

Platform Concept & Architecture

PSCE Conference

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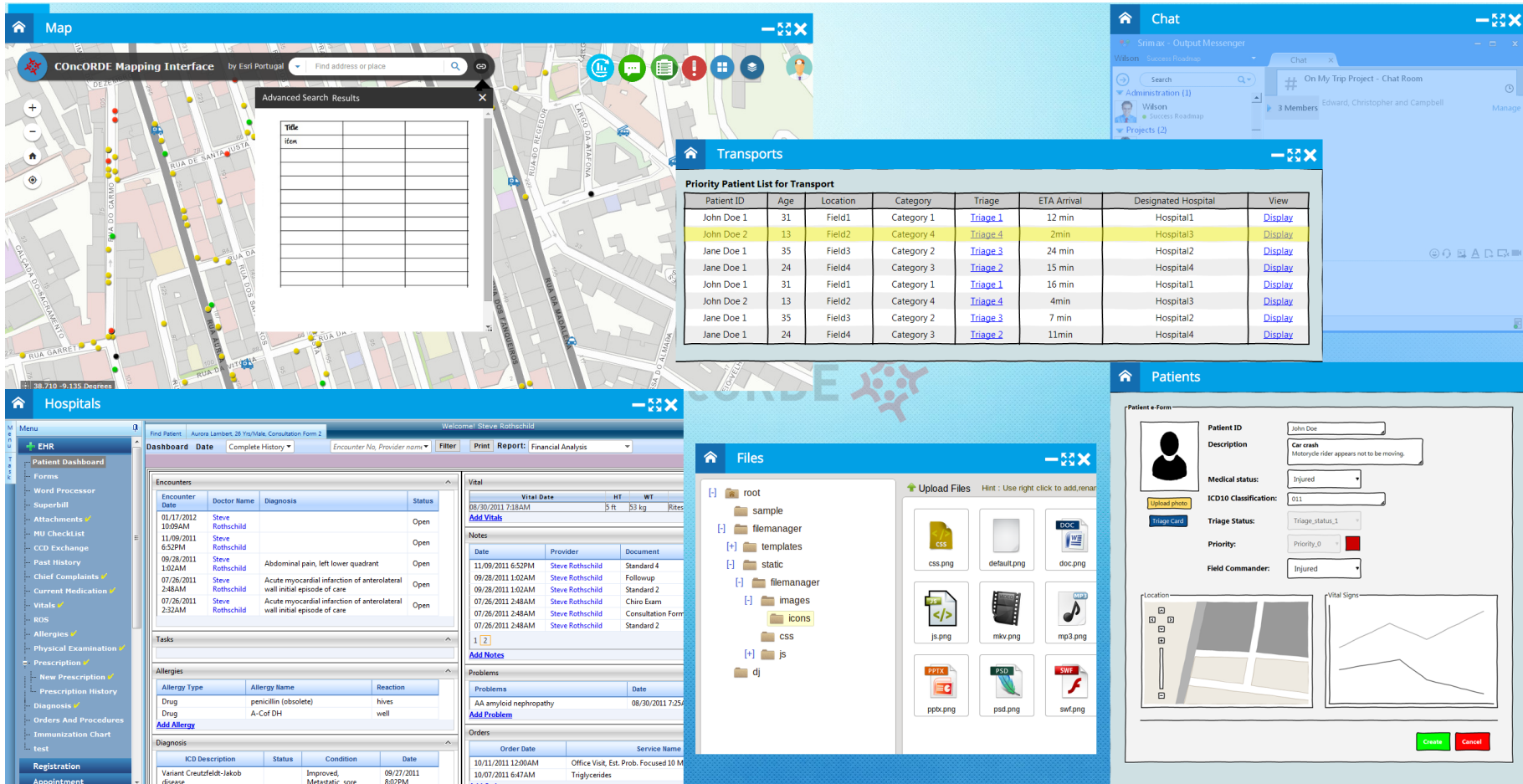
This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no. 607814 "COncORDE".



Platform Concept

- The concept of Web Desktop
 - Easy access from anywhere through the web interface
 - Real-time collaboration platform
- The concept of Live Integration Environment
 - Virtual communities define workspaces for members to use services/ applications that facilitate interaction and processing of content
 - Instant notifications, content sharing, easy interaction through direct messaging (Live)
- The generic and custom applications and components
 - User management, access rights, ... (generic)
 - Patient Triage Application
 - Integration through a well-defined API
 - Support for any web-accessible application

Platform Screens



The screenshot displays the COncORDE platform interface, which is divided into several main sections:

- Map:** A map view showing a street grid with an "Advanced Search Results" window overlaid. The search results table is empty.
- Transports:** A table titled "Priority Patient List for Transport" with the following data:

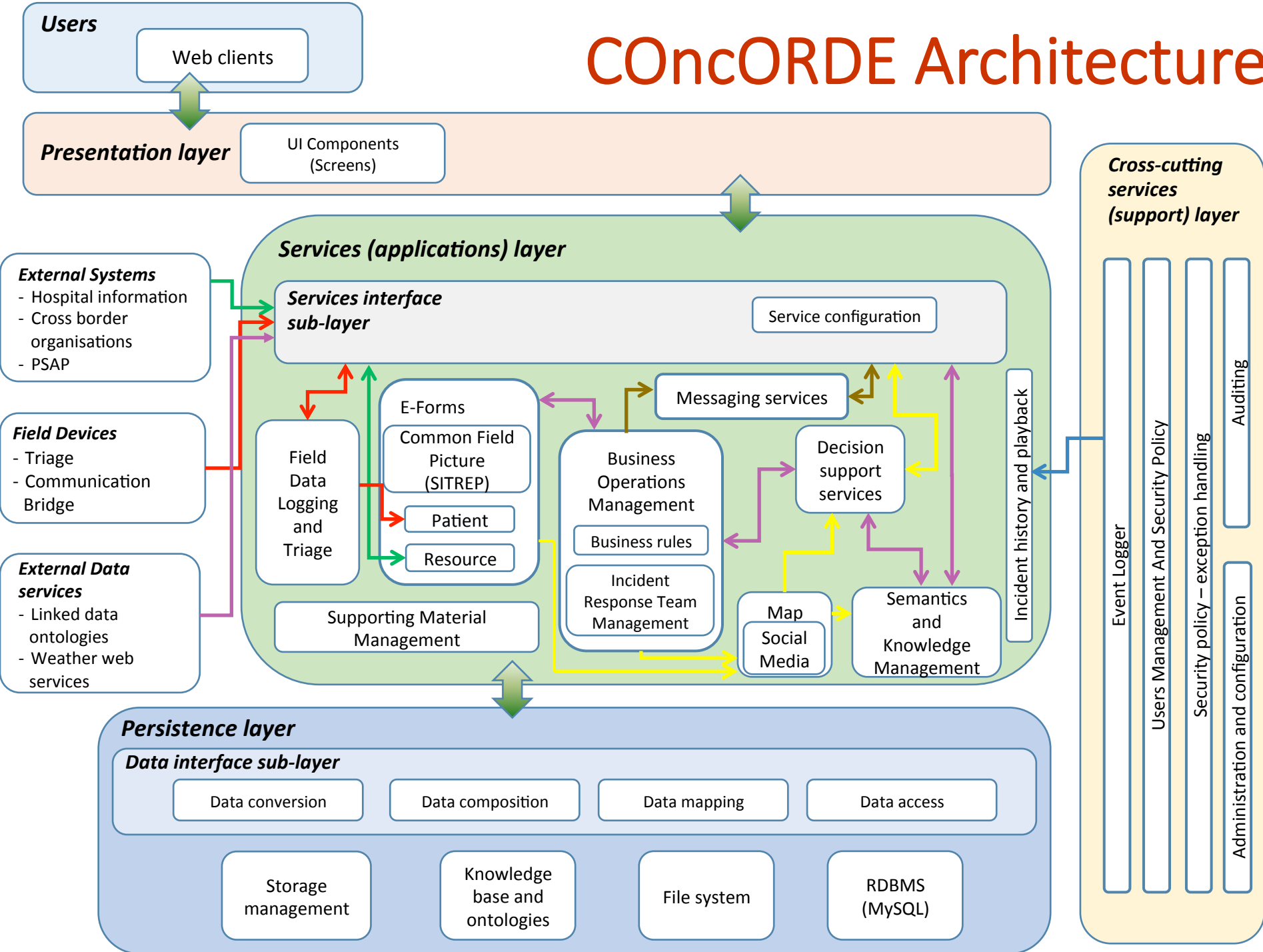
Patient ID	Age	Location	Category	Triage	ETA Arrival	Designated Hospital	View
John Doe 1	31	Field1	Category 1	Triage 1	12 min	Hospital1	Display
John Doe 2	13	Field2	Category 4	Triage 4	2min	Hospital3	Display
Jane Doe 1	35	Field3	Category 2	Triage 3	24 min	Hospital2	Display
Jane Doe 1	24	Field4	Category 3	Triage 2	15 min	Hospital4	Display
John Doe 1	31	Field1	Category 1	Triage 1	16 min	Hospital1	Display
John Doe 2	13	Field2	Category 4	Triage 4	4min	Hospital3	Display
Jane Doe 1	35	Field3	Category 2	Triage 3	7 min	Hospital2	Display
Jane Doe 1	24	Field4	Category 3	Triage 2	11min	Hospital4	Display
- Patients:** A form titled "Patient e-Form" for "Auroa Lambert, 26 Yrs/Male, Consultation Form 2". It includes fields for Patient ID (John Doe), Description (Car crash), Medical status (Injured), ICD10 Classification (011), Triage Status (Triage_status_1), Priority (Priority_0), and Field Commander (Injured). There is also a "Location" map and a "Vital Signs" graph.
- Files:** A file manager interface showing a directory structure with folders like "sample", "filemanager", "templates", "static", "filemanager", "images", "icons", "css", "js", and "dj". It also features an "Upload Files" section with various file icons.
- Hospitals:** A detailed patient record for "Auroa Lambert, 26 Yrs/Male, Consultation Form 2". It includes a "Dashboard" with "Encounters", "Vitals", "Notes", "Problems", and "Orders". The "Encounters" table shows:

Encounter Date	Doctor Name	Diagnosis	Status
01/17/2012 10:09AM	Steve Rothschid		Open
11/09/2011 6:52PM	Steve Rothschid	Abdominal pain, left lower quadrant	Open
09/28/2011 1:02AM	Steve Rothschid	Acute myocardial infarction of anterolateral wall initial episode of care	Open
07/26/2011 2:48AM	Steve Rothschid	Acute myocardial infarction of anterolateral wall initial episode of care	Open

