



openmoko

# 開放手機

中原大學

- \* 日期：4/9（五）
- \* 主講：Jollen Chen  
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*Openmoko Project*

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基於 Linux 核心、並採用 open source 專案成果，提供一個開放源碼或開放 SDK 的手機平臺。

# 開放式 手機平台論壇



時間：97 年 4 月 8 日（星期二）14:00-16:30

地點：台灣大學博理館 201 室

近來開放式智慧型手機作業系統與平台越趨受到重視，Google 正式在 Open Handset Alliance, OHA」（開放手機聯盟）發表新行動電話軟體平台 -Android。手機製造商、電信業者、晶片製造商紛紛因應此平台積極投入開發創新應用軟體，此新需求也將掀起開放式平台與 Windows Mobile 收費平台之競爭，面對 Google 所宣佈之聲明，國內最具競爭力的科技產業在面對此新興科技時，應如何採取應對策略。為此台大系統晶片中心邀請產、研界先進以及學校教授們齊聚一堂，針對開放式手機平台發表各自的想法，期望透過不同領域的聲音之交流，而能激盪出更多新穎、有價值的創見。機會難得，敬請提早報名。



# 開放式手機平台論壇

主辦單位： 台大系統晶片中心 協辦單位： 台大電子所



每日報刊查詢

2008年04  
月  
上個月  
9  
下個月

第一版

- NXP與IPextreme發佈IP設計的突破性方法論
- 行動電視接收器預計將於今年下半年問世
- TI發表彈性架構、高速USB 2.0 OTG解決方案

第二版

- Accenture與昇陽電腦發佈最新企業安全解決方案
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- iSuppli：NAND銷售成長率由27%調降至26%

## 貴賓先進雲集 台大舉辦Android開放手機平台論壇

**【本報記者鍾榮峰報導】**今日（8日）台大博理館舉辦一場開放式手機平台論壇，由台大系統晶片中心邀請產官學研各界、目前正在參與研發Android行動裝置軟體平台的重要代表與會，共同深入探討Android開放式手機平台的發展趨勢與對於落實其商業模式的看法。除了座談貴賓之外，Google台灣工程研究所所長簡立峰也特別應邀全程參與此項論壇，積極聽取各方意見。

主持人工研院晶片中心副主任吳安宇教授開宗明義簡述目前Android開放式軟體平台的主要架構，在於定義OS、Middleware以及User Interface，硬體部分則遵循定義標準設計SoC IC架構，為了就是讓行動裝置擁有PC等級的應用環境，軟體stack主要是以Linux 2.6.23為基礎，Library以及run time是其設計重要主軸，以支援2D/3D繪圖和多媒體上網功能。因此在軟體層部分的多媒體設計架構以及包括CPM (content policy manager) 等middleware區域的擴展，會是Android軟體平台未來需要開放軟體支援成熟的重點，也是台灣廠商比較薄弱的環節，但這個部分會是Android平台本身發展、也是台灣廠商及相關產業鏈能否藉由參與研發設計獲得重要位置的關鍵。而MPU對於Library以及run time以及順暢驅動整個Android平台也是非常重要，目前能支援ARM-based 926系列內核，結合MPU、Java引擎和DSP加速處理器的SoC架構，應該是與Android軟體平台相輔相成的另一重要硬體架構。





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october 15, 2007

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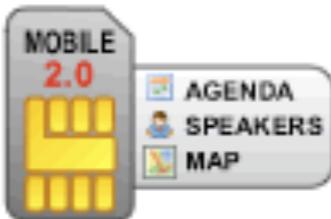
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## topics

Topics to be covered

- User Experience, Usability, and Design
- Disruptive Business Models
- What is more important? The Web meets mobile or the Mobile meets the Web?
- Emerging Technology
- Enabling Infrastructure and Convergence
- Who owns your Data?



Mobile 2.0 Widget

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## speakers

Speakers and panel participants

The Mobile 2.0 conference brings together experts and thought leaders from all aspects of the mobile ecosystem, including investors, mobile carriers, device

gold sponsors

8:15 - 9:00	<b>Breakfast Served</b>	11:20 - 12:20	<b>Emerging Technologies</b>
8:45 - 9:00	<b>Opening Remarks</b> Gregory Gorman, The Open Group Rudy de Waele, mTrends		Russell Beattie, Mowser (Moderator) Mike Rowehl, AdMob Marc Davis, Yahoo! Ron Mandel, Adobe James Pearce, dotMobi C. Enrique Ortiz, eZee inc.
9:00 - 9:20	<b>Keynote — Social Networking and Communities</b> Tomi Ahonen, 3G Author & Mobile Blogger		
9:20 - 10:20	<b>User Experience, Usability, and Design</b> Brian Fling, Blue Flavor (Moderator) Kelly Goto, gotomedia Risto Lahdesmaki, Idean Enterprises Carlos Domingo, Telefonica Christian Lindholm	12:20 - 1:20	<b>Lunch</b>
10:20-10:50	<b>Mobile Launch Pad Segment</b> Introduction by Peter Vesterbacka, Somebazaar	1:20 - 2:20	<b>Mobile 2.0 — The VC Perspective</b> Gregory Gorman, The Open Group (Moderator) Greg Franklin, Intellect Partners Voytek Siewierski, Mitsui & Co, Venture Partners Rich Wong, Accel Partners Nagraj Kashyap, QUALCOMM Ventures
10:50 - 11:20	<b>Coffee Break</b>	2:20 - 3:20	<b>Fireside Chat: The State of the Mobile Industry</b> Tony Fish, AMF Ventures (Moderator) Russ McGuire, Sprint Jean Marc Frangos, BT Group Patrick McVeigh, Warburg Pincus & SoonR Russ Daniels, HP Web Services
關於 Mobile 2.0。地球上的人們在談論什麼？		3:50 - 4:20	<b>Mobile Launch Pad Segment</b> Introduction Peter Vesterbacka, Somebazaar
		4:20 - 5:20	<b>Disruptive or New Business Models</b> Daniel Appelquist, Vodafone (Moderator) Kaj "HeGe" Haggman, Nokia Peter Stark, Sony Ericsson Daniel Graf, KYTE.TV Atakan Cetinsoy, MyStrands



## Android - An Open Handset Alliance Project

The Open Handset Alliance, a group of more than 30 technology and mobile companies, is developing Android: the first complete, open, and free mobile platform. To help developers get started developing new applications, we're offering an early look at the [Android Software Development Kit](#).

**Open**  
Android allows you to access core mobile device functionality through standard API calls.

**Breaking down boundaries**  
Combine information from the web with data on the phone -- such as contacts or geographic location -- to create new user experiences.

**Android Blog**  
Android Blog  
[Android SDK m5-rc14 now available](#)

On behalf of the entire Android team, I'm happy to let you know that an updated version of the Android SDK ...

