1:30 – 1:40  Welcome & Intro to the day
1:35 – 2:30  Symbian Introduction
2:30 – 2:45  break
2:45 – 3:40  Phonegap and WRT tools
3:40 – 3:50  break
3:50 – 4:45  Qt
Introduction to the Symbian open source project

Lars Kurth
twitter.com/lars_kurth
http://tiny.symbian.org/OSCON2010
Content

Who is Symbian

A brief overview of the Symbian software stack (and what you can do with it)

Developing apps for Symbian

How to get involved
Symbian Origins

- **Late 80's**
  - Psion develops EPOC for portable devices

- **1989**
  - First EPOC16 devices ship

- **late 90's**
  - The EPOC32 OS was renamed as Symbian OS (written in C++ for a new codebase)

- **mid-90's**
  - The OS was referred to as EPOC16 to distinguish it from Psion's EPOC32 OS

- **June 1998**
  - Psion Software becomes Symbian Ltd
Symbian Foundation Milestones

1998
Symbian Ltd was founded by Ericsson, Motorola, Nokia and Psion to create Symbian OS

2006
100 million phones shipped

2008
200 million phones shipped

2009
250 million phones shipped

2010
300 million phones shipped

February 2010, The Symbian Foundation completes its first major milestone and announces that the Symbian platform is now available to everyone, everywhere for FREE, mostly under the terms of the Eclipse Public License.

Nokia acquires Symbian Ltd

The Symbian Foundation is announced by the initial board members.
We are an independent, not-for-profit, open source foundation with the mission to create a FOSS platform and community that is truly independent and delivers the best mobile experience for consumers.

We are **not** the old Symbian Limited (which was acquired by Nokia)

We are **not** owned by Nokia (funded by board members from across the industry)
An Overview of the Symbian software stack

... and where it will go
Native stack is designed from the ground up for resource constrained devices

OS scales to lower cost hardware

Rich APIs: few things you can't do natively (with well managed compatibility)

Mostly FOSS licenses (exceptions: some DDs, codec's, some fonts)

Unique RT micro/nano kernel architecture (designed from the ground up in OO & Real-time & SMP ready)
Some key facts: Run-times

Newsflash: [http://tiny.symbian.org/PhoneGap](http://tiny.symbian.org/PhoneGap)
Signature applications (top layer) are replaced by Qt apps in Symbian^4 (and their UI is redesigned in the process)

Device driver APIs:
Symbian Hardware Adaptation Interface (open working group to define SHAI)
The first platform release hosted by the Symbian Foundation.

Faster and more responsive.
New home screen, improvements across the app suite.

S60 5.0
Symbian OS v9.4

Complete: Now
Devices: Now

S^2
Complete: Now
Devices: From H2 2010

S^3
Complete: H2 2010
Devices: From H1 2011

S^4
Ease and simplicity: a whole new touch UI.
Qt adopted for native app development.
Qt: New app & UI framework

Up to and including S\(^2\)

- Devices Now

Qt runtime available to download and install

Smart Installer, see http://tiny.symbian.org/SmartInstaller

S\(^3\)

- Devices From H2 2010

Qt runtime integrated into Symbian\(^3\) kits and available for inclusion in devices

S\(^4\)

- Devices From H1 2011

Qt adopted as the primary runtime for applications

Orbit UI framework provides enhanced Qt-based controls

Platform applications ported to Qt and Orbit and beyond...
Apps for Symbian
How Do you choose a platform?

Marketing reasons that mobile developers consider important in selecting a platform

- Large market penetration
- Revenue potential (direct or via advertising)
- Has App Store
- Large developer community
- De-facto platform in my vertical industry
- My boss said so
- Everyone else is using it
- Analytics tools (e.g. Flurry)

Source: Mobile Developer Economics 2010 and Beyond. Produced by VisionMobile. Sponsored by Telefonica Developer Communities. June 2010. Licensed under Creative Commons Attribution 3.0 License. Any use or remix of this work must retain this notice.
Symbian: the biggest opportunity

(Market share & devices)

