Architecture for Real-Time Application of Knowledge Artifacts

Context Event Service

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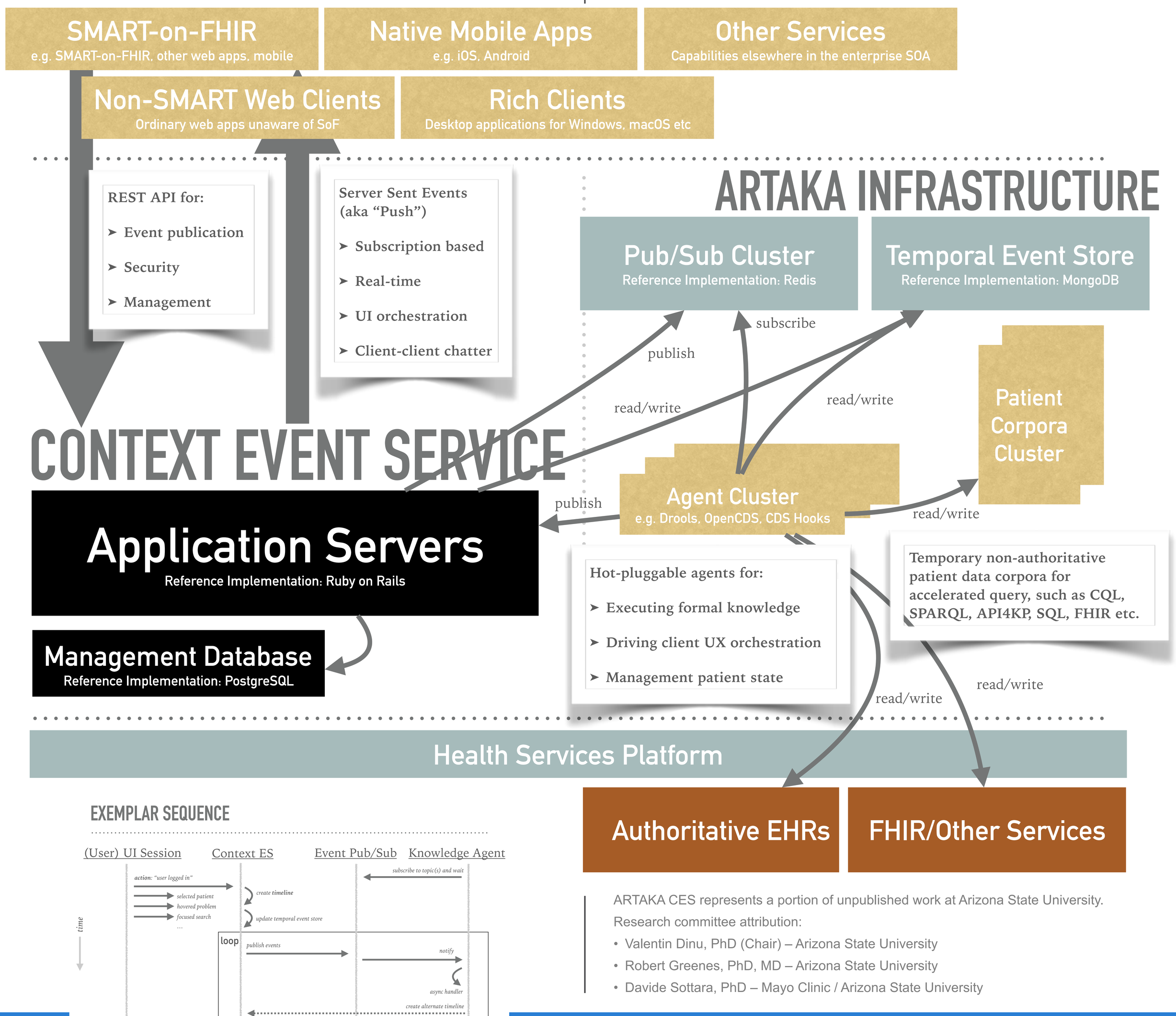
ARTAKA, the Architecture for Real-Time Application of Knowledge Artifacts, introduces a concrete technological blueprint for both provider heath IT and vendor organizations to incrementally introduce knowledge-based support artifacts into running production applications dynamically. This is made possible by serviceization of curated knowledge, then injected into a highly scalable backend infrastructure by automated orchestration. Knowledge compilation is defined as platform specific to permit vendor flexibility, in so far as implementations comply with ARTAKA's event communication and Health Service Platform packaging standards. Executable knowledge artifacts compatible with ARTAKA are a type of "agent" operating autonomously in *either* a stateless or stateful manner. CES utilizes Server Sent Events (SSE) for push messaging to client applications, and traditional REST for event publication and system management.

ARTAKA Context Event Service (CES) provides the glue for dynamic binding of client applications to knowledge-based backend infrastructure. This single mechanism is used to support intelligent orchestration of application experiences, as well as management of patient state when controlled by multiple disjoint client applications concurrently.

CES is the primary means by which *all* client applications – SMART-on-FHIR, non-FHIR, mobile, rich, systems, and others -- interface with running knowledge agents by means of brokering "context events": discrete, atomic topical occurrences by either a human or system actor on a real-world or simulated "timeline". CES allows for concurrent brokering of events amongst different user sessions, agents, and even completely unrelated applications manipulating shared data models, all on different development cycles and release timelines. This decoupling allows pluggable backend services to indirectly drive user experience without any tight coupling between client software and backend agents.



EXEMPLAR SEQUENCE

ARTAKA CES represents a portion of unpublished work at Arizona State University.

Research committee attribution:

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- Robert Greenes, PhD, MD – Arizona State University
- Davide Sottara, PhD – Mayo Clinic / Arizona State University

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