VOTING-Services

VOTING Ausmittlung - Building Block View (en)

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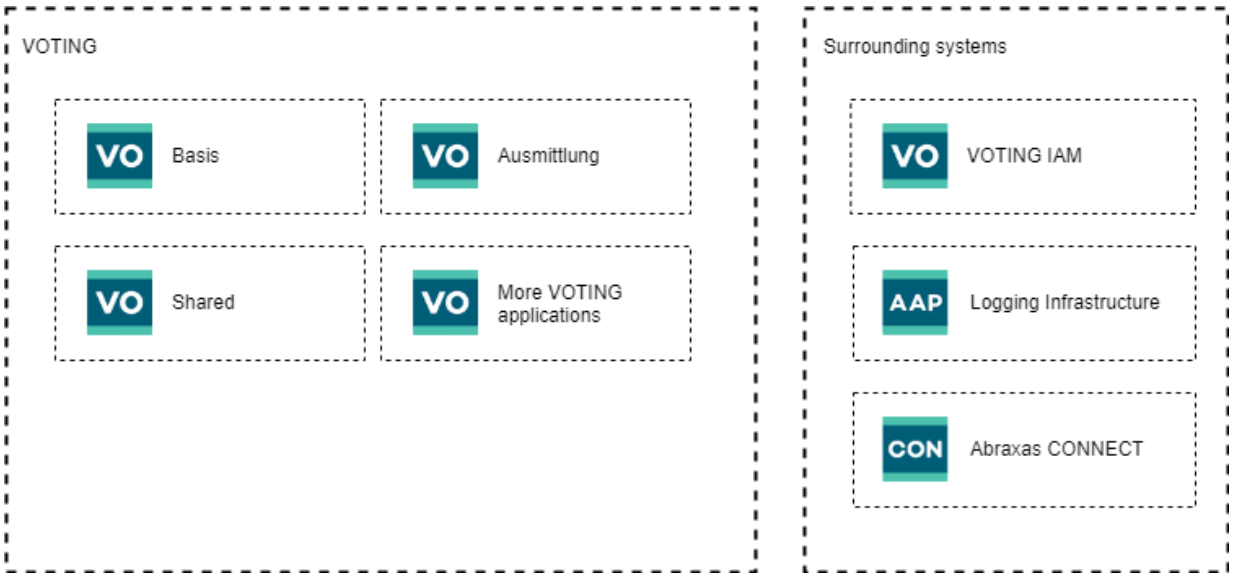
Contents

1. Level 1 overview - System view VOTING

As a level 1 overview, an illustration of the entire VOTING environment is shown. The various VOTING applications are in their own context but can also communicate with surrounding systems.

