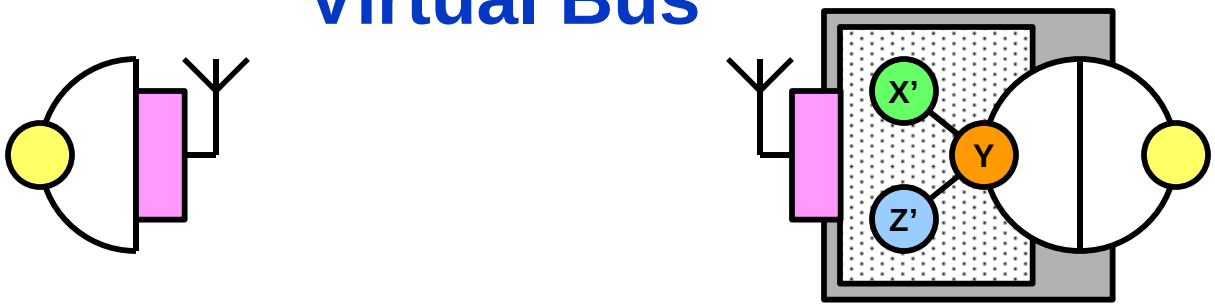
1394 Wireless Bridge with Virtual Bus



A Solution to Wireless Connections in Multi-Bus Network

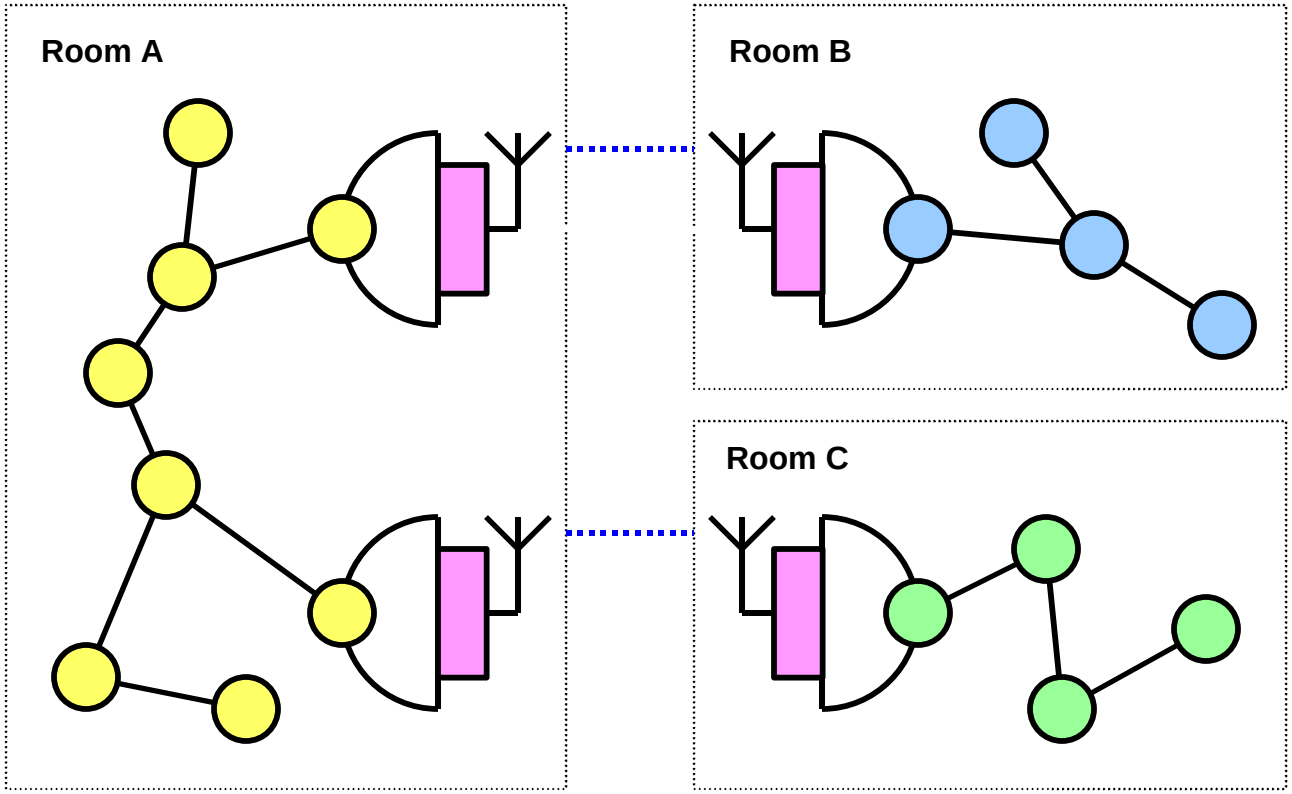
Takashi Sato

Philips Research Briarcliff

PHILIPS

Limitations - Dumb Wireless 2-Portal Bridge

- ***2 (n - 1)*** **Wireless Terminals are required to connect *n* buses together**

