



# MindView Drive Technical Specification

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## Overview

This document provides an overview of the MatchWare MindView Drive.

MindView Drive is a cloud based storage and collaboration platform used by MindView for Windows, MindView for Mac and MindView Online. MindView Drive is built on Microsoft Azure which is a cloud computing platform and infrastructure created and managed by Microsoft. MindView Drive is built with scalability, availability, high efficiency and security in mind. MindView Drive is also known as MatchWare Shared Workspace.

## Storage at rest

All customer document data is stored at Microsoft Azure data centers using Geo Redundant Storage (GRS) which provides the highest level of durability and security. All data is encrypted at rest at the Azure storage and in addition individual customer data is encrypted with per-user keys using AES-256 encryption.

Users will be assigned a default storage location based on the first login. Alternatively the system administrator is able to define a specific location for all users. If the storage location assigned is not correct it is possible to move the data to another location.

The storage locations currently made available by MatchWare at the Microsoft Azure data centers are:

- East US (Virginia)
- France Central (Paris)
- Germany West Central (Frankfurt)
- UK South (London)
- West Europe (Netherlands)

## Customer data

All customer data and metadata which link the users to their storage is located in the West Europe Microsoft Azure data center. All data is encrypted at rest.

The customer data stored is:

- User Email
- Institution Name (optional)
- User Name (optional)

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## Cloud services

All cloud services used in the MindView Drive setup use Microsoft-managed automatically updated Windows Server instances.

## Work instances

When documents are opened from MindView the customer data is securely sent from the storage location to a temporary work instance. The work instance handles the state of the document while the document is open. The Azure Traffic Manager ensures that the most appropriate Work Unit is used. This is based on a traffic-routing method and the health of the endpoints to obtain as low a latency as possible (see Figure 1). When the document is closed the updated document is sent back to the correct storage location and removed from the temporary work instance.

Multiple work instances are available in each of the below data centers to make sure that the workload is scaled, and to secure high availability if one or more work instances are being maintained.

The work instances currently made available by MatchWare are located at the following Microsoft Azure data centers:

- East US (Virginia)
- West Europe (Netherlands)

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## Data flow

Overview of the data flow when opening an online document from a client.

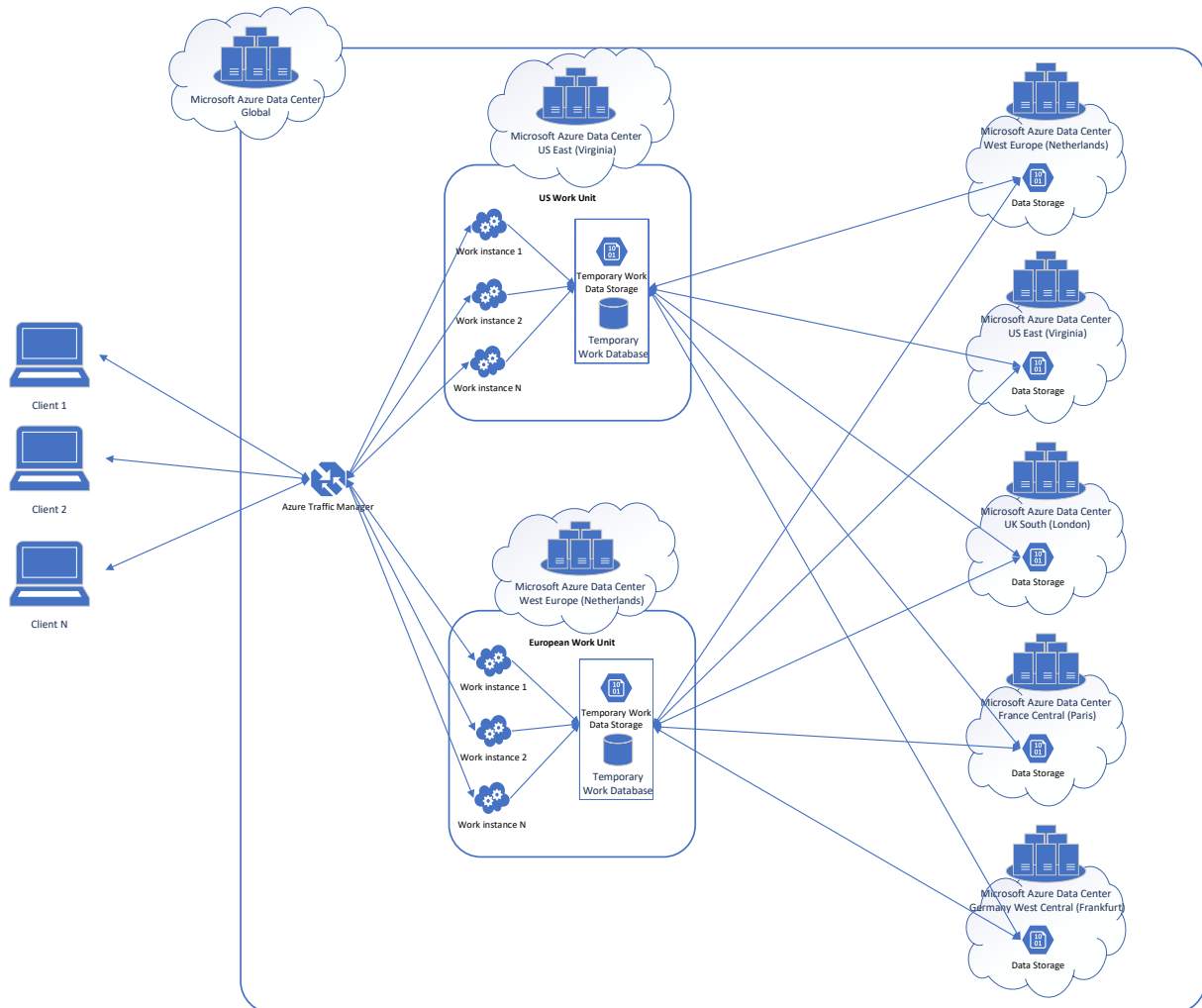


Figure 1 - Overview of the data flow when working with online documents.

