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TurboGold® Enterprise Edition

System Overview

Data Movement

Data Storage

Data Control

Web Acceleration

STAMPEDE[®]
TECHNOLOGIES, INC.

Stampede – software that moves[®]

Using this document

This document provides a general description of TurboGold Enterprise Edition software from Stampede Technologies, Inc. It is intended for all users of this software.



When this document refers to Microsoft Windows, the following versions are supported with respect to the TurboGold component being discussed:

- *TurboGold Client:*

Microsoft Windows 95	Microsoft Windows NT 4.0
Microsoft Windows 98	Microsoft Windows 2000
Microsoft Windows Me	Microsoft Windows XP

- *TurboGold verifiers/servers:*

Microsoft Windows NT 4.0, Service Pack 3 and above	
Microsoft Windows 2000	Microsoft Windows 2003
Microsoft Windows XP	

Document organization

The information in this manual is organized as follows:

[Chapter 1—Introduction](#)

Provides a general description of the TurboGold Enterprise Edition product.

[Chapter 2—TurboGold features](#)

Provides further information on features available with TurboGold Enterprise Edition.

[Index](#)

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1. Introduction

Product description

TurboGold® Enterprise Edition from Stampede® Technologies couples with your IBM Lotus Notes® system, providing significant performance improvements and advanced administrative capabilities. Using patented compression, streaming and caching techniques, TurboGold accelerates the delivery of information to Lotus Notes® and Lotus iNotes clients, as well as between Lotus Domino™ servers.

Performance can improve up to five times, resulting in lower telecommunication costs, improved bandwidth utilization and increased end-user productivity and satisfaction. All of this contributes to a more rapid return on investment, and a lower cost of ownership for the entire Lotus Notes/Domino environment. TurboGold comes in two versions; Client-to-Server and Server-to-Server.

TurboGold includes services for:

- ◆ Setting policies for replication and synchronization
- ◆ Web acceleration
- ◆ Multicasting
- ◆ Database priority assignments

In addition, you can easily distribute these services throughout the network. Along with improved storage management, these features can help you create more efficient operations and improve bottom-line results.

Compatible and complementary to Lotus Notes/Domino release 4.5 through release 6.5, TurboGold Enterprise Edition provides the means to set enterprise-wide policies for the TurboGold verifier and client services including Lotus Notes, iNotes™ and Domino acceleration, mail routing, Web acceleration, multicasting, and quality of service delivery options.

If you are considering server consolidation, you can use TurboGold to maximize the performance of your Lotus Domino enterprise servers. Stampede Technologies continues to add value to Lotus customers through technology that delivers quantifiable savings and positively impacts their bottom-line results.

TurboGold Client-to-Server

TurboGold Client-to-Server comprises three software components:

- ◆ Client
- ◆ Verifier
- ◆ Manager

TurboGold Client

The client runs on Microsoft Windows NT[®] 4.0, 2000, XP and resides on Lotus Notes workstations. The TurboGold Enterprise Edition for Lotus Notes clients is compatible with standard clients running Lotus Notes version 4.62 or higher.

The TurboGold Enterprise Edition Client version 5.20 provides the full benefit of many new features, including Multicator, AutoZip, Quality of Service, Policy Management and Web Acceleration. It accelerates data in both directions, including design elements such as forms and folders; compresses online attachments and transfers only changed data thus minimizing the impact on networks and communication lines.

TurboGold Verifier

The TurboGold Verifier runs on servers running Microsoft Windows NT 4.0, Service Pack 3 and above, Microsoft Windows 2000, 2003, Microsoft Windows XP, and IBM[®] iSeries, IBM pSeries and IBM zSeries. It can be located on one or more Domino network servers and is capable of supporting an unlimited number of concurrent users. The TurboGold Enterprise Edition Verifier is compatible with Lotus Domino version 4.51 through version 6.5.

Some of the new TurboGold Enterprise Edition features including Multicator, and "JustZip", are compatible with Lotus Notes versions 5 and higher.

TurboGold Manager

The TurboGold Manager allows your network administrator to monitor TurboGold clients and servers involved in the transfer of Lotus Notes data to measure network savings.

TurboGold Server-to-Server

TurboGold Enterprise Edition Server-to-Server software optimizes the performance of replications and mail routing between Lotus Domino servers. This product works in several ways:

- ◆ It can accelerate Lotus Notes replications that occur over a Wide Area Network segment by compressing and streaming the data being pulled or pushed.
- ◆ It can reduce the amount of traffic on a Local Area Network segment by streaming replications that occur between Lotus Notes servers.
- ◆ It allows database updates to be multicast from a hub to multiple spokes simultaneously.
- ◆ Using the AutoZip Utility, you can convert attachments in an existing database into zip format, conserving disk space and reducing backup times.
- ◆ The quality of service policies allow Lotus Domino traffic to be prioritized in conjunction with a third party traffic-shaping product.

TurboGold does not require any additional hardware or hardware changes and does not require any change to the Lotus Notes Server-to-Server replication or mail routing process. The software installs on the Lotus Domino server as an add-in task.

TurboGold Server-to-Server supports Lotus Domino servers running under Microsoft Windows NT, 2000, 2003 and XP, and IBM iSeries, pSeries and zSeries and must be installed on all Domino servers involved in the replication/mail routing process. The most significant speed benefits will be seen on Domino servers connected over a Wide Area Network. Multiple replications and mail routing sessions between servers (either one-to-one or one-to-many) can occur simultaneously and can be initiated by either local or remote servers. This push/pull flexibility is further enhanced by TurboGold's ability to operate independently or in conjunction with Stampede's TurboGold Client-to-Server software for Lotus Notes.

The TurboGold Manager can be installed on an administrator's workstation or the server and allows the Lotus Notes administrator to monitor and configure the Domino servers that have TurboGold installed. The manager also provides statistics on the compression and streaming savings made possible by TurboGold Server-to-Server.

2. TurboGold features

TurboGold Enterprise Edition features

TurboGold Enterprise Edition offers improvements in the following areas:

- ◆ data movement
- ◆ data storage
- ◆ data control
- ◆ web acceleration

The TurboGold features outlined in the following sections provide dramatic savings in network traffic and storage management.

Data movement

TurboGold's patented compression, streaming and caching lets you transfer data up to 5 times faster. Plus, this new release enhances your ability to replicate data for offline use and interact with the Notes database online.

TurboGold compresses Notes mail and assembles the data into a contiguous data stream; this reduces "handshaking" between servers and between clients and servers. So both your bandwidth usage and network traffic is dramatically reduced - up to 5-to-1. All without changes in operation, scheduling or configuration.

Refer to the *Client Administration Guide*, the *Server Administration Guide for TurboGold Client-to-Server*, or the *Server Administration Guide for TurboGold Server-to-Server* for details on improving the speed of data movement in your enterprise.

TurboGold moves your Lotus Notes data faster in the following ways:

TurboStreaming

Streaming is the process by which TurboGold sends one contiguous block of data in order to reduce the send/response packets normally associated with replication and mail routing. The streaming of data is also beneficial on the LAN because the number of packets is reduced. TurboStreaming is incorporated in all replications, mail routings, and on-line document retrievals including attachments. TurboStreaming represents a new patent-pending highly optimized interface to TCP that overcomes window-size limitations that inhibit full utilization of network bandwidth when moving large streams of data. Our tests show an improvement of between 25 and 800 per cent, depending on the link speed and latencies for objects that have already been compressed!

Compression

TurboGold compresses Lotus Notes database replications and mail routing by employing patented adaptive compression algorithms to the data.

The Multicator™

TurboGold Enterprise Edition allows database updates to be sent simultaneously (multicast) to all subscribers of the databases being updated. With TurboGold's multicasting, all database subscribers receive synchronized broadcasts of database updates significantly reducing both the frequency and amount of network traffic while improving bandwidth utilization.

You can configure this function to trigger automatically whenever you send out database updates. Multicator can effectively reduce, even eliminate, the need for point-to-point replication.

As an example, an update to a Notes database with 1,000 subscribers normally requires 1,000 individual replications. With multicasting, the data is sent only once to all subscribers, a 1,000-to-1 improvement in this example. Both LAN and remote users benefit from having the latest information available, all at the same time. As TurboGold Enterprise Edition users subscribe to a database, they are automatically configured to receive multicast broadcasts. For enhanced security all updates are encrypted.

An advanced feature of our multicator eliminates the requirement that the multicast subscriptions could only occur with a replication partner. A single multicasting hub can broadcast updates to common databases to all spokes in an infrastructure.

Multication for replication subscribers

When a user replicates a database, a session is established between the TurboGold Enterprise Edition client and verifier.

