ACM/IFIP/USENIX 11th International Middleware Conference. NUUG travel grant report

Domingo Díez

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1 Journal

1.1 Monday, November 29

- Tutorial 1: Middleware for Challenged and Dynamic Systems.
  The title of this presentation leaded me to start the conference week with this one, instead of going to the first workshop presentation. This presentation was a good introduction to middleware technologies.
  The most remarkable idea, I learned, was the concept of opportunistic computing.
  After this presentation, I went to my workshop room.

- 2nd International Workshop on Middleware for Pervasive Mobile and Embedded Computing (M-MPAC'2010).
  - *Jano, Specification and Enforcement of Location Privacy in Mobile and Pervasive Environments.*
  - *A Location Based Security Framework of Authenticating Mobile Phones.*
    I missed the first presentation and this one because I was more interested in assisting to the Tutorial 1. But during the coffee break, I addressed the later presenter, Mr. Lishoy Francis, who is a doctorial researcher of the Royal Holloway, University of London, to interview him about his presentation. He kindly presented again his work which was particularly interested for me. Because his solution for providing privacy and authentication services for cellphone applications would be applied on my research work as well.
  - *Exposing Position Uncertainty in Middleware.*
    The main idea exposed was which the best programming techniques to deal with uncertainty were. There were explained three: API support, event-based mechanism or decorator-pattern-based mechanism. The presenter, Mr. Jakob Langdal, concluded the later one, which he called annotations, is the most suitable. Uncertainty is one of the main issues my work has to solve.
  - *Model-based Translucency in Middleware: Supporting Seamful Development.* This presentation brought the needs of offering the users a way to configure a middleware beyond the API.
  - *System Support for Anywhere Anytime Personal Computing Environment.*
  - *The Virtual Network System.*
    The exposed solution is a middleware that enables a unified APIs for applications to use any communication technology, local or remote. Considering the broad range of communication technologies which are on-board a Unmanned Aerial Vehicle (UAV), which is my research field, this presentation and its related paper were to be studied carefully.

– *Beaconing support in Publish-Subscribe Middleware for Vehicular Applications.*

1.2 Tuesday, November 30

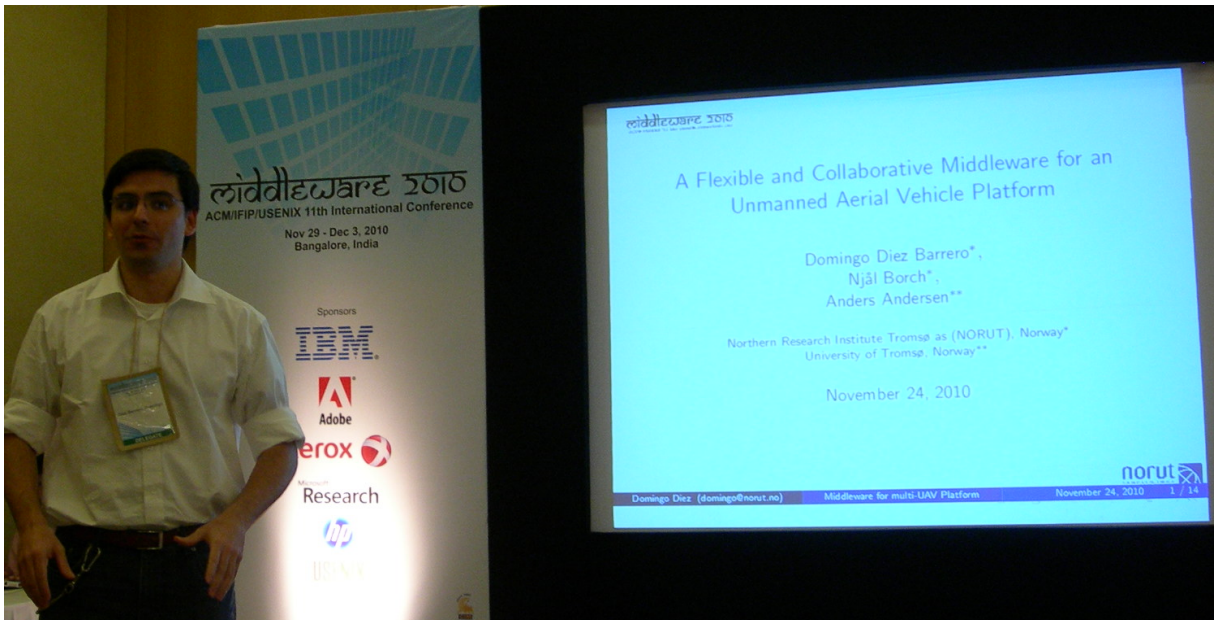

Figure 1.1: Picture of my Doctoral Symposium presentation.

- 9th International Workshop on Adaptative and Reflective Middleware (ARM'2010).
  This day was spent half in this workshop and half in the Doctoral Symposium where I had to do a presentation about the current stage of my research work.
  The presentations were really interesting, but I should highlight I met Mr. Richard E. Schantz, principal scientist of Distributed Systems and Logistics, Cambridge, USA. He is a senior researcher who has been working on UAV platforms for years. His comments and advice about how I should face my research in my specific field were really meaningful. Explicitly, I asked him for some good references and he provided me with this link where I have been able to find his research centre publications. Besides, he gently pointed me the most interesting ones for me. Coming across him made the conference dinner worthy.

