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EIFFEL

Evolved Internet Future for European Leadership

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First EIFFEL Meeting Report

Abstract:

This document gives detailed report of the first meeting of the EIFFEL Think-Tank, including organizational details, participant list, summary of the discussions that took place in the meeting and actions and planning towards the second meeting.

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RE	Restricted to a group specified by the consortium (including the Commission Services)	
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1 Introduction

The First EIFFEL Think Tank meeting took place at the Hotel Steinberger in Frankfurt-Langen, Germany, on September 30 & October 1, 2008.

The EIFFEL Think Tank (TT) is the main tool for stimulating debate among practicing experts. Researchers with strong track records from all over the world were invited to come to the TT meeting in order to discuss the status and directions of Future Internet research and identify the key issues where significant energy and effort needs to be directed. The scope and direction of discussions were to be defined by the participants' positions and the degree of consensus on key challenges.

The First EIFFEL Think Tank meeting did take place with considerable delay compared to the original plan. The main contributor to the delay was the fact that EIFFEL caretakers organized and were involved in the conference on "The Future of the Internet—Perspectives emerging from R&D in Europe" in Bled, Slovenia 31 March-2 April 2008. The Bled event consumed a window of opportunity for the first TT meeting. There was then an attempt to schedule the first TT meeting for later in the Spring of 2008, but it was apparent early in the planning that there was not enough distance from the potential event time to allow prospective invitees to attend. It was then decided to reschedule the first TT meeting for early Fall 2008 to allow time for invitations and planning of the event.

An extra difficulty with the scheduling of the first TT meetings in general is that they are not established events with more-or-less regular times, which interested people take into account when they plan their schedules or other events; they are not even publicized since they are by invitation only events. Thus, even with considerable attention to related meetings and events that were known when the time was selected for the first TT meeting, conflicts were not avoided. There were at least three events with partial overlap with the TT meeting which were competing for participants: a Future Internet Concertation event in Brussels, the Future Internet Symposium in Vienna, and the Euro-NF General Assembly (FP7 NoE). This overlap which was coincidental, also shows how oversaturated the field has become with different events.

However, problems aside, the first TT meeting took place with 27 participants overall, including both external members and consortium partners. The climate was extremely good and the reasonable size of the meeting contributed to the discussions focusing on core issues and supported dialog, rather than just presentations with statements serving various agendas. These were two full days with all participants being continuously engaged, even during meals and breaks (in this location which was close to one of the main International airports, but seemed otherwise isolated). Apart from the invitees who participated, the feedback from the invitations was also very good. Close to 30% of the invited members did attend; as expected, the participation ratio from Europe was much higher than participation from the rest of the world. Only one invited person informed us that the particular person was not interested in an EIFFEL-type of activity. A couple of people did not react to the invitation at all. From all the remaining invitees there was positive feedback and virtually everyone who was declining the invitation to the Frankfurt TT meeting due to date conflicts was asking to be invited to the next meeting.

Even though this meeting itself did not generate any entirely new research ideas, nor did it produce any final assessments of the state-of-the-art, or the relative value of various research directions or approaches, the group of participants felt and stated that it was an important start for the process, successfully tested the concept and procedures for the TT meetings, including break-out sessions producing drafts of statements on the issues relating to the future of networks, the Internet, and the Future Networked society. The first meeting was in anyway designed to be a kick-off for

organization, getting more visibility and agreeing on procedures and “rules of the game” with TT members.

2 Invitation process and the final list of participants

Starting point

The first action within the EIFFEL project was to discuss the profile of the people we wanted present at the EIFFEL Think Tank and then we considered the mandate for the meeting.

In terms of people, we determined that we wanted a set of free thinkers who have strong but thoughtful opinions on what needs to be changed in the Internet and how could we go about getting the necessary changes. We wanted to try and avoid getting people who would just propose and assert the agenda of one of the known working groups as this would limit us to the conventional thinking of today. We then determined that we needed a reasonable mix of academic freethinkers and experts from different industry sectors if we were going to have a good comprehensive conceptual view of what the future Internet might bring.

In the invitations, we explained that the EIFFEL Think Tank is a series of meetings occurring during the coming 2.5 years, organized by the EIFFEL project and that the EIFFEL project itself is independent, (i.e., it is not affiliated with any large consortia, government organization, or industry group—however, its relation and link to the EU was explained). EIFFEL aims at gathering together top researchers to debate on the future research needs and trajectories of the Internet and "Future Networked Society". Regardless of its European origin and EU funding the Think Tank itself is international and takes a global view.