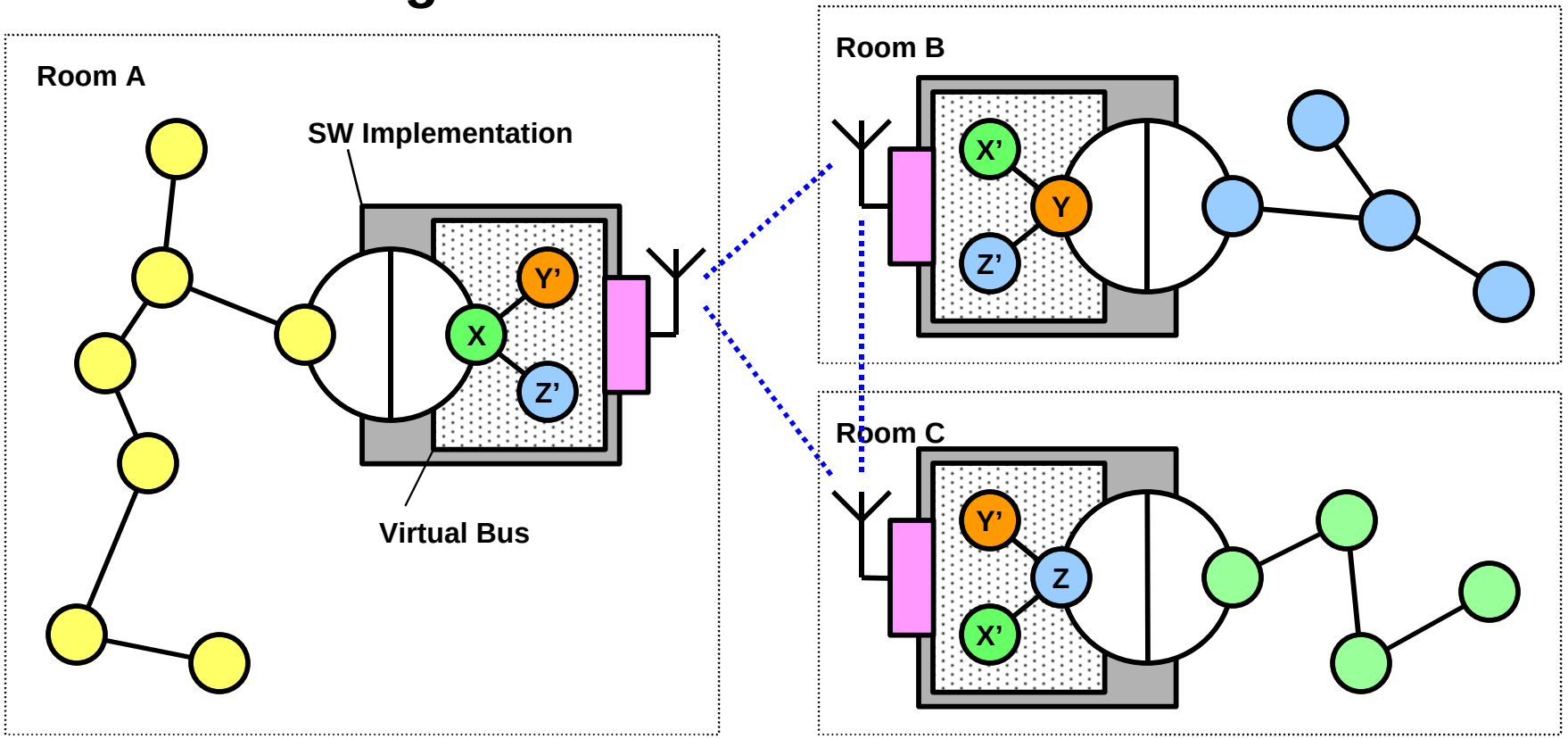


Expensive! **Non-User-Friendly!**

PHILIPS

Solution - Wireless Bridge with Virtual Bus

- **Only *n* Wireless Terminals are required to connect *n* buses together**

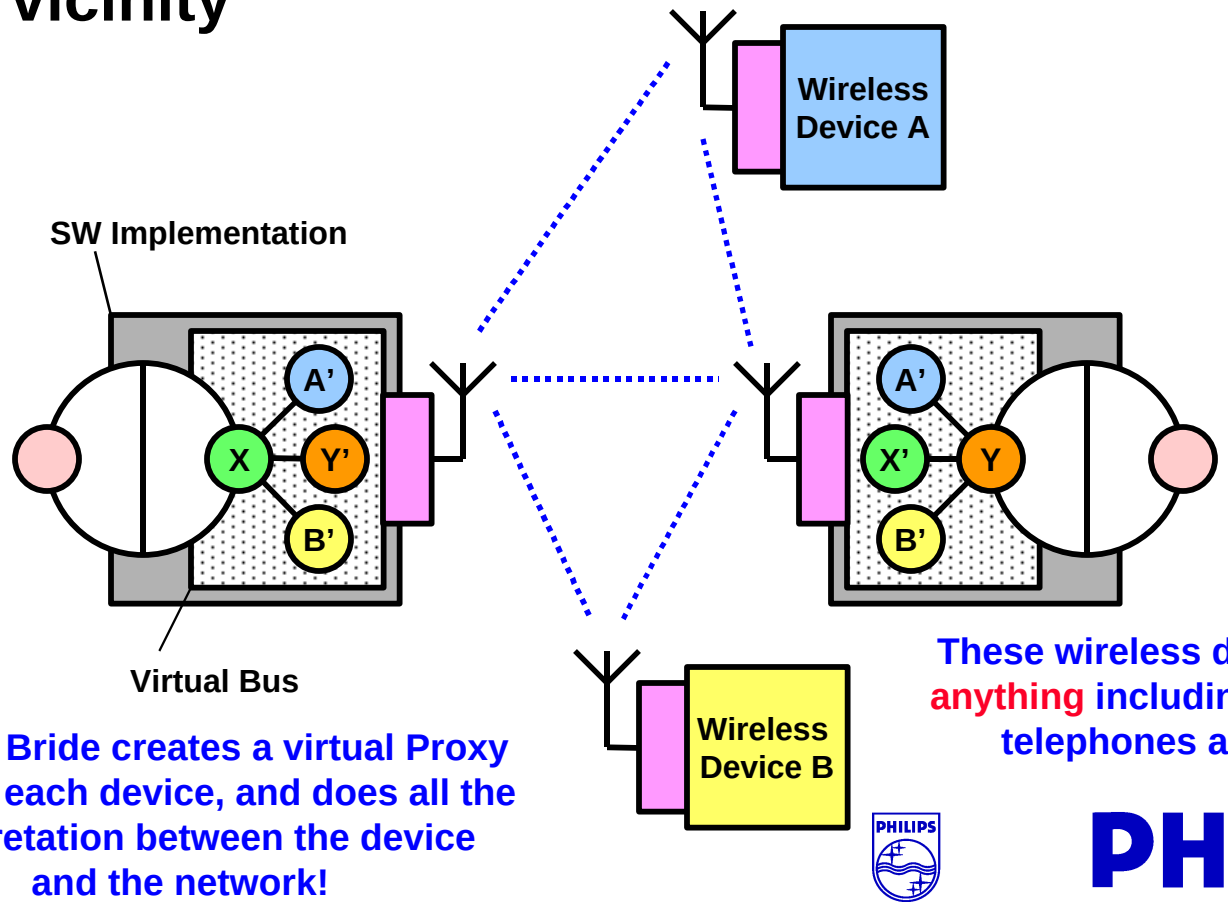


Less Expensive! **User-Friendly!**

PHILIPS

Flexibility - Wireless Bridge with Virtual Bus

- **Wireless Bridge dynamically adjust it's Virtual Bus model, according to the wireless devices in its vicinity**



Wireless Bride creates a virtual Proxy node for each device, and does all the interpretation between the device and the network!

