

Presence Awareness in Global Software Engineering

Anders Bech Mellson
anbh@itu.dk

Kristian S. M. Andersen
ksma@itu.dk

Mads D. Christensen
mdch@itu.dk

ABSTRACT

Author Keywords

Activity Monitoring

General Terms

Documentation, Theory

INTRODUCTION

RELATED WORK

Computer-Supported Cooperative Work (CSCW) started to appear as a research area in 1986 [4]. Modern companies need to innovate, be flexible and have a high product quality. This requires fluent cooperation horizontally across the company and in cooperation with outsiders. This requirement has created the high demand for good tools to support cooperation. Many have tried to contribute to the field of CSCW; here we will look at a few that are related to the project at hand.

The idea of a context aware systems started at Xerox PARC through the idea of smart spaces, smart rooms and other context aware technologies. These context aware systems made it possible to make a system react to a given situation. For instance if a person walks into a smart room, his work related documents would be accessible in that room automatically.

NooSphere [2] is a service based activity-centric infrastructure that supports the development and deployment of distributed interactive systems. It conceptualizes activity as its base of context, meaning its first class object is an activity that is minimally composed of users, meta-information, actions and resources related to that activity. NooSphere enables the development of context aware systems both through its infrastructure and because it has a built in discovery system that makes it easy to sense other devices around it.

Another example of an infrastructure that supports context aware applications is Ocon [3]. Ocon is a context aware system built to emulate and enhance the properties of a SCRUM-board. Even though the papers proof-of-concept and motivation was the SCRUM-board, their architecture could be used for other context aware applications. Ocon is built in .NET and consists of three components (i) central (center of infrastructure, decides when and how to notify the clients), (ii)

client (acts as actuators, notified when a specific event occur) and (iii) widget (translates and sends sensory input to central).

For this specific project we feel that NooSphere is too extensive for our needs and the Ocon paper have not indicated that Ocon is scalable. Because of this we have decided to create our own infrastructure.

For this infrastructure we will be using the actor model [1]. The actor model is a way to model computer programs where everything is split up into the smallest possible unit of work. These units are encapsulated in an actor. And the actors communicate by sending messages to each other. Actors does not share any state making it possible to run actors in parallel and even on different machines. This makes the actor model a good candidate for building highly scalable applications.

For evaluation we will use Gutwins awareness framework and the C3 model as points of measurement.

TECHNICAL IMPLEMENTATION

DISCUSSION

CONCLUSION

REFERENCES

1. Hewitt, C., Bishop, P., and Steiger, R. A universal modular actor formalism for artificial intelligence. In *Proceedings of the 3rd international joint conference on Artificial intelligence*, Morgan Kaufmann Publishers Inc. (1973), 235–245.
2. Houben, S., Nielsen, S., Esbensen, M., and Bardram, J. E. Noosphere: an activity-centric infrastructure for distributed interaction. In *Proceedings of the 12th International Conference on Mobile and Ubiquitous Multimedia*, ACM (2013), 13.
3. Jacob B. Cholewa, Mathias K. Pedersen, M. E. Ocon - a context-aware framework. Tech. rep., ITU, 2014.
4. Schmidt, K. Cooperative work and its articulation: requirements for computer support. *Le Travail Humain* (1994), 345–366.