

A Tool-based Methodology for Software Portfolio Monitoring

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Portfolio Evolution

Start automation in the 60s / 70s

Cobol, files, batch.

Increasingly more, and more interdependent

Mergers and acquisitions

New technology is adopted

Hierarchical, relational, CRM, ERP.

Interactive, web-based. Middleware.

4GL, OOP, scripting, DSLs.

Old technology is not abandoned

Homegrown glue

**Compiler extensions, assembly routines,
code generators, communication utilities.**

Portfolio Status

Large

In terms of functions, systems, data, lines of code, interfaces, . . .

Heterogeneous

PL/I, Cobol, C, Delphi, Java, JavaScript, VB, IMS, SQL, IDMS, MQ, . . .

Idiosyncratic

DSLs, glue, wrappers, adapters, libs, conventions, . . .

Undocumented

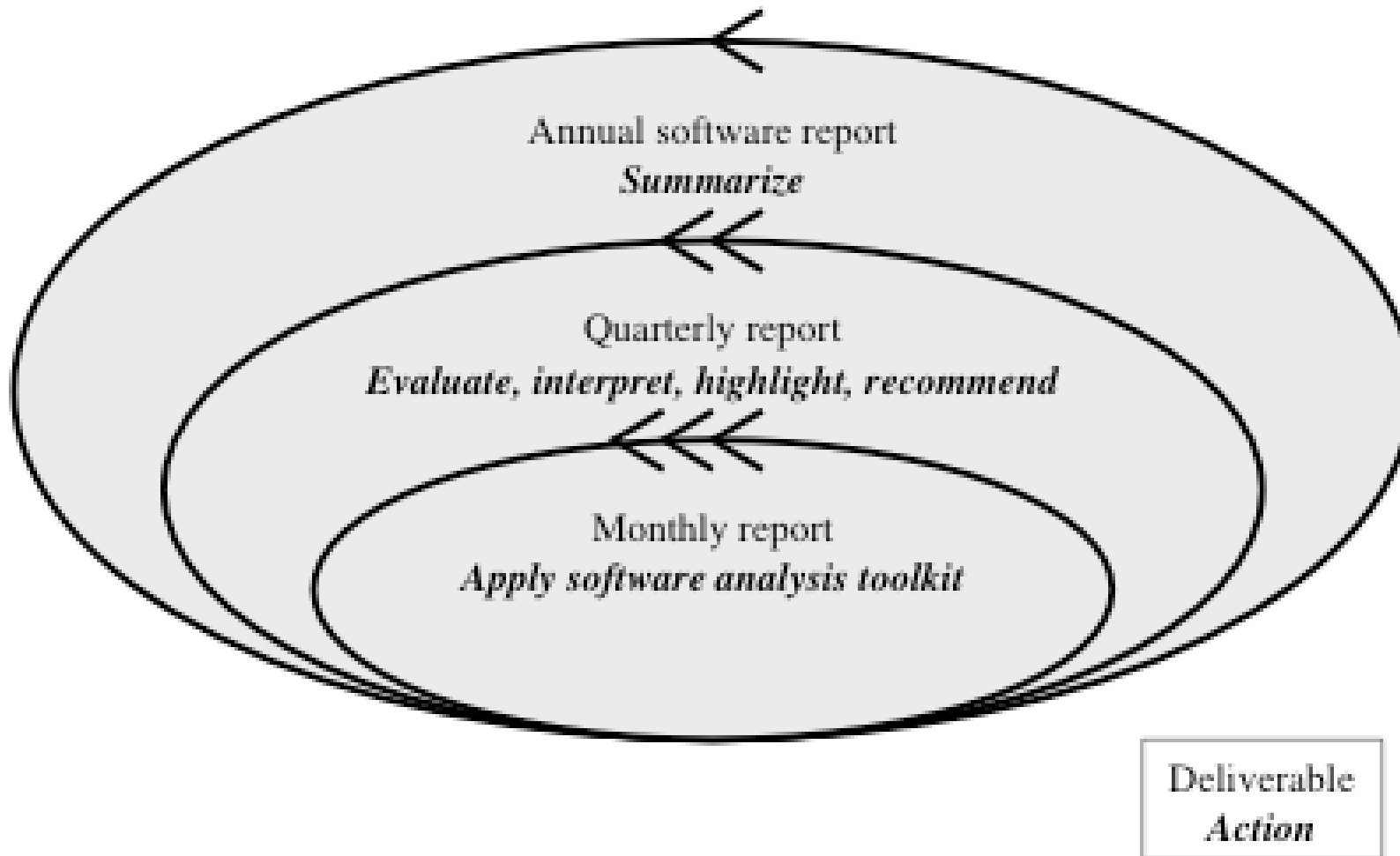
Interwoven

Objective

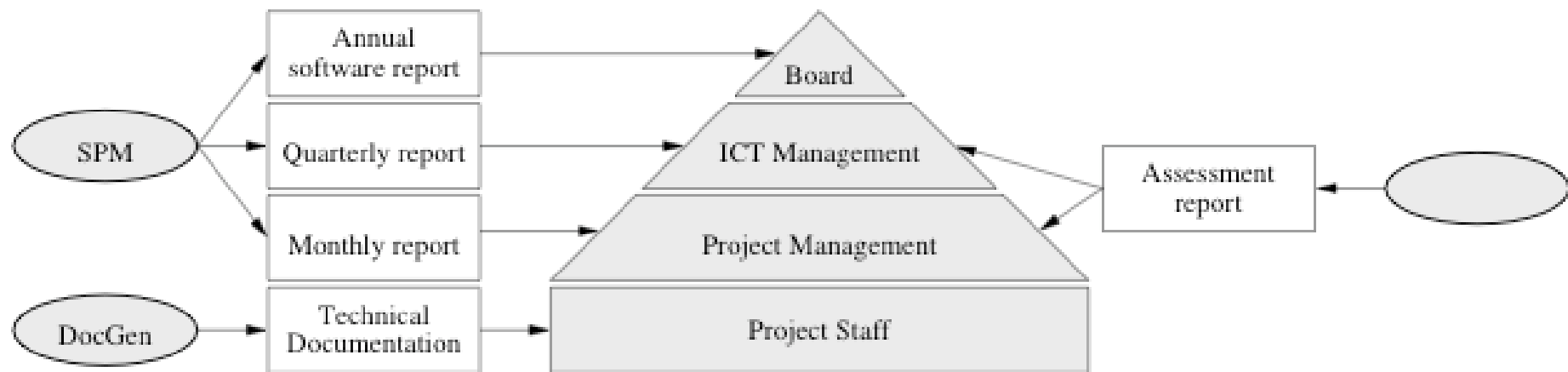
Put IT management back in control.

Contain, reduce, invert the natural entropy growth in corporate software portfolios.

