Wanted: Better Backup

Poll shows widening gap between expectations and reality

In recent years, businesses and government agencies have delayed modernizing backup systems due to economics and other IT priorities. Now, however, with data growth rates of 20 to 50 percent or more annually, upgrading backup—to reduce backup and recovery times, enhance disaster recovery, and reduce failure points—is imperative, according to a recent survey of more than 1,200 IT managers by IDG Research Services.

The survey, conducted on behalf of ExaGrid Systems Inc., assessed backup and recovery pain points, 12-month objectives, and technology approaches to improve backup. Not surprisingly, the poll found explosive data growth has put unprecedented pressure on backup infrastructures, and installed backup solutions aren't keeping up with burgeoning data loads and

97% believe their data is vulnerable to data protection or security incidents

requirements for faster backup and recovery.

Respondents said the greatest backup-related challenges they face are long backup windows (Figure 1), growing business requirements for more efficient and reliable disaster recovery, long restore times, and total cost of ownership (TCO). Among the findings:

■ Almost 40 percent of respondents said routine nightly backups exceed the backup window—and 30 percent of these report their companies exceed backup windows by more than four hours. Among respondents that back up more than 10TB of data, 50 percent reported that backup time exceeds the available window.

■ The vast majority of respondents (97 percent) believe their data is somewhat to extremely vulnerable to data protection or security incidents; most have experienced one or more data protection or security issues in the previous year.

■ It takes roughly seven hours, on average, to resume normal operations after a data protection incident.

■ Half of IT pros reported their companies are only partially able or not at all able to meet their goals to protect virtualized servers.

Meanwhile, while IT departments in many companies strain to do more with less,

FIGURE 1

Top Nightly Backup Challenges

54%
Long backup windows - backups taking too long

51%
Growing business requirements for more reliable, efficient disaster recovery

48%
Long restore/recovery times

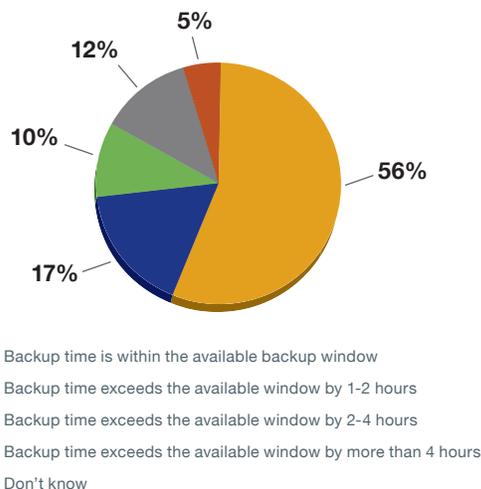**48%**
Total cost of ownership (TCO) of backup solutions

SOURCE: IDG Research Services, May 2012

FIGURE 2

**Extent to Which Backup Windows
are Being Met**

5%

12%

10%

56%

17%

- 🟧 Backup time is within the available backup window
- 🟦 Backup time exceeds the available window by 1-2 hours
- 🟩 Backup time exceeds the available window by 2-4 hours
- ⬛ Backup time exceeds the available window by more than 4 hours
- 🟥 Don't know

SOURCE: IDG Research Services, May 2012

significant staff time and resources are tied up in legacy backup systems that rely, at least in part, on tape.

"Backup, while very important, has been very brittle," said Dave Russell, research vice president, storage technologies and strategies at Gartner Group. "It has required and continues to require a great deal of care and feeding just to keep systems afloat, much less [trying to] back up more data and reduce the amount of time [needed to do so]."

The widening expectations gap

The gap between what backup systems do and what a company needs them to do is widening.

Respondents indicated low TCO, seamless scalability, keeping backup windows from expanding as data grows, WAN-efficient replication and ease of administration and management are necessities that current systems don't deliver well. Seventy-five percent said TCO is extremely important or very important, but only 45 percent said systems delivered effectively

in this area. Likewise, 72 percent said avoiding forklift upgrades and product obsolescence is extremely important or very important, but only 41 percent said their installed systems can deliver it.

Further contributing to the expectations gap is the growth in data and systems deemed mission-critical. The volume and nature of critical data has evolved rapidly, according to Russell, so organizations not only define more data as critical, but also more types of data. "They're looking at protecting more data and more types of data sources, so storage capacity data growth could be higher for backup infrastructure, and certain types of data are growing even faster," he said.
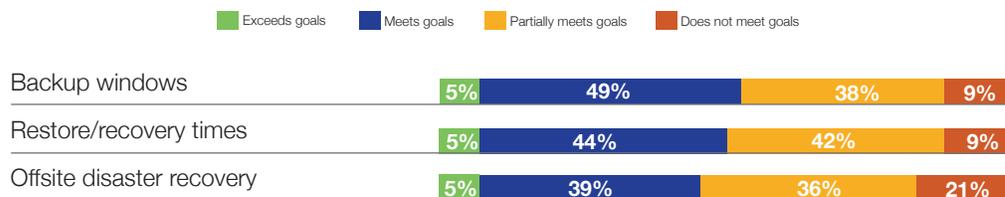
"One of the many reasons why we have to modernize the backup infrastructure is that it's been woefully under-invested in for a long period of time, and it's being tasked with doing substantially more," Russell added.

