GRUPPO TELECOM ITALIA

Contextualized Social Network

Mobile Social Networks: the “game” of the check-ins

How social networks, mobile and context are enabling new services

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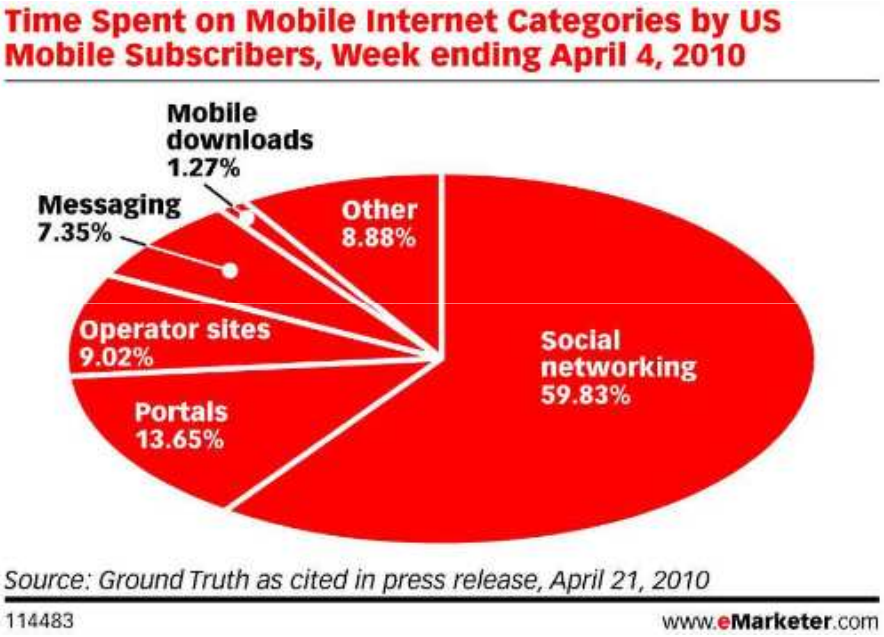
Outline

- Context sharing trend in social network
- New paradigm: the “check-in”
- Main Features and Platforms/App
- Business model
- Context-Aware Platform and social enablers: some highlights

Trend: mobile + social networking on the rise

Fastest-Growing Content Categories via Application Access 3 Month Avg. Ending Apr. 2010 vs. 3 Month Avg. Ending Apr. 2009 Total U.S. Age 13+ Source: comScore MobiLens			
	Total Audience (000)		
Application Access Category	Apr-2009	Apr-2010	% Change
Total Audience: 13+ yrs old	232,000	234,000	1
Used application (except native games)	54,414	69,639	28
Social Networking	4,270	14,518	240
News	4,148	9,292	124
Sports Information	3,598	7,672	113
Bank Accounts	2,340	4,974	113
Weather	8,557	18,063	111
Movie Information	3,296	6,359	93
Maps	8,708	16,773	93
Online Retail	1,416	2,701	91
Photo or Video Sharing Service	3,131	5,950	90
Search	5,434	10,315	90



Greatest growth rate in access, % mobile time

Location? It’s changing everything!

….millions of people are now walking around with a gizmo in their pocket that not only knows where they are but also plugs into the Internet to share that info, merge it with online databases, and find out what—and who—is in the immediate vicinity. ..

Simply put, location changes everything. This one input—our coordinates—has the potential to change all the outputs.

Where we shop, who we talk to, what we read, what we search for, where we go—they all change once we merge location and the Web.

Mattew Honan, wired magazine, jan 2009

Context Based Services & mobile social networks

- Focus on sharing context among members of the social network
  - For informing and knowing where is my SN
  - For discovering new people in the nearby
  - For exchanging information about a place
  - For getting recommendation

Location Based Social Networks: How many?

Social networks: What about

- Sharing multimedia content on the move:
  - Pictures (Flickr, Panoramio, ...)
  - Movies (Youtube, ...)
- Sharing text on the move:
  - Twitter
- Microblogging community from your desktop
  - Facebook, Myspace, Orkut
    - (not much context aware so far)
- Social networks aggregator
  - Friendsfeed

A new paradigm for location based SN: Check-in

- Mobile social applications that allow users to share their context by doing "check-ins" at venues, public/private places, by means of their own smartphone
  - E.g.: restaurants, pubs, gyms, airports, parks, stadiums, ...

- Annotate check-ins with text, photo tagging the place with personal indications
  - E.g.: venue recommendation, tips
- Sharing the context with friends and social network (activity feeds)
- Discovery of new places
- Knowing who else is checking-in at a venue
- Public access statistics for venues and persons
- Get a reward

- But most of all... having fun: "*Live reality as if it was a game!*" (Treasure hunt)

Just started, but already becoming a crowded arena

new

entrants quickly rampaging ....

- Foursquare
- Gowalla
- Brightkite, Rally Up, Scavenger, MyTown,..

old

ones trying to catch-up....

- Yelp
- Loopt! Star

big

ones waiting...

- Facebook
- Google
- Yahoo!

Foursquare

- Foursquare: the first to add the “game” effect - started in march 2009

- Mobile social network + social city guide + “game” with rewards
- Points: awarded for each check-in
- Pins: virtual badges given by checking-in certain a number of times, or at some locations
- Mayorships: given to a user who has checked-in the most time at a venue
- Tips: hints about what to do, to see, to eat… at the given venue
- API for developers: enable ecosystem

Foursquare


AT&T 3G 9:11 PM 76%
foursquare
PLACES
Search places
Trending Now
Century Theatres
845 Market St (btw 4th & 5th)
Thirsty Bear Brewing Company
661 Howard St (at 3rd)
My Favorites
Sterling Cooper
77 Dow Pl. (2nd St.)
24 Hour Fitness - Marathon Plaza
303 2nd St (at Folsom)
Near 300-342 2nd St, San Francisco, CA
Friends
Places
Tips
Nearby Locations
Sonera 8.36
Places
Where are you?
OK! We've got you @ Metropolia.
This is your 1st checkin here!
YOUR SCORE
First time @ Metropolia! (+5)
Travel bonus: 2 stops (+2)
Thanks for the new venue!! (+5)
Total: 12 points
Badges
More
Points for Checking In
Telstra 4:26 PM
Places
Coburg library
Coburg library
Victoria st
Check in
People
Details
Tips
OK! We've got you @ Coburg library.
This is your 2nd checkin here!
YOUR SCORE
Travel bonus: 5 stops (+5)
Total: 5 points
Congrats, you just became
The Mayor of Coburg library!
Mayorship