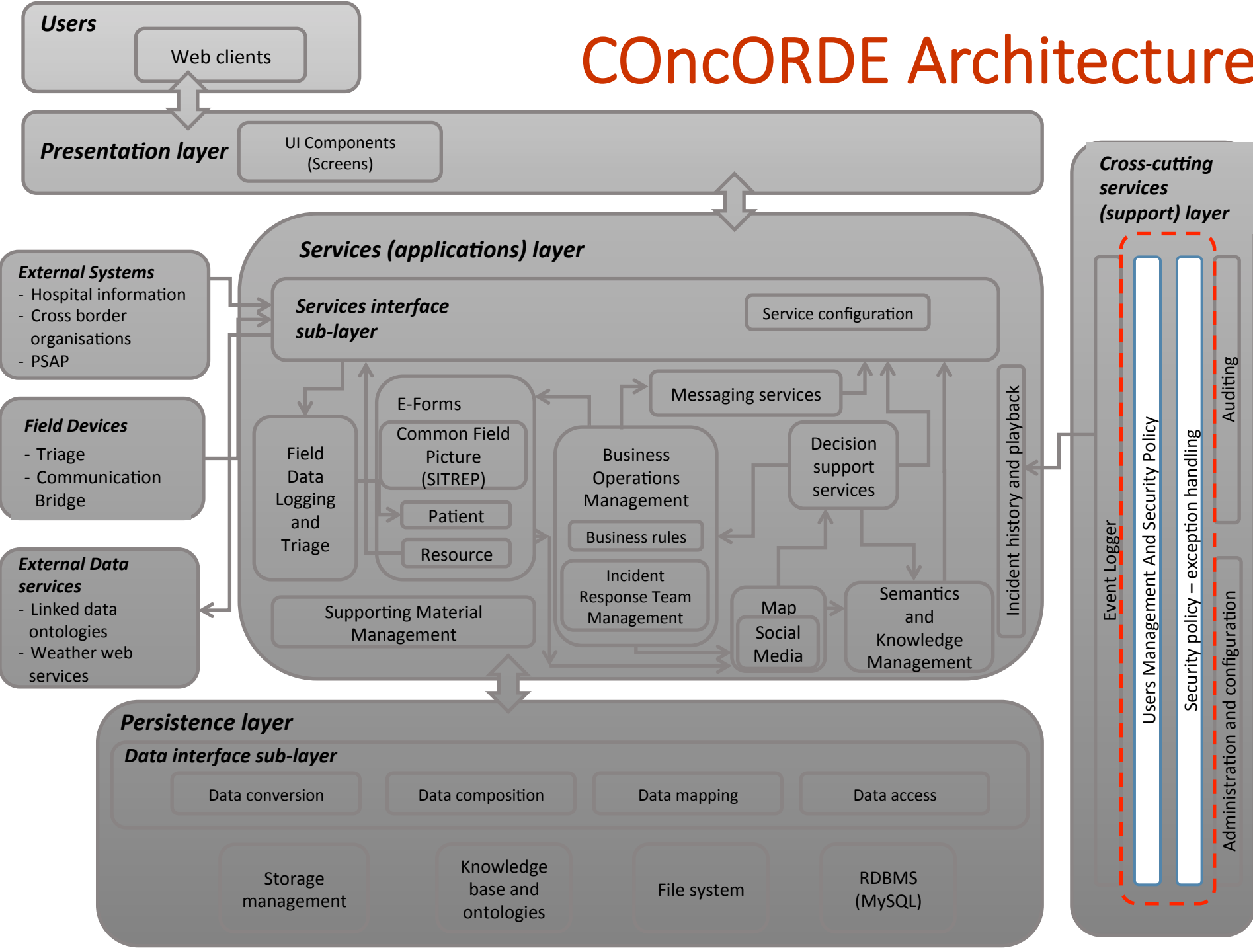
Platform technical characteristics

- Modern Web 2.0 web application
 - Open Source Software
- Full solution based on Java, Javascript
- RDBMS support (MySQL, PostgreSQL, MariaDB)
 - Hibernate (open source *Java* persistence framework)
- High-level API

