideoFlow

seeing is believing

Slashing Costs of Professional Live Video Delivery

Providing High quality video over any unmanaged public networks

VideoFlow Technology: OFF
Quality is Annoying

VideoFlow Technology: ON
Quality is Outstanding

Must Haves for Live Content over Unmanaged Net

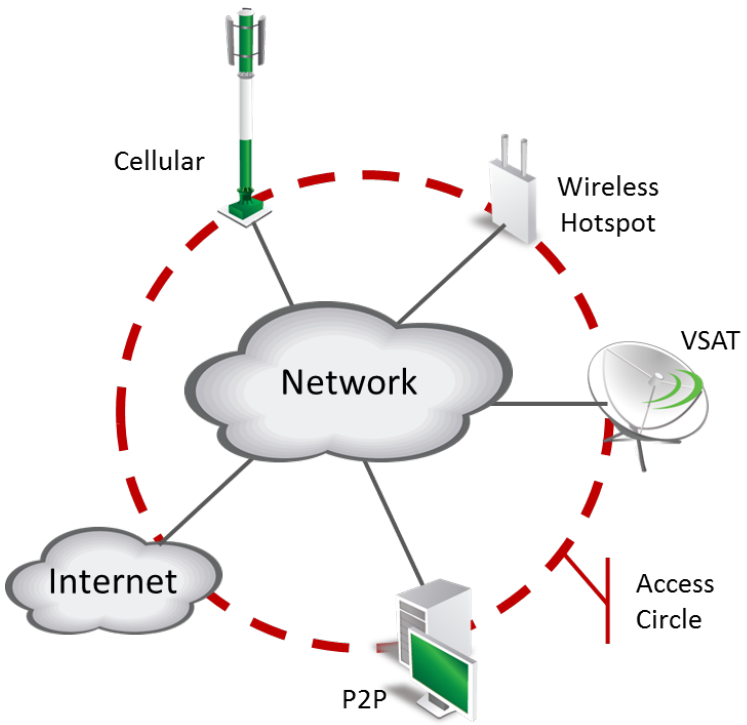
VideoFlow

1. High Quality – Low Cost
2. Network Independent
3. Easy Connection

The Access Circle Pain

Video streams pass many different access networks, each having its own unique behavior (jitter, bit rate fluctuations, Packet loss)

- MPLS – Perceived as a reliable network but…
  - Bandwidth can fluctuate due to resource sharing
- DSL – Unreliable and unmanaged link for live video
  - 5% packet loss due to physical connection
- VSAT – Unreliable link
  - Sensitive to weather conditions
  - Jitter can reach 2 sec
- Internet – Unreliable and unmanaged
  - Sensitive to usage
  - Average jitter is 250 msec but can peak 650 msec
  - Average packet loss is 1% but can peak 10% during busy hours



VideoFlow Products

Build your Internet Video Delivery Network with VideoFlow's DVP

DVP Protector	DVP Sentinel	DVP Fortress
Video Creation Site	Video Receiving Site	Bi-Directional - Operates per stream as a Protector, a Sentinel, or Sentinel/Protector

