

OVON Synthesis

1/3/2023

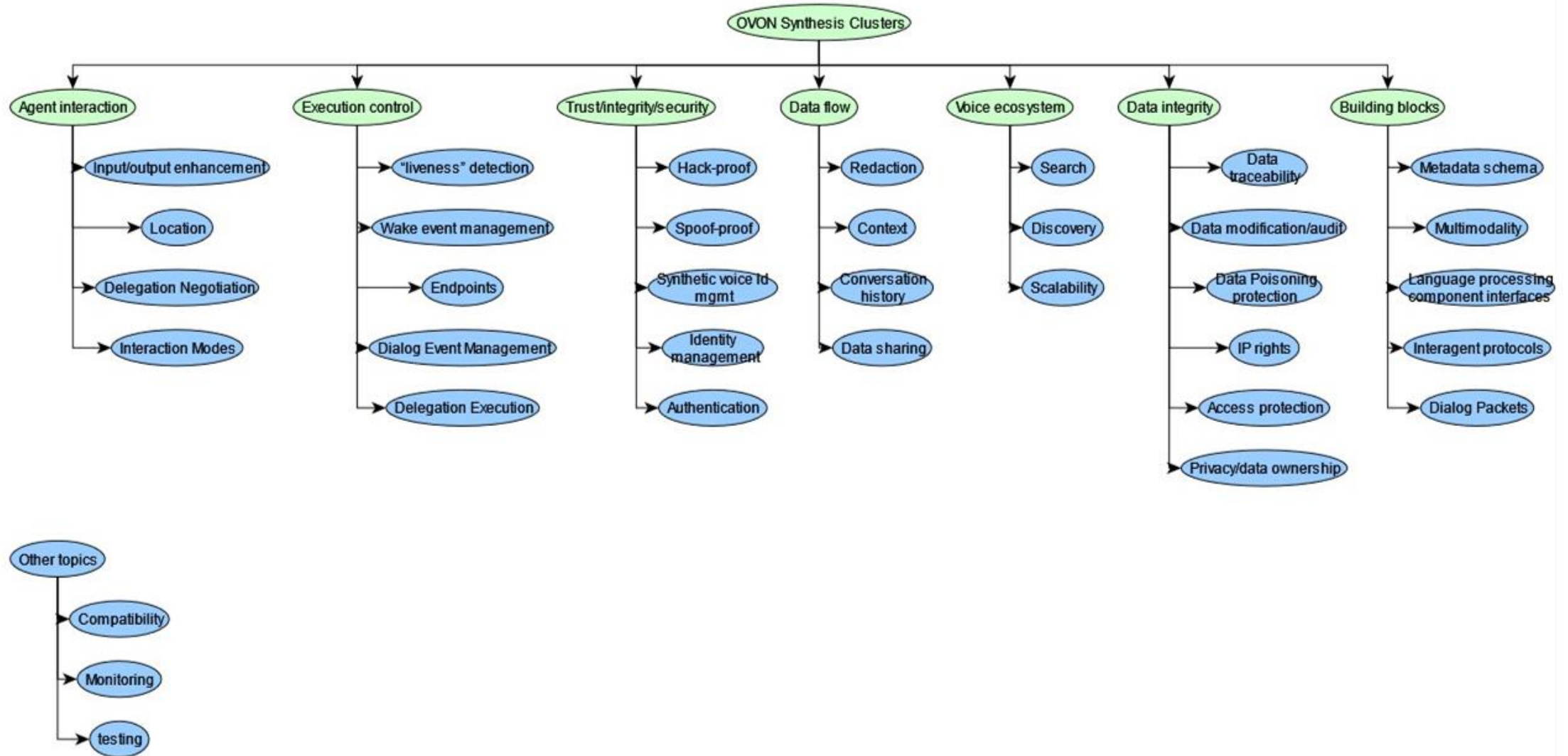
Purpose and Scope

- This document compiles and summarizes the OVON Architecture Synthesis analysis that was performed from November 29 through December 13, 2022.
- This Synthesis identifies all the **technical** focus items pertaining to OVON and relationships between those items, along with proposals for next steps.
- The resulting clustering of technical focus items has been aligned solely for architectural coherence and does not represent organizational or management recommendations.
- No significance should be inferred from the order of presentation of focus items within each cluster.

Lexicon notes

- Usage of OVON terms is intended to be consistent with the Glossary presented in the Architecture White Papers.
- In particular, the terms *Assistant* and *Agent* have been used interchangeably.

