

HPCC Systems Roadmap

Item	Description / JIRA #	Skills	Difficulty
Q2 2014 - Completed / Available in 5.0			
ECL Generated Visualizations	Framework for generating demo web pages on the HPCC Platform and the ability to publish these pages to a roxie. Also includes the ability to re-use visualisations for websites and to share visualisations between the HPCC Platform and other business related applications.	ECL, Javascript	High
HDFS to HPCC Connector support for Apache Hadoop 2.x release	Add support for the “next generation release of Apache Hadoop” 2.x release. The two main areas possibly affected by the 2.x changes are H2H setup (due to Hadoop packaging changes) and Datanode interaction due to HDFS Federation.	C/C++	Low
ECL Watch GUI Facelift (Gold Version)	Extend the facelift to the following areas: Cluster Processes, System Servers, Target Clusters, XREF and Permissions. https://track.hpccsystems.com/browse/HPCC-10102	C++	Medium
Include features in ECL Watch giving access to tasks required for publishing and managing roxie queries	Features provided in ECL Watch to include: Publishing (with priority and comments), deleting, suspending, unsuspending queries including displaying lists showing the status of queries on Roxie. Also showing aliases and superkey information including files associated with superkeys and superkeys associated with files. https://track.hpccsystems.com/browse/HPCC-8652	ECL, MySQL, Java	Medium
Internationalization support for Eclipse and ECL Watch	Localize Eclipse and ECL Watch for non English speakers. Initially, this will be done for Chinese and Spanish. https://track.hpccsystems.com/browse/EPE-91 https://track.hpccsystems.com/browse/HPCC-10573	Javascript/Java	High
Remove indexwrite restrictions	There are two items related to this. One is to removed the indexwrite maxlength restriction and the other is to provide an option to ignore it. https://track.hpccsystems.com/browse/HPCC-3022 https://track.hpccsystems.com/browse/HPCC-10507	C++	Medium
Dynamic ESDL – Initial Gold Release	Tailors and optimizes the Dynamic ESDL service to the new HPCC paradigm. Adds DALI based configuration and automatic configuration loading. Adds support for JSON to Dynamic ESDL Services. Adds ability to call logging server via Dynamic ESDL service. Enhances ECL code generation to provide example service logic. https://track.hpccsystems.com/browse/HPCC-9475	C/C++	Medium
Enterprise Logging Service– Technical Preview	Functional preview of logging service providing a customizable highly available way of log transaction information to a database.	C/C++	Medium
Improve the way conditional expressions are executed	Address some of the problems with conditional expressions which tend to be revealed on very large and complex queries. Including: Don’t execute any conditional activities unless the condition is met, remove duplicate code for evaluating the same definition if it is regarded by different conditions, Improve some of the helper too complex issues, improve generation for expressions that are used conditionally but need to be evaluated in a child query. https://track.hpccsystems.com/browse/HPCC-9167	Code Generator	High
Use dynamic memory/spilling paradigm in more places	While Thor uses dynamic spilling in many places now, there are still places that would benefit from converting to this paradigm, i.e. to keep as much in memory until memory is exhausted and it actually needs to spill. This item also includes global join work to retain the merge stream in memopry until it needs to spill. https://track.hpccsystems.com/browse/HPCC-8685	C++	High
WS-SQL 0.1	New SQL web service will be created to run on HPCC (Limited SQL->ECL logic on server). https://track.hpccsystems.com/browse/HPCC-10103	C++/ANTLR	Medium
Roxie Monitoring Tool (Nagios)	Provide an interface to Nagios which is an industry standard solution to monitoring and alerting https://track.hpccsystems.com/browse/HPCC-10084	Roxie	Medium

