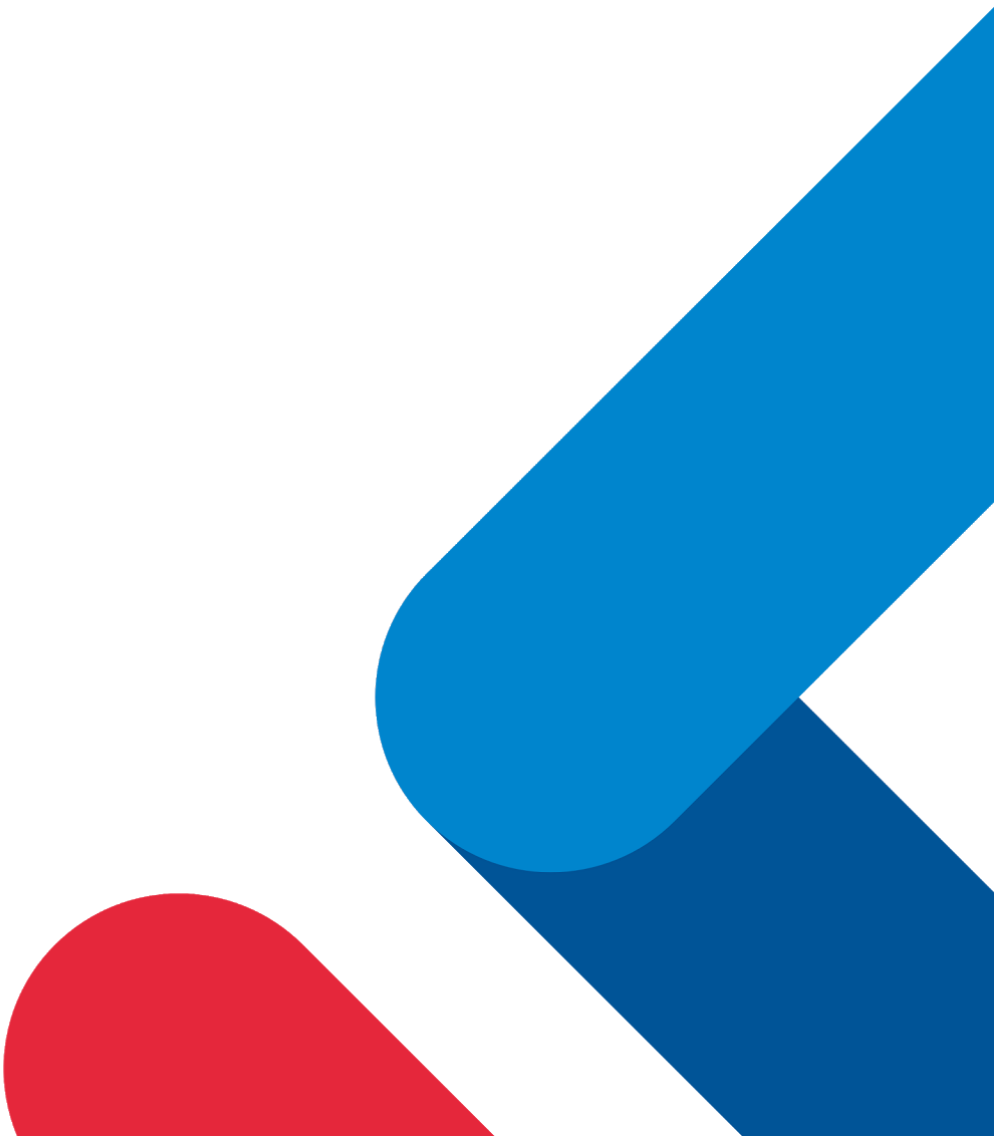
INNOVATION FOR
A SMART FUTURE

Integration Concept

Veralink and OQSG



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Document version history

Version	Date	Name	Note
1.0	2020/07/27	Zicha Vojtěch (eMan)	Initial submission

Content

1 Summary

This document describes a proposed solution to enable the integration between **OQSG database** and **VeraLink solution**.

The integration will be done as a batch transfer of data providing VeraLink solution information about credentials stored in OQSG database.

This document is divided into two main sections:

- **application architecture** describes the component and processes used to transfer data between the systems;
- **data architecture** describes the data and their properties that will be transferred between the systems.

1.1 Open Points

Following points must still be discussed and agreed upon between OQSG and Veralink:

- **Photo of Credential** - distribution of credential photos

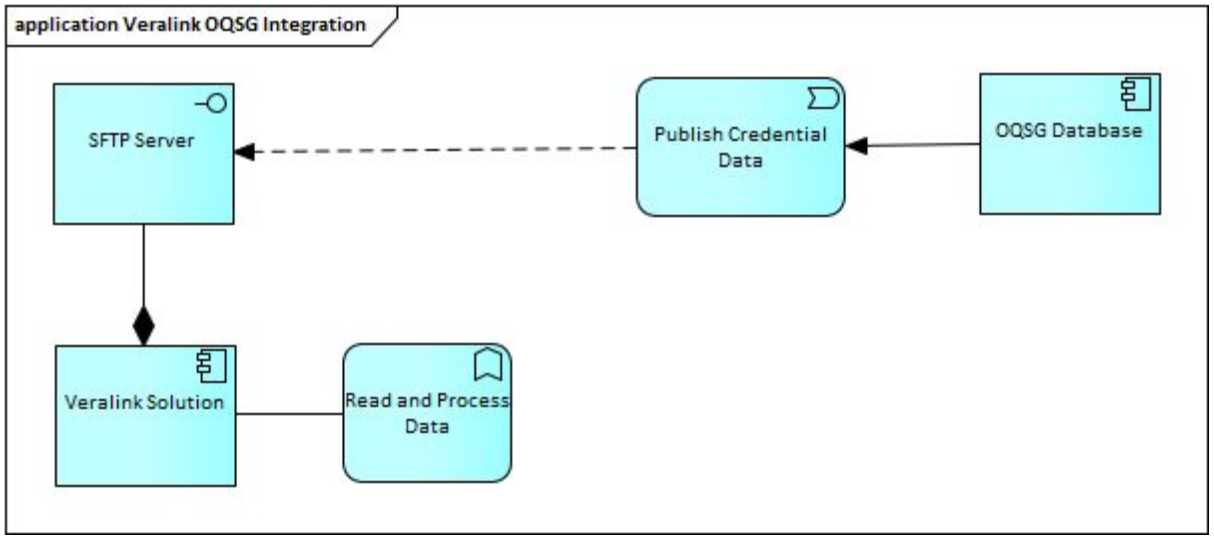
2 Application Architecture

An understanding of the Application Architecture is a key component of defining the solution and directly corresponds to the application of principles and the creation of business value

In practical terms, the Application Architecture describes a set of applications used by businesses to achieve their goals.

For the analysis, a practical approach was selected, that directly ties to existing knowledge in the teams and prefers direct applicability by the teams.

2.1 Solution Overview



- **Veralink Solution** will be responsible for creating and publishing an **SFTP Server** endpoint and providing the credentials to **OQSG Database**.
- **OQSG** will in agreed-upon time intervals publish the Credential Data in form of CSV file onto **SFTP Server** of Veralink Solution.
- **Veralink Solution** will be responsible to read and load the data and mark them as processed.

2.2 Component and Process Description

The solution will include the following component and processes.

2.2.1 SFTP Server

Veralink Solution will publish an SFTP Server endpoint conforming to the following rules:

- The endpoint will be publicly available via Internet from a selected IP ranges.
- Veralink will share the key fingerprint of the SFTP Server to OQSG.
- The endpoint will be secured using a username and user's public/private key pair that will be shared with OQSG.
- The user will be able to list all files stored within the endpoint and upload a new file to the endpoint.

2.2.2 Publishing of Credential data

OQSG database will:

- Based on time schedule create a CSV file containing the data described in data section. There will be two variants of the data input:
    - Bulk Data - this data dump will contain all the valid records, it is assumed that any previously transferred data are invalid. In this case, the file will be named OQSG_DATA_YYYYMMDD_HHMMSS.csv
    - Delta Data - this data dump contain only the changed records from previous transfer. In this case, the file will be named OQSG_DELTA_YYYYMMDD_HHMMSS.csv
- Upload the file to the SFTP Server endpoint.
- Calculate the SHA-512 hash of the file contents and upload it to the SFTP endpoint. The file name should be the same as of the hashed file, with the added extension of ".sha512" (e.g. OQSG_DELTA_20200727_123211.csv.sha512). The upload of the hash should be done only after the upload of CSV file is completed.

2.2.3 Processing of Credential data

Veralink Solution will:

- Monitor the SFTP Server endpoint in regular intervals and watch for newly uploaded files with extension ".sha512" and check the naming convention of the file.
    - If there is any file uploaded with name that is not recognized by the naming conventions, rename the file by adding the extension ".rejected".
- Check the integrity of the CSV file. If there is an error, rename the CSV file by adding the extension ".rejected".
- Download the CSV file and process the data. Once the process is completed, rename the CSV file by adding the extension ".success". If there are any errors in the process of loading the file, rename the CSV file by adding the extension ".error".

2.2.4 Data Archival

Veralink Solution will:

- Delete any processed files (extensions “.success”, “.error” or “.rejected” and the corresponding hashes) on the SFTP Endpoint no sooner than 14 days after they are uploaded.

4 Data Architecture

The Data architecture describes required data entities and attributes that are used in Application Architecture and in the enterprise.

4.1 Data Structure

WARNING - following text is a first draft of data structure and is subject to change.

The transmitted data will conform to the following structure:

Each row represents a credential verified in OQSG database.

Data field	Data Type	Comment
ID	string	Unique ID of credential
TrainingEntity_Name	string	A name of issuing training entity
TrainingEntity_Phone	string	A phone number of issuing training entity
TrainingEntity_Email	string	An email address of issuing training entity
TrainingEntity_WebPage	string	A webpage address of issuing training entity
TrainingEntity_Address	string	A mailing address of issuing training entity
ValidFrom	date	A date from which is the credential valid
ValidTo	date	A date when the validation of credential ends
IsDeleted	bool	Confirms, if the record is still in the database
Holder_FirstName	string	First name of the credential holder

Holder_MiddleName	string	The middle name of the credential holder
Holder_LastName	string	Last name of the credential holder
Holder_EmployeeID	string	Employee ID of the credential holder
Holder_CompanyID	string	Company ID of the credential holder
Holder_CompanyName	string	Company Name of the credential holder