Check-in also via QR

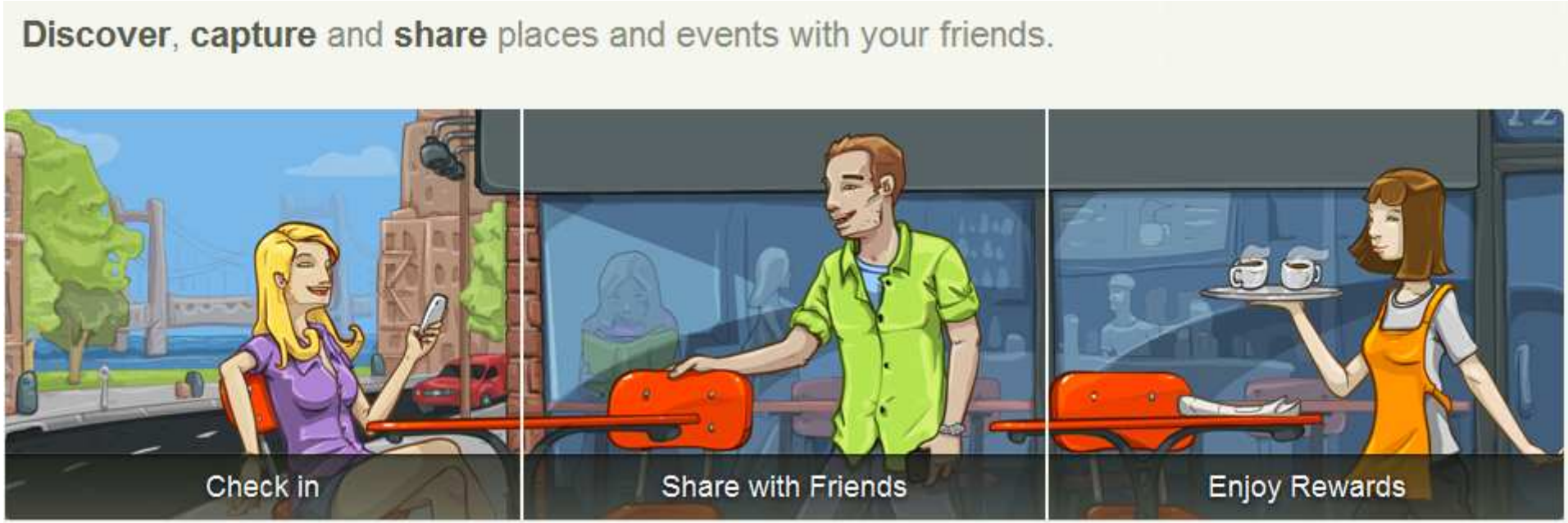
Check-in gets validated not only using position, but also taking pictures of QR labels.

new

Gowalla

- **Gowalla: launched in nov 2009**

- **Stamps/Passport: collects stamps for any visited spot**
- **Items: take and drop objects at venues**
- **Photo: add photos to places**



Gowalla


Friends Activity
Find Friends
Nearby Places
Papaya Chicken
US Bank
Yellow Cab
Wells Fargo
Ashcy Collection
Venue View
Taqueria La
Check In
Details & Map
Photos
Leaderboard
Stamps
Trips
Nearby Trips
San Francisco's Best Coffee
North Beach!
Golden Gate Gallop
SFO AirTrain Tour
Berkeley Coffeeshop Marathon

myTown

- MyTown: game focus (“real world into monopoly”)
- Virtual currency for buying, upgrading places from those one checks-in
- Mayorships -> ownerships + making moneys from others check-ins
- Partnership with Google for places.

old

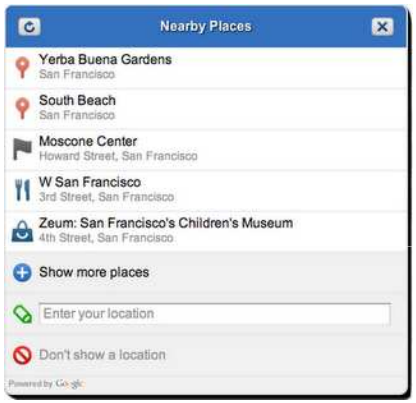
Loopt Star

- Loopt: since 2008, offering location sharing, geo-tagging of photos, notes.
- Added main focus: discounts, loyalty and offering rewards .

While the BIG ones..

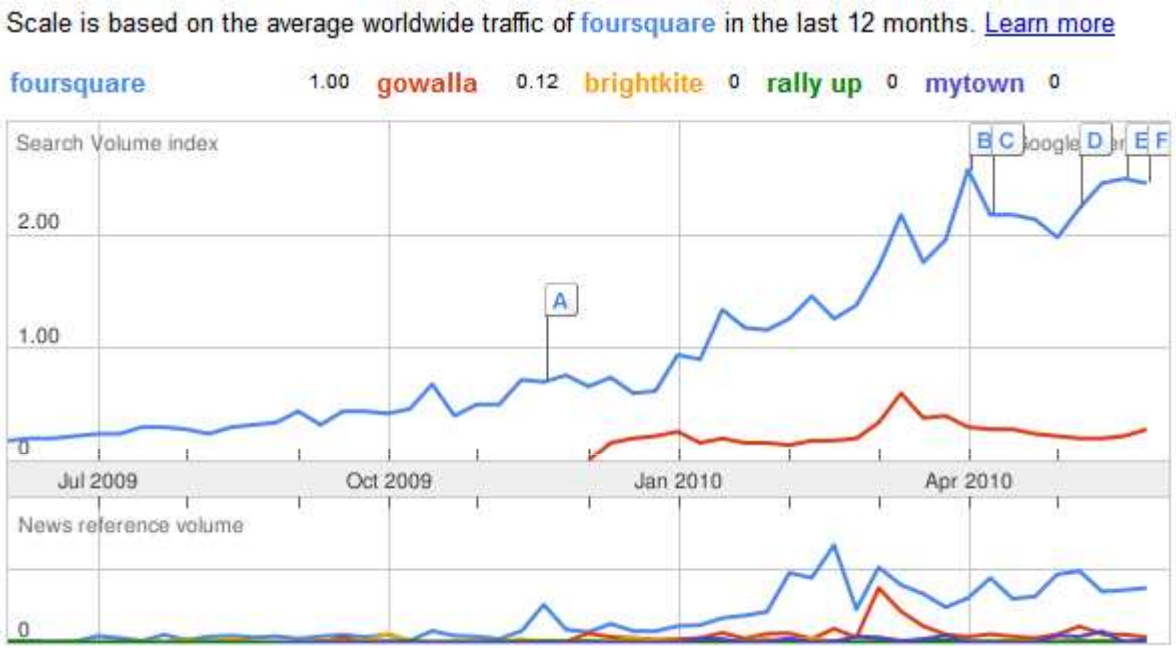
- facebook
  - they have plans… announced but not yet released version with location features

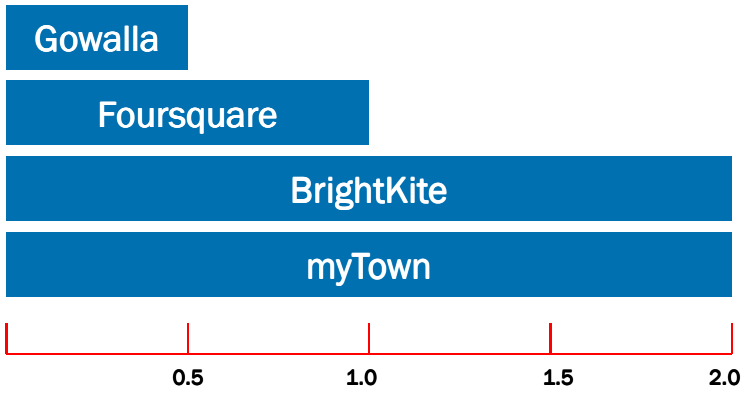
- Google
  - Google Local Business revamped : Google Places
  - Google Latitude API



- YAHOO!
  - Yahoo!
    - After partnership with Nokia, acquired a location based social network (Koprol).
    - Not clear whether leverage on Yahoo location API/tool (FireEagle)

