HPCC Systems Machine Learning

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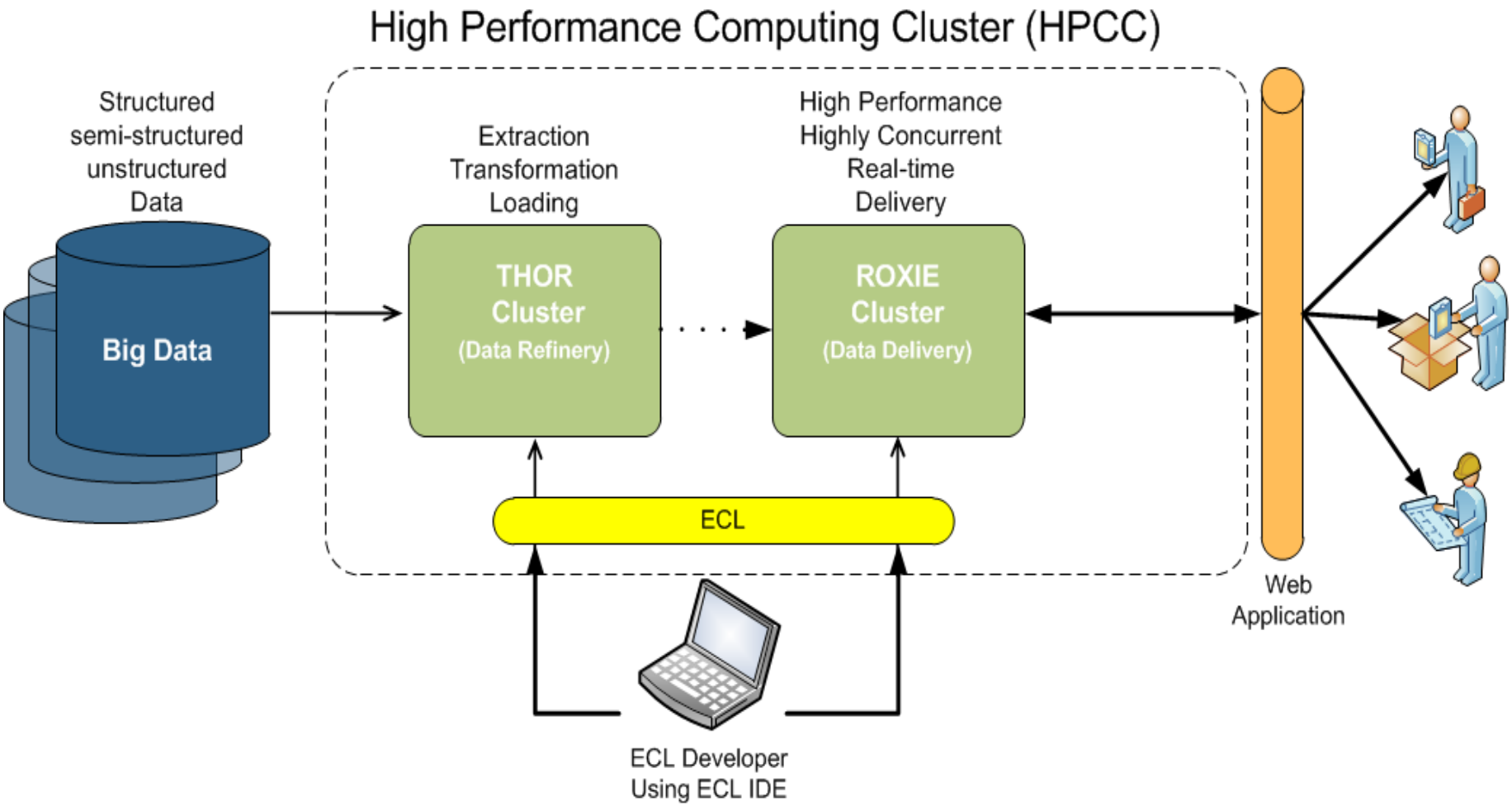
HPCC Systems

LexisNexis Risk Solutions

- More than **15 years** of Big Data experience
- Provides **information** solutions to enterprise customers
- Generates about $1.4 billion in revenue
- Has been using the HPCC Systems platform (High-Performance Computing Cluster) for over 10 years

HPCC Systems

- Launched in June 2011 (http://hpccsystems.com/about-us/press_center/lexisnexis-announces-hpcc-systems)
- Open source, and enterprise-proven distributed Big Data analytics platform
- To help enterprises manage Big Data at every step in the Complete Big Data Value Chain



Consistent and elegant HW&SW architecture across the complete platform:
http://hpccsystems.com/Why-HPCC/How-it-works

Thor – Data Refinery Cluster

- Distributed parallel processing, Distributed File System, Scales from 1-1000s
- Optimized for Extraction, Transformation, Loading, Sorting, Indexing

Roxie – Query Cluster

- Distributed parallel processing, Distributed File System, Scales from 1-1000s
- Optimized for concurrent query processing

ECL – Enterprise Control Language

- Transparent and Implicitly parallel programming language
- Non-procedural and dataflow oriented
- Modular, reusable, extensible
- Built-in PARSE and PATTER ops suitable for Natural Language Processing

