Reliable Server Pooling Implementations

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Agenda

- Protocol Implementations
  - University of Essen-Duisburg & University of Applied Sciences-Muenster
  - Motorola, Inc. – Two implementations
- Tool Support
  - Ethereal
- RSerPool Interoperability

Universities of Essen-Duisburg & Applied Sciences-Muenster

- Goal
  - Complete, open source, prototype implementation of the RSerPool architecture: the rsplib prototype.
- Status
  - ASAP and ENRP fully implemented
  - Pool policies implemented (draft-tuexen-rserpool-policies-01.txt)
  - Uses SCTP socket API
  - Example application (echo service)
  - Compliant with current drafts

Universities of Duisburg-Essen & Applied Sciences, Muenster (cont.)

- Contact
  - Thomas Dreibholz, University of Essen at Duisburg, Germany
    - dreibh@exp-math.uni-essen.de
  - Michael Tüxen, University of Applied Sciences - Muenster, Germany
    - tuexen@fh-muenster.de

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- Links
  - For more information about the implementation, see
    - http://tdrwww.exp-math.uni-essen.de/dreibholz/rserpool/ and
    - http://www.sctp.de/rserpool.html
  - An introduction to the design and implementation of the rsplib prototype is available at
    - http://tdrwww.exp-math.uni-essen.de/dreibholz/rserpool/index.html

Motorola(1)

- Goal
  - Full RSerPool implementation in a user-land library running on Linux, Solaris, and FreeBSD
- Status
  - ASAP implemented (minus control channel, TCP or UDP support, multicast, weighted round robin, etc.)
  - ENRP Server (without ENRP, server announce, multicast, etc.)
  - Example application (registration test utility)
  - Uses open-source SCTP from www.sctp.org

Motorola(1) (cont.)

- To Do
  - Support for kernel SCTP under Linux and FreeBSD
  - Implementation of ENRP with handlespace auditing and synchronization
  - Core functionality of all drafts

Motorola(1) (cont.)

- Contact
  - Qiaobing Xie, Motorola, Inc., Networks Business Unit
    - qiaobing.xie@motorola.com
- Links
  - None at this time

Motorola(2)

- Goal
  - Model Driven Design - SDL
    - Verification and validation of the protocols (TTCN-3)
    - Migration from SDL to UML 2.0 desired
  - Automatic Code Generation
    - Proprietary C code generator for this project
    - Supports POSIX systems, but our models are optimized for Linux 2.6
  - Non-distributable binaries for interoperability testing
  - Possible release of SDL models, MSDs and test cases

Motorola(2) (cont.)

- Status
  - Most message/feature/procedure sets have been modeled in SDL
    - No Cookie or Business Card features
  - Validation of models using extensive bit state exploration and interactive simulation has been completed
    - Assumptions made and documented where drafts are unclear about behavior
  - Testing/Requirement MSCs have been captured
  - Completed test harness code generation (Solaris) for end to end system
  - Many comments submitted to the WG based on modeling discoveries
  - TTCN-3 test specifications in progress

Motorola(2) (cont.)

- To Do
  - Complete UDP, TCP, SCTP transport interfacing
  - Complete TTCN-3 test case generation
  - Generate and test code (repeat, repeat, repeat)
    - Verification of data marshalling (encoding/decoding) operations
    - Verification of state machines
  - API extraction/generation from the models
  - Incorporate the use of a configuration file

Motorola(2) (cont.)

- Timeline
  - Project shelved as of 7/2005
  - Open-source models?

Motorola(2) (cont.)

- Contact
  - Aron Silverton, Motorola Labs, Center for Networks and Systems Research
    - aron.j.silverton@motorola.com
- Links
  - If and when SDL is released publicly

Ethereal Packet Sniffer

- Support for ASAP and ENRP dissectors in all current (CVS) and future versions of Ethereal
- Contact
  - Michael Tüxen, University of Applied Sciences - Muenster, Germany
    - tuexen@fh-muenster.de
- Links
  - http://www.ethereal.com

Interoperability

- Informal interoperability testing since IETF 60
  - Universities of Essen-Duisburg & Applied Sciences-Muenster and Motorola(1)
  - Testing covered ASAP and a single Pool Registrar
- First official Interop collocated with the 8th SCTP Interop