... M5-RC14 is now available for download. This release includes several improvements and bug fixes, as well as some new features. It's available for download from the Android developer website.

**All applications are equal**  
Android does not differentiate between the phone's basic and third-party applications -- even the dialer or home screen can be replaced.

**Fast & easy development**  
The SDK contains what you need to build and run Android applications, including a true device emulator and advanced debugging tools.

**Community**  
User Group  
[Default value of integer in sqlite is 0?](#)

Default value of integer in sqlite is 0? why not null? sample cod: package com.google.dbtest; import ...

### Getting Started

1. [Learn about Android](#)
2. [Download the SDK](#)
3. [Join the community](#). Participate in our discussion group through email or the web.



The Android Developer Challenge will award \$10 million to developers who build great apps for Android.  
[Learn more!](#)

### Featured Videos



圖片來源: <http://www.apple.com/iphone/features/index.html#phone>



# openmoko obenwoko

開放平臺：技術開放、可自由修改

互動：並非裝置本身，而是與使用者的互動。

社群：開發者社群、使用者社群

# 開放手機時代來臨

- 2007年iPhone與Google Android帶起「新的手機使用概念」以及「開放式的手機平臺」的革命。
- 使用者(end-user)為導向，由使用者自行客製化、或為使用者客製化的手機生產方式。
- 完全開放的手機平臺可以提供「自由修改」的自由、樂趣與彈性。
- Android與iPhone都開始提供SDK。

## #11 Customize Home Screen

影片來源: <http://www.apple.com/iphone/>

open

## APPLICATIONS

Home

Contacts

Phone

Browser

...

## APPLICATION FRAMEWORK

Activity Manager

Window Manager

Content Providers

View System

Notification Manager

Package Manager

Telephony Manager

Resource Manager

Location Manager

XMPP Service

## LIBRARIES

Surface Manager

Media Framework

SQLite

OpenGLES

FreeType

WebKit

SGL

SSL

libc

## ANDROID RUNTIME

Core Libraries

Dalvik Virtual Machine

## LINUX KERNEL

Display Driver

Camera Driver

Bluetooth Driver

Flash Memory Driver

Binder (IPC) Driver

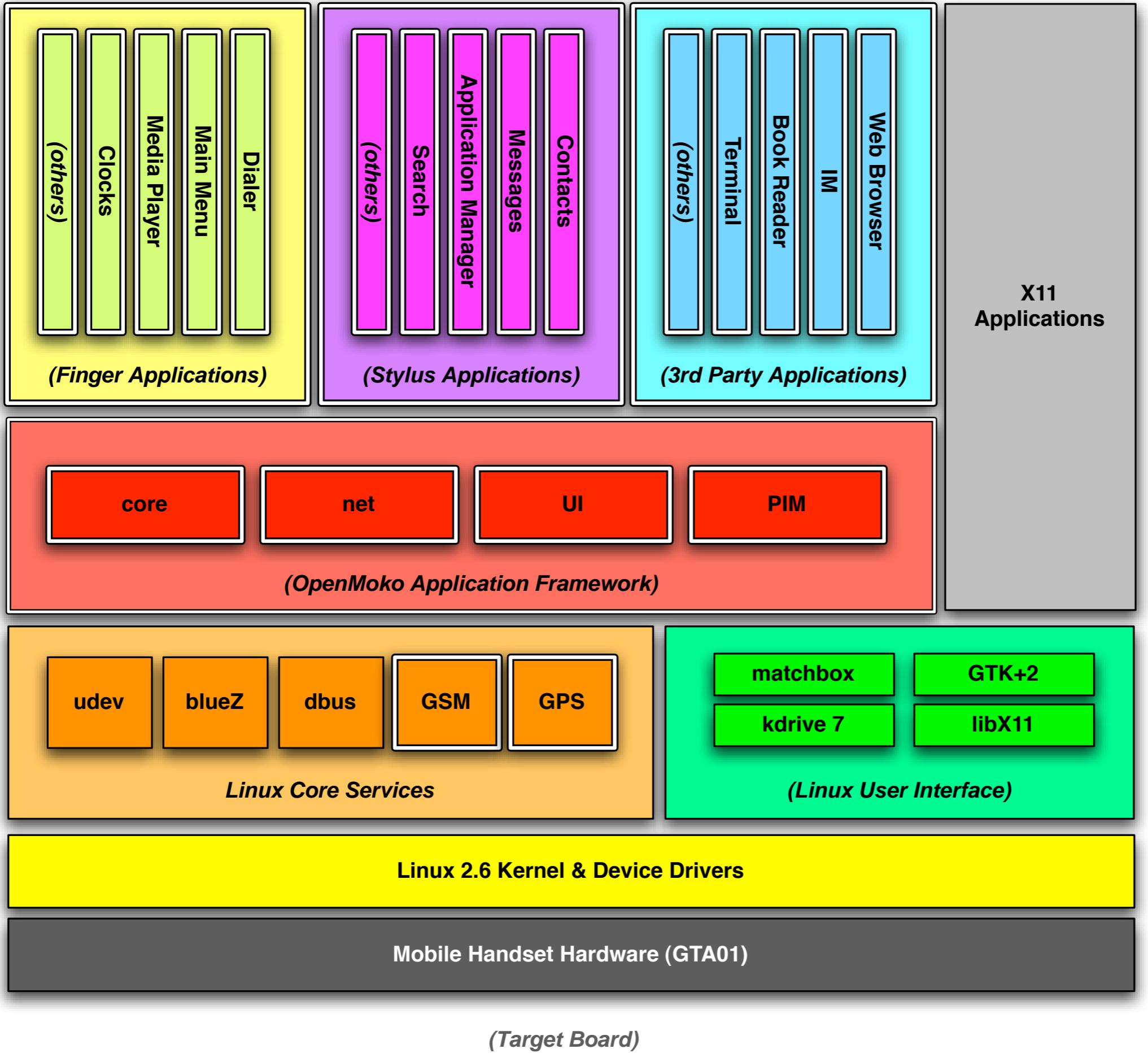
USB Driver

Keypad Driver

WiFi Driver

Audio Drivers

Power Management



# Dash: The Only Internet Connected Automotive GPS



The image shows a Dash Express GPS unit mounted on a car's dashboard. The screen displays a list of nearby restaurants with ratings and distances. The list includes:

Restaurant Name	Address	Rating	Distance
Joy Luck Place	24002 Whisman Rd, Cupertino	★★★	NW
Canton Delights Seafood ...	10125 Bentley Dr, Cupertino	★★★	W
Sino	301 Santana Row, San Jose	★	N
Royal City	2983 Lone Buff Way, San Jose		E

