

What is a 3-2-1 Backup Strategy?

Data backup is an undeniable necessity for today's enterprises, but what's the best approach to take when creating a backup strategy or reassessing a current plan?

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Justifying the need for data backup within any enterprise today should be a simple task. However, determining an organisation's best backup strategy might not be as easy. There are numerous hardware and software options to choose from, and a myriad of suggested policies and procedures describing how to use them. Considering this, some may find it interesting that one of the most popular data backup strategies originated from a creative professional — a photographer who formulated a rule by querying IT professionals — rather than from an IT company or standards organisation, as one might have expected.

The 3-2-1 rule, attributed to photographer Peter Krogh, follows these requirements:

- **3 Copies of Data** – Maintain three copies of data — the original, and at least two copies.
- **2 Different Media** – Use two different media types for storage. This can help reduce any impact that may be attributable to one specific storage media type. It's your decision as to which storage medium will contain the original data and which will contain any of the additional copies.
- **1 Copy Offsite** – Keep one copy offsite to prevent the possibility of data loss due to a site-specific failure.

Krogh formulated his rule almost two decades ago, at a time when his available personal storage options included hard drives with a 30 gigabyte capacity and compact disc backups. Times have certainly changed, and along with them, the available technology. Today's data storage options include hard drives that can handle up to 18 terabytes and multiple cloud-based solutions. In addition, today's data storage concerns range well past the amount of drive capacity to include how a selected solution will handle multiple security and failover contingencies.

The 3-2-1 rule should be considered a baseline. However, many organisations mandate more than three copies of managed data. Some may split the data between one or more production, backup (possibly using an alternative media), and disaster recovery sets (potentially offsite). Others may have more unique requirements, but the 3-2-1 rule is as good a place to start as any.

Following are key considerations for implementing a 3-2-1 backup rule, as well as for enterprise-level backup in general:

- **Reliability**
- **Ease of Use**
- **Security**
- **Cost and Capacity**
- **Recovery Time Objective (RTO) and Recovery Point Objective (RPO)**
- **On-Premises vs. Cloud Backup Targets**
- **Data Integrity Protection**