# What are Killer Applications in Pervasive Computing?

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# Pervasive Computing: Human-centric approaches

- User View: Invisible Computing
  - User's attention is the valuable resource
  - Minimize user configuration/maintenance/interaction
  - Robust, reliable, safe, and trustworthy
  - Devices, middleware and applications ⇨ services
- Technology View: Intelligence Environment
  - Computing Everywhere ---- Embedded into every objects including fridges, washing machines, door locks, cars, furniture …
  - Global Service ---- Provide any service at any place over any time
  - Context Adaptation ---- Transparently and adaptively adjust service behavior according to context evolution

# Mobile and wireless services – Always Best Connected

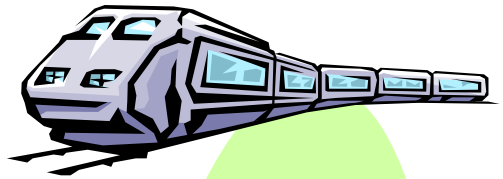
LAN, WLAN
780 kbit/s
Broadband:

GSM/EDGE 384 kbit/s,
WLAN 780 kbit/s

GSM 53 kbit/s
Bluetooth 500 kbit/s

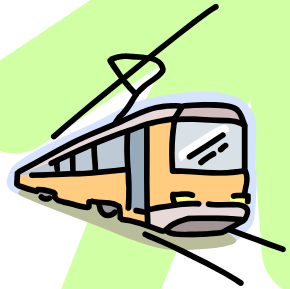
GSM 115 kbit/s,
WLAN 11 Mbit/s
WiMax.??

