



ESG Lab Review

Venju Online Backup and Virtualized Disaster Recovery

Date: February 2010 **Author:** Brian Garrett, Vice President, ESG Lab

Abstract: This ESG Lab Review documents ESG Lab hands-on testing of Venju's AmeriVault Online Backup and virtual server recovery services. The value of hands-free remote backup and virtual server recovery at a Tier IV Venju data center located 1,500 miles away is highlighted.

The Challenges

Businesses of all sizes, from small to large, with a single location or multiple sites, are seeing an explosion in the volume of data that needs to be stored and protected. Whether it is the result of utilizing the Internet, sending and receiving e-mail, increasingly heavy file loads, or rich-media application software, there is ongoing enormous growth in the sheer quantity of data under management. In fact, ESG research indicates that nearly one-third (31%) of midmarket organizations (i.e., 100 to 999 employees) report that storage capacity is growing at a rate of more than 20% annually.¹

Protecting these ever growing volumes of data is a high priority. In a recent ESG survey, 30% of midmarket organizations identified improving backup and recovery as a top IT priority over the next 12-18 months, putting it in the top three behind upgrading network infrastructure (32%) and increased use of server virtualization (31%).² It's no surprise to us here at ESG that data protection remains at the top of the IT priority list: while backup and recovery technology has evolved in recent years, the priorities haven't changed—IT managers are always looking for ways to reduce the risk and cost associated with protecting vital information assets.

The Solution: Venju AmeriVault Backup and Virtual Server Recovery Services

Venju, formed out of online backup service provider AmeriVault and managed service provider NTG, was launched in April 2009. Venju provides remote data protection, recovery, and availability services from its Louisiana and Massachusetts data centers. Its remote backup and recovery services are:

- **Hands-free.** Venju makes it easy to configure remote backups that run automatically.
- **WAN efficient.** Data deduplication, compression, and block-level differencing reduce WAN bandwidth requirements while shrinking backup windows.
- **Secure.** Backups are digitally signed and encrypted for secure WAN transmission.
- **Tape-free.** Venju eliminates the cost and complexity associated with legacy tape-based data protection methods.
- **Recovery Focused.** Venju virtual server infrastructure can be used to provide automated out of region recovery of application servers (physical or virtual) following an outage or disaster. Data can also be restored online, from a local vault, or via portable appliance (MobileVault).

¹ Source: ESG Research Report, *2009 iSCSI Market Adoption Update Survey*, September 2009.

² Source: ESG Research, *ESG 2010 IT Spending Intentions Survey* (report to be published in January 2010).

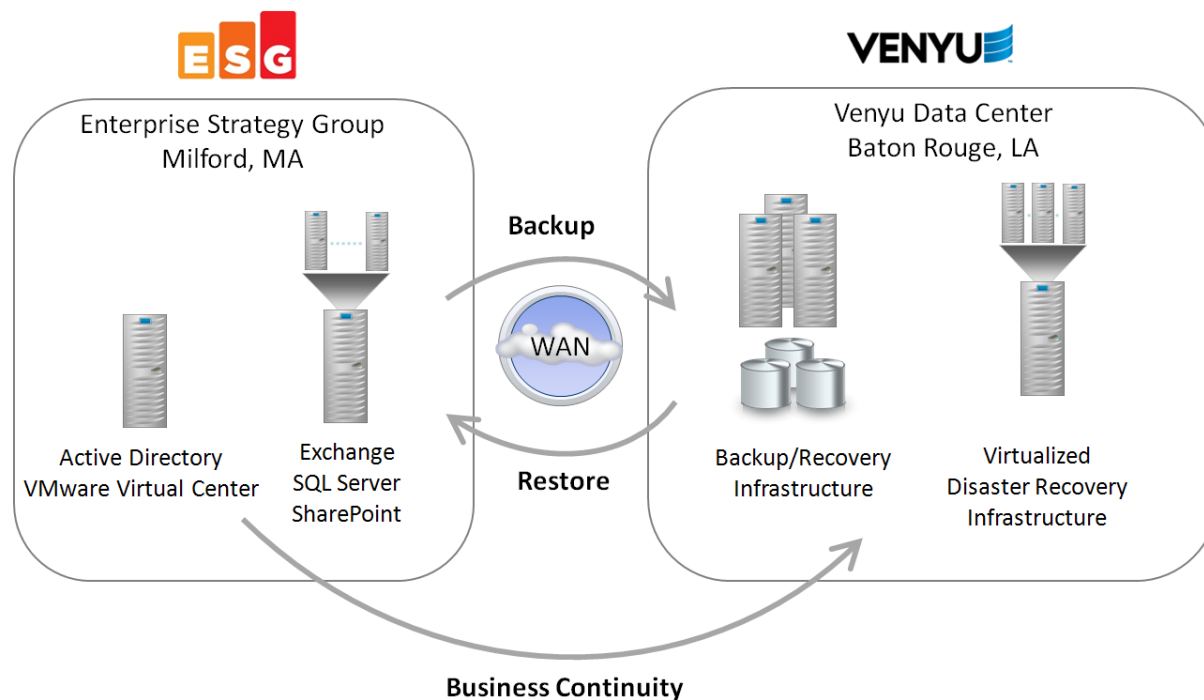
The goal of ESG Lab reports is to educate IT professionals about emerging technologies and products in the storage, data management and information security industries. ESG Lab reports are not meant to replace the evaluation process that should be conducted before making purchasing decisions, but rather to provide insight into these emerging technologies. Our objective is to go over some of the more valuable feature/functions of products, show how they can be used to solve real customer problems and identify any areas needing improvement. ESG Lab's expert third-party perspective is based on our own hands-on testing as well as on interviews with customers who use these products in production environments. This ESG Lab report was commissioned by Venju.

