WAN Acceleration Technology

Turn Your Vessels into Branch Offices

August 1, 2008

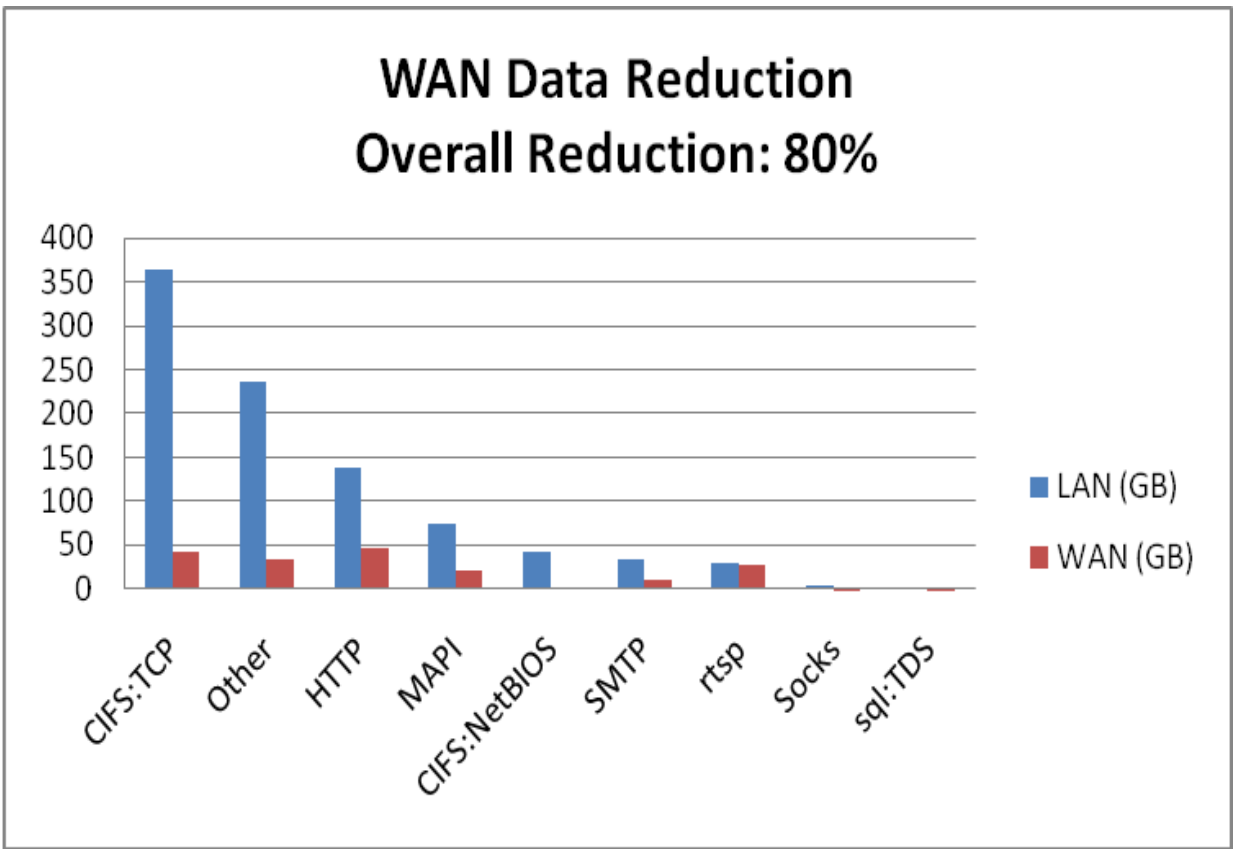
The challenges of 700 millisecond latency across a satellite link, limited bandwidth, and high communication costs are the bane of the shipping industry. Communication with vessels is critical to the efficient and compliant operation of a shipping company, but the high cost and poor performance of satellite connections force compromises that make efficiency illusive. File size limits, daily transfer caps, minimal connect windows, third party compression, and "mailbag" technology squeezes effective communications.

There now exists a technological solution to this problem that reduces the need for cost-saving communication compromises that limit efficiency. This solution simultaneously delivers significant cost savings while it effectively removes limits on the frequency and size of communications. Acceleration technology can provide Wide Area Network (WAN) data services that allow vessels to increase throughput while lowering bandwidth utilization – an infrastructure that enables increased communication and larger volumes of data at a lower total cost.

Using the industry's leading combination of acceleration techniques, and proprietary algorithms for pattern recognition, MultiCom can resolve these challenges. Compressing data, reducing data transfer through caching and pattern recognition, and reducing protocol chattiness provide up to 200 times improvement in WAN connection efficiencies. This combination of techniques is a "Bulls-Eye" fit for the shipping industry (where bandwidth is limited and latency is high). This technology also works well in a Branch Office environment. A key benefit can be consolidation of branch servers and a more efficient approach to backup and recovery processes and procedures. This technology reduces the data volume transferred over the satellite as well as reducing the time required for transactions to complete.

Data Volume

Acceleration devices have been reducing data load for companies in a wide range of industries for a number of years now. In order to show the advantages of this technology, a sample of actual data has been compiled from a number of different customers and broken down by data type. As Satellite providers move toward data volume measured service, reducing data volume is of significant importance to controlling future costs. Every byte that does not flow over the WAN is a cost savings. The following chart shows the primary types of data that flow across corporate networks and the type of data volume reduction possible with this technology.

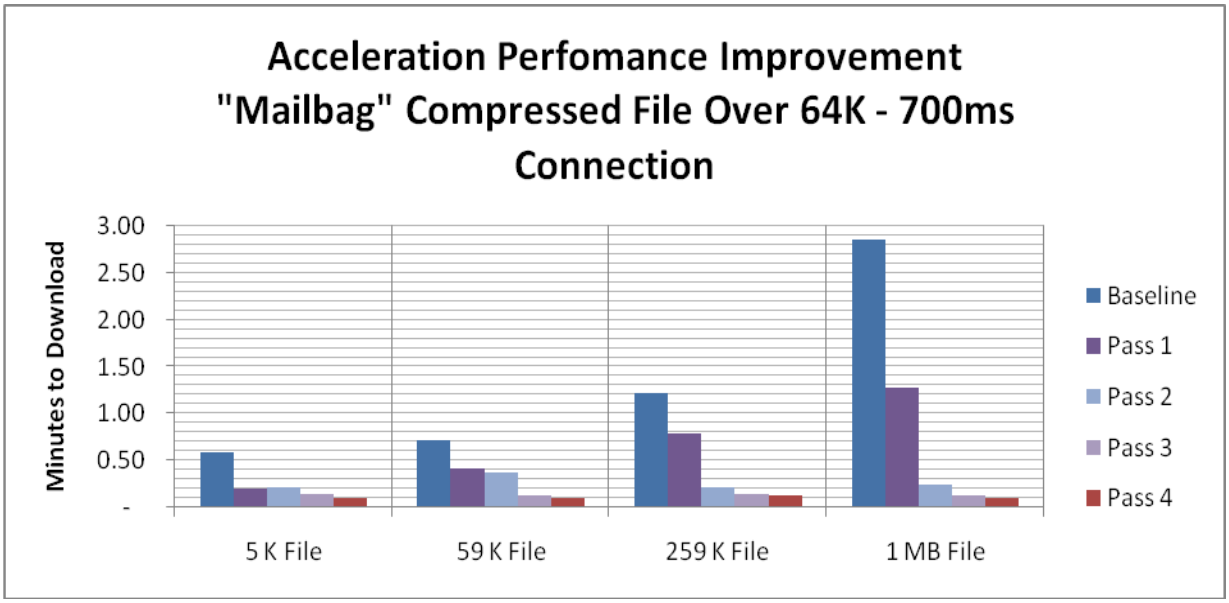


Total Data Volume Reduction – Cross Industry Composite
Overall Reduction – 80%

Traffic Type	Reduction %	LAN (GB)	WAN (GB)	Volume %
CIFS:TCP	88%	363	42.3	39.21%
Other	86%	237	33.74	25.60%
HTTP	66%	138.7	46.78	14.98%
MAPI	71%	73.9	21.41	7.98%
CIFS:NetBIOS	93%	41.82	2.78	4.52%
SMTP	66%	33.3	11.3	3.60%
rtsp	7%	30.7	28.6	3.32%
Socks	92%	4.2	0.34	0.45%
sql:TDS	84%	3.14	0.51	0.34%
Total	**80%**	**925.76**	**187.76**	**100%**

