Digital Headend for Multimedia Services

The Multiscreen Evolution
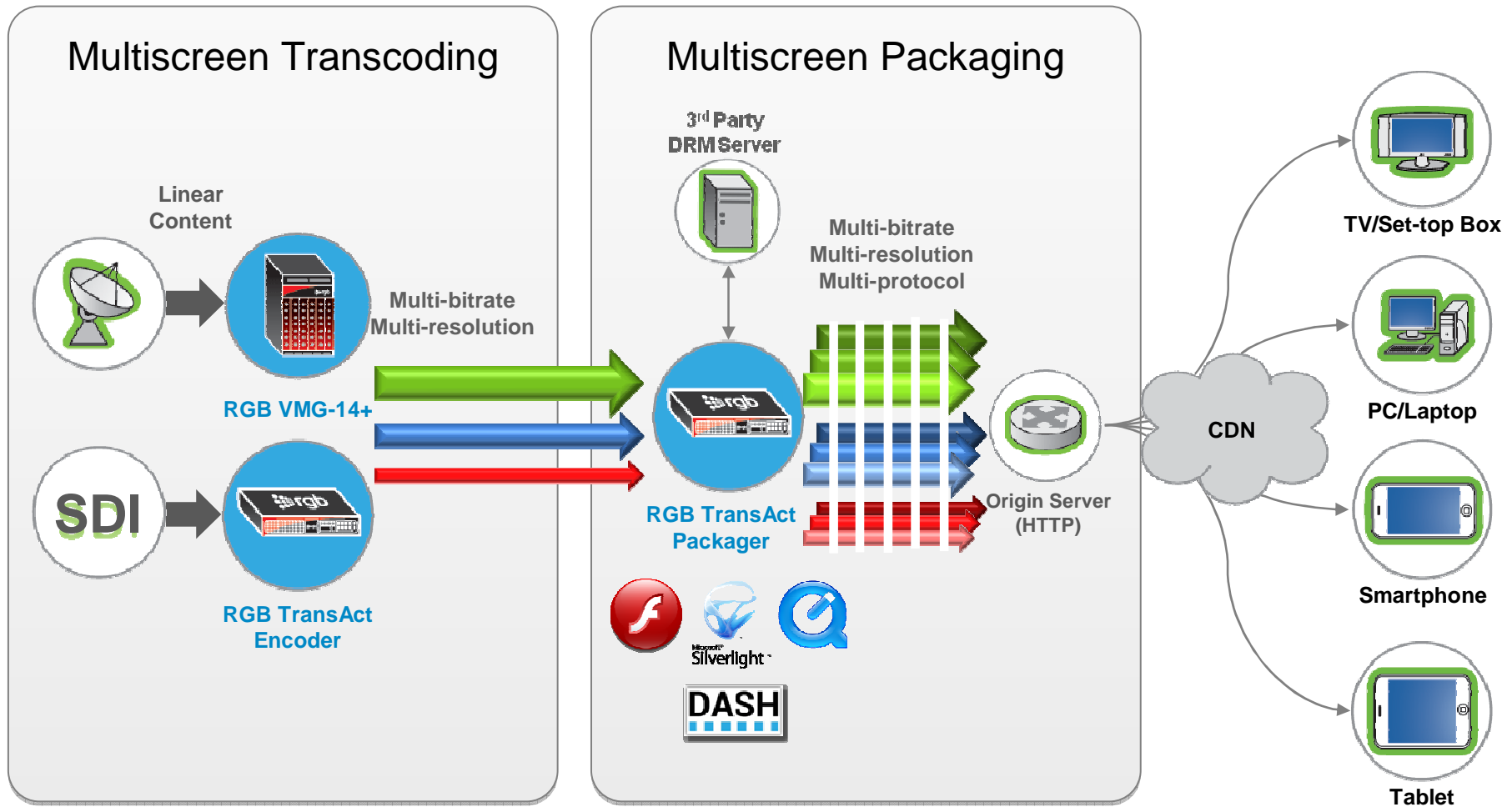
Vector 12KTS Conference - May 2013

