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## Hughes Managed WAN Services: IP VPN for the Distributed Enterprise

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## INTRODUCTION<sup>1</sup>

Hughes Network Systems (Hughes), long known as a satellite services provider, has refocused its strategy in recent years to delivering a full portfolio of managed network services for enterprise customers. Hughes leverages its long history of provided managed private network services, currently serving about 120,000 locations in North America, ranging in size up to 10,000+ sites within a single network.

Hughes operates as a Virtual Network Operator, combining access from several providers (including itself) connecting client locations to Hughes' National Points of Presence.<sup>2</sup> In a Hughes managed network, customers' data centers can be connected to the national POP via leased lines or MPLS networks. (See Figure 1 for a typical network configuration.) In the future, as switching functionality is deployed in Hughes' new Spaceway satellite (as discussed below), point-to-point connections between Spaceway-connected locations will eliminate the need for client traffic to traverse through a Hughes POP.

The result is a network architecture comprising satellite and terrestrial access and high performance, customer premises-based Class of Service (CoS)-enabled WAN routers and optimizers, which deliver consistent, cost-effective MPLS-like performance within a distributed enterprise environment. Based on the elements delivered thus far, Stratecast believes that Hughes is well-poised to become a recognized competitor in the IP-VPN managed services market in North America.

## STRATEGICALLY NOTEWORTHY

Hughes' network strategy includes a number of elements that could prove critical for generating a share of the enterprise WAN services market:

- **Access-agnostic private networking** - This is a key element to Hughes' network services strategy. No longer just a satellite provider, Hughes also offers terrestrial and wireless broadband access as part of its enterprise networking services. The company has developed a broad range of access carrier resell and interconnectivity arrangements, including wireline broadband through AT&T, Covad, Verizon, among others; T1 pipes through AT&T and PaeTec, Wireless Broadband through Sprint, and cable broadband through Charter, Cox, and Time Warner. Missing from the list is metro Ethernet, which the company will need to add if they want to become a single-provider for enterprises requiring the ultra-bandwidth metro Ethernet supports.

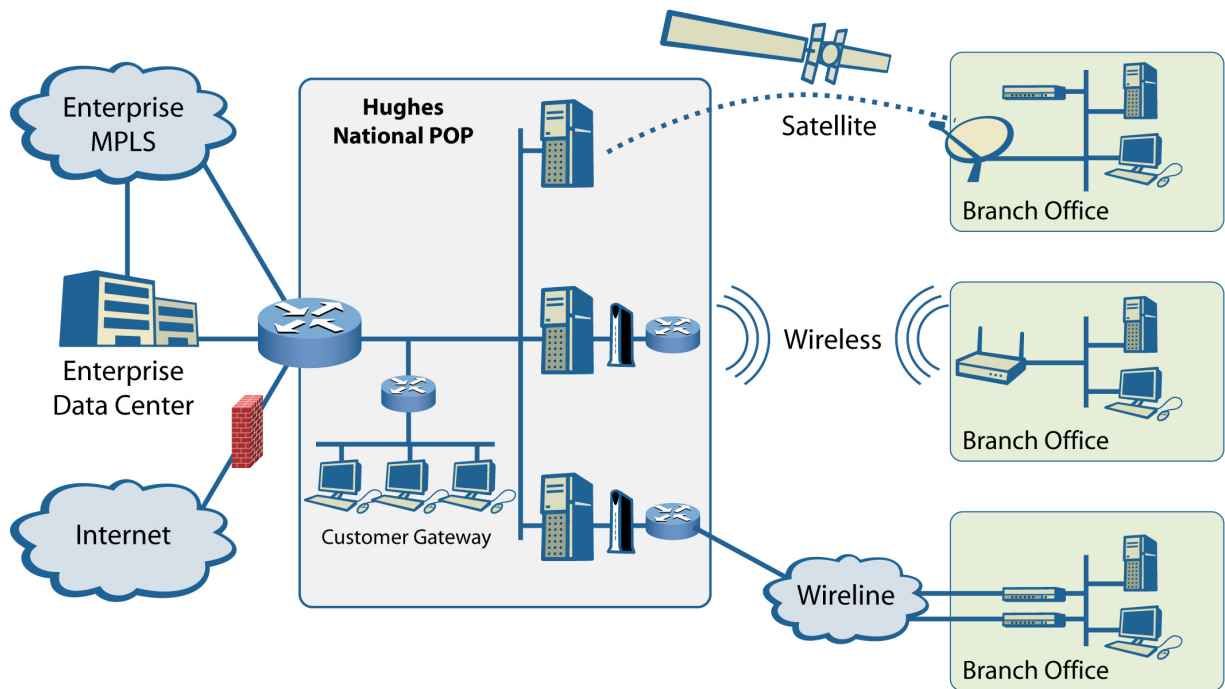
Hughes takes its multi-access approach seriously, with terrestrial services given equal consideration with satellite in network design and management. In fact, and a testament to the company's access-agnostic approach, the company has recently been awarded a large multi-location network entirely with terrestrial broadband access. The result of this access-agnostic approach is that each customer location – even remote and small locations – can be served by the most effective access type or types, as determined both by cost and performance parameters, while still remaining on the fully managed corporate VPN. Customers have the flexibility to determine availability and performance levels per application, while maintaining network-wide CoS parameters. Further, the network can be consistently protected with PCI security, regardless of access type for each location; this is important to retail businesses. Equally important to enterprises with a large number of branch locations, customers can turn to Hughes as a single “throat to choke” for their entire network, rather than multiple local providers.

