RELIABLE COMPUTER SOLUTIONS, INC.

GreenTape^{TM} Mainfame VTA Virtual Tape Subsystem

- ◼ *A superior upgrade for IBM and compatible tape subsystems.*
- ◼ *Directly replaces 3480, 3490, 3590 transports and controllers*
- ◼ *Works with all IBM environments*
- ◼ *Includes CASPER tape mount management utility*
- ◼ *Radically reduces the size of backup windows*
- ◼ *Superior reliability engineered in from the start*
- ◼ *Fastest hardware support: 4 hour response*
- ◼ *Talks ESCON. Talks bus-and-tag.*
- ◼ *Power usage so low it pays for half its cost*

The future of archiving
GreenTape Mainframe VTA is a virtual tape appliance (VTA) subsystem developed and supported by Reliable Computer that enables small and midsize mainframe data centers to enjoy the benefits of disk-based virtual tape that were formerly only practical for very large mainframe data centers.

GreenTape plugs into mainframe ESCON or bus-and-tag channels. It replaces from 2 to 16 IBM 3480, 3490 or 3590 type transports, improves performance and uses only a fraction of the heat-producing power of older tape transports and controllers. And it fits in a 19-inch rack.

With its available encryption feature, Reliable GreenTape provides security that meets or exceeds the protection offered by legacy IBM tape hardware and satisfies government data protection requirements such as those in HIPAA.

Far beyond an upgrade for old hardware
GreenTape is far more than a standalone product offering. It can be merged with hosting, archiving and disaster recovery services. When you move up to GreenTape, you travel down a safe, economical and proven path. You travel at your own pace and you choose a destination package. At one end of this choice spectrum you are totally self-sufficient, as independent of outside expertise as you can be. At the other you are the owner and ultimate operator of a storage subsystem that drawn on personnel and hardware facilities that have been shaped to carry out your mission responsively, working for you on a 7x24 basis.

We can perform the services you select, including tape-to-VTA media conversions, at your site or in our data center. The result: dramatic progress without disruption or your operations.

Contemporary server grade hardware
GreenTape equipment includes dual controllers based on state-of-the-art Intel-powered servers and best-of-breed RAID disk subsystems to provide a virtual tape library with a total capacity that is, for all practical purposes, unlimited. You can store years of complete backup tape images. Compared to legacy tape, GreenTape is astonishingly compact.

GreenTape eliminates physical tape handling along with physical tape, although it does offer the option of backing data up on DVD, USB-attached removable hard disks, or LTO tape for offsite archival storage.

So green and economical it helps pay for itself
Compared to traditional tape, GreenTape is so energy efficient that the savings in power, floor space and cooling alone can pay for half the cost of the system.

A 16-transport 3490 E installation with a typical dual controller uses 6.8 KVA, all of which turns into heat in your glass house and may add another 3 to 6 KVA in power for air circulation and cooling, for a total energy requirement of 10 to 13 KVA. By contrast, a 2 TB GreenTape system uses about 0.6 KVA plus another 0.35 to 0.6 KVA for cooling. In a 16-transport setting, the total of about 1 KVA (depending on your HVAC system) comes to less than 10 percent of the power needed to use and cool standard IBM physical tape.

GreenTape is far more than an alternative to older legacy tape. For example, IBM's Magstar VTS systems are an excellent choice for users of legacy tape. But even in small configurations they consume more power than GreenTape.

Tape functionality at disk speeds
The performance of virtual tape is outstanding. Using ESCON channels, virtual tape running at disk speeds compared to tape speeds allows data to be backed up at ESCON speeds. IBM says ESCON can hit transfer rates of 200 MB/sec but practical experience suggests planning for a third that rate. Even so, IBM 3590 tape can write at 6 - 12 MB/sec (assuming 3:1 compression). We are happy to run tests so you can properly plan for a reduced backup window.

Built to ride out errors and survive failures
While magnetic tape is a very reliable medium, GreenTape offers full RAID 5 or RAID 10 recording technology. GreenTape can lose a drive and keep running as if nothing has gone wrong.

Our disks are all mounted in hot plug cases. When our RAID controller senses a failure, it switches in a spare drive already configured into our system, and rebuilds the missing volume automatically. But a major failure would be a very rare event, because our disk controller uses error detection and failure prediction technology to signal possible problems before they become severe.

In the rare event of a device error or failure, our 24/7 support team can inspect GreenTape over the Internet. If we cannot solve the problem remotely, we will dispatch a technician who can to use our RAID supervisory software to isolate a failed drive or review the state of a GreenTape that seems to be accumulating soft errors.

Works with all IBM mainframe environments
GreenTape is fully compatible with all IBM mainframe operating systems including z/VSE, z/VM, OS/390, z/OS and many older versions of IBM mainframe software.

Powered by a dedicated server

Your computer acts exactly the way it would if you used physical tape transports instead of GreenTape; our hardware and software take it from there. The compatibility is fully two-way. It works perfectly when you do a backup. It works perfectly when you do a restore.

Monitors systems console for mount instructions
GreenTape includes the CASPER console monitoring utility that lets you control when and how the VTA steps in to do mounts and dismounts. It even lets you set criteria for a VTA step-aside to steer specified legacy jobs to physical tape transports you choose to retain.

Sorry. You can't buy GreenTape
There's only one catch: We won't sell you GreenTape. We will only rent it to you for terms of 1 to 3 years. We will maintain the hardware and software on a 4-hour response basis. We provide overnight replacement in the unlikely event of a major catastrophic failure. And we offer remote data mirroring at our data center in the suburbs of Chicago, so even if you have a disaster that cuts power to your entire data center, your GreenTape backup will remain available in a secure facility with its own emergency power generator.

References? Of course.
You don't have to take our word for it. You can read our case study of the largest high school district in Illinois. The school system graduated from IBM 3490 technology to GreenTape to back up its IBM mainframe. Give us a call and we'll send you the whole story, in writing. Or you can learn about a mainframe services company in Texas that uses one GreenTape as its strategic backup system and a replica GreenTape as part of its own disaster recovery facility. Data Dallas says the machines paid for themselves! Again, if you want to know more about this user's experience, please just ask.

It boils down to this: GreenTape is more energy efficient, less costly, faster, more reliable and more versatile than any traditional tape solution. It's fully compatible with IBM operating systems. Your computer won't ever know GreenTape is there. But your chief financial officer will.

Want to learn more? Talk to us. That's what we're here for.

What You Get.
What It Costs.

A typical GreenTape installation that backs up a mainframe's data to 8 virtual 3590s — a total of 4–5 GB — on a nighly basis costs under $1,750 a month on a 24-month rental arrangement. This cost is pretty much all-inclusive after the separately billed (one-time) installation and personnel training has been completed. When you add in the cost of power and cooling, the total will be under $2,000 a month.

The rental fee covers all hardware (with total hardware maintenance) by which we mean the server, disk array, ESCON, and interfaces to permit remote communication and remote mirroring or backup.

Our price also includes all software (and software maintenance), full remote support (including configuration changes as necessary), customer's choice of docking hardware for removable SATA disk drives or USB disk drives, and a fast local network interface

**Reliable Computer
Solutions, Inc.**
1627 Colonial Parkway
Inverness, IL 60067
Phone 847.705.0700
Fax 847.705.0861
www.reliablecomputer.com