

Virtual Network Operator

Meeting the challenges of the real world

As the international technology market continues to expand, new demand for broadband service continues to increase worldwide at a record pace. This global market presents unprecedented business opportunities for those who can identify business needs and cost effectively deliver service, particularly for VSAT solutions which can provide access in areas where traditional landline service is unavailable, unreliable, or cost prohibitive. Historically the challenge of deploying satellite service to meet the communications needs of these niche markets has been the high cost of deploying a network, and the ongoing investment required to maintain it while the customer base is established and grown. iDirect understands that upfront investments in hardware and assets must be kept to a minimum while the customer base is cultivated. The solution is a program that provides a low cost entry into the VSAT service provision market with an upgrade/migration path to support the network demands when successful growth is achieved. This is iDirect's Virtual Network Operator (VNO) program.

Low cost entry into the satellite communications market

iDirect's VNO solutions are developed to be highly scalable, inherently flexible and user-friendly, specifically to meet the changing resource needs of an emerging business. Our VNO program allows service providers the benefit of operating their own VSAT network without the high cost and investment in the VSAT teleport infrastructure such as baseband equipment, large antenna and radio frequency (RF) systems, physical space, uninterrupted power supply (UPS) etc.

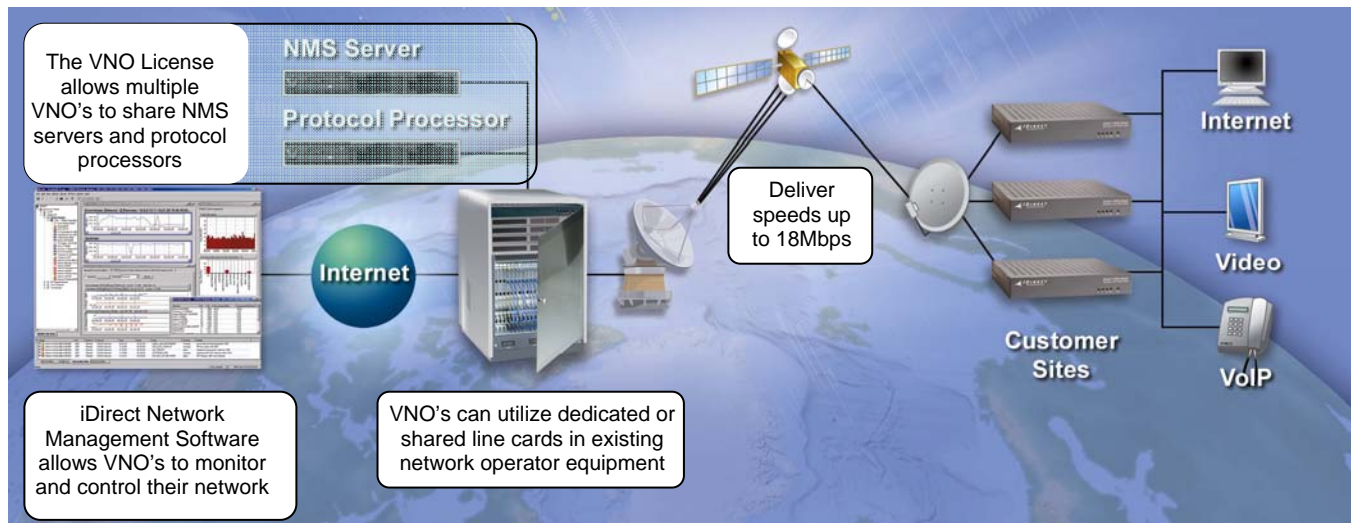
Via this program a VNO rents network capacity from a larger Host Network Operator (HNO) that has the readily available teleport infrastructure resource. This capacity is physically isolated from the resources rented by other service providers and the HNO, and can be remotely configured and managed in any manner the VNO sees fit. This allows a VNO to offer highly competitive broadband IP service anywhere, without a significant upfront investment.

As a virtual network operator you will have the ability to control and run services to your end customers worldwide with the highest level of autonomy. The tools and features available to the virtual network operator include:

- Commission, control and monitor your own remote sites
- Deliver end users broadband speeds of up to 18 mbps
- Ensure your network traffic is 100% physically separate from anyone else's
- Provide custom QOS service levels and definitions
- Support applications like VoIP, video and private networks
- Pay only for the capacity you need
- Design and configure your own IP addressing scheme
- Easily expand your service capacity as you build customer demand

demand. This expansion can be accomplished by simply adding an additional Line Card and/or NMS servers and Protocol Processors. The VNO Package model allows new operators to develop niche opportunities worldwide while providing them with scalability, increased security, highest level of autonomy, independent software upgrade path, state of the art network management tools, security and functionality to deliver the applications and services end customers require.

VNO License



The VNO License offers cost effective access to opportunities in the VSAT industry without assuming the risk of any hardware investment. This option allows the VNO the ability to deploy a **logically** separate network on top of the full HNO's assets with a moderate level of scalability while maintaining a lower initial investment. This option enables multiple small to medium VNOs to run on the same hardware infrastructure (wholly owned by the HNO) with a logically independent data path. Each VNO License includes a single software license for one virtual network operator on a single NMS.

Since the VNO License Package starts with a software license only, multiple VNO's utilize the same equipment through a shared environment. As VNO networks experience greater network demand, they can migrate to a VNO package with a simple hardware upgrade. The VNO License model allows new operators to develop niche opportunities regionally whilst providing them with interim scalability, medium level of autonomy, state of the art network management tools, security and functionality to deliver the applications customer need.

CNO

The Customer Network Observer (CNO) option represents a **Monitor-Only** solution for an operator with no commissioning and very limited control of the customer base. The CNO option exists when the HNO provides all the regular functions in providing service to your end customer but allows you the ability to monitor your specific set of remotes and hence clients.

This option allows the CNO the ability to provide additional insurance as another set of eyes watching over the specified network.
The CNO option includes a single software license for one monitor only account on an NMS.

Since the CNO starts with a software license for Read-Only access it represents a shared environment amongst other similar CNOs. As the point when the operator wishes to provide more functionality to the client base the migration path would be a hardware upgrade and software license upgrade to a VNO License or VNO Package.

Virtual Network Operator Summary

VNO Package

Includes Network Management Software, and a dedicated Protocol Processor, NMS Server, Line Care and License

Autonomy – highest level of scalability, independent upgrade path, unlimited growth and added security via dedicated data path.

VNO License

Includes one Software License

Lower entry price point, small to medium scalability and simpler certification.

CNO

Includes one Read Only License

Lowest price point, monitor functionality only, lowest certification.

Virtual networks – Maximum opportunity – Minimum risk

The VNO program offers all the opportunity of the Satellite industry without assuming the risk, or the upfront investment of deploying a separate network. And, since a VNO can be deployed with no dedicated hardware, they have the ability to deploy exactly the network bandwidth for their initial business case, with the flexibility to expand as much as the markets demand. The VNO model allows new operators to develop niche opportunities worldwide, and provides them with state of the art network management tools, security and functionality to deliver the applications customers need.