



Monitoring Code Quality and Development Activity by Software Maps

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Spin-off Company – www.softwarediagnostics.com



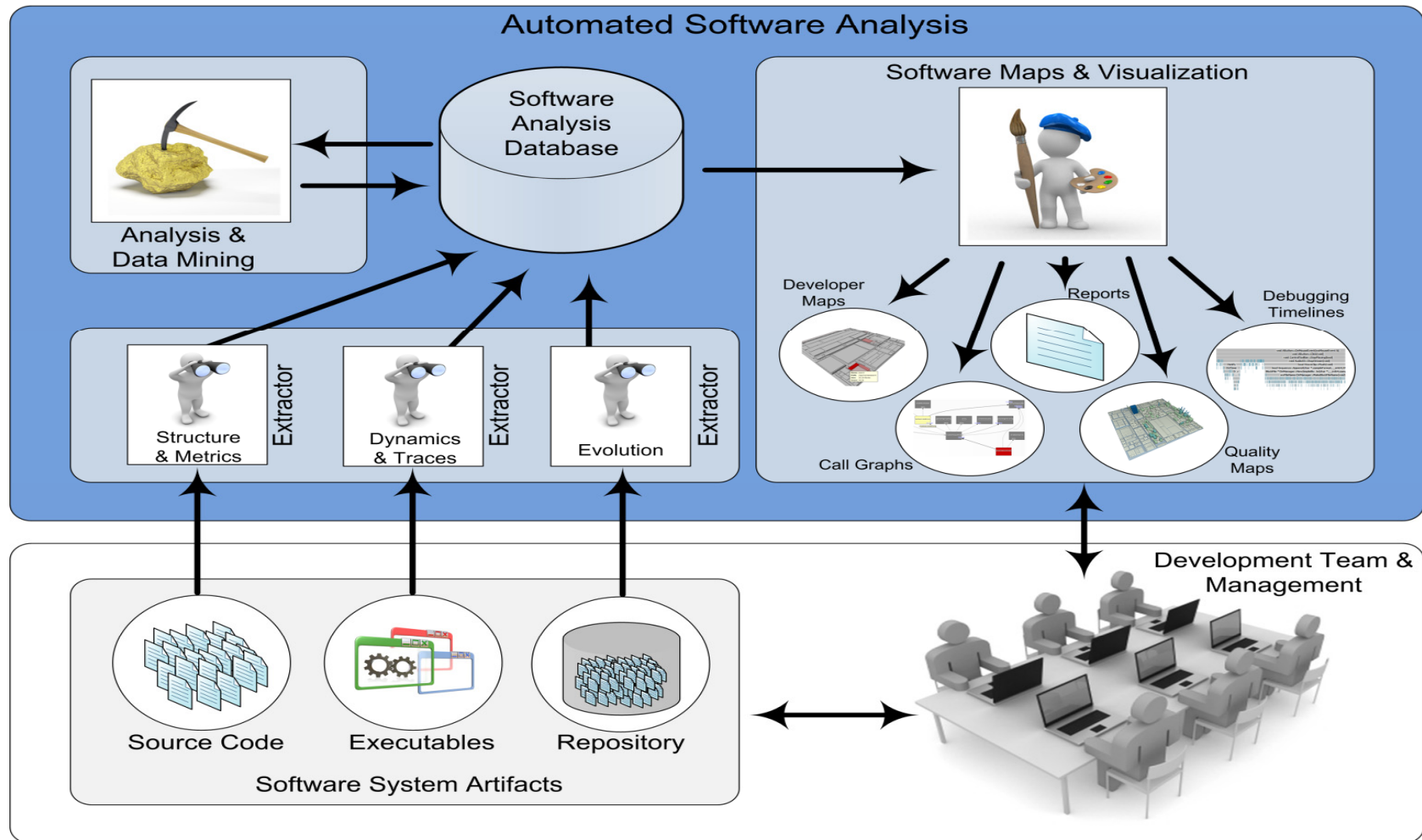
Challenges in SW-Development & Maintenance

- Challenging to find the balance.
- Internal quality:
 - **“Less visible” aspects**, e.g., modularity and clearly defined interfaces, and code complexity.
- External quality:
 - **“Visible” aspects**, e.g., features per iteration and post-delivery defects.
- Reasons for difficulties in finding the balance
 - Increasing internal quality – no short-term revenue.
 - Design short-cuts – give impression of quick development success.
 - **Internal quality is largely invisible/non-understandable to managers and customers.**



The Concept of Software Maps (1)