Nested Iterations



Organisational Context



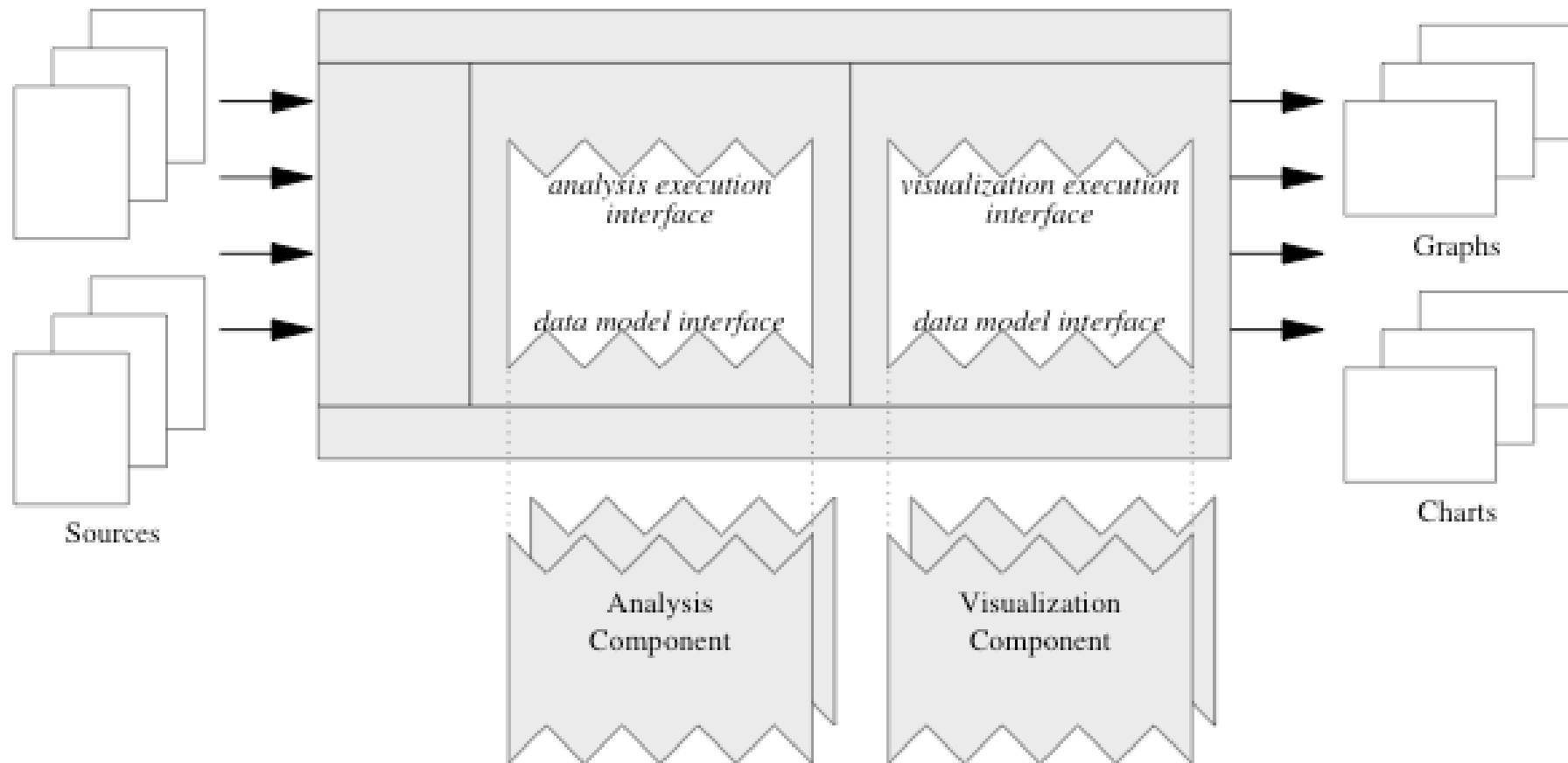
SRA

Software Risk Assessment (incidental)

DocGen

Documentation Generation

Software Analysis Toolkit



Analysis

Examples

Lines of code and comment

Function point by backfiring

McCabe, Halstead, Maintainability Index

Control flow analysis

Clone detection, using metrics

Requirements

Scalability *(to cope with size)*

Genericity *(to cope with heterogeneity, and idiosyncrasy)*

Visualization

Charts

Combine metrics.

Visualize thresholds.