ESG Lab Tested

The Enterprise Strategy Group (ESG) is an analyst and strategic consulting firm anchored in world-class research. Core IT services for 35 employees in the USA, the UK, and China are delivered from ESG's headquarters in Milford Massachusetts. Historically, ESG has used commercially available software running on an industry standard server to manage backup and recovery services internally. Data is backed up to disk and replicated to a nearby ESG facility. ESG recently evaluated Venyu remote backup and recovery services with a goal of reducing the cost, complexity, and risk associated with its existing data protection solution.

An overview of the test bed used during the ESG Lab evaluation is shown in Figure 1. A physical server and a number of virtual servers residing in ESG's headquarters in Massachusetts were configured for remote backup and recovery to a Tier IV Venyu data center in Louisiana. Remote backup settings were configured to run over ESG's existing WAN connection. File, object, database, and mailbox-level restores were tested. Business continuity was tested after a simulated disaster using the Venyu virtualized disaster recovery infrastructure in Baton Rouge, Louisiana.³

Figure 1. ESG Lab Testing of Venyu Remote Backup and Virtual Server Recovery



VenYu supported ESG during four major phases of the evaluation:

- **Plan:** The configuration and size of ESG's IT infrastructure was assessed. Primary storage capacity and the bandwidth of ESG's existing WAN connection were considered, which led to the use of a mobile appliance for use in the initial full backup and import into the Venyu storage vault.
- **Configure:** A Venyu management console was installed and configured along with agents that ran on each server to be protected.
- **Monitor:** The statuses of hands-free nightly backups were monitored via a web console and e-mail notification.
- **Recover:** File, database, object, and mailbox-level restores were tested over the WAN. A full recovery of ESG's IT infrastructure was performed after a simulated disaster using virtual servers running in the Venyu data center.

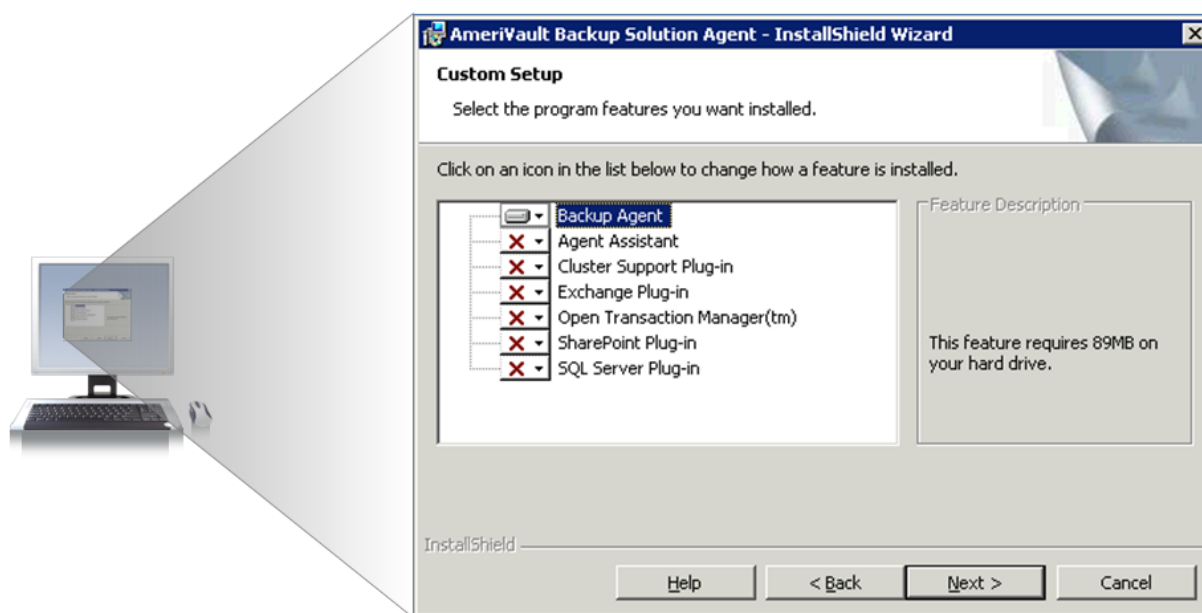
³ The IT infrastructure used for this evaluation consisted of VMware ESX version 3.01, Microsoft Windows Server 2003 R2 64 bit, Microsoft Exchange 2007, Microsoft SQL Server 2005, and Microsoft Office SharePoint Server 2007. Venyu Backup Solution version 6.60 was evaluated.