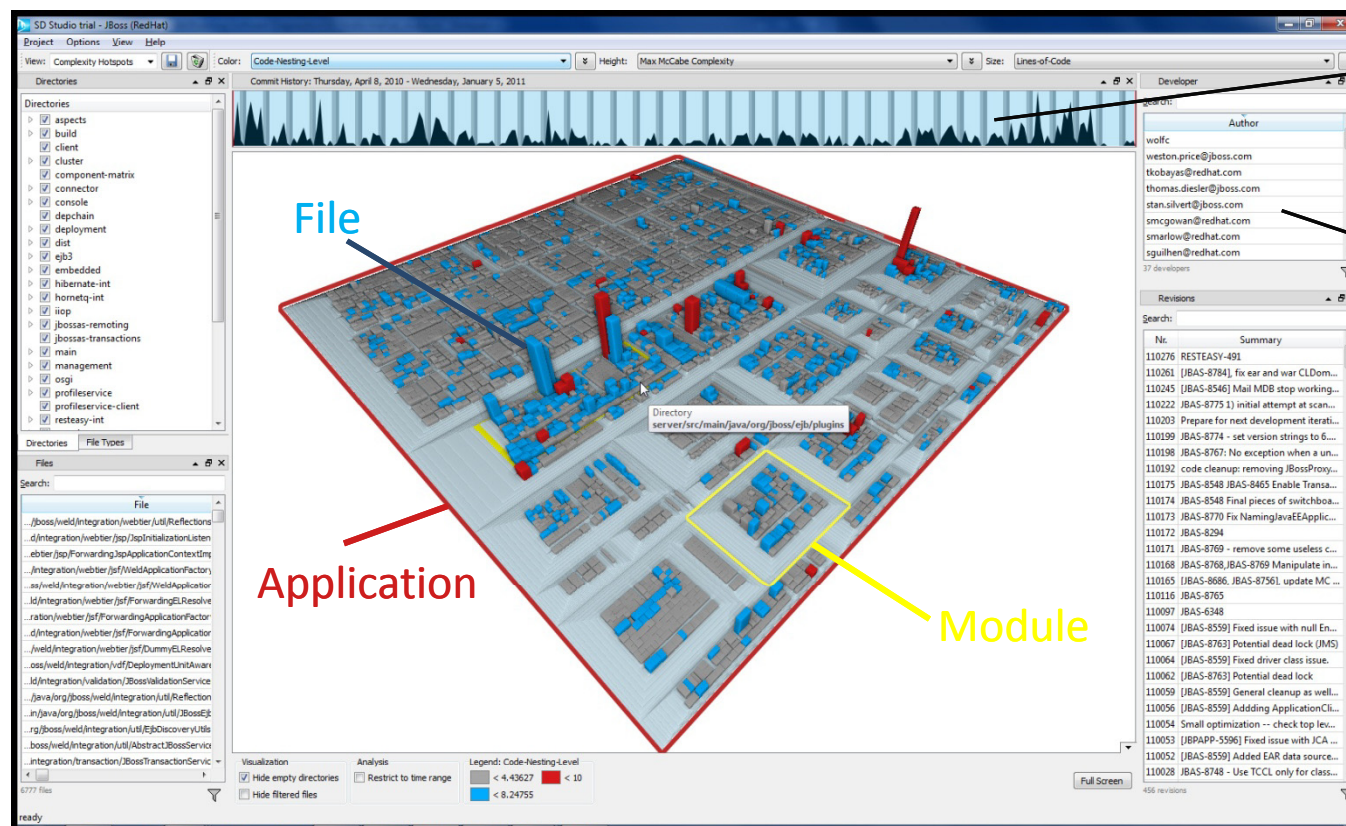
- Integrating information on code, runtime behavior, evolution



The Concept of Software Maps (2)

Goals

- Making internal quality better visible and realizable to managers.
- Providing an effective communication means between managers and developers.