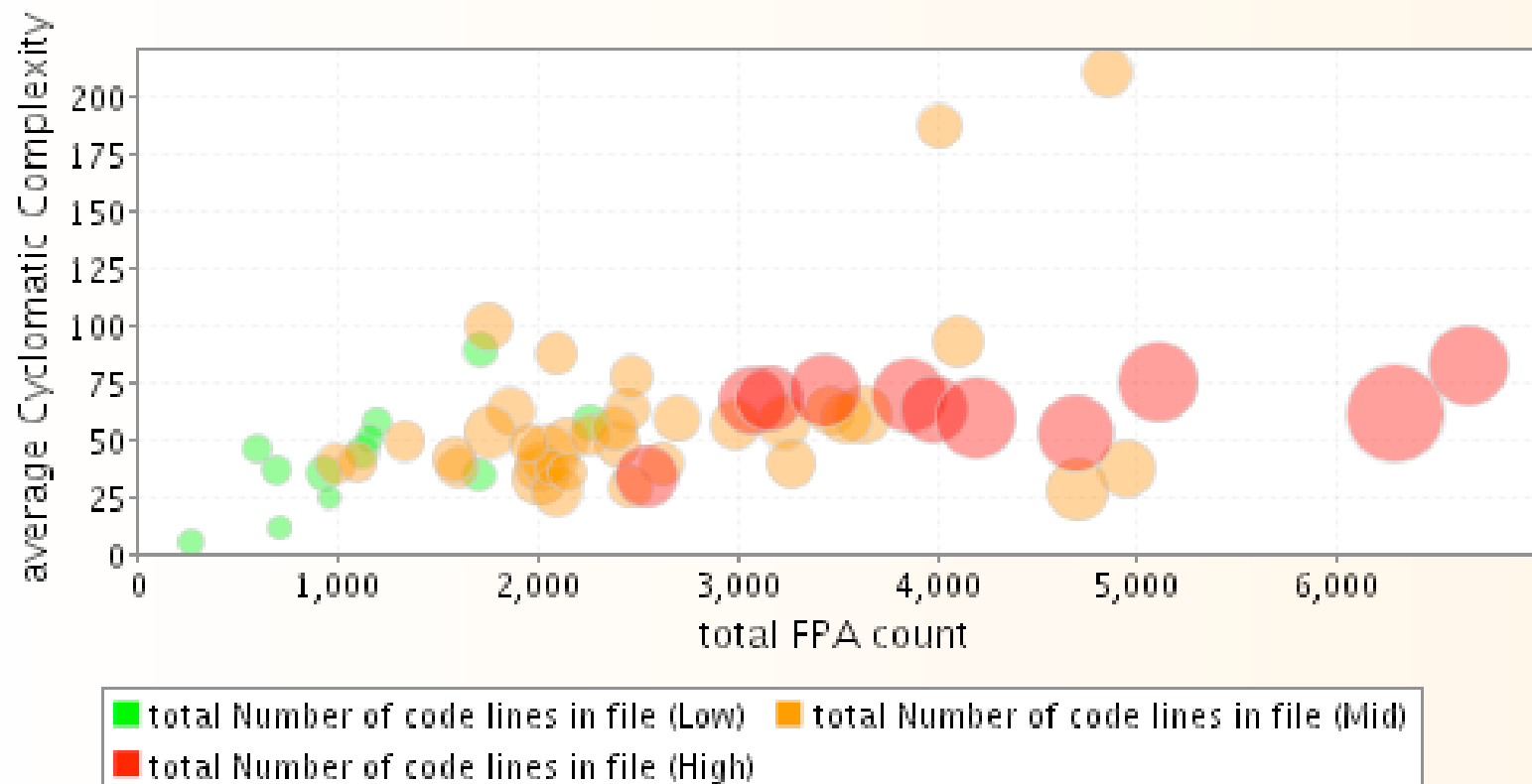
Graphs

Navigate