

Acronis

New Generation Data Protection

Powered by the Acronis **AnyData** Engine

Student projects spring 2015

Data deduplication server

Main dedup client-server workflow:

- Instance of dedup server is running on some host
- Server collects data from many clients and stores only unique data
- Clients don't send data already known to server
- Clients retrieve their data from server when needed

Data deduplication server

Already implemented parts:

- Data hash computation
- Basic server store (of arbitrary) data
- Framework for asynchronous client-server communication
- Small code base: 2-10K LOC for use in student projects

Data deduplication server

Student project 1:

- Implement data deduplication client and server described earlier
- Server will be used for testing and research goals
- Client should have convenient command line interface for sending of huge amounts of data to server
- Server provides data about its state in some form. Data will be used for research goals.
- No strict performance requirements, up to 5 clients should be supported.
- 1 student needed

Adaptive data compression

Student project 2:

- Problem: wasted CPU cycles on compression of data with low compression ratios
- Need to develop adaptive data compression algorithm that switches between slow compression algorithm and quick compression algorithm back and forth to achieve the best results
- Algorithm quality metrics: CPU usage, total time spent, compression ratio
- Test algorithm on real data: web-sites snapshots, Windows, Mac, Linux images, packed, not packed, random data, etc
- 1 student needed

Project meetings:

- Weekly skype calls with engineers located in Moscow. Chat, extra calls when needed.
- Local representative in Saint-Petersburg, Times office (Lesnaya subway station). Contact for any questions: eabatalov89@gmail.com

Programming language: C++ for all projects

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