Reducing costs, increasing revenue, and improving the customer experience are difficult challenges mobile operators confront as they deal with accelerating mobile data traffic from multimedia applications that require high bandwidth and quality of service (QoS), and heightened competition from other service and content providers. Cisco® Mobile Videoscape encompasses a video delivery architecture, platforms, and technologies that together help optimize, monetize, and enhance the delivery of mobile video. Collectively, they allow mobile operators to make video delivery more cost effective, more profitable through the application of network and subscriber intelligence for new offerings and partnerships, and more enjoyable for subscribers who expect a high-quality video experience.

Cisco Mobile Videoscape

The Cisco Mobile Videoscape architecture (Figure 1) includes:

- The Cisco Mobile Video Gateway (MVG) on the Cisco ASR 5000 Series Multimedia Core Platform
- The Cisco Content Adaptation Engine (CAE) on the Cisco Unified Computing System (UCS) server infrastructure
- The Cisco Content Delivery System (CDS), providing video content ingestion, caching, and distribution

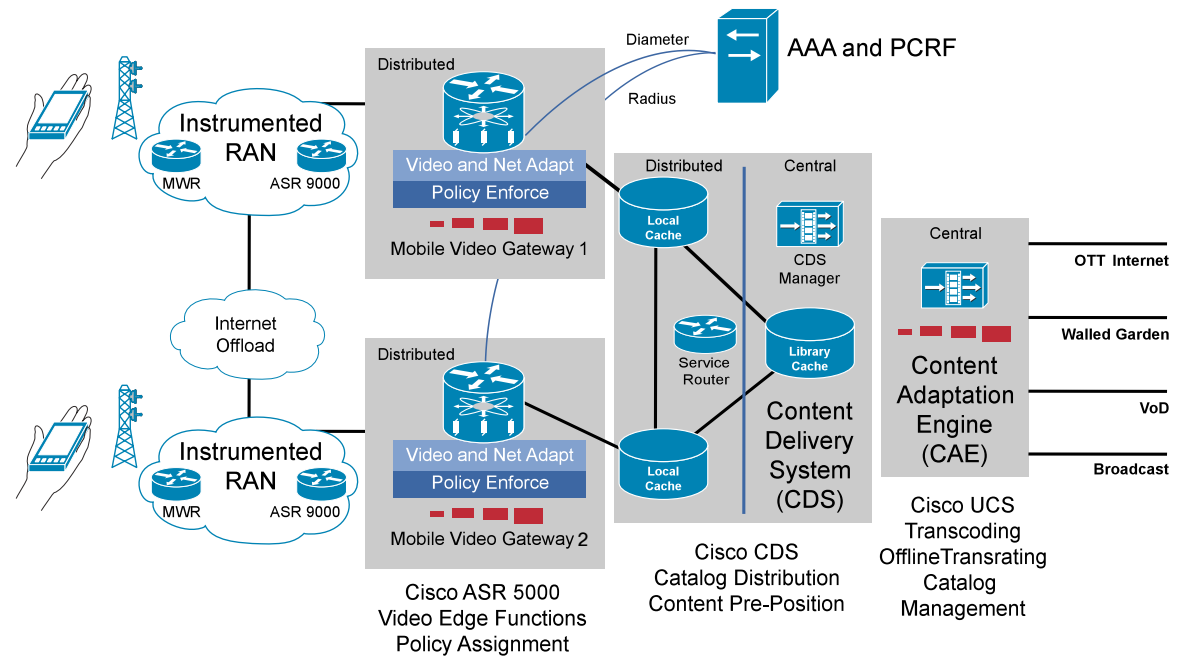**Figure 1** Cisco Mobile Videoscape Architecture and Components

Table 1 contains Cisco Mobile Videoscape component features.

Table 1. Cisco Videoscape for Mobility Component Features

Cisco Mobile Video Gateway in Cisco ASR 5000 Series Multimedia Core Platform	
Feature	**Description**
Wireless transport optimization	Dynamically adjusts TCP and HTTP parameters to better deal with wireless network latency and packet loss.
Traffic steering	Performs Deep Packet Inspection (DPI) to determine which requests are video and only directs that content into the CDS and CAE. All other traffic and URLs on exclusion list go directly to the Internet.
Video pacing	Paces download speed to match viewing speed of device to reduce unwatched traffic when users only view a portion of the video.

Cisco Mobile Video Gateway in Cisco ASR 5000 Series Multimedia Core Platform	
Feature	**Description**
Transrating	Dynamically reduces bit rate of video without full decoding and encoding process. Complements CAE bulk transcoding and transrating if further reduction is needed based on network condition.
Congestion monitoring	Monitors congestion to optimize video based on network conditions.

Cisco CAE in Cisco UCS Blade Server

Feature	Description
Content retrieval	Retrieves content from the Internet and sends to encoders for transcoding and transrating based on profile.
Bulk transcoding	Decodes and re-encodes video content into different formats.
Bulk transrating	Decodes and re-encodes video content into bit rates of the same video format.
Reactive catalog creation for over-the-top (OTT) requests	Works with MVG profile management to help ensure the proper content is created based on user equipment, user policy, and network situation. Offline storage is generated by popularity based on user requests.
Transwrapping	Changes the video wrapper or file type. Example: Adobe Flash® to Apple format.
Available bit rate (ABR) encoding	Slices video content into 10-second slices for streaming by the CDS streamer.
Proactive catalog creation for VoD and portals	Uses extend media workflow tools to publish video before user requests.

Cisco Content Delivery System (CDS)

Feature	Description
Central caching (library cache)	Stores transcoded content at the CAE to prevent multiple transcoding operations.
Catalog distribution	Works with the MVG profile management function to help ensure the proper content is served based on user equipment, user policy, and network situation.
Distributed caching (local cache)	Stores transcoded content at MVG to reduce IP core traffic and latency.
ABR streaming	Slices HTTP video traffic into 10-second slices and alternates between them based on client feedback. Supports Apple, Microsoft, and Adobe clients.

A distinctive solution provided by Cisco Mobile Videoscape is the system's ability to optimize content in real time (online), as well as to create an optimization workflow (offline) for Internet videos that have "gone viral" based on popularity. Such videos can cause huge traffic spikes that stress the end-to-end mobile network and affect user experience as video traffic moves from the core network through the RAN to the subscriber.

With Cisco Mobile Videoscape, the CAE keeps track of how many hits are requested at a particular URL in a given period of time. At a certain volume of requests, the content in no longer optimized online and is put into the cache for offline consumption at the network edge. This capability can significantly reduce traffic, lowering costs for core elements and decreasing congestion.

Benefits

- Reduction of video traffic through the RAN and IP core
- Faster downloads
- Smoother streaming
- Optimization of OTT traffic based on subscriber requests
- Monetization of new services based on policy, partnered content, or advertising insertion
- Three-screen video viewing experiences, including session shifting

Why Cisco?

With Cisco Mobile Videoscape, Cisco introduces a comprehensive, integrated, and intelligent solution to manage and monetize mobile video. This solution gives mobile operators a cost-effective way to reduce mobile video traffic, and offers opportunities to introduce and capitalize on new business models. For subscribers, it provides a better end-to-end mobile video experience that can be enjoyed on all types of screens.

For More Information

For more information about Cisco Mobile Videoscape, visit www.cisco.com/go/mobileinternet.