

# Definisi Mobile Computing

Pertemuan Minggu ke-2

# Outline

- Definisi Mobile Computing
- Perkembangan H/W
- Perkembangan Mobile Computing
- Aplikasi Mobile Computing
- Konsep Mobile Computing

# Mobile Computing

- Mobile computing merupakan paradigma baru dari teknologi yang mampu melakukan komunikasi walaupun user melakukan perpindahan
- Merupakan kemajuan teknologi komputer, sering disebut sebagai mobile computer (*portable computer*) yang dapat berkomunikasi dengan jaringan tanpa kabel
- Lihat slide pertemuan minggu I

# Perkembangan H/W



**Compaq Luggable**  
~ 1987



**Compaq iPaq**  
~ 1999



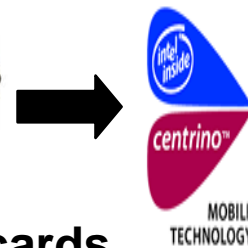
**IBM Linux Wristwatch**  
~ 2000



**NCR WaveLan**  
915 Mhz, ISA  
~1990

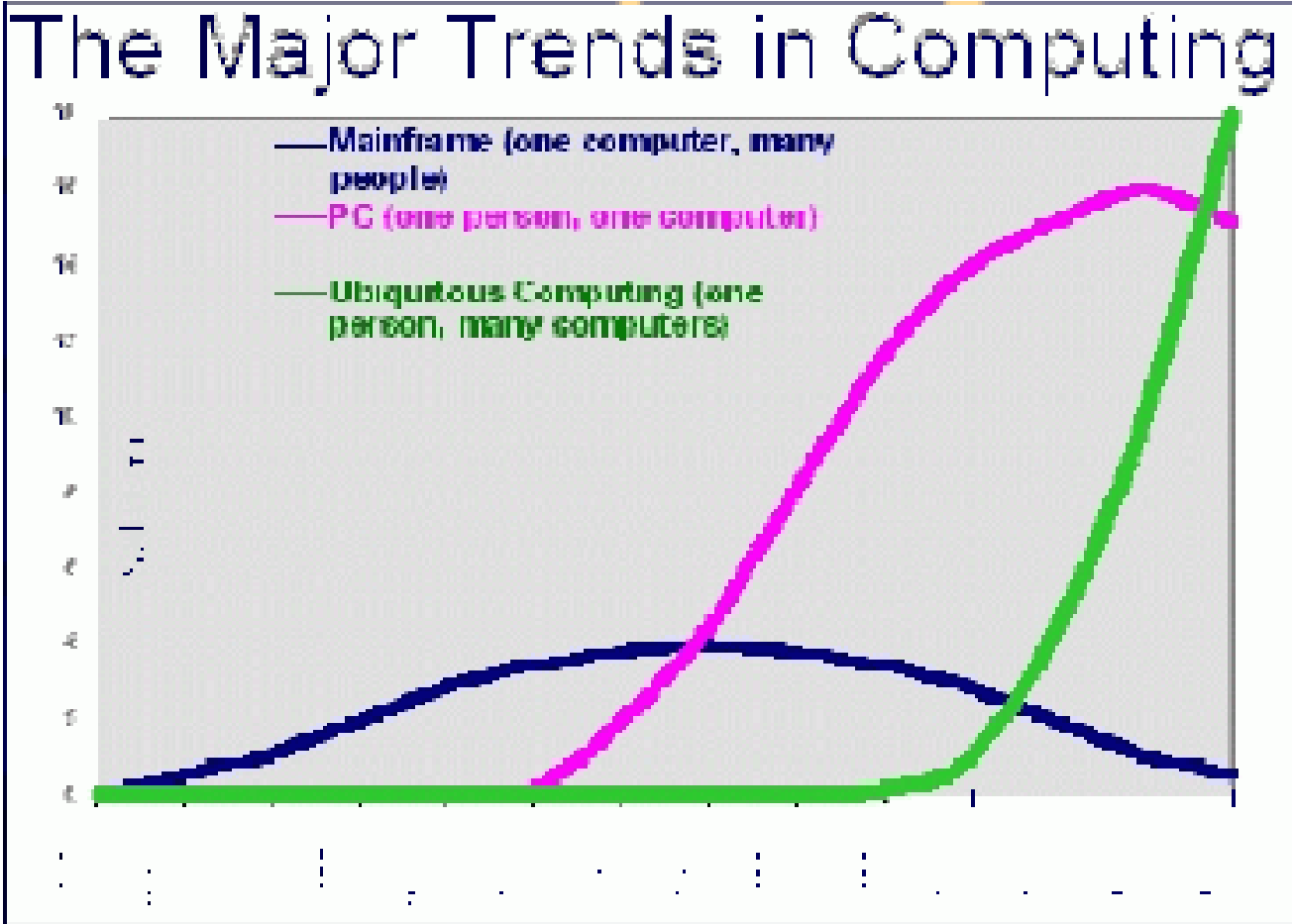


**802.11b PC cards**  
~ 1999



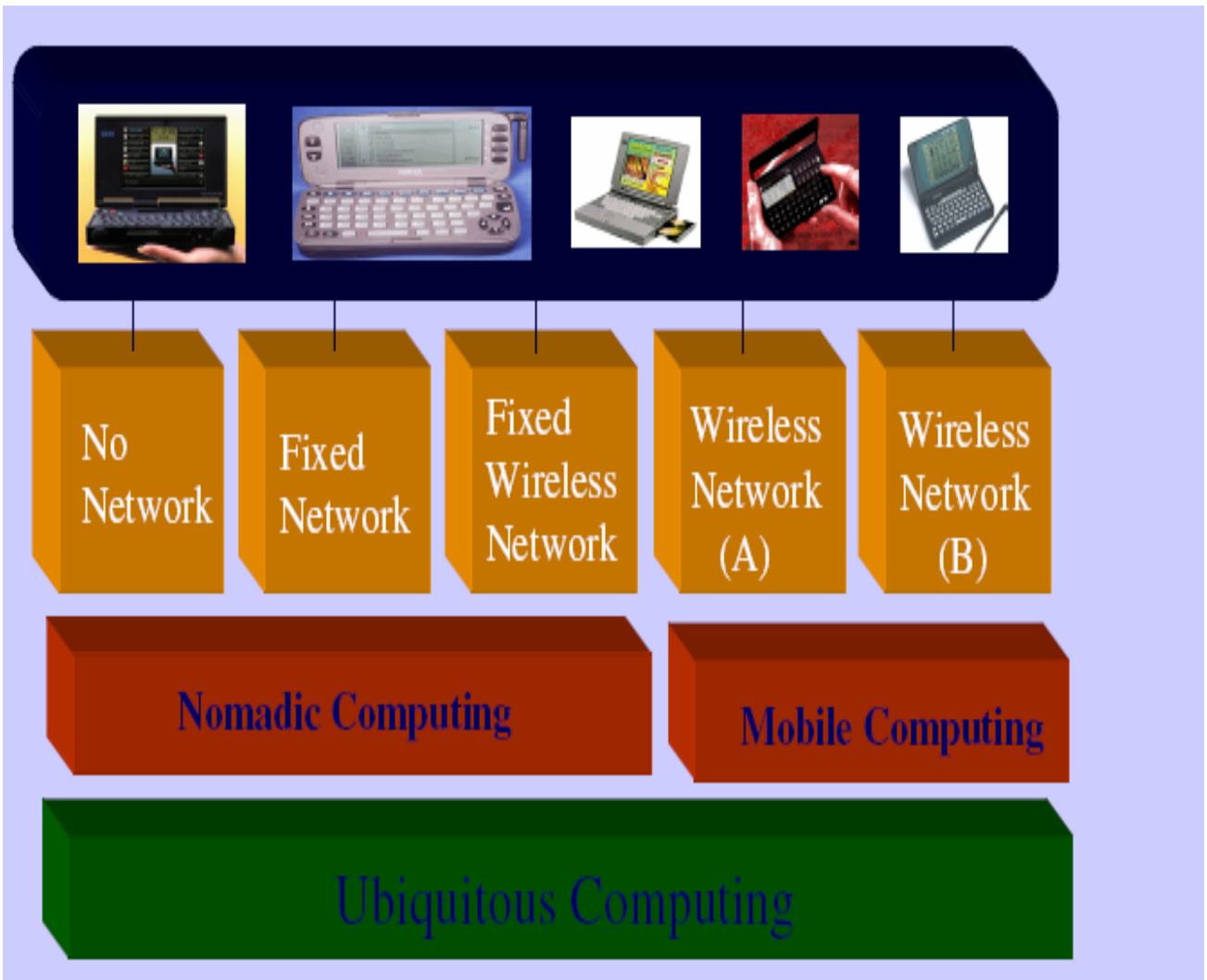
~2003

# Trend Perkembangan H/W

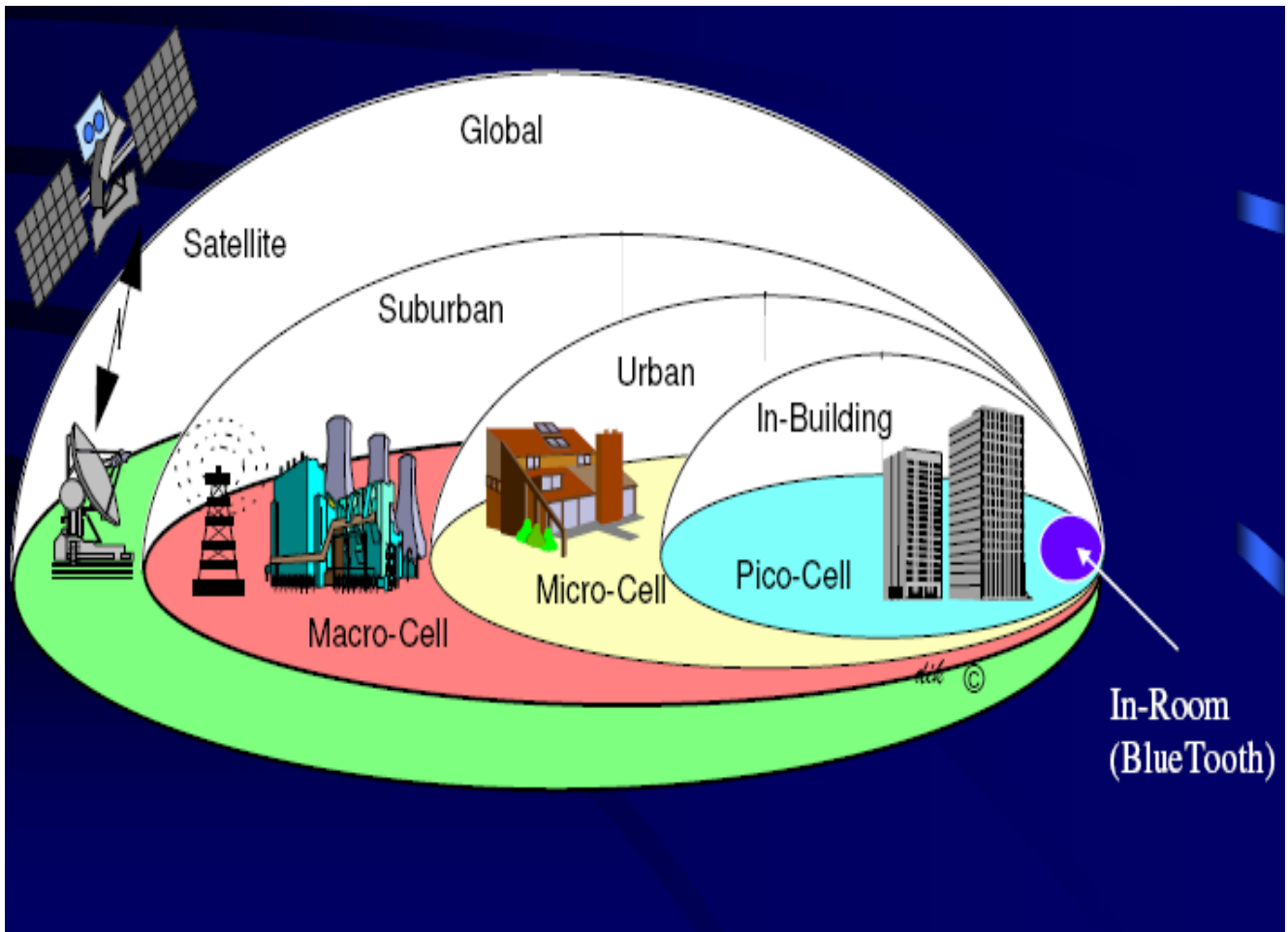


<http://www.ubiq.com/hypertext/weiser/UbiHome.html>