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Q3 2014			
ARIMA Time Series	Support of ARIMA time series modeling using the Box-Jenkins methodology https://track.hpccsystems.com/browse/ML-204	ECL	Medium
Ability to spray compressed (zip, tar, gz) files directly	The ability to spray a compressed file directly onto a Thor cluster. The current implementation requires the user to uncompress the files to the landing zone before setting up the spray. https://track.hpccsystems.com/browse/HPCC-1371	C++/ECL	Medium
Embedded language support	Support for embedding queries to external databases like Cassandra MongoDB and POSTGRES etc.	C/C++	High
HPCC Systems Instant Cloud	Building documented procedure for using juju charm to configure and deploy HPCC Systems on AWS as well as supporting scripts	OpenStack, AWS, Python	Low
Improved Configmgr (Tech Preview)	UI improvements and error checking including generation of some docs automatically from source files.		Medium
Improved Unicode code for unstructured text	Complete implementation of utf8 and document it, Improved support for comparing at different strengths, Ensuring hash functions equality and unicode equality are compatible, Improved support for work breaks and other icu character/string traits, Support for UTF8 parsing and improved unicode parsing, Enhance KEYUNICODE, Better support for unicode strings in indexes. https://track.hpccsystems.com/browse/HPCC-9693	Various	Medium
ML Cluster Implementations using PB-BLAS	A new version of Cluster for dense matrices that use the BLAS libraries for the matrix calculations. https://track.hpccsystems.com/browse/ML-205	C++/ECL	High
ML Correlate Implementations using PB-BLAS	A new version of linear regression that use the BLAS libraries for the matrix calculations. https://track.hpccsystems.com/browse/ML-206	C++/ECL	High
Roxie Monitoring Tool (Nagios) Integration into ECL Watch	Integrated the command line work into ECL Watch providing a GUI interface to the features. https://track.hpccsystems.com/browse/HPCC-10089	Roxie	High
Roxie Monitoring Tool Integration into ECL Watch (Ganglia)	Integrated the command line work already completed into ECL Watch providing a GUI interface to the features including adding ganglia graphs depicting monitored RoxieMetrics into EclWatch. Allowing for visualization of Roxie performance metrics across nodes and clusters and across time https://track.hpccsystems.com/browse/HPCC-10088 https://track.hpccsystems.com/browse/HPCC-8827	Roxie	High
Q4 2014			
Custom HDFS data to HPCC Connector	Add support for migrating custom HDFS data. Create a new framework which supports execution of Hadoop mapper from HPCC and provides HDFS data to HPCC. The mapper would be responsible for fetching HDFS data and serializing into HPCC centric data format (FLAT?).	C/C++	Medium
ARM Port	Port the system to run on ARM processors. https://track.hpccsystems.com/browse/HPCC-9697	ECL	Medium
Bitmap indexes Support	This is to improve the support for star schemas/(H)OLAP on Roxie	C++, database theory	High
Convex Optimization Solver using PB-BLAS	Implement both a constrained and unconstrained convex solver that leverages PB-BLAS	C++/ECL	High
ECL Plugin for Eclipse (Phase 3)	Add additional features and enhancements	Eclipse, ECL	Medium
Enhancements to Graph Viewer	Tools for helping users to spot 'hotpots and skews' i.e find out where time is being using in graphs https://track.hpccsystems.com/browse/HPCC-9695	ECL	Medium
Enterprise Logging Service –Gold Release	Gold release of logging service service providing a customizable highly available way to log transaction information to a database.	C/C++	High
ESP JSON RPC Support	Ability to use JSON/HTTP (RPC) to call ESP services as an alternative to SOAP https://track.hpccsystems.com/browse/HPCC-9259	C++	Medium
SVD, Eigen and PCA Implementations using PB-BLAS	Implement a version of Singular Value Decomposition, Principle Components Analysis and an Eigen Problem solver that leverages PB-BLAS	C++/ECL	Medium