DVP10 – Up to 32 Mbps, 16 Streams, 16 Tunnels

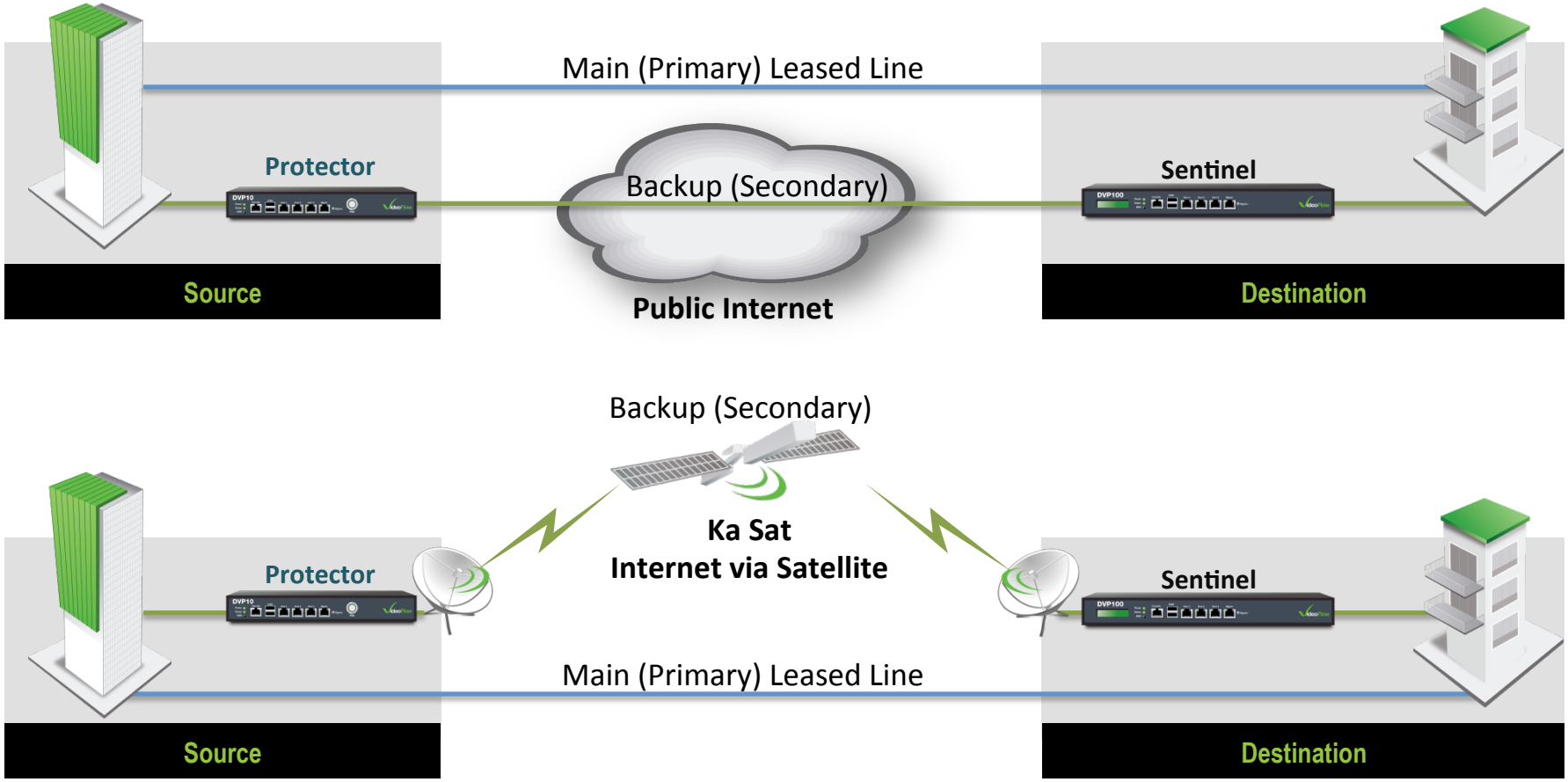
DVP100X – Up to 300 Mbps, 80 Streams, 80 Tunnels

DVP1000 – Up to 1 Gbps, 200 Streams, 200 Tunnels

Applications

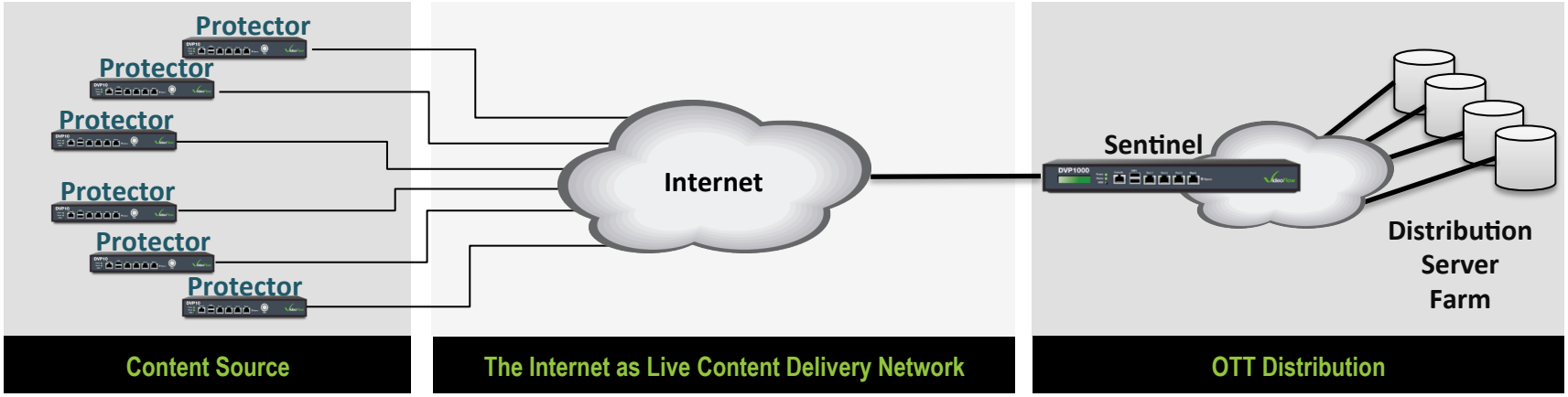
Cutting Backup Costs – 24x7

- Both primary and backup leased lines are always active
- Primary is in use 99.999% of the time, backup only 0.001%, **Double** the OpEx
- Leveraging the Internet as backup dramatically cuts your backup cost



