

Opening Up Switched Digital

While open interfaces have long been the norm for cable operators in the IP communications arena, digital video is moving down the same path. That was a key conclusion shared by presenters during the latest Webinar from Light Reading's Cable Digital News: Ensuring Switched Digital Success.

Faced with possible bandwidth shortages from ever-increasing Internet access speeds, high-definition TV (HDTV), and video-on-demand (VOD) programming, as well as hefty broadcast carriage requirements, MSOs continue to eye strategies to squeeze more capacity out of their existing pipes. High on the list is switched digital video, SDV for short.

By far, analog and digital TV channels are the biggest cable bandwidth hogs. Adding insult to injury, traditional broadcast channels eat up valuable bandwidth whether they are being watched or not. SDV converts less popular digital video channels into switched streams that only consume bandwidth when they are actually viewed. According to Michael Adams, VP of systems architecture with Tandberg Television, initial SDV deployments by MSOs have delivered bandwidth savings of 25 percent or more.

Because the benefits of SDV accrue primarily to cable operators in the form of reclaimed spectrum, the challenge is to craft a solution that is transparent to consumers. In other words, viewers should not be able to detect whether they are watching broadcast TV or SDV. That means electronic guide

functionality and channel-change latency must be consistent across both broadcast and SDV-delivered video; DVR program recording must work flawlessly with SDV; and viewers must not experience stream blocking, the equivalent of a video "busy signal."

Deploying SDV requires special set-top box client software, session manager software to process channel-change requests from the clients, and a system controller for SDV client and server management. Low-cost and high-density edge QAM (EQAM) solutions are required, as well as an edge resource manager (ERM) for the EQAMs. This shopping list is nearly identical to what MSOs already deploy for VOD. The challenge is that VOD software environments are often closely tied to proprietary vendor hardware, and some initial SDV rollouts follow a similar formula.

Cable operators, of course, are eager to see open approaches for both SDV and VOD, enabling them to purchase best-of-breed products from multiple suppliers, thereby driving down costs and preventing vendor lock-in. Time Warner Cable Inc. is specifying one interoperable approach through its Integrated Services Architecture (ISA), while Comcast Corp. (Nasdaq: CMCSA, CMCSK) is exploring another through its Next-Generation On-Demand (NGOD) initiative. Other cable operators are watching these efforts closely. As one senior executive from another large MSO once quipped in a background interview: "If you want to

benefit from scale economics, you need to evaluate the architectures of Time Warner and Comcast, and then pick one to follow."

In both architectures, "universal" EQAMs and ERMs will play key roles. The universal EQAM implementations follow Cable Television Laboratories Inc. (CableLabs)'s Docsis modular CMTS (M-CMTS) specifications, allowing these edge devices to support broadcast digital video, SDV, VOD, and Docsis traffic.

Yves Boudreau, Arris International Inc. (Nasdaq: ARRS - message board)'s director of business development, notes that cable operators are keenly interested in advances in universal EQAM solutions, because they account for "75 percent of the spending on switched digital video." In the recent past, MSOs have paid as much as \$4,800 per downstream QAM, a price that Boudreau estimates is now on track to dip below \$1,000 per port.

Susie Kim Riley, Camiant Inc.'s founder and CTO, argues that the major operational challenge for MSOs deploying EQAMs is "transitioning from silos to shared resources" to support multiple services. This is where the universal ERM fits in. And, not coincidentally, Camiant has launched just such a product.