Mandate of the meeting

The mandate of the first TT meeting was to gather the possible issues and see which ones had the potential to significantly improve the Future Internet. In some way this would allow us to determine a list of critical issues on which EIFFEL should form innovative positions at future TT meetings. The outcome of this first meeting should be shared with the European research community to give the EIFFEL view on the key areas for attention.

The TT meeting would be an academic research retreat type of technical event - consisting of presentation, panel, and working group sessions. The format was designed to allow for a high-degree of interactivity among participants, as well as opportunities to dig deeply into specific topic areas of interest.

This event was not open to the public as EIFFEL meetings are restricted to the targeted community of experts.

Assembling the Community

Within the EIFFEL project we then started building a list of candidates. This list was based on our own contacts and the prominent work published by individuals that demonstrated a competence and capability to contribute to the discussion.

Within quite a short time we had ca. 75 potential candidates on the list.

After careful deliberation, we sent out a limited number of invitations to the selected experts in academia and industry to gather together to discuss important problems in realizing the Future Internet. Also, we kept the opportunity open to invite a few graduate students to attend the summit

as a way to encourage research in this area, as well as to provide them with an opportunity to get technical feedback on their ideas from some of the thought leaders in this space.

The preliminary invitation was sent out to the first 50 candidates.

After the initial replies were received and the initial attendance list determined, invitations were then sent to some extra candidates.

This resulted in a participation rate of about 30%. There was an issue of the date clashing with other Future Internet related events that prevented some of the initial list of candidates accepting. The participation rate was deemed to be quite good when taking in account experience from similar events (e.g. Dagstuhl workshops) and the fact that this was the first meeting of EIFFEL group, so no strong "brand name" existed. The participation from European invitees was also at a high level, roughly equalling 50% of the invitations sent, accounting for few literally last day cancellations for, e.g., visa problems.

List of Participants

- Rui L.A. Aguiar, Universidade de Aveiro
- Bob Briscoe, BT
- Vinay Kolar, RWTH
- Steve Hailes, University College London
- Prosper Chemouil, Orange Labs, France Télécom
- Piet Demeester, Gent University
- Tomaz Klančnik, Josef Stefan Institute, Slovenia
- George C. Polyzos, AUEB
- Nikolaos Laoutaris, Telefonica R&D
- Borja Jerman-Blazic, Josef Stefan Institute, Slovenia
- Jörg Liebeherr, University of Toronto
- Paulo Mendes, INESC Porto
- Petri Mähönen, RWTH
- Jörg Ott, Helsinki University of Technology
- Dipankar Raychaudhuri, Ruttgers University
- Frank Reichert, HIA
- Jim Roberts, France Telecom
- David Kennedy, Eurescom
- Nirmala Shenoy, Rochester Institute of Technology
- Janne Riihijärvi, RWTH
- Karen Sollins, MIT
- Dirk Trossen, BT Research
- Dimitri Papadimitriou, Alcatel Bell
- Marina Petrova, RWTH
- Frank Stajano, Cambridge University
- Lixia Zhang, UCLA

3 The meeting plenary

The general focus of the first meeting, aligned with our description of work, was to bootstrap the discussions and topics through position statements and group work. Hence, the meeting was dominated on the first day by position statements of TT members. These statements were solicited beforehand with a limit of ca. 15 minutes. The rough guideline for these statements was to focus on critical challenges for the Future Internet and visions that might drive its development. The statements were supposed to create debate and form the foundation for the break-out groups later on.

A first, longer than expected, discussion was sparked from the opening remarks on *research style*. It was interesting to see that the debate of "engineering" vs. "science" emphasized the fundamental limitations of the current "networking/computer communication community": there is little available when it comes to predict the current behaviour and the evolution of the system (most of the efforts are oriented toward building/engineering the system and then measuring/observing the resulting system: this is the baseline of an empirical approach).

Furthermore, as expected, the position statements session needed extensions into the afternoon due to the intensive discussion that was sparked by the presentations. After the invited position statements, individual statements were made by each TT member.

The afternoon session, after finishing off the position statements, was dedicated to defining the break-out groups. Following the discussions in the morning, three groups were formed, focusing on *technology*, *business* and *society*, the latter focusing (although not exclusively) on privacy and security. These topics were arrived at based specifically on the inputs from the TT members collected by the organizers during a dedicated slot in the agenda. The rest of the afternoon was then dedicated to distilling a list of crucial issues in all these areas.

