# Why the name ***BLUETOOTH***?

The name was adopted as a tribute to the tenth-century Viking king **Harald Blåtand** (940 to 985 A.D) who peacefully united Denmark and Norway . Harald liked to eat **BLUEBERRIES**, which gave his teeth the coloration that lead to the nickname "**BLUETOOTH**."

# Q. What is Bluetooth???

Ans. *Bluetooth* is a method for data communication that uses *short range radio links* to replace cables between computers and their connected units.

# *Introduction*

- **Bluetooth is wireless high speed data transfer technology**

- **Bluetooth Wireless Technology (BWT)** was developed in **1994** at **Ericsson in Sweden.**

- **Purpose – Originally it was built to eliminate the need for cable connection between PADs and notebook PCs.**
  **Later the goals were to enable different devices through a commonly accepted standard for wireless connectivity**

## *Introduction(contd…) :*

- Ericsson on the advent of **BWT** conceptualized a Radio Technology through a **Wireless Personal Area Network** (**WPAN**).
- Group called **Bluetooth Special Interest Group** (**SIG**) was formed in 1998 to develop the standard of **IEEE** 802.15
- This specification standarized the **Bluetooth technology** world wide.

## *Bluetooth Specifications*

- Developed by : J.Haarsten and S.Mattisson in Sweden
- Standard : IEEE 802.15
- ISM band frequency : 2.4 GHz
- Range : 10 – 100 meters.
- Channel Band width : 1 Mbps

# *Bluetooth Topology*

- Depending upon the type of connection established between the various bluetooth devices,there are two main topologies :

1. **PICONET Topology**
2. **SCATTERNET Topology**.

- To any topology,there are two prime components :

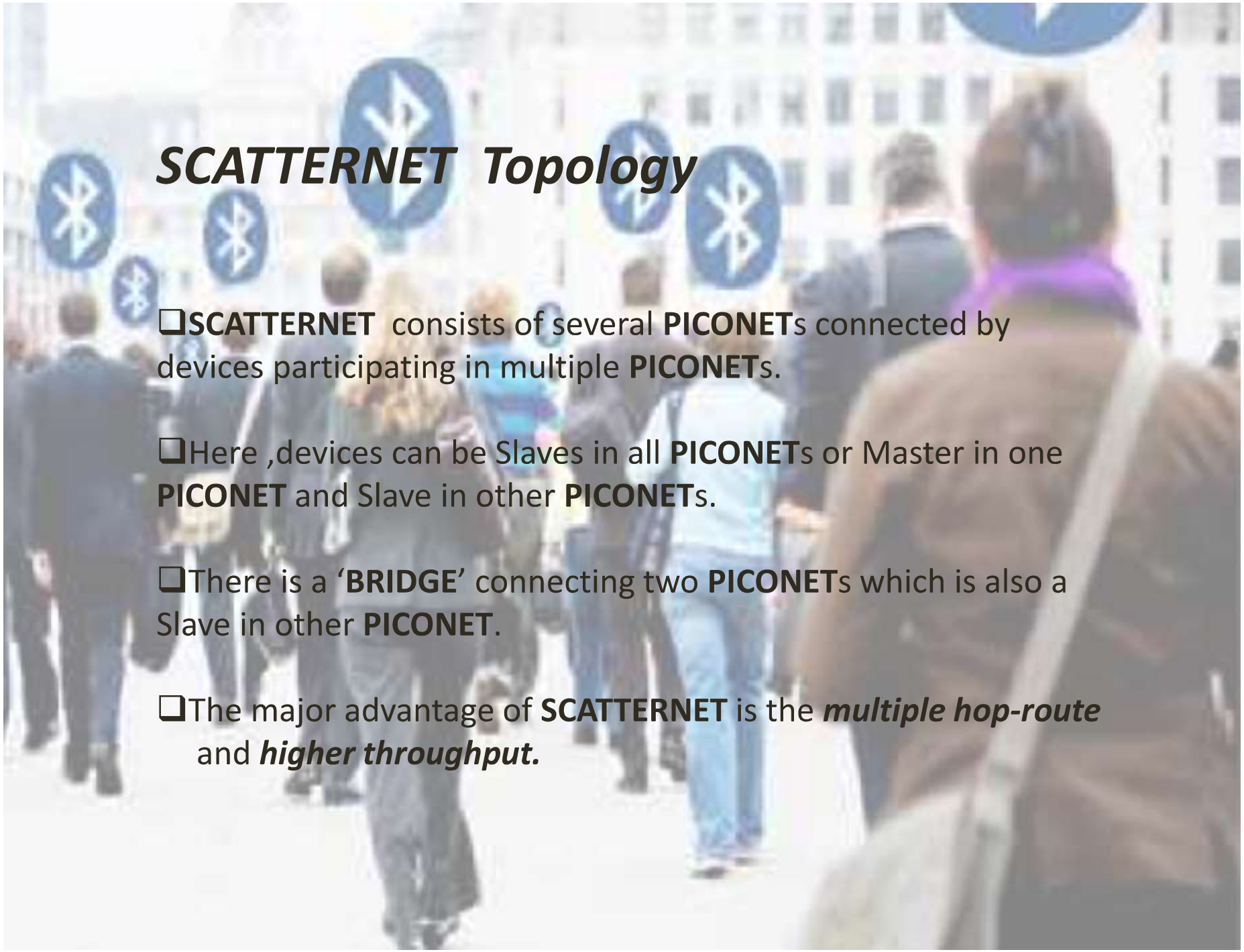
1. **MASTER Device**
2. **SLAVE Device.**