Trend comparison among the new main players

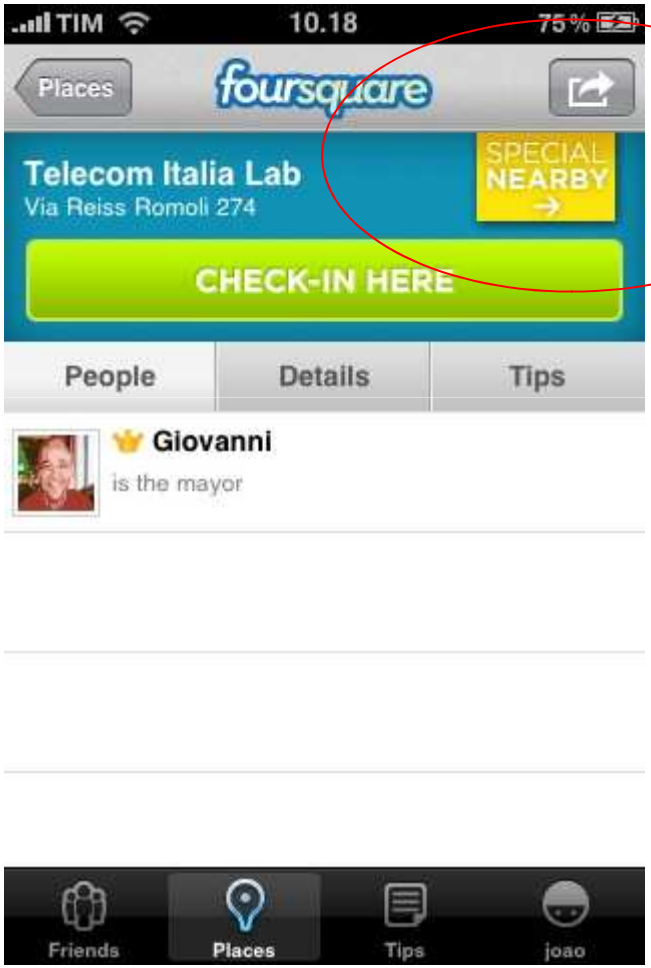


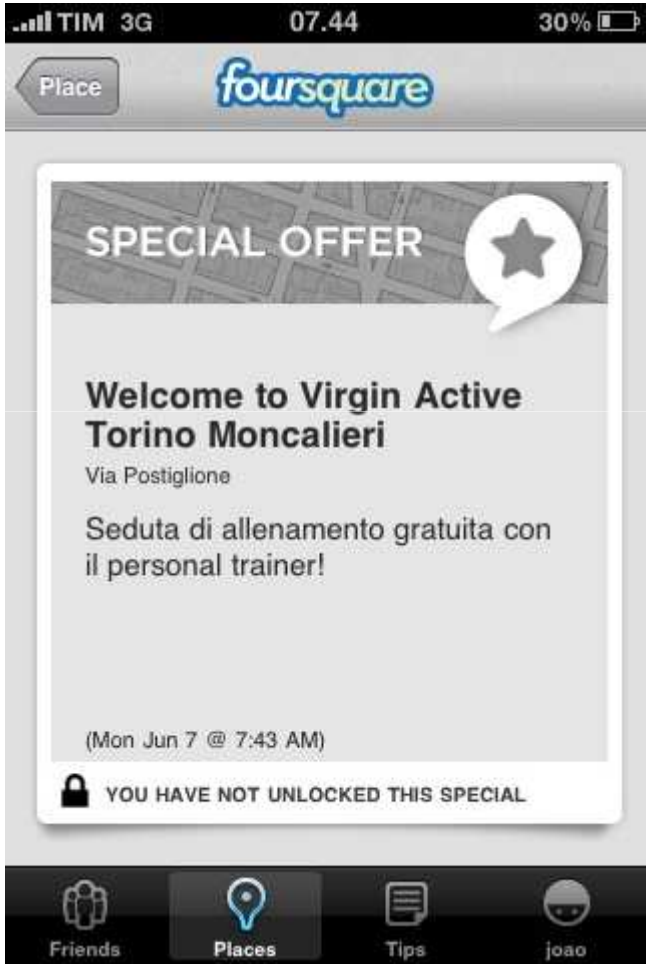


Registered users, millions

FourSquare: 800K checkin/day , 15K new users/day

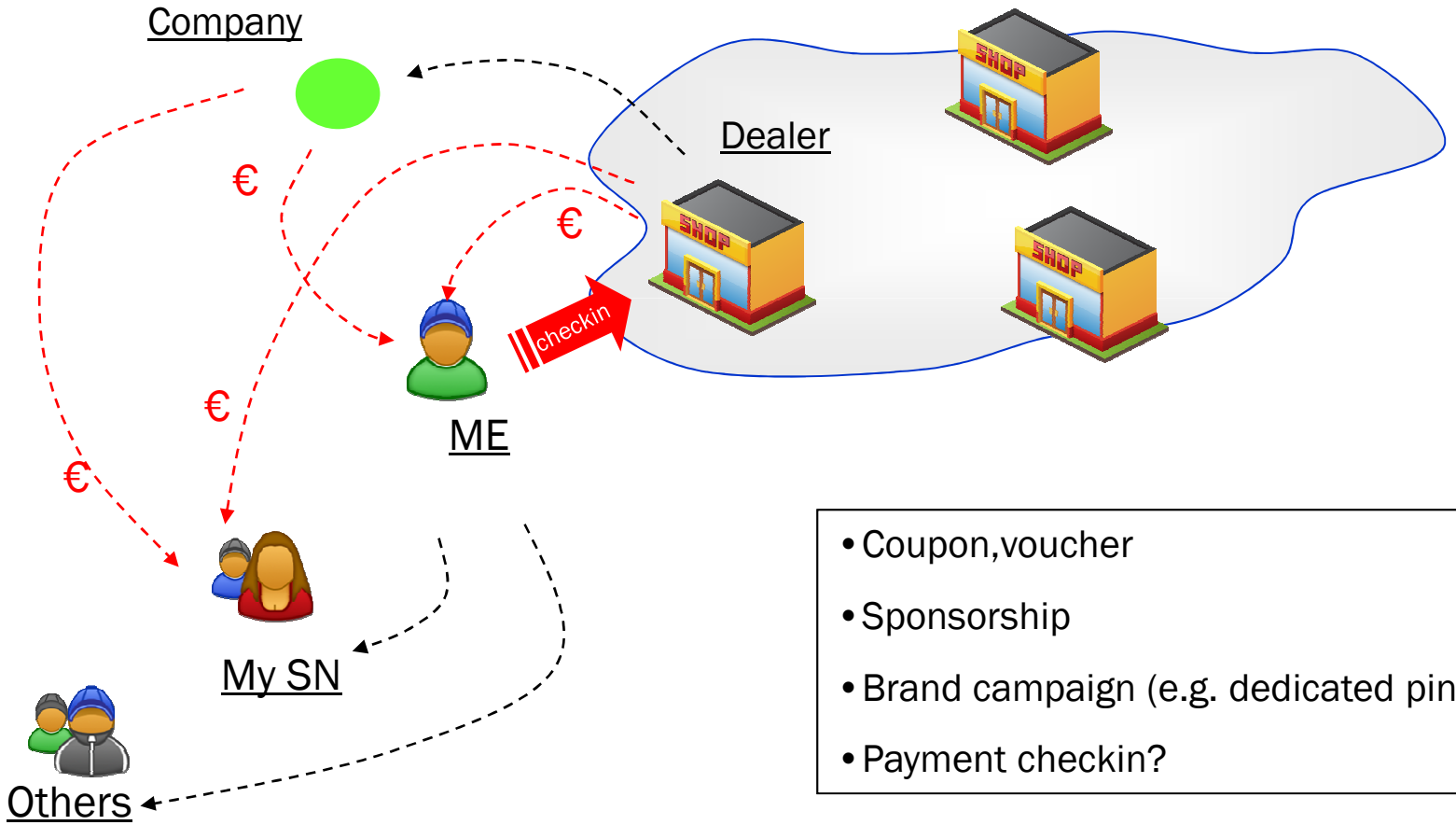
Special offer… in the nearby





A business model: Me, my SN, 3rd party,..4th party

- **Leveraging on all the involved parts: users, dealers, companies.**



- Coupon,voucher
- Sponsorship
- Brand campaign (e.g. dedicated pins)
- Payment checkin?