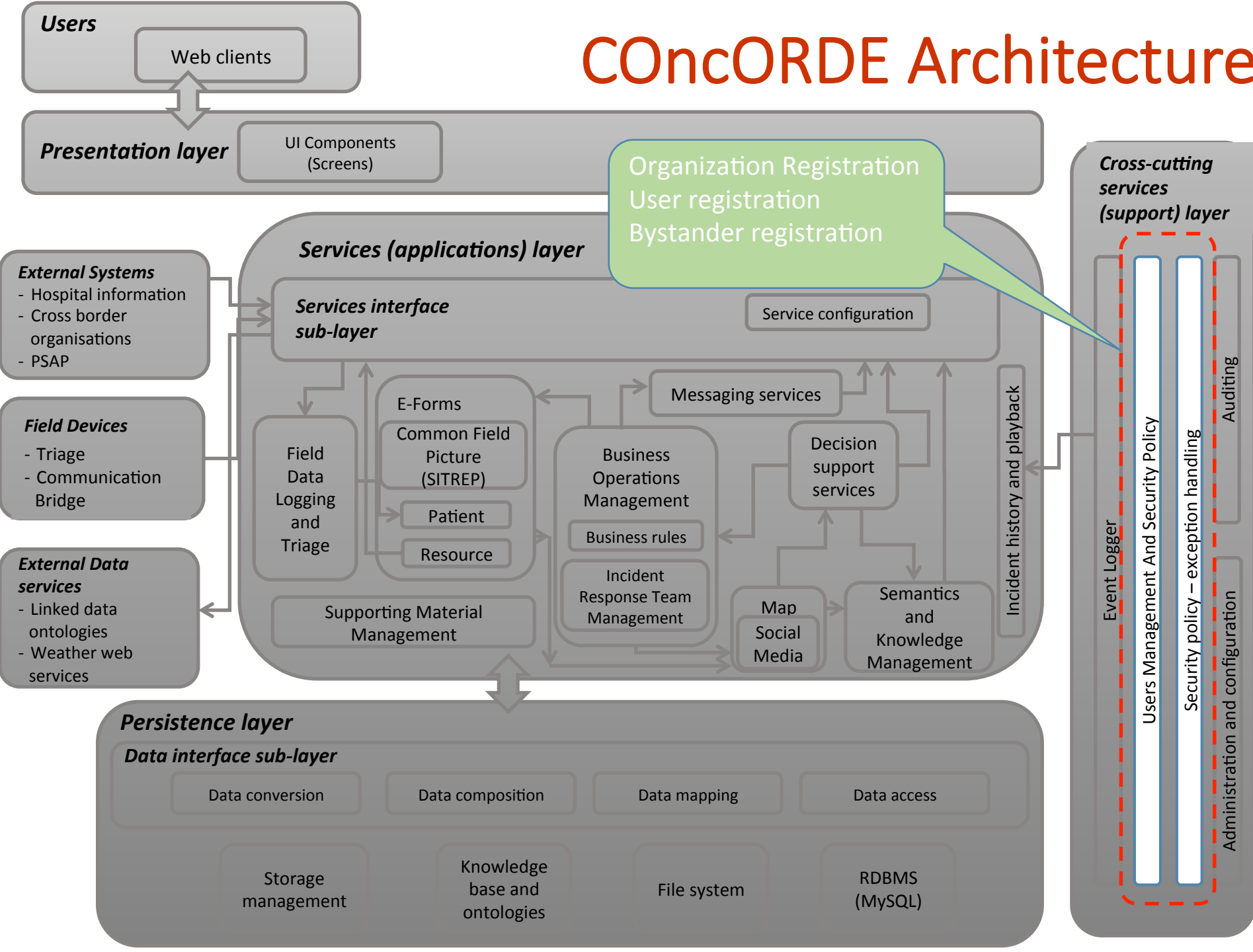
COncORDE Architecture



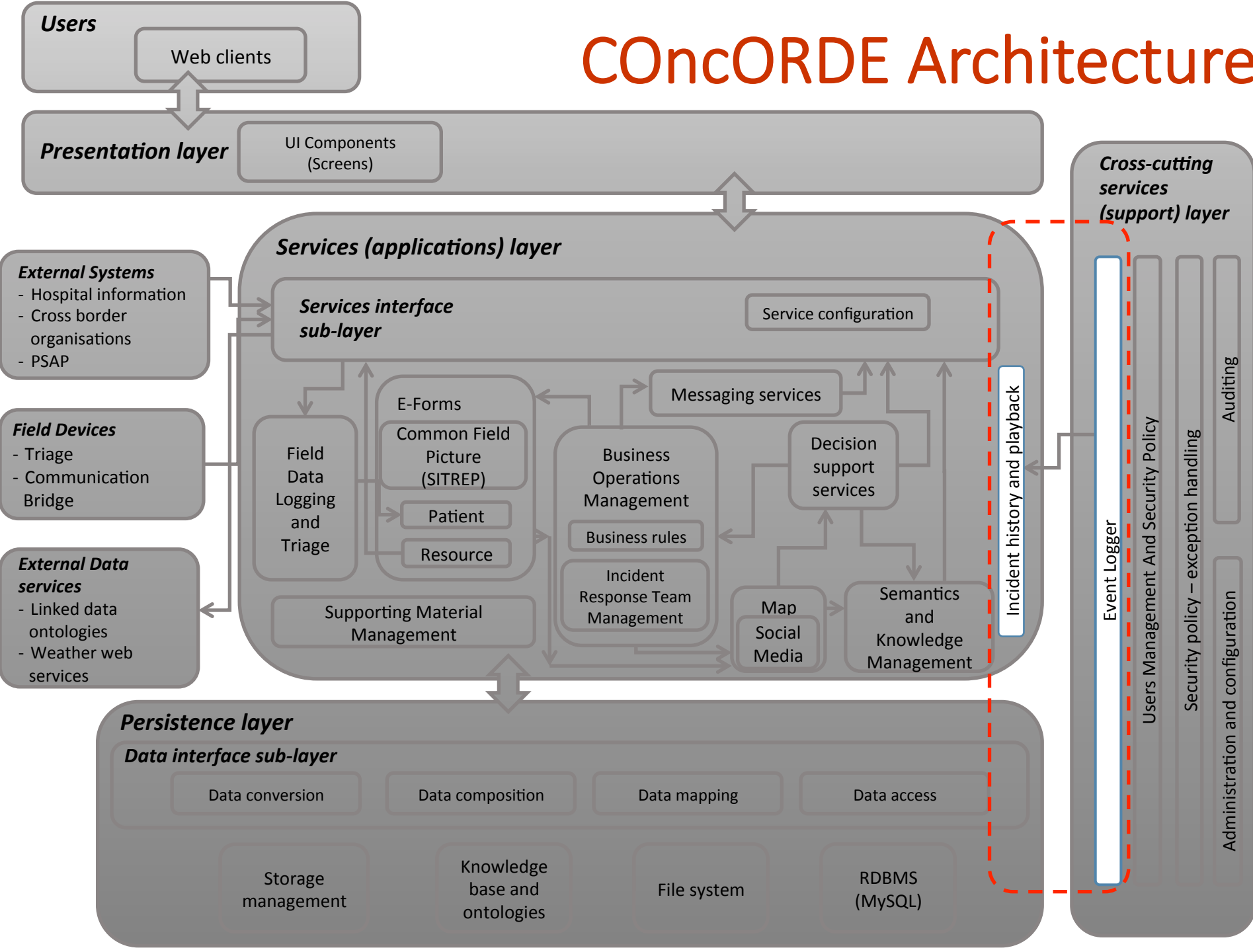
COncORDE Architecture



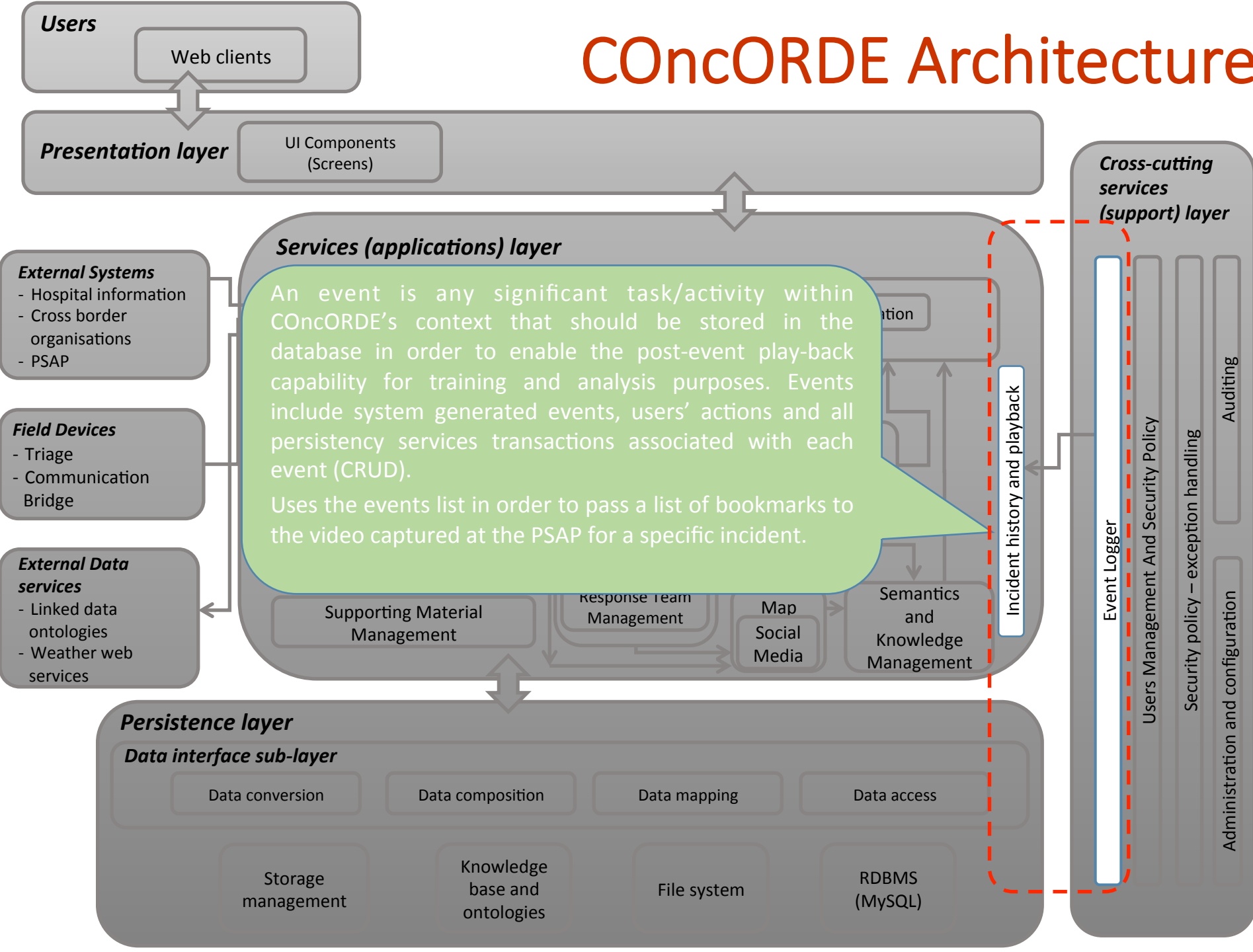
COncORDE Architecture



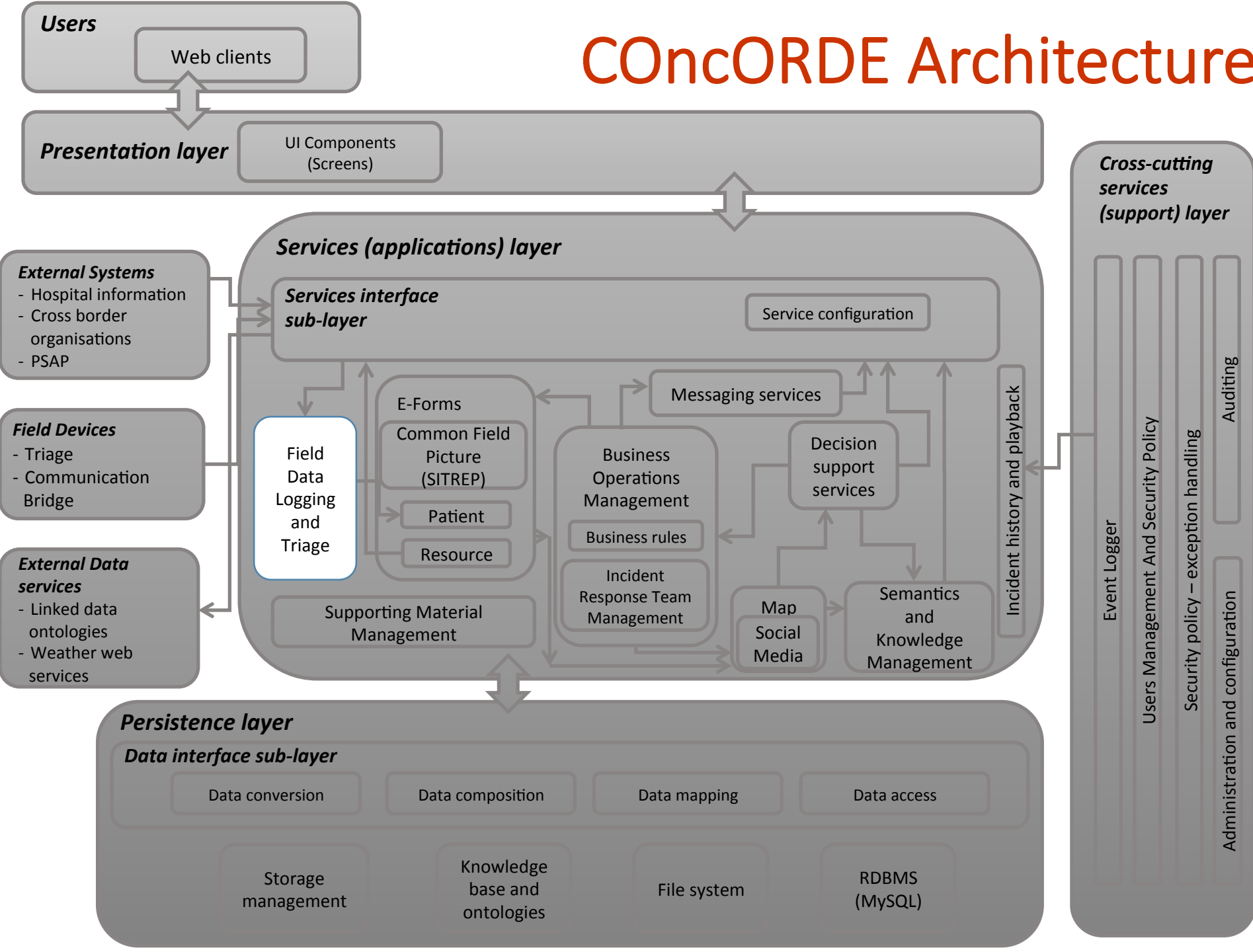
COncORDE Architecture



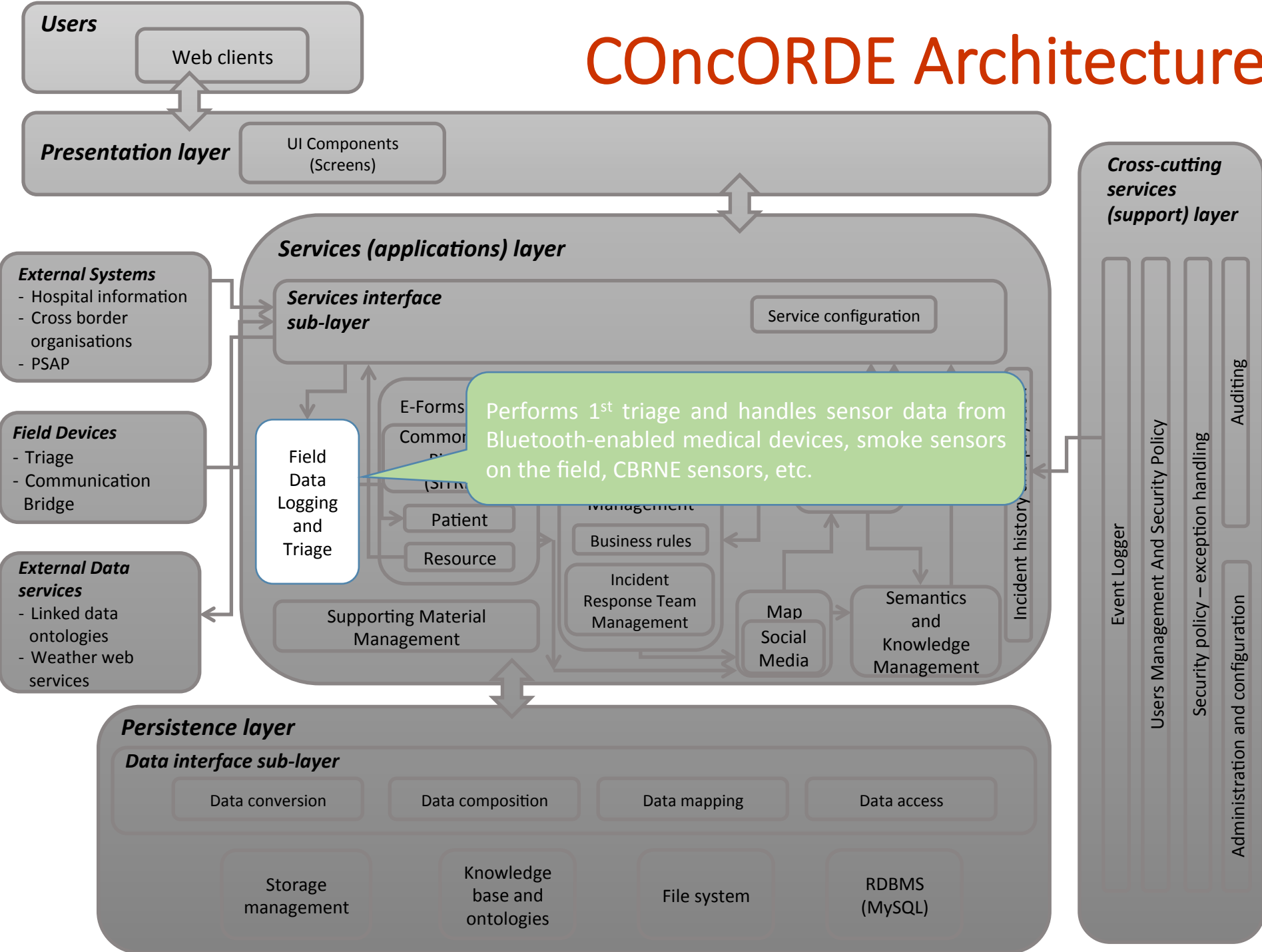
COncORDE Architecture



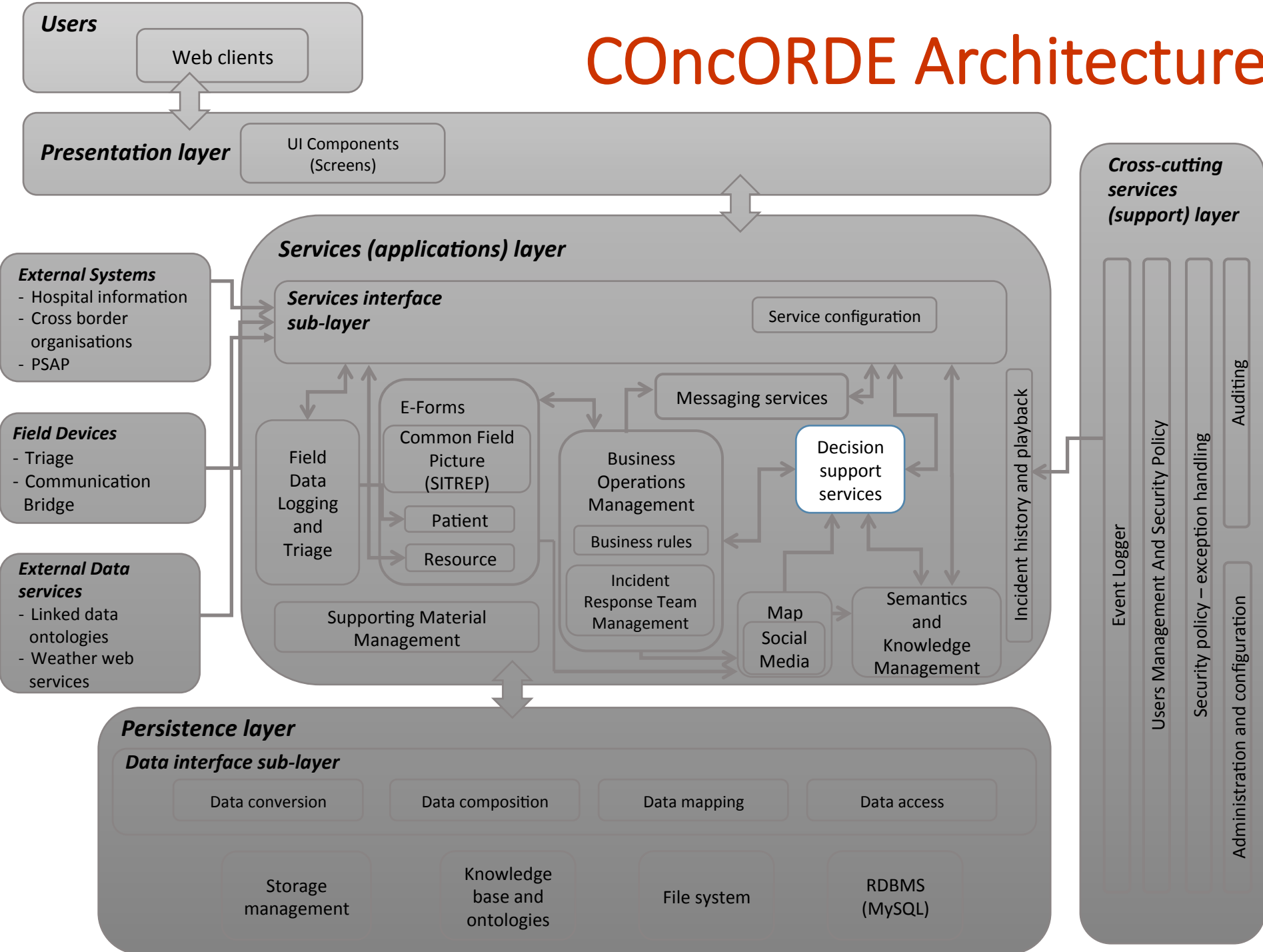
COncORDE Architecture



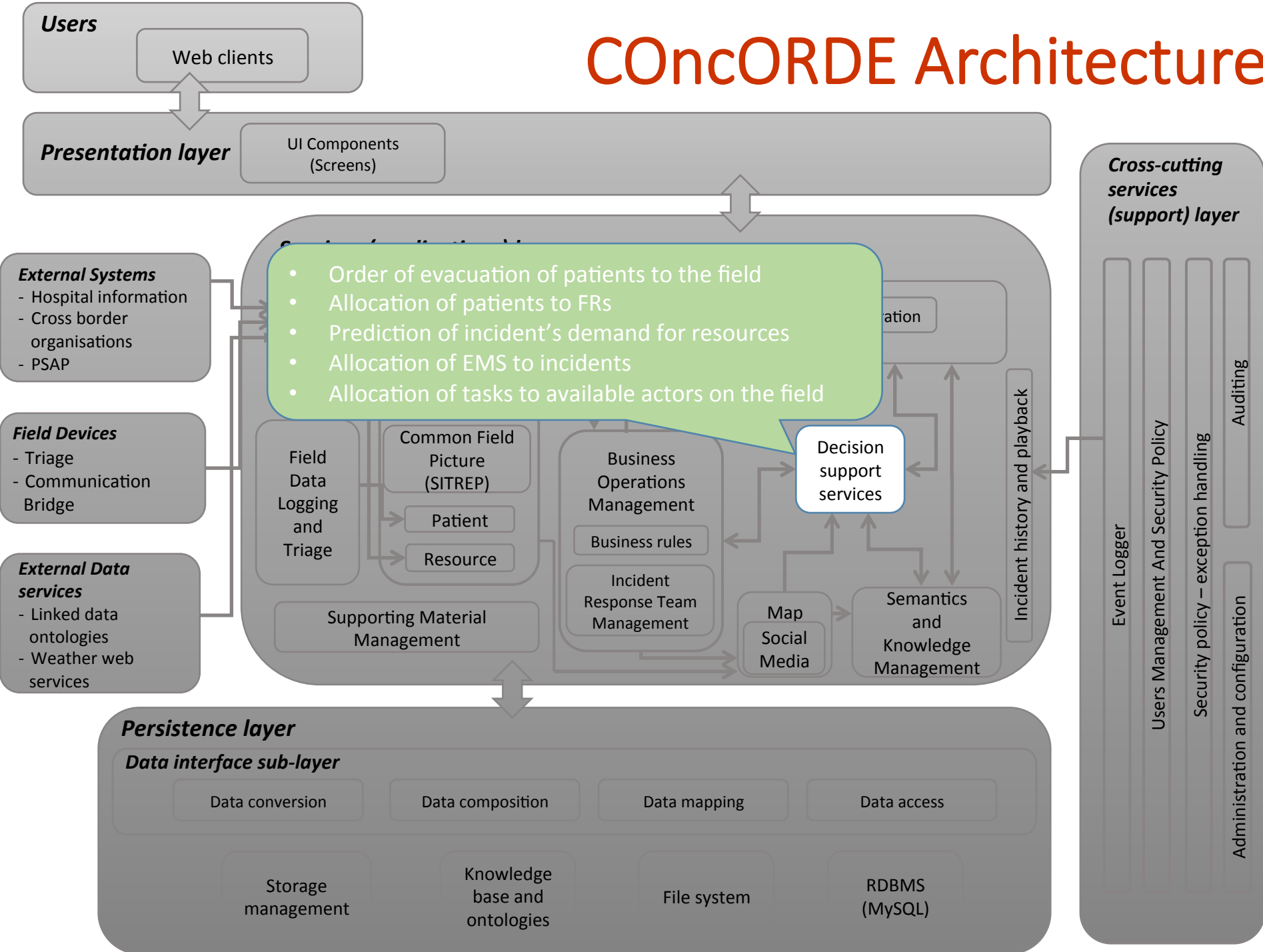
COncORDE Architecture



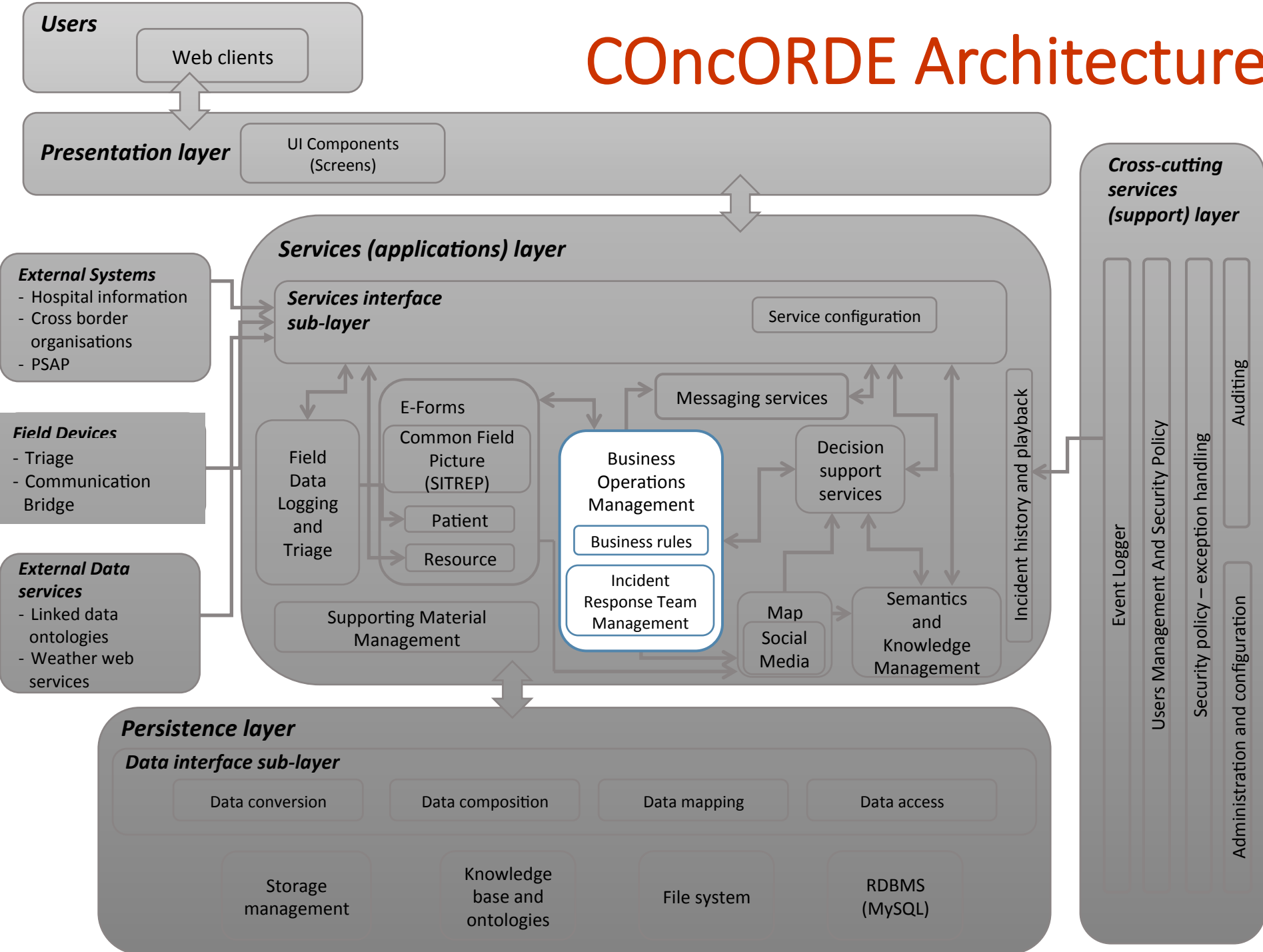
COncORDE Architecture



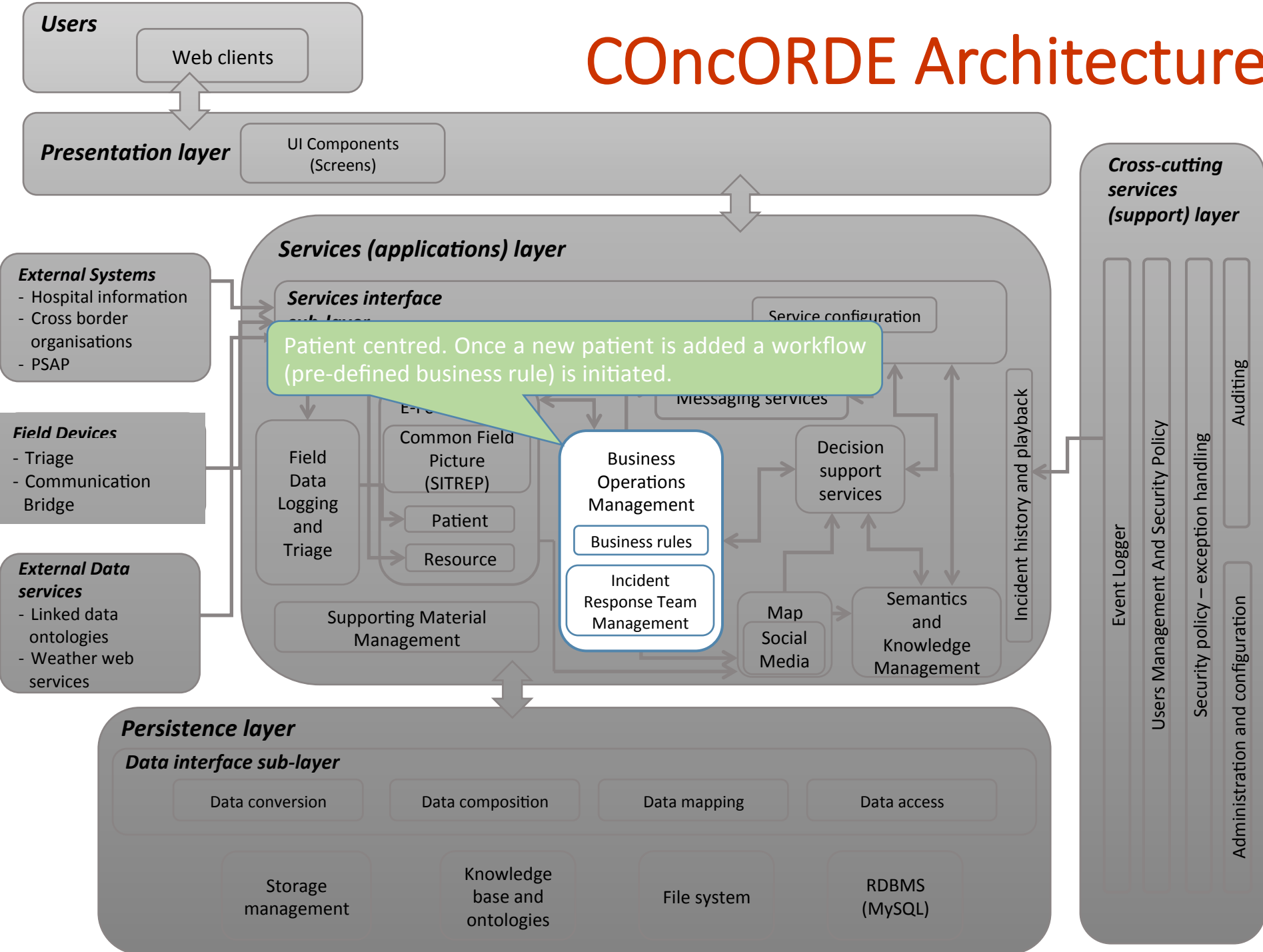
COncORDE Architecture



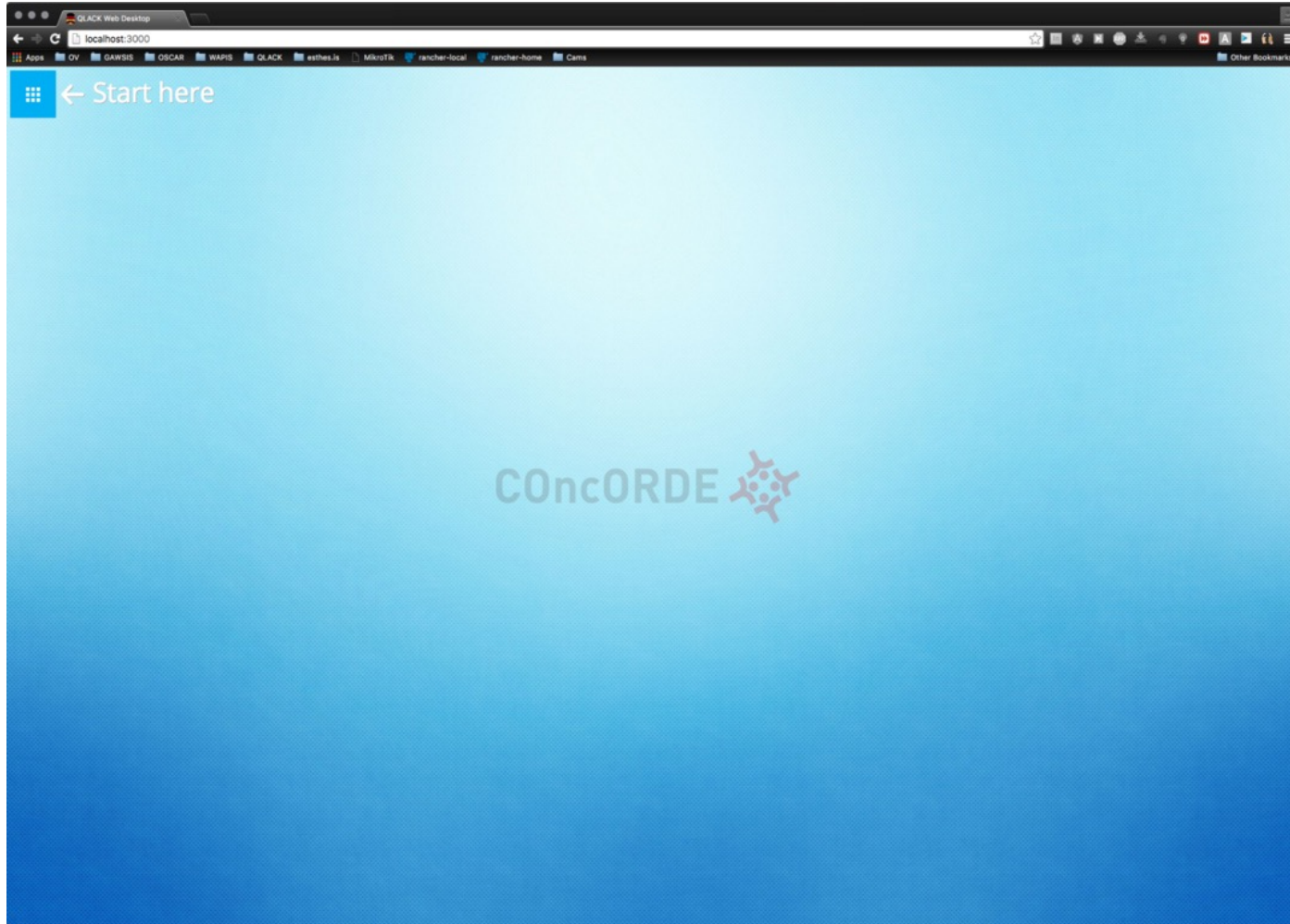
COncORDE Architecture



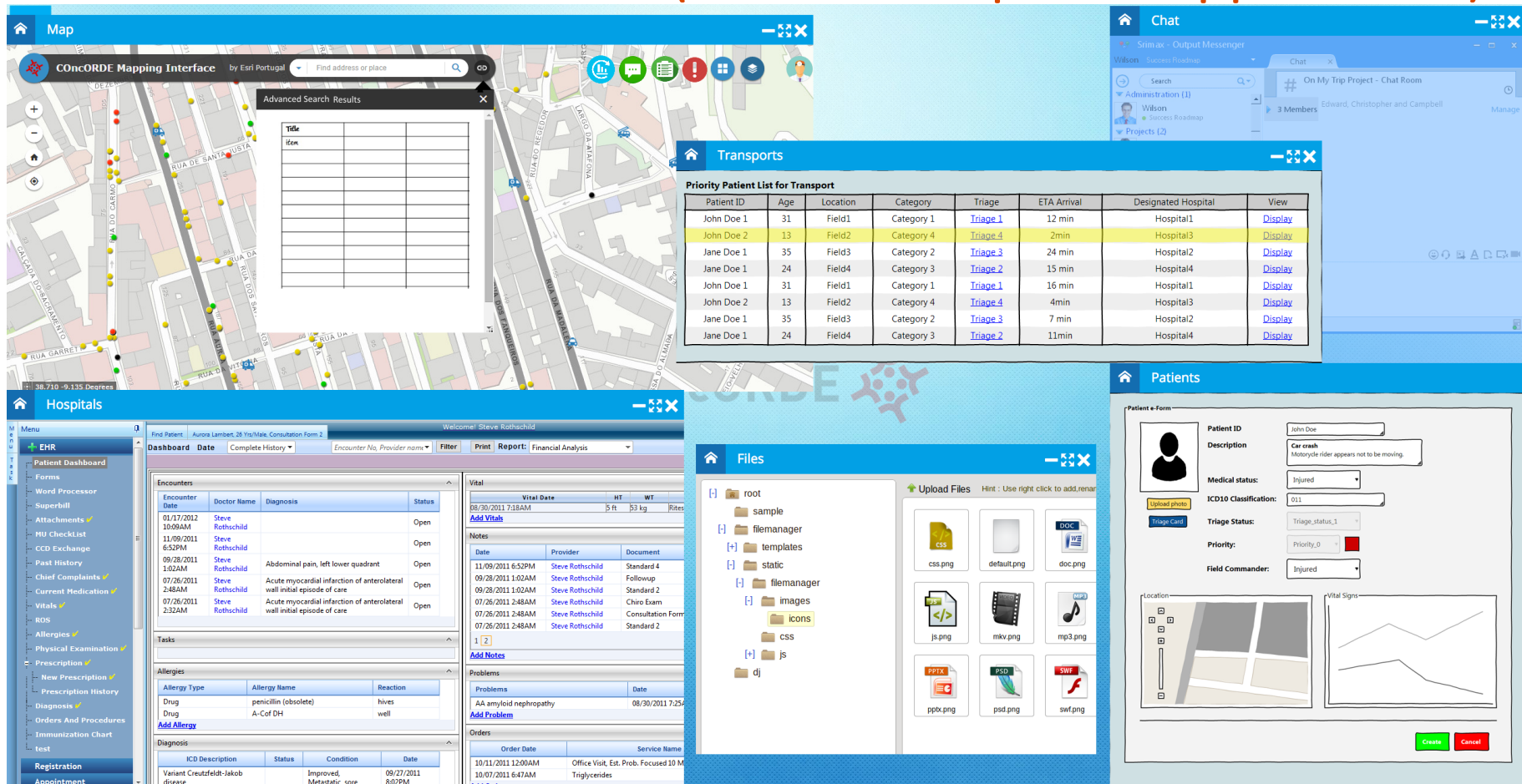
COncORDE Architecture



Platform Screens (Web Desktop)



Platform Screens (Web Desktop with Applications)



The screenshot displays a web desktop environment with several application windows:

- Map:** COncORDE Mapping Interface by Esri Portugal. Includes a search bar and an "Advanced Search Results" table.
