diretto

DISTRIBUTED RECON/REPORTING
TRANSCEIVER TOOLKIT

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diretto – Distributed Recon/Reporting Transceiver Toolkit

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The primary goal of the project is an extensible API and easy-to-use infrastructure for **distributed on-site media reporting** and **collaborative event coverage** in **real-time**. We also provide several reference implementations, including a server application and solutions for different mobile clients.

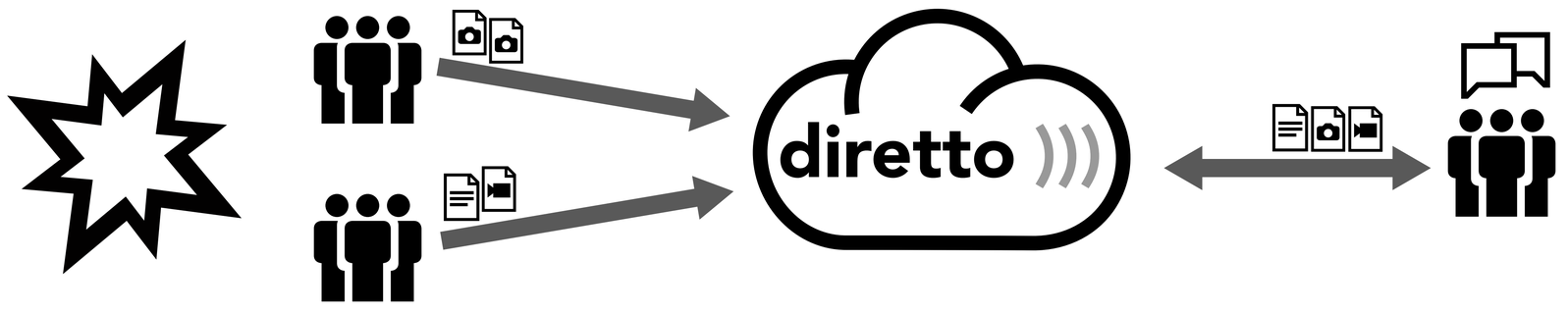

Figure: Users on-site document the event and instantly publish media files to the platform. Remote user can view submitted documents in real-time and give feedback using various collaboration features.

Architectural Features

Our **API** is tweaked for **mobile interaction** and copes with high numbers of concurrent users in **large scale** deployments. Therefore, we provide a **lightweight** HTTP-only RESTful **web service** and rely on JSON for data exchange.

The service is built on top of **node.js**, an evented I/O framework for scalable network programs.

Meta data is stored in **CouchDB**, a distributed and document-oriented database.

Real-time notifications of changes are forwarded using **PubSubHubbub**, an open protocol for distributed publish/subscribe communication over HTTP.

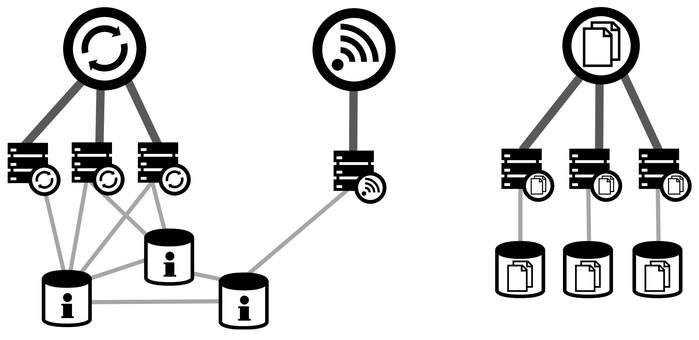

Figure: The server architecture has been implemented with scalability and availability in mind. Service endpoints for API calls, event publishing and media document access as well as the underlying databases can all be replicated easily.

Collaboration Features

One of the core features of the diretto platform is the integration of **collective intelligence** mechanisms.
The platform manages several user-provided information types and enables users to participate in a **cooperative analysis** scenario.

Weighted **tags** help to categorize the contents of a document.

User **comments** allow discussions about documents.

Links between documents represent semantic interrelations.

Votes enable a ranking of all user-generated content and data.

Multiple users can contribute **spatio-temporal information** about a document's origin.

Attachments can be added to the original documents, e.g. processed or derived versions.

Future Work

We are evaluating several extensions for the diretto platform:

The application of **collective intelligence algorithms** and **data mining techniques** to automatically extract information from user-generated data.

The current platform design is generic to be usable in various situations. However, **domain specific extensions** could provide additional benefits for some use cases, e.g., coordination of rescue missions.

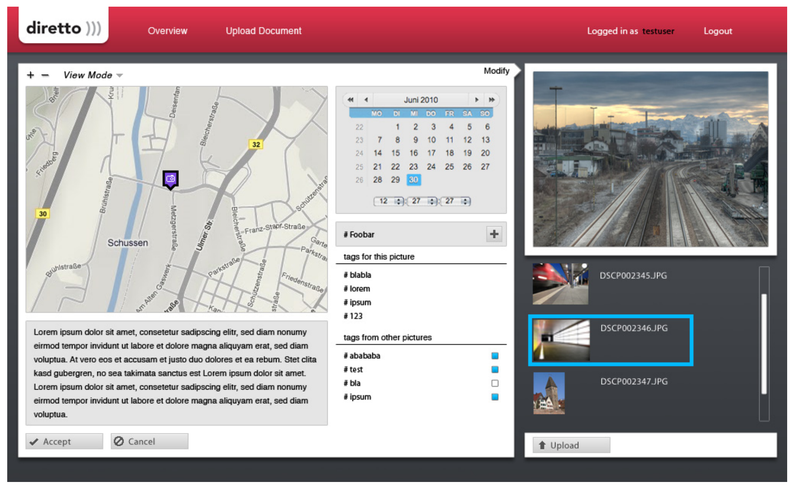

Figure: A screenshot of a web frontend for the diretto platform, developed by another student team. The screenshot shows one step of the document uploading dialog.

Team

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