Introduction

Motivation

- Seemingly naïve trust on what we read online when troubleshooting UPnP networks.
- Information overloading when using search engines is a real time consuming problem.
- The possibility of taking advantage of users’ explicit feedback to improve the content presentation.
- To utilize UPnP device logs to support a search which incorporates context.

Objectives

- To use standardized information models and adaptive hypermedia software to develop a contextually sensitive content adapter.
- To investigate user interaction with such a system, the impact of using adaptive hypermedia and sourcing content from the community.

Design

Influences from State of the Art

- The approach to troubleshooting is based on the fault dictionary. It is a goal to encourage community involvement to allow the fault dictionary to be a knowledge base that evolves.
- Adaptation is carried out using the AE3 adaptive engine from KDEG. This is an extremely flexible system, when compared to other hypermedia and content management systems.
- Community involvement is central to this work so it was important to encourage. Usability consequently becomes very important.

Implementation

Tier 1: Presentation

- Cascading Style Sheets were used to present the HTML generated by the system. For dynamic generation of the HTML Java Server Pages were implemented.

Tier 2: Logic

- To implement the core features of this work, JESS scripts were written which act as narratives to the adaptive engine.
- Individual scripts were written for searching for content in the knowledge base. And for providing new or new versions of content.
- Also the Extensible Stylesheet Language Transformation (XSLT) language was used to transform the appropriate data models into HTML format.

Tier 3: Data

- The Darwin Information Typing Architecture (DITA) is an XML-based format used for each entry in the eXist database, an open source XML repository.

Evaluation

User Trials

- Given test data users will be asked to complete a set of tasks, comprising:
  - Searching for particular content
  - Providing feedback about the content
  - Editing the content within the system
- Upon completion, a questionnaire shall be answered to provide data concerning:
  - System usability
  - Search efficiency
  - System security / User confidence

Industry interests

- Improved community support for a UPnP device or suite of devices
- Awareness of the risks involved when releasing a community authored support system
- Awareness of the balance between usability and security with respect to community maintenance

Future work

- Community authored processing scripts to provide a richer context
- Investigation into the performance of methods to encourage community contribution to improve content re-composition