hierarchical graphs

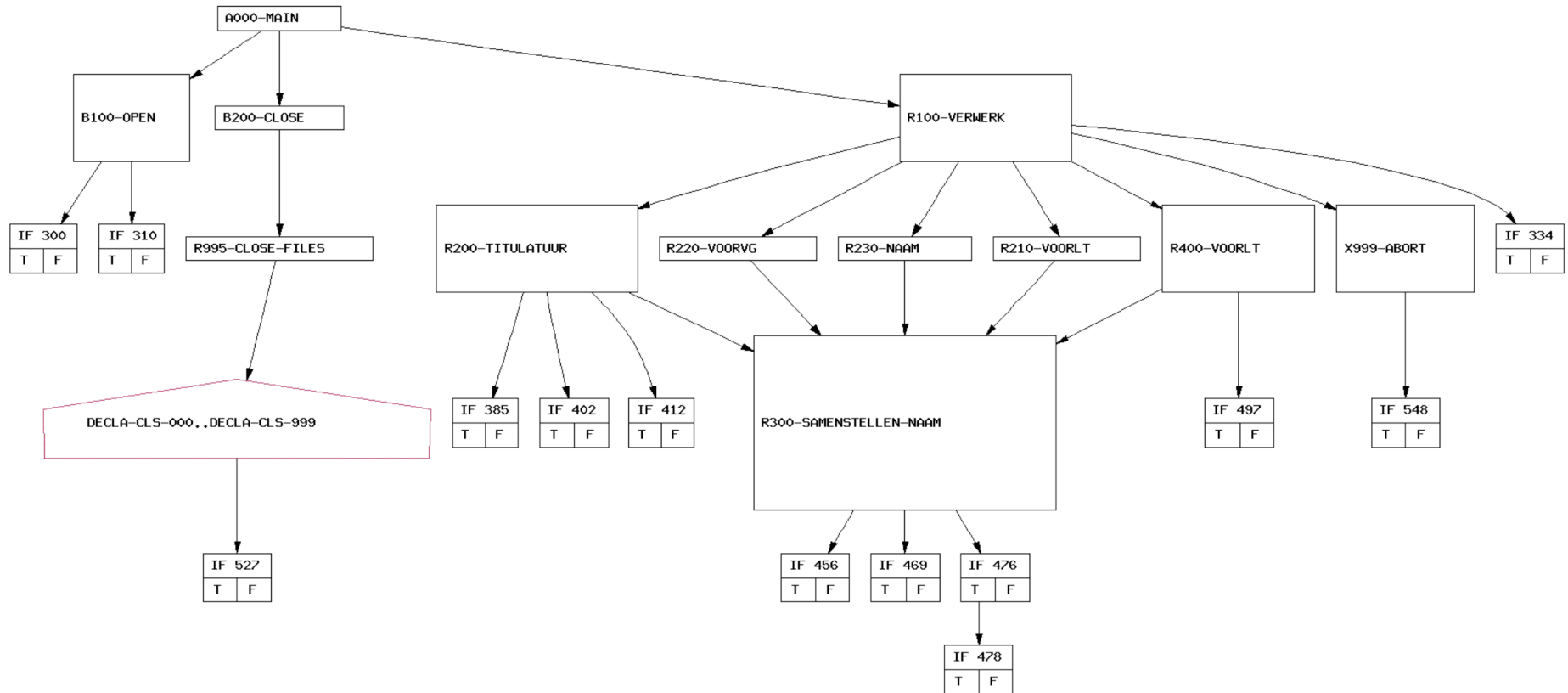
Animation

