



McObject's Embedded Database Expands Marketing Reach of Loewe Opta's Digital Televisions

Phaedrus Systems, the leader in supplying tools and services to the developers of safety-critical and high-reliability embedded systems, has announced that German consumer electronics manufacturer Loewe Opta has released new digital television models with electronic programming guide (EPG) software based on McObject®, developer of the *eXtremeDB*® Fusion embedded database system. By integrating McObject's commercial, off-the-shelf (COTS) database system into its new Individual SL and Compose SL TVs, Loewe Opta both reduced time-to-market for the products and ensured they would meet user demands for the fastest possible access to schedules, programs and other data.

eXtremeDB Fusion also delivered a key marketing advantage for Loewe Opta by enabling the company to offer the Individual SL and Compose SL models to high-end consumers in widely divergent native language markets. A "custom collations" feature, added in *eXtremeDB* Fusion 4.1, provides "hooks" for developers to provide a desired character sorting sequence (collation) for data stored as text, including collation that supports a particular language or combination of languages. In comparison, most embedded databases provide a single, fixed collation.

With this feature, the same programming guide software in Loewe Opta televisions can be used across all European sub-markets, with languages and characters as different as English, Spanish, Russian and Greek. "Software re-usability is a holy grail for manufacturers because it can dramatically lower development costs. From the start, *eXtremeDB* has ported easily between different hardware, but *eXtremeDB* 4.1 adds a twist by enabling developers to build in text sort and search features that are portable between different written/spoken languages," McObject CEO Steve Graves said.

"This new kind of portability will grow in importance with the globalization of consumer product markets. McObject is glad *eXtremeDB* Fusion's custom collations feature is helping Loewe Opta's digital televisions succeed," Graves said.

eXtremeDB Fusion's speed and small footprint were also critical factors in Loewe Opta's decision to use it, said Rudi Latuske, manager of McObject GmbH, McObject's Munich-based subsidiary. *eXtremeDB* Fusion delivers high performance via a streamlined database architecture and the ability to manage data in memory, with direct access. The product's tiny code size of approximately 150K, and its equally frugal CPU demands, reduce each television's hardware requirements, resulting in lower per-unit manufacturing costs.

These strengths and other developer- and manufacturer-friendly features have made McObject's *eXtremeDB* the leading embedded database system for digital TV electronic programming guides. Whether EPG software resides in a set-top box or in the television itself, it increasingly benefits from an off-the-shelf database system to manage growing volumes of programming data and support advanced EPG features.

But "database system" is a broad product category, and while some DBMSs specialize in addressing business or packaged software needs, only *eXtremeDB* was designed from scratch for set-top box programming guides and other real-time embedded systems.

For example, among embedded database systems, *eXtremeDB* supports the widest range of data types. Among others, it offers variable length strings, a data type that allows physical storage space to expand or contract, depending on the size of the stored data. Within an electronic programming guide, a show description is ideally stored as a variable length string. It can be nonexistent for the nightly news (which has no description) or can be lengthy for the synopsis of the Friday Night Movie.

Many other embedded database products lack support for variable length strings. The result is that EPG designs must allocate resources based on the "worst case" or maximum possible program description length. This boosts set-top box memory and storage requirements, increasing costs for the manufacturer--and ultimately for the consumer.

Hybrid database storage is another key advantage. While most DBMSs store data either in memory or on-disk, McObject's *eXtremeDB* Fusion permits developers to combine both kinds of storage in the same database instance. This can be a boon when set-top box or digital TV product families include some units with hard drives, and others that are disk-less. By enabling both kinds of storage, *eXtremeDB* Fusion permits the same EPG database software to be used across all units, sparing the expense, learning curve and support costs of incorporating multiple embedded database products.

Application programming interfaces are another area where *eXtremeDB* holds an edge for EPGs. *eXtremeDB* offers a native programming interface that is fast and intuitive to learn. It is also type-safe, catching data-typing errors to eliminate a common source of run-time bugs. But *eXtremeDB* also provides multiple SQL APIs, including ODBC. As a SQL embedded database, *eXtremeDB* leverages developers' familiarity with this universal interface. ODBC permits seamless interoperation with a wide range of external systems, which is a necessity in an age of digital convergence.

McObject also provides source code for *eXtremeDB*, which gives developers the flexibility to extend features and lends an in-depth understanding of the database engine within an application.

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About Phaedrus Systems

Phaedrus Systems Limited is the UK's leading specialist in the support of engineers at all stages of embedded safety-critical and high-integrity projects. The company is IAR's distributor in the UK. Other tools available include requirements capture for IEC 61508, EN 50128 and nuclear applications; requirements tracking and competency tools; estimation software; a SIL3 RTOS; a hi-rel embedded database; compiler validation reports and reliability/failure software. Consultants have experience working on automotive, rail and aerospace applications, meeting standards such as IEC 61508 SIL4, and D0178B. Backing these is a wide range of other relevant embedded tools.

Independent advice is strengthened by the company's founder being an active participant in several standards bodies, including ISO C, C++ and IEC 61508-3, and a principal author of MISRA-C:2004.

Phaedrus Systems is based in Tamworth, Staffordshire. More information is available on the website www.phaedsys.com

About McObject

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Founded by embedded database and real-time systems experts, McObject offers proven data management technology that makes applications and devices smarter, more reliable and more cost-effective to develop and maintain. McObject counts among its customers industry leaders such as BAE Systems, Siemens, Phillips, EADS, JVC, Tyco Thermal Controls, F5 Networks, CA, Motorola and Boeing. McObject, based in Issaquah, WA, is committed to providing innovative technology and first-rate services to customers and partners. The company can be reached at +1-425-888-8505, or visit www.mcobject.com.

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