Synthesis Clusters



Top-level Clusters

Cluster Name	Cluster Purpose/Description
Agent Interaction	Define the mechanisms for Agents to enter into collaboration
Execution Control	Define the mechanisms for managing Agent collaboration and individual dialogs
Trust/Integrity	Define the mechanisms for ensuring that Agent collaboration is trustworthy (see also Data integrity below)
Data Flow	Define the mechanisms for supplying data in support of Agent collaboration
Data Integrity	Define the mechanisms for ensuring that Agent use of data is trustworthy
Building Blocks	Define fundamental architectural elements that may be used by multiple clusters
Voice Ecosystem	Define desirable attributes/capabilities of the Voice universe

Cluster – Agent Interaction

Focus Item Name	Focus Item Purpose/Description
Interaction Modes	Define fundamental patterns of Agent-to-Agent cooperation
Delegation Negotiation	Describe how Agent A comes to an agreement with Agent B about whether Agent B can assist it with a conversation. [See also Delegation Execution in the Execution Control cluster.]
Location	Define mechanisms for Agents to find and connect with each other. [See also Discovery in the Voice Ecosystem cluster.]
Input/output enhancement	Define mechanisms for automated modification of input and output streams to adapt to user needs

Cluster – Execution Control

Focus Item Name	Focus Item Purpose/Description
Delegation Execution	Define mechanisms for how Agent A passes control of a conversation to Agent B. [See also Delegation Negotiation in the Agent Interaction cluster.]
Dialog Event Management	Define protocols for handling normal and “abnormal” execution (interruptions, errors, abort, cancel, undo, “go back”, etc.)
Endpoints	Describe how Endpoints function, what they consist of (characteristics, attributes, capabilities, ...)
Wake event management	Define mechanisms for determining when to accept or ignore user input [is this within OVON scope?]
“liveness” detection [we may need a better name]	Define mechanisms for determining if a particular voice assistant is available and functional. [Not to be confused with determining if a dialog participant is a human or virtual, see Synthetic voice id/mgt in the Trust cluster.]

Cluster – “Trust/Integrity/Security” (execution context)

Focus Item Name	Focus Item Purpose/Description
Authentication	Define mechanisms for verifying that a user and/or an agent are who they claim to be
Identity Management	Define mechanisms for determining the veritable identity of a user and/or an agent
Synthetic voice id/mgt + “Spoof-proof”	Define mechanisms for determining whether an utterance is authentic or synthesized Define mechanisms for ensuring that a synthetic voice is authorized to act on behalf of a user and not usurping the user’s identity
“Hack-proof”	Define mechanisms for preventing malicious attacks on Agent collaboration [see also Data Poisoning in the Data Integrity cluster.]

Cluster – Data Flow (independent of content)

Focus Item Name	Focus Item Purpose/Description
Context	Define mechanisms for an Agent to inform other agent about the user and a specific request Includes: Conversation history User data +Etc
Redaction	Define mechanisms for applying Privacy constraints to Data Flow

Cluster – Data Integrity

Focus Item Name	Focus Item Purpose/Description
Privacy / Data Ownership	Define mechanisms for respect and protection of data ownership rights for both individual and organizational data (extensive list)
Access Protection	Define mechanisms for determining whether an assistant has the right to access a particular data item in compliance with relevant regulations
IP rights	Define mechanisms for compliance with respect of relevant regulations pertaining to commercial data ownership
Data Poisoning protection	Define mechanisms for preventing malicious attacks on user and assistant data [see also Hack-proof in the Trust/Integrity cluster.]
Data modification / audit	Define mechanisms for tracking data changes – ensuring that data is not altered without the user’s knowledge and consent and ensuring that change histories can be audited
Data traceability	Define mechanisms for tracing the path and history of data through the system

Cluster – Building Blocks

Focus Item Name	Focus Item Purpose/Description
Dialog Packets	Define representations of user utterances/inputs for exchange between agents
Interagent Protocols	Define mechanisms for Agents to communicate with each other [irrespective of the semantic content]
Data Packets	Define representations of data for exchange between agents [irrespective of the semantic content]
Language Processing Component Interfaces (between components)	Define mechanisms for discrete processing components to communicate with each other or be replaced with a new component
Multimodality	Define mechanisms to collect and integrate modal data from multiple sources, input and output
Metadata Schema	Define the elements used for voice components to communicate with each other, including technical definition and glossary. This may be based on an existing metadata standard or schema

Cluster – Voice Ecosystem

Focus Item Name	Focus Item Purpose/Description
Discovery	Define mechanisms for content providers to reach users who might not be aware of them [see also Search below]
Search	Define mechanisms to find and propose one or more responses or sources of response to a user request [see also Discovery above]
Scalability	Define mechanisms to seamlessly handle a growing amount of work by adding resources to the system

Other topics collected but not part of Synthesis

Focus Item Name	Focus Item Purpose/Description
Testing	Define mechanisms for allowing voice component developers to test their compliance to OVON standards and guidelines
Monitoring	Define mechanisms for real-time monitoring of adherence to OVON Guidelines and Policies
Compatibility	Define guidelines for how components should function when interacting with previous versions of implemented standards [if such a condition might exist]