Refactoring human roles solves systems problems

Jon Howell    Jeremy Elson
Microsoft Research
decoupling roles creates industries

the software industry
decoupled

*user from software developer*
two new roles

• hardware wrangler
  – purchases, powers, networks, and repairs hardware
• software integrator
  – integrates independent software components, applies security patches
<table>
<thead>
<tr>
<th>developer</th>
<th>software integrator</th>
<th>hardware wrangler</th>
</tr>
</thead>
<tbody>
<tr>
<td>software industry</td>
<td>DLL hell, shared config</td>
<td>kiosks, dead hard disks</td>
</tr>
<tr>
<td>scale-up vs. scale-out</td>
<td>one-off data centers</td>
<td>dead hard disks</td>
</tr>
<tr>
<td>vertical service integration</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>