Dashboard for businesses

Use our tools to create a variety of foursquare Specials, customized just for your venue and for your customers:

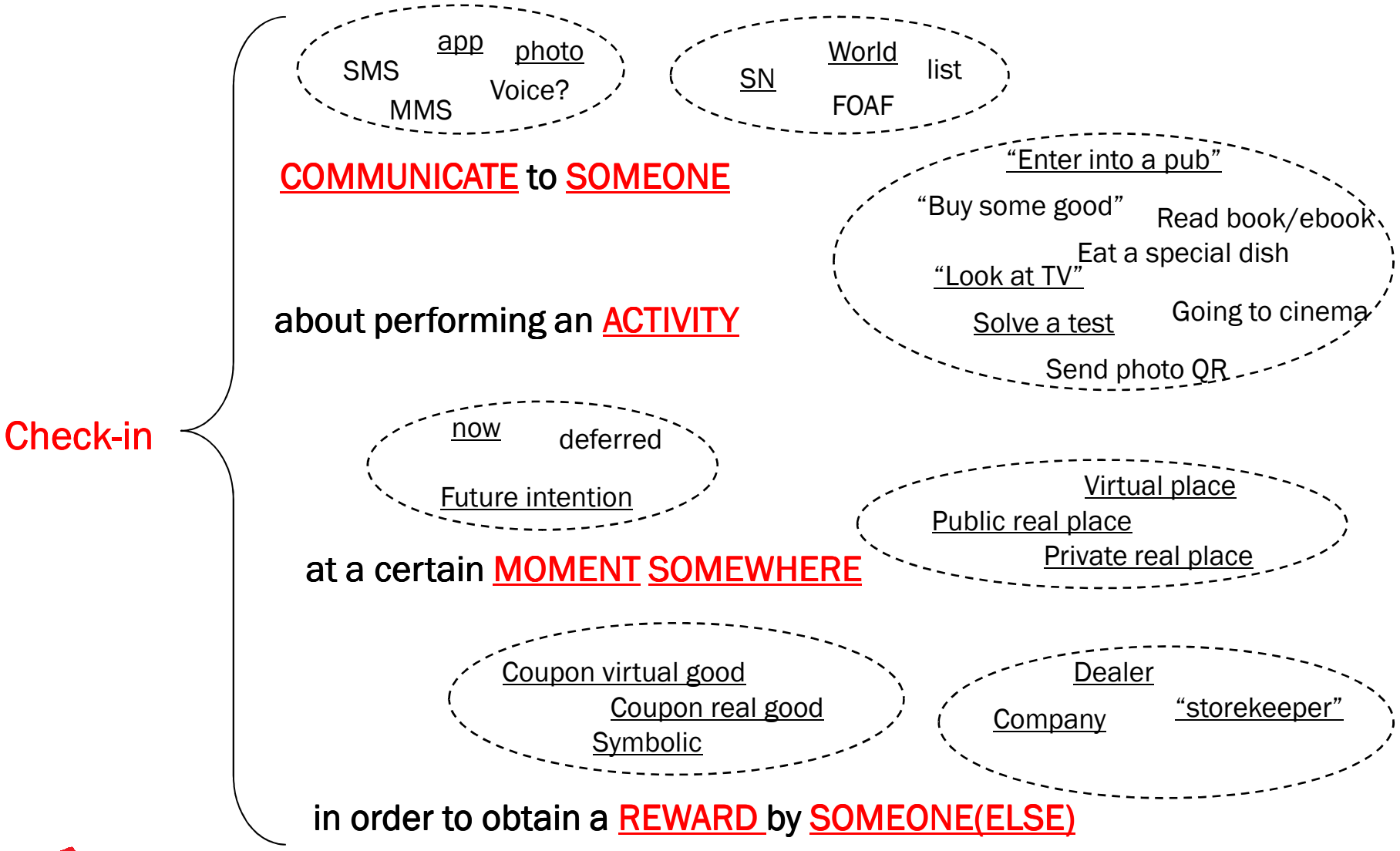
- **Mayor Specials:** unlocked only by the Mayor of your venue. Who's the Mayor? It's your single most loyal customer! (the user who has checked in the most in the last 60 days)
  (*"Foursquare has deemed you the Mayor? Enjoy a free order of french fries!"*)
- **Check-in Specials:** unlocked when a user checks in to your venue a certain number of times.
  (*"Foursquare says you've been here 10 times? That's a free drink for you!"*)
- **Frequency-based Specials:** are unlocked every X check-ins.
  (*"Foursquare users get 20% off any entree every 5th check-in!"*)
- **Wildcard Specials:** always unlocked, but your staff has to verify some extra conditions before awarding the Special.
  (*"Show us your foursquare Swarm badge and get a free drink!"*)
- **And more to come!**