<table>
<thead>
<tr>
<th>Platform</th>
<th>Q1'09</th>
<th>Q1'10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symbian</td>
<td>48.8</td>
<td>44.3</td>
</tr>
<tr>
<td>RIM</td>
<td>20.6</td>
<td>19.4</td>
</tr>
<tr>
<td>iOS</td>
<td>10.2</td>
<td>9.6</td>
</tr>
<tr>
<td>Android</td>
<td>10.5</td>
<td>6.8</td>
</tr>
<tr>
<td>Microsoft</td>
<td>20.6</td>
<td>15.4</td>
</tr>
<tr>
<td>Others</td>
<td>1.6</td>
<td>15.4</td>
</tr>
<tr>
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<td>1.6</td>
<td>15.4</td>
</tr>
</tbody>
</table>

Symbian / Million Devices

Source: Gartner, May 2010
Global Market Share

Worldwide Smartphone market share H1 '09

Source: Canalys
Symbian: the biggest future opportunity

Canalys: Mobile phone sales forecast

Juniper: Open source based mobiles in 2014

Gartner: Smartphone market share 2012
Support programs and information
The hub of the Symbian developer community

Get the Tools and Kits
- Native C++ SDKs and Tools available

Get Coding
- Quick starts for different program environments
- Sample code
- Documentation
- Source code reference

Get support
- Active Forums to ask questions
- Contact companies who can help
Current App Market Dilemma

Developers
- Time & cost to bring application to market
- Global reach requires access to many storefronts
- Consumer discovery
- How to maximize # of devices supported

Consumers
- What apps are available for my device?
- What are the latest apps?
- Where can I find and download them?

Application Stores
- Costs associated with application sourcing
- Developer discovery is difficult
- Time & cost of device compatibility testing
- Need to focus efforts on areas of value-add
Providing a Solution
Horizon - Hub of a Global Ecosystem

- Reduce barriers between developer and stores
- Speed time to market
- Increase opportunity to reach a global eco-system
The Road to Open Source

And how to get involved
The Road so far: Technology ...

Started off under a transitional members only-license (to allow contributors to scrub the code and replace closed IP prior to open sourcing)

The whole of Symbian^3 was made available as open source in Feb 2010 (we are still a young open source project)

38 million lines of code available to everyone under the EPL (most complete open source mobile OS, e.g. open telephony stack)

Symbian^3 functionally complete in June (great community effort in making this happen)
## Interlude: Terminology

<table>
<thead>
<tr>
<th><strong>Symbian</strong></th>
<th><strong>What</strong></th>
<th><strong>FOSS terminology</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Package</strong></td>
<td>A group of components in the platform</td>
<td>Project</td>
</tr>
<tr>
<td><strong>Package Owner</strong></td>
<td>The person who notionally owns a package (term also used for companies)</td>
<td>Project Lead</td>
</tr>
<tr>
<td><strong>Committer</strong></td>
<td>An individual trusted with write access to the code</td>
<td>Committer</td>
</tr>
<tr>
<td><strong>Incubation Project</strong></td>
<td>A project that aims to deliver a package, but lacks maturity or has other risks associated to it</td>
<td>Incubation Project</td>
</tr>
<tr>
<td><strong>Project Lead</strong></td>
<td>Leader of an Incubation Project</td>
<td>Project Lead</td>
</tr>
</tbody>
</table>
The Road ahead: Removing technical obstacles

- **Free and open tools**
  (out-of-the box GCC support)

- **Development Hardware**: use the EPL’ed Symbian code and cheap off-the-shelf hardware to build a phone
  (Beagleboard)

- **Flashable phone**
  (aka a Symbian Dev Phone)
Mission

Anybody must be able to compile the Symbian platform with a free compiler (namely, GCC 4.4.1)

Where are we?

- Started off as a community only project to migrate the S^3 codebase (managed to fix 1/3 of issues but lost momentum before S^3 hardening)
- Recent concerted effort on S^4 (“The SURGE”)
  - Goal: working BeagleBoard & QEMU S^4 ROMs built with GCC 4.4.1
  - 96% of all binaries build and link
  - Kernel builds and boots (have not run all tests yet)
  - The remaining issues are mostly tricky linker issues

Info, see

http://tiny.symbian.org/GCC_SURGE
http://tiny.symbian.org/Freedom
At this point a release becomes interesting for app developers.

At this point a release becomes interesting for app developers.