RGB | Overview

- Leading provider of scalable multiscreen IP video delivery solutions

- Development offices in Sunnyvale, California & Austin, Texas

- Support locations in US, EMEA & APAC

- Top tier investors and strong board

- Shipped: $300m+ lifetime

- 400+ customers in 40+ countries

- 39 patents filed, 17 awarded to date

- Partnerships with Alcatel-Lucent, Juniper, SeaChange and Ericsson

Alcatel·Lucent   JUNIPer NETWORKS   SeaChange   ERICSSON

Solutions | **Live & On Demand Multiscreen**

Multiscreen Transcoding

Linear
Content

Multi-bitrate
Multi-resolution

RGB VMG-14+

SDI

**RGB TransAct
Encoder**

Multiscreen Packaging

3rd Party
DRM Server

Multi-bitrate
Multi-resolution
Multi-protocol

**RGB TransAct
Packager**

Silverlight

DASH

Origin Server
(HTTP)

CDN

TV/Set-top Box

PC/Laptop

Smartphone

Tablet

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Products | Transcoding

Video Multiprocessing Gateway (VMG)

H/W-based Stream-to-Stream (S2S) Live Transcoding

- **Large-screen and multiscreen transcoding**
  - MPEG-2 and H.264 for IPTV and/or MBR
- **Integrated with TransAct Packager for multiscreen delivery**
- **High-density, high-capacity, high-availability, carrier-class**

Plus:

- **Stat muxing**
- **MPEG-2 transrating/rate-shaping**
- **Program substitution**

- 75+ customers worldwide
- Transcoding over 20,000 outputs
- Award-winner

TransAct Transcoder / AMS

S/W-based File-to-File (F2F) and S2S Transcoding

- **Optimized for mobile S2S transcoding**
- **H.263, H.264, VP8**
- **HTTP Live Streaming, RTSP**
- **Software license *or* hardware**

Plus:

- **XML APIs and cluster with TransAct Commander**
- **Many more codecs/containers: FLV, 3GP, AVI, MP4**
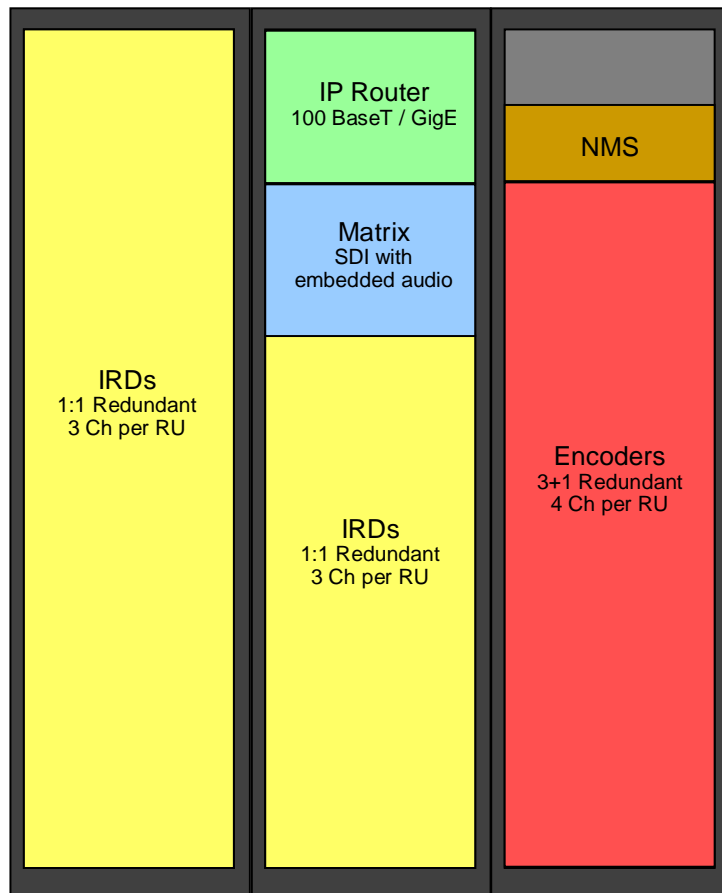
Products | **Packaging**