UMTS, GSM
115 kbit/s



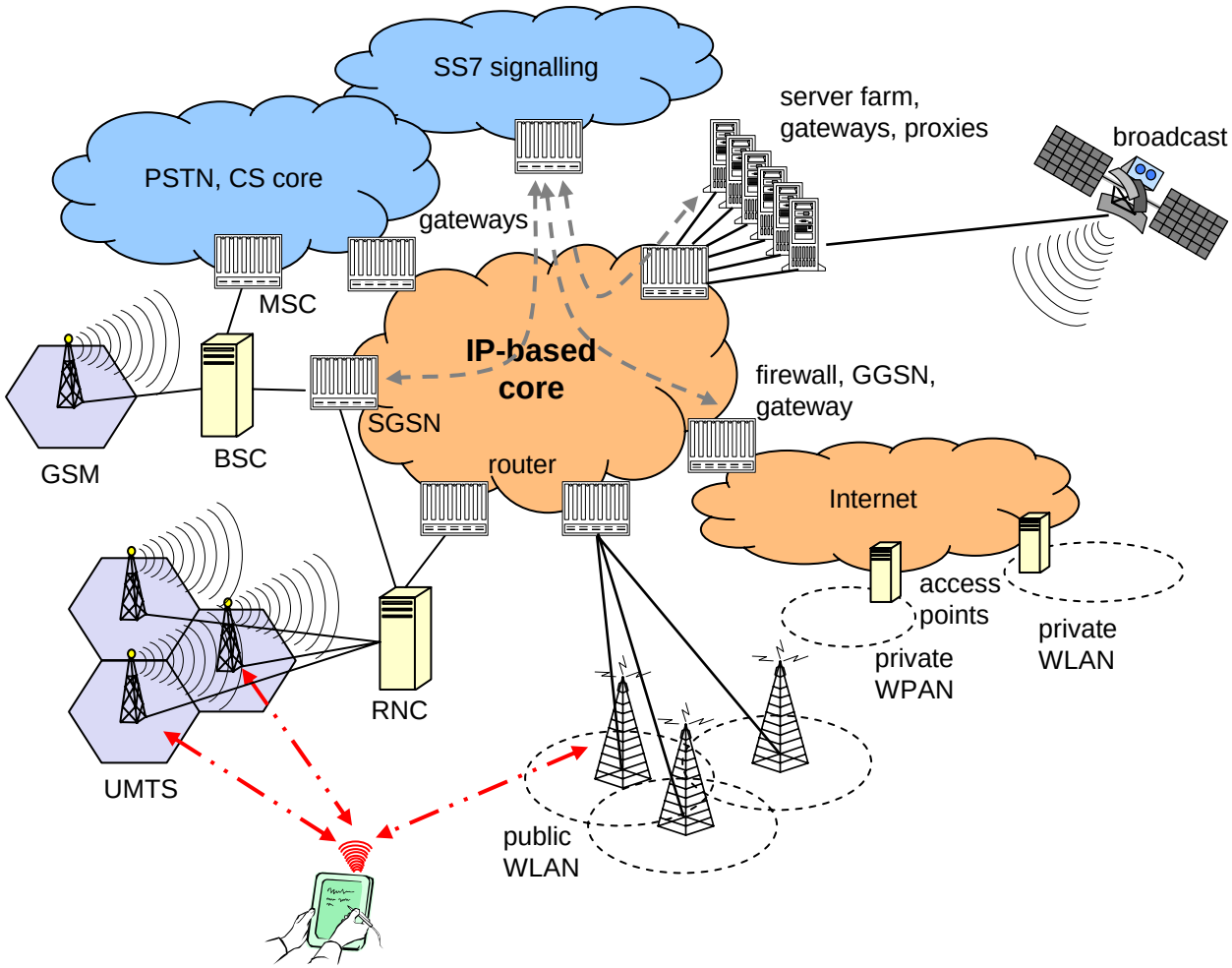
UMTS, GSM
384 kbit/s

LAN
100 Mbit/s,
WLAN
54 Mbit/s



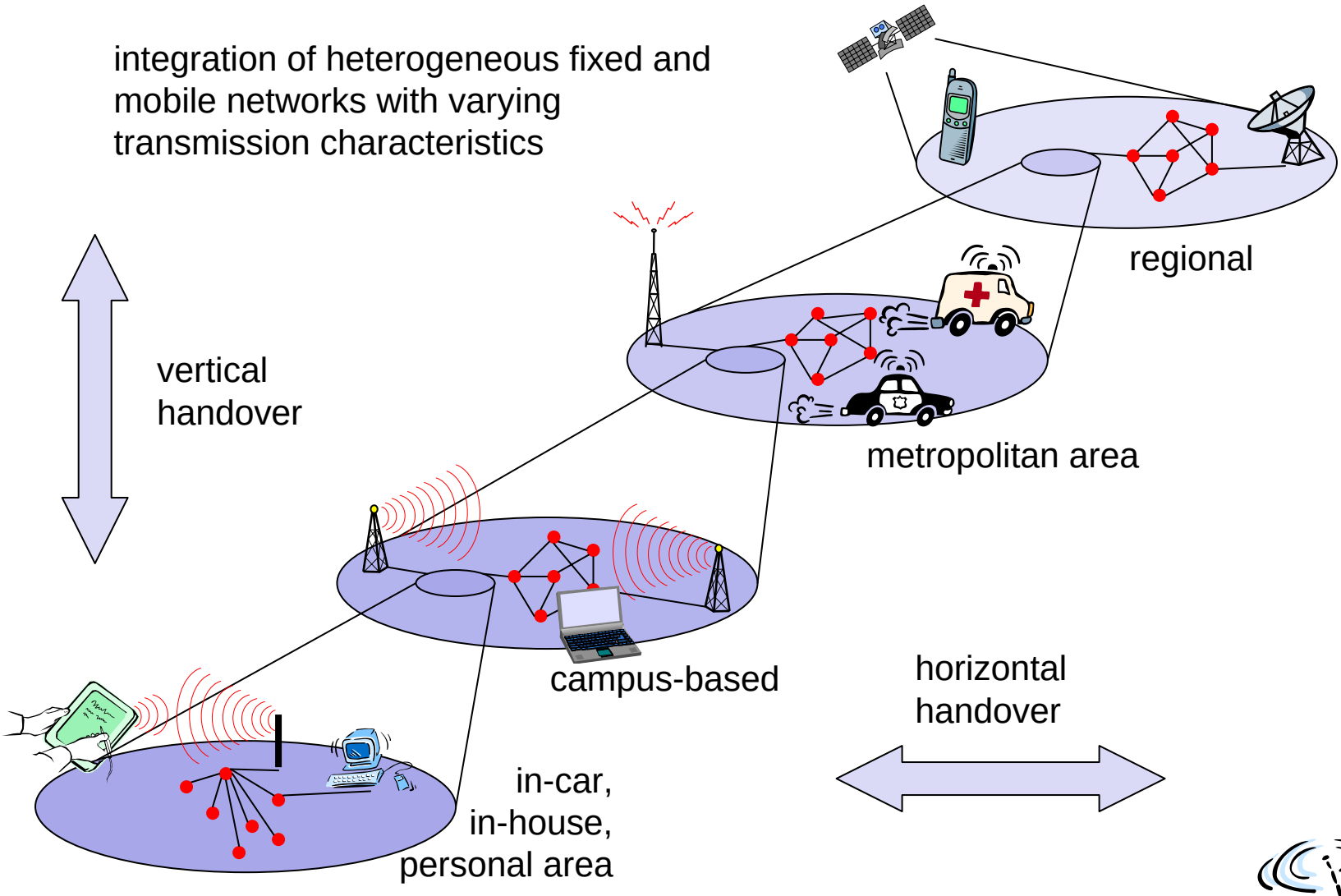
UMTS,
DECT
2 Mbit/s

# Example IP-based 4G/Next G/… network

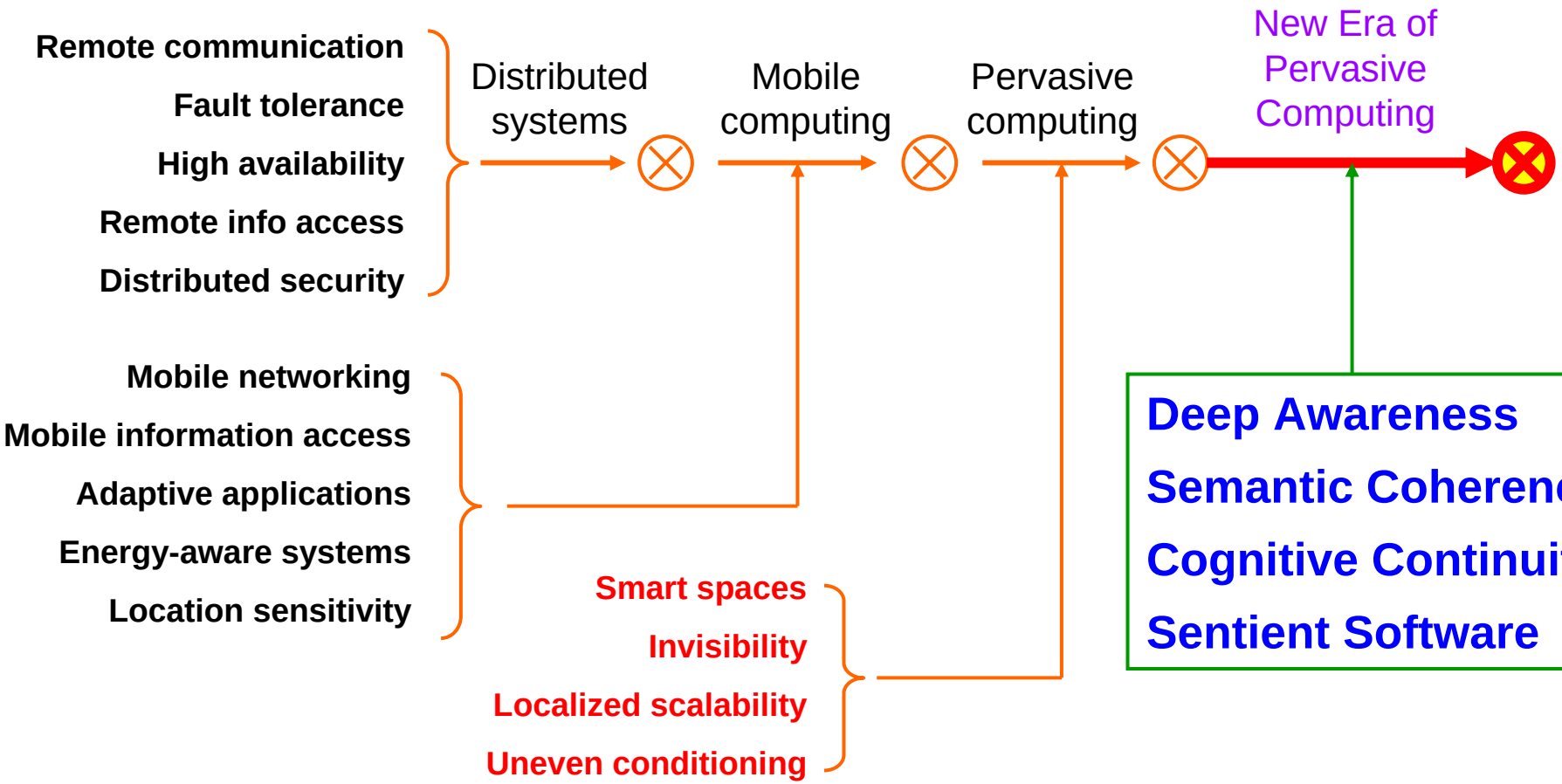



# Overlay Networks - the global goal

integration of heterogeneous fixed and mobile networks with varying transmission characteristics



# The Pervasive Expedition




**"Pervasive Computing: Vision and Challenges"**
**M. Satyanarayanan [CMU, Aura Project, 2001]**

# Potential Problems

Quality of service

- Today‘s Internet is best-effort
- Integrated services did not work out
- Differentiated service have to prove scalability and manageability
- What about the simplicity of the Internet? DoS attacks on QoS?

Internet protocols are well known…

- …also to attackers, hackers, intruders
  - security by obscurity does not really work, however, closed systems provide some protection

Reliability, maintenance

- Open question if Internet technology is really cheaper as soon as high reliability (99.9999%) is required plus all features are integrated

Missing charging models

- Charging by technical parameters (volume, time) is not reasonable
- Pay-per-application may make much more sense

# Killer applications?

Choice of services and seamless access to networks determine the success

## Two Views of Pervasive Applications:

### The Engineering View:

**Make it Work:-**

- **Better**
- **Faster**
- **More Reliably**

### The Business View

- **Make it Make Money**

# Panellists

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