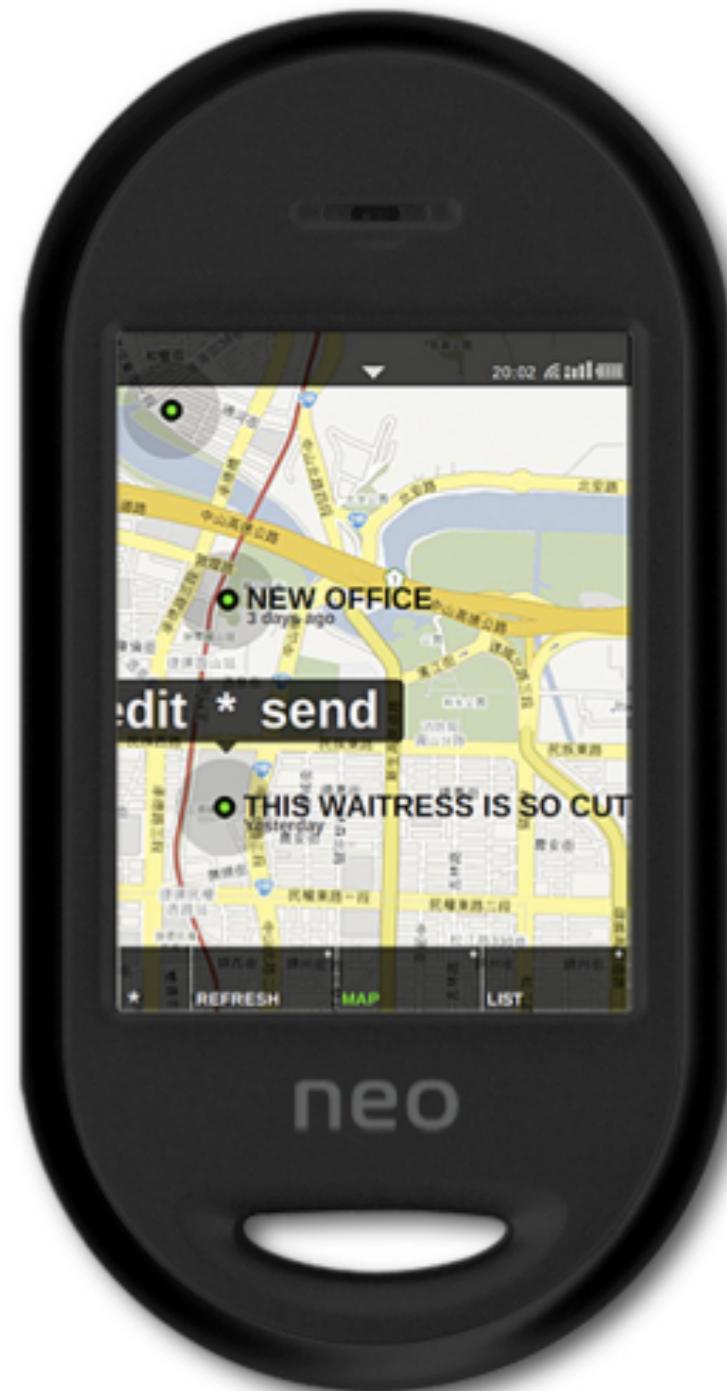
Below the screen are buttons for "back", "sort", and "YAHOO! RESULTS". The device has a "dash" logo at the bottom.

drive in the **smart** lane.

Watch Demo      Buy Now

Introducing Dash Express, the first two-way, Internet-connected GPS navigation system. Dash delivers traffic and destination information in exciting new ways, and offers a wide range of new capabilities available from the car that makes a typical GPS practically obsolete. Dash is the smartest way to get from A to B, and find everything in between. [Learn more >](#)

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obsolete. Dash is the smartest way to get from A to B, and find everything in between. [Learn more >](#)