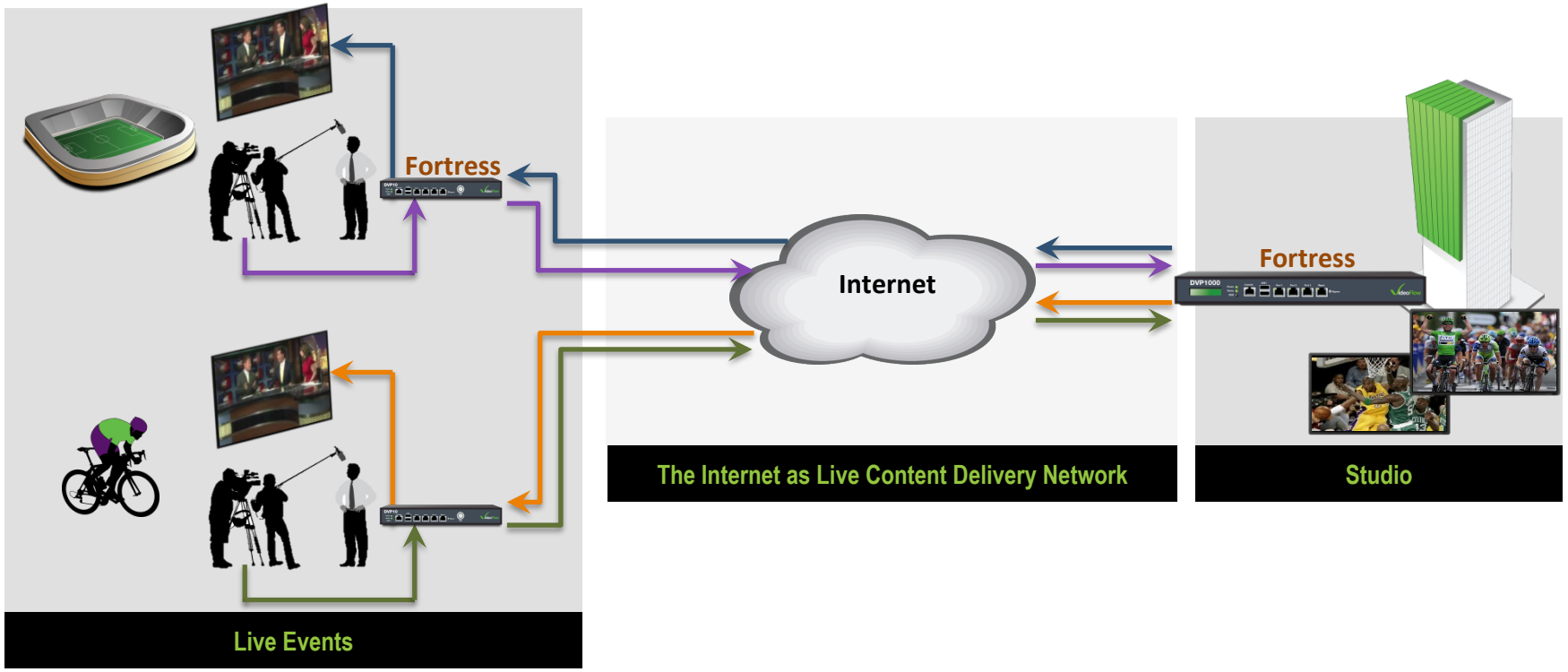
Live Content Contribution

- **The Internet is perfect for multipoint-to-point architectures**
  - Low-mid bit rate in the uplink
  - High bit rate in the downlink – perfect for aggregating contribution sources
- **The cost of Live Content Delivery over the Internet is considerably lower than current solutions**



