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Milestone to your success.

Data backup
in concrete block production

Masa
Smart BackUp

Masa Bluepaper by Dipl.-Ing. (FH) Markus Feix, Head of Customer Training and Service Hotline

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Foreword

This bluepaper provides information about the risk of data loss due to a hard disk defect or hard disk failure in production plants, highlights common vulnerabilities and shows the solution approach with the data backup solution Masa Smart BackUp for Masa concrete block production plants.

Digital transformation
Both a blessing and a curse

The digitization of our working world is increasingly accelerating and is also becoming more and more noticeable in companies with predominantly manual work. However, the benefits of digital transformation, such as increasing productivity and efficiency, also entail risks one should be aware of. Although cyber-crime has also increased in recent years, the main risk in the manufacturing sector currently lies in the carefree internal handling of process and operatio-nal data.

Lack of risk perception

Evaluations of several company surveys show that sensitive data is often not even considered as such in traditional production companies and is therefore not protected sufficiently well or at all. Many companies therefore still have a high backlog demand in terms of IT security and data protection.

In many cases, for example, precautions have been taken to protect personal, financial or development data from loss or unauthorized access, but securing production data is still taken too lightly. The greatest risk for a production plant is the plant itself:

Due to the enormous vibrations and contact with the dusts of raw materials and aggregates that are dispersed through the air, electrical compo-nents of the plants suffer and are exposed to constant wear.

The computers that control the plant are also affected. Seizing fans, thickly dusted cooling elements, faulty currents via deposits on the circuit boards or hard disks damaged by vibrati-on or overheating can be the cause of a control computer failure.

Data security – data backup

Data security must be fundamentally distinguished from data backup. The two terms are related, but have different meanings.
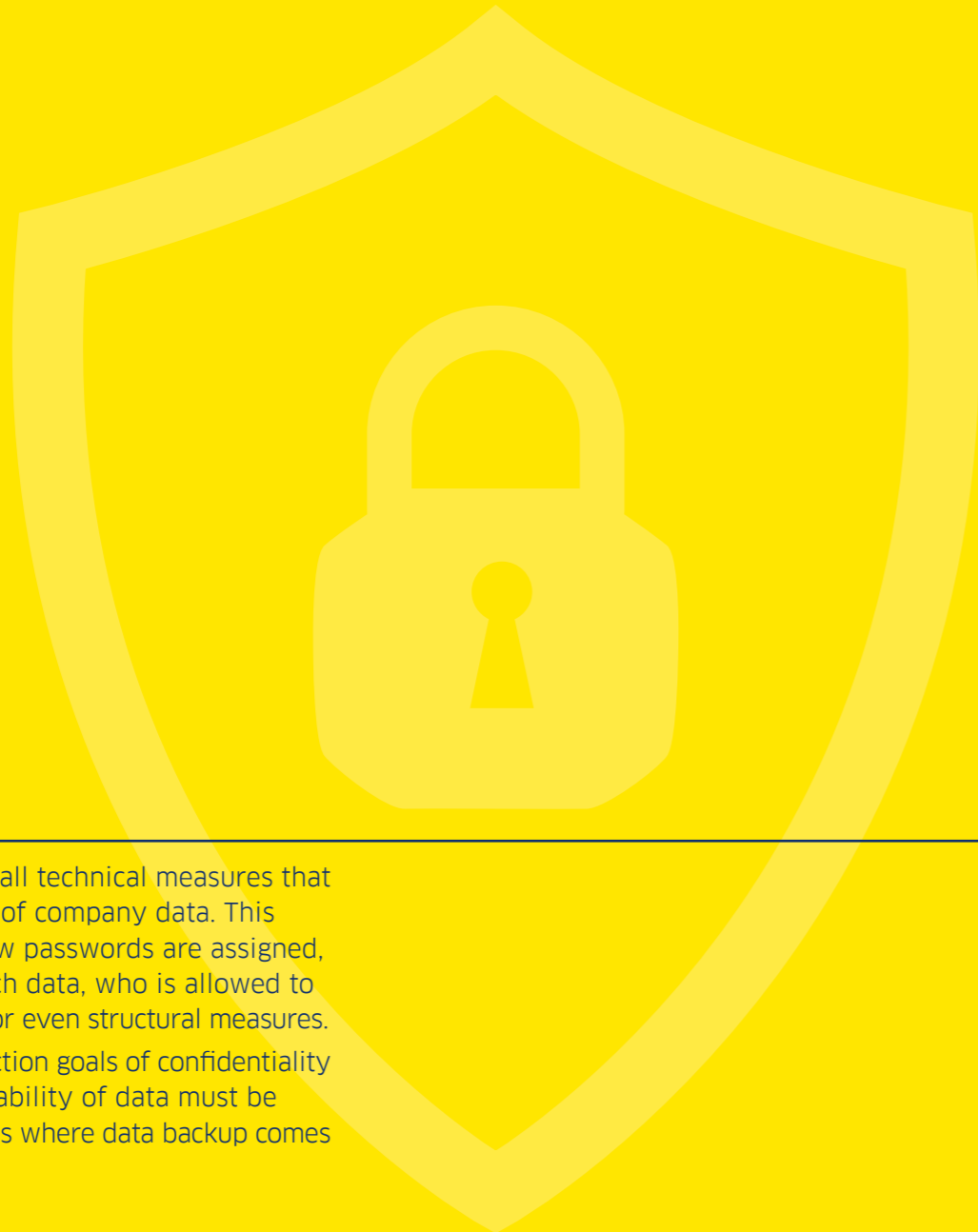
Data security