EFL



GTK+



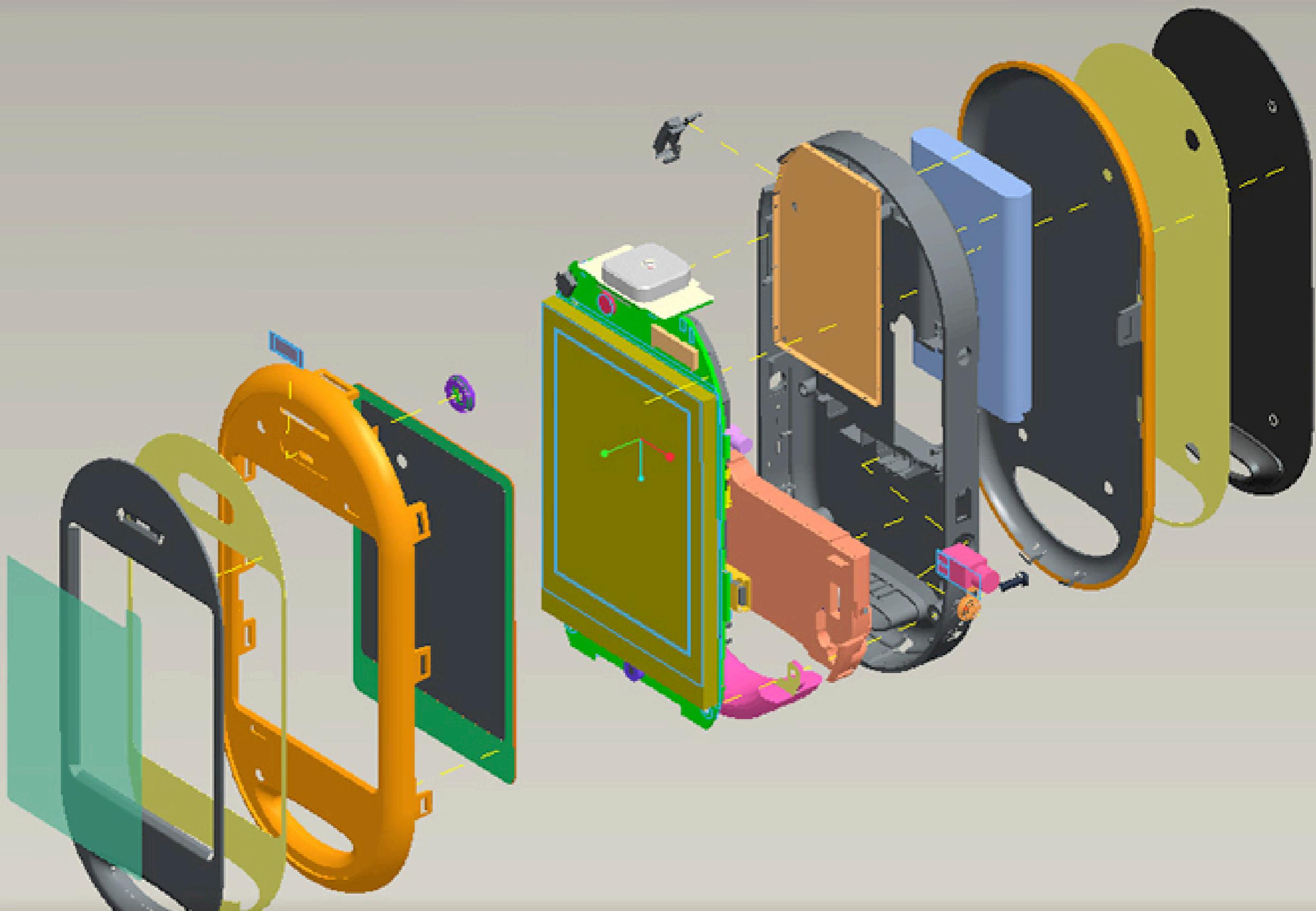
Qt

# OPEN: Openmoko 觀點

- Mobile 2.0 - user generated contents and applications
- user experience, usability, and design
- New Business Model



# Design





opened





openmoko





# openmoko

- 大眾電腦：內部 open source 專案，  
2007年成立我本墨客股份有限公司。
- 開放平臺：軟體、硬體、機構、想法、創意、open source ecosystem。
- 社群：龐大的開發者社群。
- 教育研究：100% open source。



# Openmoko 專案

- 授權：以 GPLv2 授權釋出
- 平臺：發展一個基於 Linux 的開放手機平臺
- 社群：Openmoko 開發者社群、於西方具有相當高的知名度
- 教育研究：開放源始碼適合教育與研究

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# Openmoko 不只是技術

Community

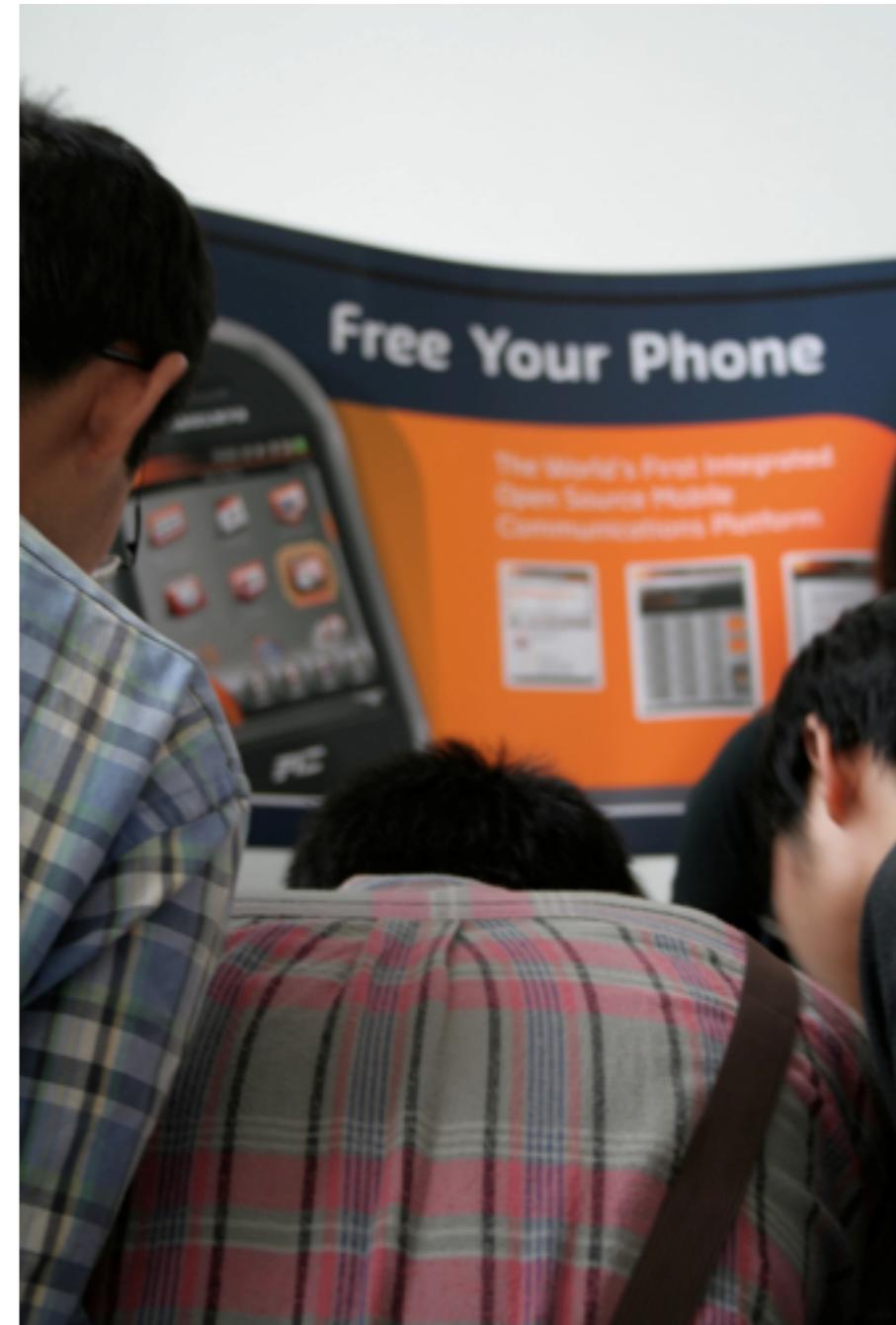
社群活動參與贊助

活動紀錄與影片

Openmoko Education

學校課程

學生實習



# Trolltech axes the Greenphone

By [David Meyer](#)

Special to CNET News.com

Published: October 22, 2007, 11:23 AM PDT

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The mobile Linux development company Trolltech says that it has sold out of its Greenphone reference handsets and that it will not reorder further units, because there are now suitable alternatives in the marketplace.

Trolltech launched [the Greenphone](#) in 2006, the first fully open handset designed for the development of open-source applications. Running on Trolltech's Qtopia platform, the device was supposed to stimulate the growth of mobile Linux, and the company is adamant that it has done just that.

"We did it to catalyze an ecosystem, as well as for internal use," said David Bialer, the manager of Trolltech's partner community.

Bialer said the 2-year-old architecture of the Greenphone was no longer adequate, so Trolltech would like to target "more modern 3G phones." The [OpenMoko Neo1973 device](#), which can now run a port of Qtopia, also appears to be filling much of the need for hackable Linux handsets.



## Feature Photo camera

Watch a video of the Eckel pri...  
ViviCam  
[View this story](#)

RELATED STORIES

WHAT'S HOT

apps I'm using on a daily basis. If the e-mail app doesn't have auto-complete, I can add it."

