Bluetooth™

DEVELOPERS CONFERENCE

Bluetooth PC Stacks

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Microsoft

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Agenda

- Design guidelines
- User experience
- Bluetooth™ architecture in Windows® XP
- Hardware design issues

Design Guidelines

- Must be robust and reliable
- A bus is a bus is a bus
- Obfuscate the hard stuff
- Propagate the important stuff

User Experience

Modems

- Use Add Modem Wizard
- Discoverability is an issue
- IPv6 gives better performance
- IPv6 gives better user experience

User Experience

Printers

- Use Add Printer Wizard
- No authentication

User Experience

HID

- Automatic detection of keyboards
- Add Hardware Wizard
- Keyboard must be secure
- Not to be used (yet) as a boot device

User Experience

Control panel

- Geek “tool” not intended for your mother
- Allows for manual discovery and bonding
- Feedback welcome on needed functionality

User Experience

Summary:

- Experience should not be Bluetooth specific
- Need to work together as an industry on providing needed functionality

Windows XP Bluetooth Architecture

Top scenarios:

- Scenario #1: Always connected
  - DUN, PAN
- Scenario #2: Wireless desktop
  - Keyboard, mouse, printer, PDA, etc.

Windows XP Bluetooth Architecture

Profile support

- HCRP
- DUN
- HID
- PAN (IPv6 only)
- ESDP (IPv6 only)

Windows XP Bluetooth Architecture

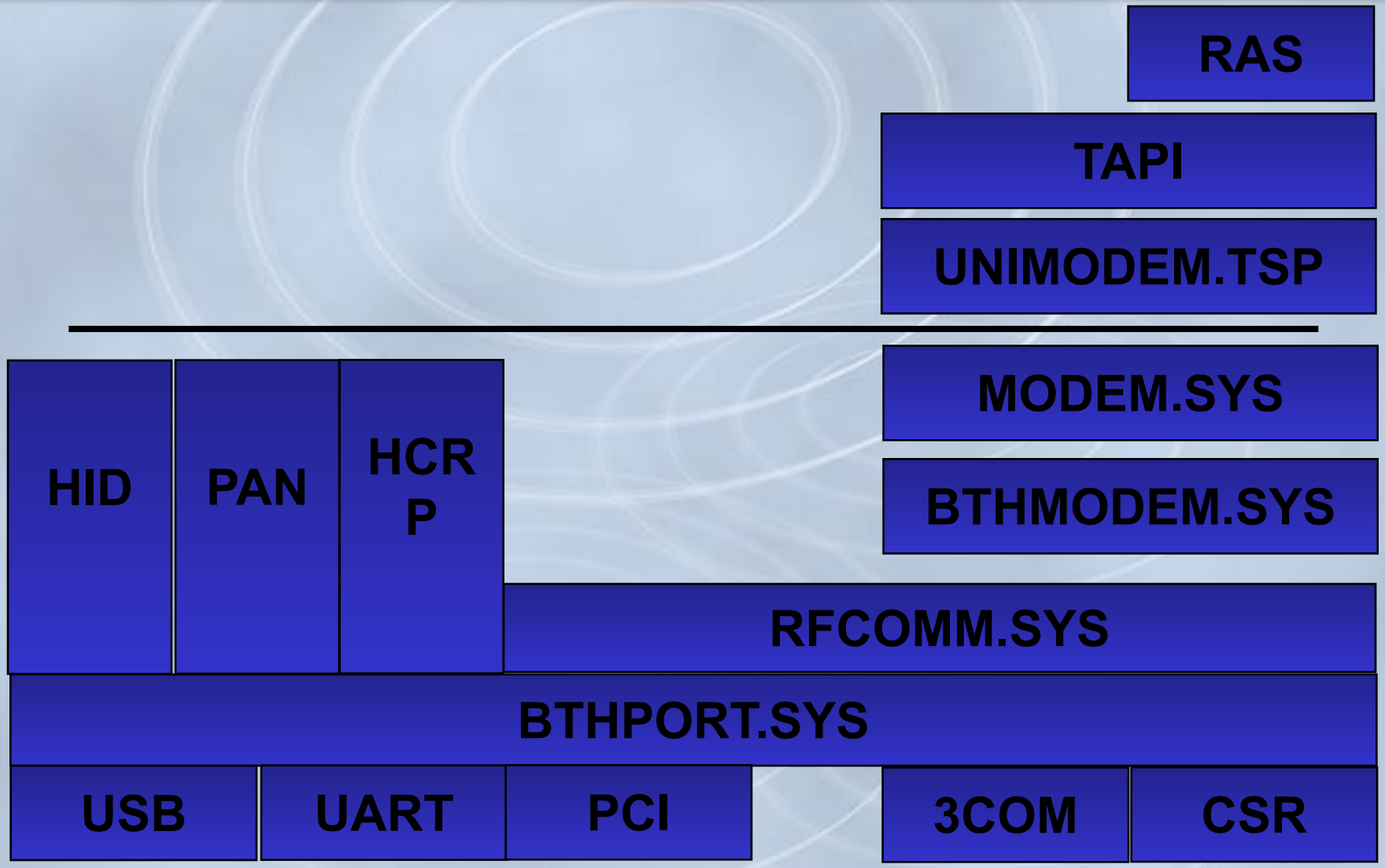
Why IP?

