A Spiral Model of Software Development an Enhancement

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Agenda

• Why a new process model
• Spiral Model
• Advantages
• Difficulties
• The influence of the Spiral Model.

What is the main point of the article? - Spiral

• Why a new process model
  - Motivation - "The Defense Science Board Task Force Report on Military Software' issued in 1987 highlighted the concern that traditional software process models were discouraging more effective approaches to software development such as prototyping and software reuse."

• Spiral model
  - The Spiral model is candidate for improving the software process model
  - Risk – driven instead of document – driven
  - Why not document – driven ? Document-driven Standards have pushed many projects to write elaborate specifications of poorly understood user interfaces and decision support functions, followed by the design and development of large quantities of unusable code.
  - Empirical base - Spiral model is based on experience with various refined of the waterfall model
What is the main point of the article?

Spiral Model

- 2. Quadrant – Identification of objective
- 1. Quadrant – strategy for managing the sources of risk
- 4. Quadrant – evolutionary development with test and review
- 3. Quadrant – Plan next step

Spiral Model

• Advantages
  - The spiral model can be used together with existing software process models
  - Low risk – drive the spiral model into an equivalence to waterfall model or evolutionary development model
  - “It focuses early attention on options involving the reuse of existing software”
  - “It accommodates preparation for flexible evolution, growth, and changes of the software product.”
  - “It provides a mechanism for incorporating software quality objectives into software product development.”
  - “It focuses on eliminating errors and unattractive alternatives early.”
  - “For each of the sources of project activity and resource expenditure, it answers the key question, ‘How much is enough?’ Stated another way, ‘How much of requirements?’”
  - “It provides a viable framework for integrated hardware-software system development.”

Spiral Model

• Difficulties
  - Matching to contract software “The spiral model currently works well on internal software developments like the TRWSPS, but it needs further work to match it to the world of contract software acquisition”.
  - Further elaboration of Spiral Model
    - “Definitions of the nature of spiral model specifications and milestones”
    - “Reviews, techniques for estimating and synchronizing schedules”
    - “The nature of spiral model status indicators and cost versus-progress tracking procedures”
    - “Guidelines and checklists to identify the most likely sources of project”
    - “Risk and the most effective risk resolution”
    - “Techniques for each source of risk.”
The influence of the Spiral Model

- Project management
  - Planning
- Risk Management
  - Risk identification
  - Risk analysis
  - Risk prioritization
  - Risk management planning
- RUP