JetWave An Embedded Bluetooth Protocol Stack

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Agenda

- Who is Extended Systems, Counterpoint
- Bluetooth Organization
- Bluetooth Characteristics
- Comparison to IrDA
- Bluetooth Profiles
- Bluetooth Protocol Stack
- JetWave SDK
- Contact Information







Mobile Solutions

Universal Mobile Connectivity

- Short Range Wireless
 - IrDA- light
 - Bluetooth radio waves



• Hardware adapters and embedded software solutions

Mobile Data Management

- Personal devices
 - file transfer and synchronization
- Corporate server synchronization









Counterpoint/ESI contributions

- Embedded protocol stacks since 1995
 - IrDA founders and significant contributions
- Both Counterpoint and ESI are Bluetooth Early Adopters (1998)



- Contributor to S/W Working Group
- Authored OBEX specifications for application profiles
- Contributor to Interoperability Working Group
- Authored the White Paper comparing IrDA and Bluetooth

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The Bluetooth Organization

• Founding Members



- Adopters and Early Adopters
- Over 1000 companies are members now
- Version 1.0 of Spec released July 99

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Bluetooth Radio Description

- RF radio in the 2.4 GHz ISM band
 - Same range as some cordless phones now
- Frequency hopping from 2.402 GHz and stopping at 2.480 GHz.
 - Maximum frequency hopping rate is 1600 hops/sec
- Due to local regulations the bandwidth is reduced in Japan, France and Spain
- Distance 10 centimeters to 10 meters
 - Up to 100 meters by increasing the transmit power





Baseband and Link Characteristics

- Both voice and data links
 - Synchronous Connection Oriented link for Voice 64 Kbps
 - Asynchronous Connectionless link for Packet Data 721 Kbps
- Point-to-point and multi-point connections
- Each device has a 48-bit device address (IEEE 802)
- Security via authentication and encryption





IrDA and Bluetooth Complement

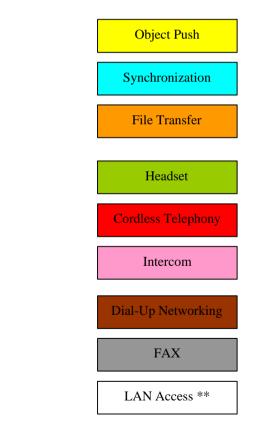
- IrDA for ad-hoc transfers and fast transfers
- Bluetooth for distance, omni-directional multipoint connections
 - Personal Area Networks
- It's not One or the Other, its Both
- www.countersys.com/tech/bluetooth.html





Bluetooth Application Profiles

- Object Push
- Synchronization
- File Transfer
- Headset
- Cordless Telephony
- Intercom
- Dial up Networking
- Fax
- LAN Access



Bluetooth Profile Identifiers

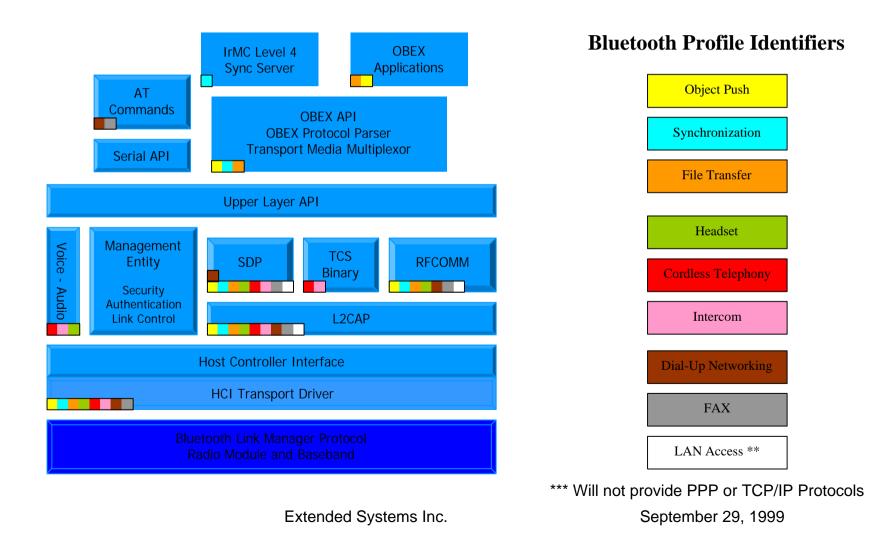




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Bluetooth Protocol Stack







JetWave SDK

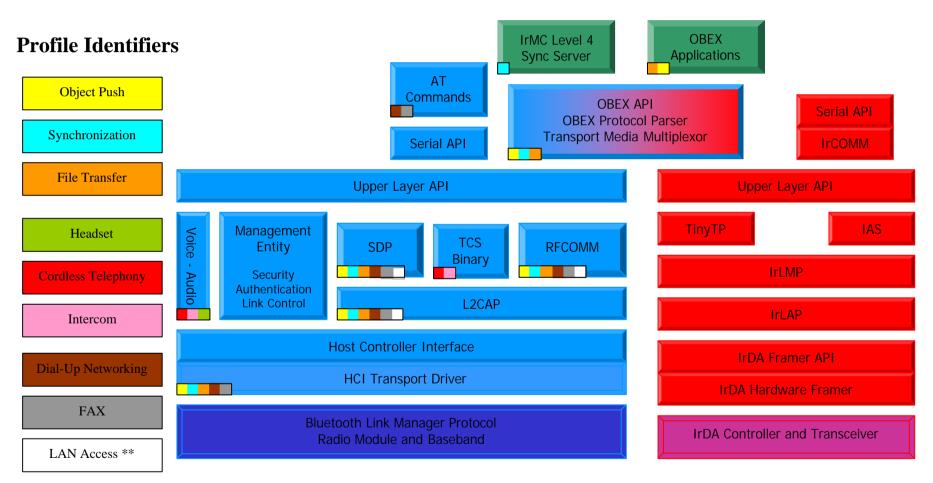
- Portable, source code based SDK
 - Abstraction layer for BT hardware providers
 - Sample code HCI Transport Drivers for RS232 and UART
 - OS Abstraction layer to map ITRON OS calls
- Small, fast, and efficient
 - Design goal to be less than 50K ROM
- Consistent OBEX APIs to IrDA
- JetWave SDK expected Q1 2000





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*** Will not provide PPP or TCP/IP Protocols

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