Data security refers to all technical measures that concern the protection of company data. This includes controlling how passwords are assigned, who has access to which data, who is allowed to enter the server room, or even structural measures.

In addition to the protection goals of confidentiality and integrity, the availability of data must be ensured above all. This is where data backup comes into play.

Data backup

Data backup is one aspect of data security: The goal of data security is to counter security risks and protect data from loss. One of the ways you can do this is by backing up your data properly. Data backup means the copying of data or complete system images of a computer to another storage medium. The data saved on the storage medium is called a backup copy.

Most companies have a more or less well-developed basic protection against cyber attacks on the workstations of the administration departments, such as virus scanners and firewalls in the company network, access protection through password locks and also corresponding data backups. Regular data backups of stand-alone computers in plant networks, on the other hand, are not carried out in many plants.

Aims of the data backup

The following intentions are behind a backup:

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1. The data backed up on the external backup media is protected from physical defects or hard disk malfunctions, viruses or accidental changes by users on the running system.

2. The data can be retrieved and restored without problems in case of any of the previously described failure scenarios.

Establishment of the data protection strategy

Steps to minimize risk

1. Most important step

Establishment of a structured data backup to ensure an effective security level for recipes and process data of a concrete block production plant. Regular data backup should be a matter of course, because no storage medium currently in use is immune to technical failure in the long run. At least one backup copy of each production file should be created on a separate storage medium.

2. Training

Training of users of technical data protection measures in operational implementation.

3. Sensitization

Make all users aware of the signs of emerging hardware damage. When building a data protection strategy, the human factor is critical. After all, security-conscious employees are the best security measure. Or, conversely, without sensitized and trained employees and managers, even the most expensive technologies will fail.

Have regular conversations with your production team and work toward targeted awareness of current signs of (emerging) hardware defects in a production computer:

4. Signs of equipment failure

- Grinding, scraping or squealing noises indicate motor or bearing damage to the fans.
- Short-term dropouts and "freezing" of the computer also indicate impending problems. In such cases, the computer does not respond to mouse or keyboard input.
- The BSOD, the "Blue Screen of Death", is haunting you with increasing frequency.

- Increased error messages that the operating system is missing or cannot be found
- Difficulties starting the computer (areas containing the data for booting may be damaged).
- Noticeably slower processing times
- Very hot blower exhaust air (supply and exhaust air problem due to dusty ventilation).
- Low fan power

Requirements on the data protection strategy

Functional requirements

1. **Maximum convenience – easy to use:**
   The operation of the data backup system must be simple and intuitive. This increases the acceptance among the employees. Ideally, the system is automated.

