Research

The Changing Dynamics of Backup and Recovery in the Small and Medium Business (SMB) Market:

New Requirements and Systemic Challenges Open the Door for
Online Backup Service Providers

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Introduction

A number of current business realities – including business continuity and disaster recovery concerns, regulatory compliance, information security threats, and the steady encroachment of information technology (IT) into nearly all industries and types of businesses – are combining to place a greater premium than ever on effective data protection strategies. While much of the IT community's focus has traditionally been on the backup and recovery requirements of large enterprises, recent years have seen a greater emphasis on developing and delivering products and services that satisfy the unique requirements of the small and medium business (SMB) customer.

To help gauge the unique data protection requirements of this large and often underserved market segment, ESG recently completed a comprehensive survey study of storage and IT professionals from SMB organizations responsible for their company's data protection policies, procedures, and technologies. The demographic characteristics of our respondents are summarized in Table 1:

Table 1: Respondent Profile
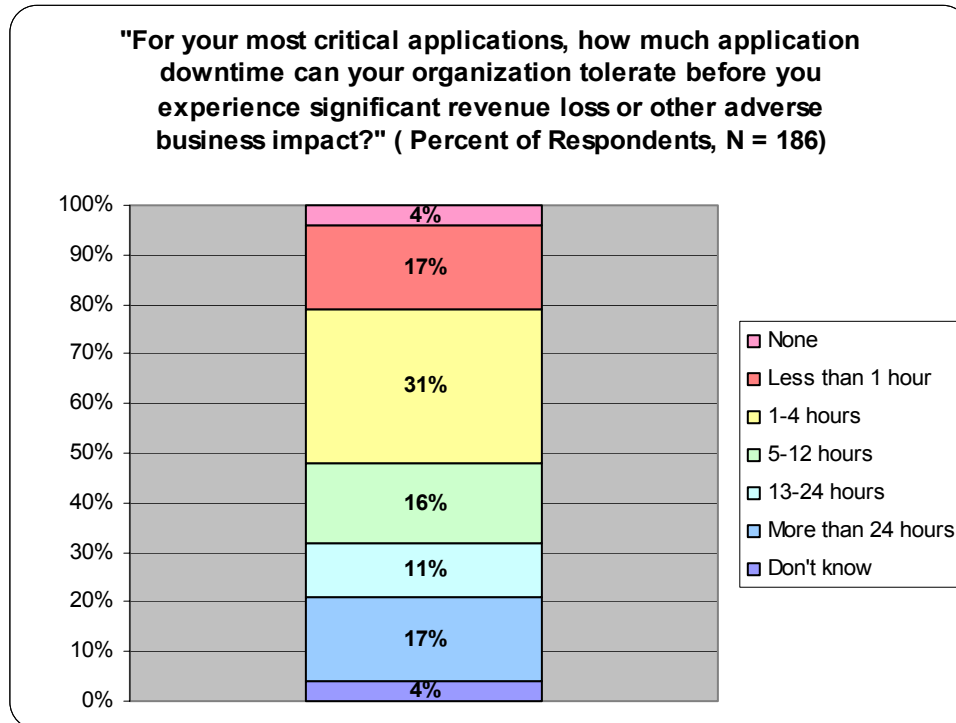
Target respondents	Storage and IT professionals from SMB organizations. For this survey, SMB is defined as those organizations with less than $500m in annual revenue.
Sample size	N=186
Respondents by company revenue	61% with revenue of less than $50m 25% with revenue between $50m and $249m 14% with revenue between $250m and $499m
Industry distribution	More than 20 different industries represented including , Banking, Biotech/Life Sciences, Construction & Engineering, Consulting/Business Services, Consumer Goods, Education, Electronics, Financial Services, Government, Healthcare, Hospitality & Travel, Information Technology, Insurance, Manufacturing, Media & Entertainment, Pharmaceuticals, Retail/Wholesale, Telecommunications, Transportation & Logistics, and Utilities

Today's Data Protection Realities for SMBs

ESG's survey results reveal that any discussion of backup and recovery solutions for small and medium businesses must be grounded in three fundamental realities facing these organizations:

- **More data . . .** Data continues to grow in droves as small and medium business increasingly connect to the Internet and replace manual or paper-based processes with office productivity and packaged business applications. Thirty-eight percent of survey respondents report that primary storage capacity is growing at 25% or more annually, meaning that some SMBs will soon have primary and secondary data stores of sizes once reserved for the largest of large enterprises.