http://foursquare.com/businesses/

Check-in? Goals and benefits

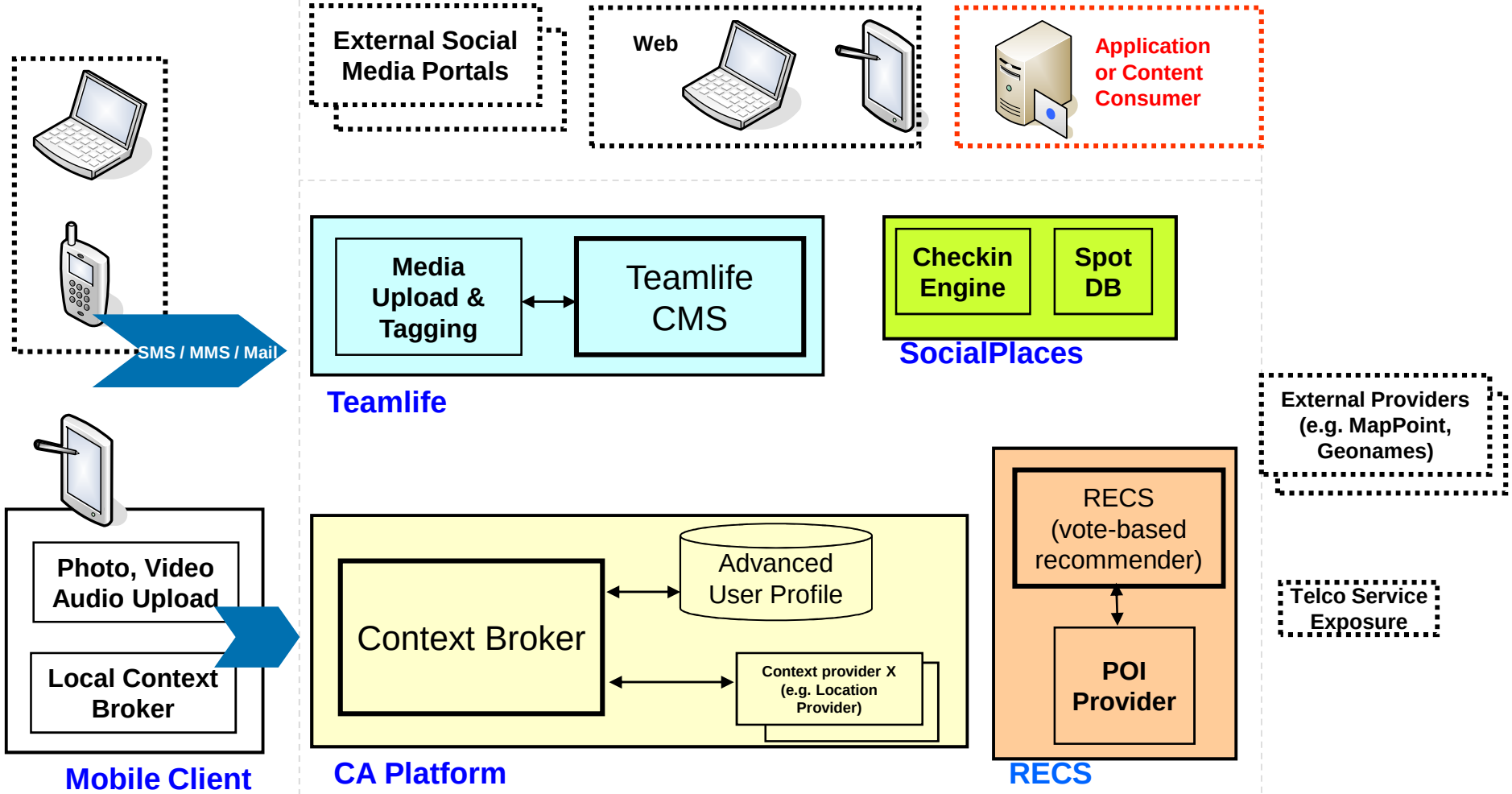
- Starting from the context sharing a new virtual space for convoying advertising and business relationships is opened.
- A user performs a check-in at a place (pub, restaurant, public area,...) with intentions
  - Narcissistic: for informing his own social-network
  - Relational: to be seen and meet new people
  - Economic: to get a reward (coupon) for doing something
  - ...
- Check-in =
  - COMMUNICATE to SOMEONE
  - about performing an ACTIVITY
  - at a certain PLACE and in a certain MOMENT
  - to get a REWARD by SOMEONE(ELSE)
- Reasoning about the multiple options of the key terms is useful for identifying potential new situations to be exploited.