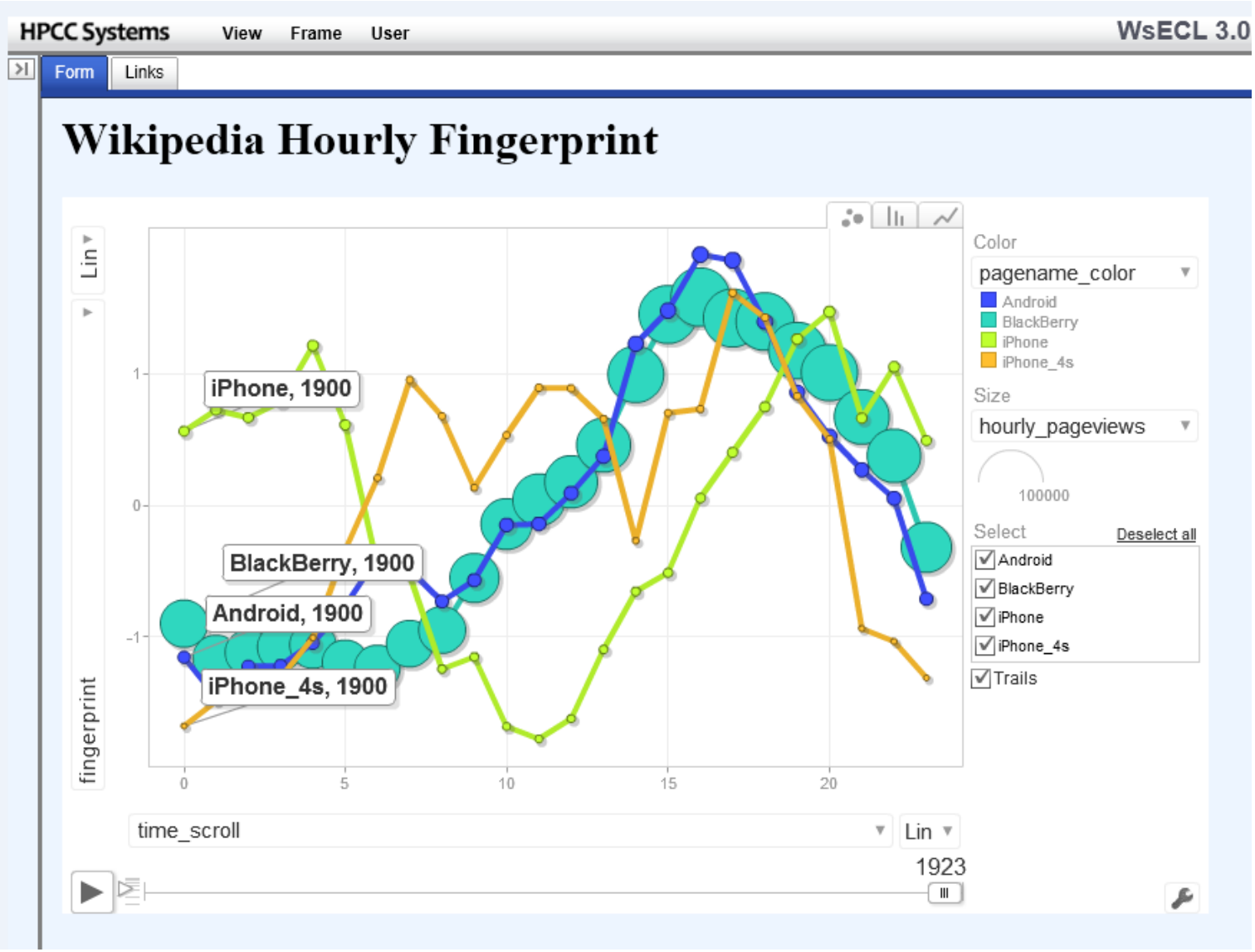
ECL IDE

- Modern IDE used to code, debug, and monitor ECL programs

ECL-ML: HPCC SYSTEMS MACHINE LEARNING

- A fully distributed and extensible set of Machine Learning techniques for Big Data
- State of the art algorithms in each of the Machine Learning domains, including supervised and unsupervised learning:
  - Correlation: Covariance, Pearson, Kendall
  - Classifiers: Naïve Bayes, Perceptron, Logistic
  - Clustering: Kmeans, Agglomerative (Hierachical)
  - Regression: Ordinary Least Squares, Polynomial
  - Document manipulation: Tokenize, N-gram extraction, NLP
  - Associations: AprioriN, EclatN
  - Distribution: Uniform, Normal, Poisson, Exponential, Binomial,
  - Discretize
  - Field Aggregates
- Distributed and parallel underlying linear algebra library
  - Matrix Factorization: SVD, Eig, Lanczos, PCA, Cholesky, Householder, LU

ECL-ML: VISUALIZATION



- If you don't already use the HPCC platform and/or ECL IDE and the Client Tools, you must download and install them before downloading the ML libraries
  - Download and install the relevant HPCC platform for your needs: (http://hpccsystems.com/download/free-community-edition)
  - Download and install the ECL IDE and Client Tools (http://hpccsystems.com/download/free-community-edition/ecl-ide-and-client-tools)
  - Take a look at the ECL programmers guide and ECL language reference guides, http://hpccsystems.com/community/docs/learning-ecl.
  - Take a look at tutorials designed to get you started using data on the HPCC Systems, http://hpccsystems.com/community/docs/tutorials.
  - Go to the Machine Learning page of the HPCC Systems website, http://hpccsystems.com/ml and click on Download and Get Started.