- Transports:** Priority Patient List for Transport table.
- Patients:** Patient e-Form with fields for Patient ID, Description, Medical status, ICD10 Classification, Triage Status, Priority, and Field Commander.
- Hospitals:** EHR dashboard for patient Aurora Lambert, 26 Yrs/Male, Consultation Form 2. Includes sections for Encounters, Vital, Notes, Problems, and Orders.
- Files:** File manager showing a directory structure and a list of uploadable files.
- Chat:** Srimax - Output Messenger chat window.

Patient ID	Age	Location	Category	Triage	ETA Arrival	Designated Hospital	View
John Doe 1	31	Field1	Category 1	Triage 1	12 min	Hospital1	Display
John Doe 2	13	Field2	Category 4	Triage 4	2min	Hospital3	Display
Jane Doe 1	35	Field3	Category 2	Triage 3	24 min	Hospital2	Display
Jane Doe 1	24	Field4	Category 3	Triage 2	15 min	Hospital4	Display
John Doe 1	31	Field1	Category 1	Triage 1	16 min	Hospital1	Display
John Doe 2	13	Field2	Category 4	Triage 4	4min	Hospital3	Display
Jane Doe 1	35	Field3	Category 2	Triage 3	7 min	Hospital2	Display
Jane Doe 1	24	Field4	Category 3	Triage 2	11min	Hospital4	Display

Title	Item

Encounter Date	Doctor Name	Diagnosis	Status
01/17/2012 10:09AM	Steve Rothschild		Open
11/09/2011 6:52PM	Steve Rothschild		Open
09/28/2011 1:02AM	Steve Rothschild	Abdominal pain, left lower quadrant	Open
07/26/2011 2:48AM	Steve Rothschild	Acute myocardial infarction of anterolateral wall initial episode of care	Open
07/26/2011 2:32AM	Steve Rothschild	Acute myocardial infarction of anterolateral wall initial episode of care	Open

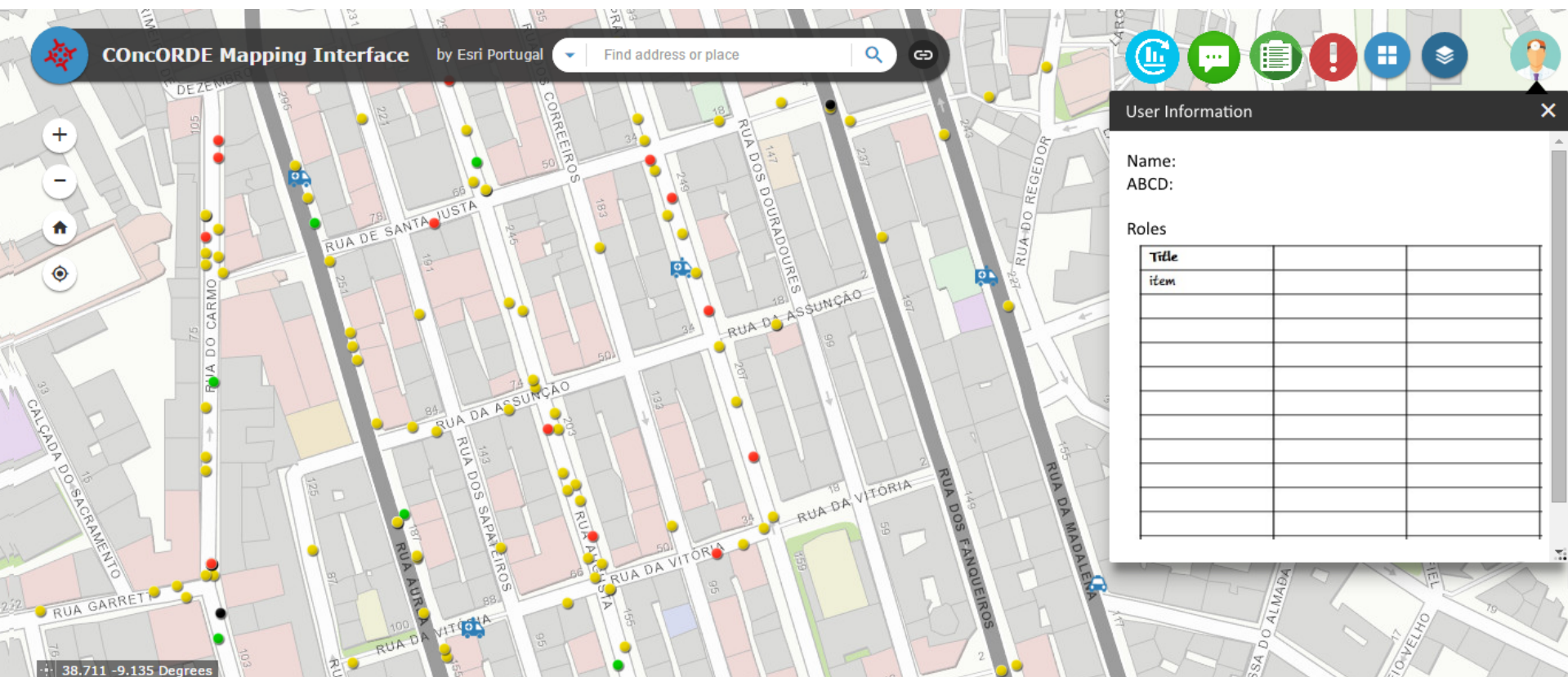
Vital Date	HT	WT	Rites
08/30/2011 7:38AM	5 ft	53 kg	Rites

Date	Provider	Document
11/09/2011 6:52PM	Steve Rothschild	Standard 4
09/28/2011 1:02AM	Steve Rothschild	Followup
09/28/2011 1:02AM	Steve Rothschild	Standard 2
07/26/2011 2:48AM	Steve Rothschild	Chiro Exam
07/26/2011 2:48AM	Steve Rothschild	Consultation Form