2. **No size limit:**
   Data of any type and size must be able to be transferred securely.

3. **Transparency:**
   Receipt and download confirmations make your data exchange processes traceable.

4. **Seamless integration:**
   If data protection can be integrated with existing systems, employees can continue to work directly in their familiar environment.

5. **Low administration efforts:**
   A mature software solution relieves administrators so that they can concentrate on their core tasks.

6. **Costs:**
   Costs must be transparent and easy to understand.
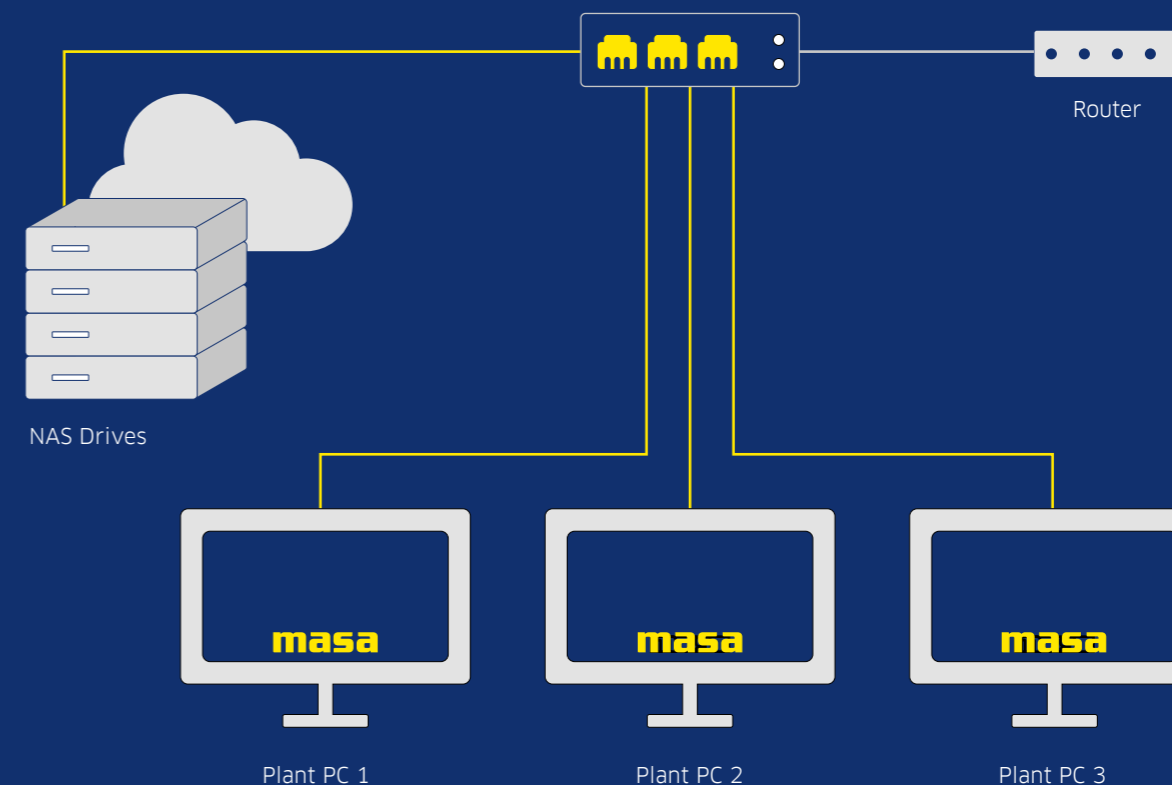
Masa Smart BackUp

The fully integrated solution for efficient data backup

System Components

System installation

- 4Bay NAS enclosure with powerful processors to reduce the load on the plant computers
- 4 NAS hard disks
  (Distribution of the data on the 4 disks according to RAID6 method)

— Integration into the plant network
— Integration into remote maintenance system

Router

NAS Drives

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Plant PC 1   Plant PC 2   Plant PC 3

Scope of Masa Smart BackUp services

- Backup of all plant computers to an NAS drive (network attached storage)
- Backup according to RAID6 system (redundant array of independent disks, mirroring of data)
- Backup of all relevant plant data such as databases, production recipes and production data
- Backup of all engineering projects Step7, TIA, SEW, Lenze etc.