De-structuring a check-in

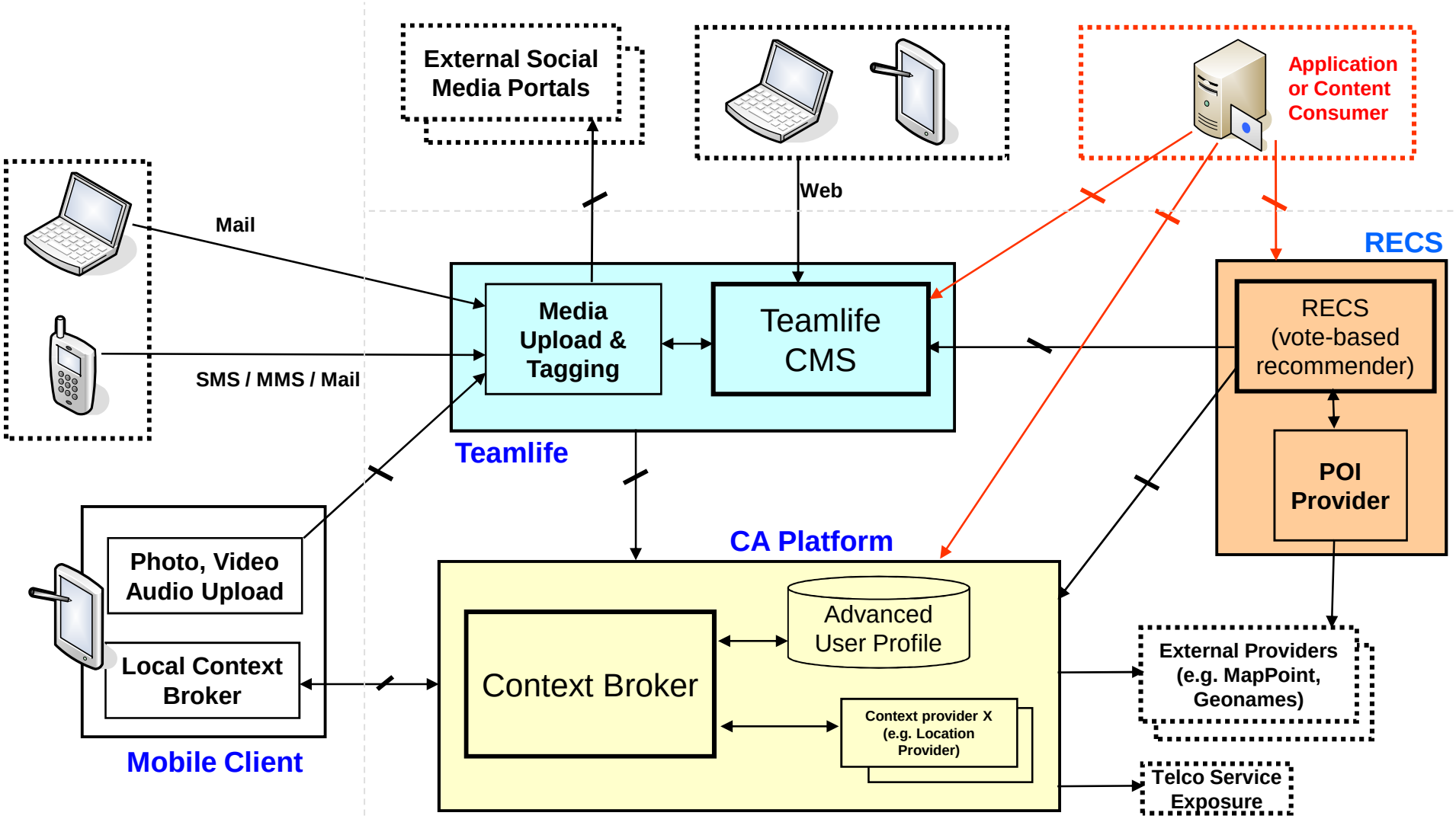


Let’s have a look at some TI enablers functional architecture and interfaces

Contextualiszed Social Network Platform: the right building-blocks



Social Enablers architecture and interfaces



Context paltform highlights

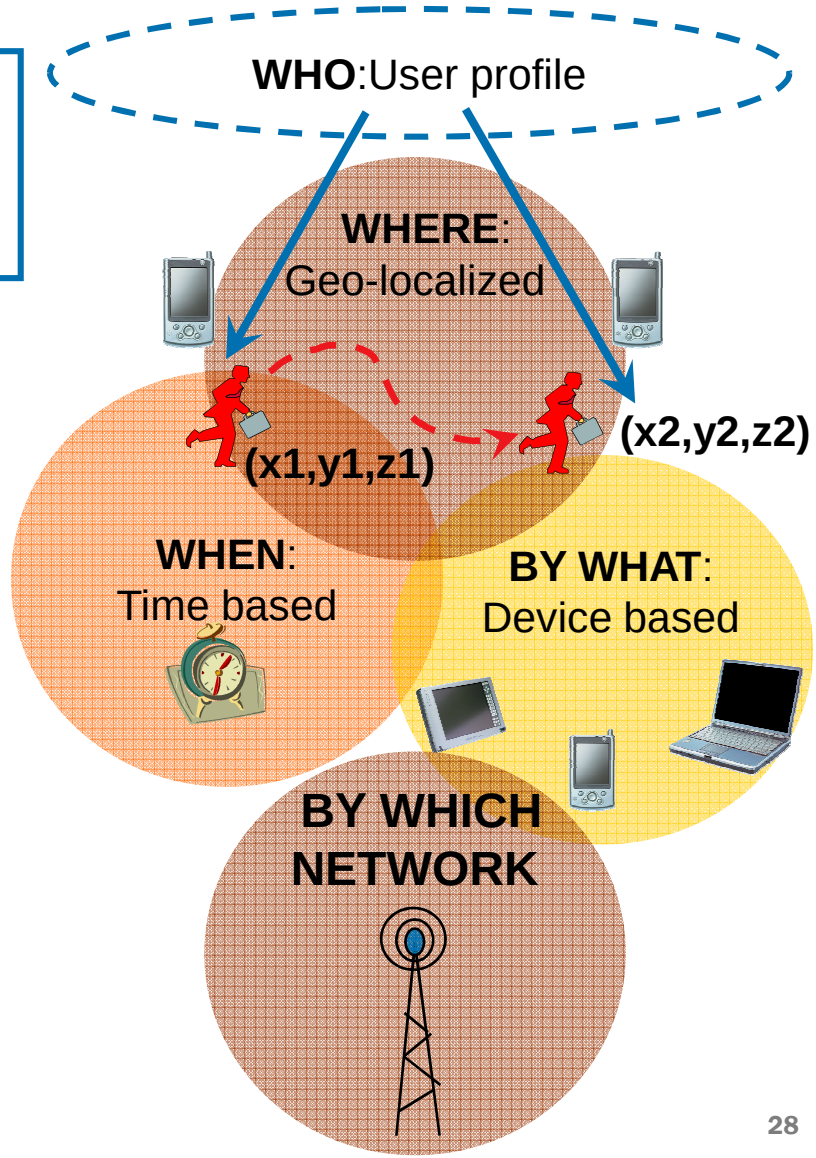
What is context?

Context *is any* ***information*** *that can be used to characterize the* ***state of an entity***

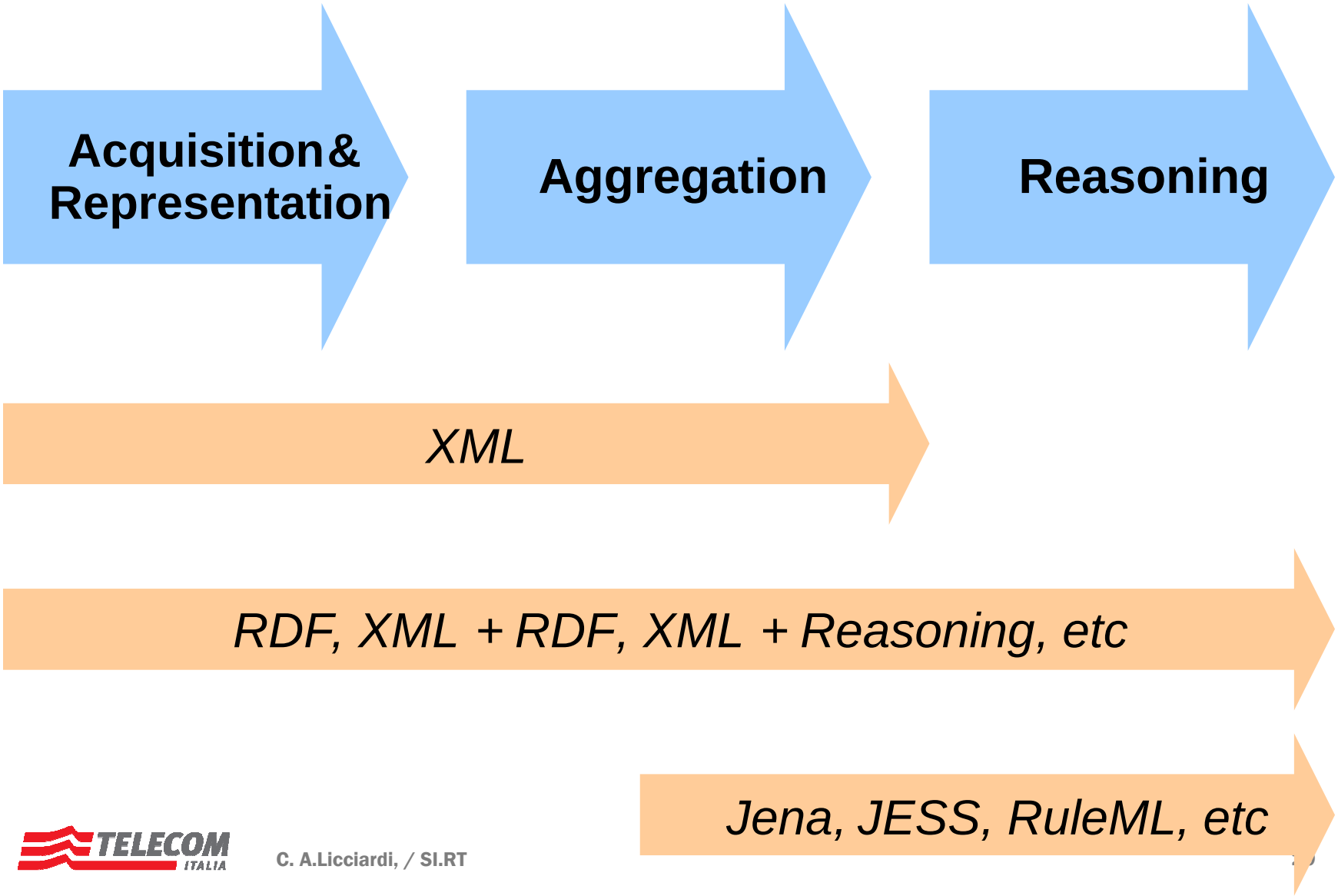
An entity can be a person, place, or any object related to the user-application interaction