As with the Palm, OpenMoko owners can expect a wealth of third-party applications. But unlike the languishing Palm platform, Laroia points out, the OpenMoko community can customize, evolve and keep OpenMoko alive on future devices even if FIC, the maker of the Neo1973, goes the way of the Newton.

"Open source makes it so that applications created for one device can move to another one," he says.

Eager to put the promise of a Linux-powered iPhone killer to the test, I purchased a prerelease Neo1973 GTA01Bv4 from the [OpenMoko website](#). My kit, which came with some extras for developers, cost \$450. The consumer version of the phone will cost \$300.

Even before the phone showed up, I knew it wasn't going to be a smooth ride. Perhaps the "I have been warned" check box required by the website for purchase should have given me pause, but I pressed ahead and got it anyway.

Always fit for the badge I'd pressed earlier, I used my new phone to download the developer tools I'd need to "check out the repository at the website for purchase before the phone arrived. I'd known it was going to be a rough ride.



The Neo1973 is the first piece of phone hardware designed to run the open source OpenMoko software platform. Although not yet ready for prime time, the Linux-based mobile OS has hackers excited.

*Photo: Paul Adams*

PGA National Resort and Spa,  
Product Release - T-Mobile Sidekick  
(Motorola)

Wed, Nov 7

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# Openmoko 手機

第一個實體產品 Neo1973

OpenMoko專案所推出的第一支實體手機

由臺灣的大眾電腦（FIC）公司製造

針對開發者（非消費者）

第二個實體產品 Neo FreeRunner

更快的處理器

3D 以及動作感測功能

WiFi

# Neo I973 硬體規格

- Samsung S3C2410 with 266MHz
- 64MB NAND flash
- 128MB SDRAM
- 2.8" VGA TFT LCD with touchscreen
- USB 1.1
- Hammerhead PMB 2520 AGPS
- TI Calypso GSM/GPRS (2.5G) modem
- Bluetooth 2.0
- Micro SD slot
- Audio codec



# Neo FreeRunner

- Neo FreeRunner 正式在 2008 CES 發佈
- 延續第一代產品「Neo 1973」的新版本
- 參考了大量社群開發者的意見回饋
- Neo FreeRunner 是開源手機概念的另外一個實作：手機不預載任何的應用軟體，出廠時只預載一個安裝器（installer），當使用者拿到手機後，可以透過安裝器的選單安裝「自己想要、也會用到」的應用程式。



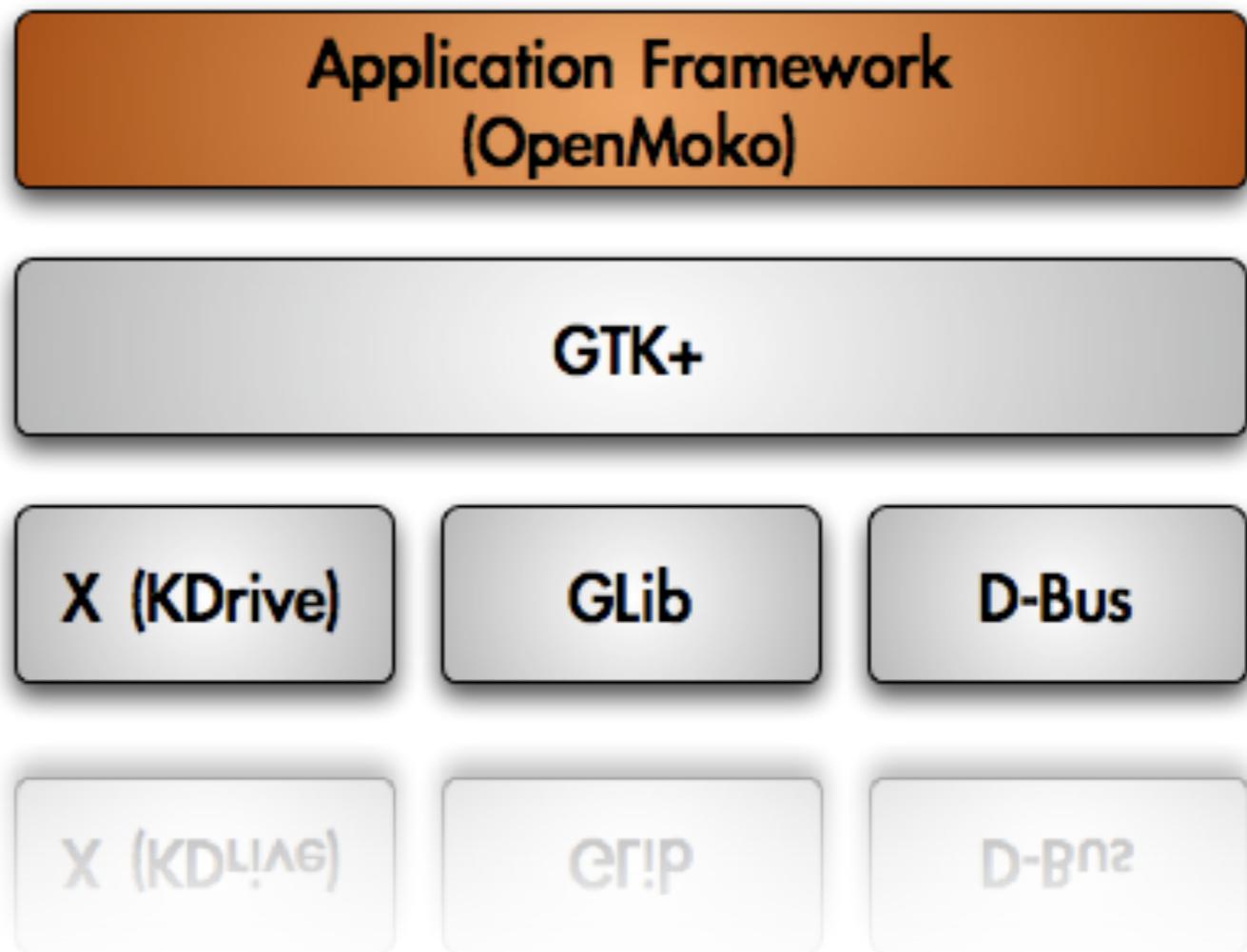
# Openmoko Platform

# OpenMoko 技術框架

KDrive 一個小型的 X server 實作，主要是針對 embedded Linux 的應用所實作的版本。KDrive 並不基於以往的 XFree86 程式碼，而是由 Keith Packard 所實作的新版本；目前，KDrive 已被應用在許多 embedded system 的專案中。

