

Cisco uMG9800 Series Digital Video Networking: New QAM Products for Video-on-Demand Services

Q. What is the Cisco® uMG9800 Series?

A. Cisco Systems® offers two high-density, Gigabit Ethernet-optimized video quadrature-amplitude-modulation (QAM) products for cable operators that enable maximum scalability, high availability, and high performance for video-on-demand (VoD) services. Each product serves as an IP-to-MPEG-2 gateway between a Gigabit Ethernet transport network and a hybrid fiber-coaxial (HFC) cable network and can receive multiple single-program transport stream (SPTS) MPEG-2 digital video streams, which are then multiplexed, modulated, and upconverted to the desired RF frequency for delivery to digital set-top boxes. Both QAM products are optimized for Gigabit Ethernet networks and can directly accept full line-rate Gigabit Ethernet transport feeds from video servers, providing optimum efficiency.

Q. What are the two QAM products?

A. The products include the Cisco uMG9820 QAM Gateway and the Cisco uMG9850 QAM Module.

More specifically, the Cisco uMG9820 QAM Gateway is a high-density, Gigabit Ethernet-optimized QAM product that offers nonstop, high-performance operation for VoD services. The modular design of the chassis allows the customer to incrementally add QAM cards to increase the density to a maximum of six QAM cards. Each QAM card contains two RF ports, capable of generating two QAM channels per port for a total of 24 QAM channels in a one-rack-unit (1RU) chassis; each device also is equipped with redundant Gigabit Ethernet interfaces. The highest-density Gigabit Ethernet QAM product available, the Cisco uMG9820 QAM Gateway is ideal for customers requiring cost-effective solutions for their digital video services.

The Cisco uMG9850 QAM Module provides the most versatile solution for Gigabit Ethernet-based digital video networks, integrating switching, optics, and QAM functionality onto one platform—the Cisco Catalyst® 4500 Series Switch—to simplify network architectures delivering VoD services. Each QAM module consists of 12 RF ports generating two QAM channels per port for a total of 24 QAMs per module. The modularity of the Cisco Catalyst 4500 Series Switch enables the accommodation of up to five Cisco uMG9850 QAM modules, offering a maximum of 120 QAM channels. The Cisco uMG9850 QAM Module also can be mixed with other Cisco Catalyst 4500 Series line cards, adding to the flexibility of the solution. The Cisco uMG9850 and the Cisco Catalyst 4500 are emerging as the foundation for the next-generation digital video network.

Q. What are the differences between the Cisco uMG9820 QAM Gateway and the Cisco uMG9850 QAM Module?

A. The two QAM devices have been developed with more similarities than differences to provide flexible and scalable, high-performance digital video networking products. However, in some network conditions one of the QAM devices best fits the cable operator's VoD service requirements. The Cisco uMG9820 favors conditions that typically serve smaller hubs with fewer homes passed. When space in the hubs is of critical importance, the modular design of the Cisco uMG9820 chassis provides the flexibility to increase the density by simply adding QAM cards into the one-rack-unit (1RU) chassis. Alternatively, the Cisco uMG9850 QAM Module favors conditions where the growth planning for the hub is expected to accelerate rapidly. The Cisco uMG9850 QAM Module also provides the integration of the QAM, switching, and optics

Q. How do cable operators benefit from the Cisco uMG9800 Series products?

A. The migration to Gigabit Ethernet, which is quickly replacing traditional interfaces, now introduces an architecture that enables a switching infrastructure, meaning more intelligence in the network to store content anywhere—and it would be available to any edge QAM device. The Cisco uMG9800 Series products enable cable operators to more easily and cost-effectively deliver new, profitable, and scalable VoD services within this new, intelligent networking infrastructure. The products enable delivery of video content where it is needed, when it is needed. The cable operators' best asset is their network, and Cisco Systems® works to help them get the most productivity by cost-optimizing their operation.

Q. Do any other vendors have a Gigabit Ethernet interface for a video QAM device?

A. Yes. However, as the industry leader in Gigabit Ethernet networking, Cisco is bringing its considerable expertise and support to the cable operator's VoD service architecture. This is particularly important as the VoD deployments migrate from hardwired legacy architectures to networked Gigabit Ethernet architectures, providing a flexible, standards-based video networking solution that embraces the evolving architectures and future services of the cable operator. Cisco is offering products specifically optimized for Gigabit Ethernet networking which takes full advantage of this technology. By simplifying the challenges faced by cable operators, Cisco offers modular products that allow QAM densities to grow and scale with their new digital video services.