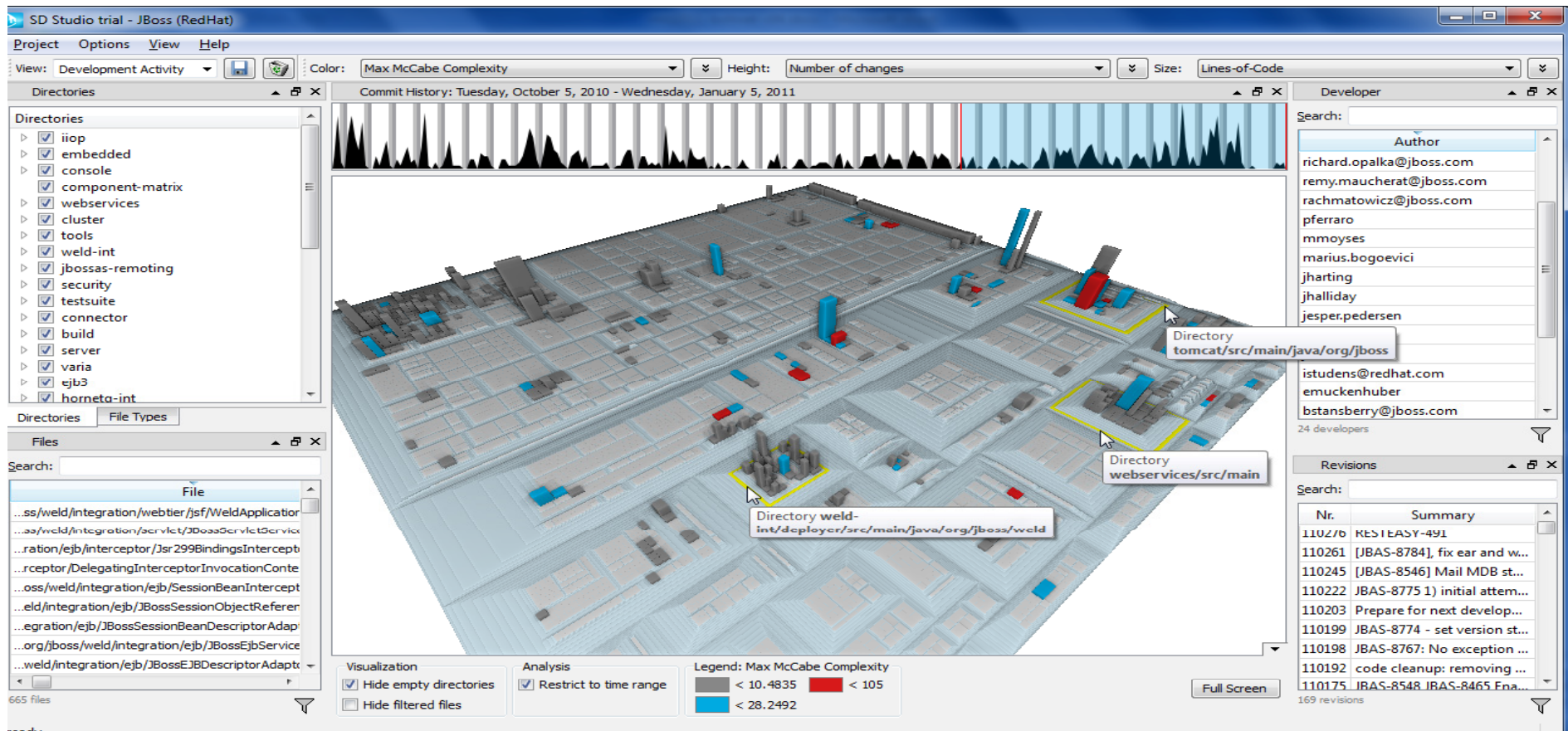
Development
Timeline

Team

Example:
JBoss
Red Hat Inc.
800.000 LoC
Java

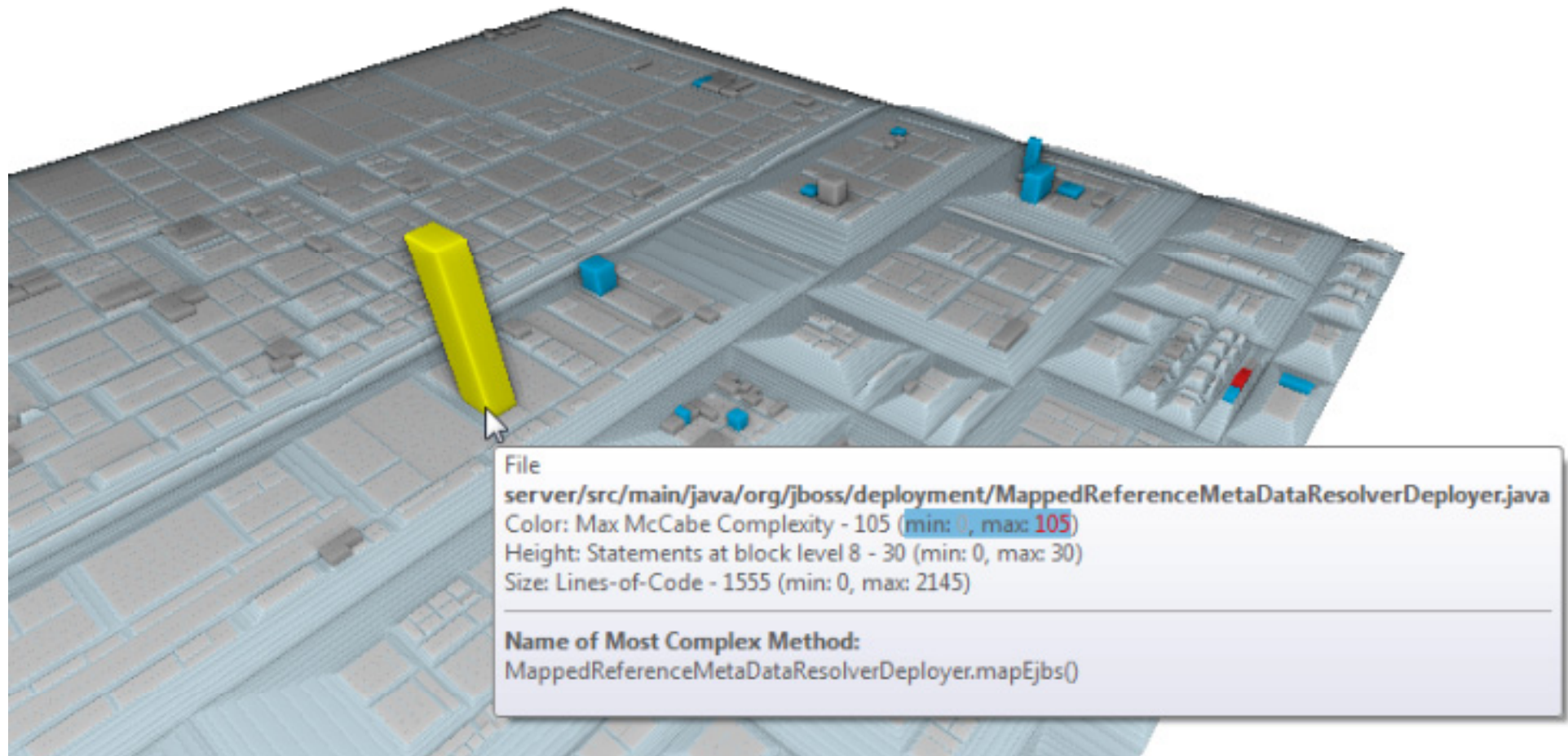
“Early-warning system” detecting Costs and Risks

- 5.Oct. 2010 – 5.Jan. 2011: Developers operate on large, complex files in the tomcat module. → Refactoring these files now?



Files containing Bugs

- Complex files being changed in the context of bug fixes.

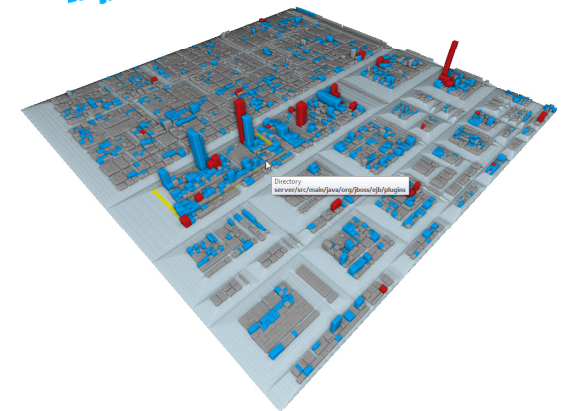


Conclusions & Future Work

- Software Maps aim at making internal quality visible.
- They provide a communication means between developers and management.
- Software Maps (www.softwareiagnostics.com) are in daily use in large development companies.
 - Medical Systems (Embedded C/C++)
 - Postage Systems (Embedded C/C++, C#)
 - Laser Scanning Systems (C++, C#)
 - Web portals (Java, C#/.Net, VB/.Net, PHP)
 - Windows Desktop applications (C++)
 - CAD Systems (C++)
 - Multimedia Consoles in Automobiles (C++, C#)
 - Financing & Insurance Systems (Cobol, ABAP)
 - ...
- Future work:
 - Long-term case studies with companies.
 - Field Studies.
 - Visualization techniques to support highest-level management.



software diagnostics



Thank You.
Questions or Remarks?



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