# *PICONET Topology :*

- A ***PICONET*** consists of up to 8 ***BWT*** enabled devices.
- When **PICONET** is established , one device sets up frequency hopping pattern and other devices synchronize their signals to same pattern.
- The device that sets the frequency hopping pattern is called **Master device**.
- The devices that get synchronized are called **Slave devices.**
- Each **PICONET** has different frequency pattern.

# *PICONET Topology (contd…):*

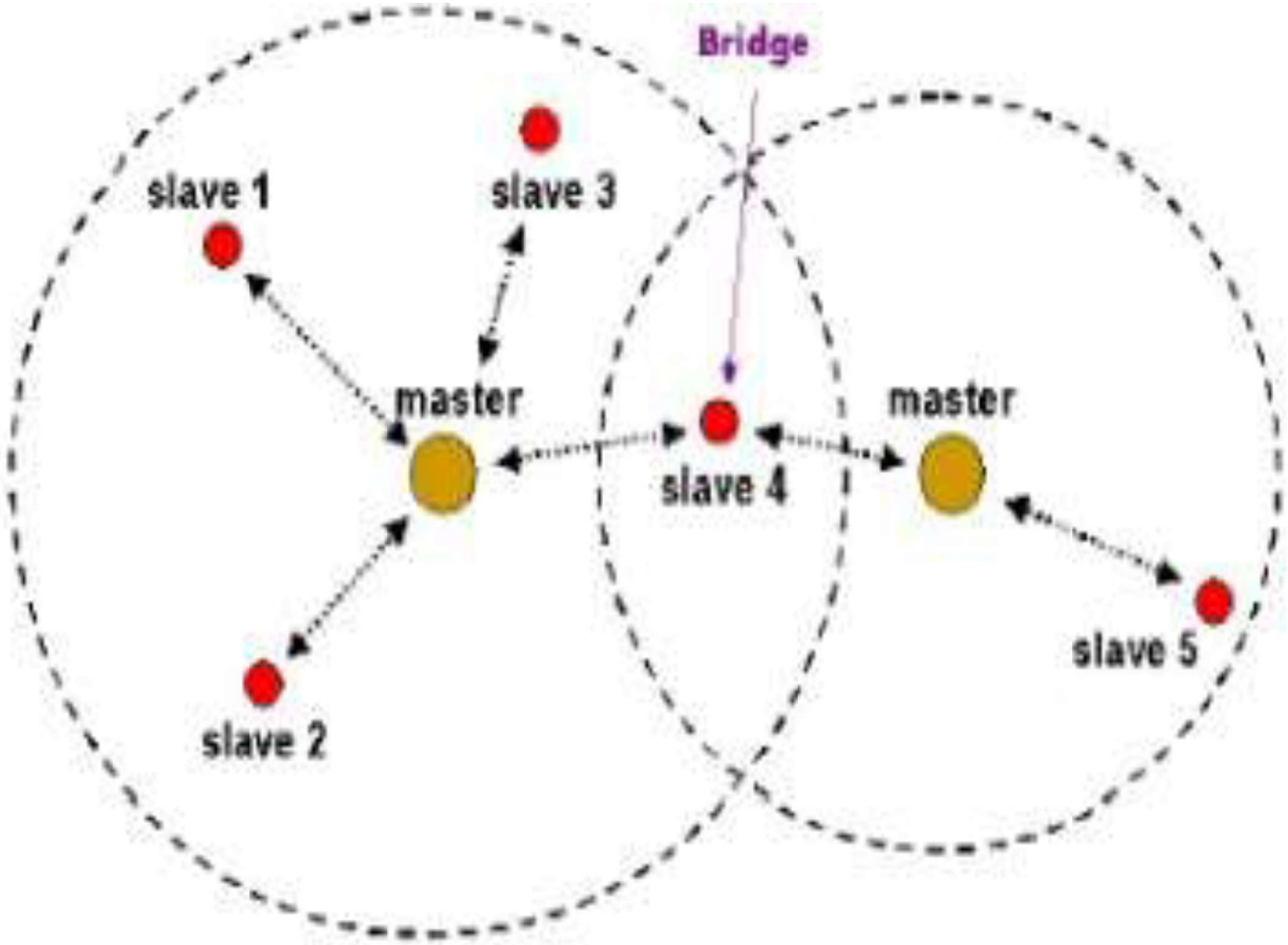
- Each **PICONET** has 1 Master for establishment of **PICONET** and up to 7 Slave devices.
- Master's Bluetooth address is used for defining frequency hopping sequence.
- Slave devices use Master's clock to synchronize their clocks so as to hop simultaneously.
- For establishing **PICONET** , other bluetooth devices are discovered by an inquiry procrdure.