A Bluetooth device talking over IP cannot only talk to other Bluetooth devices talking IP, but can talk to every device talking IP.

Why IPv6?

- Addresses
- Mobility
- Adhoc

Windows XP Bluetooth Architecture



Windows XP Bluetooth Architecture

Standard SIG-defined miniports

- Transparent pass-thru
- Lowers development costs for IHVs
- Provides enhanced code coverage leading to enhanced reliability
- Eliminates IHV need to distribute software
- Grandfathered: 3Com and CSR

Windows XP Bluetooth Architecture

BTHPORT

- L2CAP, HCI and SDP
- No SCO

Windows XP Bluetooth Architecture

Windows XP Application API set

- Winsock
- IPv6 namespace and ESDP
- Defined in the system SDK
- Enables application portability
- Enables applications to extend beyond Bluetooth
- Propagates wireless advancements made in Windows XP

Windows XP Bluetooth Architecture

Windows XP release plans:

- Next beta in Q1
- Shipping in 2H 2002
- Support for Windows XP and beyond
- Release vehicle not determined
- Looking for demos for WinHEC

Hardware Design Issues

- Sideband power management
- USB bus reset by device on initialization
- Returning NUM_COMPLETE_PACKETS quickly
- Immediate reuse of disconnected connection handles
- Firmware upgrades
- Authentication by device

General Hardware Logo Requirements

System Testing

- Currently a system can get the Designed for Windows logo
- No logo and/or digital signature for 3rd party Bluetooth stack for any OS

Device Testing

- No logo and/or digital signature until the logo program is in place for Bluetooth
- Logo will be specific to operating systems with Bluetooth driver support and test kit

Bluetooth Logo Program - System

Logo Requirements

- Bluetooth Qualification to v1.1
- HCI Conformance
- Transport requirements
- Interop with either SiW or CSR radios

Bluetooth Logo Program - Peripherals

Hardware Compatibility Tests

- Device Class Tests – Print, Modem, etc.
- Bluetooth Specific Test Suite
  - Device and Service Discovery

Bluetooth PC Stacks - Summary

- Bluetooth can be a very compelling technology
- We as an industry need to ensure a great end-user experience
- Microsoft is committed to supporting this

Microsoft Resources

- General
  http://www.microsoft.com/hwdev/
  - WHQL
    http://www.microsoft.com/hwtest/
- Windows Logo Program
  http://www.microsoft.com/winlogo/

Questions?