



# Real-Time Tool Kit (RTTK)

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## *Software Orchestrating Real-Time – An Executive Summary*

Real-Time systems like an aircraft autopilot, missile defense radar, or unmanned aerial vehicle must respond to events as they occur to be effective and to avoid catastrophes. Even information systems like internet application servers or equities trading systems are time-critical and lose market share or revenue if they don't digest data as quickly as it becomes available. These modern systems meet faster time-lines and deliver exponential capability growth by interconnecting sophisticated subsystems made from a mix of constantly changing hardware and software. As these capabilities grow, they increasingly become a burden to operate, maintain, and analyze – which is counter to the ever-present demands to both reduce costs and operational personnel. These complexities also make changing system behavior with traditional software programming more complicated, time consuming, and expensive.

### **Real-Time X-Ray Data Access Unlocks Real-Time Orchestration**

A transformation in real-time systems development is emerging with an innovative means to tap inside subsystems, capture domain specific data, and make real-time automated decisions. Real-time “x-ray” like access unlocks a higher granularity of data in a domain-specific language that is not traditionally available through subsystem interfaces. The access, for example, enables the orchestration of subsystems by knowing individual subsystem state and resources allowing applications to dynamically adapt to changes in system loads and resource availabilities. With real-time automated decision support, domain experts and end-users can change a system's behavior by monitoring and responding to real-time events as they are happening in a language they understand. This capability could allow a Navy Ship captain, at sea, to alter how a ships' system response to a fire alarm or missile exercises. The combined “x-ray” data access and real-time automated decisions means systems can now behave as a unified organism, much like a human brain digests nerve input, makes decisions, and orchestrates actions to talk, run, or drive a car.

### **FishEye's Real-Time Tool Kit (RTTK)**

Motivated by the demands of a new generation of real-time systems, FishEye launched the Real-Time Tool Kit (RTTK™). RTTK peeks inside real-time systems to unobtrusively capture native binary data in real-time. RTTK searches within applications, cataloging domain-specific data of interest. RTTK publishes and distributes subsystem data through a Service Oriented Architecture (SOA) in a high-speed, self-subscribing, and domain specific language. RTTK's high-performance decision engine delivers hard-real-time performance using a proprietary process which eclipses the performance of traditional databases or SQL-like decision engines or transformation services.



### Real-Time Tool Kit (RTTK) Delivers:

- rapid productivity with risk reduction of real-time system development, integration and test – *off-the-shelf software for real-time data capture, analysis, and playback*
- distributed architecture – *supports service-oriented architecture and associated loosely coupling system interfaces to ease integration and configuration of applications from differing companies, platforms, and/or product life cycles*
- system data fusion - *merging multiple real-time subsystems into a unified data source*
- real-time decision support – *Real-Time Complex Event Processing (CEP) decision engine*
- improved real-time system survivability – *dynamic, adaptive resource management able to understand, analyze and modify the system behavior in real-time*
- allows domain – *experts and end-users to analyze and modify the system behavior in applications in the domain's language and without software programming*
- a reduction of operation and maintenance personnel need – *through automated decisions*
- “black box” recording – *enabling multi-system forensics*

### About Fisheye Software

After spending more than a decade, designing, integrating and testing radars and command and control systems, FishEye has identified the challenges in developing large real-time systems. While the tasks performed by these systems varied widely, they all shared real-time requirements and the ability to extract internal data for subsequent analysis. FishEye is actively exercising and evolving RTTK's capabilities for customers in the US Navy, Missile Defense Agency, and Air Force.

FishEye Software provides software and services dedicated to software systems development, integration, and test in the real-time defense and commercial communities. Since 1998, the company has been delivering mission-critical and operational software for air-traffic, missile defense, and command and control systems.

FishEye offers node-based, run-time licensing for RTTK's Real-Time Capture, Real-Time Distribution, and Real-Time Complex Event Processing modules, which is a full-featured Development Kit for system developers, and software maintenance, support and upgrades.

### Contact Fisheye Software

Additional information on FishEye's solutions is available from FishEye Software, Inc., at 2 Clock Tower Place, Suite 400, Maynard Massachusetts, 01754, via phone: +1-978-461-0100 and through E-mail: [ted.selig@fisheyesoftware.com](mailto:ted.selig@fisheyesoftware.com).

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