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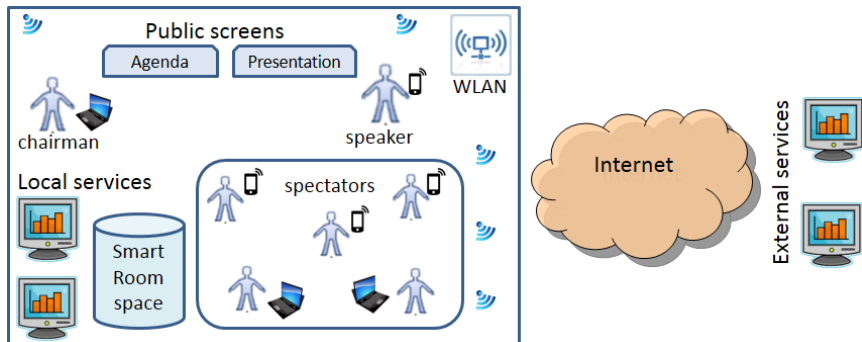
## Enhancing the SmartRoom System with e-Tourism Services

The work is supported by  
the Ministry of Education and Science of the Russian Federation.



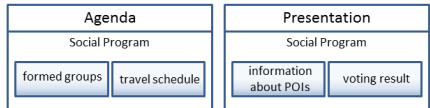
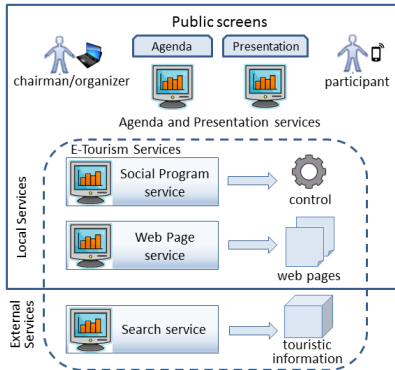
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# SmartRoom System

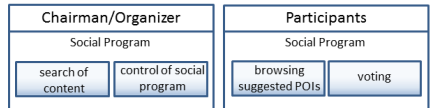


- Many services (informational, control, collaborative work)
- Many devices (diversity of IoT device and mobile platforms)
- Agenda service defines program of the conference activity
- Presentation service is controlled by speaker (slide & video show, drawing)
- Personal mobile devices are services access points

# Scenario I: Social program for conference participants

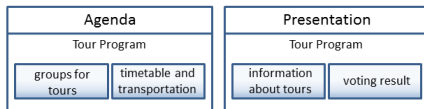
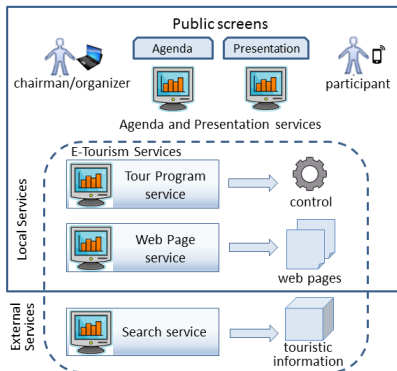


Screens of SmartRoom's components for Social Program

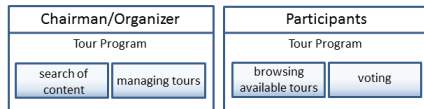


~> Social program: groups, timetable, transfer, ...

# Scenario II: SmartRoom in tourist agency



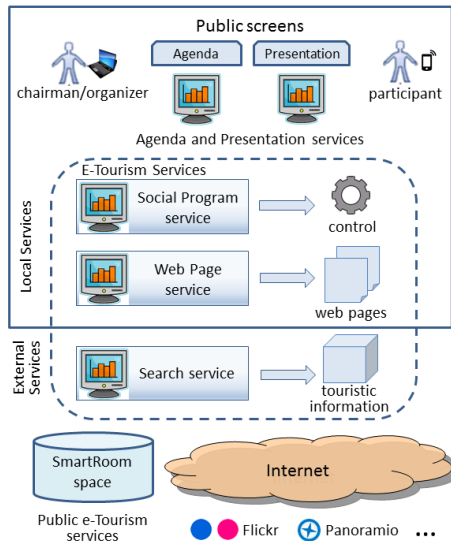
Screens of SmartRoom's components for Tourist agency



→ Tour programs: groups, timetable, transfer, ...

