

Unit 3: Symbian

3

Unit Structure

- 3.1 Learning Objectives
- 3.2 Introduction
- 3.3 History
- 3.4 Features
- 3.5 Let us sum up
- 3.6 Check Your Progress
- 3.7 Check Your Progress: Possible Answers
- 3.8 Assignments
- 3.9 Activities
- 3.10 Further Reading and References

3.1 LEARNING OBJECTIVE

To gain the knowledge regarding the different features of the Symbian mobile operating systems.

3.2 INTRODUCTION

Symbian is the mobile operating system developed by the Symbian Ltd On 1998. Symbian was company who developed the software as well as the mobile operating systems. Firstly Symbian operating system is developed for the PDA's. Symbian operating system is become popular because it used in different branded phones such as Nokia, Samsung, Motorola and Sony Ericsson. Symbian operating system includes two components such as one is the micro-kernel based operating system with its supportable libraries and another one is the user interface which is working on the basis of the shell atop the OS.



Figure-84 last version of Symbian [1]

Micro-kernel is the software which provides the mechanism which is support to implement the operating system. Micro-kernel mechanism includes the thread management, address space management and inter-process communication.

Monolithic Kernel based Operating System

Microkernel based Operating System

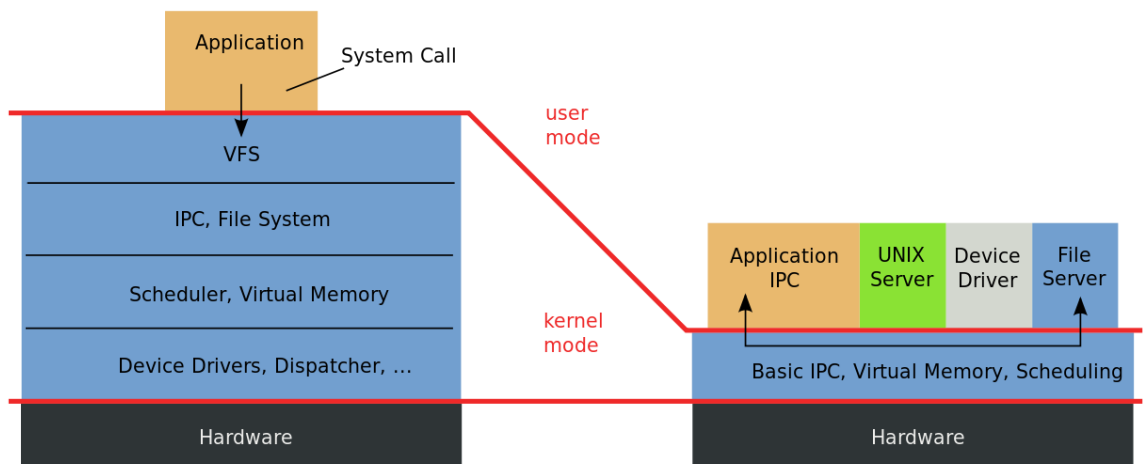


Figure-85 monolithic and microkernel [2]

S60 is the software platform which is designed for the smartphones that are run on to the top of the Symbian mobile operating system. Nokia was developed the S60 (Series 60 User Interface). S60 software is support to develop the applications by using the python, java and C++. S60 phone provides the facility to install the applications after the purchasing.



Figure-86 Logo of Symbian OS [1]

In 2010 the Symbian foundation is disintegrated and Nokia took the control to develop the OS. After that Nokia moved on to the closed licensing mobile operating system.

3.3 HISTORY

Symbian operating system is based on the EPOC mobile operating system developed by the Psion Company in 1990's. In 1998 Psion software becomes the Symbian Ltd. Symbian Company and the phone manufacturing company such as Ericsson, Motorola, and Nokia has the joint venture. After that different software's

are created for Symbian operating system like S60 for Nokia, Samsung and LG. Symbian is difficult to the programmer for development of java applications. Nokia announced the acquisition of Symbian Ltd in Jun 2008 and the new Symbian foundation was established. Nokia is the major contributor in the Symbian code. Since the Nokia maintain its own repository for the platform development. Symbian developed its community in 2008 which is led by the Symbian foundation and the objective of Symbian foundation is to publish the source code for entire platforms which are used to the development. In February 2010 Symbian platform is officially available as an open source code. Also some important components of Symbian mobile operating system were the licensed of third party which is useful to prevent to publish the full source code under the EPL (Eclipse Public License) by Symbian foundation. Qt is the open source frame work introduced to the Symbian operating system in 2010. According to market condition Symbian foundation announced, it would transition to a licensed only organization. Symbian announced the partnership with Microsoft in 2011 that would see the Nokia adopt the windows phone which is the first smart phone platform of Nokia. In April 2011, Nokia ceased the open source portion of Symbian software and reduce the collaboration with the small groups. Under EPL source code is available in third party repository. Nokia made agreement with the Accenture in Jun 2011 for an outsourcing program. Accenture is the global management consultancy and professional services which are provide the digital, technology, consulting and operations services. Accenture provides the support to development of Symbian software and support service to Nokia.