- **. . . which is increasingly important to the business . . .** The data generated by small and medium businesses is not only increasing in volume, but also in importance to the day-to-day operations of the business. Fifty-two percent of SMBs surveyed say they can only tolerate application downtime of four hours or less before experiencing significant revenue loss or other adverse business impact (see Figure 1). All told, 79% say that they must get their most critical applications back up and running within twenty-four hours – or suffer the business consequences.

Figure 1

"For your most critical applications, how much application downtime can your organization tolerate before you experience significant revenue loss or other adverse business impact?" (Percent of Respondents, N = 186)

4%	None
17%	Less than 1 hour
31%	1-4 hours
16%	5-12 hours
11%	13-24 hours
17%	More than 24 hours
4%	Don't know

- **. . . and therefore must be protected.** SMBs are getting the message that when it comes to the data that drives their business, what's worth having is worth protecting. Today, more than 80% of SMBs run incremental backups at least once per night. Eighty-four percent perform a full backup of their systems at least once per week. As we shall see, however, these schedules are increasingly viewed as insufficient to meet business requirements.

SMBs Face Daunting Data Protection Challenges

Despite the increasing importance of data protection to SMBs' business operations, ESG's research reveals that users face a number of persistent challenges with their current backup and recovery environments including:

- **Shrinking backup and recovery windows:** Our survey respondents have spoken loud and clear: When it comes to data protection, time is definitely not on their side. The single greatest data protection challenge according to SMBs (cited by 63% of respondents) is that backups simply take too long to complete – a clear indication of how continuing data growth and more stringent application availability requirements are shrinking backup windows to new lows. As one user interviewed by ESG stated:
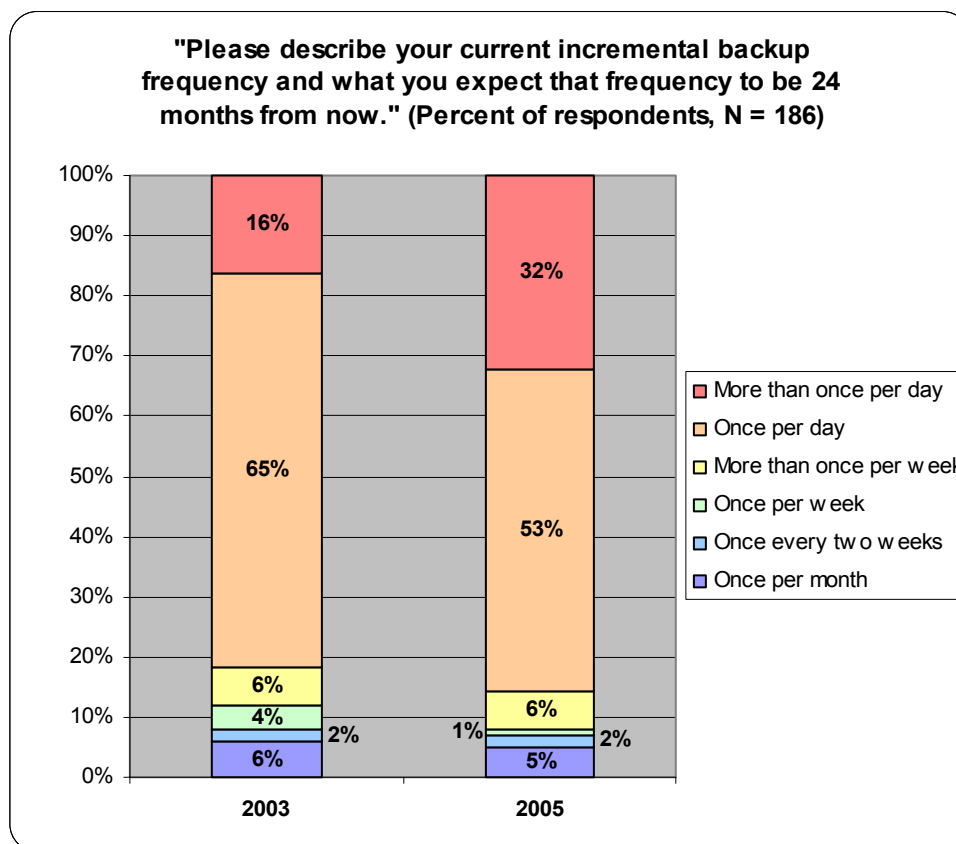
  > *"Speed of backup is a critical factor in our environment. We're now running our applications from 7:00 AM until 4:00 AM the following morning, which leaves us a very short backup window."*

