

Data Access on the Windows Phone



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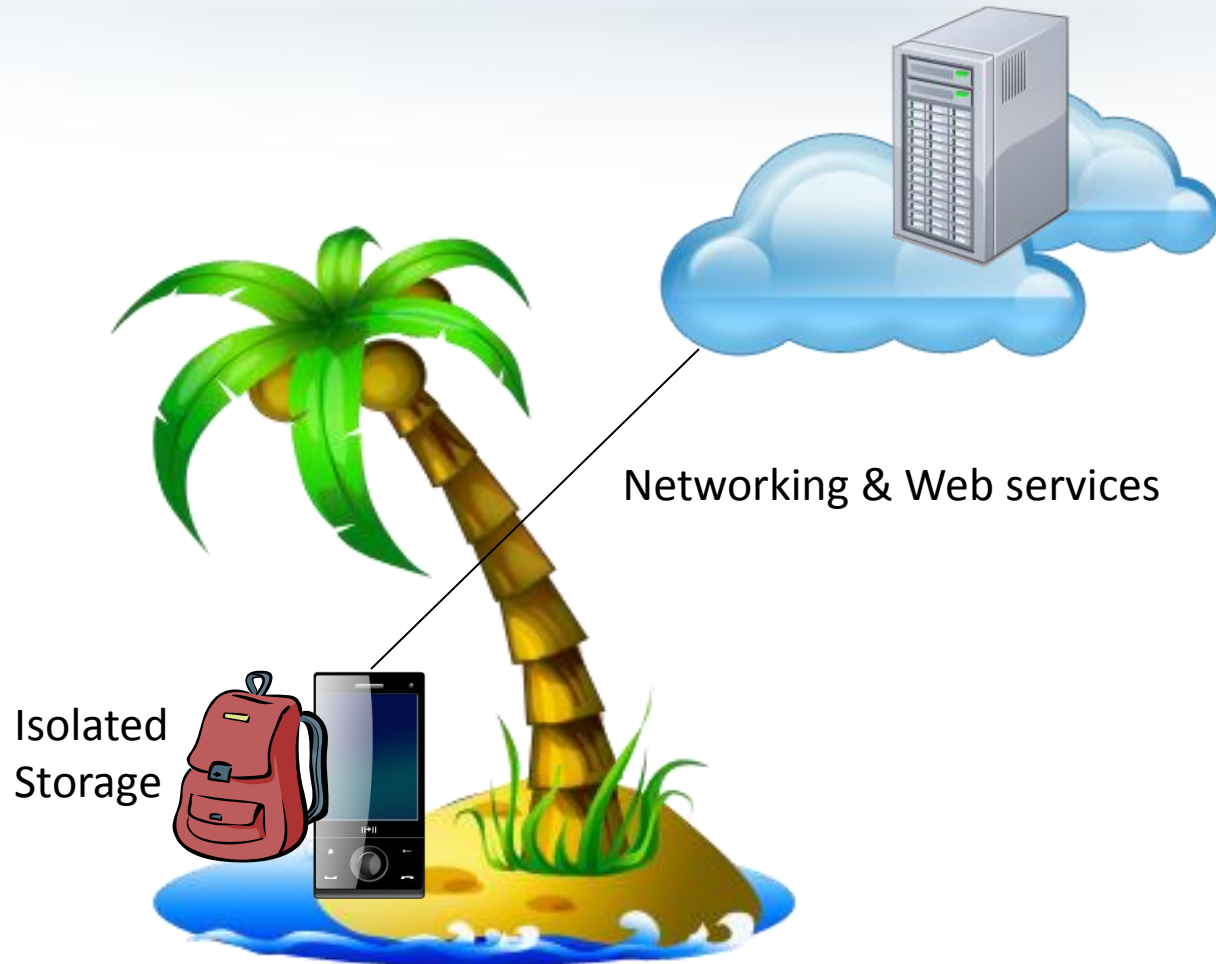
Greg Lutz
Product Manager
gregoryl@componentone.com

Overview

- Networking and Web services
- Isolated storage and local database
- Location services (GPS)
- Sensor APIs
 - Accelerometer, Compass, Gyroscop



Data Access is like...