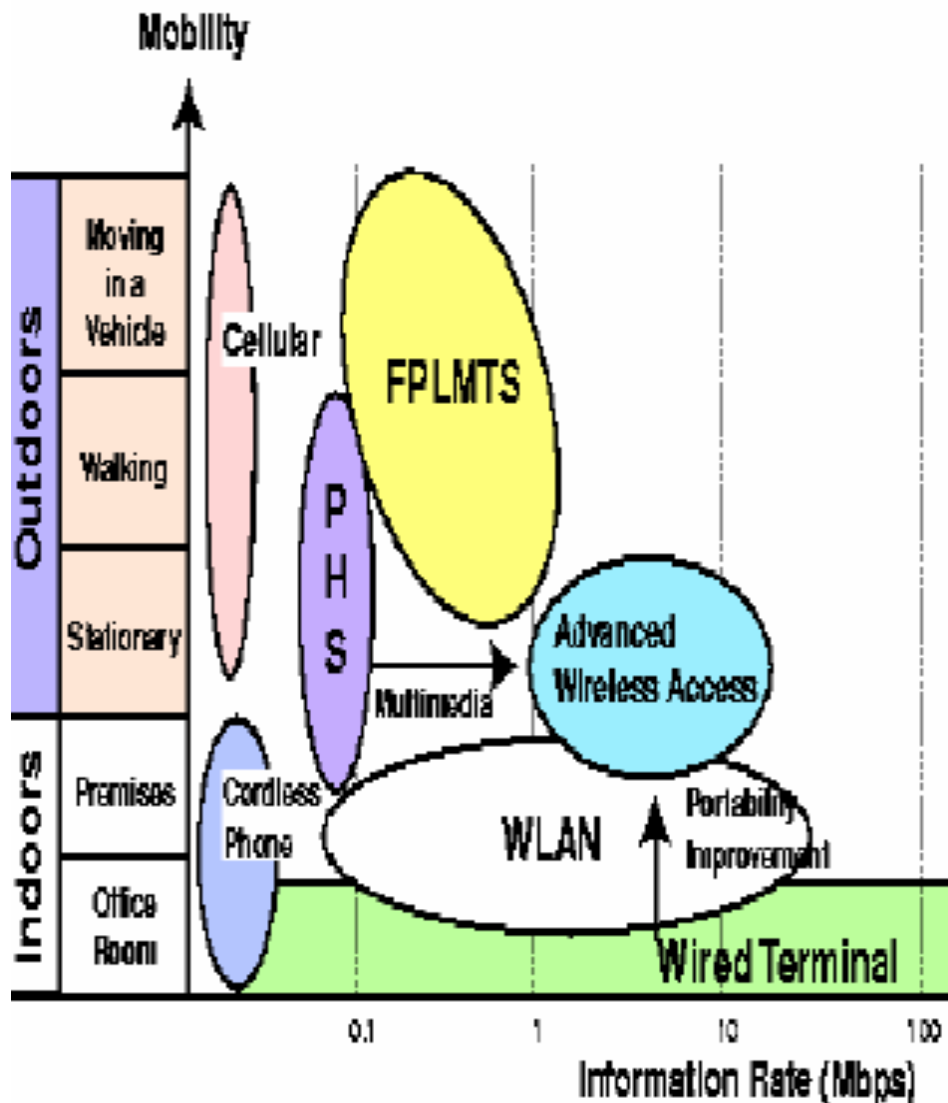
# Nomadic, Mobile, & Ubiquitous



# Impressive Wireless Infrastructure!

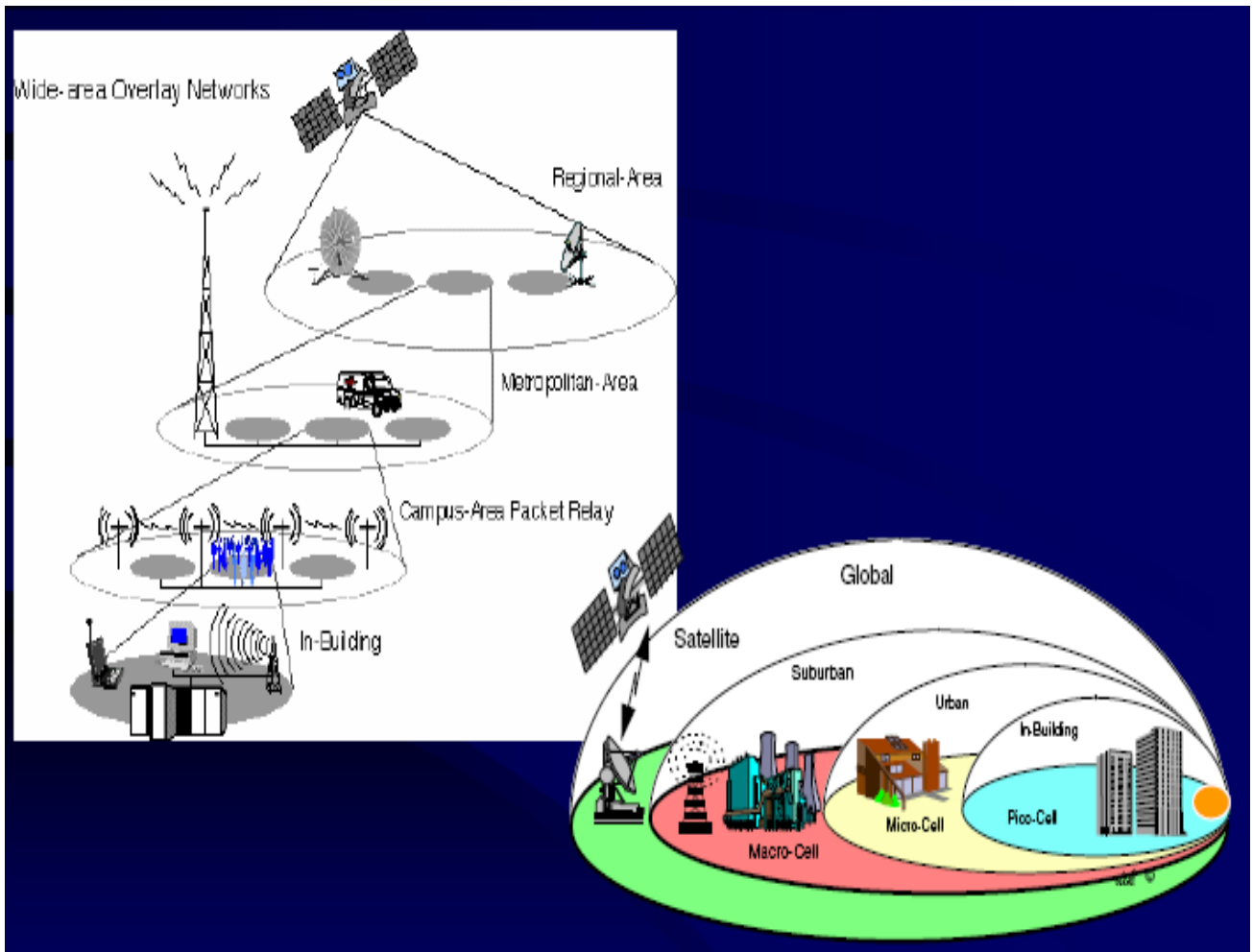


# Wireless Communication Technology

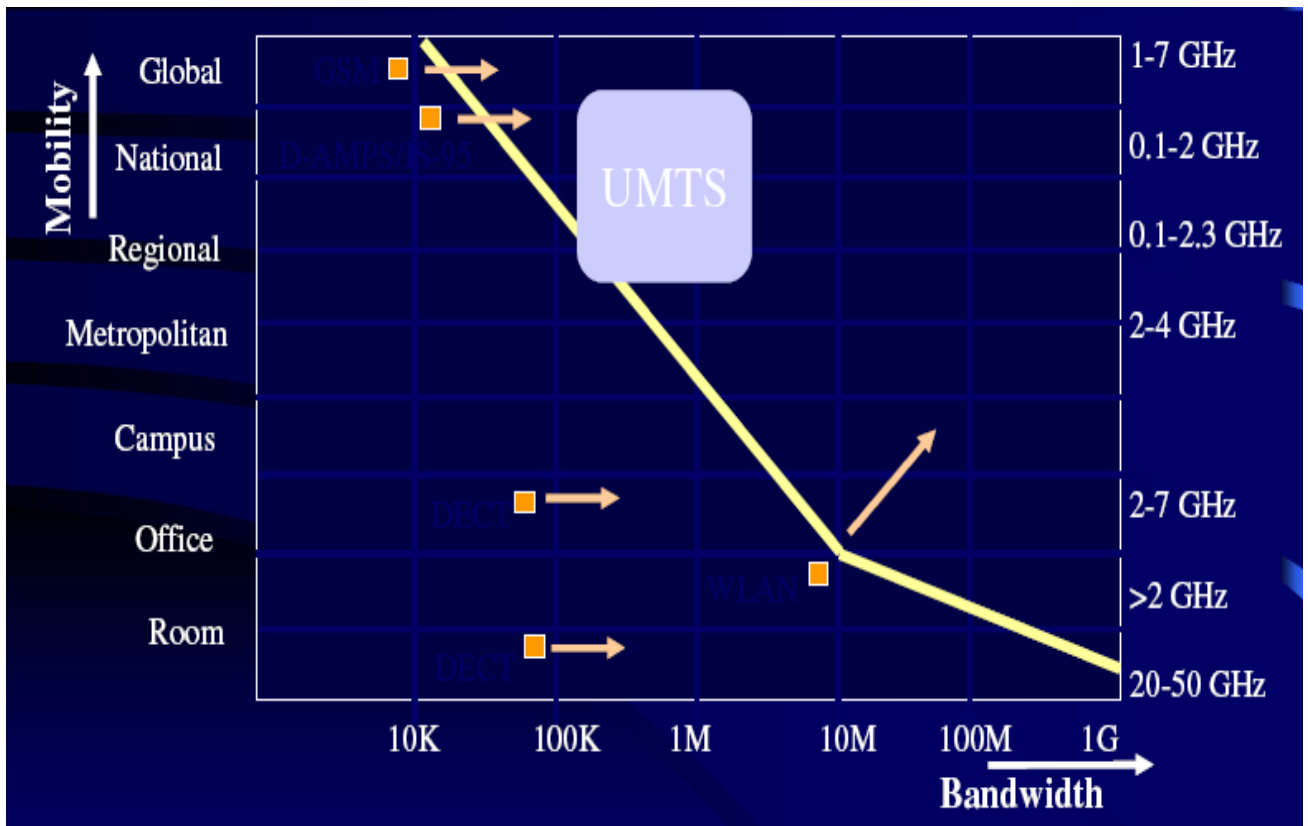




# Wireless Network Overlay

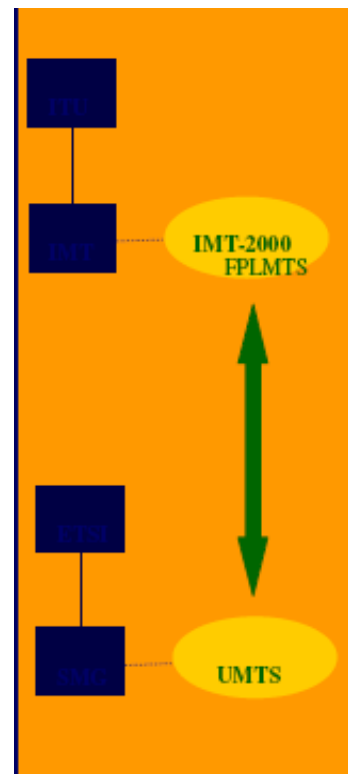


# Wireless Network Convergence 2G/3G Mobility-Bandwidth Trade-off



# UMTS: Universal Mobile Telecomm. Standard

- Global seamless operation in multi-cell environment (SAT, macro, micro, pico)