The following conditions must be met to enable multication:

- ◆ The verifier is enabled for multication
- ◆ The database policy for the database indicates that the database updates can be multicast during replication
- ◆ Multication to local replicas is enabled on the client



Multication is also possible between servers.

When all of these conditions are met, the verifier encrypts a multication key inside a dynamically constructed "note" and sends this to the TurboGold client.

The verifier then traps database updates at the Lotus Domino server and multicasts them using the encryption key. The TurboGold client listens for multicast updates and applies the updates to the local replica.

Because the updates are multicast by the verifier, dramatic data communications savings results, because each subscriber receives the database update simultaneously. For replication subscribers only the fields that have changed are multicast. If a client misses a multication packet then the update is not applied to the local replica, but at the next replication cycle, the update will be picked up by the replicator.

Multication for online subscribers

When a user opens a database, a session is established between the TurboGold client and verifier.

The following conditions must be met to enable multication:

- ◆ The verifier is enabled for multication
- ◆ The database policy for the database indicates that the database updates can be multicast for "cache stuffing"
- ◆ Multication to cache is enabled on the client

When all of these conditions are met, the verifier encrypts a multication key inside a dynamically constructed "note" and sends this to the TurboGold client.

The verifier then detects database updates at the Domino server and multicasts the entire document which has been updated using the encryption key. The TurboGold client listens for multicast of the updated documents and stores them in the TurboGold cache.

Because the documents are multicast by the verifier, dramatic data communications savings results, because each subscriber receives the database update simultaneously. For online subscribers entire documents are multicast. If a client misses a multication packet then the updated document is not applied to the local cache. The notes client will retrieve the document from the Lotus Domino server because the cache will be out of synchronization with the database. If the entire update document is received, then when the Notes client retrieves the document, it will already be in cache, thus reducing data communications traffic.

Data storage

TurboGold improves communications bandwidth usage and data storage using data compression techniques:

- ◆ AutoZip
- ◆ The AutoZip server utility

Refer to the *Client Administration Guide*, the *Server Administration Guide for TurboGold Client-to-Server*, or the *Server Administration Guide for TurboGold Server-to-Server* for details on improving data storage in your enterprise.

AutoZip

The AutoZip feature of TurboGold Enterprise Edition dynamically converts Lotus Notes databases and mail attachments into industry standard "zip" formats. AutoZip dramatically reduces disk storage requirements and data communications bandwidth within an enterprise. Attachment compression savings of over 85% have been attained and can be higher depending on data content. AutoZip is completely transparent. The process is entirely automatic with no prompting to users asking if the attachment should be zipped. For users running TurboGold Enterprise Edition client software, attachments are dynamically converted to native form prior to being launched, detached, or viewed.

Users accessing database attachments that have been compressed by AutoZip will see no changes in their operation if they are running TurboGold Enterprise Edition. The unzipping and zipping of database attachments will be completely transparent to them. For users not running TurboGold Enterprise Edition, native zip handlers in Microsoft Windows ME and Microsoft Windows XP will be invoked when the attachment is launched. Alternatively, users will need a commercial zip product such as WinZip, PkZip, WinRar, and Zipit to open the attachments.

AutoZip saves both disk space and bandwidth. AutoZip removes surplus data from Notes database attachments allowing Network Administrators to recapture needed disk space and avoid costly upgrades. In addition, AutoZip helps in the movement of data from location to location by reducing the amount of data that has to be transferred.

AutoZip server utility

This utility provides the capability to convert attachments in prescribed databases to a zip format as a means to reduce storage requirements. TurboGold Enterprise Edition allows the storage benefit to be effectively replicated to the other servers in the network.

TurboGold Enterprise Edition "Auto Zip Server Utility" (TGZIP) converts database attachments into ".zip" files in a way that they can be transparently displayed by a Lotus Notes client user that is running TurboGold. This utility is designed to be executed from the Lotus Domino console.

When the AutoZip Server utility is run on a server, TurboGold's patent pending JustZip technology tells the replicating partner to "just zip it" rather than transferring the zipped attachment. This prevents "replication storms" from occurring when the AutoZip utility is run on large enterprises with numerous attachments.



If TurboGold 5.10 or higher is not running on the other clients or servers, these changes are likely to be replicated out to clients and other servers even though the only change has been to reduce the size of attachments.

If TurboGold 5.10 or higher is running on all clients and servers, this replication will not occur, because of TurboGold's built-in "Just Zip It" technology included with version 5.10. Clients and servers with TurboGold 5.10 or higher have their replica of the database compressed at much faster than network speeds.