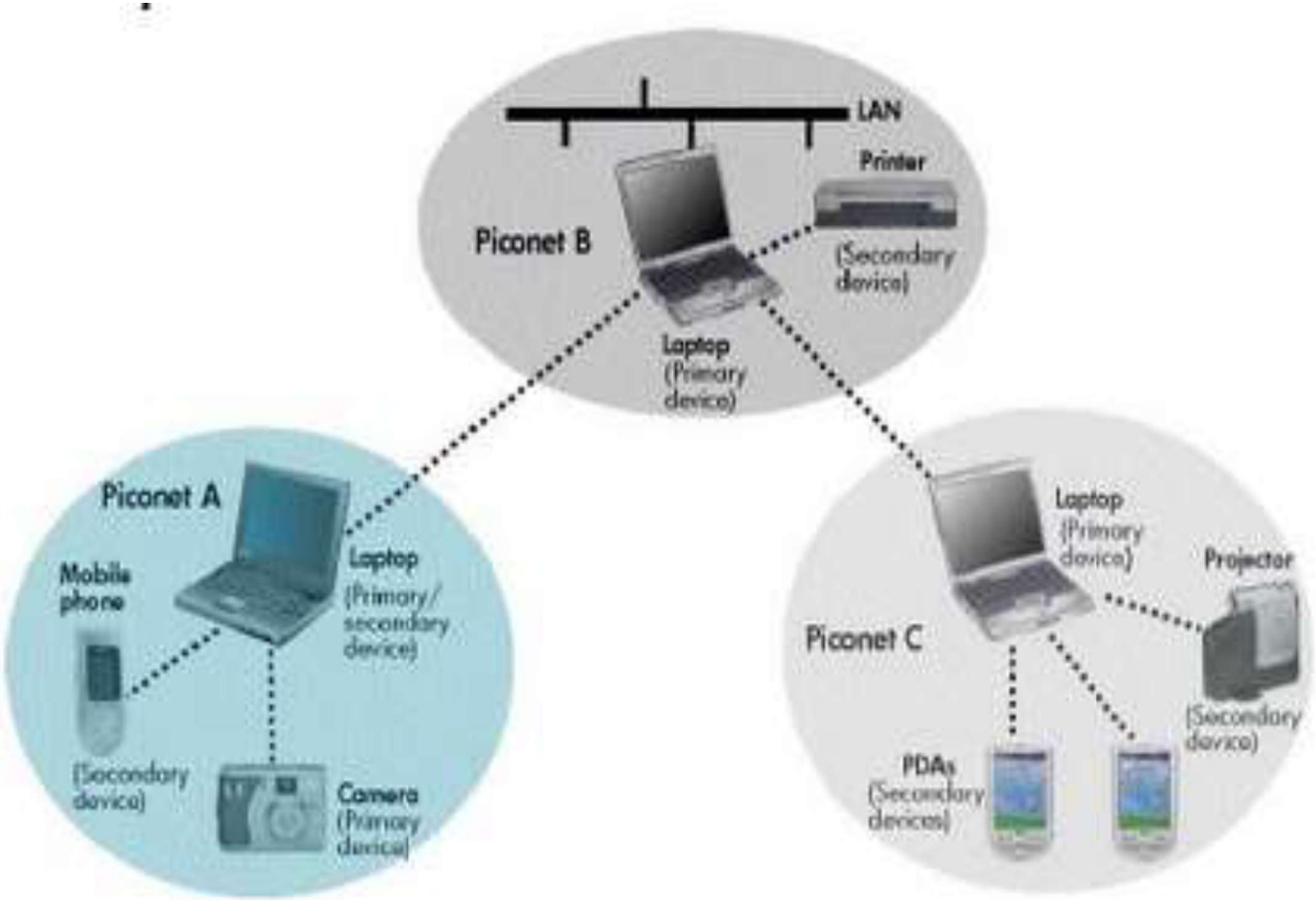
# *SCATTERNET Topology*

- **SCATTERNET** consists of several **PICONET**s connected by devices participating in multiple **PICONET**s.
- Here ,devices can be Slaves in all **PICONET**s or Master in one **PICONET** and Slave in other **PICONET**s.
- There is a '**BRIDGE**' connecting two **PICONET**s which is also a Slave in other **PICONET**.
- The major advantage of **SCATTERNET** is the ***multiple hop-route*** and ***higher throughput.***

# *SCATTERNET TOPOLOGY (contd…)*



# *SCATTERNET TOPOLOGY (contd…)*



# *HARDWARE ARCHITECTURE (contd…) :*

- CPU Core – Helps **Bluetooth** Module to **handle Inquiries** and **filter page request** (not involving host device).

- Link Manager – LM software runs on CPU core.LM discovers other remote LMs and communicates to them via **LMP** (Link Manager Protocol).

- Bluetooth module also incoperates higher level software protocols, governing the functionality with other modules.

## *MERITS & DEMERITS OF BLUETOOTH :*

❑***MERITS :***

- Low cost
- Low power consumption
- Wireless technology
- Low maintenance cost
- Easy link establishment
- Reasonable throughput

❑***DEMERITS :***

- Short range (10 – 100m)
- Speed
- Short life

## *BLUETOOTH BASED DEVICES (APPLICATION) :*

- BLUETOOTH IN ELECTRONICS

## *APPLICATION (contd…)*

•BLUETOOTH IN MEDICAL DEVICES

Stethoscopes

Glucose Monitors

Pulse Oximeters

- With the help of these divices various data can be collected and can be sent directly to the computer to keep a daily track of patients heart beat,blood sugar levels etc.