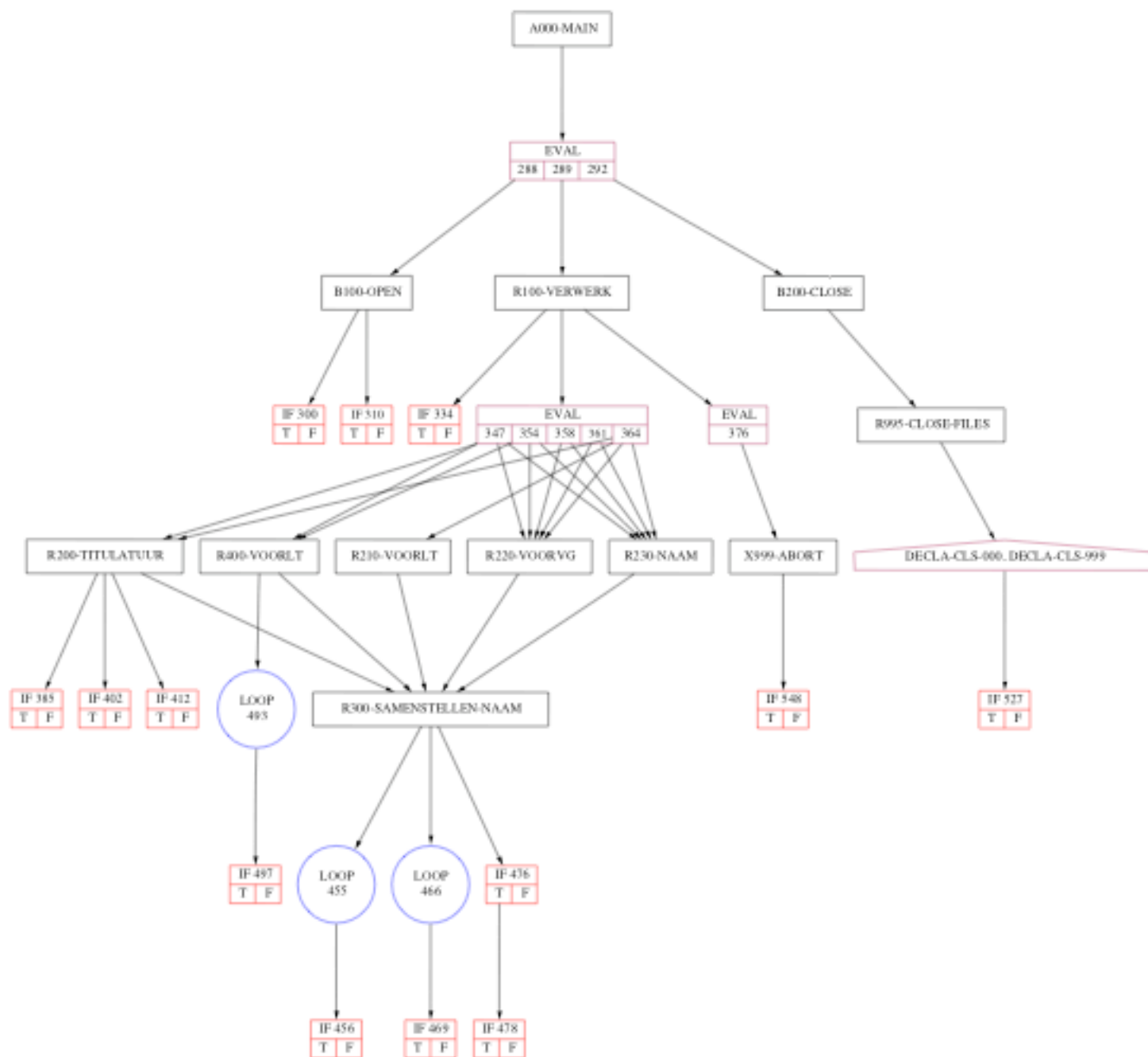
Map time to time.

