Postgres XC – Up to 1.2

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Postgres-XC Footprint (1)

- Dedicated source code for Postgres-XC
  - contrib/pgxc_*
    These directories contain dedicated postgres-xc utilities.
  - src/include/pgxc
    This directory contains dedicated header file for postgres-xc
  - src/include/…/pgxc*.h
    These files contain postgres-xc-specific header files for each module.
  - src/backend/pgxc
    This directory contains postgres-xc-specific modules
  - src/bin/gtm_ctl
    Contains gtm_ctl utility
  - src/include/gtm
    Contains header files specific to gtm and gtm_proxy
  - src/gtm
    Contains modules specific to gtm and gtm_proxy

Postgres-XC Footprint (2)

- Embedded XC code into PostgreSQL source code
  - *.[ly] modules
    Postgres-XC modification is embedded directly because flex/bison does not provide directives such as #ifdef … #endif
  - *.[ch] modules
    Postgres-XC modification is clearly enclosed using CPP directive like #ifdef using PGXC symbol.

Major Features added to XC 1.0

- Postgres-XC 1.0 is based on PostgreSQL 9.1
- Support and extensions for existing features of PostgreSQL in a cluster-wide environment.
- SQL extensions and functionalities exclusive to Postgres-XC for management and operations related to a cluster, which add a node-level granularity for cluster operations.
- Creation of Global Transaction Manager (GTM), which is a centralized component providing cluster-wide Multi-version Concurrency Control (MVCC).
- Creation of mechanisms exclusive to Postgres-XC and enhancements of existing internal mechanisms of PostgreSQL, which are related to connection pooling, global transaction management, query planning, rewriting, analyzing and execution.
- Restrictions related to existing features in PostgreSQL and currently not supported by Postgres-XC.

Major Features added to XC 1.0 (contd.)

- Changes to pg_dump, initdb & postgresql.conf for Postgres-XC.
- Support of ORDER BY, LIMIT, OFFSET, JOIN, GROUP BY, Window functions, INSERT with multiple values, Aggregate functions, SERIAL types clauses, TABLESPACE, INSERT SELECT, PREPARE, EXECUTE, EXPLAIN, COPY, CREATE TABLE AS, SELECT INTO, Session parameters, System functions
- DISTRIBUTE BY in CREATE TABLE to support replication, hash-distribution, modulo-distribution and round robin.
- TO NODE or TO GROUP in CREATE TABLE to support a subset of nodes while distributing a table.
- Cluster wide PITR using CREATE BARRIER.
- Extensions to the catalog tables to support distribution related data.

Major Features added to XC 1.1

- Basic Postgres-XC configuration and operation tool pgxc_ctl.
- Node addition and removal while Postgres-XC cluster is in operation.
- Support for Row TRIGGER, RETURNING, Merge join, hash join,
- Shippability support for ORDER BY, LIMIT, outer joins, sub-queries, GROUP BY
- Addition of pgxc_monitor utility to test if the target node is running.
- Added \d+ to print table distribution info in psql
- Improve error handling of statements which runs outside a transaction block.
- ALTER TABLE statement to redistribute tables.
- Use distributed sorting for merge join and grouping at coordinator
- Support for pgbench and JDBC regression.

Major Features added to XC 1.2

- Postgres-XC version 1.2 is based on PostgreSQL 9.3.
- Improvement of planner to handle sub-queries in FROM clause.
- Improvement in shippability of outer joins.
- Improvement in DML handling for replicated tables.
- Support for materialized views
- Support for event triggers
- Support for automatic updatable views
- Support for LATERAL
- Bug fixes: GTM, GTM Proxy and others
  - Handling disconnect
  - Statement cancellation