Plan and Configure

An e-mail and a welcome package provided an excellent overview of the planning and configuration process that occurred over the first three business days of the evaluation. The project began with a 30 minute pre-installation call. During this call, Venyu collected information about ESG's IT infrastructure and data protection requirements. The disk capacity consumed by ESG's core VMware-enabled application infrastructure (250 GB) and the size of ESG's existing WAN connection (3 Mbps) were assessed. This information was used to determine whether the initial backup (a.k.a., seeding) could be done "over the wire" (via the Internet) or if it would be quicker using a mobile appliance, called MobileVault, supplied by Venyu. After deciding to use the mobile appliance, an encryption key was defined to ensure that ESG's backup data was secure when travelling over the WAN. The call finished with a quick overview of backup policy and scheduling options.

A call was scheduled for the next business day to install and configure software and policies. This call was set up as a web enabled session so that Venyu could walk the ESG staff through the installation process. Venyu software used for central management and administration was installed on the physical server ESG uses for VMware administration and agent software was installed on each of the virtual servers to be backed up. As shown in Figure 2, this phase of the configuration process has the intuitive look and feel of a standard Windows-based software install. In this case, the installation wizard is asking which backup agent to install. Note that the installer shows the list of agents that were provided to protect ESG's core application infrastructure, which includes Microsoft Exchange, SharePoint, and SQL Server.

