Event processing is evolution of information processing

From Radio to TV – adding information with additional sense

Database queries process static information – answering questions about particular state of the universe

Event processing adds the dynamic dimension – getting observations about things that happen (transition among states).

Event Processing Can help in identifying trends, threats, opportunities, and business situations that need reaction (e.g. angry customers; arbitrage opportunity; regulation violation)
The market views “event processing” as an emerging area

“I expect real-time processing of data streams to become an expanding area of software activity for many years. In my view, it is a new category of IT activity—a little like the data warehouse was when it first came on the scene. In other words, it is a whole technology area, around which a variety of capabilities will be created.”

Robin Bloor, Bloor Research

Tower Group forecast for the Finance Sector
The Vision: Event Processing in 2013

- Event Processing repeats (in 30-something years offset) the success of “Data Management”
- Part of the “main stream computing”
  - Wide coverage in term of applications that are doing some type of event processing
  - There are broadly accepted standards
  - Event Processing extensions to programming languages
  - Large amount of developers are familiar with the concepts
  - It is widely taught in universities with popular textbooks
  - Well-established Research community
  - Other disciplines focused on extracting events and event patterns (image processing, information retrieval, search engines, data mining).
What do we have to do in order to get there
Lessons from Relational Databases

- Why it succeeded?
  (“Business Rules Applied”, Barbara Von Halle)
  - It has a sound theory behind it.
  - Software vendors understood the theory (well... to some extent), and delivered commercial products
  - There were some good books that eloquently explained the theory, the benefits, and the practicality, to the IT community
  - Practitioners developed methodologies for using it.
  - (my addition): SQL as an inter-galactic standard enabled interoperability.
  - (my addition): A lot of R&D Investment to advance this area in engineering issues (transactions, query optimization, concurrency control)...
Challenges for the Event Processing community

- Pass the declining slope in the hype-cycle without crashing – being captured as a mature discipline.
- Good understanding of performance trade-offs, optimizations of various types, scalability etc..
- Adopt an agreed upon terminology. Currently we are confusing the market.
- Adopt a solid model – “platform and implementation independent” as a basis (similar to semantic data model, but with extended role)
  - Vendors should be able to map from this model to their own implementations in an automatic way (or in time develop “native” implementation – but there is no commercial native implementation to semantic data models).
  - Standard in the model level, but also in event structures, interfaces etc..

- Adopt standard benchmarks
- Software engineering practices will be crucial in the success.
- And good textbooks to educate the practitioners.
Event Processing In a Nutshell:
Market segments and associated products

Real-Time Enterprise:
Event Processing as part of Business Logic

Sense and Respond
Event Processing as part of Business Observation

Situational Awareness
Event Processing as part of Information Delivery

Active Diagnostics
Event Processing as part of Problem Determination

Proactive
Event Processing as part of Prediction Systems

- Tivoli products
- AC products
Event processing within transaction

When EP mediator executes within the business logic, it needs to have transactional behavior. The raw event can be part of ACID transaction, thus if the transaction fails needs to rollback, which means that derives events are rolled back, and triggered actions are not executed.