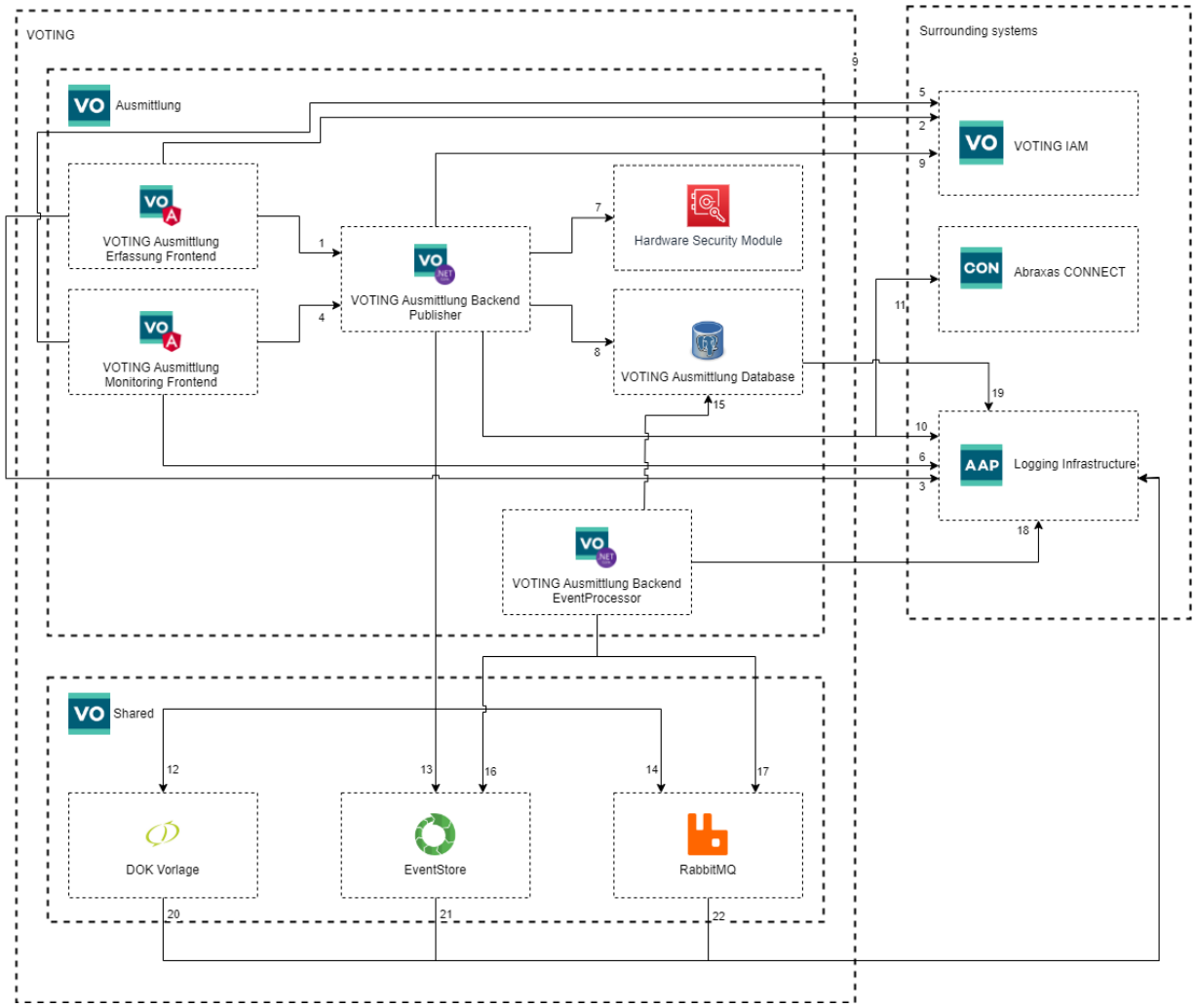


1.1 Systems

Name	Description
VOTING Basis	VOTING Basis manages the master data in the VOTING environment. This includes, for example, contests, votes and elections.
VOTING Ausmittlung	VOTING Ausmittlung is the software for aggregating the results tallied in the municipalities.
VOTING Shared	VOTING Shared contains central infrastructure components that can be used by all VOTING applications.
Other VOTING Applications	In the VOTING context there is not only VOTING Ausmittlung, but also other VOTING applications such as VOTING Basis and other applications.
VOTING IAM	VOTING IAM is the central identity provider (access system for VOTING) of Abraxas.
Logging Infrastuktur	The logging infrastructure including log monitoring and alerting.
Abraxas CONNECT	Abraxas CONNECT is a secure file transfer solution.

2. Level 2 overview - VOTING Ausmittlung (detailed view)

The Level 2 overview shows the relevant VOTING context in more detail.



2.1 Systems

Name	Description	Technologies
VOTING Ausmittlung Erfassung Frontend	Front-end/web app for the counting districts, where the results are entered.	Angular 8.2
VOTING Ausmittlung Monitoring Frontend	Front-end/web app for the supervisor authority, for control/monitoring of counts.	Angular 8.2
VOTING Ausmittlung Backend Publisher	Backend service of VOTING Ausmittlung, written in C#. "Publicly" accessible component, responsible for read and write operations.	.NET 6
VOTING Ausmittlung Backend EventProcessor	Backend service of VOTING Ausmittlung, written in C#. Internal component, responsible for event processing and preparation of the read model.	.NET 6
VOTING Ausmittlung Database	PostgreSQL database of VOTING Ausmittlung for the storage of the current data status.	PostgreSQL 11.2
HSM	Hardware Security Module for the storage of security keys.	
VOTING IAM	VOTING IAM is the central identity provider (access system for VOTING) of Abraxas.	
Logging Infrastructure	The logging infrastructure including log monitoring and alerting.	
Abraxas CONNECT	Abraxas CONNECT is a secure file transfer solution.	
RabbitMQ	RabbitMQ as message broadcaster for service-to-service communication.	RabbitMQ 3.8
EventStore	The Event Store is the central storage unit in the VOTING environment. Any changes are stored here as events.	EventStore 21.10
DOK Vorlage	Central service for the creation of reports.	

2.2 Interfaces

The interfaces show which systems communicate with each other. The direction of the arrow indicates which system is responsible for establishing the connection or is its initiator. However, the arrows do not represent the data flow.