These wireless devices could be anything including dumb wireless telephones and speakers!

PHILIPS

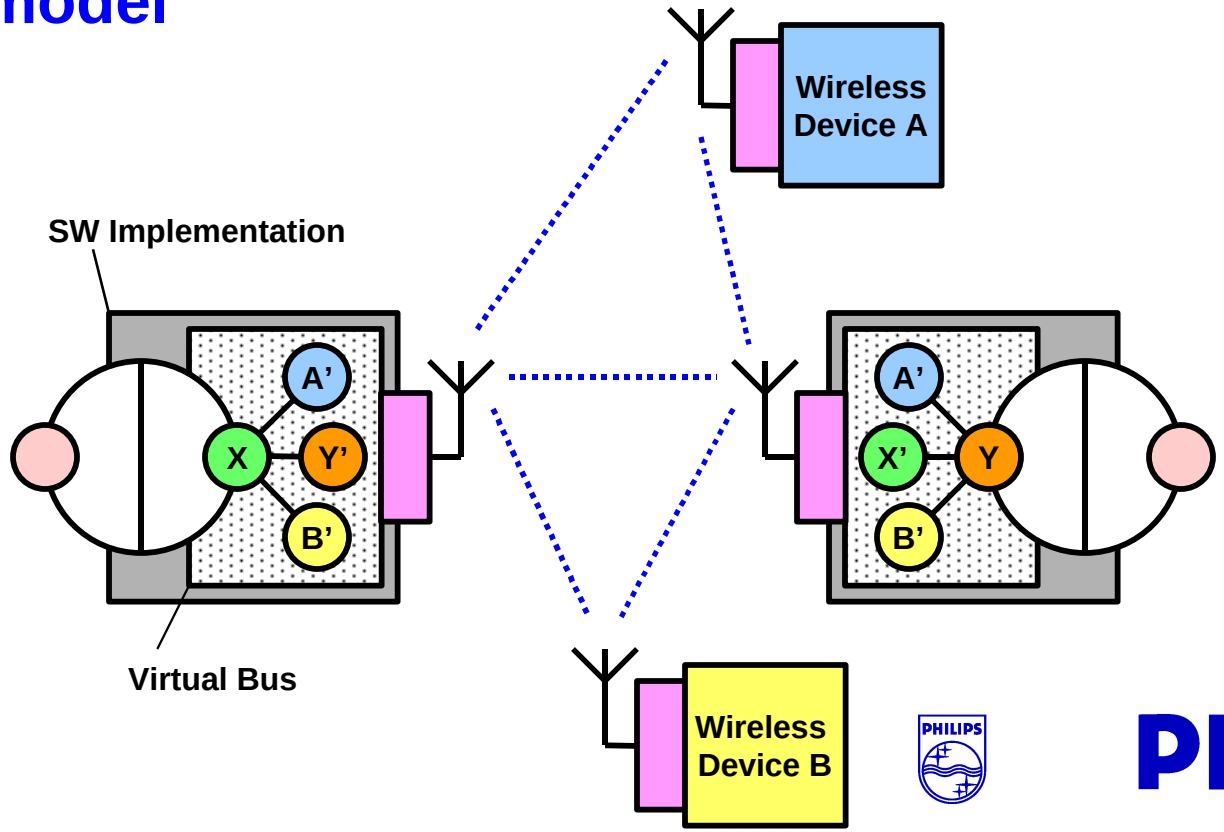
Advantages - Wireless Bridge with Virtual Bus

- **Only 2-Portal Bridge Model Needed**
- **More Intuitive - One Bridge per Room (or Bus)**
- **Less Cost - Less Number of Devices in Network**
- **Dynamically Scalable - Can Connect Any Number of Buses or Individual Wireless Devices to The Network**
- **Flexible - Can Connect Any Number of Buses or Individual Wireless Devices to The Network**
- **Comparable HW Complexity - Comparable to Dumb Wireless 2-Portal Bridge**

