



# Qtopia Phone Edition and Qtopia Greenphone





- Qtopia – application framework for Linux-based embedded devices
- Qtopia is based on Qt 4 from Trolltech
- Different versions for different purposes:
  - Qtopia Core – simple, single-purpose devices
  - Qtopia Platform – general, multi-application devices
  - Qtopia PDA Edition – for PDAs, includes applications
  - **Qtopia Phone Edition** – for mobile phones, includes applications





# Qtopia Greenphone

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- Development platform for Qtopia Phone Edition
- Specifications
  - Touch-screen and keypad UI
  - QVGA LCD screen
  - Marvell PXA270 312MHz CPU
  - 64MB RAM + 128MB flash
  - Mini-SD card slot
  - Broadcom BCM2121 GSM/GPRS baseband processor
  - Tri-band GSM (900/1800/1900)
  - Bluetooth
  - Mini-USB
  - 1.3 Mpixel camera





- What can you do with Qtopia Phone Edition?
  - Easy GUI design through Qtopia widgets
  - Access phone functionality
  - Access built-in PIM functionality
  - Access networking functionality
  - Quickly get started building applications tapping into existing functionality





# Qtopia Phone Edition - Services

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- Qtopia Application Services
  - Standardized APIs to access functionality supplied by other applications
  - Invoke a specific service
  - System integrator or user settings determine which application supplies it
  - Applications written to request services and/or serve requests through QCop
  - New services registered through system config files





# Qtopia Phone Edition - Services

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- Pre-defined services
  - Clock, Date, Time, TimeMonitor, Alarm, Calendar, Tasks
  - Contacts, ContactsPhone, Dialer, Email, SMS, smsapp
  - VoiceRecording, PhotoEdit, WebAccess
  - Help, InputMethod, Launcher, Profiles, Push, QDL, Qtopia, ScreenSaver, Settings, SettingsManager, TaskManager





# Qtopia Phone Edition – QCop

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- QCop is an inter-application messaging facility
- Service requests – “QCopServiceRequest *srv(servicename, action)*”
- Communication between specific applications via channels – “QPE/Application/*appname*”





# Qtopia Phone Edition – QDL

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- Qtopia Data Linking – QDL
  - Link data items across applications within the Qtopia application framework – a sort of hyperlinks
  - Example:  
A meeting item in the Calendar application may include links to persons in the Contacts application attending the meeting
  - Applications must be designed to provide QDL
  - Applications display links or allow the user to define/edit links using special text field







# Qtopia Phone Edition - Plugins

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- Plugins provide functionality at another level than applications/services
  - High-level API for plugins that extend the Qtopia framework itself
    - Written by extending base classes such as QImageIOPlugin, QScreenDriverPlugin etc.
  - Low-level API for plugins that extend Qtopia applications
    - Applications must be written to detect and load plugins





# Qtopia Phone Edition - Modules

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- Several modules support various functionality
  - Telephony
    - VoIP interface (developer has to add VoIP stack)
    - Phone library – call and SMS handling etc.
    - SIM Toolkit
    - Bluetooth support – BlueZ BT protocol stack (“technology preview”)
    - Over-the-air configuration
    - AT command handling





- Networking
  - Dialup plugin: PPP connections, GPRS
  - LAN plugin: LAN, WLAN (Greenphone no WLAN)
  - Qtopia networking API facilities (QtNetwork)
    - QFtp, QHttp
    - QtUdpSocket, QtTcpSocket, QTcpServer, QtSslSocket
    - QNetworkProxy





- Other application facilities
  - Safe execution environment
    - Public Key Infrastructure to determine trusted applications
    - Sand-box environment to control system access for applications
  - Java
    - Java support as well for wider compatibility





# Qtopia Greenphone SDK

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- The SDK is a complete Linux system containing all necessary tools running as VMware
- Fully set-up environment ready for developing applications for the Greenphone
- Use Greenphone emulator or connect real phone
- Run under either Windows or Linux





# Qtopia Greenphone SDK

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- Greenphone SDK pricing
  - Community SDK (GPL 2): Free
  - Light (commercial distribution, 1 device per license): \$195
  - Professional (full source, Trolltech support, additional devices): Custom price
- Qtopia Greenphone \$695





- Promising
  - Easy to get started with
  - Qt widgets well documented
- A lot missing
  - Documentation
  - Stability
  - Community
- Too expensive
  - Not enough open-source developers will buy one
  - Prohibits Linux-style development

