

Title: Agent Based Software Systems: System Level Issues

This tutorial presents software agent based systems from the system perspective. We show an animated presentation with many examples of what agents are, how they have evolved, their environment requirements (communication, mobility, etc.) and performance considerations. We describe support tools and give code examples in various programming languages, particularly in Java. This tutorial may be a full day or half day.

Outline of tutorial:

Introduction

- What are agents (including animated presentation)
- The evolution of agents, with examples
- Agent characteristics: autonomy, asynchronicity, intelligence
- Work sharing, load balancing and distributed work through agents

Example systems: analysis and design issues

- Requirements: communication, mobility, state information, performance

Support tools and code examples

- JAVA based: Aglets and Agenta
- TCL based: TACOMA
- Using distributed/mobile agents:
 - A hospital/emergency room example
 - Network monitoring and Data Base examples

Future work and trends

Audience:

We assume that the audience are computer professionals interested in agents, understand the basics of the Internet (or networks) and know a little Java (or C++, to read some of the examples).

Audience gain:

The attendees will gain an understanding of the state of the art in designing agent based systems, and gain an understanding of systems issues such as performance, mobility and when agent technologies might be used.

Presenters:

- Prof. Krishna Kavi, The University of Alabama in Huntsville
- Prof. David Levine, The University of Texas at Arlington

Krishna Kavi is currently a Professor and Eminent Scholar of Computer Engineering. Prior to UAH, he was a Professor at the University of Texas, Arlington, and has been a Program Manager at the National Science Foundation, an IEEE Computer Society distinguished visitor, and editor of IEEE publications.

David Levine is currently a visiting assistant Professor in Computer Science and Engineering. He has been a developer and program leader in industry and academia and has extensive background in systems level programming.

Both presenters have developed and presented tutorials at conferences and have given invited talks on computer systems topics. We have created research groups of students and faculty at our universities that work on agent based systems, and are currently applying agent technology to real world cases of hospitals, air traffic safety, data base and other venues.

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