- Global roaming: multi-mode, multi-band, low-cost terminal, portable services & QoS
- High data rates at different mobile speeds:
  - 144kbps at vehicular speed (80km/h), 384 kbps at pedestrian speed, and 2Mbps indoor (office/home)
- Multimedia interface to the internet
- Based on core GSM, conforms to IMT-2000
- 2000. Deployment as early as 2002.



# Perkembangan MC

## Motorola Marco



# Perkembangan MC

## Motorola Envoy



# Perkembangan MC

## Palm



# Perkembangan MC

## Pocket PC





# Perkembangan MC

## Nokia Communicator 9000





# Perkembangan MC

- Zaurus



# Perkembangan MC

- Clio



Clio™   
The ideal PC Companion

# Perkembangan MC

- Tablet Fujitsu



# Perkembangan MC

- Sub Notebook



# Perkembangan MC

- Notebook



# Perkembangan MC

- Rputer



# Perkembangan MC

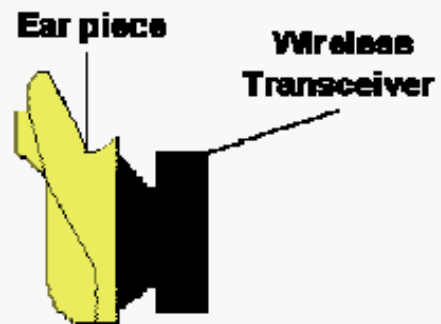
- PHS Phone Jepang, 2001



# Perkembangan MC

## Ear Phone

- Hearing aid form factor
- Integrated microphone & speaker
- Low power / short range RF (like Blue Tooth)
- Embedded IP address
- Voice processing: external to unit, controlled by software agents





# Perkembangan MC

## Wearable Computer



# Aplikasi MC di Berbagai Bidang



# Konsep Mobile Computing

## ■ Identification

- **Subscriber mobility: 700 phone number**
- **Terminal mobility: mobile phone # or IP address**
- **Application mobility**

## ■ Registration

- **Authentication: who are you?**
- **Authorization: what can you do?**
- **Allocation: how much will I give you?**

## ■ Call/Connection Establishment

- **Mobile Routing: Mobile IP, Cellular System HLR/VLR**
- **Resource Reservations: Reserve channels in advance**
- **Location Update: forward vs. hierarchy**

# Konsep Mobile Computing

## ▪ Mobility

- Handoff: when to do it, choice of network
- Process Migration: application support infrastructure that follows the mobile

## ▪ Privacy and Security

- Authentication
- Authorization
- Encryption: over-the-air security