ASSIGNMENT
RLMCA381 - CLOUD COMPUTING

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Discuss the major operating systems used in smart phones and explain their key features.

Smartphones are an integral part of our daily lives, and they run on various operating systems (OS) that provide the foundation for their functionality. In this discussion, we will explore the major operating systems used in smartphones and highlight their key features.

Google Android:

- Customization: Android is highly customizable, allowing users to personalize their devices' appearance and functionality.
- Google Services: It integrates seamlessly with Google services like Gmail, Google Maps, and Google Drive.
- App Diversity: Android boasts a vast app ecosystem through the Google Play Store, offering a wide range of applications for various needs and preferences.

Apple iOS:

- User-Friendly Interface: iOS is known for its user-friendly and intuitive interface, making it easy for users to navigate and interact with their devices.
- App Store: The Apple App Store curates a selection of high-quality apps, ensuring reliability and security.
- Ecosystem Integration: iOS seamlessly connects with other Apple devices and services, creating a unified experience across the Apple ecosystem, including iPhones, iPads, Macs, and more.

RIM BlackBerry (BlackBerry OS):

- Secure Communication: BlackBerry OS prioritizes security, offering strong encryption and secure communication options.
- Physical Keyboards: Many BlackBerry devices featured physical QWERTY keyboards, catering to users who preferred tactile input.
- Business-Focused: BlackBerry devices were popular among business professionals due to their robust support for corporate environments, including push email and enterprise-level security features.

Symbian:

- Extensibility: Symbian allowed for deep customization by manufacturers and developers, resulting in a variety of device types and user interfaces.

- Multitasking: Symbian supported multitasking, enabling users to run multiple apps simultaneously, which was ahead of its time.
- International Reach: Symbian was used worldwide, supporting multiple languages and character sets, making it accessible to a global audience.

Windows (Windows Phone):

- Live Tiles: Windows Phone featured Live Tiles on the home screen, providing real-time updates from apps without the need to open them.
- Integration with Microsoft Services: It seamlessly integrated with Microsoft services such as Office, OneDrive, and Outlook, making it attractive to business users.
- Modern UI: Windows Phone stood out with its distinctive, modern user interface design, offering a unique visual experience.

These operating systems cater to different user preferences, offering a wide range of features and capabilities. The choice often depends on individual needs, familiarity with a particular ecosystem, and desired functionality.

Explain various components used by Mobile Web Services for Service Discovery.

Mobile Web Services (MWS) rely on several components for service discovery, enhancing the user experience and providing context-aware services. Here's an explanation of these components:

Context-aware services:

Each mobile device contains information concerning the condition or state of the device and the user who carries the device. When parsed properly, this information can provide user's identification and the context of that user. Location is the prime example of context. When we search for something near us, the search engine returns results that are location-based and thus have context. When a phone transmits its GPS coordinates to a service, that service may be able to send information appropriate to each environment back to the user. When GPS coordinates are provided to a service, that service may respond with information appropriate to each environment. Such tailored and specific information could be incredibly valuable and useful. When a mobile user is connected to mobile service two different sets of information is exchanged:

- Physical context
- Logical context

MEMS:

MEMS stands for *Micro Electro-Mechanical Systems* and is a class of very small sensor or actuator devices where small mechanical systems are driven by electricity to indicate a position. MEMS size can be between 1 and 1000 micrometres, and they are packaged into components that often include a microprocessor, memory, and others. Several MEMS are packaged in smartphones, and their numbers and complexity are growing over time. These sensors can measure the physical world around the user and translate an analogue signal into a digital one that can be used to enhance a cloud-connected user's experiences. These types of devices are called *Micro-Electro-Mechanical systems or MEMS.*

Location awareness:

Location awareness helps in delivering services based on the location of user. Location-aware services are usually based on GPS data, with location accuracy of a few feet through the triangulation of three or more overhead satellite distances and positions. E.g.: Skyhook: Its services are based on a Wi-Fi Positioning System (WPS). Skyhook has a hybrid positioning system called XPS,

which uses several location technologies in like WPS, GPS, and cellular tower triangulation to obtain accurate user location.

Push services:

Push services are a technology where the transaction is initiated on a server and sent automatically to the client. The opposite of a push is a pull technology, in which the client polls for and requests a transaction. The following services are examples of push technologies:

> *Automated software updates*
> *Instant Messaging*
> *e-mail*
> *HTTP streaming*
> *Java pushlet*
> *RSS services*
> *Software installations*
> *Teleconferencing*
> *Comet; an Ajax application data transfer*

The BlackBerry Push Service:

Developers use the BlackBerry Push Service to push application updates, images, text, audio, and other content to BlackBerry users. The Push Service transfers up to 8KB messages directly; Otherwise, the notification will be send as a push service and the device downloads the data from the content provider

The Lemonade Profile:

This is an alternative mechanism to a Push-IMAP specification. The Lemonade Profile uses a set of e-mail extensions to provide access to mobile devices. It builds on the IMAP (Internet Message Access Protocol) for delivery and on the Message Submission SMTP (Simple Mail Transfer Protocol) profile. A timely notification is provided when a message is available, and the Mail Submission Agent (MSA) retrieve the e-mail from an IMAP data store. The advantage of the Lemonade Profile is that it uses both IMAP and SMTP and can be used by any IMAP client.

These components play a crucial role in enhancing the functionality and usability of Mobile Web Services by providing context-awareness, efficient communication, and location-based services, among other features.