# Getting out of the breakdown:

# Towards Humans Social Networks on the Grid

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***Abstract.*** *This paper describes an ongoing work which main aim is to help people to solve their problems by communicating through the Internet. Humans can be included into conversational processes through GRID services respecting the Open Grid Human Service Architecture (OGHSA). Within these conversations, they can consume or provide services. Considering that, "serendipitous" learning is as a side effect of human communication. However, the main question concerns how to represent, use and maintain human reputation in Human Social Networks.*

## 1. Introduction

In our daily work, we face with many, urgent and crucial problems that we are not able to solve immediately. Sometimes, this impasse occurs because: (i) we do not know how to solve them; and (ii) we do not have the time to spend in learning how to solve them. However, we must solve them anyway to make our work progress. In order to do it, many times we try to find some solution or some clue surfing on the Internet or, either, asking someone who we know that can help us. Nevertheless, it can take from us a precious work time. The urgent daily problems come just before a "breakdown" situation. The same breakdown situation is also the essence of a learning theory [Heidegger 1954]. It pushes people to reflect about what they have done [Winograd and Flores 1987]. For instance, we can present a breakdown situation like an impasse that, suddenly, appears in a scientist's meeting. The impasse is caused by some problem/doubt/question appeared in the meeting such that scientists do not know how to answer or to solve it. The breakdown provides a "serendipitous"[b] learning opportunity putting people in contact in a cooperative/collaborative/conversational context. When the breakdown arrives, we need support in order to assist people to overcome their

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[b] To happen by "accident".

"breakdown" status. Therefore, we propose to develop a collaborative/cooperative/conversational web/grid service to take advantage of the breakdown situation transforming it in a serendipitous learning opportunity.

## 2. Human Social Networks and Dynamic Service Generation

E-science is a context envisioning Virtual Organization where humans (scientists) are considered as potential service providers and consumers in a network. E-science is conceived to produce science through Internet, thus it becomes natural to include human participation in Virtual Organizations. Human Agents are in a rich communicative net context (Scientist Social Network). E-scientist do not want to use the net just because it may merely replicate their current skills, rather they want to profit from a new services that enhance their collective production of knowledge as a serendipitous side effect of their enhanced communication [Cerri 2005].

Scientist Social Networks are supported by some web/grid tools based on conversational processes [Lemoisson et al 04], as well as enhanced presence support (modern Instant Messaging) [Eisenstadt et al 2004, Jonquet et al 2005]. Nowadays, there are many public virtual environments (Yahoo Messenger/Groups, MSN Messenger, Buddyspace [Eisenstadt et al 2004]) where scientists can meet in order to exchange experiences and collaborate in conversational processes. However, if scientists have some urgent problem (doubt) during their meeting, they do not have means to find efficiently some effective help.

The computer can eventually answer a question (the "product" view [Allison et al 2004, Cerri 2005]) but the problem is how much time it will spend to do it in an adequate way with respect to the user's wish. "Humans do not really interact with their computers, humans simply ask them to answer some precise question, to compute some algorithms" [Jonquet et Cerri 2005]. In a e-scientist meeting, many times people need suddenly some unforeseen and urgent answer during the interaction process. Nowadays, there is no way to fulfil this functionality, unless with an ideal omniscient knowledge system, that belongs to the utopian world of dreamers. E-scientists do not want some ready-made product available in the net (web/grid) to solve their question/problem which cause a breakdown situation. Rather, they would prefer to be put in contact with a human able to advise them to find a solution to the problem, either by consulting some specialized information/knowledge system or by asking help to a specialist knowledgeable about the issue and available for helping. We intend to help people to solve their urgent problems in a breakdown situation by using Human (scientists) Social Networks in a Dynamic Service Generation context [Jonquet et Cerri 2005].

Our approach aims to contribute to change the focus form products to services in the web/grid [Allison et al 2004, Cerri 2005]. Grid technologies are more and more adopted in scientific computing. They support the sharing and coordinate use of diverse resources in dynamic and distributed Virtual Organizations. Scientists propose OGSA [Foster et al 2002] in which Grid provides an extensible set of services. According to Cerri [Cerri 2005], "once the human is considered a potential service provider and consumer in a grid network, it becomes natural to include his participation in virtual organizations. This entails his proposed change from OGSA (Open Grid Service Architecture) to OGHSA (Open Grid Human Services Architecture). According to

Jonquet and Cerri [Jonquet and Cerri 2005] "The notion of product puts forward the idea of obtaining the delivery of something already existing, whereas the notion of service puts forward an idea of action or creation of something new". The e-scientists (service providers) in a Dynamic Service Generation (DSG) context will build the solution dynamically within a conversational context where learning occurs as serendipitous side effects of collaborative conversations.

## 3. Partial Conclusions

As we all know, Humans (e.g. scientists) are potential service providers. We decide to exploit their potential by means of a web/grid tool able to match people based on the "right" profile. The matching process will be able to put people in contact allowing them to find someone that can help them in their impasse to overcome their breakdown situation. The matching tool will match the user information stored a dynamic user profile description. We are especially interested in the psychological aspects of user profiles including aspects necessary for creating and maintaining their reputation in the Human Social Networks. We believe that user reputation based on personality traits [Allport 1921] gives confidence to scientists to be trustable within Human Social Networks.

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