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Dashboard
Enabling Best Practices via Metrics
October 1999

Agenda

- Introduction - Why do we measure?
- Pragmatic Software Metrics
- Dashboard Overview
- Dashboard Demonstration (during Tools Fair)
"Why do we measure?"

- To characterize...
  - to gain understanding of processes, products, resources, and environments, and to establish baselines for comparisons with future assessments
- To evaluate...
  - to determine status with respect to plans; to determine if projects are drifting off track
- To predict...
  - to gain understanding so values that are observed can be used to predict others (e.g., cost, schedule, and quality)
- To improve...
  - to help identify roadblocks, root causes, inefficiencies, and other opportunities for improving product quality and process performance

"Measuring up" to multiple goals

- Multiple stakeholders typically emphasize different objectives
  - Customer (or Oversight):
    - Improve customer satisfaction
    - Increase quality / reliability
    - Reduce time to market (TTM)
  - Manager:
    - Reduce cost
    - Increase revenue
    - Increase margin
    - Monitor progress relative to plan
    - Improve predictability
  - Performer (Technical Lead / Architect):
    - Improve productivity
    - Increase reuse
    - Reduce rework

*From SEI’s Capability Maturity Model (CMM)
Increasing visibility for better control

- To choose an appropriate corrective action, we need to...
  - see measurable progress relative to objectives
  - quantify digressions from plan
  - recognize good & bad trends early
  - identify root causes of discrepancies
  - monitor quality and defect impacts
  - compare current & past performance
  - gain insight into process performance

Pragmatic Software Metrics

- Software Metrics provide objective insight into a project's status, by measuring incremental artifacts produced during the development process

- Characteristics of a good metric:
  - Considered meaningful by the customer, manager and performer
  - Demonstrates quantifiable correlation between process perturbations and business performance
  - Objective and unambiguously defined
  - Display trends
  - Natural by-product of the software development process
  - Supported by automation
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**Dashboard Overview**

- **Rational's Dashboard** is a tool that...
  - Collects metrics
    - Automated (non-intrusive) collection, pre-integrated with Rational development tools
  - Stores metrics
    - Organizes, maintains, and integrates history of all data collected, from different tools, processes, and projects
  - Provides viewing and analysis of metrics
    - Data is immediately available for web-based viewing, using roll-based displays and customizable charts and indicators

- **Web-based display**

- **Collection Agents**

- **Data Mart**

- **Features**

- Dashboard also...
  - Extends the capabilities of Rational and third-party tools
    - Provides information on the manager’s desktop
    - Metrics across the lifecycle, across products
    - Maintains historical information
  - Is integrated with Rational Suite
    - Captures artifact metrics from RequisitePro, ROSE, TeamTest, and ClearQuest
  - Provides visibility into process workflow (e.g., Rational Unified Process (RUP))

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Measuring Development Process Workflow

Dashboard Architecture

Rational Tools Other Tools or Files

SoupUp Pre
Rational
Test
Tool

ClearQuest
ClearCase Eh
App (Open)

Toolbox (Open)

Dashboard DB Manager

DB

Primitive Metrics
Hierarchies

Metrics Analysis & Display
Intelligence

Primitive Metrics
Collection Rules

Web
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Metrics measure artifacts...

- Tools
- Artifacts
- Metrics
- Display

Dashboard - Easy to Use

- Utilizes dashboard paradigm
- Web based
  - Easy deployment access
  - Easy deployment maintenance
  - Desktop Independent
- Customize displays based on different roles or management views
  - Standard panels for consistent at-a-glance reference
    - Program Manager, Team Lead, Test Manager, QA Manager, Customer, or Executive Management etc.
  - User defined panels for specific views

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Automated, web-based metrics collection and display

**Dashboard - Visibility & Insight**

- History & Trends
- Breakdown
- Measured Progress
- Distribution & Comparison
- Drilldown & Detail
- Status
- Level & Threshold

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See the Dashboard Demo at the Tools Fair...

The Dashboard demonstration illustrates:

Visibility to "Classics" project status & trends
Multiple views from different role based perspectives
Objective Progress & Stability metrics from various process workflow perspectives (e.g., Requirements, Design, Implementation & Test)
Ease of adding a new metric for display

Dashboard...

- Provides a graphical means to viewing large-scale software projects
- Provides critical information, i.e., metrics, regarding a project's status via automated, non-intrusive data collection
- Provides graphical indicators, gauges, charts, counters, and raw data to help you identify potential risk areas, root causes, slowdowns, or breakdowns
- Maintains project history in Metrics Data Warehouse
- Facilitates timely and uniform communication of project status within the organization
- Reduces management overhead effort required to monitor project performance