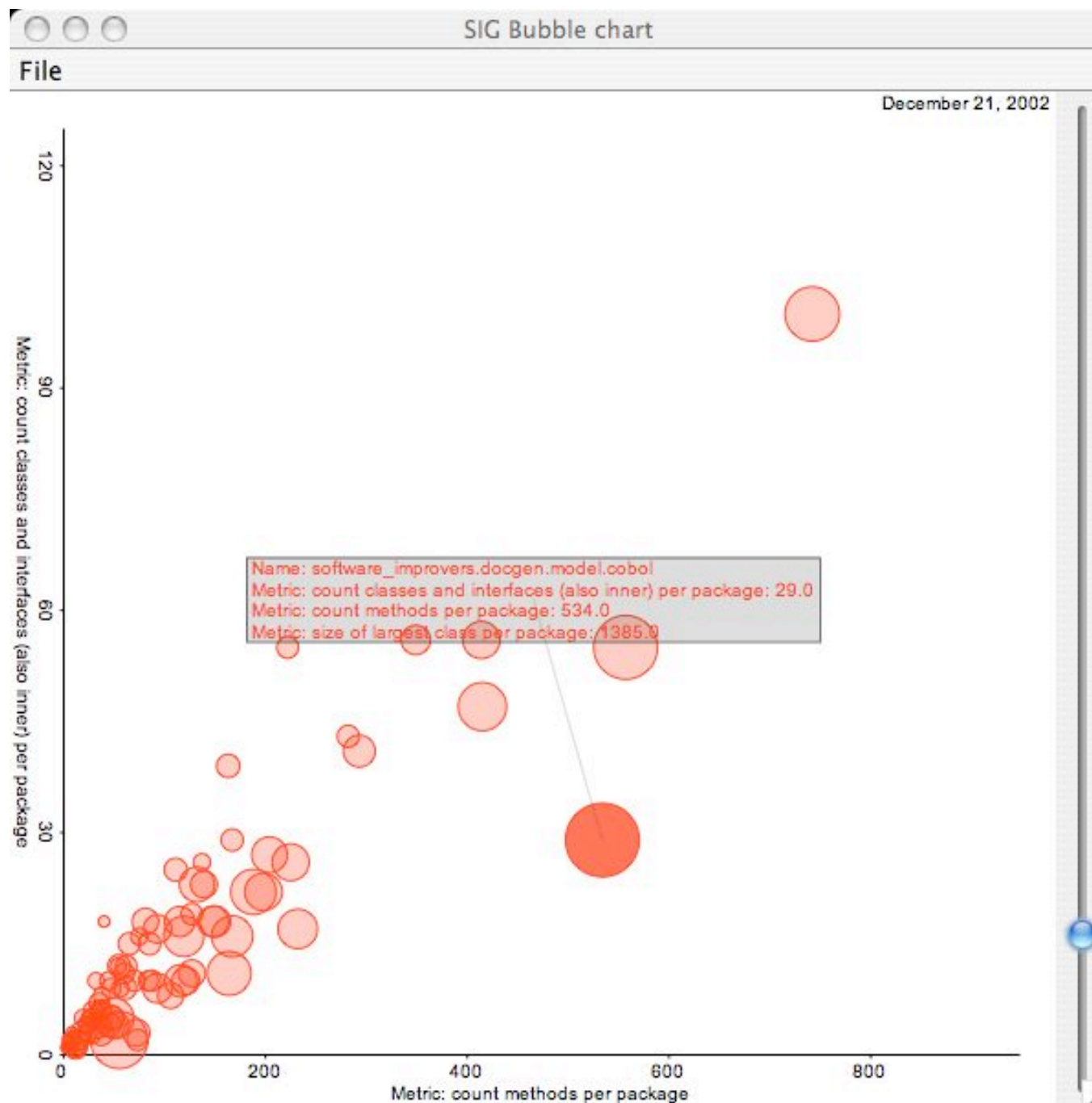
Charts

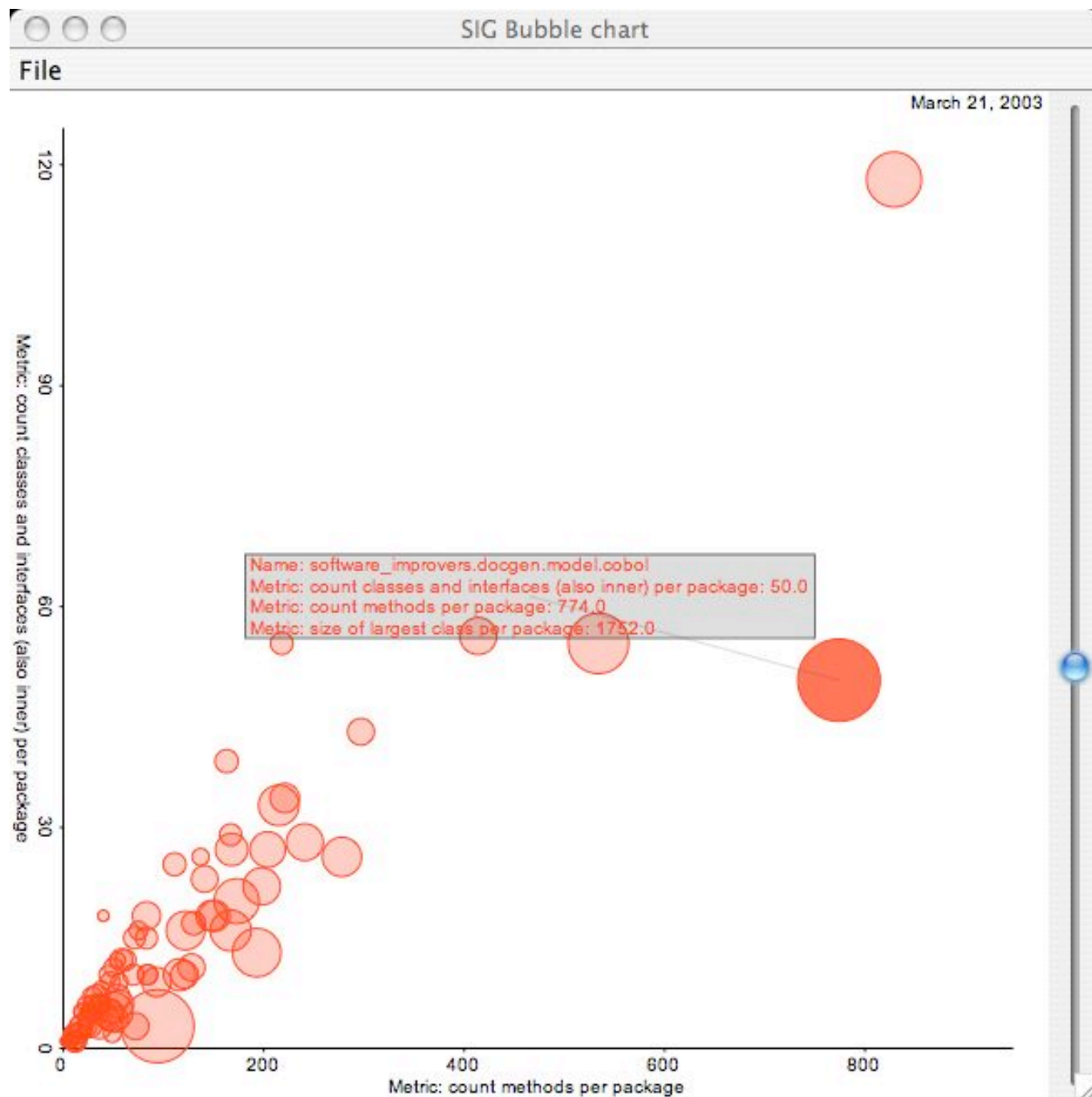


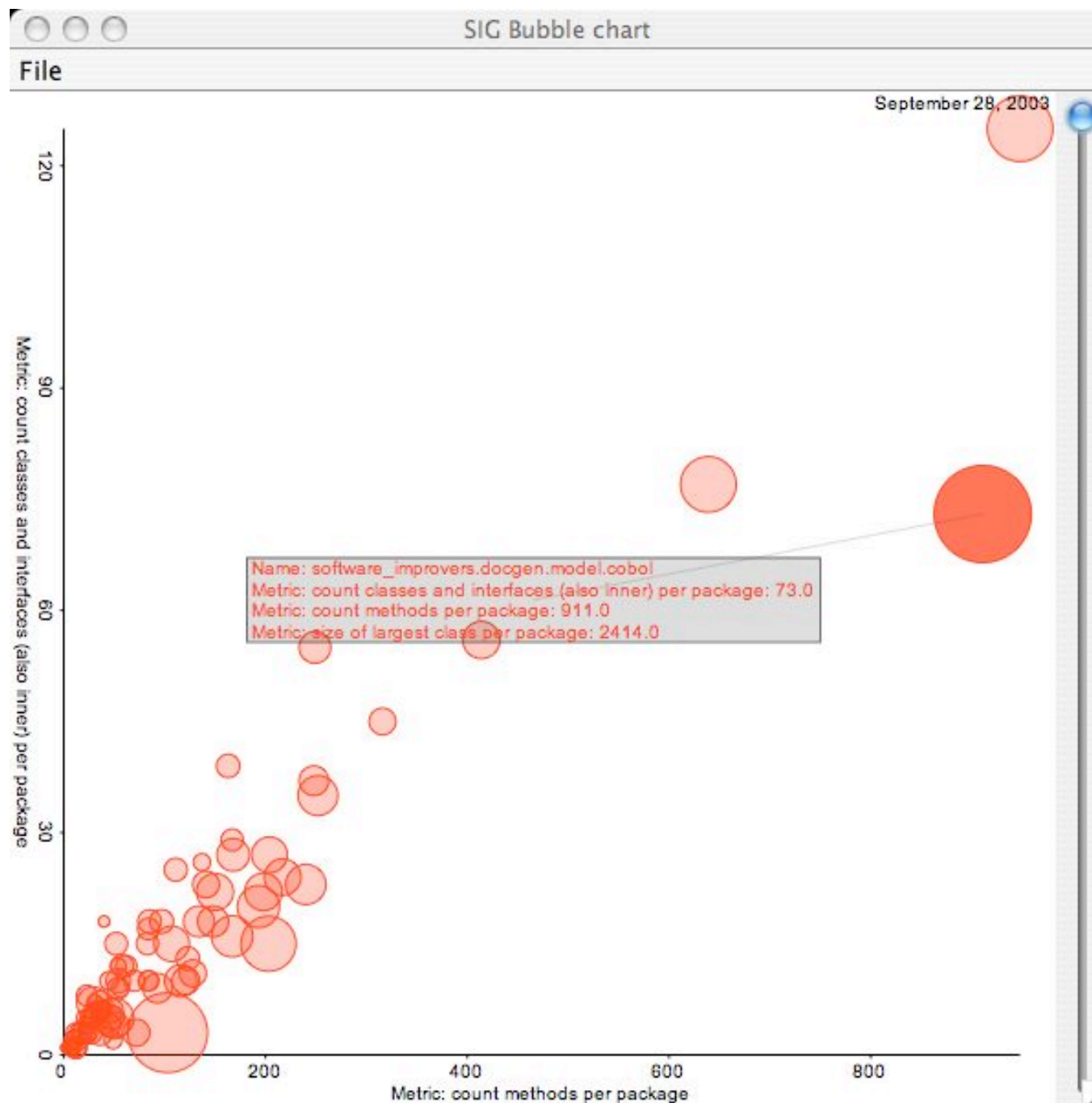
Graphs











Summary

Tool-based

Software Analysis Toolkit

Open, scalable, generic

Metrics, Reachability, Clones, ...

Charts, Graphs, Animations

Methodology

Nested iterations

Monthly, quarterly, annual reports

Increasing aggregation

Supplemented with SRAs and DocGen

for Software Portfolio Monitoring

