

## **Hughes Network Systems: Managed VoIP from the folks that brought you satellite communications.**

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By [Mark A. Miller](#)

Hughes Network Systems, LLC, headquartered in Germantown, Md., is a household name when it comes to the satellite communications business. The company claims to have conceived and introduced the first commercial Ku-band systems in the mid-1980s, which are capable of reliably transmitting data, **voice**, video and multimedia signals to any site on the globe that is covered by geostationary satellites.

Since that time, the company has manufactured and shipped over 2.2 million VSAT (very small aperture terminal) systems to customers in over 100 countries around the world. These satellite offerings, named *HughesNet*®, provide network and communication services to consumers, **small businesses**, larger enterprises and government organizations.

With a market share of 50 percent of the global VSAT **business**, Hughes claims a long list of major enterprise customers, including many of the Fortune 1000 companies in virtually every vertical sector: retail, lotteries, oil and gas, automotive, hospitality, restaurants and financial services.

Hughes also owns and operates service businesses throughout the United States, Europe, India and Brazil. The **network connectivity** is supported by two generations of satellites, *SPACEWAY*® 3 and *JUPITER*.

The *SPACEWAY* 3 system was designed and developed by Hughes as a next-generation, Ka-band broadband satellite system. This system was launched in August 2007, and is claimed as the world's first to employ on-board traffic switching and routing capability, delivering a wide range of broadband IP services in North America, with 10 Gbps overall capacity.

*JUPITER* is a next-generation, high-throughput Ka-band satellite scheduled for launch in the first half of 2012. It is designed to have 100 Gbps capacity, over 10 times the capacity of *SPACEWAY*® 3 and up to 100 times more than today's conventional Ku-band satellites. Employing a multi-spot beam, Jupiter will operate in geostationary orbit, providing significant additional capacity for delivery of a wide range of services in North America.

Hughes provides an extensive array of broadband connectivity systems, which are supplied to customers by both their own HughesNet service market, and also a growing number of authorized service providers. These include both fixed and mobile telecom providers worldwide, offering "Internet everywhere" service to meet a long list of high-bandwidth application requirements, including **VoIP**, high-speed Internet access, interactive distance learning, video conferencing, and multimedia streaming.

The Hughes systems are also designed to support the emerging global standards for broadband satellite transmission. All of their broadband products are based on the IP over Satellite (IPoS) standard, the world's first to be approved by the governing standards bodies, including the TIA, ETSI and ITU. IPoS enables value-added **application** software to be readily transported to different satellite hardware platforms without requiring costly re-development.

Also implemented by Hughes is the Digital Video Broadcast by Satellite, second-generation (DVB-S2) standard, with Adaptive Coding Modulation (ACM). DVB-S2 was originally developed for remote newsgathering, with the ability to transmit both audio and video back to the home television station. The ACM addition increases transmission efficiency, yielding up to 50 percent greater throughput, with transmission capabilities up to 90 Mbps.

This extensive system infrastructure has enabled Hughes to recently launch a business-grade managed VoIP service for distributed enterprises. Announced in January 2011, the voice system employs what the company calls *ActiveQoS*™ technology, which incorporates several optimization techniques, including traffic metering, network change adaptation, and traffic prioritization, that are designed to ensure that real-time, latency sensitive applications, such as voice, are prioritized on an end-to-end basis, minimizing packet loss and jitter. The Hughes VoIP solution includes both hosted VoIP and SIP trunking services, and offers full number portability.

This fully managed service is available throughout the United States, initially targeted at distributed enterprise markets. Over time it will be marketed to smaller firms as well. The system is designed to maximize the use of existing premises equipment, with support for both current phone systems and analog phones. If needed, Hughes can provide IP phones as part of the service, which can also include a direct SIP connection to an existing IP PBX on a case-by-case basis.

Management of the system is via a Customer Gateway, which provides fault and performance management for the customers' private network, as well as a number of self-administration features, such as call forwarding, call redirection, and so on. The service can also include a high-availability option which deploys both broadband wireline and satellite access to each site, with both voice and data traffic switching to the backup path in the event of a primary link failure.

Further information on the Hughes Network Systems solutions can be found at [www.hughes.com](http://www.hughes.com). Our next tutorial will continue our review of various service providers hosted voice solutions.

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### **Author's Biography**

Mark A. Miller, P.E. is President of DigiNet Corporation®, a Denver-based consulting engineering firm. He is the author of many books on networking technologies, including *Voice over IP Technologies*, and *Internet Technologies Handbook*, both published by John Wiley & Sons.