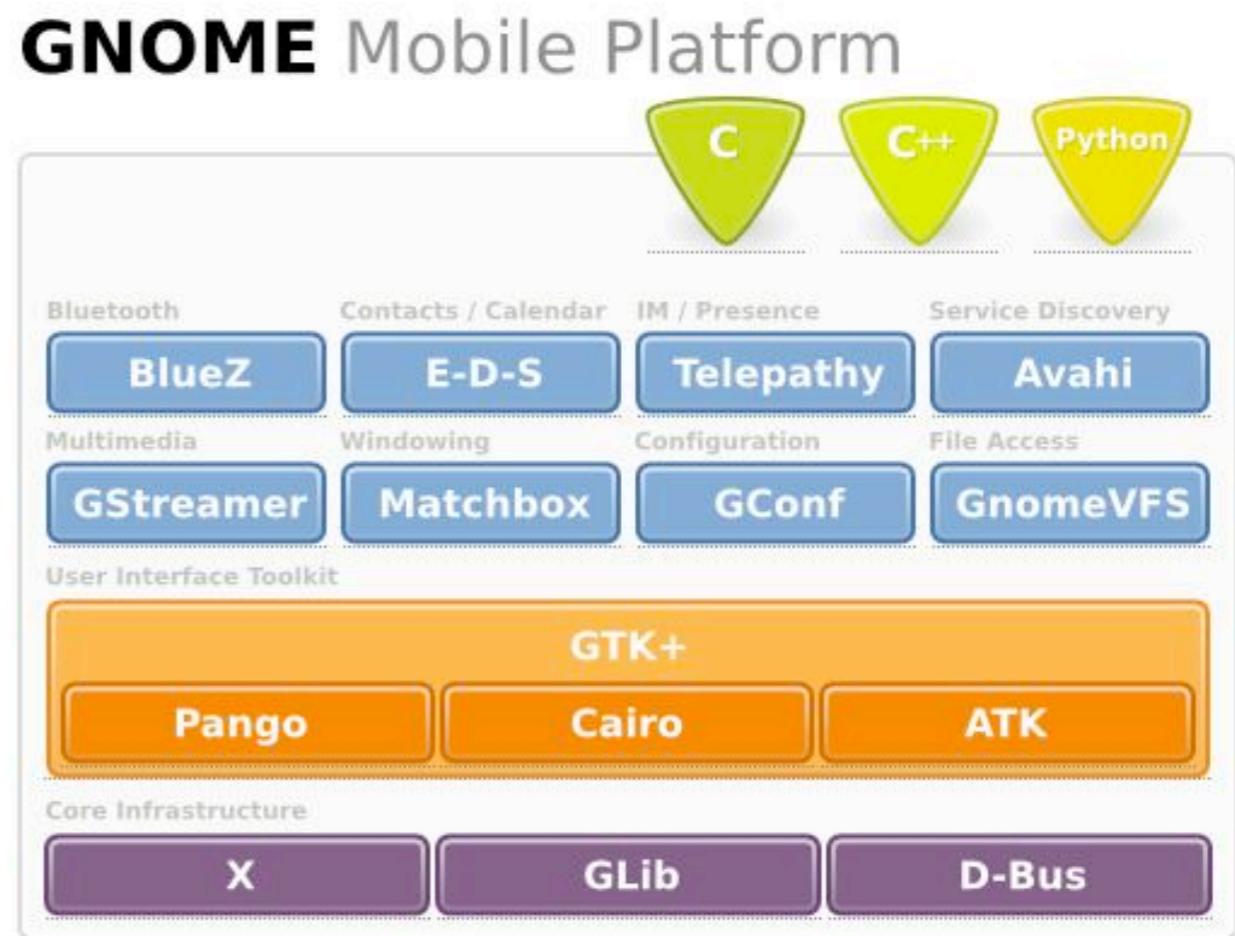
D-Bus；使用 D-Bus 來取代傳統的 IPC，並與外部工具（eg. mjpegtools）做整合。D-BUS 是一種 'message bus'，未來將取代傳統 IPC 的使用。

GLib；Glib 是 GTK+ 計畫下的「副產品」，Glib 提供一組簡單易用且可攜性佳的 data type 定義。



GTK+ 是一套跨平臺的 widget（圖形元件）程式庫，用來建立圖形化界面（GUI）。OpenMoko 平臺採用 GTK+ 做為解決方案。

GTK+ 採取 LGPL 授權，是 100% 的 FOSS 專案，不受任何商業限制，因此，未來的行動裝置的圖形介面應用上，將會是非常重要的解決方案。



另一個採用 GTK+ 的 Mobile Platform 「GMAE」

- ✓ OpenMoko application framework 提供四個核心程序庫：
  - ✓ libmokocore：核心程序庫，提供 OpenMoko 應用程序間的通訊。
  - ✓ libmokonet：通訊程序庫，提供 GSM、GPS、Bluetooth 等功能。
  - ✓ libmokopim：PIM（Personal Information Management）程序庫，提供個人資料管理功能。
  - ✓ libmokoui：UI（user interface）程序庫，提供 OpenMoko 主要的界面設計，包含：containers、widgets 與 dialogs。

由 OpenMoko 提供的 GSM modem 開源軟體：gsmd

包含 libgsmd 供開發者使用

libgsmd-tool: 可執行 Power On/Off、answer incoming call、dial out 與 hangup call（掛斷）的基本功能