# *REFERENCES*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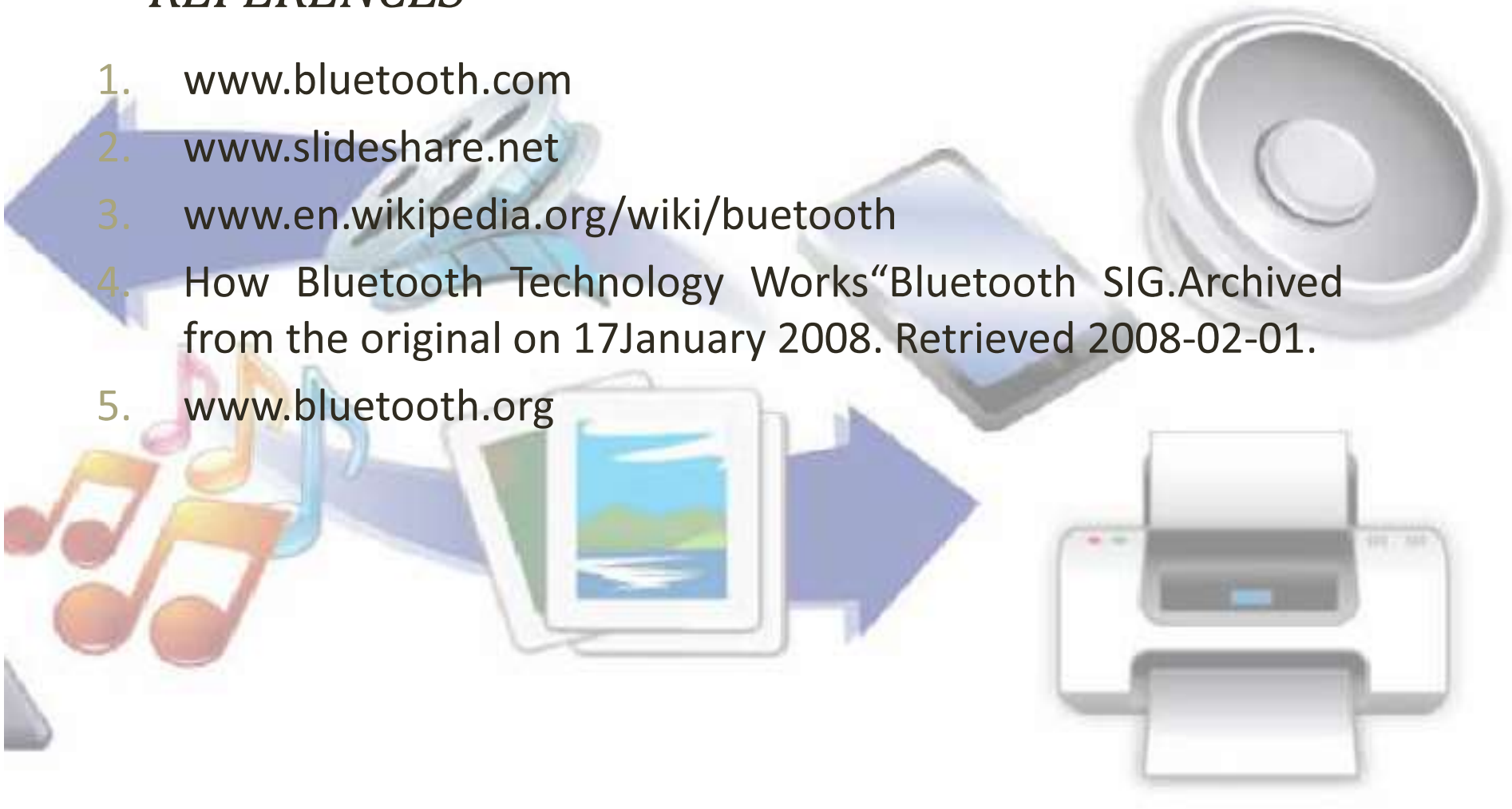


Thank you ...

# ANY QUESTIONS??