Q. Why is Gigabit Ethernet-optimized technology so important?

A. There is a fundamental shift in the cable operators' core business, moving from a broadcast model to a model that now must support unicast streams for on-demand content. The networks that must support the thousands of "bandwidth-intensive" VoD streams must be flexible to scale as more digital services are launched. Therefore, the cable industry is now migrating to Gigabit Ethernet technology. The uMG9800 Series products are optimized for Gigabit Ethernet technology and can directly accept full line-rate Gigabit Ethernet transport feeds from video servers, providing optimum efficiency. Other products on the market today that are not optimized for Gigabit Ethernet require the devices to be daisy-chained in order to utilize the full capacity of a Gigabit Ethernet link, introducing a single point of failure in the architecture.

Q. What makes the Cisco uMG9800 Series products a high-availability platform?

A. As video edge QAM devices, the Cisco uMG9800 Series products have a hardware architecture designed to maximize network uptime, including:

- Redundant Gigabit Ethernet interfaces
- Hot-swappable QAM cards and processor
- Redundant cooling and power

Q. How do these new products complement earlier Cisco video solution and product offerings?

A. Cisco Systems is committed to offering next-generation digital video networking products, solutions, and services to cable operators. Cisco offers end-to-end digital video network infrastructure solutions for VoD services that take advantage of the company's entire portfolio of products. Gigabit Ethernet provides compelling advantages for video transport. Cisco offers the leading Gigabit Ethernet switching and optical transport products. The Cisco uMG9800 Series products draw from Cisco industry leadership in Gigabit Ethernet networking to provide a more efficient alternative to existing QAM products on the market today.

Q. When will the Cisco uMG9800 Series products be commercially available?

A. Both the Cisco uMG9820 QAM Gateway and the Cisco uMG9850 QAM Module are orderable now and will ship in March 2004.

Q. How does Cisco believe the video network will evolve over time?

A. Cable video networks will evolve to integrate multiple video services over a common, intelligent, open-standards-based digital video network infrastructure. In the case of VoD services, Cisco believes that this will allow cable operators to capture the benefits of having a switched network infrastructure between the headend and the distribution hub—where in earlier, traditional architectures there was a point-to-point direct connection. Key among these benefits will allow cable operators to more easily & economically deliver content to where its needed, when its needed; investment protection by providing a flexible video networking system which embraces evolving architectures and services; the reduction of operating costs and complexity by building intelligence into the network; and support for multi-vendor interoperability with an open, non-proprietary architecture. In addition, Cisco believes that the open network will encourage cable operators to integrate multiple video (and potentially other) services on a single network.

From a product standpoint, as the network evolves, the modular design of the Cisco uMG9800 Series digital video networking products enhances service scalability by making it easy to add more QAM channels as VoD service grows. The building-block design allows operators to purchase spare components to increase QAM density, rather than an entire fixed-configuration system, thereby reducing the number of devices to manage and thus lowering the total cost of ownership for in-service video QAM equipment.

Q. Does Cisco have signed marketing agreements with any video companies?

A. Cisco has a formal Video Partner Program, with marketing agreements with major suppliers of the VoD infrastructure. The marketing agreement with Cisco indicates that the company's products interoperate with the appropriate level of testing. In addition, Cisco will work with select partners to jointly develop technologies and solutions that improve the value of the video network for the company's shared customers.

Q. Have the Cisco uMG9820 QAM Gateway and the Cisco uMG9850 QAM Module been tested for interoperability by the VoD server vendors?

A. Both of the Cisco uMG9800 Series products have gone through interoperability testing with multiple VoD server vendors in Cisco's labs, as well as through formal interoperability testing at SeaChange, Concurrent, and nCube.

Q. What is the Cisco competitive advantage and value proposition in the video market?

A. Cisco's strong heritage of open systems allows the company to bring its unmatched networking expertise and industry leadership in Gigabit Ethernet networking technologies to solve the VoD infrastructure challenges faced by cable operators. The recognizable benefits that Cisco brings for on-demand video services include:

- Industry-leading Gigabit Ethernet products
- Delivering "interoperable" solutions for digital video networking
- World-wide leader in networking
- Support for excellence—now and in the future

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