CodeSurfer:
It Slices, It Chops, But Doesn't Make Julienne Fries

Demo By Aaron Brown
What is CodeSurfer?

• Code Browser
  - Eases reading and understanding of code
  - Can give you a variety of views of your code and its effects
CodeSurfer Features

- **Pointer Analysis**
  - Finds interactions between variables even if affected by pointers
- **Global Variable Analysis**
  - See how global variables are used by functions
- **Call Graphs**
  - See how functions interact with each other
CodeSurfer Features

- Impact Analysis
  - See how a statement affects other statements
- Dataflow Analysis
  - See from where a variable can get its value
- Whole Program Analysis
  - Finds code interactions between differing files
- Many more...
CodeSurfer Requirements

- **Language**
  - C/C++

- **Platforms**
  - Windows NT/2000/XP
  - Linux
  - Solaris (8 or later)
History

- University of Wisconsin Slicing Tool
  - Susan Horwitz, Thomas Reps and many others
  - Developed from 1996-2000
  - Had all the basic features of CodeSurfer
    - Forward/Backward Slicing, Chopping
    - Control/Flow dependencies

- CodeSurfer 1.0
  - June 1999
  - Derived from the WST
Optional Add-Ons

- **PathFinder**
  - Not actually a Mars rover
  - Allows you to check properties of all paths through a program
  - Shows you the path that doesn't match your expectations
Optional Add-Ons

- Programmable API
  - Allows customizing CodeSurfer, integrating with other tools
  - Can access all the internal structures
  - Included scripting language
  - Batch-mode processing
### Cost

- Offer a few packages depending on your needs

<table>
<thead>
<tr>
<th>Package</th>
<th>Node Locked</th>
<th>Floating</th>
</tr>
</thead>
<tbody>
<tr>
<td>CodeSurfer Browser</td>
<td>$795</td>
<td>$1495</td>
</tr>
<tr>
<td>Browser + PathFinder</td>
<td>$1295</td>
<td>$1995</td>
</tr>
<tr>
<td>Browser + PathFinder + API</td>
<td>$3995</td>
<td>$5995</td>
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</tbody>
</table>
Academic Licensing

- Available to academic institutions for free
  - Node locked
  - Contains licenses for 3 viewers and 1 builder
  - Request academic users mention them in papers
Limitations

- Requires you to think in academic terms
- No integration with Eclipse, Visual Studio, etc
- ~100k lines of code is its upper bound
- Has some issues with various types of analysis
  - Only really an issue with irregular code
    - No support for inline assembler
Sources

- http://www.grammatech.com/
  - GrammaTech
- http://www.cs.wisc.edu/wpis/slicing_tool/
  - The Wisconsin Program Slicing Tool