In this report

- News
- Impact assessment
- Context
- Technology
- Competition
- Strategy
- Funding
- SWOT Analysis

Recent Networks & Media analysis

Nortel renews focus on secure connectivity

Grids offer glimpse of the future for Glimmerglass

Fujitsu's FASST plugs holes left by MPLS

Lynx Photonic gauges broadcast interest in PLC optical switch

Permeo reformulates SSL VPN go-to-market strategy

Centillium's optical division launches first products

Arbor steps up enterprise thrust

Axiowave launches with the 'right' router to make money from IP networks

print-friendly version >>

mail this report >>

RGB Networks breaks cover with video processing platform

Analyst Jim Davis
Sector Networks & Media
Report type Impact Report
Date Wed, 9 Jun 2004

After months of rumors about its intentions, **RGB** Networks has officially joined the ranks of vendors aiming to move cable from a broadcast to a switched video paradigm. The company outlined plans to build a family of video processing products around programmable chips that will allow for a tenfold increase in the ability to process streams per rack unit at a price that's one-tenth that of comparable systems. Such plans are de rigueur when making presentations to venture backers, who want to make a tenfold return on their investments, but given **RGB** Networks' roster of founders, the company appears to be better equipped than most startups to deliver on its promises.

Impact assessment

The message

RGB Networks has developed a chip architecture for use in products that will allow cable operators to transition from the old broadcasting service model to an Internet-like model of switched video services. **RGB** aims to enable this transition by collapsing the functions of several video processing boxes into a single device, boosting stream output tenfold over traditional systems architectures, and pricing it at about a tenth of said systems.

Competitive landscape

BigBand Networks is the main competitor also offering multiple video processing functions like broadcast grooming and rate-shaping on a single platform, and Terayon's CherryPicker will be competition to a lesser degree. SkyStream is going to fine-tune its Mediaplex video networking platform for the cable market, while Harmonic, Motorola, Scientific-Atlanta and others have competing point products for content transport.

The 451 Assessment

RGB Networks has a compelling product pitch for cable operators, and its founders have proven in the past they are capable of delivering on their promises. The key to initial success will be finding a few select capabilities like rate shaping or digital ad insertion that operators are keen enough on to give the company traction with reference accounts. Later **RGB** can focus on turning operators on to other functions like broadcasting with advanced codecs and support for switched video.

Context **RGB** Networks' founders have a long history in the video broadcasting industry. President and CEO Adam Tom, along with CTO Edward Krause and chief scientist Peter Monta, formed Imedia, which developed the statistical multiplexing gear now commonly used in broadcast networks. Imedia was sold to Terayon in 1999 for $100m, and **RGB**'s cofounders worked at Terayon until deciding to form **RGB** in May 2001.

Ly Tran, VP of engineering, was formerly VP of engineering for Motorola's Broadband Communications Sector, while VP of business development Lou Mastrocola also hails from Motorola, where he was senior director of product marketing.

Technology **RGB**'s ability to perform multiple functions on its video processing device and deliver higher stream densities than competing products is built around the use of FPGAs that harbor the company's Video Intelligence

Architecture. **RGB** intends to create a family of video processors that embody the founders' expertise in statistical multiplexing, transcoding and video compression. FPGAs have held the promise of offering programmability for such applications, but haven't been widely used because of their cost. While the cost of MPEG-2 encoders, for instance, can be spread out among every viewer on a broadcast network, early on-demand networks are being modeled for 10-20% concurrent usage, and products targeting these applications have to take this different cost structure into account.

RGB says its design methodology and video processing technologies allow it to pack in the ability to process enough streams to make an FPGA-based system cost-effective. The other component of its cost equation is the ability to offer multiple functions on a single platform. By **RGB**'s accounting, a stat mux/transrater, a QAM modulator and upconverter and a proprietary switch matrix cost upward of $675 per on-demand stream – and output is measured in the tens of streams per rack unit. A VOD server costs about $150 per stream, by way of comparison.

RGB Networks' platform will combine these functions and will be capable of supporting hundreds of streams per rack unit for a price that will total roughly $75 per stream, including an off-the-shelf GigE switch. Another benefit of **RGB**'s processing power: the transrate capabilities will allow operators to do constant bit-rate video streams. It is easier to assign bandwidth to channels this way, and **RGB** is promising that operators will be able to send 15 channels of video downstream where they would typically do only 10. Other systems can do this as well, but **RGB**'s distinction is the increased stream density per rack unit.

RGB's product will go into beta testing by summer, and the formal product introduction is slated for the end of the year.

Competition **RGB** is promising to offer multiple applications on top of its programmable core, including digital ad insertion, support for advanced codecs, switched broadcast and analog spectrum regeneration, along with video processing/rate shaping. The company would do well to replicate the strategy of BigBand Networks, which made its initial foray into the cable market with a platform that was first sold for its grooming and multiplexing functions. It has since been able to get customers to add functions such as QAM modulation and service protection, among others.