Figure 2. Installing Backup Solution Agents

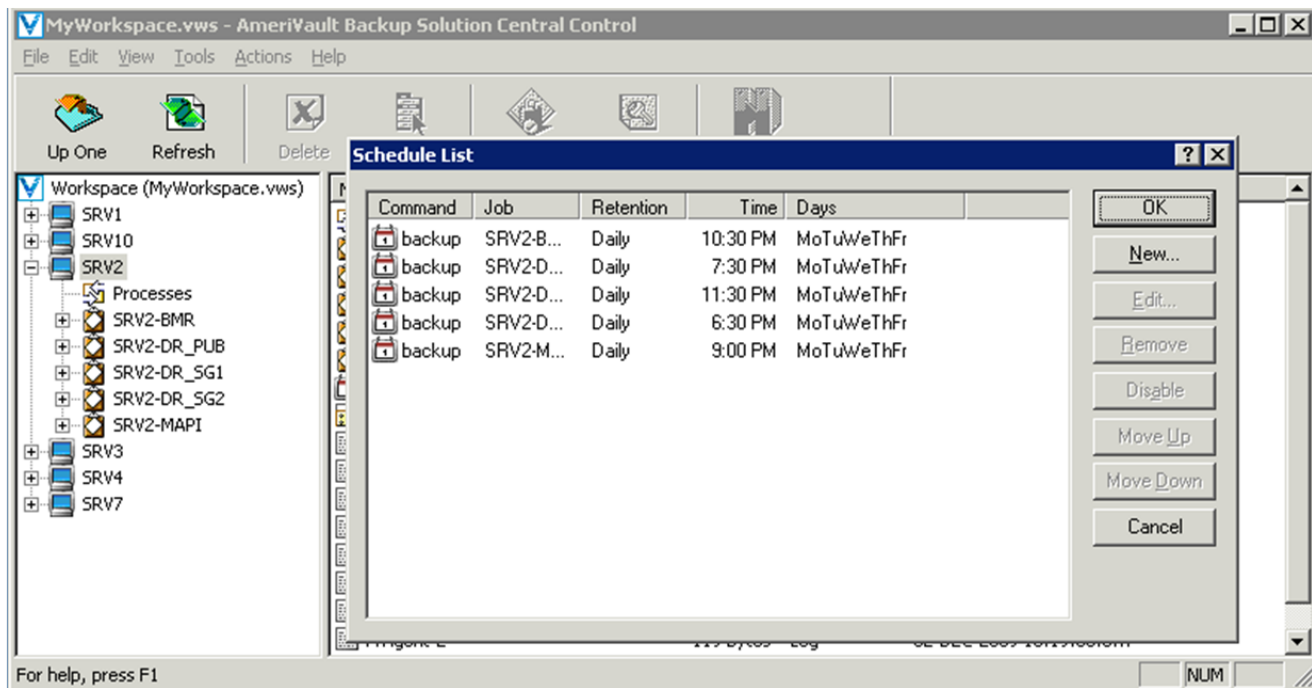


Two hours after getting started, the installation and configuration process was nearly complete.⁴ The final phase in the process was the configuration of backup policies and schedules using the Venyu central control interface shown in Figure 3. In this example, the policies and schedule for ESG's Exchange server have just been finalized. Note that three types of backup policies have been scheduled to run nightly:

1. Bare Metal Restore (BMR) for a full restore of the entire virtualized Exchange server
2. Disaster Recovery (DR) for an Exchange-level restore of each storage group
3. Message Application Programming Interface (MAPI) for mailbox or individual e-mail level restores

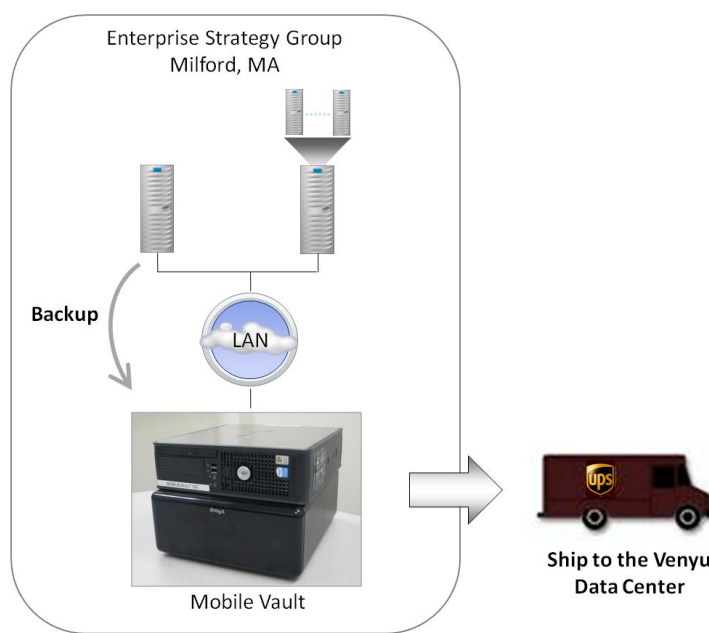
⁴ An error during the SharePoint installation was identified and corrected during a call the next day—the SharePoint plug-in needed to be installed on the virtual machine running the SQL Server instance that SharePoint uses.

Figure 3. Configuring Backup Policies and Schedules



As the installation process was finishing, the Venyu support team was configuring and shipping the MobileVault shown in Figure 4. The MobileVault arrived the next day and was plugged into the ESG internal network. The first full encrypted backups (a.k.a. seeding) ran overnight using the local MobileVault. ESG shipped the MobileVault to the out of region data center in Louisiana using mailing labels provided by the Venyu support team.

Figure 4. Using a MobileVault for the First Backup "Seed"



Three working days after the initial planning call, nightly backups were running automatically over the Internet. ESG felt that the documentation and support provided during the planning and installation process was excellent. During most of the process, we simply watched and learned as the Venyu team did the work.

Monitor

The status of nightly remote backup jobs was monitored from the Venyu web console and via e-mail notification. E-mail notifications were clear and concise. No significant errors were noted during the first full week of backing up over the wire. The benefits of block-level differencing, deduplication, and compression were clearly evident as the amount of backup data sent over the WAN was reduced.

Nightly backups completed well within ESG's 12 hour backup window and took approximately the same amount of time ESG's legacy disk-based backups took, which ran in parallel during the evaluation. The message-level backups of Exchange took the longest to run (between eight and ten hours) as every e-mail and attachment on ESG's Exchange server was processed. Of the approximately 66 GB of e-mail data that was processed each night, Venyu identified 300 to 500 MB of changed data. That data was compressed, resulting in only 200-300 MB of encrypted e-mail data being sent over the WAN.