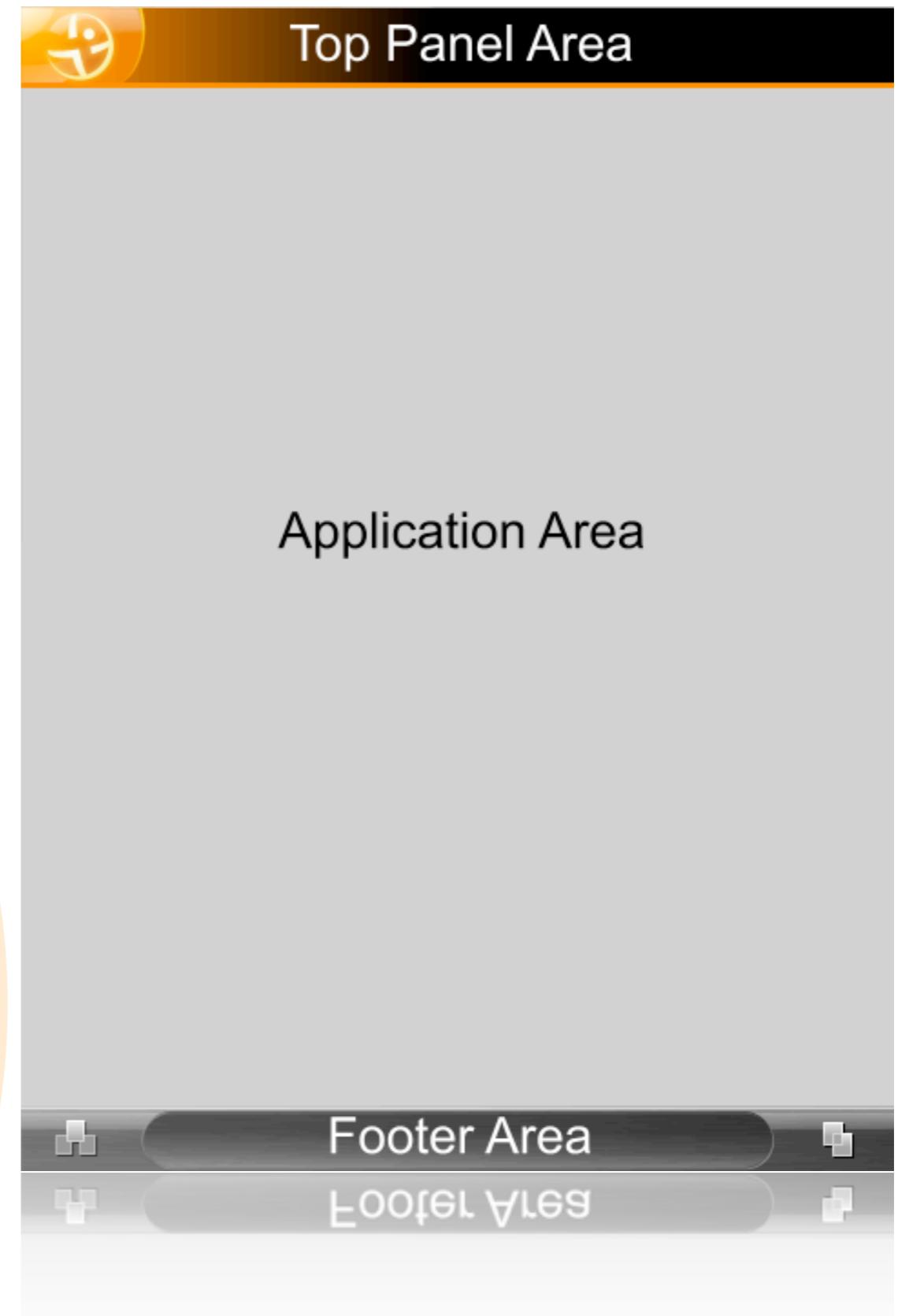
GSM 系統使用一種稱之為 GSM modem 的裝置（也就是我們耳熟能詳的「數據機」）來做電話的「外撥（dial out）」與「接聽（answer）」功能。

Linux 手機要能打電話與接聽電話，必須將 target device 外接 GSM modem，並透過 GSM modem 的指令集（AT command）來對 GSM modem 下撥號或接聽指令。

GSM modem 與 target device 是以 UART (RS-232) 介面連接，因此需要一個與 GSM modem 溝通的 RS-232 通訊程式。

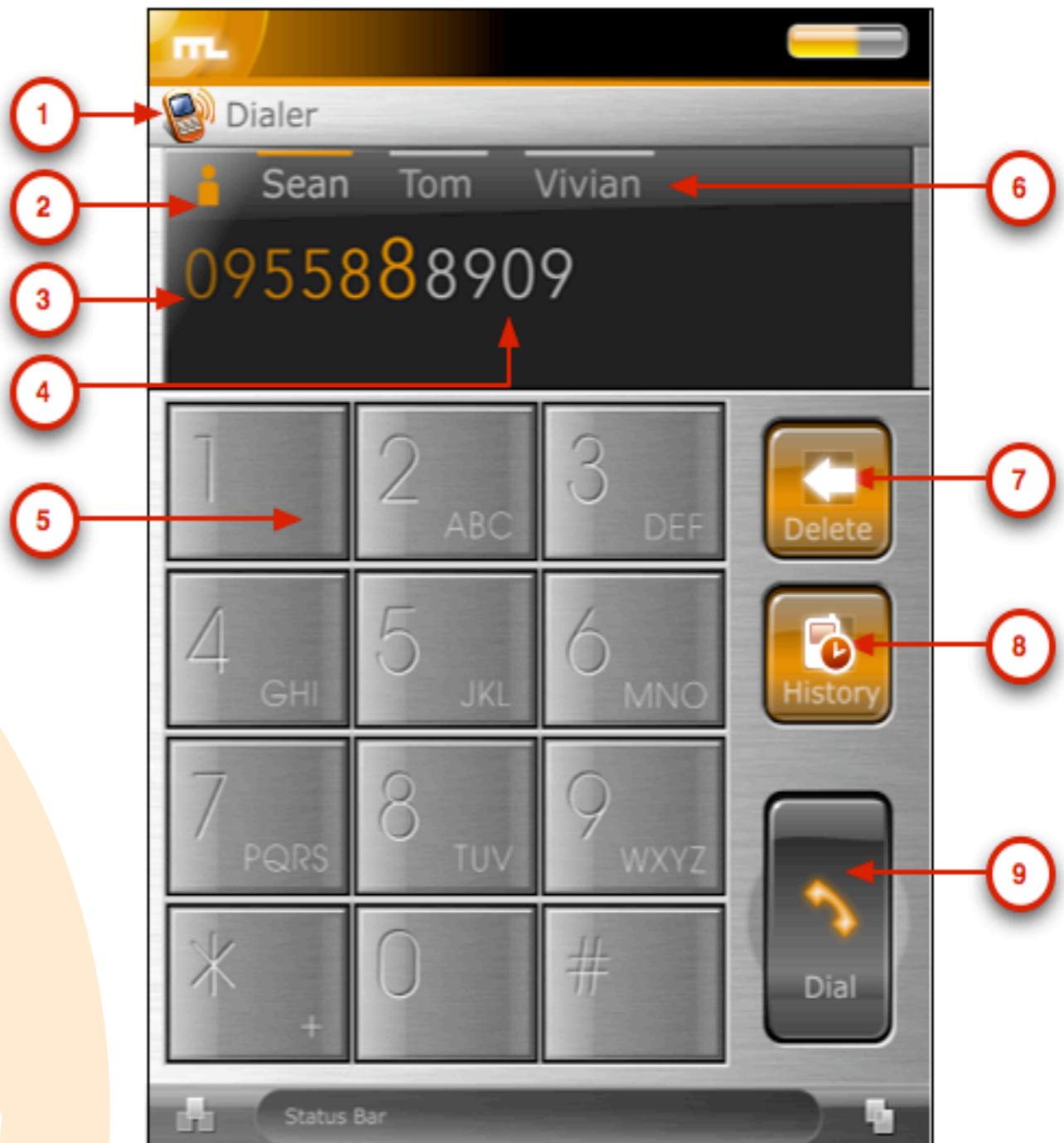
# OMAF

1. Bar Widgets
2. Menu Widgets
3. List Widgets
4. Scrolling Widgets
5. Preview Widgets
6. Field Widgets
7. Dialog Widgets
8. Input Method Widgets
9. Other Widgets



