Archived:S60 3rd - One core

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Introduction

This article gives a short introduction about How S60 3rd can adopt one-core solution.

Two VS One

In pc world, single core gradually are replaced by dual cores or even quad cores. In smartphone world, story is a little different.Traditionally, most smartphone system supporting multiple processes use two cores.The reason why two cores is that smartphone with multiple processes support normally contains two OSs.one OS is a real time OS handling GSM/3G communication stack, and another OS is smartphone OS.Using two cores to handle two OSs is a convenient and natural way.

However compared two cores, one core has some important advantages 1. One core could consume less power than two cores, so battery life can be longer. 2. One core could reduce phone size. 3. Price of one fast core could be close to two cores. In most condtions; user could experience a faster speed.

Diffcuilities of one core solution

One core looks pretty good, however there are some problems on adopting one core:

1. If one core is used to run two OSs, switching OSs is a common method to implement it. But, by limited of current embedded hardware capabilities, switching two OSs will cost huge time and memory. These cost will prevent GSM/3G communication stack works under realtime.

2. GSM/3G stack normally based on old realtime OS. GSM/3G stack has a very high quality request.so it has been carefully designed and maintained for a pretty long time.Changing source of GSM/3G stack to run on smartphone OS need huge time and resource investment to keep the porting version has same quality as the original version.

How S60 3rd make one core solution reality

Above problems probably are the reasons why, before S60 3rd, there is almost no smartphone supporting multiple processes adopt one core solution.

S60 3rd resolves above problems by taking great advantages of Symbian 9.X kernel(EKA2). EKA2 is a true realtime kernel. It can provide realtime operations needed by GSM/3G stack. Any GSM/3G stack could run on EKA2 through Personality layer which simulates original realtime OS GSM/3G stack used to run. Through this structure, GSM/3G stack need not any modification.only one OS, eg, S60, run on the single core and GSM/3G stack just an critical application on S60.

One core solution just one sample of the power of S60 3rd realtime capability.other application also could get benefit from this capability.

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