07/26/2011 2:48AM	Steve Rothschild	Standard 2

Problems	Date
AA amyloid nephropathy	08/30/2011 7:25

Order Date	Service Name
10/11/2011 12:00AM	Office Visit, Est. Prob. Focused 10
10/07/2011 6:47AM	Triglycerides

Map Functionality (User Information)



The screenshot displays the COncORDE Mapping Interface, a web-based mapping application. The interface includes a search bar at the top with the text "Find address or place" and a search icon. Below the search bar, there are several navigation and utility icons: a red star icon, a green speech bubble, a green document icon, a red exclamation mark, a blue window icon, a blue stack of layers icon, and a user profile icon. The main map area shows a street grid with numerous colored markers (yellow, red, green, blue) placed at various locations. A popup window titled "User Information" is open on the right side of the map. This window contains a form with the following fields:

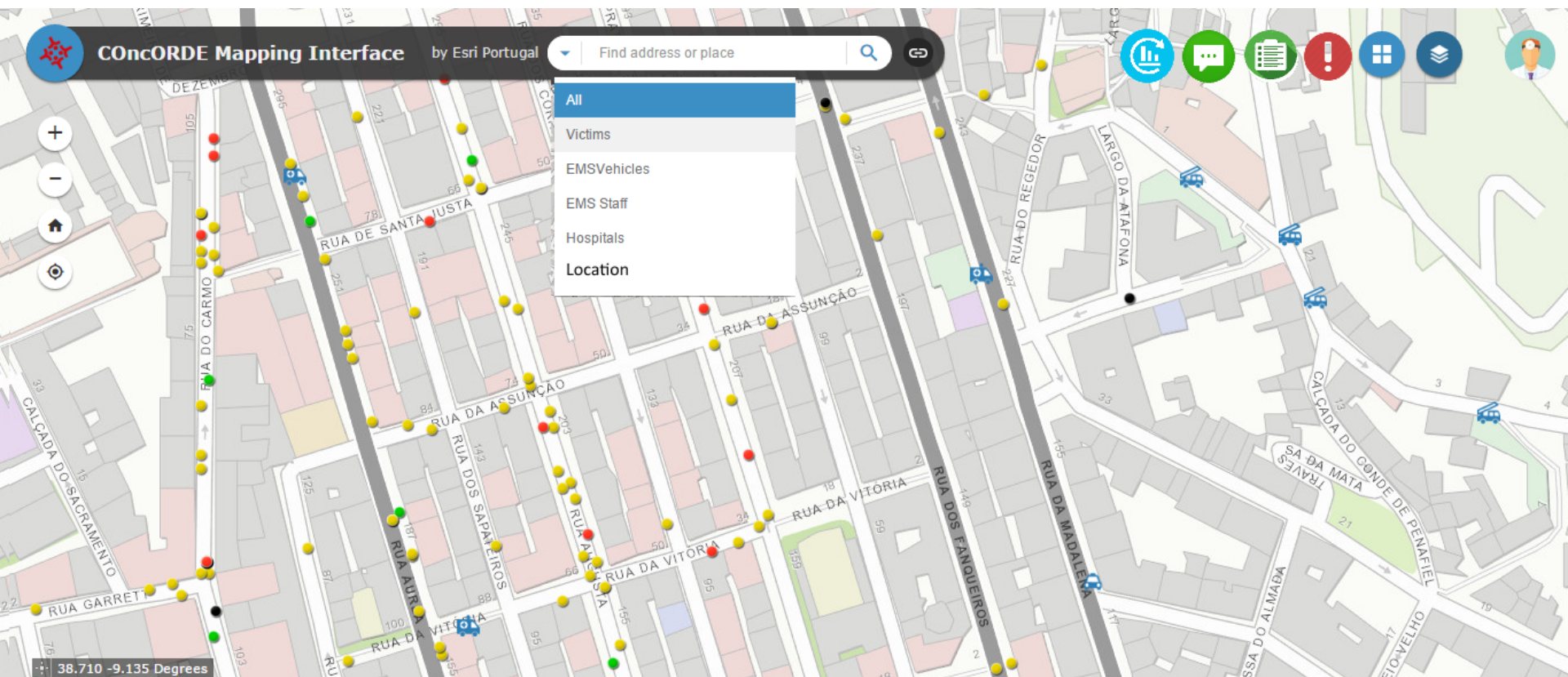
- Name:
- ABCD:
- Roles:

The "Roles" section is a table with the following structure:

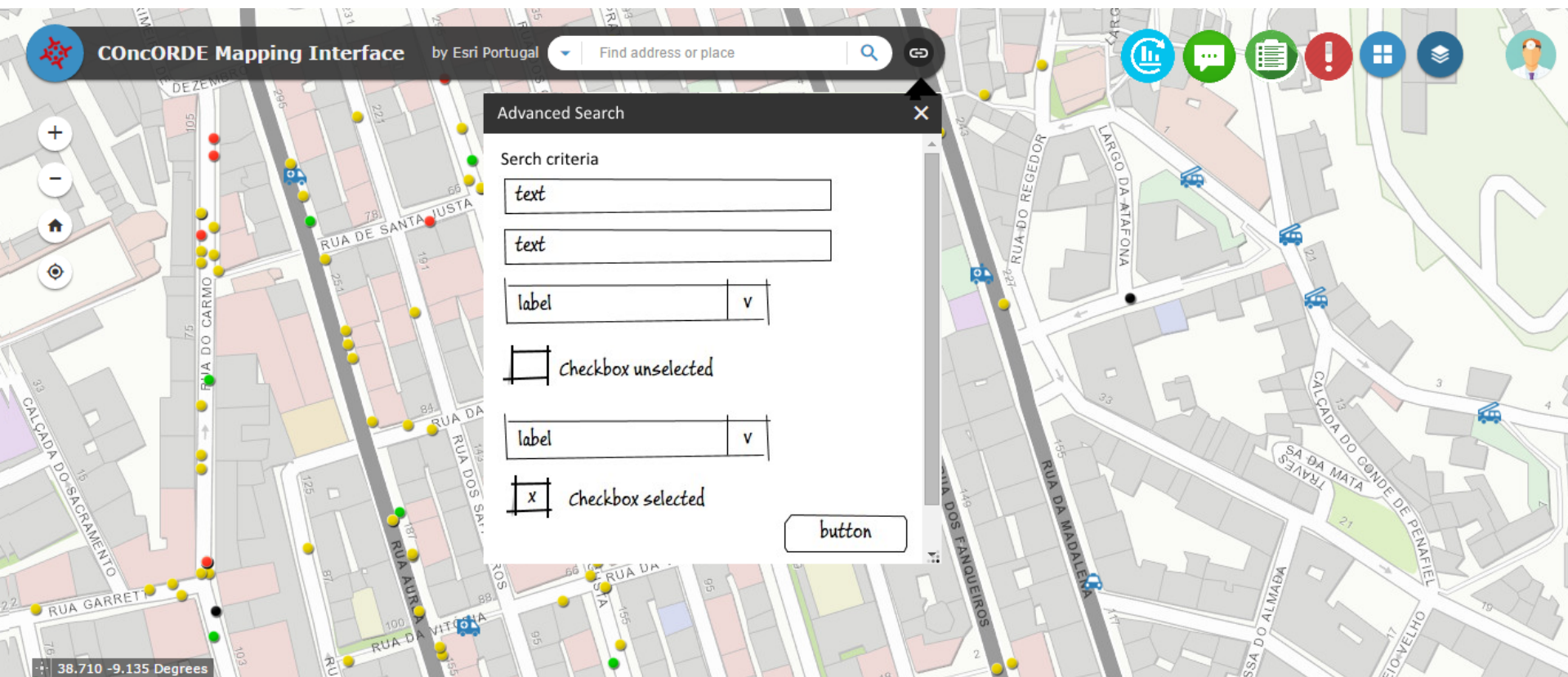
Title	item

At the bottom left of the map, the coordinates "38.711 -9.135 Degrees" are displayed.

Map Functionality (Quick Search)



Map Functionality (Advanced Search)



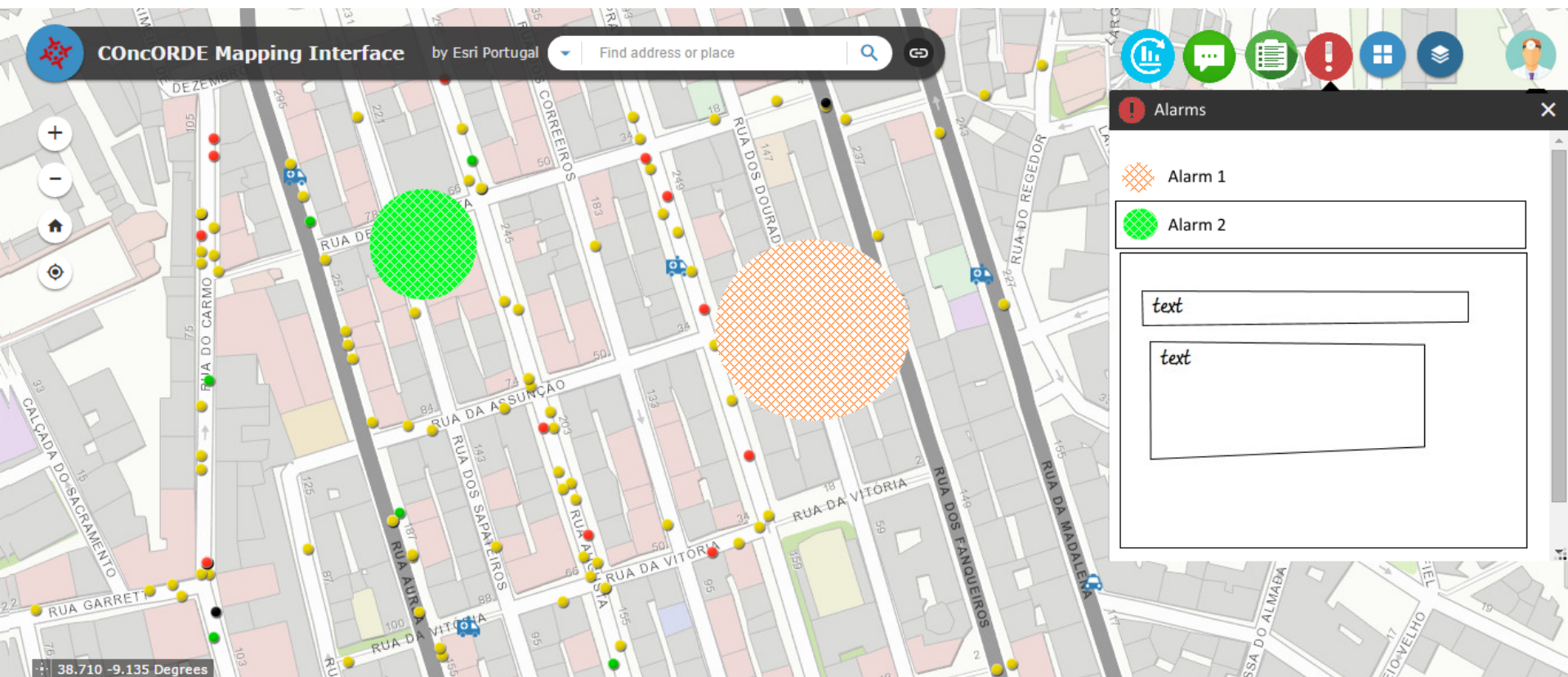
The screenshot displays the COncORDE Mapping Interface with an advanced search dialog box open. The interface includes a search bar at the top with the text "Find address or place" and a search icon. The map shows a street grid with various colored markers (red, yellow, green, blue) and labels for streets such as "RUA DO CARMO", "RUA DE SANTA JUSTA", "RUA DA ALAFOVA", and "RUA DO REGEDOR".

The "Advanced Search" dialog box contains the following elements:

- Search criteria:** A section with a close button (X) and several input fields.
 - Two text input fields, each containing the word "text".
 - A label input field with a dropdown menu showing "v".
 - A checkbox labeled "Checkbox unselected".
 - A label input field with a dropdown menu showing "v".
 - A checkbox labeled "Checkbox selected".
 - A button labeled "button".

At the bottom left of the map, the coordinates "38.710 -9.135 Degrees" are displayed.

Map Functionality (Alarms)



The screenshot displays the COncORDE Mapping Interface, a web-based mapping application. The interface includes a search bar at the top with the text "Find address or place" and a search icon. Below the search bar is a map showing a street grid with various streets labeled, such as "RUA DO CARMO", "RUA DA ASSUNÇÃO", "RUA DA VITÓRIA", and "RUA DOS SÁBIA LÍRIOS". Two large circular alarm zones are overlaid on the map: a green one on the left and an orange one on the right. The interface also features a toolbar on the left with navigation controls (home, location, zoom) and a top-right toolbar with various icons. An "Alarms" panel is open on the right side, showing a list of alarms with their respective symbols (orange and green cross-hatched circles) and two text input fields for each alarm.