The server sends instructions to the client or server and the attachments are compressed locally. Very little data actually transfers over the network, saving a significant amount of time during the replication process.

For clients and servers that are not running TurboGold Enterprise Edition 5.10 or higher, the data communications associated with this may be significant. On the other hand, the replication reduces disk requirements of databases on other servers and client machines.



Lotus Notes clients that are not running TurboGold must use a third party utility such as "WinZip" to access the attachments.

Data control

TurboGold gives you more control over your data in the following ways:

- ◆ Traffic shaping enablement
- ◆ Policy based management

Refer to the *Client Administration Guide*, the *Server Administration Guide for TurboGold Client-to-Server*, or the *Server Administration Guide for TurboGold Server-to-Server* for details on implementing TurboGold data control.

Traffic shaping

TurboGold gives you a powerful tool to ensure on-time delivery of critical information. In conjunction with external traffic shaping hardware, you can assign different TCP ports to Domino applications, databases, e-mail, and Web Acceleration to make sure the most important data moves quickly through the system. Plus, Traffic Shaping lets you track bandwidth usage by user and department for greater control and efficiency.

The traffic shaping feature of TurboGold Enterprise Edition allows different TCP ports to be assigned to different Lotus Domino applications (databases) and email. These TCP ports can subsequently be used by a traffic shaping device such as Packeteer® to provide different levels of service quality.

TurboGold provides this shaping capability for client/server replication, server/server replication, client online access, mail routing, and TurboGold multication.

The entire configuration for the traffic shaping feature is done by the administrator. There are no settings on the TurboGold client.

Quality of Service definitions

Quality of Service Policies allow the use of different TCP ports to classify Lotus Domino traffic for tracking purposes, and for traffic prioritization using a third-party traffic-shaping product.

TurboGold Enterprise Edition includes the ability to define Quality of Service (QOS) definition documents. The primary attribute of these QOS definitions is a TCP port number. Further, TurboGold allows the definition of database policies. One of the attributes of a database policy is a designator with which a QOS definition should be associated, with the access to this database. The TurboGold database policies allow different QOS definitions to be assigned to different data communication methods; for example, the multicator could have a higher level of QOS than replication.

Policy-based management

TurboGold gives you complete control of many of its acceleration and traffic functions. You can set and automatically distribute policies throughout your network for the acceleration of:

- ◆ Replication between Domino servers, Lotus Notes clients and iNotes synchronization
- ◆ Mail routing between multiple Domino servers and Notes clients
- ◆ Online access to Domino databases from Notes clients
- ◆ HTTP/HTTPS access to web based non-Domino databases as well as Domino based enterprise web applications.

Web Acceleration

TurboGold accelerates non-Domino Web based applications as well as iNotes, QuickPlace and Domino HTML applications online in real-time with exclusive HTTP/HTTPS streaming and compression technology that moves data faster. It also speeds offline synchronization of iNotes databases and initial downloading of Domino Offline Services (DOLS).

This means your users have faster Web access and can move information from the Web to every corner of your enterprise quickly, securely and easily while using less bandwidth.



The Web Accelerator is available with TurboGold Enterprise Edition Client-to-Server.

Lotus iNotes was designed for web browsers delivering Domino messaging, collaboration, and e-business capabilities. Lotus iNotes is available for both offline and online operations providing reliable, scalable, secure Domino messaging services. For offline operations, TurboGold offers performance improvements of up to 5-to-1 on iNotes database synchronizations including the acceleration of the initial subscription download - Domino Offline Services (DOLS). With TurboGold Web Acceleration, these same acceleration improvements are now available for accessing iNotes data online.

Lotus QuickPlace is a self-service web tool for team collaboration that can be used to create a central workspace on the web. QuickPlace is designed to coordinate people, tasks, plans, and resources providing a collaborative forum to share ideas, resolve issues, co-author documents, and exchange files. TurboGold enhances the flow of QuickPlace data by accelerating it throughout the network.

TurboGold Web Acceleration is a client/server web browser acceleration technology. The client acts a proxy server for the Microsoft Internet Explorer browser. When the TurboGold Web Acceleration client is launched it dynamically adjusts the proxy server settings for the current connection so that HTTP/HTTPS requests are routed to it. If the TurboGold Web Acceleration client is stopped it restores the Internet Explorer proxy server settings. The TurboGold Web Acceleration client converts the HTTP/HTTPS protocol into a more optimized proprietary Stampede protocol called HAP. HAP applies streaming and compression to the HTTP/HTTPS data stream. The TurboGold Web Acceleration server (verifier) runs as a server-add in task. It retrieves HTTP/HTTPS requests on based on a decode of the TurboGold Web Acceleration client requests. The TurboGold Web Acceleration server can accelerate data flow only if it has a higher speed connection to the content than the TurboGold Web Acceleration client.

