Abseil + CMake 3.2

Cartographer

- ABSL Remove common/optional.h. (#1349)
- [ABSL] Purge common::make_unique. (#1340)
- Make standalone absl imported target global. (#1351)
- Fix Abseil build command (#1350)
- FindAbseil.cmake: cross-platform library names (#1348)
- Add absl to CMake and Bazel builds. (#1301)
- Use CMake 3.2. (#1332)

Cartographer ROS

- Follow the Absl update. (#955)
- Follow the CMake update. (#951)
Fine-grained mutexes

Cartographer

- Don't process PoseGraph2D work items in foreground. (#1341)
- Introduce separate mutex for PoseGraph2D work queue access. (#1333)
- Fine-grained locking for PoseGraph2D constraints. (#1327)
- Don't process PoseGraph3D work items in foreground (#1285)
- Take PoseGraph2D mutex inside instead of outside work item. (#1310)
- Introduce separate mutex for PoseGraph3D work queue access (#1284)
- Take PoseGraph3D mutex inside instead of outside work item (#1264)
- Refactor PoseGraph work queue optimization dispatching (#1252)

Cartographer ROS

- Follow the Absl update. (#955)
- Follow the CMake update. (#951)
Metrics

**Cartographer**

- Added function `GetThreadCpuTimeSeconds` in `common/time.h` (#1267)
- Measure accumulation duration from last accumulation stop (#1251)
- Remove "internal" from the metric family names. (#1237)
- Added metrics `RealTimeRatio` and `CpuRealTimeRatio` to 2d. (#1324)
- Add metrics: real time ratio and cpu time ratio. (#1275)
- Add sensor counter metrics to `TrajectoryCollator` class (#1342)
- Add metric counters to track sensor data in the `AddSensorDataBatchHan...`

**Cartographer ROS**

- Simplify gauge and histogram implementation. (#922)
Client ID and gRPC robustness

Cartographer
- Set client_id in LoadState(FromFile) (#1320)
- Revert: Fix writing state of trajectories with unfinished submaps. #1286
- Implement recovery behavior for LocalTrajectoryUploader (#1287)
- Fix writing state of trajectories with unfinished submaps. (#1286)
- Add argument to SerializeState for excluding unfinished submaps (#1352)
- Check client_id in sensor data handlers (#1266)
- Upgrade async_grpc (#1272)
- Introduce client_id in SensorMetadata (#1257)
- Introduce client_id in cartographer_grpc (#1241)
- Add token_file_path parameter and enable auth (#1235)

Cartographer ROS
- Follow googlecartographer/cartographer#1352 (#957)
- Follow googlecartographer/cartographer#1241 (#923)

Async gRPC
- Introduce unrecoverable error codes for retry strategies (#24)
Truncated Signed Distance Fields

Cartographer

- Add TSDF match cost function. (#1359)
- Introduce GridType for Grid2D (#1355)
- Fix EqualCellProperties matcher. (#1276)
- Add value conversion tables (#1255)
- Add TSDF RangeDataInserter (#1236)
- Add TSDF interpolator. (#1274)

Cartographer ROS

- Move conversion table to LoadOccupancyGridMap. (#941)
- Introduce value converter tables. (#937)
Pbstream (tool)

Cartographer

- Unified pbstream tool (#1326)
- Migrate pbstream files with old probability grid format. (#1314)
- Add pbstream_info executable (#1311)
- Fix LoadState trajectory options access (#1298)

Cartographer ROS

- Fix pbstream exporting binaries (#945)
Store histogram in submap

Cartographer

- Preparation for #1277: refactor rotation scan matcher (#1316)
- (open) Store histogram in submap #1277
Generic Pose Graph

Cartographer

- Add InterpolatedRelativePose2D constraint. (#1337)
- Add PoseGraphController. (#1335)
- Add InterpolatedRelativePose2D constraint. (#1337)
- Add serialization tests for constraints. (#1318)
- Add interpolated constraint/cost 3d. (#1325)
- Add acceleration constraint. (#1319)
- Remove unused declarations. (#1323)
- Add rotation 3d constraint. (#1317)
- Add proto defs for landmark cost functions. (#1312)
- Add rotation cost 3d. (#1313)
- Add relative pose constraint 3d. (#1309)
- Add a loss function. (#1308)
- Use GradientChecker to check gradients (Ba-Dum-Tss...)
- Move ParseProto and Near to test_helpers.h (#1307)
- Add relative pose cost 3d. (#1303)
- Add CeresOptimizer. (#1300)
- Add RelativePoseConstraint2D. (#1297)
- Add a base class for all nodes and Pose2D node
- Add RelativePoseCost2D. (#1295)
- Add a NodeId struct. (#1290)
- Add IMU Calibration and Pose3D node types. (#1278)
Point Cloud Viewer

- Add new camera controls and minor updates to the native client (#145)
- Remove width & height from get_visible_nodes API. (#142)
- Call get_visible_nodes in a background thread to never block foreground
MiR100 tuning

Cartographer MiR

- Fix Travis config
- Initial repo import
Tweaks and Fixes

Cartographer

- Get rid of std::bind. (#1261)
- Add function to get the work queue delay from PoseGraph. (#1218)

Cartographer ROS

- Add option to disable PoseExtrapolator (#946)
- Warn for possible topic mismatch (#935)
- Allow zero pose_publish_period (#933)
- Fix bug in FinishTrajectory logic (#926)
- Update msg_conversion.cc (#925)
Current work

- Generic Pose Graph Design
- Fine-grained Mutexes
- TSDF
- Robust gRPC uplink
Placeholder for other status reports
Thanks.

Next Open House:
**August 16th, 5pm CEST**

If you would like to present anything next meeting, please reach out to [cschuet@google.com](mailto:cschuet@google.com)