

The mobile 'phone market is continuing to develop as 3G communications becomes closer to being generally available. The 3G approach is putting mobile network operators and handset vendors alike under increased pressure to develop new mobile data services and mobile 'phones respectively.

Handset vendors are expanding the features of their next generation handsets and many are adopting Linux as a strategic platform for their devices. The vendors are also seeking differentiated and cost effective designs. To date, four out of the top five handset manufacturers have either introduced or are currently in the process of developing Linux based handsets. Amongst them is Motorola, with the A780, pictured below.

A study by the ARC Group predicts smartphone sales will take off over the next five years, growing from an estimated 27.6million units in 2004 to 125m units in 2009. The study also suggests that, by

Efforts are underway to make it easier to develop Linux based smartphones. By **Graham Pitcher**.

2009, only 10% of smartphones will feature proprietary operating systems.

According to MontaVista, proprietary handset operating systems restrict customisation, hinder differentiation, limit profits and prevent the creation of unique 'phone designs. In a move to overcome these problems, it adds, handset vendors are moving to Linux because of the flexibility and the economics which the operating system brings.

In MontaVista's opinion, handset vendors and mobile operators are looking to partner with companies that can create tested and proven mobile 'phone solutions.

MontaVista's response is the creation of

there have also been moves by telecom manufacturers and network equipment providers. Now, eight of the top 10 use MontaVista software in their equipment."

Lehrbaum noted stronger interest in Linux from the mobile handset sector over the last six months and ascribed that growth in demand to the architectural freedom which Linux brings.

"There's been a lot of talk about operating systems such as Symbian," he claimed, "but there has been little in the way of deployment." In his view, two thirds of handsets currently in use fit what he says is the 'mid level'. "The operating systems they run, such as Nucleus and Itron, are aging quickly and will not be able to meet the needs of next generation handsets."

Numbered amongst these needs, according to Lehrbaum, are networking, more advanced browsing and multimedia capability. "Handset manufacturers can't keep up with old operating systems,



Get smart

Mobilinux, an open framework that brings together leading semiconductor, mobile software and 'phone integrators vendors to create reference architectures for those handset vendors and mobile operators looking to build Linux handsets.

Mobilinux Open Framework reference architectures will include mobile software components from leading mobile software vendors. These components will be ported to MontaVista's Linux operating system and will be delivered on leading semiconductor platforms.

Jacob Lehrbaum is a product marketing manager with MontaVista. He said the move to Linux by mobile 'phone manufacturers is part of a wider move to more capable software. "Mobile handset manufacturers are on one side of the move, but

so they are having to make design decisions about which direction to go. Linux gives them a way forward."

Lehrbaum contests the Linux found in a handset is basically the same as that found in infrastructure applications. "There's a common foundation," he continued, "and Linux now has a great opportunity to replace mid level operating systems."

In certain respects, Lehrbaum's views reflect wider concerns in the telecoms industry about the potential threat posed by Microsoft. Certain elements of the industry are worried that Microsoft could 'take control' of the mobile 'phone market in much the same way that it has cornered the pc business. Lehrbaum noted similar concerns about Symbian:



“There’s concern here because of the perception that it’s Nokia’s operating system. Linux, by contrast, is vendor independent and brings software flexibility.”

But Lehrbaum is quick to admit there is a downside to Linux. “There’s not enough cohesion about Linux. There’s a

range of loosely integrated software elements and it’s hard to put together a solution. We’re looking to address that by putting together an ‘ecosystem’ around Mobile Linux.”

In MontaVista’s opinion, the Mobilinux Open Framework solves the chal-

with Linux



lenge of integrating disparate hardware and software components from a diverse group of vendors for our customers by ease this transition and delivering choice, flexibility and architectural freedom for handset vendors and mobile operators looking to create competitive ‘phone designs.

But MontaVista is not alone in looking to enable the development of Linux based mobile ‘phones. At the recent 3GSM World Congress, Philips demonstrated its own offering: Nexperia Cellular System Solution 9000.

According to Philips, Nexperia Cellular System Solution 9000 offers a ‘ready to use’ format that helps shorten development cycles and allows manufacturers to take increasingly advanced and cost effective handsets to market quickly.

Laurent Chivallier, business development strategy manager with Philips communications businesses, noted: “Network operators want more and more flexibility. This platform is a way to meet that demand. An open operating system means customers can choose what they want. It brings flexibility and freedom of choice.”

Philips believes its solution will make it easier for manufacturers to deliver advanced smartphones. The platform includes an application engine for multimedia functions, a telecom modem and a broadcast and connectivity subsystem. The pre integrated solution is based on MontaVista’s Linux kernel and is said to meet the increasing demand from cellular network operators and handset manufacturers to bring smartphones and portable multimedia devices quickly to market with the minimum of risk.

But Philips isn’t restricting itself to Linux. The possibility remains that System Solution 9000 will be available for Symbian and Windows Mobile. However, Chivallier noted that it would be Linux ‘for the time being’ as it was the best choice for system integration.

Risk is, of course, ever present in the mobile ‘phone market and this is one of the variables which the Mobilinux group hopes to provide more control over. “We’re looking to reduce time to market,” Lehrbaum noted, “by pulling together this base of component suppliers to produce a reference architecture; a blueprint to help developers understand how to put a ‘phone together.”

He believes this blueprint will take care of the hardware aspects, leaving the developer to concentrate on differentiation. “We hope to provide a modular platform so they can differentiate where they need to,” he continued.

But it’s the mid range where Lehrbaum sees the opportunity. “These are smartphones, but not in the classic pda format. We see opportunity at the mid level, where people aren’t interested in a pda, but they are looking for something that lets them talk to other people and to access multimedia,” he concluded. 

