Bookshelf.EXE - BX

- A dynamic version of Bookshelf
  - Automatic submission of algorithm implementations, data and benchmarks into database

- Distributed computing
  - Distribution of execution of algorithms

- Scripting with data dependencies
  - Allows for control and data flows for a sequence of executed algorithm implementations
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• **Nomenclature**
  – Vicereine; main controlling server software
  – Diplomat; client (computational hosts) software

• **Network backend**
  – XML RPC
    • RPC standard
      – XML data encoding
      – HTTP network transport
    • C/C++, Perl, Python, etc. compatible
    • All communications between modules

Key:
- Implemented
- In progress
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- Web interface
  - PERL CGI; communicates to BX via XML RPC
  - Preliminary interface:
    - Submit job and data
    - Results
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• **Scheduler**
  – Basic “least load” scheduler
    • Plan: Add several heuristics as provided by user

• **Data logistics and storage**
  – Berkeley DB2 backend for internal state
  – NFS for network transport
    • Plan: A URL scheme to specify locations

• **Data consistency**
  – Callbacks/delegations from server
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- **Data properties**
  - Executables
    - Architecture, binary format
    - Input and output formats
  - Data/Benchmarks
    - MIME-like type
      - Creates affinity with executables
- **Current client (Diplomat) functionality**
  - Start job, kill job, query client
- **Current server (Vicereine) functionality**
  - Authenticate (insecure), start job, kill job, submit executable, submit benchmark
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Architecture overview: