eCITY: A Tool to Track Software Structural Changes using an Evolving City

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Motivation

- Software evolution has highest costs
- Visualization as an aid to reduce these costs
  - Lots of data – standard visualizations do not work
  - Need for stable layouts
  - Interactively explore software's evolution
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Related Work

Visual Comparison of Hierarchical Data
D. Holten

Representing Development History in Software Cities – F. Steinbrückner
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Main Contributions

- Timeline View
  - Overview of changes made to the system over time
  - Combination of bar-charts
    - Overview & details at a particular point in time

- City View
  - Track where changes are made
    - Overview of entire system architecture at a particular point in time
    - Slider and key frame animation technique to interpolate colors and layout
    - Several interaction and animation possibilities
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DEMO

DEMONSTRATION
Conclusion

- Stakeholders can interactively get an overview of structural changes over time
- Implementation was found to be both natural and intuitive
- Improved efficiency and effectiveness in performing basic software evolution tasks

Future Work

- Evolution of relationships and dependencies
- Side-by-side comparison of two disjoint point-in-times
- Embedded search engine and improved navigational context
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Questions?