Useful parameters for context

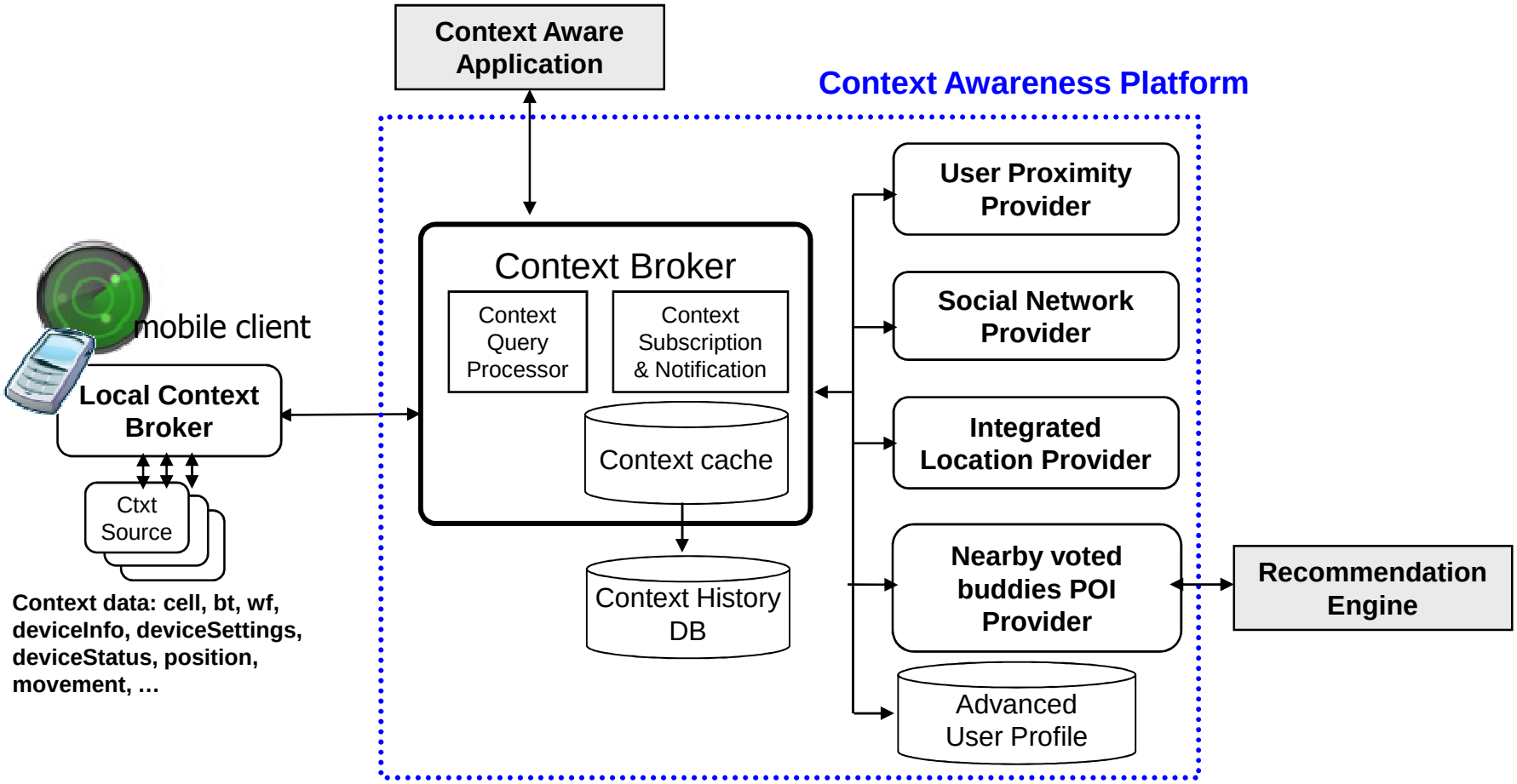
- Identity & user profile
- space**: location, direction of movement, speed and acceleration**
- service profile
- Time**: time, date, season,…**
- Environment**: temperature, popularity, loudness, pollution, …**
- Nearby resources**: printers, projectors, multimedia totems,…**
- Resource availability**: available time, battery, display, device, network, bandwidth**
- Presence**: willingness, availability**
- Physiological data**: mood, blood pressure, heartrate, voice tone,…**
- Activity**: talking, reading, walking, running**



Context processing: main steps



Context Awareness Platform



- *J2EE based platform, REST-like APIs*

Uniform context representation

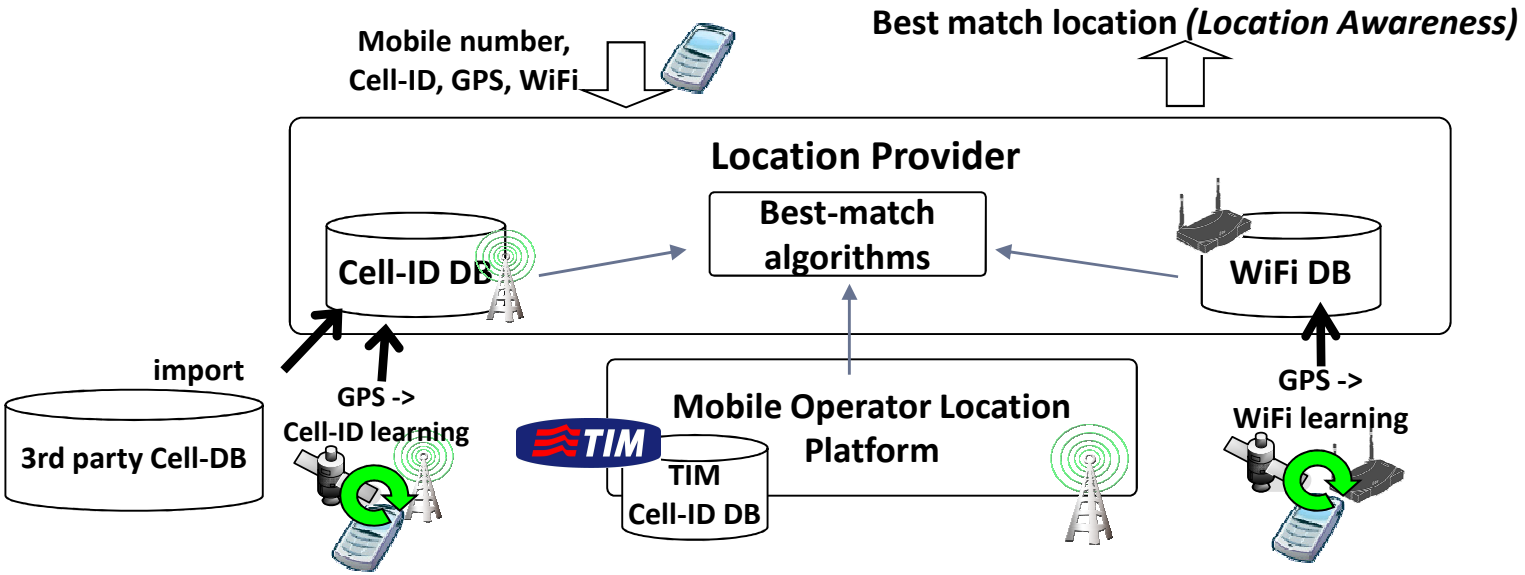
- ***ContextML language***

```
<?xml version="1.0" encoding="UTF-8" ?>
<contextML xsi:schemaLocation="http://ContextML/1.2 http://url/ContextML-1.2.xsd">
  <ctxEls>
        <ctxEl>
                <contextProvider id="LP" v="1.1.11"/>
                <entity id=“cristina" type="username"/>
                <scope>position</scope>
                <timestamp>2009-02-20T12:30:38+01:00</timestamp>
                <expires>2009-02-20T12:31:37+01:00</expires>
                <dataPart>
                                <par n="latitude">45.11024</par>
                                <par n="longitude">7.66681</par>
                                <par n="accuracy">541</par>
                                <par n="locMode">CELLDB</par>
                </dataPart>
        </ctxEl>
  </ctxEls>
</contextML>
```

- **Context information is organized in “context scopes” (`position` in the example)**
- **Context is referred to an entity (user, device, etc.) with type and ID**
- **Context has Timestamp and Expire**
- **Simple and extensible data structures to represent context (par, parS, parA)**
- **Representation is used in several EU projects**