  SMBs surveyed by ESG are equally pressed when it comes to data recovery times: 54% of respondents complain that recoveries also take too long to complete.

- **Troubling data protection gaps:** While SMBs recognize the inherent value of their business applications and associated data, there's an apparent disconnect between the perceived value of that data and the frequency with which those SMBs currently back up their systems. Thirty-eight percent of users

surveyed say they either know or worry that their current backup schedules are not providing an adequate level of protection against data loss. Consequently, SMBs say they are planning to back up data much more frequently. While only 16% of SMBs currently run incremental backups more than once a day, 32% of respondents say they will do so two years from now (see Figure 2). Similarly, two years from now, 52% of SMBs say they will run more than one full backup per week, compared to only 37% of users today.

Figure 2

"Please describe your current incremental backup frequency and what you expect that frequency to be 24 months from now." (Percent of respondents, N = 186)

- **Legacy technology:** As small and medium businesses look to back up more data more frequently in order to meet application availability SLAs, they are increasingly faced with the shortcomings of traditional tape-based backup and recovery solutions, particularly long recovery times, questionable reliability, and the potential for error associated with manual tape handling processes. A storage manager interviewed by ESG expressed his frustration with recovering from tape as follows:

> *"It sometimes takes us three days to restore a single desktop because the user's data is scattered across 40 different backup tapes!"*

Given some of these challenges, backup and recovery failure rates for tape-based solutions remain disconcertingly high. Nearly one out of four SMB users (23%) report that at least 20% of their tape-based backup operations fail: A slightly higher percentage (26%) state that 20% or more of their recovery attempts fail. Why are these operations failing? For both backups and recoveries, users cite media failure (e.g. lost, damaged, or corrupted backup tapes) as the number one culprit, followed closely by human error and hardware failure.

As incremental and full backups continue to grow in both size and in frequency, tape-based backup and recovery technologies will be increasingly pushed to – and beyond - their limits. For this reason, IT managers in the SMB segment are increasingly turning to disk-based data protection solutions.

Disk-Based Data Protection Solutions Promise Help – and Hurdles – for SMBs

While the SMBs surveyed by ESG understand the need for procedural changes to improve data protection – such as increasing backup frequencies – these users are aware that new technologies can also offer relief from their backup and recovery burdens. Specifically, SMB users have deployed or are interested in deploying a variety of disk-to-disk backup technologies, such as virtual tape libraries, simple disk-based backup targets, snapshot, and continuous capture. More than one third (37%) of SMBs say they have already deployed some form of disk-based data protection technology and nearly an additional third (31%) are considering doing so. Why are users attracted to these technologies?