TransAct Packager / AMS

- Multiscreen video fragmentation and packaging
  - HLS, MSS, HDS, RTMP, MPEG DASH
  - Live, VOD and Just-in-Time Packaging
- 432 streams per 1RU chassis (live), 500 sessions for JITP
- Integrated IIS server functionality (create MSS manifests)
- Encryption:
  - AES-128 for HLS
  - PlayReady for SS
  - Adobe Access for HDS & HLS (linear and JITP applications)
- DRM Partners:
  - HLS: Adobe, Conax, Irdeto, Nagra, NDS, SecureMedia, Verimatrix
  - PlayReady: BuyDRM, Verimatrix, Latens, multiple MSO solutions
  - HDS: Adobe
  - HLS CC, HDS CC, MSS CC (linear and JITP applications)
- HLS and MSS DVB Subtitles (live)
- Interoperable with CDN solutions from ALU/Velocix, Cisco, Edgeware, Juniper/Ankeena, Verivue
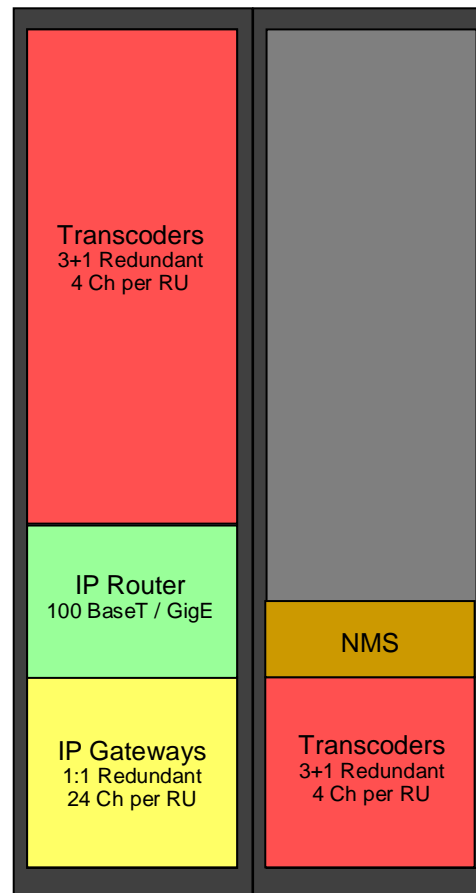
VMG | **Operational Simplicity & Savings**

