National HPCC Software Exchange: Enabling Technologies Development

Terry Disz, Bob Olson and Rick Stevens

Mathematics and Computer Science Division

Argonne National Laboratory

http://nhse.mcs.anl.gov

http://www.mcs.anl.gov

Purpose of Enabling Technologies Effort

- Provide a continuous source of new ideas and tools
- Provide a context for NHSE distribution experiments
- Provides awareness of Web culture and tools
- Argonne and University of Tennessee efforts

Argonne Voyager: A Toolkit for W3 Agent Development

- Collection of tools for developing and validating software agent concepts
- Based on widely used software standards
  - Perl5, Nexus, MPI, Glimpse, Berkeley DB, Harvest
- Platform for advanced NHSE capabilities development
  - intelligent libraries, self-maintaining repositories, etc.
- Supports local and wide area experiments
  - high-performance prototyping environment
- Will be distributed via Web

Argonne Voyager Toolkit Parts

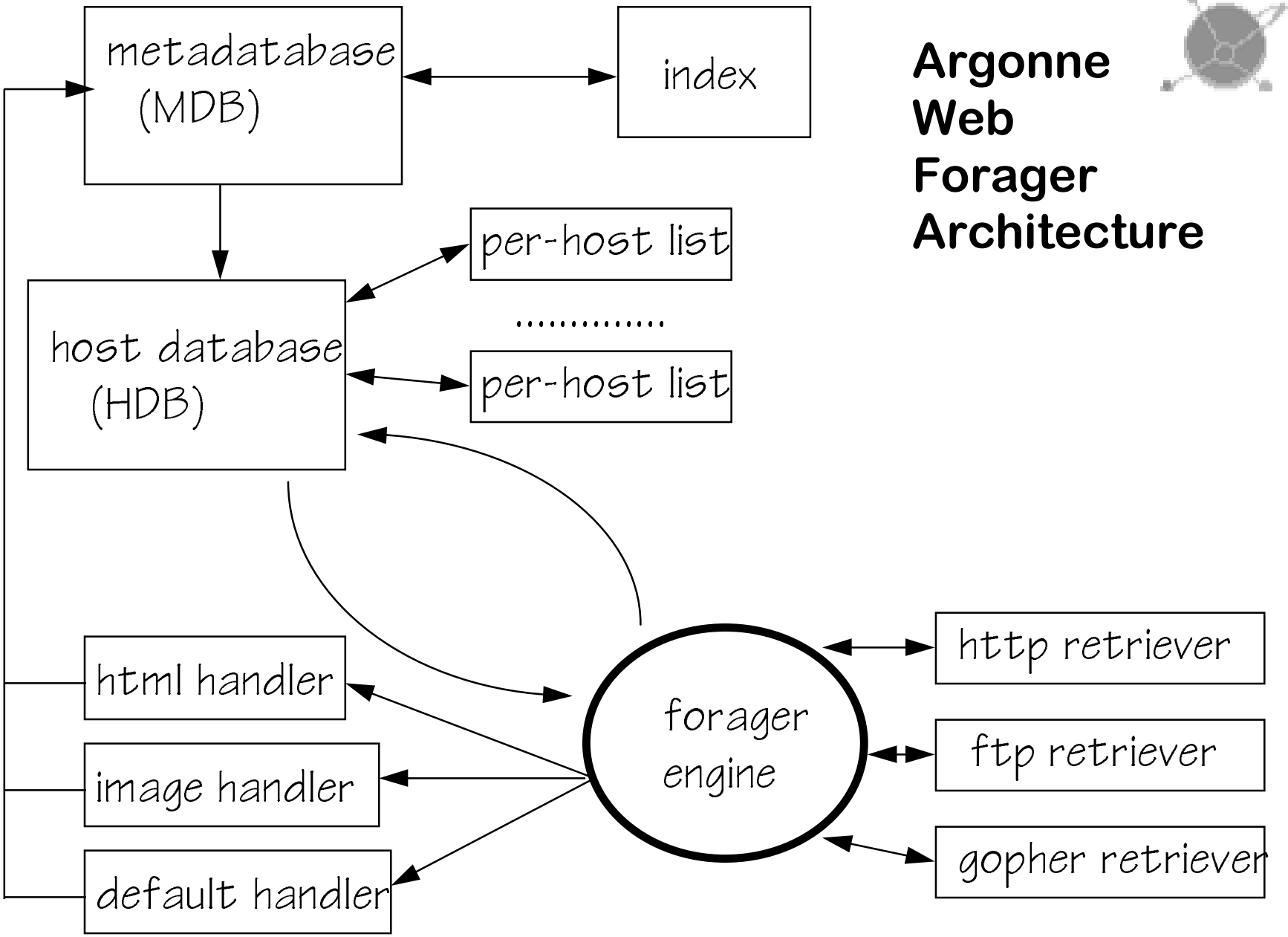
- Agent language, database and runtime environment
- Local WWW page database system for agent testing
- Tools for wide area web transaction monitoring
  - graphical, log based, agent readable (database)
- High-Performance parallel web forager engine
- Parallel Agent searching and browsing environment

Agent Language and Runtime Environment

- Based on Perl5
  - most widely used systems utilities language
  - similar syntax to C, modular, extensible
  - lots of programmers are familiar with it
  - interpreted and compiled versions are available
  - publicly available (in use at 10,000's of sites)
- Nexus/MPI , parallel runtime environment developed by ANL and CRPC
- nPerl5 and Berkeley Perl Database Interface

Tools for Transaction Monitoring

Argonne Web Forager Architecture



Agent Enabled Search Environment

NHSE
National HPCC Software Exchange