  – *Pattern-Driven Performance Optimization at Runtime: Experiment on JEE Systems.*
  – *Towards Automatic Tuning of Adaptive Computations in Autonomic Middleware.*
  – *An extensible framework for middleware design based on concurrent event-based AOP.*
  – *Towards an Adaptive Deployment an Configuration Framework for Component-based Distributed Systems.*
  – *SUSTAIN: An Adaptive Fault Tolerance Service for Geographically Overlapping Wireless Cyber-Physical Systems.*
  – *Adaptive Context Reasoning in Pervasive Systems.*

- *Immediate Detection of Predicates in Pervasive Environments*.
- *VOLARE: Context-Aware Adaptive Cloud Service Discovery for Mobile Systems.*

- *Doctoral Symposium.*
  Obviously, in this session the most remarkable for me was my presentation. This presentation was based on an six-page article which is my very first publication. Besides of publishing itself, I was looking forward to having guidance and advice from the middleware experts who would drive the session. I was not disappointed.
  Writing this paper started as a rehearsing exercise because of the scarce chances of being approved, and it ended as a oral presentation exercise when it was accepted.

1.3 Wednesday, December 1

- Keynote 1: Decentralizing Wikipedia: A scientific experiment in engineering middleware solutions.
  Honestly, the talks I enjoyed the most were the morning keynotes. The keynote speakers were really didactic and expressive. The keynote which was the best for me was this. The speaker was Mr. Maarten van Steen from the Computer Department of the VU Amsterdam. Basically, his talk was about the issues and the solutions about how to migrated from a centralized architecture to a almost pure decentralized one over a set of untrusted computing nodes called "collaborators".

  The rest of presentations were really technical, thus I had problems to understand many topics and ideas.

- FLEX: A Slot Allocation Scheduling Optimizer for MapReduce Workloads.

- Adapting Distributed Real-time and Embedded Publish/Subscribe Middleware for Cloud-Computing Environments.
  I must highlight this presentation among the rest because of its outstanding importance for my research work. The presentation introduced the ADAptive Middleware And Network Transports (ADAMANT) platform. This is a QoS-enabled Pub/Sub middleware that integrates and enhances the Adaptative Network Transportation framework to support multiple transport protocols and the Artificial Neural Network machine learning technology to select appropriate transport protocols in a timely and reliable manner. This open source project might be the corner stone to start to develop my own research.

- BrownMap: Enforcing Power Budget in Shared Data Centers.

- A Dynamic Data Middleware System for Rapidly-growing Scientific Repositories.

- Anonygator: Privacy and Integrity Preserving Data Aggregation.

- Middleware for a Re-configurable Distributed Archival Store Based on Secret Sharing.

- On the Feasibility of Dynamic Rescheduling on the Intel Distributed Computing Platform.

- CosMig: The Cost of Reconfiguration in a Cloud.

- Tide: Achieving Self-Scaling in Virtualized Datacenter Management Middleware.

- *Poster session.*
  I achieved to be accepted a paper for the poster session too. My poster summarized the content of the mentioned Doctoral Symposium paper. It allowed me to introduce my work to all the conference attendants. Thus, I was able to collect more ideas and comments, furthermore getting to know more work which could be related to my own. This poster let me meet two University of Oslo PhD. students who are working on areas close to mine.

1.4 Thursday, December 2

- Keynote 2: Mobile + Cloud: It rains opportunity.
- Parametric Subscriptions for Content-based Publish/Subscribe Networks.
- Kevlar: A Flexible Infrastructure for Wide-area Collaborative Applications.
- FaReCast: Fast, Reliable Application Layer Multicast for Flash Dissemination.
- The Gossple Anonymous Social Network.
- Promethesus: User-Controlled P2P Social Data Management for Socially-Aware Applications.
- PerPos: a Translucen Positioning Middleware Supporting Adaptation of Internal Positioning Processes.
- dFault: Fault Localization in Large-Scale Peer-to-Peer Systems.
- Bridging the Gap between Legancy Applications and Web Services.

1.5 Friday, December 3

- Enforcing end-to-end application security in the cloud.
- iFTinG: Lightweight Freerider-Tracking in Gossip.
- Distributed Middleware Enforcement of Event Flow Security Policy.
- Automatically Generating Symbolic Prefetches for Distributed Transactional Memories.
- Asynchronous Lease-based Replication of Software Transactional Memory.
- Middleware for Runtime Assessment of Information Assurance.
- Control Plane Integration for Cloud Services.
- Comparing XML Processing Performance in Middleware and Database.
- Efficacy of techniques for responsiveness in a wide-area publish/subscribe system.

2 Conclusions

This conference in middleware technologies was interested and useful in many aspects. First, it offered the opportunity of presenting my work in the Doctoral Symposium session to get valuable feedback from the worldwide middleware experts. Furthermore, by means of the presentation of a poster in the poster session, comments and ideas from the conference audience were collected in turn. These session papers were my very first publications. Second, I got to know some important and intimacy related research work which could guide my own prospective work. Third, I met researchers who are working on either my same field or close fields. These researchers offered me their comments and ideas about how I should carry on my work.