Venyu reports accessed via a web browser were used to learn more about the value of Venyu capacity and WAN bandwidth savings over time. As shown in Figure 5, Venyu dramatically reduced resource requirements after the first seven days of operation. Overall, 1,559 GB of logical protected capacity (including seven full retentions) resulted in only 155 GB of data being stored. The savings will compound over time as the number of backups increases to reach ESG's offsite retention goals.

Figure 5. Monitoring Capacity Usage after Seven Online Backup Cycles

Grouped Storage Details Generated at 2009/12/02

Vault	Customer	Computer	Job	Active Safesets	Original Size(GB)	Diskspace on Vault(GB)
NTG-DATAVAULT 1	ESG	5	13	91	1,559.72	155.45
		5	13	91	1,559.72	155.45
		SRV1	1	7	43.37	1.91
			SRV1-BMR	7	43.37	1.91
		SRV10	1	7	34.95	2.10
			SRV10-BMR	7	34.95	2.10
		SRV2	5	35	999.83	91.92
			SRV2-BMR	7	103.47	7.81
			SRV2-DR_PUB	7	1.18	0.12
			SRV2-DR_SG1	7	244.38	31.95
			SRV2-DR_SG2	7	220.43	29.92
			SRV2-MAPI	7	430.37	22.11
		SRV3	5	35	371.33	40.88
			SRV3-BMR	7	109.02	6.28
			SRV3-MSSMLBIZ	7	4.83	0.26
			SRV3-Sharepoint	7	121.52	16.18
			SRV3-SQL_DEFAULT	7	135.96	18.16
			SRV3-SSP	7	0.00	0.00
		SRV4	1	7	110.22	18.64
			SRV4-BMR	7	110.22	18.64

Why This Matters

IT staff within small to medium-sized business often dread having to deal with the tedium and risk associated with traditional backup methods. The Director of IT at ESG agreed when he said, "I can't stand having to deal with backups. I have strategic projects that I'd rather be spending my time on. I worry about our ability to recover after corruption or a disaster." ESG Lab has confirmed that Venyu makes it easy to get started with remote backup and recovery services. With Venyu, WAN efficient remote backups run automatically.

Online Recovery

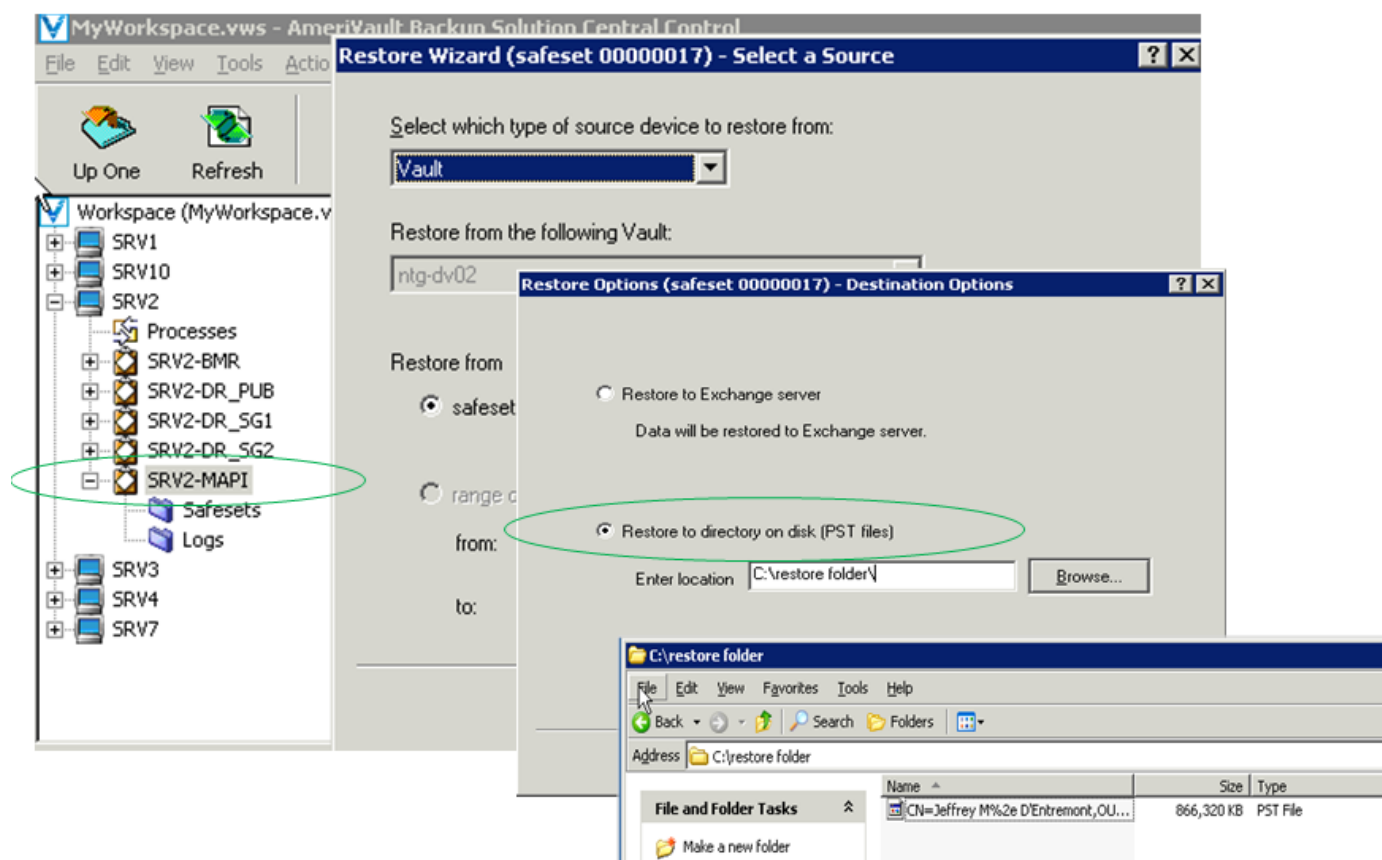
ESG performed a number of “over the wire” restore tests as part of the evaluation. Individual files, e-mails, and SharePoint objects were restored over ESG’s existing 3 Mbps WAN connection. A Microsoft Exchange mailbox was restored to a .PST file. Highlights of the online restore results are summarized in Table 1.