Networking and Web Services

- Web and data services
 - SOAP (WCF)
 - HTTP
 - REST
- Windows Azure



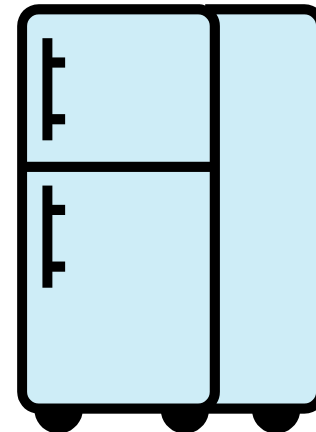
Web and Data Services

- Data services use Odata
- HTTPWebRequest (Weather demo)
- Sockets supported in Mango
- Limitations
 - Max 6 outgoing connections per app
 - Networking is Silverlight 3 based
 - Unsecure out-of-the-box

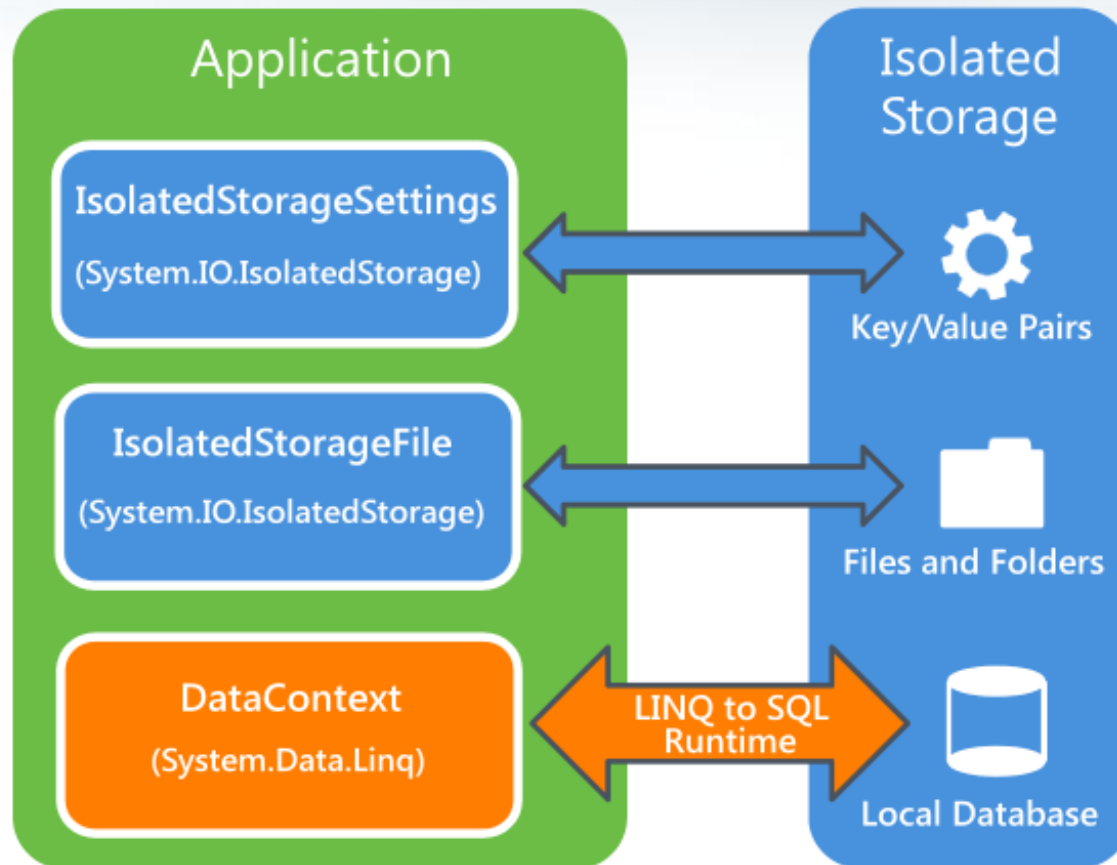


Isolated Storage

- Three ways to store data in Isolated Storage
 - Settings
 - Files and folders
 - Relational data



