

## INTRODUCTION

Simatic WinCC Open Architecture is a commercial Supervisory Control and Data Acquisition (SCADA) solution from ETM – an Austrian Siemens subsidiary. The system has been widely adopted across CERN since it was firstly selected in the early 2000's for the implementation of the supervisor layer of the Experiments' Detector Control Systems. The work within this CERN openlab project concentrates on data archiving – a long term storage of process value changes and alarms in a database and on a central deployment tool – a central package to manage the software configuration of multiple SCADA applications. The work carried out focuses on the validation and performance improvements of the current systems, as well as on research and development for the future Siemens SCADA system. This project builds on the long history of collaboration between CERN and ETM.

### Archiving: RDB Manager

- Allows storing of historical values and alerts in a relational database
- Provides an interface to retrieve and to plot these historical data

- Improvements implemented and tested at CERN

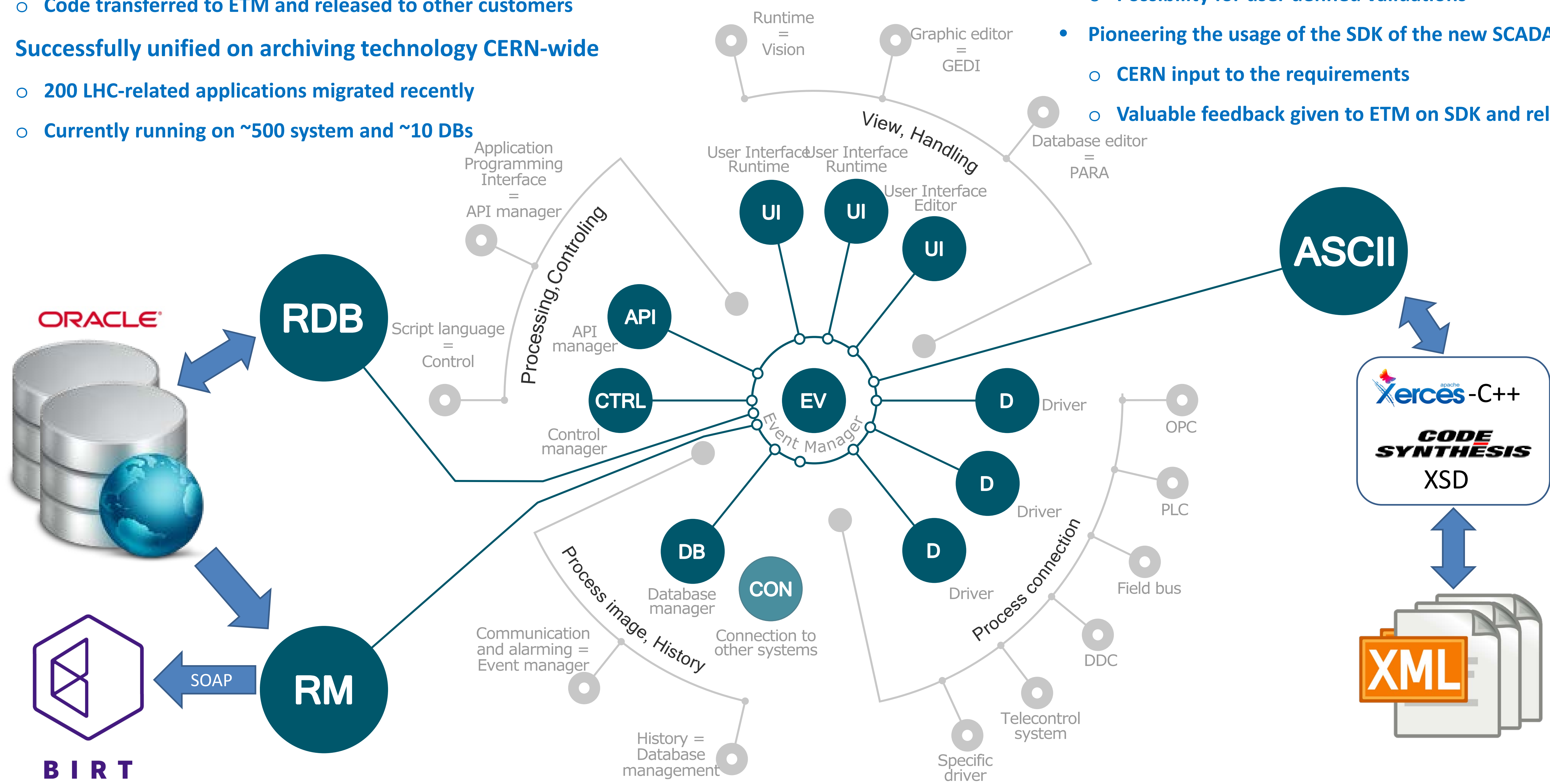
- Meets performance required by the LHC at 13 TeV
  - Processing up to 1 million value changes/s
- Better robustness and stability
- Code transferred to ETM and released to other customers
- Successfully unified on archiving technology CERN-wide
  - 200 LHC-related applications migrated recently
  - Currently running on ~500 system and ~10 DBs

### Central Deployment tool: ASCII Manager

- Work factorized. Priority on improving the WinCC OA ASCII manager
- Imports/Exports project runtime configuration from/to files
- Essential for the integration and deployment of software components in multi-project environments

- New XML based file format

- Interoperability with other external tools (e.g. TIA portal)
- Possibility for user defined validations
- Pioneering the usage of the SDK of the new SCADA system
  - CERN input to the requirements
  - Valuable feedback given to ETM on SDK and related docs



### Reporting Manager

- SOAP based interface to serve WinCC OA data to external tools like BIRT or other clients

- Performance improvements

- Parallel request processing
- Redesign of architecture for Oracle queries

### R&D: Big data and NoSQL

- Research on technology for future archiving systems
  - Future LHC: possibly 100-fold throughput and size increase
- Initial investigation of technologies
  - Workshop in Eisenstadt to transfer knowledge to ETM
  - Other technologies started to be investigated

## OUTLOOK

For Phase V of the openlab, the main lines of collaboration with Siemens ETM will continue. In this new phase, it is expected that the emphasis of the work will also be placed on new areas like Big Data solutions, Visualization, Alarm Handling, Secure Remote Access, Reporting and modern tools and languages for development.