1. In preparing this report, Stratecast conducted interviews with representatives of Hughes Network Systems.

Please note that the insights and opinions expressed in this assessment are those of Stratecast and have been developed through the Stratecast research and analysis process. These expressed insights and opinions do not necessarily reflect the views of the company executives interviewed.

2. Stratecast has produced several studies of Virtual Network Operators, including “The Asset Light VNO: A Sound Business Model and distributed Enterprise Solution” (a Stratecast and Frost & Sullivan Whitepaper, 2008)

Figure 1: Hughes Network Architecture



Source: Hughes Network Systems

- **Home-grown technology to enhance managed services** – By utilizing its own technology expertise to develop high-functionality customer premises equipment, Hughes is able to provide additional value to managed service customers. Hughes’ line of routers, originally designed to handle satellite access, has been refitted to manage all access types. Because Hughes’ routers incorporate WAN optimization and application acceleration software, this decreases the bandwidth required for data applications (thus allowing more data to move over the network) while speeding up throughput and providing application prioritization. While it’s not clear that the combined WAN router/optimizer performs better than a standalone router plus dedicated optimization appliance, enterprises can benefit from the lower cost and smaller footprint of a single, multi-functional device, compared with a pair of appliances (i.e., WAN router and WAN optimization appliance) at each location.
- **Compliance friendly** – The voice of regulation is anything but silent for regulated businesses. Ironically, while regulated businesses own the responsibility to demonstrate compliance they do not always have end-to-end control. A relevant example of this is the PCI regulation that applies to any business that accepts credit cards as a means of payment. This regulation requires privacy of credit card information in storage and in transit. Hughes has taken formidable steps to assure its business customers that credit card information is secure when in transit over Hughes managed access links and among Hughes points of presence. As evidence of this, the company has been certified as PCI compliant.
- **Business continuity and High availability at an affordable cost** – Hughes managed network services can support a company’s business continuity objectives. By bonding DSL and satellite access together, even small and remote locations can have cost-effective and physical access redundancy, with automatic hot fail-over from terrestrial to satellite access and vice versa. Increasingly common is “co-primary” network access, in which both terrestrial and satellite access are installed to a single site, and traffic is shared between the two, based on business rules. For example, different applications may be slated to be routed to either the satellite or the terrestrial link, and assigned different Classes of Service, based on the performance needs and status. Co-primary access helps a business overcome a reluctance to pay for rarely-used “backup” access, since all bandwidth is used regularly.

- **Support for enhanced multicast applications** – Hughes’ growth strategy includes a play in the “rich media” space. Enabled by the multicast functionality of its satellite network services, Hughes is offering a portfolio of Rich Media Application Services, including digital signage, employee communications and training.
- **End-to-end ownership of satellite service** - With the launch of its Spaceway satellite, Hughes now can claim full ownership of the end-to-end satellite service, from the WAN routers on the customer premises to the “bird” in the sky. With ownership and switching technology onboard in Spaceway, Hughes can analyze satellite access performance and dynamically allocate satellite bandwidth and modulate signal strength among active locations, ensuring high levels of availability for customer applications. The bandwidth on-demand and power management features complement the traditional use of satellite communications for multicast applications - training, corporate broadcasts, software distributions, and TV content to each location – and opens new market opportunities as described in the next bullet.
- **“Switch in the Sky”** – Hughes’ next generation satellite, Spaceway, is the first to employ onboard switching capabilities, opening up a whole new market opportunity to support impromptu and community-based secure data communications. In the future, Hughes may offer dynamic, point-to-point, gateway-free VPN services.<sup>3</sup> Satellite-based intelligence also allows Hughes to reconfigure satellite resources for a connected site in a rapid and granular fashion.

3. Stratecast has analyzed the gateway-free approach to VPN services for several years. Published analysis on this approach is found in “Gateway Free VPNs” (CSSO 2-07), June 2004. To obtain this study, please contact Stratecast at 877-463-7678 or [inquiries@stratecast.com](mailto:inquiries@stratecast.com).

## Stratecast The Last Word

Hughes Network Systems is delivering on a solid strategy to provide consistent managed network services to business organizations with highly distributed locations. The result is an access-independent managed service that melds broadband satellite and terrestrial access and can ensure application-specific performance and bandwidth availability. Stratecast believes that Hughes' growing presence and influence indicates that facilities-based carriers no longer have an advantage in the IP VPN market.

Among the highlights of Hughes' strategy are:

- **Access-agnostic private networking** - Allows consistent and standardized management regardless of network access.
- **Home-grown technology** - Hughes' new WAN Router/Optimizer, which embeds WAN optimization and acceleration software directly into the company's all-access router.
- **Low-cost business continuity, high availability options** – Dual and co-primary access methods (e.g., VSAT and DSL) provide a more affordable fully redundant access approach for even small branch locations.
- **End-to-end ownership of satellite link** – From routers on the customer premises to the satellite itself, Hughes can actively support its customers' critical data applications by prioritizing and optimizing application traffic, allocating bandwidth and managing satellite signal strength.
- **The “switch in the sky”** – will allow Hughes to utilize satellite-based routers and switching capabilities to cost-effectively deploy point-to-point networks.

Hughes managed services are especially attractive to the distributed environments that comprise much of their current customer base (e.g., retail outlets, gas stations, lodging and financial institutions). In addition, they have the opportunity to attract more small and midsized businesses that are looking for a fully-managed MPLS VPN but have been challenged to find a provider that will uniformly support a highly diverse access network. If delivered as promised, the flexible managed network solution offered by Hughes could be just what businesses have been waiting for.

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