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Q1 2015			
Roxie for Hadoop	Seamless integration with Hadoop. Publish Hadoop datasets as Roxie queries in a simple easy to use interface	Java, Hadoop, Roxie, ECL	Medium
Q2 2015			
Improved Configmgr (Phase 2)	More improvements to the UI https://track.hpccsystems.com/browse/HPCC-8614		Medium
Orbit and Intelligent ETL	Seamless integrated solution using SALT + Orbit	ECL, MssQL, Java	Medium
Daemonization of HPCC Components	Conversion of all HPCC components to function as Linux daemons along with modifications of the init system to remove auto generation of configuration files. This would also include the creation of system and upstart files for the HPCC components. https://track.hpccsystems.com/browse/HPCC-451	C++/Bash	Medium
Allow Thor to manage multiple jobs in a single cluster	Improve the way Thor works so that only the amount of memory and nodes that are actually needed are used (rather than the whole cluster every time). https://track.hpccsystems.com/browse/HPCC-8707	C++/ECL	Medium
Bundles Support (Phase 2)	Add more infrastructure for finding bundles on the web via search terms etc, and for downloading them prior to installation https://track.hpccsystems.com/browse/HPCC-9629	C++	High
Dynamic ESDL – Final Gold Release	Finalization of Dynamic ESDL services. Highly available logging server gold release. https://track.hpccsystems.com/browse/HPCC-9475	C/C++	High
Dynamic sizing of clusters	Allow a logical Thor to run jobs and subgraphs on a subset of a larger set of slaves that it manages. This is to allow user resource flexibility, in limiting a job to a limited number of slaves and job flexibility in allowing Thor to decide that a graph or subgraph warrants many or few processing nodes dynamically. It also implies that Thor can run multiple concurrent jobs and that it manages the amount of free nodes and possibility other resources dedicated to running jobs. A pre-cursor to most of this, will be the need to have Thor read and partition logical files by an arbitrary number of slaves, regardless of how many slaves create it.	C++/ECL	High
ECL Syntax Guide and Wiki	Improve the structure and access to information about the ECL Language including adding context sensitive help into the ECL Plugin for Eclipse. https://track.hpccsystems.com/browse/HPCC-10027	ECL	Medium
ECL Watch GUI Extended development	Redevelopment of the topology area (currently known as Cluster Processes, System Servers, Target Clusters) and also xref. https://track.hpccsystems.com/browse/HPCC-10102	ECL	Medium
Gateway, Security Managers and Protocols	Documentation and example code for creating custom protocol handlers, security managers, and external gateways.	C/C++	Medium
HPCC Admin Tools	Providing easy access to monitoring and maintenance of Roxie clusters similar to CYST. Including data deployments/removal, package deployments/selection/removal, query deployments, rollback/rollforwards, diagnostic checks, comparison of roxie clusters. Some items will be incorporated into ECL Watch. https://track.hpccsystems.com/browse/HPCC-9119		Medium
Improved ESP REST Support	Make ESPs content type determination more dynamic.	C++	High
Improved Index Read capabilities	Ability to read non-native indexes and/or pluggable index formats for index access https://track.hpccsystems.com/browse/HPCC-9260	C++/ECL	High
JSON File support	Ability to spray, read and write JSON format files	C++	High
MPI Migration for Thor	Standardize Thor's communication layer on MPI, currently Thor mostly uses own message passing layer and in some cases tcp/ip sockets. The expectation is that MPI will deliver efficiency (speed) savings and will better scale. https://track.hpccsystems.com/browse/HPCC-8706	C++/ECL	High
Provide a debugger for Thor	Thor should support debugging, in the same way that hthor and Roxie support it https://track.hpccsystems.com/browse/HPCC-9997	C++	Medium

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Item	Description / JIRA #	Skills	Difficulty
Q2 2015 continued			
Support for encryption key servers and key rotation	The current encryption functionality takes a key as a constant embedded in an ECL workunit. This new feature would allow keys to be provided through a key server. They could simply be stored in AD, or we could go to a more sophisticated PKI store. https://track.hpccsystems.com/browse/HPCC-9323	C++	High
Web Based Debugger	Rework ECL IDE debugger as a web based debugger in ECL Watch https://track.hpccsystems.com/browse/HPCC-9690		High
Q4 2015			
Utilize AES256 to provide content encryption services through ECL	Provide AES256 encryption through the ENCRYPT capability in ECL. https://track.hpccsystems.com/browse/HPCC-9297	C++	Medium