Time

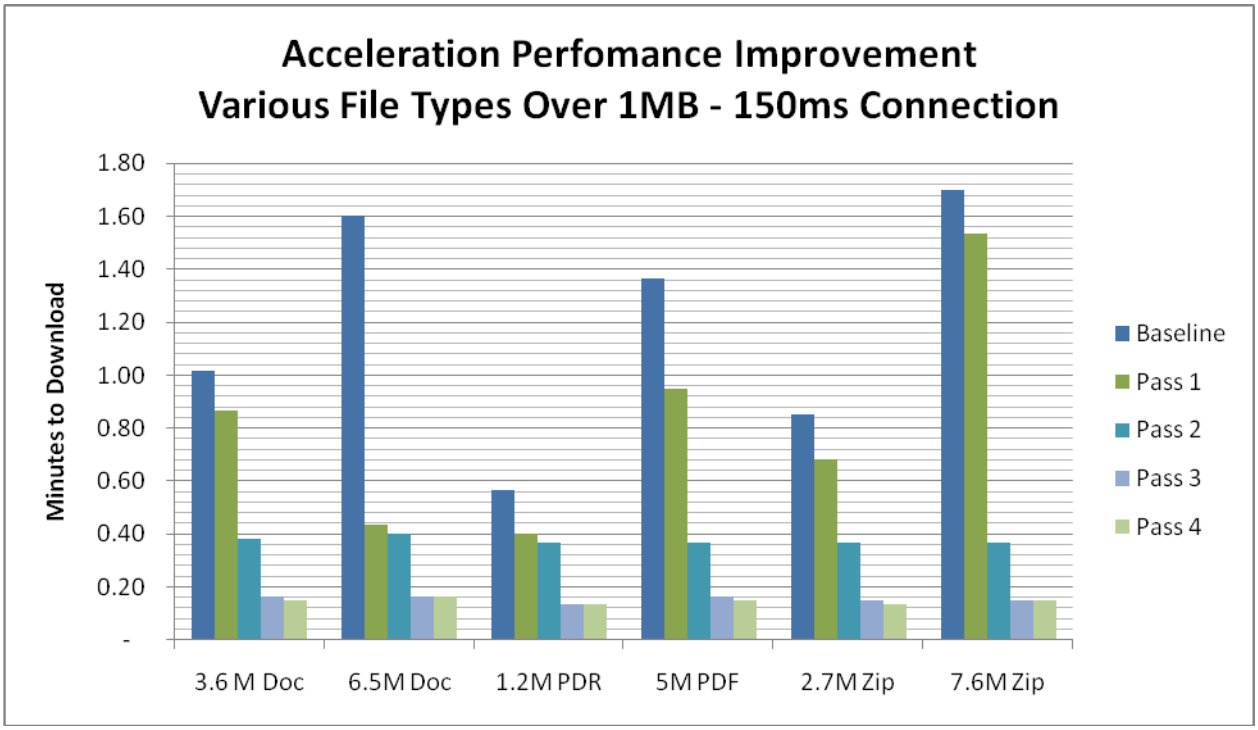
How fast is fast? The simulation testing, as shown in the diagram below, is based on an actual shipping company's file transfers as well as other test files, shows impressive improvement in a marine environment.



This testing shows performance improvements ranging from 155% up to 2,850%, depending on the specific file being transferred. The appliances accelerate more efficiently over time as caches build and less duplicate data is transmitted over the WAN. Reductions in the transfer time of a 1MB compressed mail file from 2:51 to as low as 0:06 are among the results of these simulations. The impact of acceleration appliance deployment offers a tremendous opportunity to remove the limits placed on data file transfers, as well as redefining the current understanding of the duration and cost of a communication session. The average throughput improvement across all of the simulations in the shipping environment exceeded five times. Given this level of improvement, a ship could connect to shore two or three times more frequently and still realize a net communications cost savings. More frequent communication can significantly improve the efficiency of operations by reducing the cycle time from request to resolution. Communicating every 6 hours can result in 12 or even 18 hour turn around cycles (6 hours minimum) from the Captain hitting "send" to receiving a response to communications that can include order processing, requests for personnel, parts requisitions and maintenance reporting. Increasing communications to every 3 hours would bring a response in half that time.

Additionally, acceleration appliance deployment improves http and https transactions as well. This presents the opportunity to give vessels access to intranet applications hosted at the central data center that would simply not perform over an un-accelerated connection.

Similar improvements are possible in the land-based branch environment.