The plenary was continued on October 1st with the break-out groups, summarizing their discussions from the first day. The reports from the break-out groups can be found after the approval from TT members on the EIFFEL TT wiki at http://wiki.eiffel-thinktank.eu/index.php/Main_Page. In the final session, feedback was gathered from the participants on the general usefulness of the meeting, the approach and the steps forward. As next steps, the extension of the EIFFEL wiki was agreed on and an editorial team for the EIFFEL technical report was formed by the participants.

The agenda for the meeting itself was originally planned as follows:

30th of September

- 09:00** Welcome, Introductions of participants and Objectives of the Meeting (with Coffee)
- 09:15** Why we need the future research? Aims of this and future meetings. Setting up the scene.
(P. Mähönen)
- 09:35** Break
- 09:45** Opening talks from selected participants on technical topics and food for thought.
Preparatory talks: Session 1
- | | |
|----------------------------------|--------------------------------------|
| Jörg Lieberher (Toronto) | "Overlay-based network architecture" |
| Frank Stajano (Cambridge) | "Defend the regular humans!" |

- Bob Briscoe** (BT) "Staying focused on the big unsolved problems, e.g., Resource Accountability"
Dipankar Raychaudhuri (Rutgers) "Emerging Wireless Technologies and their Impact on Future Internet Architecture"

10:30 Preparatory talks: Session 2

- Dirk Trossen** (BT) "From Design to Runtime: Tussle Networking Challenge"
Karen Sollins (MIT) "Network Management: an Architectural Challenge"
Lixia Zhang (UCLA) "Looking Back, Looking Forward: A few observations about the Internet (r)evolution"

11:30 First commenting round

Opening statements from each participant, stating what they think are the critical challenges that must be addressed to allow the future Networked society to emerge. Concentration on identifying the technical topics and issues of high interest and relevance to the community - what needs to be done now!

12:40 Lunch, Group Photo

13:45 "Vote with your feet": Selection of more detailed discussion topic, and possible split to two or three sub-groups to prepare more detailed technical stand/debate on those issues.

14:00 Work in breakout sessions

15:30 Coffee Break

15:45 Discussion on technical topics and challenges

17:30 Reports from breakout sessions and discussion

18:00 Break

19:00 Dinner

20:30 "Night Sessions"

1st of October

08:00 Breakfast (in hotels)

08:45 Coffee available

09:00 A selected talk from a participant reflecting the previous day results

09:15 Plenary discussion on the technical research trajectories in front of us

10:30 Work in breakout sessions or in plenary mode preparing consensus statement

12:30 Lunch

13:45 Wrapping up working groups, actions and plans for next meeting – Reports from working groups, identifying needs for the future work, homework

15:30 Coffee and closing up the meeting

4 Formation and initial sessions of working groups

Following the rather intense discussions in the plenary, the process of forming first break-out groups was initiated. The structuring of the following parts of the meeting was not dictated in detail in advance, but rather the topics and composition of the break-out sessions were left for the members of the TT to decide. The organizers facilitated the process by arranging a short session for input collection on possible topics for the break-outs, which were then synthesized into a smaller number of topics. In the end, three groups of topics received the majority of support, and were adopted as a basis for the remaining work in the meeting. These were:

- *Technical Challenges*, aiming to crystallize the key “Grand Challenges” the Internet of the future has to face.
- *Business*, with the objective to discuss and debate the role of business models, value chains and related issues in networking and challenges arising from those considerations.
- *Security and privacy*, the focus of which was to understand the issues related to ever increasing complexity and availability of personal information in the future networked society.

All of the break-out sessions received good numbers of participants, although in the Business session somewhat industry-heavy participation was observed. The largest group was the Technical Challenges group, although it must be noted that all the groups had more than adequate participation and good discussion levels. The chair of the meeting was rotating between groups to monitor the progress and also to ensure that there is enough cross-fertilization of ideas between groups. This approach proved as a workable method to ensure progress and cohesion in different aspects.

Overall the discussion was lively and productive, and all the groups produced substantial amount of notes into the TT wiki to serve as a basis for future work. Due to the relatively short time available to the break-outs the objective was not to arrive at consolidated inputs at this stage, but rather to obtain inputs that could be used to form the first actual working groups that would also be operational in the times between the actual TT meetings. In this role all the break-outs were quite successful. Following the TT meeting the input from the groups was used to establish three Areas of Investigation with a different care-takers being responsible in fostering the discussion within each of them. The established areas are specifically

- Technology (Dimitri Papadimitriou),
- Economics (Dirk Trossen), and
- Society (Borka Jerman-Blazic).

The care-takers responsible will continue to drive the work taking place within the areas in preparation to the second TT meeting taking place in February 2009 in the London area.