Table 1: Venyu Online Restore Test Results

Data Type	Size (MB)	Elapsed Time (hh:mm:ss)
Single E-mail	0.80	00:04:04
Single SharePoint Object	0.50	00:00:39
Single File	1.24	00:00:49
Exchange Mailbox (37,158 files)	866	00:45:36

Online restore requests were submitted and managed using the Venyu Central Console. Each of the restore requests completed without error. Attributes of the files and objects after the restore were exactly the same as the primary data on ESG’s production servers at the time that the online backup was executed. Restores of a document within ESG’s content management site correctly retained the SharePoint version history and check in dates. An online restore of an 866 MB Microsoft Exchange mailbox to a .PST file completed in less than 46 minutes. Screenshot excerpts captured during—and just after—the online restore of a mailbox are shown in Figure 6.

Figure 6. Restoring an Exchange Mailbox to a .PST file over the WAN



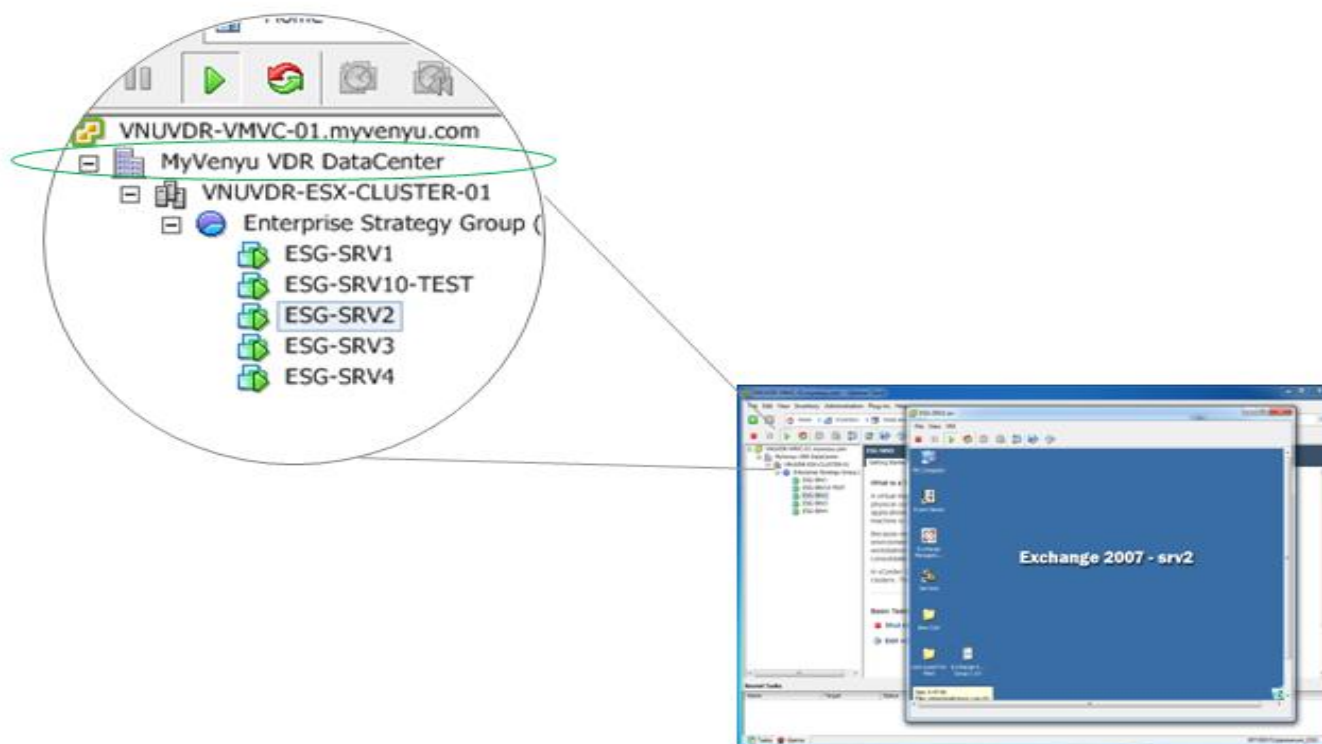
Virtualized Disaster Recovery

A data center-level recovery after a simulated disaster was the highlight of ESG Lab's evaluation of Venyu's services. ESG's core servers and applications were recovered into a VMware virtual server infrastructure that was configured and managed by the Venyu support team in Louisiana. The VMware virtual server in Louisiana was used to recover services that normally run within ESG on one physical (e.g., Active Directory) and multiple virtual (e.g., Microsoft Exchange) servers.

The disaster recovery test began with a support call announcing that ESG had declared a site level disaster and needed to recover IT services as quickly as possible. The VMware environment that was pre-built and tested by Venyu was used to recover from the previous night's backup. The disk-based recovery jobs that ran over the Venyu internal network completed relatively quickly since only the changes since the last restore needed to be applied and the Venyu support team did all of the work. Four hours after declaring a disaster, ESG was managing its own virtual data center environment within the Venyu data center.⁵

A screenshot taken during the disaster recovery test is shown in Figure 7. Note that core *Enterprise Strategy Group* servers have been restored within the *MyVenyu VDR Data Center*. The environment felt the same as the theoretically dead ESG infrastructure in Massachusetts with one exception: the active directory server (SRV1), which was a physical server at ESG, had been restored by Venyu as a virtual server in Louisiana.