Depending on the location of the client opening a document, the closest Work Unit is used. As a basic rule all European clients will always connect to the European Work Unit and all American clients will connect to the US Work Unit. This setup will as a rule of thumb make sure that European clients document data is kept in Europe and American clients document data is kept in the US. Here is an example of a German customer opening, editing and closing a document.

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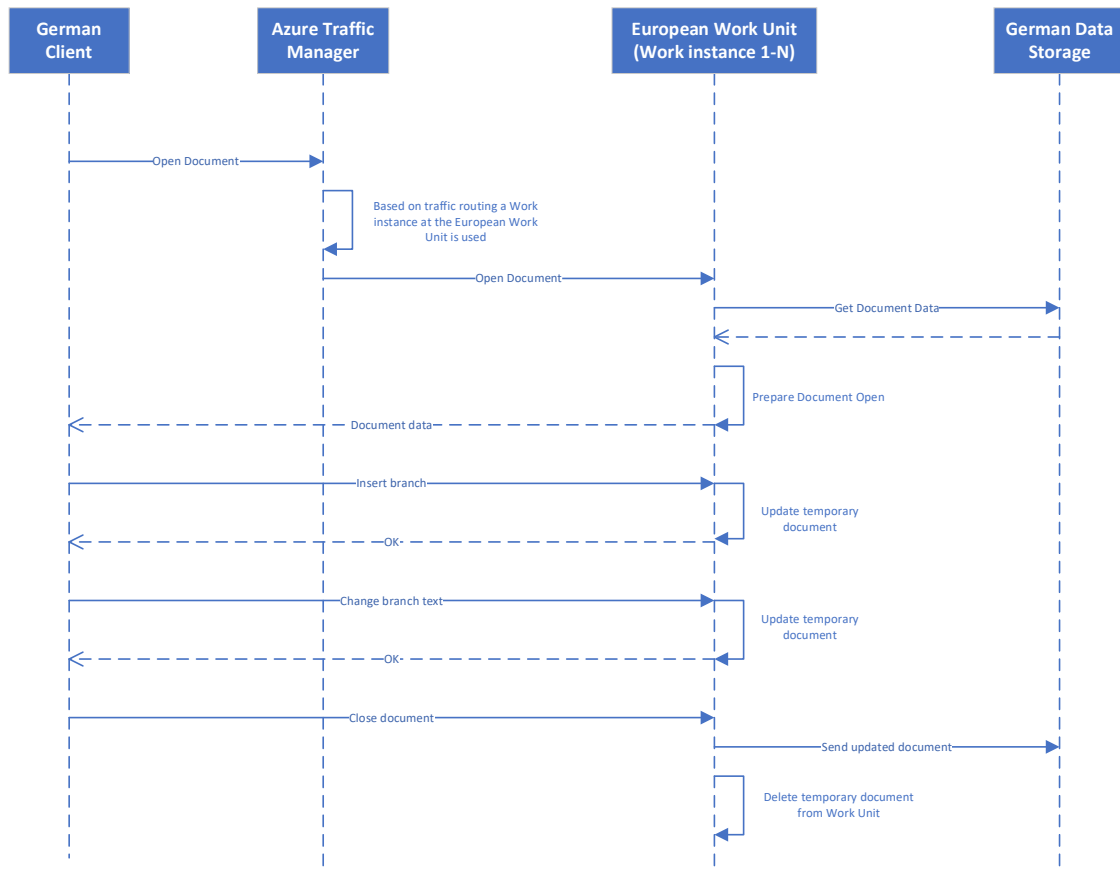


Figure 2 - Sequence diagram of a German client opening, editing and closing a document.

## Data in transit

All internal and external end-to-end connections are forced encrypted using a 256bit SSL certificate using TLS 1.2.

## Emails

Emails sent from the system use the well-known email service Sendgrid from Twilio (<https://sendgrid.com/>) to make sure that they conform to the highest standard.

## Backup and retention

MatchWare automatically keeps a 30-day backup of all customer data. The backup data is stored at the same storage location and never leaves the Microsoft Azure infrastructure. All backup data is encrypted at rest and is also encrypted with per-user keys.

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## Authorization

MindView Drive uses the MatchWare Account (<https://accounts.matchware.com>) for user authorization. The authorization system uses the industry standard OAuth2 protocol.

### MatchWare Login

The generic MatchWare Login system uses the email address as unique identifier and a user specified password with a minimum length of 8 characters. Passwords are not stored directly but as a SHA256 hashed value with salt. MatchWare Account has a login retry policy for failed login attempts. This will cause a delay in the next retry to secure the site against brute-force attacks.

Apart from the generic MatchWare Login the service can also utilize one or more of the supported external login services (see below).

### External Login Services

- **Microsoft Account Login (Office 365)**  
The Microsoft Account (MSA) login is a generic Microsoft single sign-on service. This service supports multi-factor authentication for enhanced security.
- **Google Account Login**  
The Google Account Login is a generic Google single sign-on service. This service offers 2-step verification for enhanced security.
- **Facebook Login**  
The Facebook Login provides a single sign-on across web, mobile and desktop applications. This service offers 2-step verification for enhanced security.

## Security Audit

MatchWare takes security very seriously and at every major release an external security audit is made on the entire infrastructure. The security audit also includes a penetration test. The security report can be requested.

## Additional information

[MindView Drive Terms of Service](#)

[Privacy Policy](#)

[Data Security Policy](#)

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