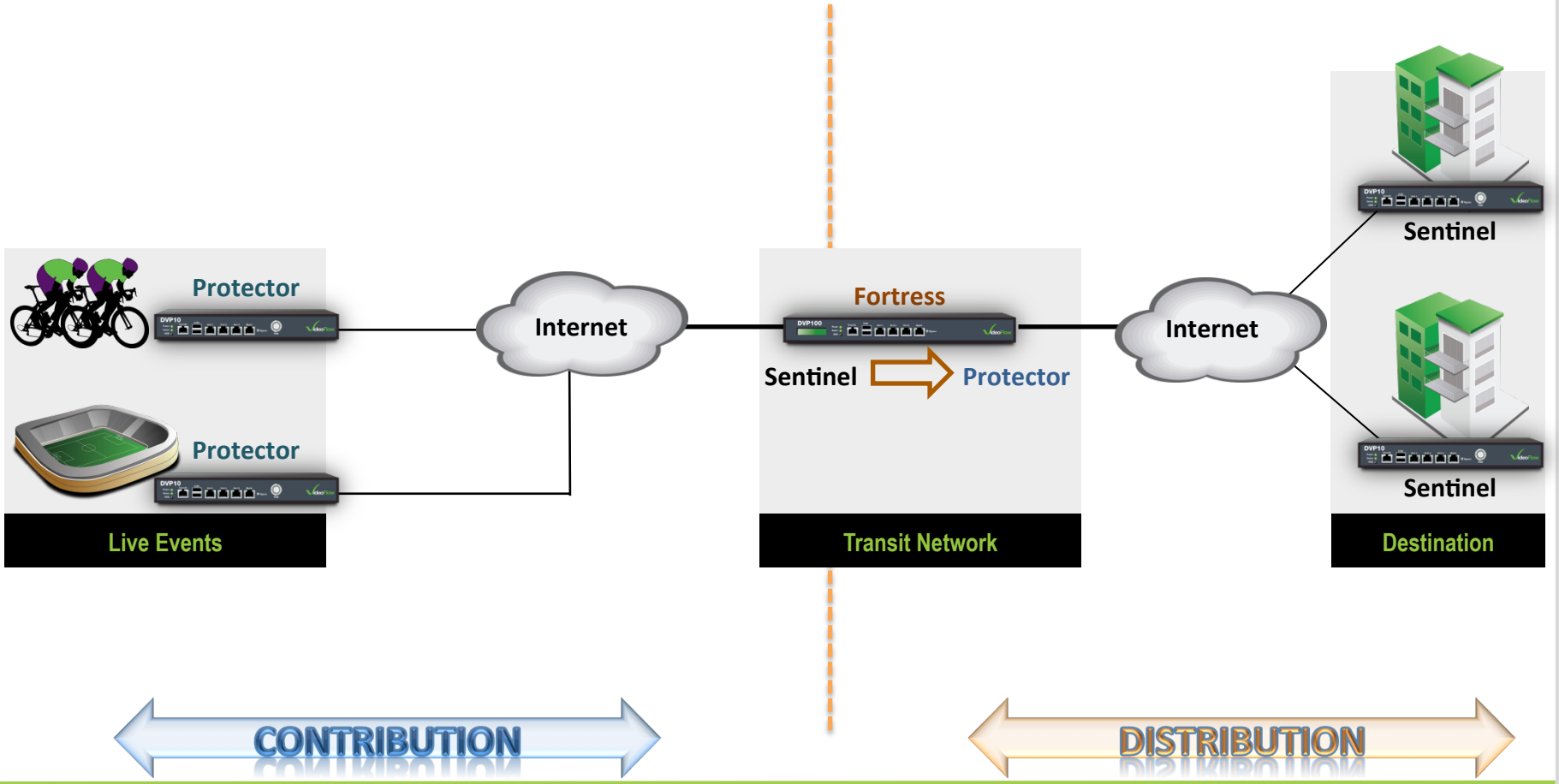
Improving Field Reporting Teamwork – Fortress

- Bi-directional low delay, error free, high quality video feed
- Reporter feels as if they arte part of the studio



Reducing the Uplink Cost – Fortress

- The Fortress in the Transit Network isolates the distribution network from the contribution network
- Packet recovery requests sent by Sentinel are answered by the Fortress
  - No additional overhead on the contribution uplinks due to distribution net
  - Internet link cost is mainly derived by uplink speed ➔ Lower cost links are required

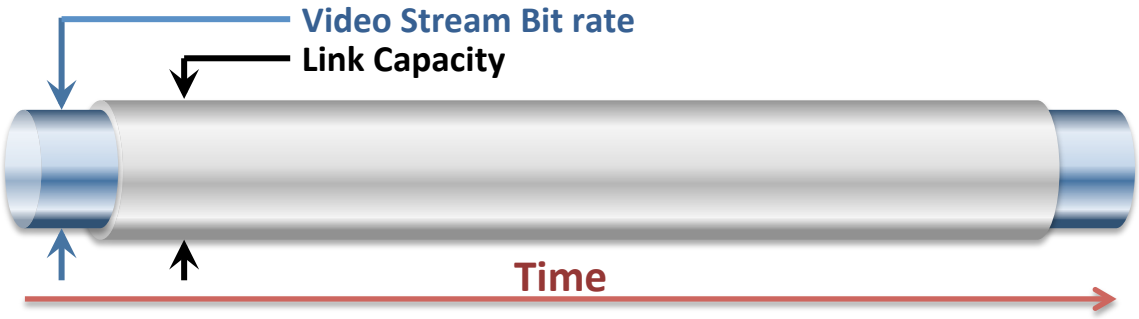


Must Have Features

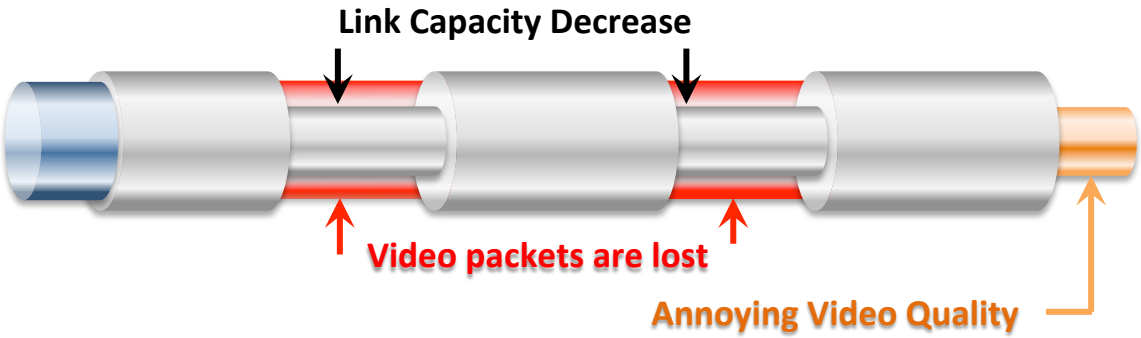
The Need for Controlled Adaptive Rate (CAR)