# Our Approach

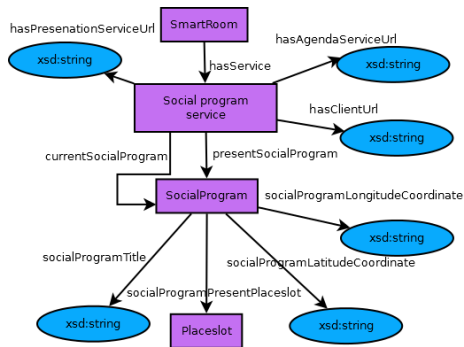
- Enhancing primary SmartRoom services with additional information: Agenda and Presentation
- Use of touristic data sources from the Internet: Flickr, Panoramio, ...
- Focus on SmartRoom users: collaborative work combined with conference activity



## Implemented services

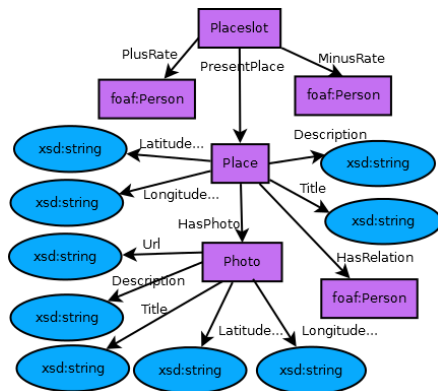
Service	Description	Tools
Social Program	Control and construction of a social program based on available POIs and tours to visit and the decisions of participants	C# .Net, WPF, SmartSlog
Search	Information search for POIs and tours in external data sources (e.g., photos in Flickr)	C# .Net, SmartSlog, Panoramio API, Flickr API
Web Page	Generation of web pages based on service templates and sharing the links in the SmartRoom space	Python, Python KPI, HTML5&JS, REST

# Ontology for Social Program service



- *Social Program service individual* stores URLs for Client, Agenda and Presentation service
- Each program is in *Social Program* individual
- *Placeslot* individual is for connection with POIs individual
- Coordinate properties are for automated search

# Ontology for POIs

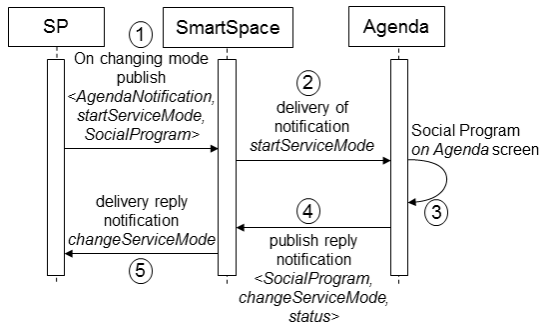


- For each participants is known voting result on POIs
- Participants can have semantic relations with POIs (e.g., the architect of the building was from certain country)
- Every POI has many *Photo* with appropriate properties
- POI individual can be used cooperatively with other SmartRoom services



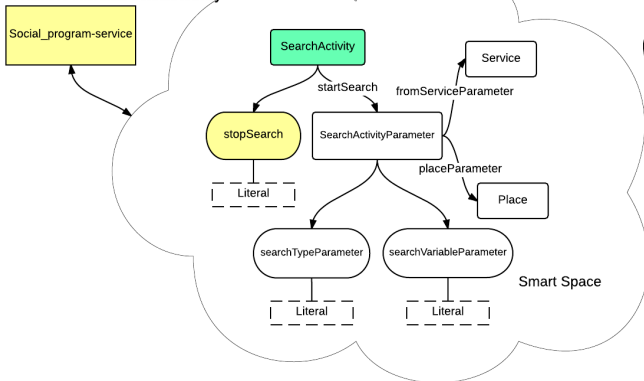
# Interaction between agents: Notification model

- Votes recalculation
- Update service page
- Changing Agenda and Presentation services modes
- Based on publish/subscribe model
- Simplifying interaction between agents