- Time-controlled backup of data (e.g. daily, weekly, …)
- Easy data recovery
- No more problems with full hard disks
- Data available in triplicate (plant PC, data backup, mirroring of data backup)

How Masa Smart BackUp works

The fully integrated solution for efficient data backup

Redundancy　　　　　　　　　　　RAID 1 data backup

To ensure that your backups provide comprehensive protection, it is recommended to make several copies. This is exactly the approach of Masa Smart BackUp. Masa Smart BackUp secures the plant data on the actual backup drive and mirrors this backup to a second pair of hard disks via a RAID6 system. This gives you two versions of your backup: The original data in the primary system and two additional backups.

Plant PC 1　　　　　　Plant PC 2　　　　　　Plant PC x
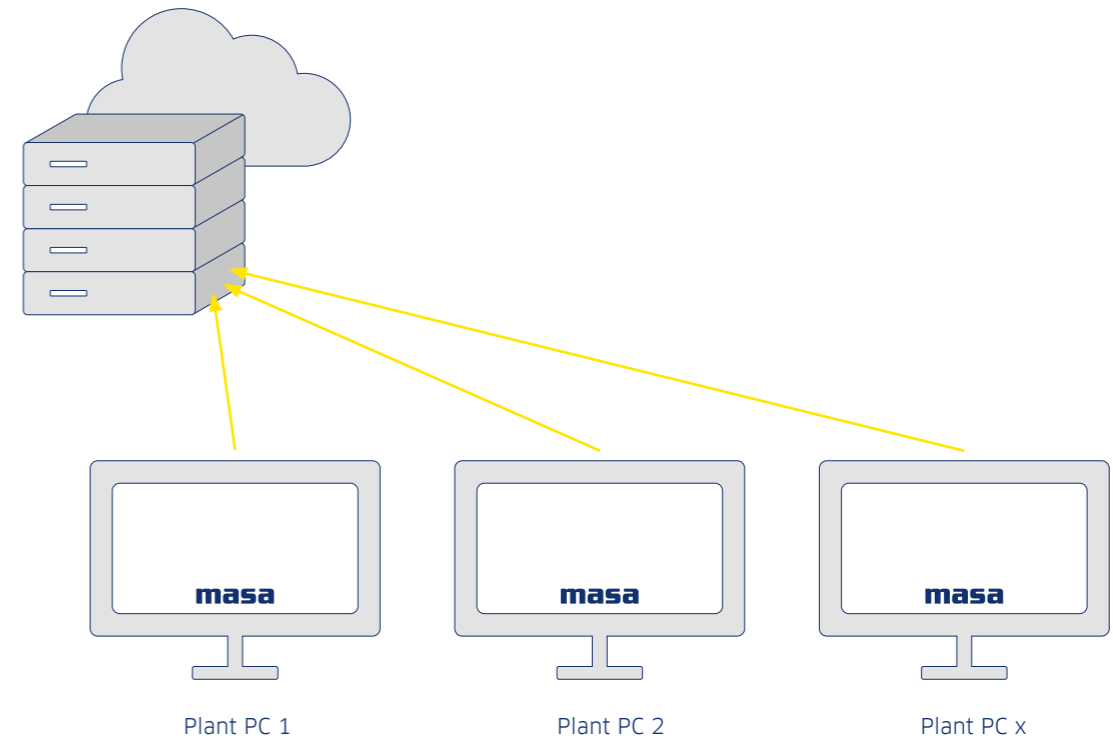
DID YOU EXPECT ANYTHING ELSE?

MASA SMART BACKUP

Do not risk your development work of the past years.

In case of a hard disk failure, nowadays there is no need to lose any recipes or process data that you have developed intensively. The Masa solution for this worst case scenario is Masa Smart BackUp. **Masa Smart BackUp**.

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Milestone to your success.

You are interested in data backup with Masa Smart BackUp for your Masa concrete block plant?

Call us, contact us by e-mail
or use the digital contact form.

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