In January 2014, Nokia announced to terminate the support for the Symbian software, after that refuse the publishing and any change in the Symbian applications.

3.4 FEATURES

User interface

AVKON is the native graphics tool kit used by the Symbian operating system. AVKON is formerly known as series 60. S60 is designed to manipulate the keyboard like interface called as the metaphor, such as 15-key augmented telephone keypad, or the mini QWERTY keypad. Symbian version 3 includes the Qt framework which

was the new user interface tool kit. Also Qt is support to the older Symbian devices. Touch based interface is support to the Symbian version 4 known as the 'UI Extensions for Mobile'. This is designed by using the Qt widget. Currently Nokia recommended to the developers to use the Qt Quick with the QML, The new high level UI and scripting for creating the touch screen interface that allows the development for the Symbian mobile operating system.

Browser

Symbian support to webkit based browser. Webkit is the browser engine which is used in the Apple's safari browser. Webkit also work on the basis of experimental browser includes amazon kindle e-book.



Figure-87 Logo of Webkit [3]

Multiple language support

Symbian provides the strong localization support to the Symbian applications. Current Symbian operating system is support for the 48 different languages.

- Arabic (Arabic),
- Basque (Latin),
- Bulgarian (Cyrillic),
- Catalan (Latin),
- Chinese [PRC] (Simplified Chinese),
- Chinese [Hong Kong] (Traditional Chinese),
- Chinese [Taiwan] (Traditional Chinese),
- Croatian (Latin),
- Czech (Latin),

- Danish (Latin),
- Dutch (Latin),
- English [UK] (Latin)

Application development

From 2010 the SDK of Symbian is consist from the standard C++ with the Qt which is used with the Qt creator or carbide. WRT (Web Run Time) framework is used for creation of new widgets on the S60 platform. It is the extension of the Webkit browser which are allowing to the launching of multiple web browsers.



Figure-88 Symbian Belle FP2 in landscape mode [1]

A phone simulator allows to testing the apps by using the Qt. Applications are developed by using the C++ or QML. C++ Programming language is used to development of Symbian mobile operating system with the help of Symbian software's. Before the Qt SDK the Symbian has the standard development environment. There are multiple platforms based on the Symbian mobile operating system which is provides the multiple software development kits. Software development kit contains the documentation, header files and the libraries which are needed to development of Symbian mobile operating system. New application binary interface is used in the Symbian OS version 9. Also software development kit includes the GNU compiler collection which is supportable to development of the software's. Symbian C++ requires the special techniques like active object, descriptors and the cleanup stack. Integrated software development environment is useful to development of Symbian C++ programming language. Carbide is replaced to the code worriers in 2006. C++ is available in four different versions such as developer, express, professional and OEM, with increasing the level of capacity.

3.5 LET US SUM UP

Symbian mobile operating system was developed by the Symbian Company in 1998. Firstly Symbian mobile operating system developed for the PDAs.

3.6 CHECK YOUR PROGRESS

1. Give the technical specification of Symbian mobile OS?
2. Give the brief history of Symbian mobile operating system?
3. What is the application development?
4. Give the list of languages supported by Symbian mobile OS?
5. Which company developed the Symbian mobile OS?

3.7 CHECK YOUR PROGRESS: POSSIBLE ANSWERS

1. Refer 1.2
2. Refer 1.3
3. Application development is the process of creating a computer program or a set of programs to perform the different tasks. In context to Mobile Application Development it is the action or process by which a mobile app is developed for mobile devices, For example personal digital assistants, enterprise digital assistants or mobile phones.
4. The list of languages supported by Symbian mobile OS are as below:
 - Arabic (Arabic),
 - Basque (Latin),
 - Bulgarian (Cyrillic),
 - Catalan (Latin),
 - Chinese [PRC] (Simplified Chinese),
 - Chinese [Hong Kong] (Traditional Chinese),
 - Chinese [Taiwan] (Traditional Chinese),
 - Croatian (Latin),
 - Czech (Latin),
 - Danish (Latin),
 - Dutch (Latin),
 - English [UK] (Latin)

5. Symbian mobile operating system developed by the Symbian company on 1998. Symbian company developed the software as well as the mobile operating systems.

3.8 ASSIGNMENTS

1. Explain the architecture of Symbian mobile operating system?
2. What is user interface in Symbian mobile operating system?
3. What is text input in Symbian mobile operating system?
4. Which browser supported to Symbian mobile OS?
5. Explain multiple language support in Symbian mobile OS?

3.9 ACTIVITIES

1. Make a case study on Symbian mobile operating system.

3.10 FURTHER READING AND REFERENCES

1. <https://en.wikipedia.org/wiki/Symbian>
2. <https://en.wikipedia.org/wiki/Microkernel>
3. <https://en.wikipedia.org/wiki/WebKit>