TECHNOLOGICAL CHOICES
FOR MOBILE CLINICAL APPLICATIONS

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Introduction

• Mobility is an important challenge for Clinical Information Systems (CIS)
  • Access to information and decision-support anywhere in the hospital
  • Facilitated bedside human-machine interactions
  • Improved efficiency and safety of care process

• Opportunity thanks to availability of increasingly cheaper and more powerful devices
Mobile Clinical Application

- Our system doesn't store information, it offers a view over the one stored in the existing CIS

- Components are not dependent of any local legacy system
Geneva University Hospitals (HUG)

- 45,000 inpatients and 850,000 outpatient visits per year
- CIS of the HUG
  - Mostly an in-house developed system
  - Written in Java with J2EE and open frameworks
  - All exchanges are SOA or HTTP/XML
The appropriate technology

- **Hardware**
  - Market trends
  - Cost
  - Performance

- **Human**
  - Availability of competent developers on the labor market
  - Existence of a developers’ community

- **Software**
  - Complexity of the development environment
  - User-friendliness
  - Re-usability of existing and new developments
**OS**

<table>
<thead>
<tr>
<th>OS</th>
<th>iOS</th>
<th>symbian OS</th>
<th>Android</th>
<th>Blackberry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developer</td>
<td>Apple</td>
<td>Nokia</td>
<td>Google</td>
<td>Blackberry</td>
</tr>
<tr>
<td>Language</td>
<td>Objective-C</td>
<td>C++</td>
<td>Java + XML</td>
<td>Java</td>
</tr>
<tr>
<td>Market shares</td>
<td>46.4%</td>
<td>21.77%</td>
<td>15.65%</td>
<td>10.16%</td>
</tr>
</tbody>
</table>

- Android was chosen for its numerous advantages
  - Wide choice of compatible devices (smartphones and tablets)
  - Widespread development environment
  - Open source
  - Significant market share
  - Transparent development policy
### Features

<table>
<thead>
<tr>
<th></th>
<th>Flex Hero SDK</th>
<th>Android SDK</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDE</td>
<td>Flex builder Burrido</td>
<td>Eclipse</td>
</tr>
<tr>
<td>Language</td>
<td>ActionScript 3 + MXML</td>
<td>Java+XML</td>
</tr>
<tr>
<td>Execution platform</td>
<td>Adobe Compatible</td>
<td>Android</td>
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- **Both languages**
  - Offer an IDE with an emulator
  - Handle multi-touch interactions
  - Are actively supported by a large community

- **Flex**
  - Portable on several platforms
Graphical results

- Similar interface displayed using android SDK and Flex SDK
Conclusion

• Choice of the OS
  • Android OS was preferred due its compatibility with the largest number of devices and its open source policy

• Choice of the SDK
  • Flex SDK was finally chosen based on its portability on other platforms with comparable performance and ease of development
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