VideoFlow CAR optimizes the video stream bit rate to the actual link capacity

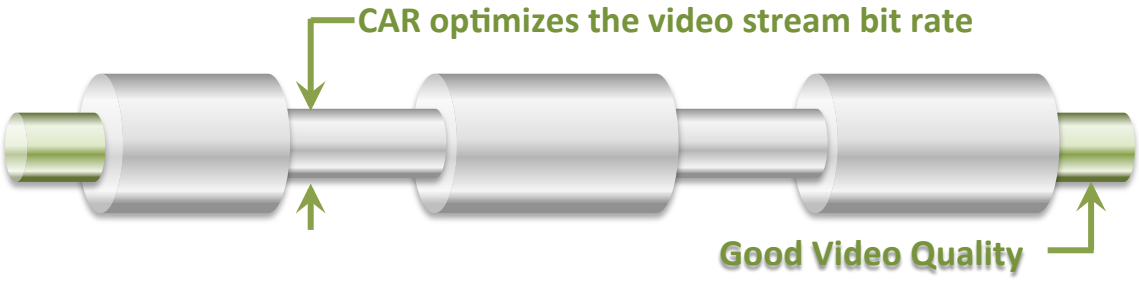
- The video stream bit rate is determined by the link capacity
- The link capacity should be slightly higher than the video stream's bit rate



- The link capacity varies in time and can cause a severe degradation to the video quality
- The challenge is to find the highest stream bit rate to fit in the new link capacity



- VideoFlow's CAR senses the link's capacity in real time
- It responds to any change by commanding the encoder to either reduce or increase the bit rate



Stream Monitoring in Real Time – ETR290

- Cuts the cost of network maintenance and support
- Reduces the time it takes to isolate a problem in the network
- Clearly indicates stream problems

Configuration | Streams | Interfaces | ETR 290 | Alarms | Tools | Logout

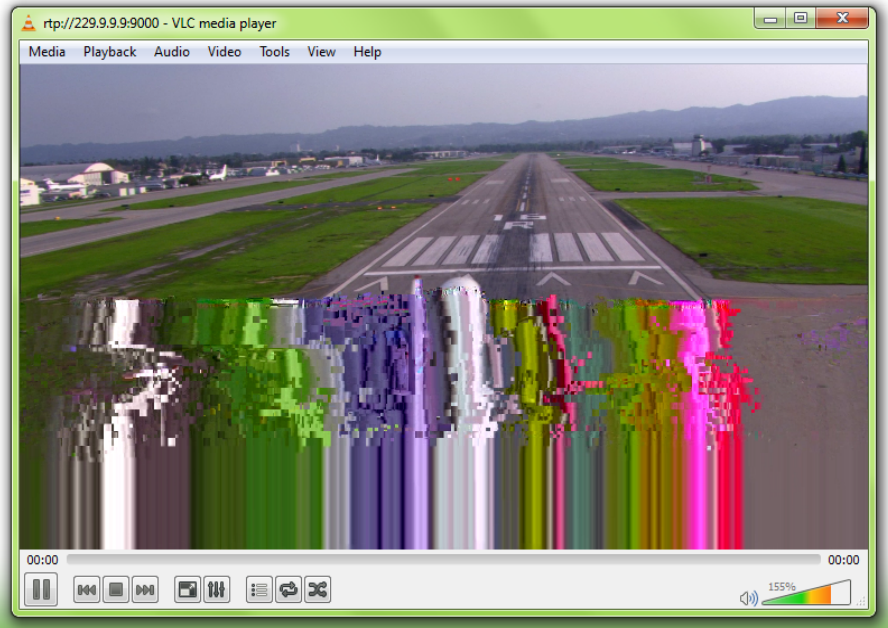
DVP 100 Sentinel

Streams

Name	state	IP address	Port	TS rate (pcr)	TS rate (measured)	Packet rate	Requested packets	Unrecovered packets	Action
tunnel		229.9.9.9	9000	10000007	9948960	945.77	10463	1499	Reset stream