100 SD Channels with Redundancy

Pizza Box Architecture with Baseband Video Interfaces

IP Router
100 BaseT / GigE

Matrix
SDI with embedded audio

IRDs
1:1 Redundant
3 Ch per RU

IRDs
1:1 Redundant
3 Ch per RU

NMS

Encoders
3+1 Redundant
4 Ch per RU

550 Cables / 10,000W

Pizza Box Architecture with IP Video Interfaces

Transcoders
3+1 Redundant
4 Ch per RU

IP Router
100 BaseT / GigE

IP Gateways
1:1 Redundant
24 Ch per RU

NMS

Transcoders
3+1 Redundant
4 Ch per RU

126 Cables / 6,000W

Blade Architecture with IP Video Interfaces

VMG-14

IP Router

IP Gateways
1:1 Redundant
24 Ch per RU

16 Cables / 2,500W

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VMG | **Avoid the Mess and Cost of 1RU Boxes**
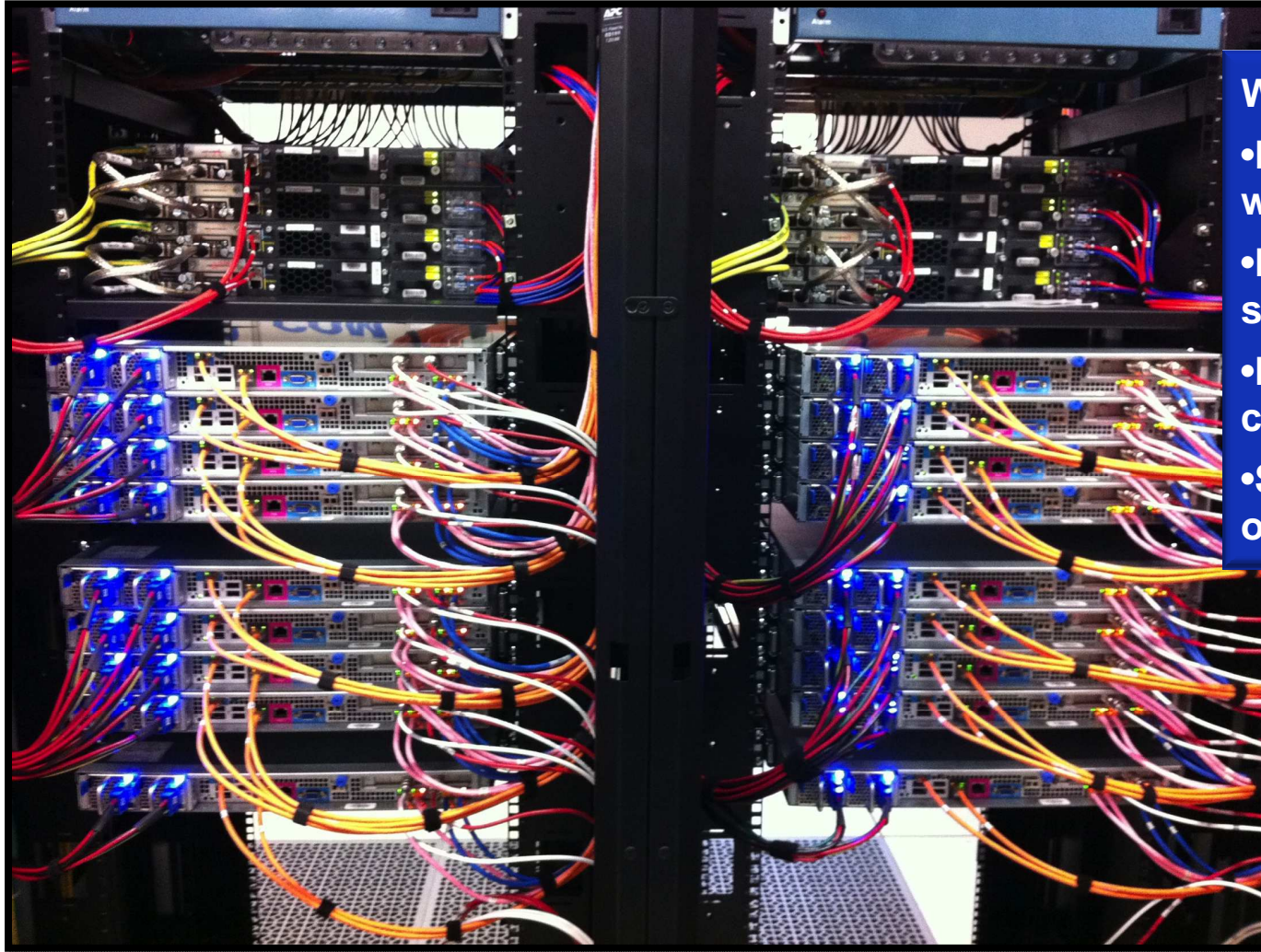
With RGB's VMG:

- **Eliminate messy wiring**
- **Reduce rack space**
- **Reduce power consumption**
- **Simplify operations**

Ad Insertion for Multiscreen	▪ Network or client-based adaptive bitrate ad insertion ▪ AWE, PRRS, Stitcher, Origin servers ▪ Partners for POIS ADS, CMS/CNS,…
Time-Shifting Multiscreen	▪ DVR, catch-up TV, start-over virtual assets ▪ servers ▪ Partners for scheduling, back office, sub mgmt, …
Integrated IP Video Platform	▪ High number of streams, many profiles with high resolution for large screen TV video delivery ▪ Enhanced transcode/encode with more capabilities
Transcoders & Separate Pkgrs	▪ Higher number of streams, multi-format ▪ More devices, more resolutions, more configuration ability, DRM added
Encoders w/ Integrated Pkgr	▪ single format (HLS, …) ▪ Lower resolutions for a few devices, tablets/mobile ▪ Simple configuration, basic UI/interface

Multiscreen 2.0

Multiscreen 1.0

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JITP | Just In Time Packaging Advantages

