

Introducing SkyPipe™ link optimization for BGAN

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Overview

This document introduces the SkyPipe™ Link Enhancement server/client system (called SkyPipe in this document) from AOS Inc. SkyPipe can overcome the TCP throughput degradation caused when TCP congestion control interprets high latency and/or high bit error links (such as satellite hops) as congestion due to the amount of time needed to receive acknowledgements from the destination interface. SkyPipe forms “tunnel-like” encrypted associations between the client and server, and compresses the data when possible, decreasing the number of transmitted packets and allowing packets to use the full bandwidth available.

SkyPipe can be used with hardware that you already have in place, or AOS can add suitable hardware to your existing network.

The solution is made up of the following components:

- **SkyPipe Server** – The Server listens for incoming client connections and acts as a proxy for requested traffic. It can be optimized to accommodate a wide variety of satellite links, and can be licensed for bandwidths up to 30 Mbps for 250 concurrent users. Failover and load-sharing implementation are also available for larger, more complex installations. AOS builds and delivers complete solutions, using Redhat Enterprise Server as the base operating system, and recommends a Pentium 4, 2.8Ghz (or better) processor, with 1.0GB RAM.
- **SkyPipe EOS Hardware Client** – The WAN/LAN SkyPipe client is USB-powered, and is configurable via a built-in web server on the host side. This device is meant for an individual host with

a WAN aggregate bandwidth up to 2 Mbs, but it can be linked to a small Ethernet switch for multiple clients to share connectivity. The EOS client also has a built-in, fully configurable firewall and VPN. The unit can operate in router or stealth mode: stealth mode means that the unit becomes invisible to the existing network topology. EOS is ideal for users who do not wish to install any additional software or make changes to their host computer, and simply want a plug-and-play device.

- **SkyPipe EOS II Hardware Client** – The EOS II Client the same features as the EOS Client, but is externally powered with a single WAN/4-port LAN setup, and has greater processor speed and memory. This device is meant for multiple hosts with a WAN aggregate bandwidth of up to 5 Mbs. The unit can run in router, stealth, or multi-stealth modes of operation.
- **SkyPipe Software Client** – The Software Client is ideal for users who do not want to carry an extra hardware component (such as the EOS or EOS II). Software installation takes only a few minutes and you can configure it for manual launch, or automatic launch at start up. When you turn off the software, it becomes completely dormant, returning the host computer to it's base state



Key Features

SkyPipe offers the following main features over the BGAN network:

- Improved HTTP, HTTPS, FTP, and SMTP throughput, through proxy enhancement.
- Simple Operation - Once properly configured, operation is transparent, so there are no complexity issues. The Software Client can be configured to start automatically, and the Hardware Clients only need to be connected and powered on.
- Compression during transmission.
- Web page pre-fetching and caching
- Can be configured for connection to failover servers
- EOS & EOS II - IPSec Compliant
- EOS & EOS II - Small and lightweight
- EOS & EOS II - Basic router functionality
- EOS & EOS II – Stateful Inspection Firewall

Technical Summary

SkyPipe feature sets are summarized below:

Feature	SkyPipe Software client	EOS	EOS II
Compatible with Thrane & Thrane EXPLORER 300, 500, 527, 700	Yes	Yes	Yes
Compatible with Hughes 920I	Yes	Yes	Yes
Compatible with Wideye SABRE I	Yes*	Yes*	Yes*
Compatible with bulk encryption devices	Yes	Yes	Yes
Compatible with hardware VPN (Cisco/Nortel)	Yes	Yes	Yes
Compatible with software VPN client	Yes	No	No
Enhanced HTTP, HTTPS, SMTP, SMB, FTP	Yes	Yes	Yes

Compression during transmission	Yes	Yes**	Yes**
Pre-fetching and Caching	Yes	Yes	Yes
Built-in firewall	No	Yes	Yes
Built-in VPN capability	No	Yes	Yes
Built-in Router functionality	No	Yes	Yes

* SkyPipe has not yet been tested with the Wideye SABRE I, but there are no known compatibility issues.

** Compression is only implemented in the forward direction from the server to the client on hardware clients.

Further details and support

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