The consensus report from the first meeting will be prepared to be discussed in the February meeting, and hopefully will be accepted and adopted there as the first Think Tank report.

5 Summary of the meeting outcomes and next steps

The meeting outcomes can be summarized as follows:

- **Creation of an initial community:** in accordance with our agreed process for establishing the EIFFEL TT, the first meeting served the purpose of creating an initial community out of which we can bootstrap future meetings and discussions. This outcome has been achieved with the first meeting. The participating TT members specifically appreciated the intent of the TT and showed the willingness to participate in future meetings of this kind.
- **Creation of first areas of work:** the presentations and break-out groups led us to a first set of work areas, namely *technology*, *economics*, and *society*. These work areas will form the basis for the next EIFFEL TT meeting in terms of discussions and debate. But it also guides the process of refining the TT members through inviting new members that would enrich the discussions in these areas. The work areas, together with the notes from the break-out groups, have been transferred to the EIFFEL wiki in order to serve as a ground for online discussion among the TT members. Areas leaders have been appointed to facilitate the discussions within each area. In addition, area-specific mailing lists have been established with sub-groups according to the interests of individual TT members.
- **Creation of a first report:** a small editing team was formed at the EIFFEL TT meeting to summarize the findings of the meeting in a concise report. The writing for this report is still ongoing at the time of writing this deliverable. But it is expected to be finalized in due course for providing input into the next TT meeting.

Topic-wise one of the largest surprises was how much the discussion time was used on understanding better the research style and possible need for a “big science” approach in networking research. This was felt to be a very important topic by TT-members. It should be noted that the discussion went much beyond the simple need of discussing large-scale testbeds, in fact testbeds were only a small part of this discussion item. There were also comments made on the impact and motivation of research in various contexts. Similarly this discussion was almost completely avoiding a classical debate between fundamental “disruptive” research vs. applied research, as the research style issues were seen to be at a different level of the debate. In the European context, there maybe some parallels on discussions and debate on FET vs. non-FET type of research.

Another more expected discussion item, but also deeper and stronger than expected, was a round of comments about value-chains and business models. There was a general consensus in the TT that network economics and real-world economical constraints need to be taken into account in the future research. However, in this domain it was many times mentioned by several participants that this must include also disruptive new ideas that might actually perturb the present status quo and possible stakeholders. The network economics and real-world boundary conditions do not necessarily mean that the present day status quo would be, or should be, kept intact.

Third strong recommendation arising from the meeting was that the **real-world problems** should be understood better. There were hints that some of the present research seems to be solutions desperately looking for problems. Some of the TT members who have worked more closely with operational network people said that the practical problems in the current Internet are much different than the often quoted “Grand Challenges” of research projects. As one specific action point from this discussion, it was decided to invite few people from the operational networks

community to give talks in the beginning of the next TT meeting to provide a practical “devils-advocate” view on the problem statements.

The next steps will be:

- **Organize the second TT meeting:** the next TT meeting will take place in February 2009 and organization for this meeting is currently ongoing. Invitations have been sent out to an extended circle of invitees which include the participants of the first TT meeting. With that, we intend to grow the initial community.
- **Identify new TT members:** the work areas have been taken as a guidance to identify new TT invitees for the second meeting. An initial list of new TT members has been created with the expectation to revise this list, depending on the availability of invitees to attend the planned second meeting.
- **Deepen the TT discussions:** the wiki pages as well as the mailing lists will be used to deepen the area-specific discussions in preparation for the second TT meeting. The discussion on research style and the big science approach to networking will also be continued, as this issue was raised by several TT members during the talks and sparked intense discussions. Another central topic identified was the need to consider new business models and value chains as being central to the evolution of the Internet of the future. Finally, all of these discussions and materials will be produced under appropriate level of confidentiality and initially without naming the individual contributors unless specifically agreed with the persons involved, until mature outcomes are obtained.

6 Conclusions

The First EIFFEL Think Tank (TT) meeting took place near Frankfurt-Langen, Germany, on September 30 and October 1, 2008 with about 30 participants. The atmosphere was extremely good and the small size allowed true dialog.

The TT felt and stated that it was an important start for the process and it successfully tested the concept and the procedures for the TT meetings, including TT member selection, invitations, and meeting format, agenda and break-out sessions. Thus, an initial community was created along with some initial work areas, namely technology, economics, and society.

It is now important to establish momentum with a successful second TT meeting, which is being organized for February 2009. Additional members will be invited and invitations will be renewed to the original TT invitees. With the TT wiki operational, it is already used as a tool for TT invitees to contribute and shape the second TT meeting agenda.