- **JITP is (almost always) more economical than storage, especially when starting a service; saves operational and bandwidth costs**
- **JITP de-risks evolving formats; easy migration to new formats**
- **Converts from mezzanine format to any HTTP streaming format in response to client requests**
  - **Creates playlist/manifest or fragments requested by each client**
  - **Eliminates storage of multiple HTTP streaming formats**
  - **Avoids storage and reprocessing of rapidly evolving HTTP streaming formats**
  - **Cacheable → don't need JITP for every client**
  - **Integrates encryption and closed captioning**
- **VOD**
  - **More cost effective than storage**
  - **Creates uniform, scalable workflow**
  - **Hybrid model with cached short-tail and JITP long-tail makes sense**
- **nDVR**
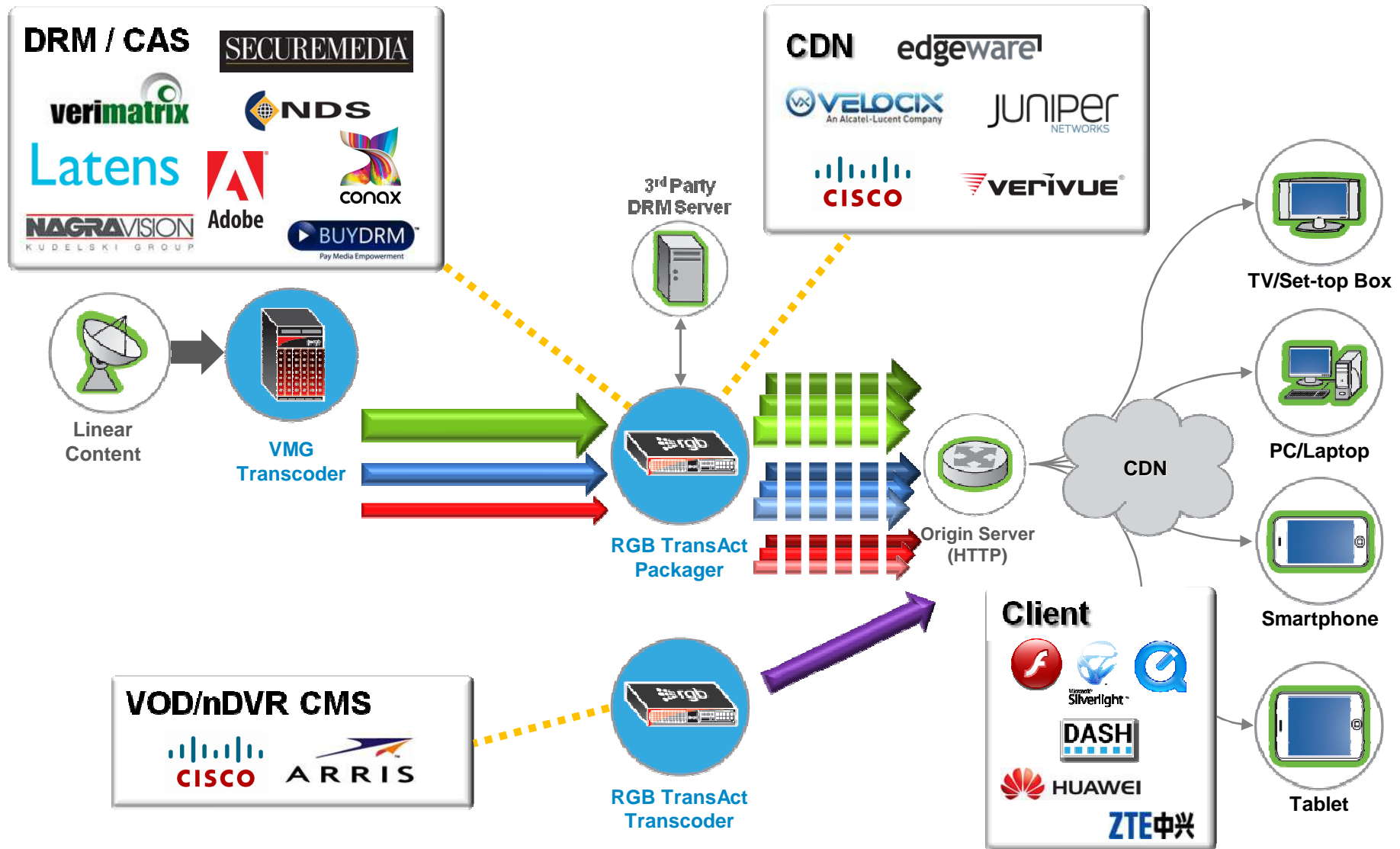 - **Fixes memory intensive 'copy per user' problem**

AIM │ Adaptive Bit Rate Ad Insertion Advantages

- Support for HLS; future support for MSS & HDS
- Ad ingest, transcode, position
- Support for live and VOD
- CCMS schedule files (support zones)
- SCTE 130 interface for third party campaign management (BlackArrow integration complete)
- Up to 5M users, 25K ads, 1000 channels, 500 zones
- Pre-roll / program substitution / blackout
- High availability – redundancy built in

Dziekuje bardzo!