Name	Consumer System	Source System	Data format	Protocol	Description
1	VOTING Ausmittlung Erfassung Frontend	VOTING Ausmittlung Backend Publisher	Protobuf, JSON	HTTPS	VOTING Ausmittlung Erfassung Frontend fetches and stores data via VOTING Ausmittlung backend publisher.
2	VOTING Ausmittlung Erfassung Frontend	VOTING IAM	JSON	HTTPS	VOTING Ausmittlung Erfassung Frontend requires VOTING IAM to allow users to log into the application.
3	VOTING Ausmittlung Erfassung Frontend	Logging Infrastructure	Text		The logging infrastructure reads the text-based console output (server-side only) from VOTING Ausmittlung Erfassung frontend and processes it.
4	VOTING Ausmittlung Monitoring Frontend	VOTING Ausmittlung Backend Publisher	Protobuf, JSON	HTTPS	VOTING Ausmittlung Monitoring Frontend fetches and stores data via VOTING Ausmittlung backend publisher.
5	VOTING Ausmittlung Monitoring Frontend	VOTING IAM	JSON	HTTPS	VOTING Ausmittlung Monitoring Frontend requires VOTING IAM to allow users to log into the application.
6	VOTING Ausmittlung Monitoring Frontend	Logging Infrastructure	Text		The logging infrastructure reads the text-based console output (server-side only) from VOTING Ausmittlung Monitoring frontend and processes it.
7	VOTING Ausmittlung Backend Publisher	VOTING Ausmittlung Database	binary	TCP	VOTING Ausmittlung Backend Publisher reads the read model from the database.
8	VOTING Ausmittlung Backend Publisher	HSM		PKCS #11	VOTING Ausmittlung Backend Publisher reads security keys from HSM to sign events.
9	VOTING Ausmittlung Backend Publisher	VOTING IAM	JSON	HTTPS	VOTING Ausmittlung Backend Publisher needs VOTING IAM to validate the JWT of users. Also user names as well as

Name	Consumer System	Source System	Data format	Protocol	Description
					client names are resolved via VOTING IAM.
10	VOTING Ausmittlung Backend Publisher	Logging Infrastructure	JSON		The logging infrastructure reads the console output formatted as JSON from VOTING Ausmittlung Backend publisher and processes it.
11	VOTING Ausmittlung Backend Publisher	Abraxas CONNECT	binary (files)		The VOTING Ausmittlung Backend publisher transfers generated exports to Abraxas CONNECT, so that these can be forwarded to other peripheral systems.
12	VOTING Ausmittlung Backend Publisher	DOK Vorlage	XML, PDF	HTTPS	VOTING Ausmittlung Backend Publisher generates via DOK template PDF protocols (for exports or similar)
13	VOTING Ausmittlung Backend Publisher	EventStore	Protobuf	gRPC	Any changes to the data are stored as events in the EventStore.
14	VOTING Ausmittlung Backend Publisher	RabbitMQ	binary	AMQP	RabbitMQ is used as a message-broadcaster between multiple VOTING Ausmittlung Backend instances (both Publisher and EventProcessor).
15	VOTING Ausmittlung Backend EventProcessor	VOTING Ausmittlung Database	binary	TCP	If VOTING Ausmittlung backend EventProcessor reads the events from the EventStore, it assembles a dataset and stores it in the database for read accesses.
16	VOTING Ausmittlung Backend EventProcessor	EventStore	Protobuf	gRPC	VOTING Ausmittlung Backend EventProcessor reads the events in correct order and can thus create an (almost) up-to-date data set for read accesses.
17	VOTING Ausmittlung Backend EventProcessor	RabbitMQ	binary	AMQP	RabbitMQ is used as a message-broadcaster between multiple VOTING submission backend instances (both Publisher and EventProcessor).
18	VOTING Ausmittlung	Logging Infrastructure	JSON		The logging infrastructure reads the console output formatted as JSON from

Name	Consumer System	Source System	Data format	Protocol	Description
	Backend EventProcessor				VOTING Ausmittlung Backend EventProcessor and processes it.
19	VOTING Ausmittlung Database	Logging Infrastructure	Text		The logging infrastructure reads the text-based console output from VOTING Ausmittlung database and processes it.
20	DOK Vorlage	Logging Infrastructure	Text		The logging infrastructure reads the text-based console output from DOK template and processes it.
21	EventStore	Logging Infrastructure	Text		The logging infrastructure reads the text-based console output from EventStore and processes it.
22	RabbitMQ	Logging Infrastructure	Text		The logging infrastructure reads the text-based console output from RabbitMQ and processes it.

3. Data flow

The level 2 building block view is used to show the data flow between the components. The communication flows (C) represent the data flow between the systems. The direction of the arrow indicates from which source system data is transferred to the target system.