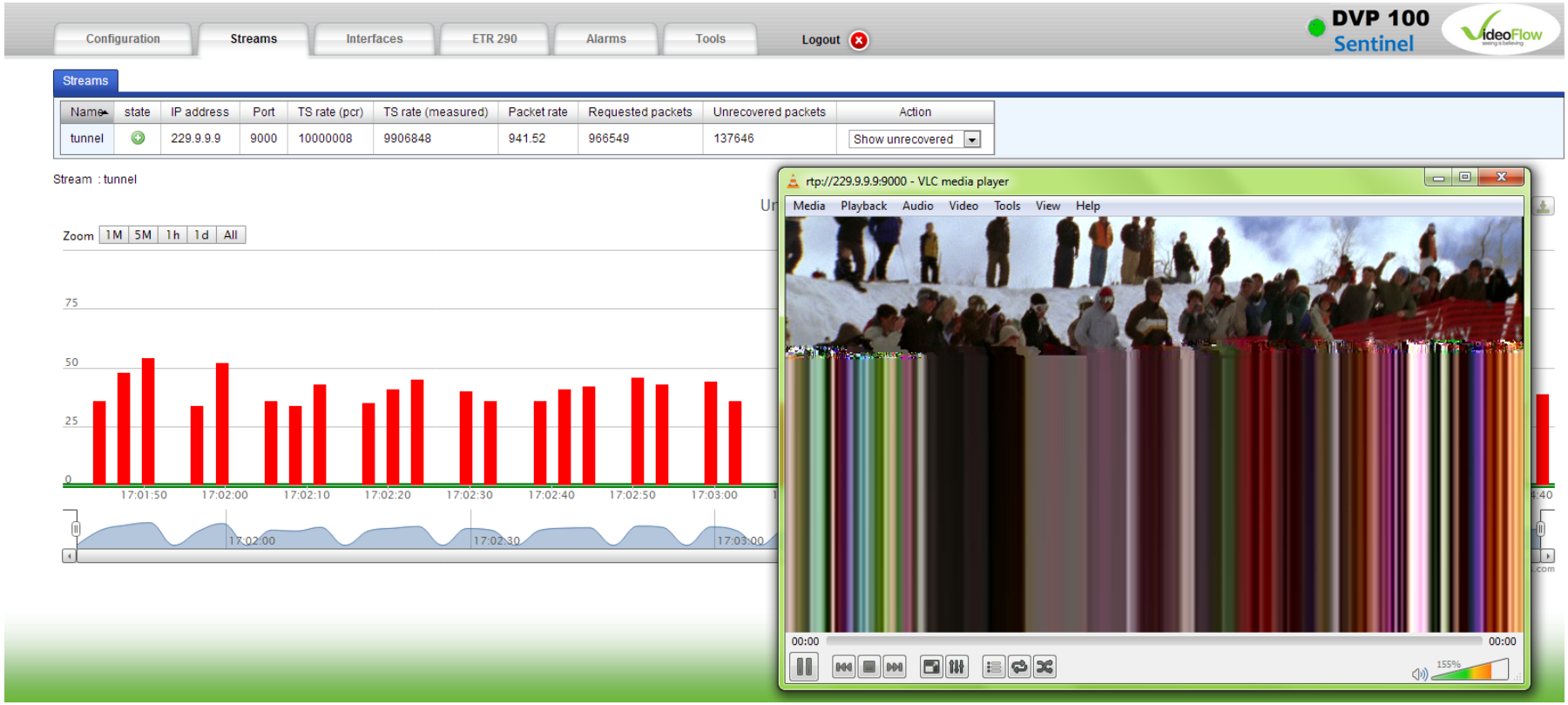
Stream : tunnel

Name	PID	count	Priority and description	state	Last update
CAT-1	0	0	2.6 scrambled packets exist, but no CAT found		23-05 11:42:27 AM
CAT-2	0	0	2.6a Section with table_id other than 0x01 found on PID 0x1		23-05 11:42:27 AM
CC-ERROR	33	125	1.4 Continuity Counter error		23-05 11:47:48 AM
CRC-ERROR	0	0	2.2 CRC error in some table		23-05 11:42:27 AM
PAT-2	0	0	1.3a Section with table_id other than 0x00 found on PID 0x0		23-05 11:42:27 AM
PAT-1	0	0	1.3 PAT was not seen for at least 1/2 seconds		23-05 11:42:27 AM
PAT-3	0	0	1.3b Scrambling_control_field is not 00 for PID 0x0		23-05 11:42:27 AM
PCR-1	0	0	2.3 PCR discontinuity of more than 100mSec		23-05 11:42:27 AM
PCR-2	33	2	2.3a PCR interval of more than 40 mSec		23-05 11:47:48 AM
PCR-3	0	0	2.4 PCR accuracy worse than +/- 500 nSec		23-05 11:42:27 AM
PID-ERROR	0	0	1.6 data PID does not appear for N seconds		23-05 11:42:27 AM
PMT-3	0	0	1.5a PMT table is scrambled		23-05 11:42:27 AM
PMT-1	0	0	1.5 PMT was not seen for at least 1/2 seconds		23-05 11:42:27 AM
PTS-RPTIN	0	0	2.5 PTS repetition of more than 700 mSec		23-05 11:42:27 AM
SYNC-ERR	0	0	1.2 Sync_byte not equal 0x4		23-05 11:42:27 AM
SYNC-LOSS	0	0	1.1 Loss of synchronization		23-05 11:42:27 AM
TR-ER-IND	0	0	2.1 TEI is set for some packet		23-05 11:42:27 AM
UNKWN-TID	0	0	3 Table with unknown table ID		23-05 11:42:27 AM



