Bluetooth: New Freedom, New Possibilities

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The Bluetooth Specification is still preliminary. All information regarding Bluetooth is subject to change without notice.

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Value Proposition

Problem:

* Too many wires and connectors.
* Portable devices don't work well together.
* No anywhere seamless connectivity.

Great solution:

* A revolutionary program to link portable PC's and electronic devices wirelessly and seamlessly.

Right players:

* Broad Industry support committed to deliver products from telecom and computing industries.

Many Useful Mobile Devices Today

Using them . . .

- Independently – each has different information
- Together – requires multiple cables, connectors

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Imagine .

- Universal mobile connectivity
- Ultimate synchronicity
- . . . without wires
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New Freedom and Possibilities

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Bluetooth Goal . . .

Wireless Link Between All Mobile Devices

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Bluetooth Is . . .

- Major joint computing and telecomm industry initiative
- Plan to deliver a revolutionary radio-based solution
  - Cable replacement, no line of sight restrictions
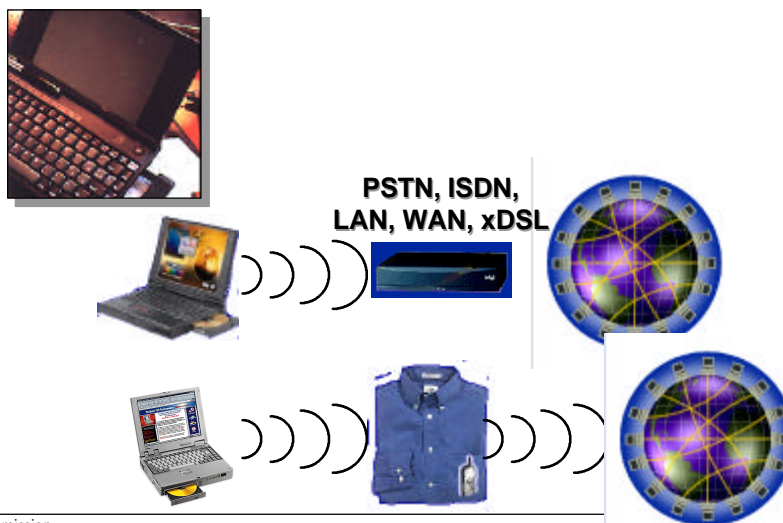 - Perfect for mobile devices – small, low power, low cost
  - Open specification

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New Freedom and Possibilities . . .
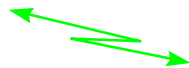
The Internet Bridge

PSTN, ISDN, LAN, WAN, xDSL

The Ultimate Headset…..

- Keep your hands free with the ultimate solution for the:
  - Road.
  - Office.
  - Car.

The Three In One Phone

Office   **Hotel Out and About**

LAN   **PSTN**
PSTN

The Automatic Synchronizer

Hidden Computing

The Instant Postcard

**GSM
CDMA
-AMPS
PSTN
etc...**

. . . And Countless Other Possibilities

RF-Module

- 10 m personal bubble
  - 8 devices per piconet.
  - Up to 10 piconets in bubble.
- Works in Globally free spectrum (2.45 GHz, ISM band)
  - Globally available frequency, 89 MHz of spectrum available.
  - FFH/DS Hybrid Radio.
- $20 projected to come down to around $5 OEM integration cost
  - Designed for CMOS single chip solution.
- Data/voice services:
  - 432 Kbps (full duplex), 721/56 Kbps (asymmetric), 384 Kbps (TMS2000)
    - Future version: 2 Mbps.
  - 3+ simultaneous full duplex voice per piconet (CVSD@64 Kbps).
  - Simultaneous voice/data capable .
- Security
  - Designed to be as secure as a wire (public/private key authentication, streaming cipher up to 64 bit based on A5 security).
- Power
  - 2.7V, 30 uA in sleep, 60 uA hold, 300 uA standby, 8-30 mA transmitting.
- Open industry standard
  - Mobile computers, Cell phones, Handhelds, Data Access Points.
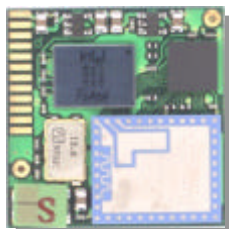
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Bluetooth Radio Modules

Preliminary Specifications…

- Small
  - 0.5 square inches in production
  - Eventually moving to a single chip solution
- Low power
  - 2.7V
  - < 0.1 watt active power
- Simultaneous voice/data capable
  - 1Mbps robust transfer rate

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Bluetooth SIG Members

- 3COM (Palm, MHz, USR)
- AXIS
- AST
- CASIO
- CETECOM BmbH
- Compaq
- Dell
- Ericsson
- Intel
- IBM
- Lucent
-

- Metricom
- Motorola
- Nokia
- Puma Technologies
- Qualcomm
- Symbionics
- Toshiba
- TDK
- UET
- VLSI
- XIRCOM

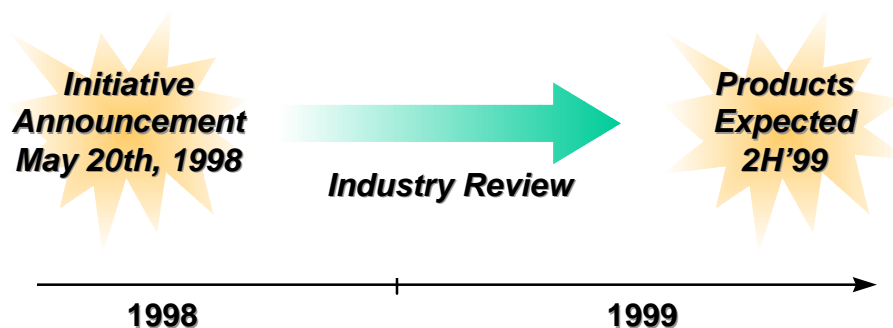**And More Are Coming**

Timeline

**Initiative
Announcement
May 20th, 1998**

Industry Review

**Products
Expected
2H'99**

1998   **1999**

Development schedule

- Intel is working on the program details
    - Does this schedule support 2H99 product launch?
    - What level of support is required from Intel?
    - What are your key questions/concerns?

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Steps to Join the program

- Step 1: Visit public web site (www.bluetooth.com)
    - Usage models, technical information, sign-up information.
    - Covered by today's presentation.
- Step 2: Review and sign legal agreement.
- Step 3: Visit the Bluetooth member web site.
    - Review current version of specification.
    - Review Frequently Asked Questions (FAQ).
    - Post questions, provide feedback.
    - List of Bluetooth suppliers.
- Step 4: Members added to the e-mail lists (Reflector).
- Step 5: Engage with relevant task teams and work on your product development.
    - Design guides, data sheets, support.
    - Testing. Functional, certification, regulatory.
    - Plan Product development and support requirement.

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Summary

- Collaboration of companies working together to develop and deliver Bluetooth Systems

- Bluetooth goal: Enable new freedom and capability for true anywhere, anytime computing and communications

- For more information: www.blue