

Why Should I Care About Video Solutions?

Video subscribers are demanding new “Connected Life” services—available anywhere, anytime, and on any device. In today’s competitive landscape, cable operators need to meet these subscriber demands by evolving into “experience providers” who can offer a differentiated, highly personalized customer experience.

They must deliver better content, more personalization, and higher-quality multimedia experiences than their competitors. This includes delivering the emerging “Video 2.0” services. Just as the Internet evolved from a repository of static published content to a communal, fully interactive exchange, so too will Video 2.0 enable a wide range of user-generated content, interactive communities, and video-based applications that go far beyond the passive viewing of video entertainment.

Cisco® IP Next Generation Network (IP NGN) architecture is a convergence architecture based on international standards and industry best practices designed to deliver next-generation Video 2.0 services. The IP NGN Design for Video Service Delivery, built on the IP NGN architecture, is a flexible platform for the delivery of all types of video services. These video services are extensively tested in Cisco solutions labs—in configurations like those found in deployed cable systems—to speed deployment of new services.

What Problems Need to Be Solved?

With Video 2.0, consumers won’t just be sitting back “watching television” anymore. They will be viewing rich media content on a multitude of screens, and from a multitude of sources. They will be able to generate their own content and share it with others. They will be searching for “just the right video” from a vast body of content to suit all tastes—rather than browsing through a content guide designed for the masses. And they will do all this in a personalized way, based on their own preferences and needs.

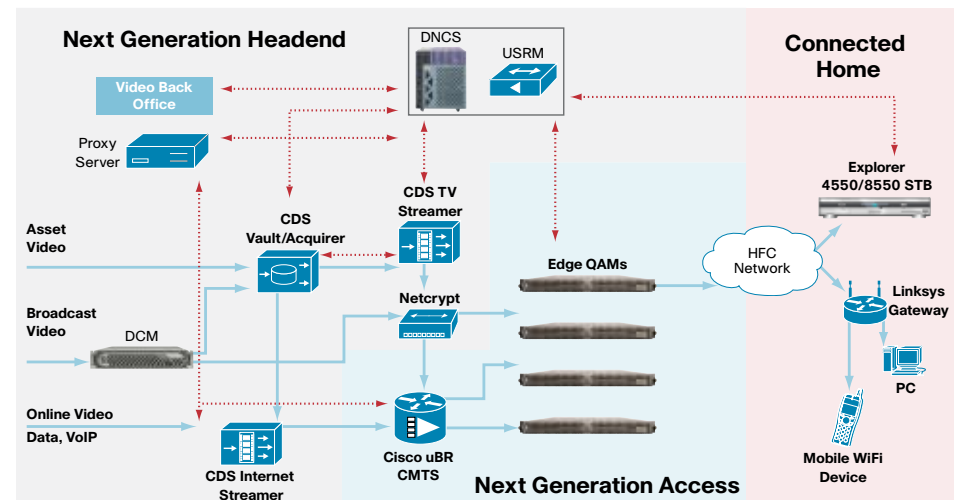
To provide these new Video 2.0 services, cable operators must evolve their networks to meet a whole new set of requirements. Specifically, Video 2.0 challenges to the network include:

- Services must be seamlessly delivered to a plethora of devices—not just the television. Subscribers want their services anywhere, anytime, on any device. Current networks were designed to provide video services only to the television or set-top box (STB).
- Demand for bandwidth is skyrocketing and hybrid fiber-coaxial (HFC) plant capacity is being strained by the steady increase of high-definition television content, demand for niche content from the Web, new ethnic content tiers, and other nontraditional sources.

- “One-size-fits-all” programming is giving way to fully personalized services. As a result, networks that in the past primarily carried a relatively small number of “broadcast video” streams will carry a massive number of personalized, on-demand streams.

As cable operators build out their networks to meet these challenges, they will benefit from a simple, modular design that can act as a platform for new services and bring a standardized approach to headend and network design—serving to reduce operating expenses (OpEx) and speed service delivery. The Cisco IP NGN provides the ideal foundation for accomplishing these critical objectives (Figure 1).

Figure 1 IP NGN Design for Video Service Delivery



The IP NGN Design for Video Service Delivery addresses the challenging requirements of new Video 2.0 services, and the cable operator’s need for a simple and standardized design to speed service delivery. It includes three major components: next-generation headend, next-generation access, and connected home.

The next-generation headend provides a personalized video experience for subscribers by incorporating best-in-class video processing, content delivery, and management. It incorporates the following major components:



- The Content Delivery System (CDS) is a flexible, scalable system for delivery of personalized and on-demand content.
- Switched Digital Video enables new content and services by maximizing efficiency at the HFC plant.
- The Digital Content Manager (DCM) provides dense, best-in-class video processing and ad insertion for linear programming.
- The Universal Session and Resource Manager (USRM), also known as the Global Session and Resource Manager (GSRM), manages sessions and resources networkwide, and is fully distributed to maximize scalability and resiliency.
- The Digital Network Control System (DNCS) manages STBs throughout the system.

The next-generation access enables a new generation of video and high-bandwidth DOCSIS® based services by incorporating DOCSIS 3.0 channel bonding, quality of service (QoS), and a family of dense edge quadrature amplitude modulation (QAM) devices. Major components include the following:

- Cisco uBR family cable modem termination systems (CMTSs) provide greater bandwidth than traditional DOCSIS channels -- through the use of DOCSIS 3.0 downstream channel bonding, while reducing costs through a modular platform that connects to low-cost edge QAM devices. Cisco uBR CMTSs are a key component for providing IP video services to PCs, mobile devices, and next-generation STBs.
- Scientific Atlanta Edge QAMs provide high density, bandwidth efficiency through QAM sharing, and seamless IP connectivity to the IP NGN network
- Cisco Dynamic Flow Control (DFC) combines the real-time application awareness of Cisco Service Control Engine (SCE) with CableLabs® PacketCable™ Multimedia (PCMM) to provide application-aware QoS guarantees over the DOCSIS network.

The connected home concept represents a subscriber's home where all types of content are delivered with high performance and ease to a variety of devices. Major components include the following:

- Scientific Atlanta STBs and digital video recorders (DVRs) act as video gateways for the home.
- Linksys® home gateways send and receive IP content and deliver it throughout the home.

- Scientific Atlanta and Linksys cable modems and embedded multimedia terminal adapters (eMTAs) connect to the DOCSIS network and feed content to PCs and in-home gateways.
- Linksys personal storage devices store content for access by subscriber devices throughout the home network.

What Are the Benefits of the IP NGN Design for Video Service Delivery?

The IP NGN Design includes the following benefits:

- Enables new Video 2.0 services
- A converged transport network reduces OpEx and CapEx
- Flexible platform accommodates rapid implementation of new services
- Enables addressable advertising for higher ad revenues
- Simplifies delivery of both linear and nonlinear programming
- Maximizes efficiency of HFC plant
- Improves customer satisfaction and reduces turnover

Why Cisco?

Cisco's "glass-to-glass" video solution goes all the way from the glass of the camera to the glass of the viewing screen. By combining next-generation headend and cable access technologies with a complete connected home solution, the IP NGN Design for Video Service Delivery enables cable operators to roll out new Video 2.0 services over a flexible network platform that increases service velocity.