PHILIPS

Conclusion

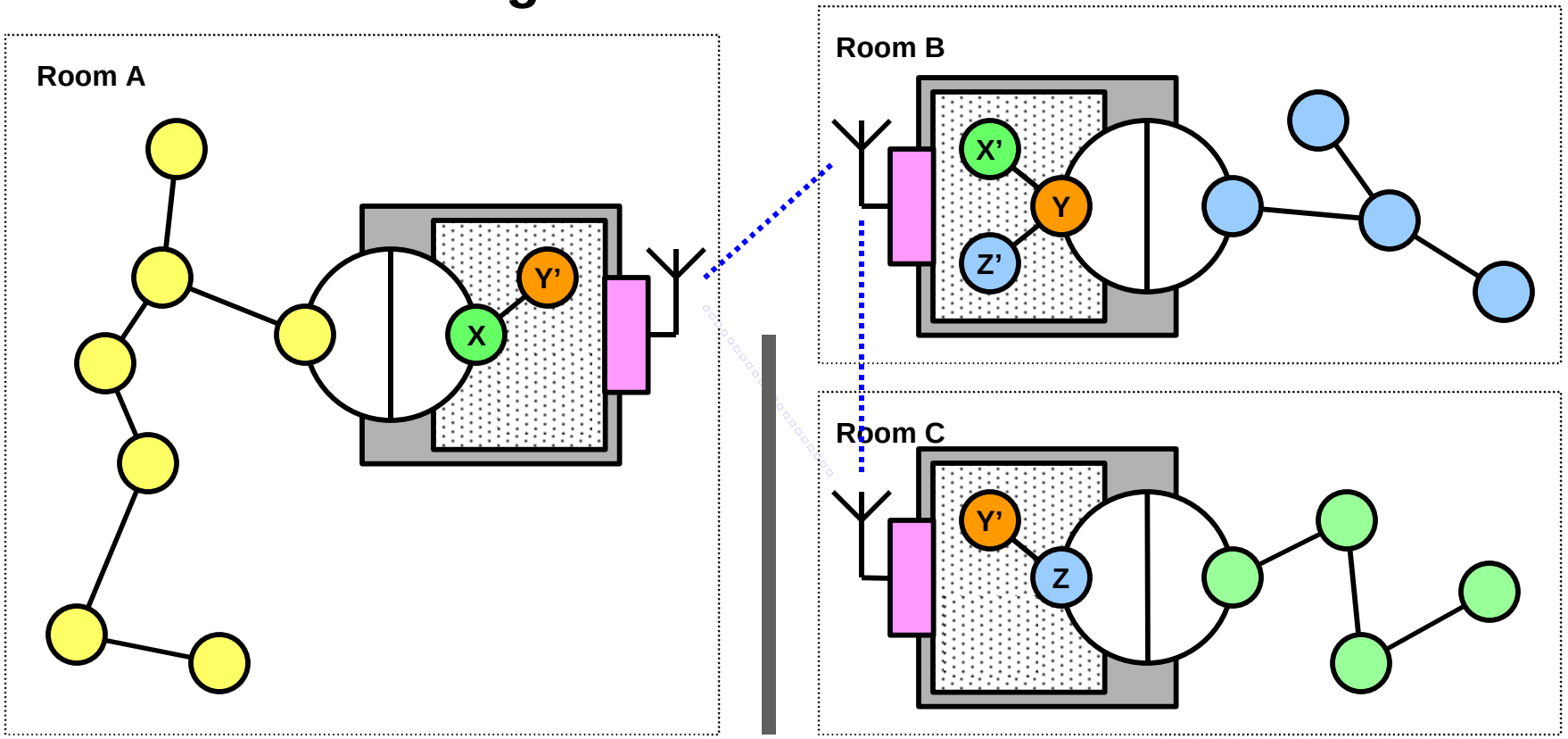
- **Wireless Bridge with Virtual Bus provides Maximum Flexibility and Expandability to The Network without needing a multi-portal bridge model**



PHILIPS

Considerations - Wireless Bridge with Virtual Bus

- **What if not all wireless terminals are communicating to one another?**



Is this a problem? **Let's think about it!**

PHILIPS

Considerations - Wireless Bridge with Virtual Bus

- **What if not all wireless terminals are communicating to one another?**
  - **Can Phy ID be non-contiguous?**
  - **Does each Bridge Portal have to support 64-bit NODE_ENTRY Register to identify existing nodes on the local bus?**
  - **Can Virtual Phy ID of a wireless device can be different in each Viutrual Bus?**
  - **Will it be a problem if a wireless device is represented differently in each Virtual Bus?**
  - **Can each Wireless Bridge create a Virtual Bus as it sees it?**
  - **more questions?**

PHILIPS