Figure 7. Out of Region Disaster Recovery Testing using Venyu Virtual Servers in Louisiana



Working within a virtual private network at Venyu, ESG was able to manage the infrastructure just as if it were still in Massachusetts. The Exchange 2007 server (SRV2) was started to ensure that ESG employees could access e-mails over the web. After running a variety of tests within the out of region disaster recovery environment, ESG's IT Director was confident that ESG could resume business after a disaster.

⁵ An ESG audit of the restore logs and a conversation with Venyu support staff indicated that the cumulative time for ESG restore jobs was three hours and two minutes. The balance of the time was spent checking restore logs and testing the readiness of the environment. The time that it will take for your organization to recover after a disaster will vary according to the size and complexity of your IT environment.

Why This Matters

ESG research indicates that 58% of professionals in small and medium-sized organizations can tolerate no more than four hours of downtime before experiencing significant adverse effects.⁶ The burden of backing up locally and sending those backups offsite for disaster recovery presents tremendous financial and resource challenges. ESG's IT Director summed it up well when he said, "I worry about our ability to recover after a disaster. I'm having a hard time justifying the cost of building and managing my own out of region DR infrastructure. I'm worried that I'll be fired if I can't restore e-mail and documents for the senior partners of the firm."

ESG has confirmed that Venyu can manage the entire disaster recovery process using an out of region data center that leverages virtual server technology. Four hours after declaring a disaster in Massachusetts, ESG's core IT services were up and running in Louisiana. The experts at Venyu managed the entire restore process. ESG was provided with VPN access to a fully functional virtual server infrastructure. ESG's IT Director summarized by saying, "I sleep better at night knowing that in the event of a disaster, Venyu's got my back-up. It was very easy to test our DR plan by virtually recovering our infrastructure at Venyu. I'm confident that the experts at Venyu can get us back in business after a disaster."