Isolated Storage

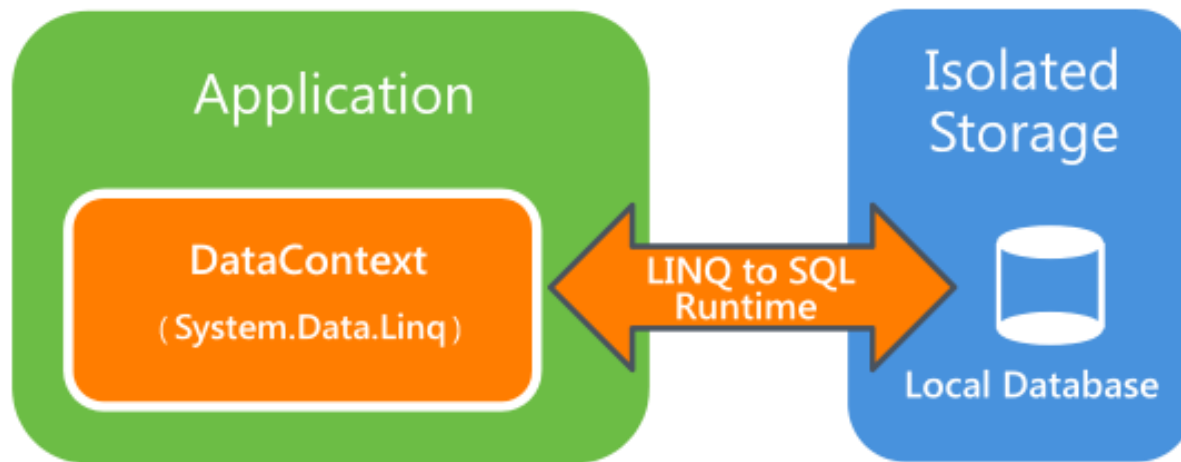


Local Database

- Stores relational data
- New in “Mango” OS 7.1
- Uses LINQ to SQL for operations
- SQL Server Compact Edition (SQL CE)



Local Database



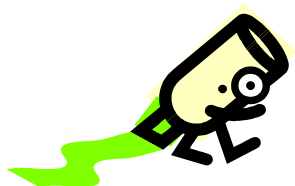
Local Database

- You can include a reference database as a resource for Read-only access (outside isolated storage)
- Just move database to isolated storage for Write access



Isolated Storage Best Practices

- There is no disk space limit; be conservative
- Always consider maintenance and updates
- Handle updates when changing storage formats in YOUR code
- Isolated Storage can be tested in the emulator or device



Location Service (GPS)

- You can obtain location information from the device from:
 - GPS receiver
 - Wi-Fi
 - Cellular radio
- You have two options:
 - High accuracy
 - Uses GPS receiver
 - Default (power saving)
 - Uses Wi-Fi or cellular radio



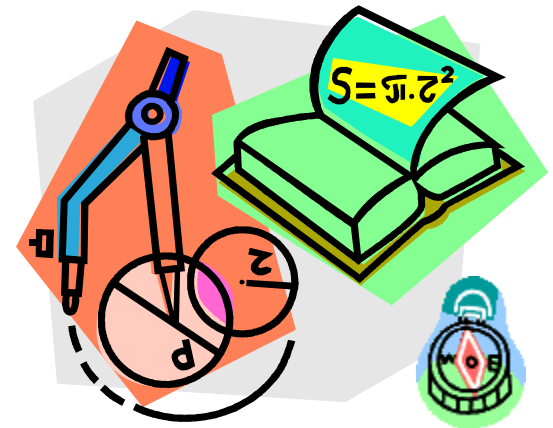
Location Service Guidelines

1. Use the lower accuracy by default unless your app requires highest accuracy
2. Turn the location service on/off when needed
3. Display notifications for service availability
4. Must provide setting to disable location awareness