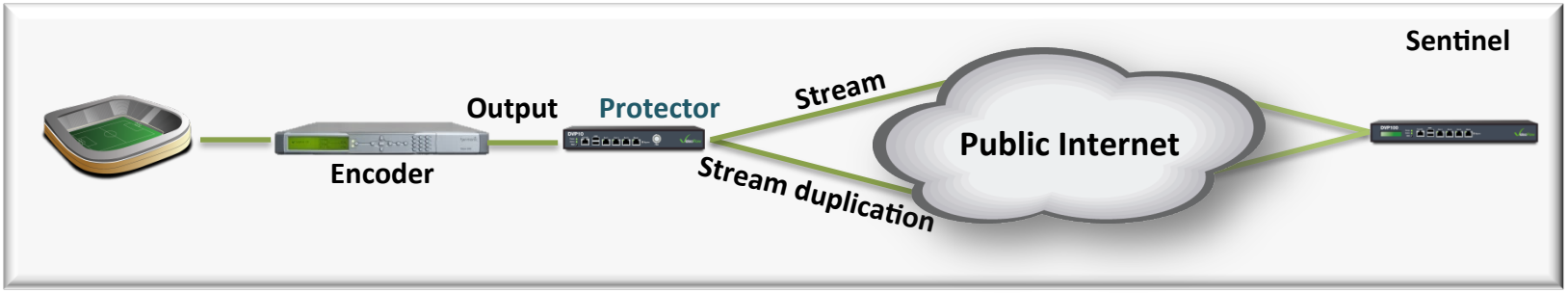
Stream Monitoring – Unrecovered Packets

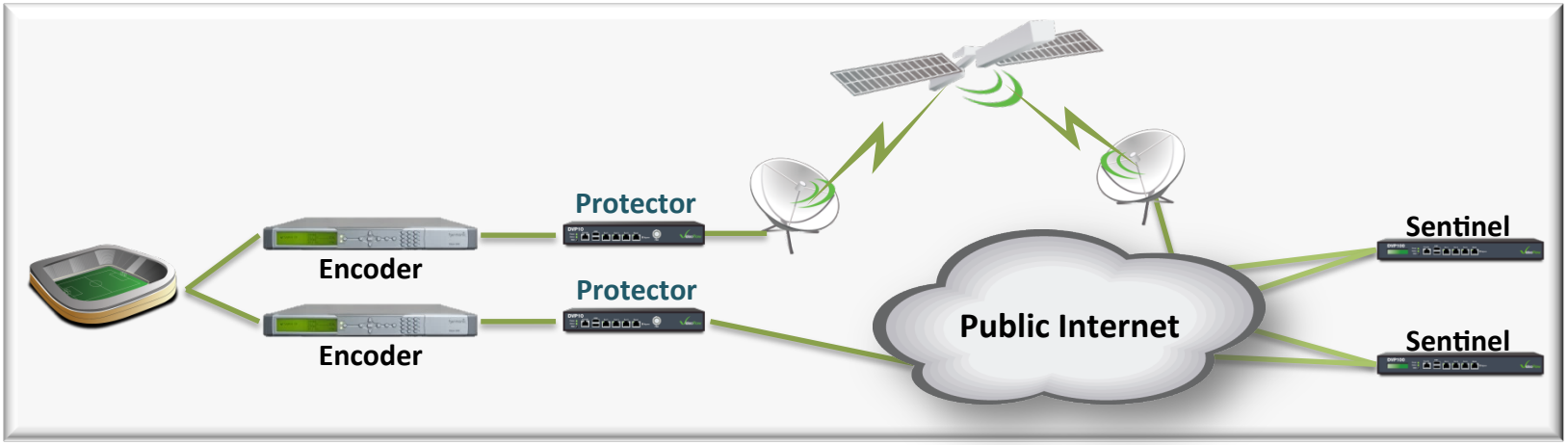
- Cuts the cost of network maintenance and support
- Straightforward indication on the network's quality
- Clearly indicates network problems



High Availability

- Hitless failover with same source
- Near hitless failover with different sources - No single point of failure
- Failover is triggered by the stream status
- Output failover with stream duplication or load sharing