Like **RGB**, BigBand thinks operators will gradually move to a network architecture that supports switched video. To that end, it recently bought the cable modem termination system (CMTS) business of ADC. BigBand plans to integrate DOCSIS data and voice transmission technology gained in the deal with its existing digital video processing platform. The integration will enable more cost-effective delivery of new on-demand services, according to BigBand.

In terms of video processing gear, CEO Adam Tom and other **RGB** executives will face former employer Terayon's CherryPicker in the marketplace. CherryPicker also supports functions such as rate shaping and ad insertion, but Terayon hasn't announced any major customer wins of late. It has signed on Tandberg as a worldwide reseller, however.

SkyStream, a provider of video networking equipment, has been working on adapting its Mediaplex platform, which performs a wide array of functions, such as encoding, multiplexing, switching, routing and transrating, to meet the needs of cable operators. Last year, the company secured Comcast as a first-time investor. Comcast joined existing investors Time Warner and Shaw Communications in a $4m add-on to a $25m round of funding in 2003. SkyStream will be working with the companies to develop product features that address the desire to move to a switched video network.

As for network-edge processing of digital video for transport over the RF network, Harmonic is the big competitor by virtue of having invented the edge QAM product category. Arris has given indications that it will add video processing functions to go along with its CMTS products, but details about its product plans have yet to surface.

Strategy **RGB**, BigBand and others are increasingly talking about operators

employing a 'switched broadcast' model. With this approach to content distribution, cable operators cut back on simply pushing all content to all viewers and move to a model more akin to the Internet, where only the content that is most used is broadcast. Less popular content is sent only to those areas where it is being viewed. This way, operators free up spectrum for new niche programming and more high-definition content, and still maintain room for profitable high-speed data services and voice services. Cable operators are gradually entering the switched video era with the buildout of their video-on-demand (VOD) networks.

RGB's strategy is predicated on enabling that transition by collapsing the functions of several video processing boxes into a single device, boosting stream output tenfold over traditional systems architectures, and pricing it at about a tenth of the level of said systems. Considering the success of firms like BigBand, **RGB**'s formula should be quite appealing to operators as well, given that the company is able to quickly form sales and systems integration partnerships that bolster its ability to move product into customer's hands.

Funding Kleiner Perkins Caufield & Byers and Accel Partners have invested in **RGB** Networks, but the company declines to state how much has been invested.

SWOT analysis

Strengths	**Weaknesses**
RGB's top managers have an impressive track record of innovation in the video processing field, and the same can be said of their background in the cable industry.	It takes time for any new company to break into the cable market – sales lead time has to take significant testing into account. **RGB** has to build a market presence in light of its competitors' ownership of thought leadership in switched video.
Opportunities	**Threats**
Operators are planning for a day when their networks are capable of supporting switched video and other on-demand services. Products that can support multiple applications out of a single device promise to hold down the cost of switched video services.	BigBand has been able to quickly establish a strong customer base for its platform. Cisco could be a gorilla here if video distribution migrates to IP networks, and if it really commits to the market. Terayon, Harmonic, Motorola and others also have significant resources to fight with.

Related analysis

- **BigBand taps into CMTS market with purchase of ADC's Cuda line**
  Its product integration strategy has driven BigBand to snap up ADC's Cuda line of CMTS systems. The company is looking for the deal to bring about a 'switched video' era. (26 May 2004)
- **Move to next-gen cable modems should pay off for Terayon in 2004**
  The good news is that VOIP and broadband growth is likely to propel revenues for its cable modem systems in 2004. But the company must extend its reach in the broadcast and satellite business to reach consistent profitability. (2 Feb 2004)
- **BigBand anticipates switched video, adds top-tier customers**
  The era of switched video is almost here, thanks to the growth of services such as subscription VOD. For now, BigBand is content to sell gear for more mundane purposes – such as service reliability. (30 May 2003)
- **Harmonic tries to reverse its fortunes with new NSG, encoder products**
  Sales have been on a long slide down at Harmonic. Some new products could help, if cable and satellite network operators start spending more on the expansion of VOD and HDTV services. (17 Sep 2003)
- **Cisco outlines the next step of its video strategy for cable market**
  Although Cisco's efforts in video haven't always worked out, this time around could be different. New video processing products aim to leverage Cisco's position in GigE switching. (23 Jan 2004)
- **EGT hopes world needs another video encoder**
  Why does it want to enter the market for video encoders, which is dominated by

Harmonic, Tandberg, Motorola and S-A? Moore's law is on EGT's side: a DSP architecture enables a platform that is denser and costs less than those of the incumbents. (12 May 2004)

<< back to top