TurboGold provides mobile users friendly transparent acceleration requiring no changes to hardware, software or systems; and no changes to existing processes. TurboGold can easily be installed directly from your web browser and can be updated at the touch of a button. And since TurboGold is completely transparent to your users, no training is required.

TurboGold helps all web based application users including iNotes, QuickPlace and Domino users communicate much more effectively with the added benefit of reducing the amount of data that has to be transferred. This improves bandwidth utilization allowing more information to be moved over existing network infrastructures.

Refer to the [Client Administration Guide](#) and the [Server Administration Guide for TurboGold Client-to-Server](#) for details on implementing TurboGold Web Acceleration.

Server consolidation

The trend of replacing many server systems with fewer, more powerful systems is gaining ground. The reasons for consolidating servers are that organizations can realize as much or more computing power while reducing their system maintenance and management costs. With powerful new multiprocessor systems and shrinking prices, server consolidation provides a compelling "less is more" solution.

Lotus applications, such as Notes and Domino, are particularly well adapted to these new server environments. That's because some of the requirements of a consolidated server environment play precisely to the designed-in strengths of Lotus. Here's why.

Server consolidation means fewer servers—this is the essential benefit. When there are fewer servers more users are farther away from their server or servers. In such an environment it's likely that more users will work offline and synch up later, work at remote sites, or even become remote sites. This means that each time they do work that changes a database (which is almost all work) one of two things happens: they work on a database in real-time, which could be bandwidth-constrained, or they work locally, which means the database is updated through an automatic replication function. The second scenario makes more efficient use of bandwidth resources and is the way in which all Lotus collaboration products are designed.

Lotus applications are designed to perform frequent replications to ensure that all databases are secure and up-to-date. Frequent replications are a strong benefit in consolidated server environments. Users can perform their work quickly, databases get updated automatically and frequently and all the while bandwidth is used with maximum efficiency. The end result is that server consolidation generally requires more replications and Lotus applications are designed from the start to satisfy that requirement efficiently and transparently.

So, if you chose Lotus applications for productivity and collaboration, you've made the perfect choice of enterprise applications for a consolidated server environment. But you may need some tools to make sure that your Lotus applications provide the greatest possible efficiency as you consolidate servers. Even with frequent replications, your Lotus applications could bog down as thousands of users work further away from their servers than they did before. And those replications will eat up valuable bandwidth.

TurboGold Enterprise Edition speeds up Lotus performance while reducing bandwidth costs. Through the combination of compression, data streaming and caching technology TurboGold works in consolidated server environments to speed up performance for any type of file a Lotus user is likely to need.

When you're considering a tool to accelerate Lotus performance it's important that you consider the places where the problem occurs. You must accelerate the replications inherent in both server-to-server and client-to-server interactions. There are products available that address one or the other. To have a full solution, it's advisable to work both sources of the problem.

What kind of improvements can you expect from TurboGold? A major corporation, with more than 100,000 Lotus users using TurboGold, has sped up their Lotus performance by a factor of 2. Another company improved replication performance by 12-to-1 in a network that makes extensive use of satellites. At another company, 60 field agents were each updating 30 databases per day, which was taking from three to four hours. By implementing TurboGold this dropped to less than 30 minutes.

A \$5 billion international company consolidated its servers down from 44 Microsoft Windows NT-based Domino servers to two IBM iSeries AS/400 Domino servers. This company realized tremendous savings and efficiencies through this consolidation, but the company would have expected an increase in bandwidth costs because the consolidation greatly increased the number of remote users. This didn't happen, though, because they implemented TurboGold. Bandwidth costs actually decreased. They realized both the tremendous ROI of consolidating servers and cut bandwidth costs at the same time.

This means that in daily online work, server consolidation can save companies significant expenses by reducing bandwidth costs along with system management and maintenance. If your enterprise had the foresight to choose Lotus enterprise applications, you already have a head start on realizing the benefits of server consolidation. And if you install TurboGold, you can make slow performance much faster and good performance is great for a low initial investment with a fast payback.

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