Oil-Field Services’ data acquisition system – a globally distributed development

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Schlumberger is the world's leading supplier of technology, project management, and information solutions to the oil and gas industry. The company was established in 1926 in France. Today, it is a large multi-national cooperation with overwhelming diversity - 80,000 Schlumberger employees from 140 different countries working in more than 80 different countries and regions.

The company’s Oilfield Services’ (OFS) data acquisition system is an integrated software system for acquiring, processing and delivering data from downhole tools, either during drilling or through wireline (i.e. electrical) cables.

Due to the culturally-diverse nature of the company, the project is largely distributed across six R&D centers in the US, France, Japan and China. Each center has sub-projects that have a clearly defined responsibility with either Framework or Application-Components developments. All sub-projects share the common master plan for both development and testing. Furthermore, all unit tests and “Level-1” Application-Component tests for particular applications are globally distributed and owned by each sub-project team. Together with the master test plan, a rigorous Application-Component Test procedure/process is also in place to guarantee the success of the final system integration tests. Results from the distributed developments and the distributed first-level tests are finally assembled in one place, Beijing, for system integration and acceptance tests.

Industry best-practices and conventional software testing wisdom are respected and followed throughout multi-level and multi-cycle tests in which test automation consistently focuses on system regressions.

Different cultural backgrounds, multiple time-zones, and various other difficulties with communication are overcome by clearly delegated responsibilities and ownership, fit-to-purpose processes and procedures, and a single, shared master plan. To enhance ownership over individual deliverables, in addition to the traditional project structure for development and testing, a workflow-responsible team is created for each application-workflow delivery. The team consists of a Framework developer, an Application developer and a QA/Test engineer. Our experiences demonstrate that this model has been extremely helpful for smooth communication between different sub-projects. It has also unified engineers with separate backgrounds and skills into a collective whole with a common goal – delivering high quality component products and a high quality system assembly.