

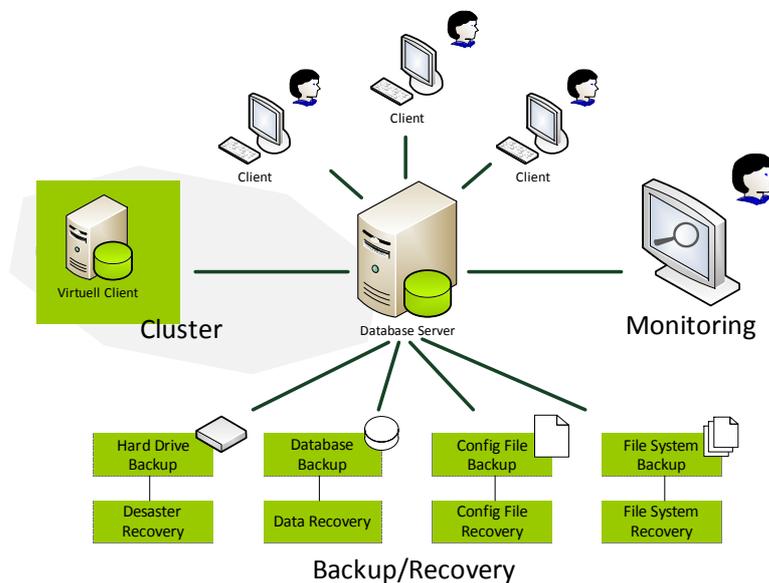
# High Availability

Keywords: Monitoring, Replication, Backup and Recovery

## Introduction

It mustn't effect the business. Situations which influence or destroy crucial processes or data are a worst-case scenario. Hardware systems are always aimed at being safeguarded against breakdowns in the best possible way and at protecting saved data with special regard to the idea of business continuity. A system design, developed according to the approach of high availability, will guarantee this protection and thus an uninterrupted continuation of operations despite the possible breakdown of system components.

As simple as the high availability concept may sound, it takes more than just one measure to be forearmed against all critical situations and to keep the technical brain of the enterprise running. Apart from preventative measures such as supervising the system and creating backups, evasive systems you can temporarily or permanently fall back on have to be set up.



*Possible solution for High Availability / Data Backups*

## Yaacomo Server Monitoring

In order to take early mistake-removing measures, if need be, that keep the database server from breaking down, it is necessary to screen the system for important changes. The Yaacomo database server can be monitored by a centralized server which will be sent information in pre-determined intervals by our database. Status information will be depicted in charts. Thus, essential system

components adamant for a flawless database operation, such as the condition of the hard drive, GPU disk space workload, database and web server availability as well as error reports for database logging and database synchronisation can be supervised and operated. The use of an open source monitoring tool whose standard functions can be expanded via scripts is rendered possible as well as the recourse to commercial software.

## Yaacomo Cluster Computing

Within high availability clusters an availability network is established between computers. If a database server is not available, an automatic failover will guarantee permanent and comprehensive system availability and the reduction of downtimes to a minimum. To achieve this, two independent fit-for-use systems can for instance be coupled according to the primary-secondary-principle. A monitoring tool will keep an eye on the “heartbeat” of the primary system. Should it fail, the system will automatically switch to the secondary system.

Via high-performing network saving solutions the current data stock will continually and on the basis of a hard drive be mirrored from the active database server to the failover system while the system is running. As a conclusion, this failover system will in case of a data server breakdown immediately be operated with an up-to-date data stock. As soon as the database server has been removed and the so-called reverse process has been executed, the data stock is ready to operate again.

For high availability solutions with restricted read only functions it is recommendable to use Yaacomo Data Replication Mechanism (cf. One Pager Data Replication).

## Yaacomo Backup Solutions

Yaacomo keeps most data in-memory in order to offer optimized performances. However, there are various possibilities of recovering data in case of an error. The concept of security is ideally comprised of different components. This secures the availability of data backup media in special cases – from the breakdown of a database to the destruction of a server.

While the database is operating without any sign of error, all data and metadata are saved from the memory to the hard drive as soon as the user “commits” and thus makes database transactions permanent. Additionally, redo information can be extracted from normal Yaacomo logging. If an error occurs, the database can be restarted just as a hard-drive-based database and will at the level of the last commit. The user can continue to operate without any difficulty.

The procedure mentioned above does not have any effect if the permanent memory is damaged. Then backups will have to be made use of. Backups will be executed online or offline. While the system is running, a database backup can be exercised without any noticeable impairment. Please note: if a database is destroyed as with regard to online backup via network solutions there has to be a complete offline backup on whose base online backups can be migrated.