Using Smart Mobile Devices for Field Data Collection and Dissemination

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Smart Phone Market Share Q4 2010

- Numbers do not include Tablets
- Symbian future and Windows Phone OS
- Android Defragmentation among OEMs
## Canalys Smart Phone Analysis, Quarterly Shipment Data

### Worldwide smart phone market

### Market shares Q4 2010, Q4 2009

<table>
<thead>
<tr>
<th>OS vendor</th>
<th>Q4 2010 shipments (millions)</th>
<th>% share</th>
<th>Q4 2009 shipments (millions)</th>
<th>% share</th>
<th>Growth Q4'10/Q4'09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>101.2</td>
<td>100.0%</td>
<td>53.7</td>
<td>100.0%</td>
<td>88.6%</td>
</tr>
<tr>
<td>Google*</td>
<td>33.3</td>
<td>32.9%</td>
<td>4.7</td>
<td>8.7%</td>
<td>615.1%</td>
</tr>
<tr>
<td>Nokia</td>
<td>31.0</td>
<td>30.6%</td>
<td>23.9</td>
<td>44.4%</td>
<td>30.0%</td>
</tr>
<tr>
<td>Apple</td>
<td>16.2</td>
<td>16.0%</td>
<td>8.7</td>
<td>16.3%</td>
<td>85.9%</td>
</tr>
<tr>
<td>RIM</td>
<td>14.6</td>
<td>14.4%</td>
<td>10.7</td>
<td>20.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>Microsoft</td>
<td>3.1</td>
<td>3.1%</td>
<td>3.9</td>
<td>7.2%</td>
<td>-20.3%</td>
</tr>
<tr>
<td>Others</td>
<td>3.0</td>
<td>2.9%</td>
<td>1.8</td>
<td>3.4%</td>
<td>64.8%</td>
</tr>
</tbody>
</table>

*Note: The Google numbers in this table relate to Android, as well as the OMS and Tapas platform variants.

Source: Canalys estimates, © Canalys 2011
Two-horse race so far in tablets

<table>
<thead>
<tr>
<th>Global Tablet OS Shipments (Millions of Units)</th>
<th>Q3 '10</th>
<th>Q4 '10</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple iOS</td>
<td>4.2</td>
<td>7.3</td>
<td>14.8</td>
</tr>
<tr>
<td>Android</td>
<td>0.1</td>
<td>2.1</td>
<td>2.3</td>
</tr>
<tr>
<td>Others</td>
<td>0.1</td>
<td>0.3</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14.4</td>
<td>9.7</td>
<td>17.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Global Tablet OS Marketshare %</th>
<th>Q3 '10</th>
<th>Q4 '10</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple iOS</td>
<td>95.5%</td>
<td>75.3%</td>
<td>84.1%</td>
</tr>
<tr>
<td>Android</td>
<td>2.3%</td>
<td>21.6%</td>
<td>13.1%</td>
</tr>
<tr>
<td>Others</td>
<td>2.3%</td>
<td>3.1%</td>
<td>2.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.0%</td>
<td>100.0%</td>
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</tr>
</tbody>
</table>

Analytics firm Strategy Analytics reports that Android owned 22% of the global tablet market in the fourth quarter of 2010. The iPad’s share of the market dropped from 96% to 75% in the fourth quarter last year, according to the report.
SDKs offer developers

• Mapping engines
  – Geocoding and reverse geocoding
• Base mapping data
  – Road, aerial, and business data
  – Mapping tiles, for now
• Location Services
  – GPS, Cell, Wireless
• GUI components
  – Built-in components provide familiar Look and Feel
• Deployment and update platform
  – App Store and Market Places
  – Enterprise deployment with out App Stores
SMD and Cloud

• Smart Mobile Devices and Cloud Services: Hand in Hand?
  – Mapping Services
  – Social Media (FB, Tweet, various check-in apps...)
  – File Storage
  – Image Sharing (Picasa API...)
  – Data Storage
    • Google Spreadsheet and Google Doc APIs
SMD and Cloud - Continued

• Smart Mobile Devices and Cloud Services: Hand in Hand?
  – Raised expectation
    • Virtually no learning curve
    • “Familiar GUI and user experience”
      – A tree-view based layer legend may not work
      – Hard to change millions of users in their expected GUI and application interaction
  – Change would be a constant factor
    • Cloud services may change
      – Your building blocks change or morph
    • Need to have a patching/upgrading method to catch up
  – Complexity in scaling up
    • You may experience sudden use surge
    • Users can be in different geography and time zone
    • Cloud hosting for N-tier solutions (more on next slide)?
Disconnected Mode and Sync with Enterprise Servers

• Your Smart Device is powerful
  – Very capable hardware specifications
    • Heard about First Person Shooter? Rage and Unreal engines have mobile versions
    – Why not leverage on it?

• Local data storage
  – Sqlite for databases
    • Android, Chrome, Firefox and many other already use it. File based.
  – Files such as documents
  – Reduce hits on the servers and network
  – Can work in disconnected mode
  – Deployment/installation of large application size is OK
    • Rage for iOS is >800MB

• Sync
  – N-Tier Client/Server
    • Need server app
    • Commercial server or customized server applications
Display maps and perform spatial query
Collect field data
Update data in the field

office_name: new_ofce_name

description: this is a new ofce

zip: 12345

phone: 123-345-6789

fax: 123-345-6788

address: new address

Update  Delete  Cancel
select geometry, city_name from cities