To close this gap and meet IT needs for backup and recovery, a leading choice for IT professionals is disk backup with deduplication in a grid architecture. Sought-for benefits include the ability to get faster backups with no expansion of backup windows as data grows, reduced backup management burden, and lower costs over time

Goodbye, tape

The move to modernize is under way: Research from Gartner and others shows an industrywide movement away from tape-based systems as the need grows for more and better data backup. The IDG survey shows that, although still a part of the backup infrastructure for a majority of respondents, the use of tape is expected to decline significantly in the coming year. Among respondents whose companies currently use tape only, close to three-quarters plan to move to a disk-based method for nightly backups within 12 months. Among respondents using disk staging plus tape today, almost 25 percent

FIGURE 3

Ability to Achieve Goals for Protection of Virtualized Servers

■ Exceeds goals ■ Meets goals ■ Partially meets goals ■ Does not meet goals

	Exceeds goals	Meets goals	Partially meets goals	Does not meet goals
Backup windows	5%	49%	38%	9%
Restore/recovery times	5%	44%	42%	9%
Offsite disaster recovery	5%	39%	36%	21%

SOURCE: IDG Research Services, May 2012

plan to modernize systems and replace tape.

"It's not that tape fails, it's that the people handling it may have dropped it, [or] may have put it in a car at unreasonable temperatures," said Russell. "A lot of the challenges with tape trace back to the chain of the human interaction." Businesses would like to move toward something that's more automated, "something that's part and parcel of what they've already deployed," he said.

The move away from tape means a move toward disk, according to the survey. Among respondents currently using tape only, 66 percent expect to be using a disk-based method 12 months from now, and the usage of disk-based data deduplication appliances is expected to increase by 48 percent.

Protecting and recovering data

Looking ahead over the next twelve months, enhancing disaster recovery, eliminating failure points and unreliable systems that leave critical data unprotected, improving recovery times and reliability of restores, and reducing backup times are respondents' top operational objectives for backup. A majority said faster recovery is an important business goal, but close to two-thirds said their current solution is not effective. Some 98 percent of respondents believe their data is at least somewhat vulnerable to data protection incidents. Most reported having one

or more data protection incident in the past year, with the top incidents being accidental file deletion, nightly backup failure, hardware failure or corruption, or software or server failure.
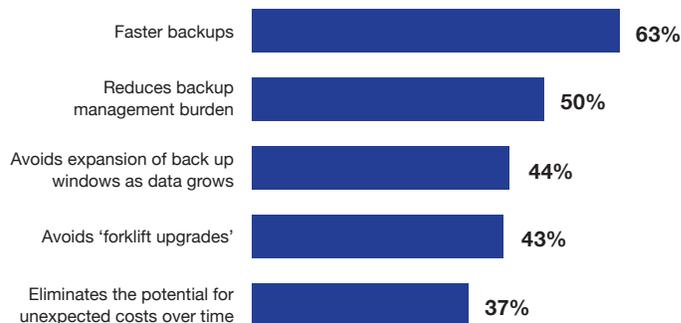
Respondents estimated it takes roughly seven hours to resume normal operations after a data protection or security incident, and 18 percent of organizations report it takes 11 to 24 hours or longer. The cost of this downtime can be substantial: IDC estimates the average loss to business is $70,000 per downtime hour, and a 2011 Ponemon Institute study found data center failures cost an average of $5,600 per minute.

Driving demand for faster data recovery is the rise in expected levels of service, according to Russell. "Users now expect that if a disaster happens, [they'll] be back up and running with zero data loss really rapidly, in a matter of minutes," he said. "Of course, that's a nirvana statement, but the view about what to expect, reasonable or not, is higher than it once was. Simultaneously, the amount of data we're protecting is substantially higher than it once was, and the perceived criticality and cascading impact of the data is much broader than it once was."

Respondents also indicate room for improvement exists around protecting virtualized servers. Nearly half reported that companies are only partially able or unable to meet their goals for protecting virtualized servers with regard to backup windows, restoration times and off-site

Why IT Wants a Disk Backup Solution with Deduplication in a Grid Architecture

Faster backups	63%
Reduces backup management burden	50%
Avoids expansion of back up windows as data grows	44%
Avoids 'forklift upgrades'	43%
Eliminates the potential for unexpected costs over time	37%

SOURCE: IDG Research Services, May 2012

disaster recovery (Figure 3).