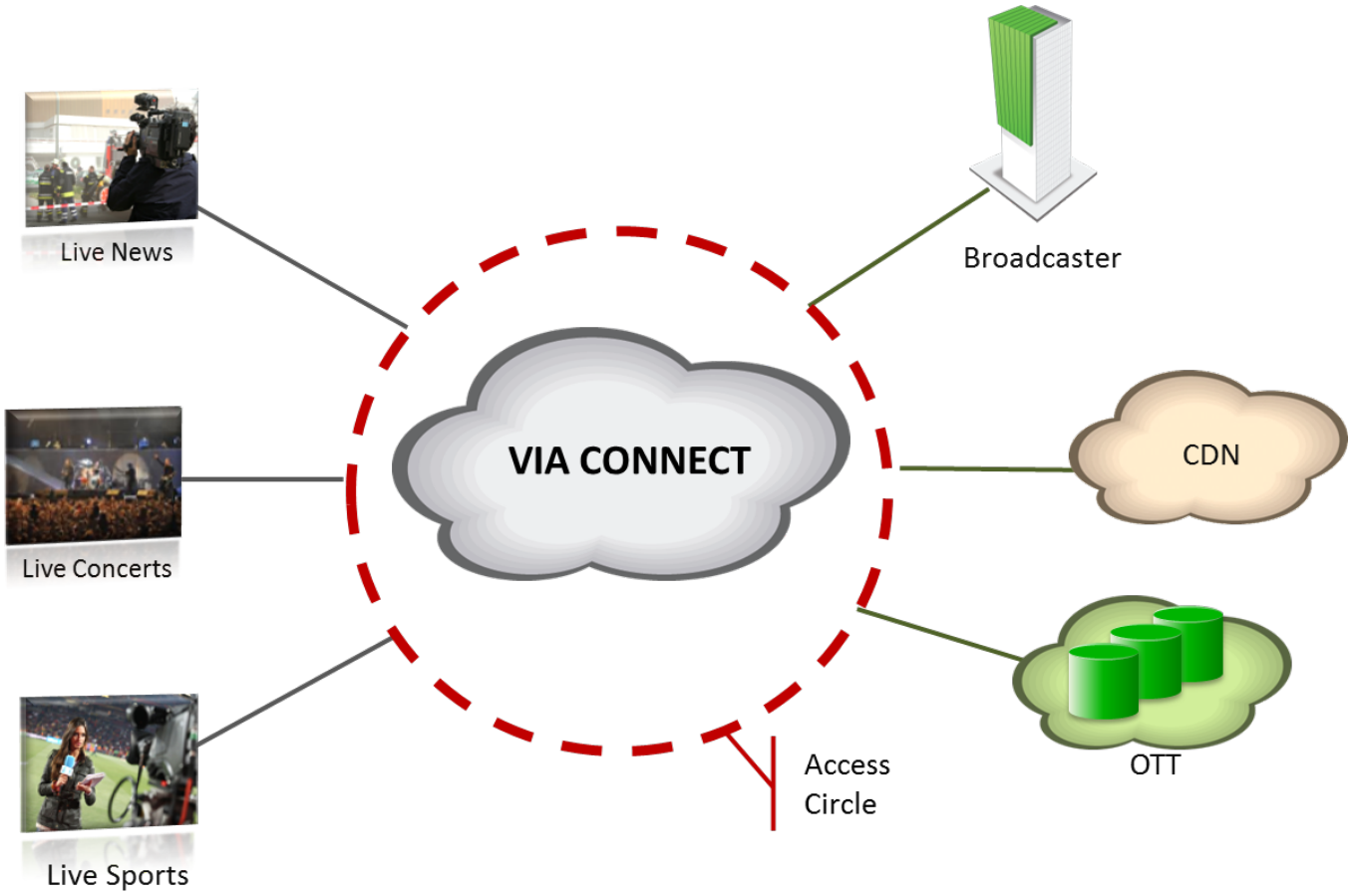


VideoFlow Internet Access – VIA

Video Aware Cloud Toolset

VIA CONNECT – Your Video, Your Way

- Cloud power toolset
- Designed for professional video delivery
- Open network – vendor independent
- Best quality of experience with CAR over extremely noisy access links



VIA CONNECT at a Glance

Easy to use, simple to grow

- Session Management
- Configuration & Connection
  - Schedule
  - Monetize
- Appliance/Plug-in at the edge
  - Single entity – Selectable mode of operation
  - Adopts to local application requirements including action cameras, DNG cameras, mobile devices, STBs and connected TVs
- Connects to value added services in the cloud for a complete eco system
  - Own core service
  - Complement services with partners

Summary

Rubout Live Video Delivery	• Recovers 100% of lost packets • Eliminates excessive jitter • Compensating for the link's short-term bit rate fluctuations • Low bandwidth overhead
Quality Live Video Anywhere	• Optimizes video quality to the link's available bit rate • CAR - Controlling the encoder`s compression bit rate • The lowest link latency (up to 500msec)
Independence & high service availability	• Any Codec, any encoder/decoder, any network, any resolution. • Box redundancy, link redundancy, dual PSUs
Cost reduction of any C&D link	• Internet C&D versus dedicated leased lines • KA band enabler versus KU or C bands • Lowering backup links - Ensuring 24x7 services • Service based pricing (cloud based delivery service)

Questions?

VideoFlow
seeing is believing

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