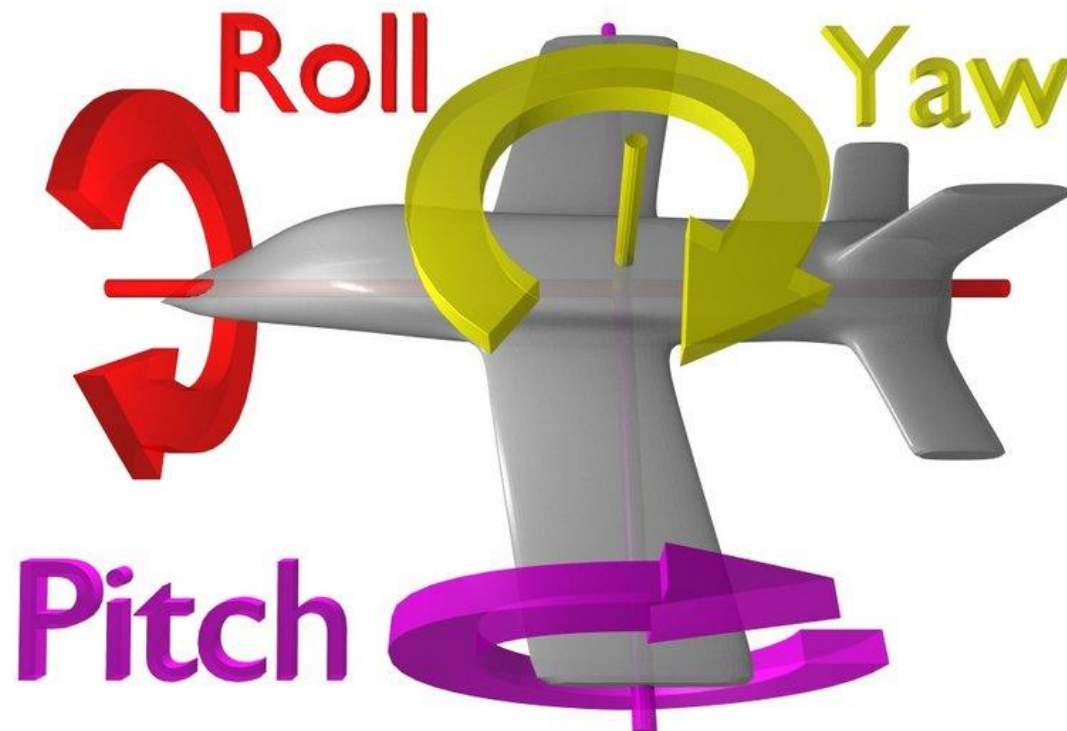
Sensors Overview

- Sensors determine orientation and motion of the device
- Three sensors:
 1. Accelerometer
 - Get direction device is moving
 2. Compass
 - NSEW
 3. Gyroscope
 - Rotational velocity



Motion API

- Easy to obtain device's attitude (yaw, pitch, roll), rotational and linear acceleration



Motion API

- Two settings:
 - Normal (Less accurate)
 - Uses compass and accelerometer
 - Enhanced
 - Uses all three sensors

Accelerometer	Compass	Gyroscope	Motion
Yes	Yes	Yes	Yes, Enhanced
Yes	Yes	No	Yes, Normal
Yes	No	Yes	No
Yes	No	No	No



Conclusion

- Data access on the Windows Phone
 - Networking and Web services
 - Isolated Storage
 - Settings
 - Files/Folders
 - Local database
 - Location Services
 - Sensors



Conclusion

- Resources
 - <http://msdn.microsoft.com>
- Samples
 - [http://msdn.microsoft.com/en-us/library/ff431744\(v=vs.92\).aspx](http://msdn.microsoft.com/en-us/library/ff431744(v=vs.92).aspx)
- Contact: Greg Lutz
 - gregoryl@componentone.com
 - www.componentone.com

