

File transfer at the "edge": Unparalleled performance for processing high volumes

IBM Sterling File Gateway

Benefits

- Accommodate growth in trading partner relationships without increasing cost of ownership
- Manage extreme volumes of file transfer activity without compromising performance
- Satisfy time sensitive file transfer requests regardless of volume or distribution model

The importance of "edge"-based file transfers

File transfers between trading partners continues to increase as companies expand their relationships. The ability to accommodate this increase is being challenged by demands for higher volumes, varied file sizes, and increased frequency via multiple, secure, distribution models. This leaves many organizations to question whether their file transfer infrastructure can support the challenge.

What Sterling File Gateway delivers

IBM® Sterling File Gateway resides at the "edge" of your file transfers with trading partners, giving you the ability to process everything from high-frequency messages and huge periodic file transfers, to high volume loads of real-time data. With end-to-end visibility, sophisticated routing and transformation capabilities, the product can scale to support the most demanding file transfer requirements.

Performance challenge

To demonstrate the ability of Sterling File Gateway to securely and consistently transfer and process high volumes of inbound and outbound files, Sterling Commerce commissioned a performance benchmark study at the IBM Innovation Center. The testing scenarios were modeled from actual customer requirements, including a premier financial services institution and a top global manufacturer. File sizes, volumes,

transfer protocols and payload processing simulated customers' real-world business requirements.

Based on customer requirements, the benchmark was configured to validate 30,000 trading partners exchanging 125,000 files and 200GB of data, over the course of a 24 hour period. A throughput rate of 1.44 files per second was also sought. Scalability to meet these projected volumes while maintaining a highly responsive system was also an important requirement.

Test results summary

Sterling File Gateway dramatically exceeded all customer requirements.

- Files were successfully exchanged with 100,049 trading partners vs. a requirement of 30,000
- Over 350,000 files were processed, surpassing the 125,000 file requirement by almost 3 times
- 1.9TB of total data was routed within the 24-hour processing period exceeding that requirement by almost 10 times. This also topped the throughput requirement of 1.44 files per second by handling 7.41 files per second inbound and 17.26 files per second outbound
- File sizes ranged from 10KB to 10GB with an average file size of 2MB
- Tests were conducted to validate large files sizes of 100GB and 1TB, transferred through a system under full load

Collectively, these test results prove the product's ability to scale beyond the most demanding market and customer file transfer requirements. Regardless of file size, volume or distribution model, customers of Sterling File Gateway operate with confidence, knowing that business growth and trading partner relationships are not constrained by the product's performance capabilities.

Performance tests

Multiple testing scenarios were executed over a four week period as the basis for the performance benchmark. These tests went well beyond the simple movement of files. Incorporating Sterling File Gateway file transformation features, including compression (ZIP, GZIP), encryption (PGP, SSH, SSL), and filename and content-based dynamic routing, files were processed using FTP, FTP/S, SFTP and the high performance file transfer offering from IBM® Sterling Commerce, Connect:Direct®.

To validate various customer requirements, the structure of these test scenarios simulated different distribution models as well. For example, multiple tests were run in an environment that simulated a small

number of systems (less than 10) sending files to a large number of recipients (more than 80,000). Routing decisions were made dynamically, showcasing the ability of Sterling File Gateway to determine the file recipient at run-time. In another example, several tests were run to mirror a scenario where a large number of systems (more than 50,000) exchange files with a large number of other systems (more than 50,000). With varying file sizes and arrival rates, Sterling File Gateway exceeds the needs of diverse file transfer distribution models.

Hardware and technical stack details

The testing environment consisted of eight servers, 10TB of network attached storage and two 1GB Ethernet switches.

The systems were organized into two sub-networks, one simulating the "outside" network in a typical client deployment and the other simulating the "inside" network. Two servers provided perimeter services, functioning as a DMZ that isolated the inside and outside networks from each other. Sterling File Gateway v1.1 was installed on a two node cluster of IBM x3550 servers, running Red Hat Linux with dual socket/quad core 3.0GHz processors and 16GB of memory. The Sterling File Gateway database was installed on a single IBM x3850M2 server, running Red Hat Linux and IBM DB2 8.2 with quad socket/quad core 2.4GHz processors and 48GB of memory.

Metric	Requirement	Example test results
number of trading partners	30,000	100,049
number of files in	125,000	125,583
number of files out	100,000	232,264
files remain in mailboxes	25,000	58,348
routing rate (files per second)	1.44 inbound 1.44 outbound / mailbox	7.41 inbound 17.26 outbound/mailbox
24 hour transfer volume, inbound	250 GB	839 GB (82.7 Mbps)
24 hour transfer volume, outbound	200 GB	1,090 GB (100.9 Mbps)
24 hour transfer volume, total	450 GB	1,929 GB (183.6 Mbps)

The number of files out is greater than the number in because approximately 10% of the incoming files were multi-file archives in either zip or gzip format. These archives were unpackaged and their individual payloads were then routed separately to the appropriate recipient.

About Sterling Commerce

Sterling Commerce, an IBM® Company, helps organizations worldwide increase business agility in their dynamic business network through innovative solutions for selling and fulfillment and for seamless and secure integration with customers, partners and suppliers. More information can be found at www.sterlingcommerce.com.