- **Better performance:** While the SMBs surveyed by ESG cite reduced backup times as a major reason why they deployed or are considering disk-based backup solutions, it is the promise of faster restores that really sold our respondents. Users clearly recognize the unmistakable speed benefits of recovering from an online disk as opposed to an off-line tape. Users also cited reduced data loss as major – and often primary – benefit of disk-based solutions, particularly for continuous capture (also known as continuous backup) technologies.

- **Improved reliability:** Eighty-three percent of SMB respondents report that 80-100% of disk-based backups are successful. Only 69% of those users achieve that success rate with their tape backups. This pattern also holds true for disk- vs. tape-based recoveries. It is also noteworthy that organizations that have deployed disk-to-disk technologies are significantly less likely to cite human error as a leading cause of recovery failure, which ESG believes indicates the benefits of eliminating manual tape handling tasks from the recovery process.

- **More efficient staff utilization:** On average, across all disk-to-disk technologies included in this research, nearly 30% of SMBs cite "consumes less human resources" as a significant reason why they purchased or are considering those particular solutions. Again, ESG attributes this to the reduction in manual tape handling with disk-to-disk technologies and the overall improved reliability of disk-based solutions.

It is clear that SMB IT organizations see the need for and benefits of disk-to-disk data protection solutions. Indeed, many SMBs have already deployed or are considering these technologies. However, ESG's research reveals that for many small and medium businesses, a number of obstacles block these firms' road to a better backup and recovery solution. These hurdles include:

- **Cost.** Across all disk-to-disk technologies, users state cost as the number one barrier to deploying new disk-based backup and recovery solutions. Specifically, users are wary of the capital investment required to add the new secondary disk capacity necessary for growing data stores.

- **Too many other competing initiatives**. Immediately following cost, the SMBs surveyed by ESG cite other more pressing storage related priorities as a factor in why they will not adopt a new data protection solution. Why? Despite how important data protection is to the business, many SMBs simply don't have the manpower. Twenty five percent of respondents say that backup and recovery consumes too many of their IT staff resources as it is, never mind adding a new technology into the mix.

- **Perceived technology complexity**. ESG observed that SMB users are significantly more likely than their enterprise counterparts to cite technical (as opposed to business or financial) considerations as reasons why they are not considering disk-based data protection technologies. For example, while only 17% of enterprise users have technology-related concerns about snapshot solutions (e.g. believe that it is

difficult to implement), 52% of SMB users cited those concerns as factors that are preventing them from purchasing and deploying a snapshot product.