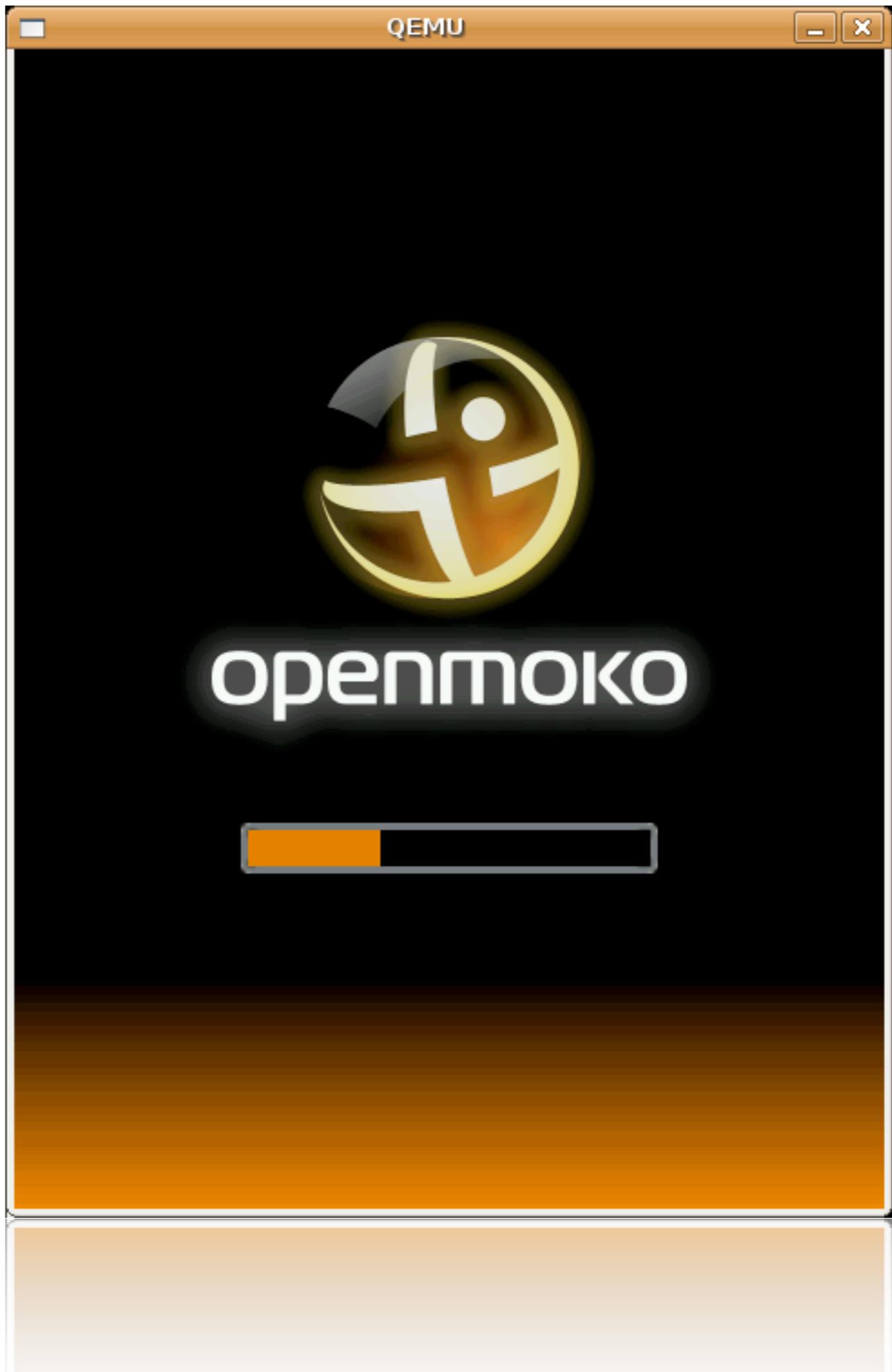
撥號器

基於 OM AF 2007



QEMU 是一個可以模擬 x86、x86\_64、ARM、SPARC、SPARC64、PowerPC、PowerPC64、MIPS、m68k 與 SH-4 處理器的 open source 軟體。簡單說，QEMU 就是一套虛擬機器 (virtual machine) 的軟體。

qemu-neo1973 是由 OpenMoko 基於 qemu 所發展的手機模擬器，支援 GSM modem 的模擬功能。



# svn: trunk/src/target/gsm

Current directory: [\[svn\] / trunk / src / target / gsm](#)Current revision: [4091](#)Jump to directory revision:  Files shown: [8](#)

<a href="#">File</a>	<a href="#">Rev.</a>	<a href="#">Age</a>	<a href="#">Author</a>	<a href="#">Last log entry</a> ▾
<a href="#">doc/</a>	<a href="#">96</a>	16 months	laforge	some further gsmd/libgsmd work
<a href="#">include/</a>	<a href="#">4091</a>	82 minutes	erin_yueh	gsmd: get battery status (Sudharshan S)
<a href="#">logs/</a>	<a href="#">40</a>	17 months	laforge	first compiling (unfinished, not-working) version of userspace gsm infrastructur...
<a href="#">src/</a>	<a href="#">4091</a>	82 minutes	erin_yueh	gsmd: get battery status (Sudharshan S)
<a href="#">ChangeLog</a>	<a href="#">3719</a>	2 months	chris	* src/util/event.c: (inds_handler): Back out change - sms->stat ...
<a href="#">COPYING.library</a>	<a href="#">546</a>	13 months	laforge	- Add copyright / license notice to all source code files - Add some 'get operat...
<a href="#">COPYING</a>	<a href="#">546</a>	13 months	laforge	- Add copyright / license notice to all source code files - Add some 'get operat...
<a href="#">configure.ac</a>	<a href="#">520</a>	13 months	laforge	fix lots of header-related issues with autotools
<a href="#">autogen.sh</a>	<a href="#">338</a>	14 months	mickey	gsm: modernize autotool framework and pkgconfigize it
<a href="#">Makefile.am</a>	<a href="#">338</a>	14 months	mickey	gsm: modernize autotool framework and pkgconfigize it
<a href="#">libgsmd.pc.in</a>	<a href="#">338</a>	14 months	mickey	gsm: modernize autotool framework and pkgconfigize it
<a href="#">README.txt</a>	<a href="#">96</a>	16 months	laforge	some further gsmd/libgsmd work

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# Openmoko

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