Roadmapped

Feature Submission

Hardening

Stable

Archived

Roadmapped

Feature Submission

Hardening

Stable

Interesting for people engaged in packages & incubation projects

First (incomplete) builds & Kernel Taster Kit

Focus for GCC efforts
Incubation project, which started when the platform was getting EPL’ed, with a very humble vision:

"Use the Symbian code and some off the shelf hardware to make a phone".

Started with a group of passionate individuals, meeting Tuesday evenings in London, UK.

The beagleboard and a Telit modem starter kit was the hardware choice.

For info see: http://tiny.symbian.org/wildducks
Community
- Half a dozen committers, weekly meet-ups
- Encouraging support from Accenture, Antrax, BYD, Cell-TeleCom, Cypress and Nokia

Bring-up
- $S^2$ & $S^3$ UI working. Able to run Qt demos with basic apps
- Telephony stack working with $S^3$ emulator
- Some success with the GPS module

Hardware: the project teamed up with ...
- Antrax to develop BeagleUMTS extension board
- BYD to develop a LCD touch board for BeagleBoard
- This will benefit other open source projects
So how does the new HW look?

BeagleBoard with extension incorporating the Telit UC864G module.

Adaptor to drive BYD’s LCD and touch panel with BeagleBoard

Who knows, next may be a form factor device 😊.
The Road so far: Community ...

Packages predominantly owned by Nokia
(the right of the initial code contributor)

Ownership diversifying

- Non-Nokia packages (Accenture, EmbedDev, Ixonos, Sasken)
- First Independent Committers
- First community-led Incubation Projects (OpenMAR)
- First community summits: kernel kick-off

Council Elections
(30% of seats up for election)
Bug Squad

What is it?

- A group of individuals interested in testing a software product and fixing
- An structured effort to improve software quality
- An online community

Format

- Bug Squad team at Symbian Foundation to help individuals get started (and support them)
- Weekly online events
- Monthly organized Test days

Info

- [http://tiny.symbian.org/Bug_Squad](http://tiny.symbian.org/Bug_Squad)
What is a SIG?

- A group of software developers in Silicon Valley with an interest in programming Symbian devices
- Regularly in the evenings, anchored around a presentation
- Learn, share, tinker and have fun.

Example topics

- Programming with Qt, WRT, Python, etc
- New advances
  - Jason Barron: “What Qt brings to Symbian?”
  - Dan Zucker and Ray Rischpäter: introduced UIEMO (aka Orbit)
- Tools

Info: [http://tiny.symbian.org/SiliconValleySIG](http://tiny.symbian.org/SiliconValleySIG)
Recently started projects

OpenMAR: Open Augmented Reality
- Framework designed to allow easy creation of mobile augmented reality applications in the Symbian platform
- Info: [http://tiny.symbian.org/OpenMAR](http://tiny.symbian.org/OpenMAR)

Python for Symbian
- What used to be PyS60, being migrated to a new home
- Info: [http://tiny.symbian.org/Python](http://tiny.symbian.org/Python)

Homescreen backporting project
- Port S^3 homescreen to S^1
- Info: [http://tiny.symbian.org/BackportingHomescreen](http://tiny.symbian.org/BackportingHomescreen)
  (also see forum thread)
Homescreen Widget Builder

- Qt based application, which generates a complete widget implementation.
- Widget Builder is not complete: the future project lead seeks enthusiastic people to provide input & feedback or join the team.
- Info: [http://tiny.symbian.org/WidgetBuilder](http://tiny.symbian.org/WidgetBuilder)

Perl for Symbian

- Accenture has a port of Perl 5.10 to Symbian OS
  - Accenture would be happy to contribute, but not maintain
  - Current version of Perl: Perl 5.12
  - A reasonably large set of standard modules (both pure Perl and C)
- Have a project lead, if there is enough community interest in Perl
- Info: [http://tiny.symbian.org/Perl](http://tiny.symbian.org/Perl) (last items in thread)
Conclusion

The platform is evolving in 6 months cycles (addressing user experience and ease of programming in two steps)

The biggest market opportunity for applications globally (today and in the foreseeable future)

Symbian has made the transition to a true OSS project (gathering momentum)

Lots of opportunities to get involved (get in touch)
Symbian BOF

Thursday 22nd
7:00 – 8:00 PM
E145 – 146