File sharing over Bluetooth initiated by NFC

Introduction

Nokia implementation enables a handover requester to negotiate an alternative communication carrier with a handover selector over the NFC link. Handover selector device might have multiple alternative carriers (Bluetooth, Wi-fi). Selecting alternative carrier is known as handover. In this code snippet NFC is the initiator carrier that handover connection to Bluetooth technology. The reason behind this is efficiency (for example data rate, distance covered are better in Bluetooth).

Service Handler and NFC

We need to call service command for the NFC provider implementation. Once a service command has been executed, NFC implementation does all the details to find alternating carrier (Bluetooth) and setup connection. Once the connection has been set up data transfer occurs in usual way.

NFC implementation offers three different service handler related commands for these purpose defined in AiwCommon.hrh

Command ID	Purposes
KAiwCmdNFCGive = 0x1028245F	Give different objects to another device using Near Field Communications.
KAiwCmdNFCGiveUi = 0x10282461	The new command id will be used by clients who want to invoke a request for an NFC-initiated file transfer (an “NFC Give”), and want the AIW provider to show UI elements at various points during the command execution
KAiwCmdNFCEasySetup = 0x2001FE32	Start listening secondary bearer (e.g. Bluetooth) setup events via Near Field Communication.

Following code snippet shows how we call

```
TInt CNfcAiwEngine::DoFileSendCommandL( const TDesC& aFileName, TInt & error )
    {
    error = iFs.Connect();
    if (error == KErrNone)
        {
        error = iFs.ShareProtected();
        }

    if (error == KErrNone)
        {// Open file to be shared in read or sharereadonly mode.
        error = iFile.Open(iFs, aFileName, EFileRead | EFileShareReadersOnly);
        }
    if (error != KErrNone)
        {
        return error;
        }

     CAiwGenericParamList* inParamList = CAiwGenericParamList::NewLC();
     TAiwGenericParam obj(EGenericParamFile, TAiwVariant(iFile));
     // Attach the file to inParamList.
     inParamList->AppendL(obj);

     // Send the file via NFC (asynchronous).
     iAiwServiceHandler->ExecuteServiceCmdL( KAiwCmdNFCGiveUi, *inParamList,
                                             iAiwServiceHandler->OutParamListL(), 0,
```


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```
                                                this);
      CleanupStack::PopAndDestroy(); // inParamList.
      iFile.Close();
      iFs.Close();
 //misleading return value should be fixed
      return error;
     }
```

Examples

Sharing example can be found from the following link and this has been tested with C7 Belle software. The example can be compiled with Belle SDK. There is a unsigned sis file that can be signed with certificate and install it to devices for testing.

Download the example for C7: File:Nfcsharewithbt.zip

How to use this example

Menu Command	Explanation
Start Easy Setup	Make paired with alternating carrier, for example Bluetooth
ShareVcard	Send a Vcard that is hard coded with code and PKG file
ShareVcal	Send Vcal that is hard coded with code and pkg file
SelectAny	Select any file from the device and then touch other device to share it, basically same like previous two menu but it allow you to select and send it from device by browsing the folder.

References

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- http://www.nfc-forum.org/specs/
- http://library.developer.nokia.com/index.jsp?topic=/GUID-E35887BB-7E58-438C-AA27-97B2CDE7E069/GUID-5294D18E-E2BF-4723-BEFA-55C282F1F3DB.html

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