How can SMBs overcome these obstacles and strengthen their data protection practices? ESG believes the resurgent backup service provider (BSP) market is a good place to start.
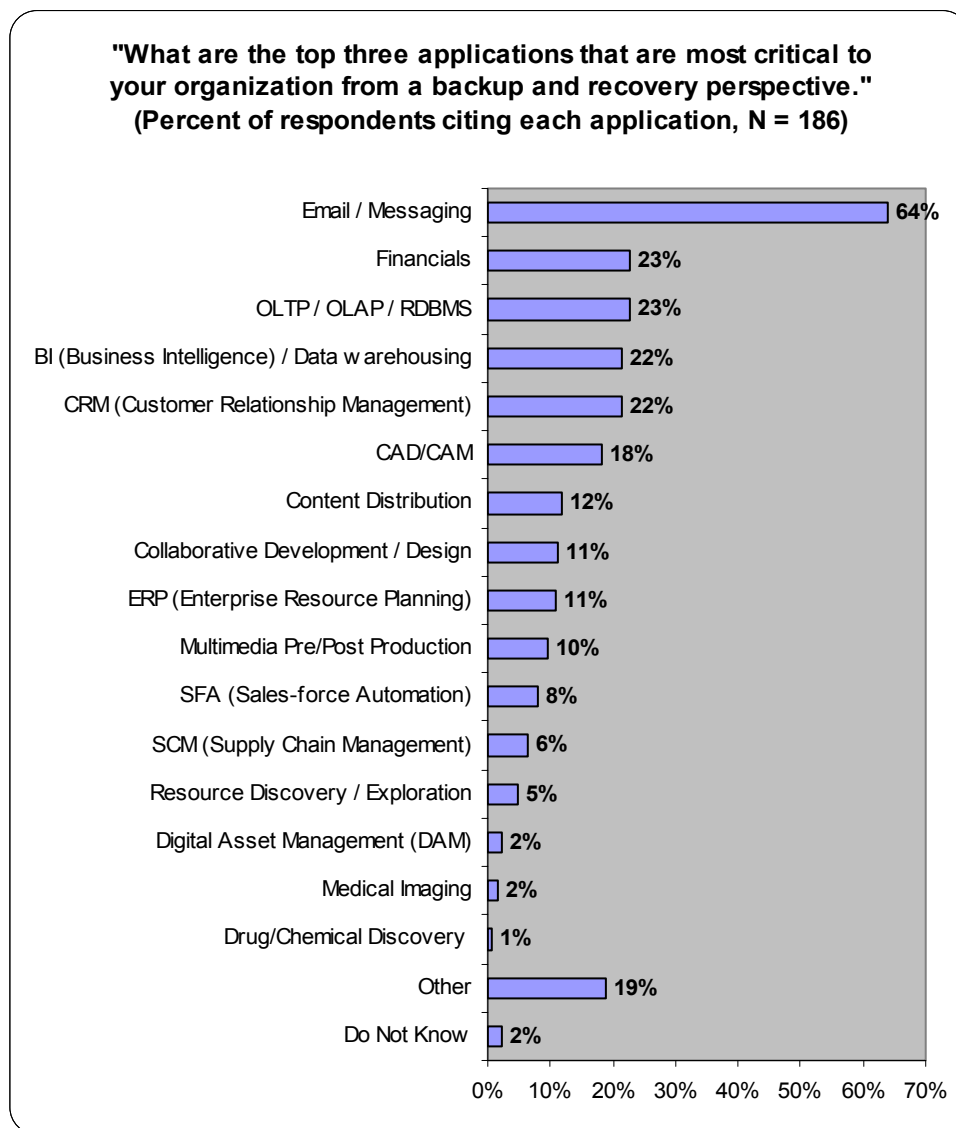
Backup Service Providers Can Bring SMBs into the New Data Protection Era

ESG's research reveals that in order to meet new data protection, application availability, and – ultimately – business requirements, SMBs need to revamp backup and recovery processes and technologies. Simply put, SMB organizations need to more frequently (or continuously) back up their data, be able to quickly and reliability restore that data, and do so in a cost-effective, easy-to-manage fashion. While new disk-based solutions can help users increase the speed, reliability, and manageability of their backup and recovery operations, a number of financial and technical concerns prevent many SMBs from deploying these solutions today.

ESG believes that managed data protection services from the current generation of online backup service providers provide a compelling alternative for the SMB market segment. Why? First and foremost, by replacing a capital- and labor-intensive technology implementation with a fully-managed service for a regular monthly fee, these solutions address many organizations' major objections to deploying new backup and recovery technologies – the cost of the new solution and the lack of staff resources to evaluate, implement, and manage that solution. While extremely significant, these benefits are however some of the more self-evident and well-understood advantages of an outsourced solution or managed service. In addition to these traditional financial and resource rationales, ESG's research underscores many of the *additional* benefits that BSPs bring to SMB organizations, including:

- **Advanced technology:** Unencumbered by years of investment in legacy technologies, backup service providers can offer SMBs the benefits of an advanced data protection technology infrastructure based on the latest disk-based solutions. What's more, service providers can continually refresh that technology at a pace that resource-strapped small and medium businesses simply can't match.