The Bigger Truth

The loss of critical data can be crippling to any business. IT managers within many small and mid-size companies are concerned about their ability to recover their data after an error, corruption, or disaster. In fact, in a recent ESG survey of medium sized organizations, IT managers reported that backup and recovery is their top challenge with respect to their storage environment. Online remote backup is a relatively new and extremely powerful technology that's ideally suited for small to medium sized businesses. Instead of managing the backup software and hardware within your company's walls, online backup gives you the safety of keeping your data in a secure, remote location. Born out of the merger of one of the first online backup providers (AmeriVault) and a leading managed service provider (NTG), Venyu is a leading provider of online backup and remote virtual recovery services.

Venyu's services are designed to reduce the risk of data loss after an error, data corruption, or disaster. Hands-free automation backed by an expert support organization reduces the complexity of delivering backup and recovery services. Capacity is delivered on demand. The cost and management overhead associated with backup media capacity are eliminated. The acquisition and maintenance costs associated with onsite backup servers and software are eliminated.

The Venyu team was delivering cloud-based backup and recovery services long before the IT industry started touting the benefits of "the cloud." Definitions for the cloud vary greatly, but it is essentially a means of delivering IT services from a centrally managed data center via a network, usually the Internet. Much like a utility company that delivers electricity over a power distribution network, the cloud is being used to deliver IT services on demand. While definitions for "cloud" may vary, most would agree that the potential benefits are compelling and range from reduced complexity to added flexibility, increased reliability, and reduced costs.

Server virtualization is a catalyst for cloud-based backup and recovery adoption on two fronts. First, the rapid adoption of server virtualization is causing organizations to redesign their existing backup and business continuity strategies. Second, the enhanced flexibility and recoverability provided by server virtualization provides an excellent foundation for out of region recovery after a disaster. Venyu brought these trends together with a goal of making it easy for organizations to adopt a cloud-based backup and recovery strategy—especially for the growing number of small to medium-sized businesses that have embraced server virtualization technology.

⁶ Source: ESG Research Report, *Medium-Size Business Server & Storage Priorities*, June 2008.

ESG Lab found that Venju online backup and virtual recovery is a great fit for mid-market or smaller organizations like the Enterprise Strategy Group. The pre-site planning and support services were especially helpful. Within days of a well orchestrated pre-site planning call, ESG applications running on physical and virtual servers were being securely protected within a Tier IV out of region data center. Care and feeding of ESG's home-grown backup infrastructure was reduced to the quick review of a nightly e-mail. Monitoring confirmed that continuous incremental, deduplication, and compression technologies were being used to reduce backup windows and WAN bandwidth requirements. Item and object-level recovery over the wire for Microsoft Exchange e-mail and SharePoint collaboration data was fast, wizard driven, and easy. ESG's core physical and virtual server infrastructure was recovered after a simulated disaster. The Venju support team drove the entire recovery operation using virtual server infrastructure built especially for ESG in a Tier IV remote data center.

When considering the viability of online backup and recovery solutions, there are some issues to consider beyond those covered in this report, including cost and recoverability. While the cost of online backup and recovery solutions has dropped dramatically in recent years, the monthly recurring cost of Venju services may seem high for some organizations—at first. As an example, ESG's first pass at a back of the napkin cost justification found that switching to Venju would cost more than the annual maintenance of our existing backup server and software licenses. The costs were easier to justify when we considered the cost of using tapes, a tape library, daily human resources, a courier service, and our own DR servers at a co-location facility.

Recoverability for large data sets is another issue to consider. The MobileVault appliance used by ESG Lab during initial seeding can also be used for a quick overnight recovery of an entire server or application. In other words, if a restore would take too long over the wire, Venju will restore and ship a pre-configured appliance instead. As a third option for enhanced recoverability, Venju can also support backup to local storage for quick and reliable restores. In this case, backup data is stored on a local storage source before it is synchronized with an online copy at a remote Venju data center.

ESG's IT Director sleeps better at night knowing that ESG's data is safe and secure in an out of region Venju data center. Monitoring hands-free nightly backups is easy. With backup capacity being provided by Venju on demand, he's freed from the hassle—and cost—of managing media. He is seriously considering the option of replacing the growing costs associated with ESG's backup infrastructure with a monthly bill from Venju. If you're worried about the complexity and risk associated with onsite backups in your small to medium-sized business, ESG recommends that you consider a free evaluation of Venju's online backup and virtual recovery services.