

OPTIMIZING SATELLITE COMMUNICATIONS

SOLVING PERFORMANCE AND CAPACITY CHALLENGES

In Summary

Increases the efficiency of satellite communications

A holistic solution for acceleration, compression, quality of service and security

Uses the standards-based SCPS protocol

Diskless devices for harsh satellite environments

Large installed base in the US government and commercial market segments

Benefits

Delivers an average 400% bandwidth increase with peaks of over 1,000%

Improves ROI and lowers costs

Scales easily without requiring new investments

Mitigates latency on satellite transmissions

Ensures satellite links are filled to their maximum capacity

Provides dynamic bandwidth adjustment and flexible congestion avoidance

Reduces the effects of retransmissions caused by signal noise

Protects your critical applications

Satellites are an increasingly popular option today for routine communications to remote regions. But the steadily rising demand from businesses, media companies and government entities has led to a satellite bandwidth shortage and higher costs for the capacity that is available.

Expand Networks helps solve both the capacity and cost challenges with solutions that dramatically increase the efficiency of satellite communications.

How Expand Networks Optimizes Satellite Links

Latency Mitigation: Since TCP/IP traffic performance is sensitive to latency, the physical distances involved in satellite communication inevitably impacts performance. Expand's TCP acceleration, based on the industry-standard SCPS protocol (the Space Communications Protocol Standards), which was specifically designed by NASA and the DoD for satellite environments, mitigates the effects of latency and channel quality. In addition to SCPS, Expand uses a number of other techniques including HTTP caching, FTP caching and DNS caching to overcome the high latency effects of satellite communications.

More Bandwidth: Expand's compression technology—including byte-level caching as well as Web acceleration—reduces the burden of data that actually goes across the network, thus providing more bandwidth. Expand's compression algorithms provide 400 percent more WAN capacity on average, with peaks of over 1000 percent. This lowers the cost of bandwidth while increasing the number of users able to access the network.

Prioritizing Critical Applications: Expand provides a robust Quality of Service: (QoS) capability to manage how bandwidth is utilized, protecting priority transactions and making sure that other activities don't disrupt the stability of the network. This guarantees network resources for critical applications, particularly interactive and real-time applications such as voice over IP, Citrix/ICA and video.

Flexible and Transparent: Expand works in any satellite environment, including VSAT, Inmarsat and BGAN. Expand provides both memory-based and disk-based appliances. Expand's diskless optimization devices are ideal in most harsh satellite networks environments since they do not have any moving parts. By integrating TCP Vegas into its Accelerators, Expand solutions can adjust bandwidth dynamically and provide flexible congestion avoidance.

Expand solutions are fully transparent to the network infrastructure—they "learn" network traffic patterns automatically and auto-detect the environment. Expand Accelerators can be quickly deployed On-Path or On-LAN with minimal configuration and no infrastructure changes.

What Makes Expand Networks Different

Expand's standards-based solutions for optimizing satellite communications work holistically to give users much greater control over their network as well as the ability to squeeze the maximum efficiency out of the available bandwidth. It's the complete integration between compression, acceleration, quality of service and security in a single appliance that sets Expand solutions apart from the competition.

EXPAND NETWORKS — COMPREHENSIVE SOLUTIONS FOR WAN OPTIMIZATION

QUALITY OF SERVICE (QOS): Control of network bandwidth, filtering, shaping and marking	
<ul style="list-style-type: none"> Automatic Layer-7 application discovery Both inbound and outbound traffic Packet fragmentation (assures VoIP/video latency budget) End-to-end application performance monitoring Transparent to existing QoS infrastructure 	<ul style="list-style-type: none"> Priority treatment for critical applications Guarantee bandwidth for business sensitive applications Restrict rogue and greedy applications Seamless integration with compression and byte level caching Integration with MPLS network
ACCELERATION: Powerful acceleration solutions for both protocols and applications	
<ul style="list-style-type: none"> TCP acceleration (based on SCPS Standard) 	<ul style="list-style-type: none"> Application acceleration (Citrix/ICA, HTTP, RDP, Telnet/TN3270, FTP, DNS, webified applications)
VISIBILITY & MANAGEMENT: Comprehensive monitoring and graphical reporting	
<ul style="list-style-type: none"> Centralized management through ExpandView Total network visibility Automatic traffic discovery Simple configuration Traffic monitoring Historical and real-time reports for applications and links (throughput, performance, acceleration) Easy-to-use WebUI and central deployment stations Quick and easy configuration via front panel keypad Secure management with HTTPS, SSH, SNMP 	<ul style="list-style-type: none"> Integrates with existing user authentication and administration systems (RADIUS, TACACS+, and Windows Directory) Full NetFlow compliance: replaces the need for costly probes, enables collecting traffic statistics on routing devices and reports them to the collector. Out-of-band management HSRP/VRRP failover External flash card for device swap-out Switch-to-wire and software watchdogs
WAFS: Full-scale acceleration for WAFS and CIFS-based applications	
<ul style="list-style-type: none"> CIFS optimization Faster file transfers 	<ul style="list-style-type: none"> SMB-signing (full Microsoft compliance) Virtual-Server (DNS, DHCP, and print services) Addresses 'WAN-outs' in case of network outage
COMPRESSION & CACHING: Compression algorithms that are dynamic and self learning; caching in memory / hard drive	
<ul style="list-style-type: none"> Byte-level caching Packet header reduction Dynamic bandwidth adjustment 	<ul style="list-style-type: none"> Adaptive packet compression Network transparent RTM (Router Transparency Mode) Dynamic routing
SECURITY: Robust security and data protection for enterprises	
<ul style="list-style-type: none"> IPSec (AES-128, AES-192, AES-256 or 3DES algorithms) 	<ul style="list-style-type: none"> Authentication, authorization, and accounting (AAA)

LEARN MORE

Expand pioneered WAN Optimization solutions in 1998. Expand's extensive experience and technology leadership have consistently placed it in the Gartner's Leaders Quadrant for WAN Optimization Controllers.* Some of the best-known names in financial services, manufacturing, retail, health care, as well as leading government agencies and the military, rely on Expand Networks. For more information on how Expand solutions and services can benefit your company, contact your local Expand representative today or visit us at expand.com

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