# Interaction between agents: Activity individual

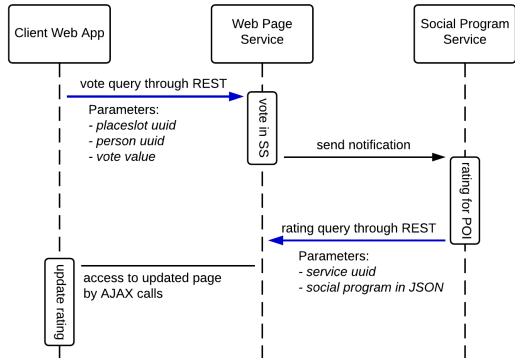
1. Insert individual **SearchActivity**
2. Subscription on this individual property **stopSearch**
7. Get search status from property value
8. Remove individual **SearchActivity**



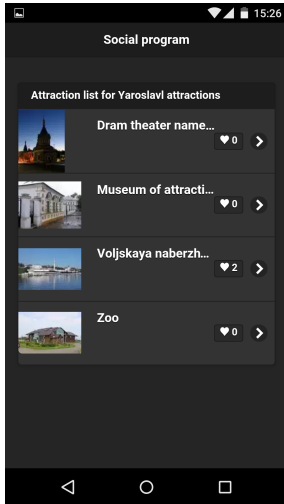
3. Subscription on **SearchActivity** class
4. Get search parameters
5. Start search
6. Set search status in **stopSearch** property

# Interaction between agents: REST query

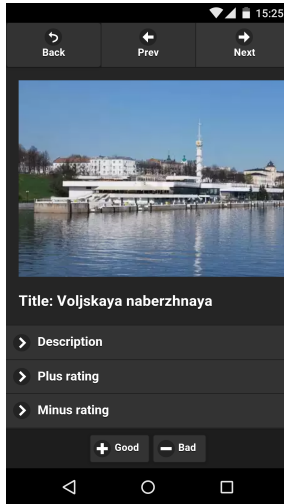
- Client interact with smart space through web app
- Web app interact through REST query with Web Page service
- POST & GET requests with special URL
- JSON object for passing individual to client



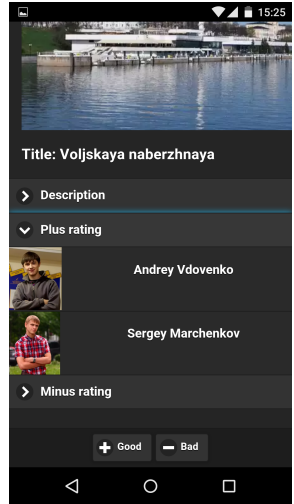
# Screen examples: Clients



List of places

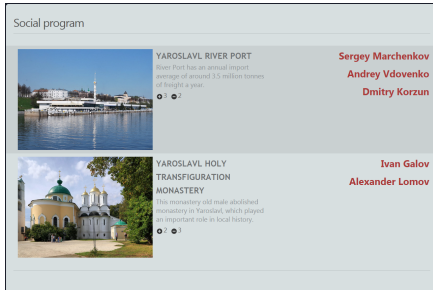


Place page

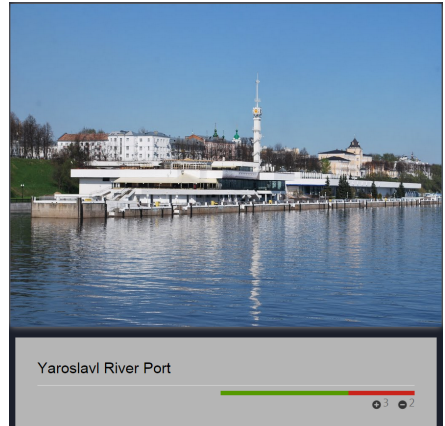


Who vote

# Screen examples: Agenda and Presentation services



Agenda service



Presentation service

# Conclusion

- Easy expansion of SmartRoom base system with services of different domain
- Implemented three services for supporting e-Tourism:
  - ~> Social Program
  - ~> Search
  - ~> Web Page
- Several type of interaction:
  - ~> Notification model
  - ~> Activity individual
  - ~> REST query
- Prototype of constructing social program by collaboration of participants

Thank you for attention

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