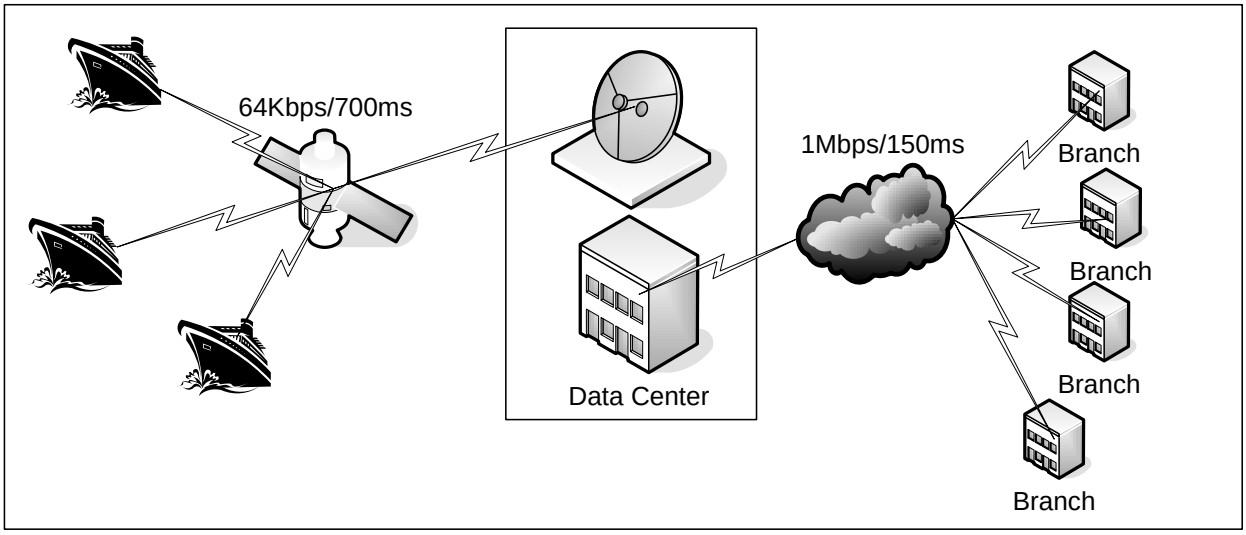
Even on a "robust" land connection, as shown above, these appliances can transform the way business is done. Acceleration allows functions that previously required a branch-based server to be performed across the WAN without any drop in response time. In addition to server consolidation, WAN acceleration permits WAN-based backups that do not take all night to complete. This would allow for the replacement of local tape backup processes with a centrally-managed global backup solution. This would also provide enhanced regulatory compliance and disaster recovery improvements (peace of mind). Acceleration also opens up prospects of centralizing applications in a web-based environment which could eliminate the need for Citrix or other remote access solutions that were previously required to counter slow or unpredictable connections.

Acceleration appliances are easy to install and maintain. They are self-discovering and centrally managed. This simplicity means that experienced IT support is not required for installation or maintenance. Once the devices are configured, they are simply plugged in. The appliances immediately begin to accelerate throughput of the WAN traffic that passes between devices. If a problem does occur on one of the devices, they fail to wire. This allows WAN traffic to continue to flow at pre-deployment performance levels, but without interruptions to branch connectivity or operations.

MultiCom
Reducing Maritime Communication Costs

Simulation Environment:

A shipping company that has a number of vessels connecting via satellite with a central data center, remote branch offices that connect via satellite, as well as numerous land-based branch offices on a WAN at T-1 speeds. Currently, vessels connect via expensive satellite connection and have strict limits on the size of files that can be sent in a day.



Conclusions:

1. MultiCom has the right solution to transform your vessels into “Branch Offices”.
2. MultiCom can enable the effective replacement of Satellite provider email systems with better-performing, cost-reducing methods of connecting all “Branch Offices” (Land- and Marine-based).
3. The acceleration appliance solution can optimize the use of 64K com lines as well as T-1 lines improving both vessel and land-line connectivity.
4. MultiCom can reduce communication costs and/or increase connection frequency at the same or lesser costs.
5. MultiCom can help to further centralize and consolidate branch infrastructure.
6. MultiCom can develop a custom application to run on the appliance to optimize communication line utilization and minimize transfer costs by holding certain file types until a cheaper connection is available. This would be a unique Maritime feature made possible by acceleration appliance technology!

Next Steps

MultiCom offers a “Try – Buy” process that allows us to configure and install devices on an evaluation basis for a 7 day period to validate performance in a real world environment before committing to a specific purchase.