

Introduction to Symbian Research

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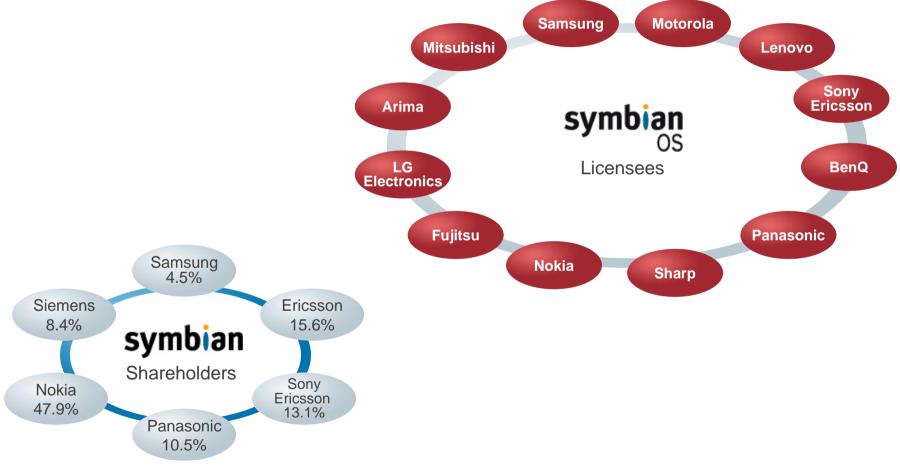


## At the heart of the smartphone market

 Symbian is an independent for-profit company whose mission is to establish Symbian OS as the world standard for mobile digital systems, primarily for use in cellular telecoms.

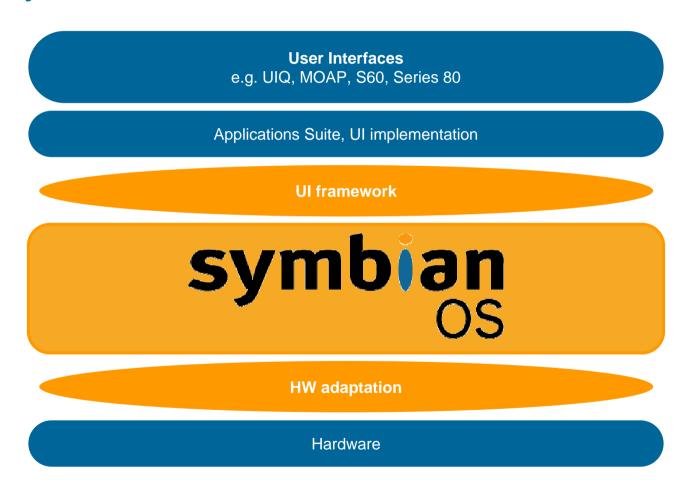
#### symbian

### about us



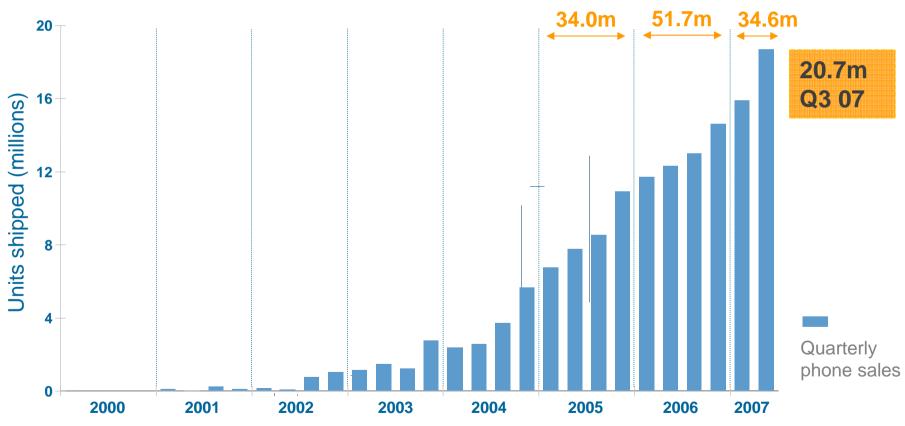


## The Symbian Product





## 55 million Symbian smartphones shipped in 2007



165 million cumulative units shipped at the end of Q307



### Mass-market inflection point



At the current rate of innovation and proliferation, the open OS segment will surpass the 1 billion cumulative sell-through mark in 2010. At this time, smartphones will comprise over 20% of all handset volumes. John Jackson, Yankee Group

Source: IDC, Apple, Display Search, Canalys, Gartner

### The evolution of the mobile OS

#### **PDA**

#### Electronic organiser

- Interactive manipulation of local data
- Battery life
- Memory constrained
- Instant-on
- Fast task-switching
- Graphical screen (overlapping windows)
- RAM persisted application state
- PC Connectivity