- **Rapid – and reliable – recovery:** Any IT manager will testify that backup is the easy part of the data protection equation – it's recovery that is the real challenge. Why? ESG's survey respondents repeatedly cite media failure and human error as the top two reasons why recoveries fail. Also consider the fact that 72% of all data recovered by SMBs is less than one week old. Taken together, these data points lead ESG to conclude that the time, cost, and lack of reliability associated with restoring from tape do not correspond with the day-to-day requirements of small and medium businesses. ESB recommends that SMBs look for BSPs that offer fast, granular, disk-based restores through simple, self service management interfaces that minimize human intervention.

- **Application-specific expertise:** Overwhelmingly, SMBs say that e-mail is their most important application from a backup and recovery perspective (see Figure 3). BSPs can help SMBs with prepackaged offerings specifically tailored for the unique intricacies of backing up enterprise messaging applications such as Microsoft Exchange.

Figure 3

"What are the top three applications that are most critical to your organization from a backup and recovery perspective."
(Percent of respondents citing each application, N = 186)

Application	Percent
Email / Messaging	64%
Financials	23%
OLTP / OLAP / RDBMS	23%
BI (Business Intelligence) / Data warehousing	22%
CRM (Customer Relationship Management)	22%
CAD/CAM	18%
Content Distribution	12%
Collaborative Development / Design	11%
ERP (Enterprise Resource Planning)	11%
Multimedia Pre/Post Production	10%
SFA (Sales-force Automation)	8%
SCM (Supply Chain Management)	6%
Resource Discovery / Exploration	5%
Digital Asset Management (DAM)	2%
Medical Imaging	2%
Drug/Chemical Discovery	1%
Other	19%
Do Not Know	2%

- **Around-the-clock monitoring and management:** The simple act of validating the success of a backup and recovery operation is a huge – and often overlooked – challenge for IT organizations. SMBs are no exception: Difficulty validating backups and recoveries was the third most common challenge cited by the SMBs surveyed by ESG. By monitoring customers' backup and recovery operations 24x7, BSPs can alert users when backups fail and offer diagnostic capabilities to help users determine why.

- **Off-site – and online – data protection:** Many SMBs are small, single-site enterprises whose off-site storage capabilities – if any – consist of shipping backup tapes to a tape archiving company. In contrast, third-party BSPs ensure that SMBs' data is stored at a secured remote location for business continuity and disaster recovery protection – but is also up-to-date, online, and available for everyday restores.

- **Highly-specified offerings:** One of the strengths of today's managed storage service provider market is the fact that providers offer a variety of well-defined solutions designed to satisfy specific business and technology requirements. For example, BSPs like LiveVault offer continuous backup services for

corporate servers, Connected Corporation provides solutions for desktop- and laptop-based data, and ZANTAZ and Iron Mountain offer digital archiving solutions for e-mail and instant messaging that help users comply with record retention regulations such as SEC Rule 17a-3 and 17a-4 (see the ESG Research Report *Compliance: The Effect on Information Management and the Storage Industry*).

Table 2: In-House Solutions vs. Backup Service Providers

	In-House	Backup Service Providers
Financial commitment	Up-front capital investment	Monthly fee
Advanced disk-based technology	?	✔
Rapid recovery via intuitive management interface	?	✔
Application-specific backup and recovery expertise	?	✔
24x7 monitoring and management	?	✔
Off-site, online data for rapid restore <u>and</u> disaster recovery	?	✔

Conclusion

ESG's survey of small and medium businesses reveals that these organizations face demanding new data protection realities. Continuing data growth, application availability requirements, and disaster recovery concerns are just some of the factors creating the need for effective, reliable backups and timely, accurate recoveries. Frustrated by ongoing reliability issues with traditional tape-based backup solutions, SMBs are increasingly looking to new disk-based data protection technologies. However, financial, resource, and skills deficiencies all conspire to restrict the adoption of these technologies by smaller organizations. To alleviate these concerns and improve data protection practices, ESG believes SMB organizations should consider online data protection services from managed backup service providers.