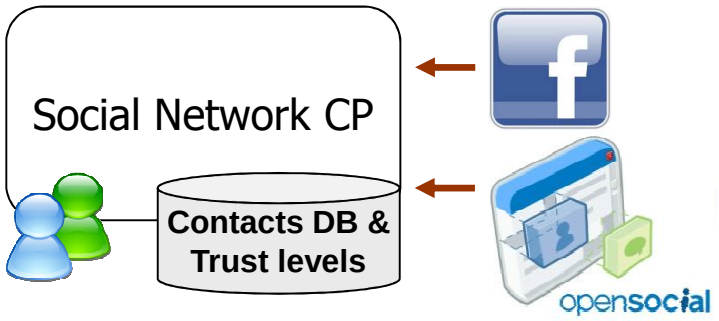
Integrated Location

- Provides a simple REST-like API to obtain high-level information about mobile users positions (“*location awareness*”), integrating several location technologies and information sources
  - Telecom Italia location systems
  - External sources (open cell DBs, WiFi locations DBs)
  - Positioning provided by the device
- Has a cell-ID/WiFi learning feature to improve coverage

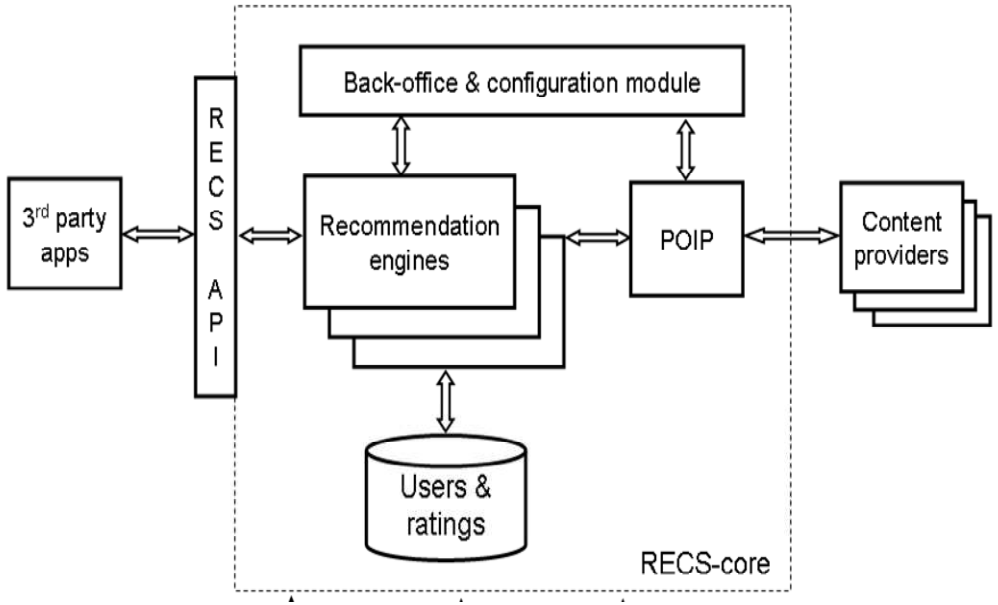


Social Network Integration

- The *Social Network Context Provider* is able to provide information about contacts of a user
- Contacts can be defined by provisioning relations between users of the platform or can be imported from external social networks like Facebook using public APIs offered by these systems
- Information is expressed in ContextML
- To support trust-based recommendation a user can **assign a trust level** to his contacts in relation to categories of POIs
  - For example: “*trust contact X from Facebook on French Restaurants, level 60/100*”



Recommender System and POIs



- ***RECS*** **is an extensible Points of Interest recommender system that integrates the social network of the user and his context to provide highly personalized recommendations**
- **It can use several recommendation algorithms**
  - **Trust network**
  - **Bayesian TOP-N**
  - **Collaborative filtering**
- ***POI Provider*** **(POIP) is responsible to collect POIs information form different information sources, merging data to avoid duplicates**

Summing up

- Growing trend of mobile social network with context sharing features
- The “check-in” paradigm: fun & immediate rewards while sharing context
- Win-win paradigm: for users, dealers, companies
- New competitors: Foursquare vs Gowalla
- Big ones (FB, Google) in stand-by… before buying new ones?
- Check-in: flexible paradigm, not only for places
- In Telecom Italia: the building-blocks for starting with services

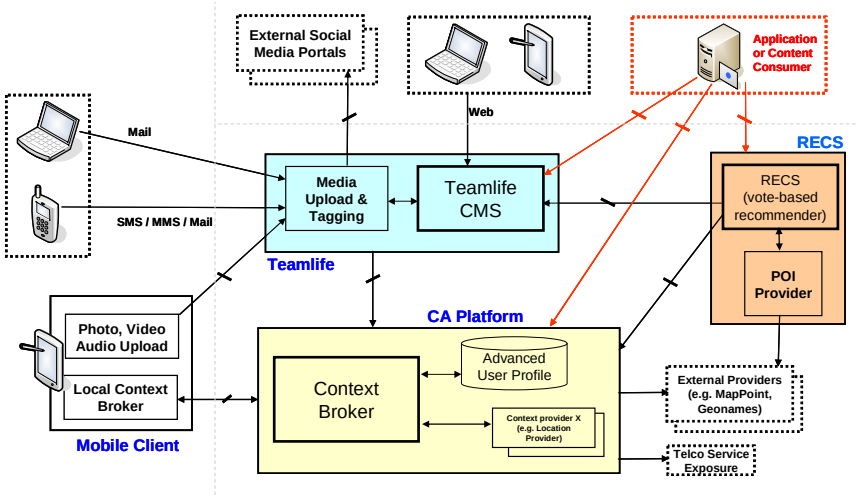
Some research challenges

- Privacy and trust is a key issue
  - EU and US regulations
- Reliable and trusted Context Certification authority
- Context propagation implies a continuous exchange of data among mobile handsets: protocol optimization issues (synch vs. asynch models)
- Effective content filtering to protect users from information overload
- Federation of context among several domains
- Centralized vs. distributed processing of contextual information: the right trade off

Collaboration Activities in EU funded projects and standards

- EU projects
  - C-CAST: Context aware multicasting services – ending in 2010
  - PERSIST: Context aware Personal smart spaces - ending in 2010
  - MUSIC: Context aware and adaptable middleware - ending in 2010
  - Di.Me: Distributing context in highly distributes social network – starting in 2010
  - 4Caast: Advanced cloud computing: how context can help? – starting in 2010
  - Societies: Social network in context aware adaptable smart spaces – starting in 2010
- Standards
  - W3C: device context API, Social Network incubator group
  - OMA: Next Generation Service Interface (Context API and context model for next generation interfaces)

Where are we ?



Recommender

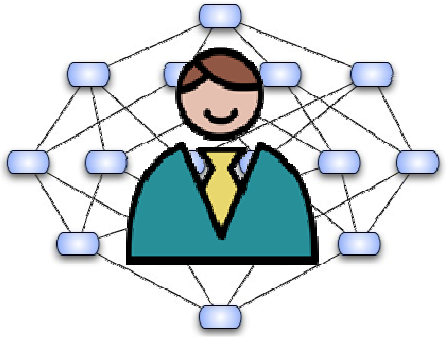
Context Mgmt

Data fusion & aggregation

SN gateway-ing

Where to go? Application areas...

Augmented Reality



Profiling
Centrality in SN
Reputation

Social Network Aggregation

Social eBook

Questions & Answers

Questions and Answers

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