With the rise of virtual machines, this is a critical finding. "A key advantage of virtual machine software is the ability to run the virtual machine from the backup instance, and that changes things in what we demand from backup hardware," said George Crump, president and founder of Storage Switzerland LLC. "In the past, [a recovery system] just had to be deep and cheap. Now there might be a time when it has to be deep and cheap and fast, because it has to at least temporarily host a production virtual machine, which is not typically something we've designed disk-backup hardware to do."

Total cost of ownership

Nearly three-quarters of IDG survey respondents said lower TCO is a very important consideration for disk-based backup technology,

> "We have to modernize the backup infrastructure...it's been woefully underinvested in for a long period of time, and it's being tasked with doing substantially more."
>
> **—Dave Russell**
> **Gartner Group**

and close to half considered it a significant challenge for their current backup systems.

TCO can be hard to calculate because it's difficult to put a dollar value on ease of administration, Russell said. However, "at the end of the day, the cost just has to be close enough so we're talking about the value proposition of benefits that we gain," he said. "I would assert that with all the technologies, [including] deduplication, SATA, etc., combined with decreasing backup retention periods, the price of disk has been brought much closer in line with that of tape."

Respondents agree, citing the capability for a disk-based appliance with grid architecture to reduce backup times, reduce administrative and management burdens, avoid forklift upgrades and eliminate potential for unexpected costs as important benefits of the technology (Figure 4).

Disk backup with deduplication in action

Reducing routine backup times became a top priority for The Salvation Army's eastern territory headquarters when its data load grew and routine tape backups took 24 hours to complete. The territory covers an area from Ohio to Maine as well as Puerto Rico, and most of the

data backup and storage chores are handled in the territory's West Nyack, N.Y. data center.

"We were backing up to tape [and] full back-ups were taking way too long," said Michael Levine, technology research and assessment manager at The Salvation Army in West Nyack. Nightly backups were running all night and finishing up at 8:30 a.m., he said. "We needed to reduce our window so we could do system updates, but that window was getting shorter because backups were taking so long."

Recently, the organization installed an ExaGrid disk backup appliance with deduplica-tion and configured its Symantec Backup Exec software to run multiple jobs at the same time, helping to reduce the backup window and giving IT more time for maintenance and upgrades. Backups now kick off each night at 7:30 p.m. and most are finished by 12:30 a.m., he said—a reduction in backup times of nearly 80 percent.

A second failover system will be installed at the organization's Syracuse office, which will replicate about 10 servers, Levine said.

ExaGrid's strong data deduplication technol-ogy helps reduce the amount of data stored and increases retention, Levine said. ExaGrid appli-ances use post-process deduplication, where

Target-side disk backup appliances with deduplication in a grid architecture provide IT powerful capbability to better manage back up and recovery.

data is written directly from the backup server to ExaGrid's landing zone with no inline pro-cessing, which results in the smallest possible backup window. Once a backup is complete and off-network, the data is protected and avail-able for restore or tape copy.

"The ExaGrid system does a fantastic job at reducing our data. We're currently able to keep our weekly backups for four weeks and monthly backups for six months," Levine said.
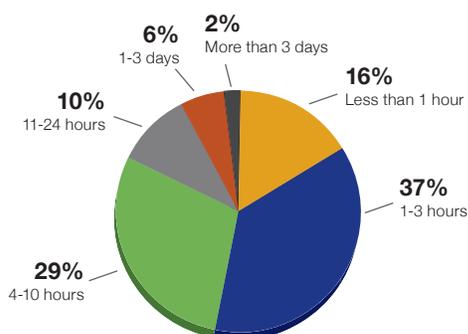
Faster backup was the top consideration when The Salvation Army territory migrated away from tape, but restores are also a lot quicker with the ExaGrid unit, according to Levine.

Bottom line

Burgeoning data will continue to put pressure on legacy backup and recovery systems. Migration from tape to disk is accelerating, and innova-tive approaches to backup, such as target-side disk backup appliances with deduplication in a grid architecture provide IT powerful capability to better manage backup and recovery and the scalability burdens associated with data growth. A solution like ExaGrid's, deployed in more than 4,000 customer installations, is proven to yield dramatic bottom-line operational gains— such as up to 90 percent faster backups, short backup windows even as data grows, instant file and virtual machine recovery, no costly forklift upgrade and product obsolescence issues, and long-term IT budget protection. ∎

For more information, visit
www.exagrid.com

FIGURE 5

Time to Resume Normal Operations After a Data Protection or Security Incident

6% 1-3 days
2% More than 3 days
16% Less than 1 hour
10% 11-24 hours
37% 1-3 hours
29% 4-10 hours

SOURCE: IDG Research Services, May 2012