

Accelerating Advanced User Interfaces Through Cloud Virtualization

As consumers embrace the search, discovery and navigation experiences of the Web, two hard realities are preventing pay-TV operators from keeping up: the inability of existing set-top boxes to support user interfaces that keep pace with online innovation, and the strategic, technological and financial impediments to rolling out new STBs to every subscriber. To prevent subpar and inconsistent user experiences, pay-TV operators need to rethink the connection between the STB and the consumer experiences it delivers. By decoupling the UX from device dependencies, pay-TV providers can accelerate the subscriber usage and retention benefits of advanced user experiences across entire market footprints, without replacing the STB already in subscribers’ homes, and can ensure the ability of next-generation STBs to support continued UX innovation in the future.

Virtualizing the Set-top Box UI

ActiveVideo® CloudTV GuideCast virtualizes STB functions in the cloud, eliminating the need for operators to choose between developing separate UIs and guides for each unique device, or creating a consistent user experience that is hobbled by the limited capabilities of existing STBs. With GuideCast, operators can:

- Create a single, universal user experience and render it in the cloud using HTML5
- Deliver the user experience to any STB, existing or new, as an interactive MPEG video stream.
- Design next generation STBs with cost effective features to take advantage of the cloud

Designing Once, Delivering Everywhere

GuideCast enables rich, web-like UIs to be written once and delivered to any device with an MPEG decoder—eliminating the complexity of proliferating devices, browser updates and software versions. By moving the UI functionality to the cloud, GuideCast allows every device—including existing and next-generation STBs and connected CE devices—to display advanced UIs that can:

- Create full- or partial screen navigation experiences with live video previews and overlays across Linear TV, VOD catalogs and online video content.
- Satisfy subscriber preferences with multiple, video-rich UI options, including calendar views, video mosaics and improved versions of traditional guides, as well as the ability to switch between guide views at the push of a button.
- Bring web-based cloud DVR experiences to the television with full UI functionality and trick play modes.



Figure 1. GuideCast UI Delivery and Benefits

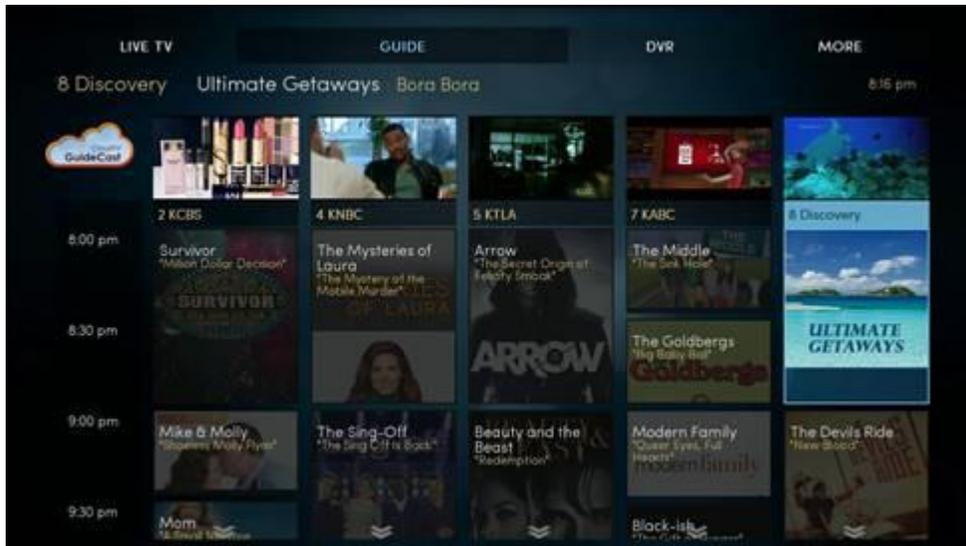


Figure 2. Example of Advanced EPG with Mosaic Tiles using GuideCast.

Efficiently Reaching Entire Footprints

A product of ActiveVideo's leadership in virtualization technology, GuideCast is enabling leading service providers globally to deploy next-generation UIs to every subscriber with minimal network impact and with performance that is equal or superior to set-top box based experiences:

- **Low Latency:** Key press handling maintains responsiveness of UI & applications consistent with TV viewing experience.
- **High Scalability:** Metrics based on actual full screen guide deployments that meet operator expectations on peak concurrency and sessions per server; made possible by breakthroughs such as MPEG Stitching

Rapidly Achieving Business Results

Guidecast's virtualization of STB functions allows pay-TV operators to expedite new UIs that can drive customer satisfaction and business success, most notably:

- **Rapid Time to Market:** Scalable introduction of modern UIs to all devices overnight, instead of "slow and grinding deployment" (MoffettNathanson Research) of coupling advanced UIs to installation of new set-top boxes in every subscriber's home.
- **Better User Experience:** Web-like navigation/discovery and consistency of UI on every device—including existing STBs—can improve subscriber satisfaction, reduce churn and enable new revenue-generating services.
- **Increased Return on Invested Capital:** CloudTV's 6X scalability and total cost of ownership (TCO) advantages over device replacement ([ACG Research](#)) enables cost-effective deployment of advanced UXs, as well as shift of device CapEx from user experience functionality to such enhancements as next-generation codecs and high quality video formats.

About ActiveVideo

ActiveVideo is the developer of CloudTV, the only software platform that enables service providers, content aggregators and CE manufacturers to *virtualize CPE functions* in the cloud for the purposes of delivering online content, advanced user interfaces and interactive advertising for TV to all generations of set-top boxes and connected devices. CloudTV delivers consistent, branded video experiences from the cloud, eliminating the cost and time to market of writing content for multiple device makes and models. ActiveVideo is a joint venture of ARRIS Group, Inc. (NASDAQ: ARRS) and Charter Communications (NASDAQ: CHTR). For more information and contacts, please visit www.activevideo.com