COncORDE Mapping Interface by Esri Portugal

Find address or place

Alarms

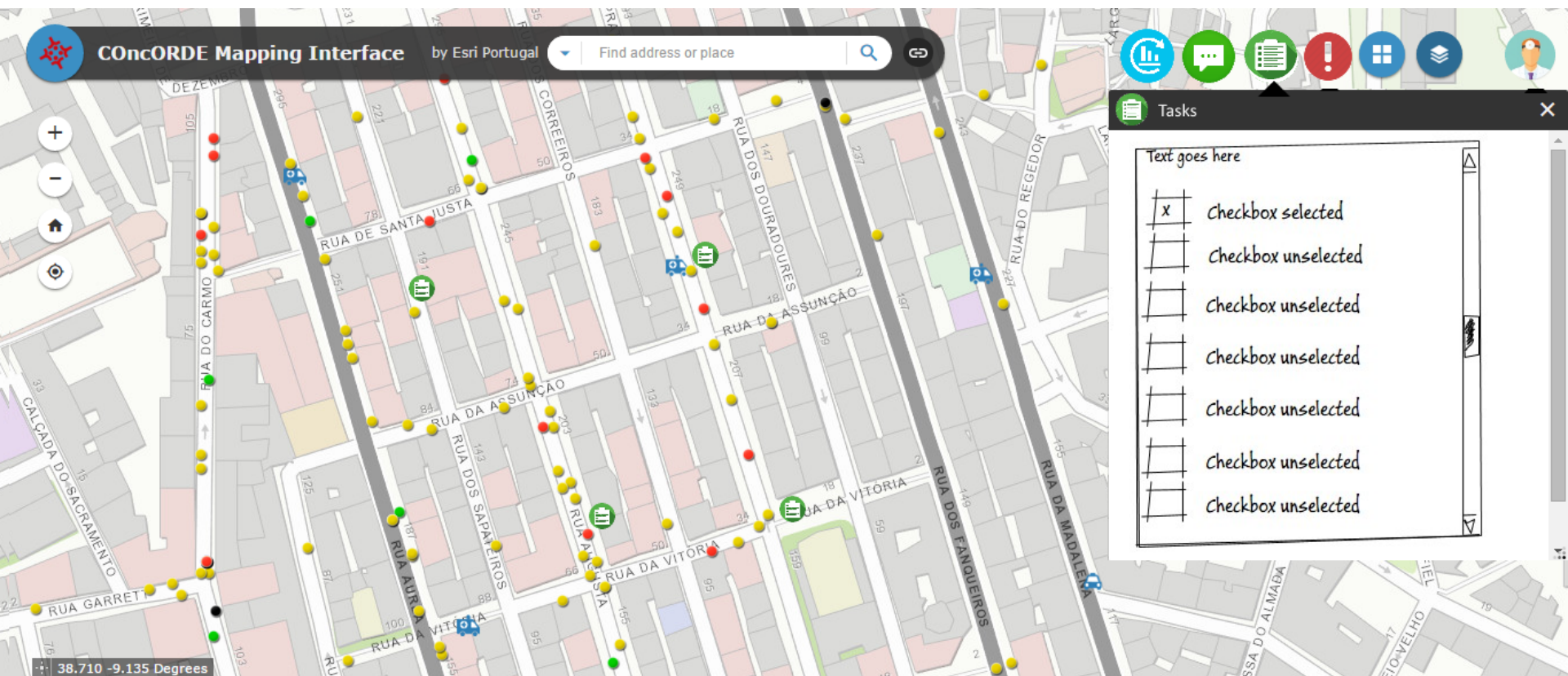
- Alarm 1
- Alarm 2

text

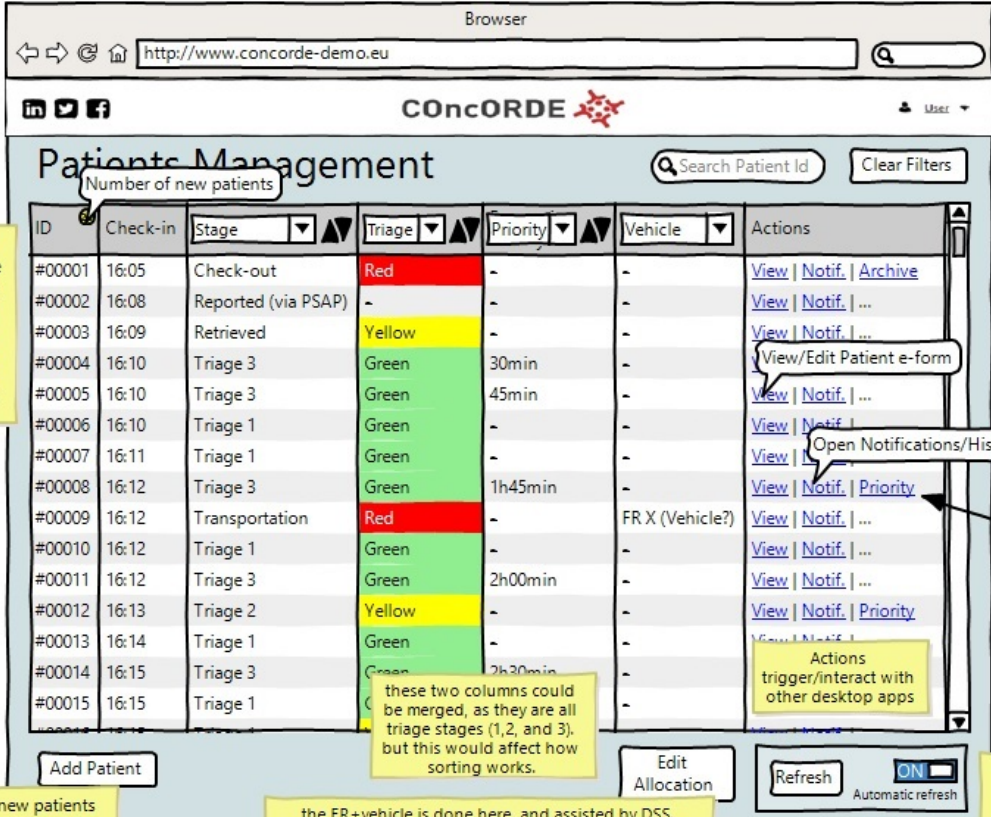
text

38.710 -9.135 Degrees

Map Functionality (Tasks)



Business Operations Management



Annotations:


- Top Left:** The warning signals that the table needs to be refreshed because new patients have been inserted on the system.
- Top Right:** User is a PSAP, High Commander, field manager.
- Table Header:** The column filters should allow multiple statuses; "show all"/reset, and sorting (both asc/desc) options.
- Table Row 9:** Action "Priority": This could be included in the patient e-form or as a new screen to display the priority setting (time estimation and timestamp of when it was assessed, for enabling countdown in forms such as this one). Action should only be available for Triage stages 2 (to insert) and 3 (to update/reassess).
- Table Row 10:** these two columns could be merged, as they are all triage stages (1,2, and 3), but this would affect how sorting works.
- Bottom Left:** PSAP may add new patients reported via phone by staff or bystanders.
- Bottom Center:** the FR+vehicle is done here, and assisted by DSS. Opens the "Priority List for Transport/Evacuation" screen. The screen will allow manual changes to existing allocation. It should contain a button to populate empty slots (past allocations don't get modified) with suggestions (these should be highlighted in different color). The automated suggestions need to be accepted or reverted before being propagated. this is time (called "priority setting") in minutes, manually inserted.
- Bottom Right:** Patient data should be automatically refreshed, only new patients might need refresh to prevent the UI from "jumping".

ID	Check-in	Stage	Triage	Priority	Vehicle	Actions
#00001	16:05	Check-out	Red	-	-	View Notif. Archive
#00002	16:08	Reported (via PSAP)	-	-	-	View Notif. ...
#00003	16:09	Retrieved	Yellow	-	-	View Notif. ...
#00004	16:10	Triage 3	Green	30min	-	View/Edit Patient e-form
#00005	16:10	Triage 3	Green	45min	-	View Notif. ...
#00006	16:10	Triage 1	Green	-	-	View Notif. ...
#00007	16:11	Triage 1	Green	-	-	View Notif. ...
#00008	16:12	Triage 3	Green	1h45min	-	View Notif. Priority
#00009	16:12	Transportation	Red	-	FR X (Vehicle?)	View Notif. ...
#00010	16:12	Triage 1	Green	-	-	View Notif. ...
#00011	16:12	Triage 3	Green	2h00min	-	View Notif. ...
#00012	16:13	Triage 2	Yellow	-	-	View Notif. Priority
#00013	16:14	Triage 1	Green	-	-	View Notif. ...
#00014	16:15	Triage 3	Green	2h30min	-	View Notif. ...
#00015	16:15	Triage 1	Green	-	-	View Notif. ...

Buttons: Add Patient, Edit Allocation, Refresh, Automatic refresh (ON)

Decision Support

Browser <http://www.concorde-demo.eu>

COncORDE  User

Decision support

Patients' Allocation vehicle+FR ...

Number of new patients

ID	Age	Location	Priority	Speciality	Transport Type	First Receiver	Vehicle	Actions
#00005	47	Area 1	30min	Ophthalmology	Any	Hospital 1	Vehicle X	View Detach
#00008	33	Area 1	45min	-	Any	Hospital 1	Private car	View Attach
#00009	28	Area 2	1h45min	-	Any	Hospital 1	-	View Attach
#00011	72	Area 2	-	-	Any	FR X	Vehicle Y	View
#00014	51	Area 2	2h00min	-	Any	Shelter A	Vehicle Y	View Attach
#00045	19	Area 2	2h	-	Any	Shelter A	Vehicle Y	View Attach
#00045	23	Area 3	-	-	Any	Hospital 1	-	View Attach
#0006	Populate empty slots with allocation suggestions from the Decision Support System							

Clear Filters

Groups patients together e.g. mother and child

View/Edit Patient e-form

time estimation and timestamp are required for enabling countdown in forms such as this one

editable dropdowns - drag'n' drop from lists below

Actions trigger/interact with other desktop apps

Auto-Fill Recommendation | Reset | | Refresh | Automatic refresh

[View Explanation](#)

ID	Type	Job queue	Actions
#00001	Ambulance	0	View Find Chat
#00002	Helicopter	0	View Find Chat
#00003	Vehicle Y	1	View Find Chat

ID	Name	Distance	Availability	Actions
#00001	Hospital 1	30km	130 beds	View Find Chat
#00002	FR X	10km	50 beds	View Find Chat

The warning signals that the table needs to be refreshed because new patients have been inserted on the system

Only triage 3 and 4 patients are displayed in this screen.

Number of new patients

time estimation and timestamp are required for enabling countdown in forms such as this one

Populate empty slots with allocation suggestions from the Decision Support System

editable dropdowns - drag'n' drop from lists below

Actions trigger/interact with other desktop apps

Clear Filters

Groups patients together e.g. mother and child

The column filters should allow any reset, and sorting (both asc/desc) options.

changes needing to be saved are displayed in red

filters must be persistent (after refresh)

DSS must consider patients on the screen only

Patient data should be automatically refreshed, only new patients might need refresh to prevent the UI from "jumping"

the FR+vehicle is done here, and assisted by DSS. This screen will allow manual changes to existing allocation. It should contain a button to populate empty slots (past allocations don't get modified) with suggestions (these should be highlighted in different color). The automated suggestions need to be accepted or reverted before being propagated. this is time (called "priority setting") in minutes. manually inserted