#### **Smartphone**

- Phone as the most important application
- Smartphone as "Phone Plus..."
- Smartphone as "simply great phone"
- Device start-up
- Cellular baseband abstraction
- Flash persisted state
- IP connectivity and networking

## Converged Mobile Computer

All-IP wireless broadband and multiple bearer management Real-time networking Broadcasting and positioning Multimedia (creation, consumption, communication) Graphics and multimedia hardware acceleration Large fast persistent storage Content protection/rights management Energy & thermal constraints Frequent new requirements



## Symbian Research 'Themes'

- Future technologies that could impact the underlying OS of a converged mobile computing device
  - ... OS kernel improvements (e.g.)
    - Memory allocation
    - Scheduling
    - Device driver model
    - . IPC
  - ... resilience
  - ... security,
  - ... performance,
  - ... power management,
  - ... graphics/multimedia,
  - ... Internet technologies (inc. scripting),
  - ... Development tools
- New uses for mobile technology
  - ... Health, Home and Leisure, Environment, Cultural
- Making Symbian OS more accessible
  - ... To developers
  - ... To academia
  - ... To general users
- Identifying 'predictable surprises' and potentially disruptive technologies



## Commercial Research

Create a framework for commercial collaboration

 Provide support for academics in collaboration with Symbian R&D

## Academic Research

Foster innovation by supporting research activities

 Provide FREE support for academic individuals conducting Symbian based research; technical support, training, books, tools

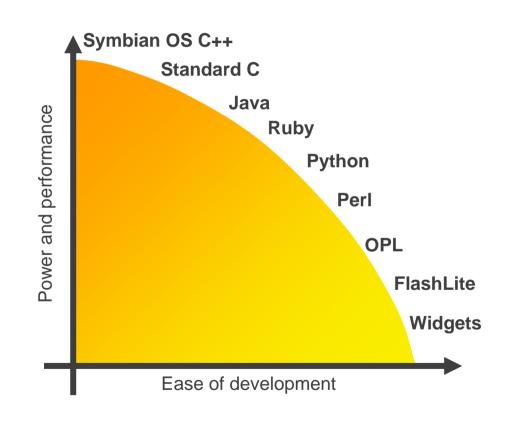
## Academic Teaching

Support institutions in teaching Symbian development  Provide FREE teaching support for lecturers; course materials, technical support, training, books, tools



# Symbian offers developers choice of programming models and environments

- Broad and deep application development
- Enable choice for different developer skills and solutions
- Improve productivity
- Native Symbian OS C++
  is the most efficient,
  robust and powerful
  solution for mobile
  platforms





## Symbian – Research Licence Project

- What is Research Licence Project
  - ... Concept new for Symbian
  - ... Duration recently started... we have a lot to learn
  - ... Progress Feasibility stage
  - ... Plans coming together
- Current relationship with Academia
  - .. Symbian Academy

Symbian Academy Symbian licensing Example source code, Tools, Hardware Symbian Sponsored Phd/Interns Symbian membership of existing Research Project Symbian partsponsorship Research Project Symbian funding of specific applied Research Project



## Why engage with Academia?

- We don't have all the best brains
  - ... We need new ideas and experts
  - ... We want to get the best Engineers and Researchers working on Symbian OS
  - ... We want to grow University interest in Symbian specific technologies
- Increase awareness in Symbian OS
  - ... Recruitment and R&D mindshare
  - ... Research
  - ... Interest (versus MS, Linux and others)
- New technology and competitive knowledge acquisition



## Proposed Engagement with Academia

- Collaboration can take many forms
  - ... Applied Research
    - Symbian OS core components
  - ... General Research
    - On and around Symbian OS
- Your ideas?
  - ... We have limited resources...
  - ... So we need to make the right decisions early and prove the value of Research



## Investigations to date

- What are our Customers and Partners doing re: Research
  - ... We should try to learn what we can from them
- Where are the best Universities for us to work with?
  - ... Where are the top Technology Universities in the world
  - ... Other Universities with similar technology interests
- What are the most appropriate Technologies/Areas that we should apply our Research resources on?
  - ... Limited Resources
- Commercial and IP (Intellectual property) Best Practice in University/Industry collaborations

## Challenges along the way

- Culture
  - ... Research concept is relatively new for Symbian
- Strategy
  - ... Still being formulated
  - ... But mindful of the wider Industry and ever increasing entrants to the Market
  - ... Importance of engagement with Academia
- Value
  - ... We need to show the value of Research to the wider Organisation (but not always easy to measure)



### Contact us

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