What We Learned From Porting 50+ Cloud Apps to Tizen

Dima Malenko, Vlad Pavlov, rollApp Inc.
Tizen is an open source, standards-based software platform...
From tizen.org

Tizen is an open source, standards-based **software platform**...
What are the “must have” features for a computing platform?
What are the “must have” features for a computing platform?

• Access to the Internet
• Ability to do office productivity tasks
What is the most popular office productivity solution in the world?

over 1,000,000,000 users
What is the second most popular office productivity solution in the world?

Apache OpenOffice

over 100,000,000 users
How long will it take to port these apps to new platform like Tizen?
We made more than 50 popular desktop apps available on Tizen in about 3 months.
rollApp: cloud applications platform

- Supports Linux, Windows and Java desktop apps
- Works on
  - Chrome, Safari, Firefox
  - iOS, Android, Tizen
- Integrates with Dropbox, Google Drive, Box
Work With Any App From Any Device With Just a Browser


rollApp’s goal is to enable all existing software on all existing and future browser-equipped devices
rollApp Today

- Palo Alto (CA) based startup
  - R&D in Ukraine
- Relatively small team (less than 30 people), includes some of the best experts on the planet
  - Bjarne Stroustrup (the author of C++) and Bob Iannucci (former CTO from NOKIA) are members of our Advisory Board
- Backed by prominent international venture investors
- Publicly available beta version of the technology
  - attracted tremendous interest (over 100-fold traffic growth during the year, over 5 mln users last month)
Apps Adapted For Touch Input
Do Precise Work With Touch Screen
Smart Window Management: Modals
Smart Window Management: Documents
Making it all work together
Basic options for building apps

- **Native C++ app**
  - Great for performance and access to low-level platform features
  - Heavy-duty development, zero portability

- **Native Web JavaScript app**
  - Good balance of access to low-level features and speed of development
  - Portability is still questionable

- **“Hosted” JavaScript app**
  - Great portability and speed of development
  - Tricky access to low-level features
Good news: standards are on your side
Good news: standards are on your side, but they are not panacea

5.1.6 Browser Context Names

... a new browsing context is being requested, and what happens depends on the user agent's configuration and/or abilities.

More at http://www.w3.org/TR/html5/browsers.html
Lesson: Web app ≠ JavaScript Mobile app

<table>
<thead>
<tr>
<th></th>
<th>Web app</th>
<th>Mobile app</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connectivity issues</td>
<td>Browser is the app. Your app is just a content</td>
<td>Have to be handled by the app</td>
</tr>
<tr>
<td>Sleep mode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardware buttons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>App UI/UX</td>
<td>Hey, it’s the Web! Do what you want!</td>
<td>Have to conform to platform UI guidelines</td>
</tr>
<tr>
<td>Access to 3rd-party web services</td>
<td>Well developed and natural</td>
<td>Can be cumbersome and “not native”</td>
</tr>
</tbody>
</table>
“Cross-platformity” in rollApp

Features need to work in a way “natural” for a target platform

Features need to work in a way “natural” for an application and its main use cases
30,000 feet overview

Platform wrapper

Downloadable client
Platform-specific vs. cross-platform

**Platform Wrapper**
- Installable component available from the store
- Helps handling low-level platform specific functions
- Helps conforming to UX guidelines

**Downloadable Client**
- Does all the user-app interaction heavy lifting
- Adapts application UX to target platform
- Supports “in-browser” operation for all supported platforms
Platform Wrapper Architecture

URL: file://…

Access to low-level APIs via wrapper

URL: https://rollapp.com/…

Platform-specific interaction
- hardware buttons
- sleep status

Main interaction with the app

Tizen-specific feature implementations
What’s most popular mobile web browser engine of present day?
What’s most popular mobile web browser engine of present day?
Lesson: No one platform is a good approximation of another platform

- **Fonts/image rendering**
  - Scaling issues
  - Handling of retina screen

- **Keyboard activation**
  - Window is resized, when keyboard is open
  - `.focus()` does not activate keyboard from `ontouchstart()` handler

- **Performance**
  - `canvas.getPixelData()`
Lesson: Configuration Management is important

Platform under active development

+  

Your app under active development

=

⚠️ DANGER

EXPLOSIVES
At times bugs can be related to very basic features
Lesson: Hosted apps and app store aren’t exactly friends

- Publishing of v.1 can be painful
  - Hosted components updated instantaneously, but verification of resubmitted apps can take weeks
- Having components on different deployment paths can add complexity
- Managing many apps on the app store can be a hassle
Summary

• rollApp is a universal cloud platform making any application available on any device
• JavaScript has become first class citizen for mobile apps development, but some difficulties remain
• Turning Web app into high-quality JavaScript mobile app is no easy ride
• Do not rely on cross-platform toolset; develop and test on the specific platform
• Good engineering practice always helps