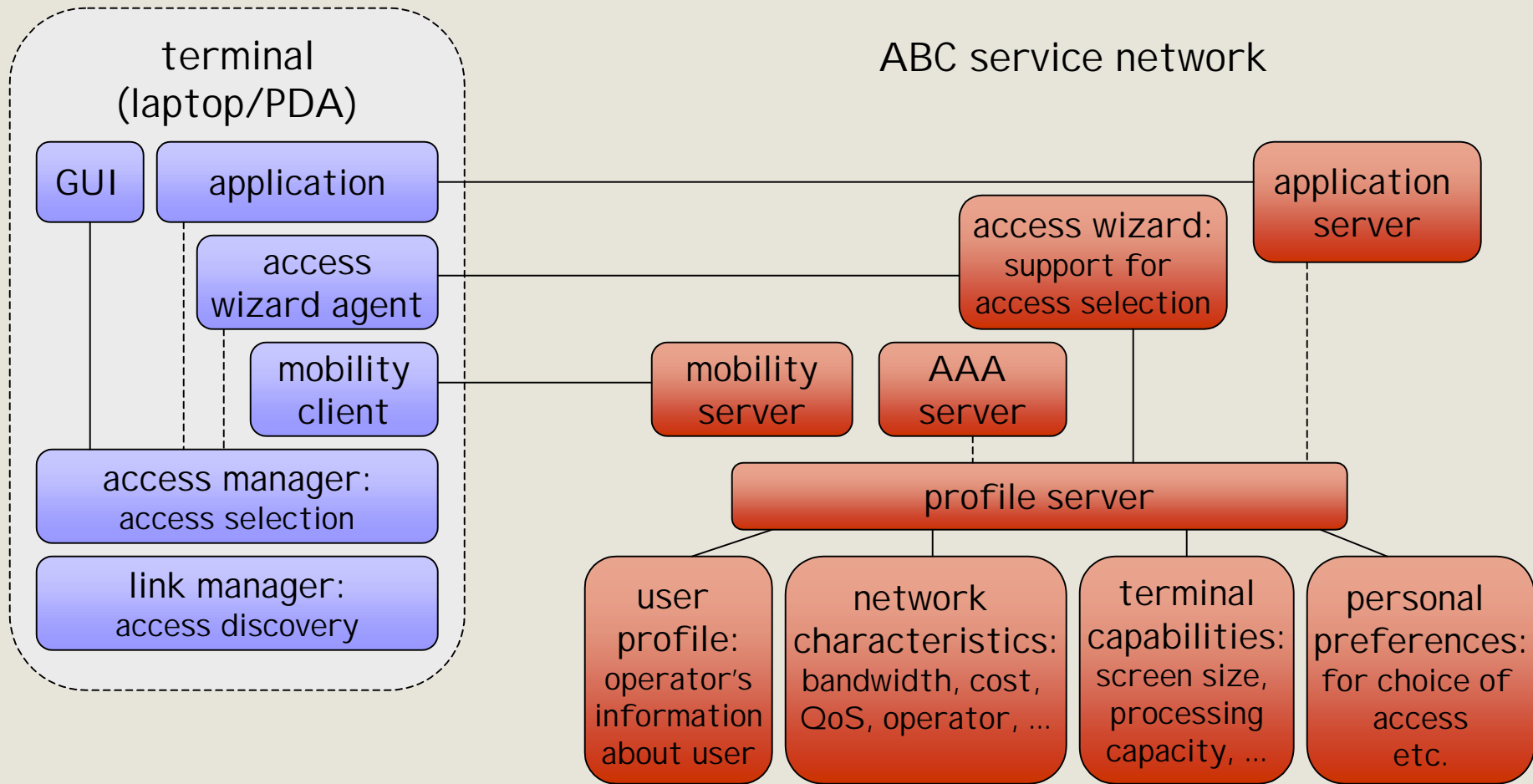# Always Best Connected
Research Issues

Eva Gustafsson
Ericsson Research

eva.gustafsson@ericsson.com

Always Best Connected – ABC Research Issues

- Access discovery
- Access selection
- Single logon
- Mobility management
- Content adaptation
- PAN
- MANET
- NEMO

ABC Functional Architecture

ERICSSON

terminal
(laptop/PDA)

ABC service network

GUI

application

access
wizard agent

mobility
client

access manager:
access selection

link manager:
access discovery

access wizard:
support for
access selection

application
server

mobility
server

AAA
server

profile server

user
profile:
operator's
information
about user

network
characteristics:
bandwidth, cost,
QoS, operator, ...

terminal
capabilities:
screen size,
processing
capacity, ...

personal
preferences:
for choice of
access
etc.

ABC Research Issues

- Access discovery:
    - discover available access networks and/or access devices
    - determine their characteristics: IP connectivity to server, network technology, cost, bandwidth, QoS, power consumption, access network operator, security level, coverage…

- Access selection:
    - select best access network & device
    - policies & algorithms to combine access/device characteristics, user preferences, application requirements, operator policies…
    - network-, terminal-, user-based decision
    - prototyping in ABC: access wizard & profile server

ABC Research Issues

- Single logon:
  - logon to one access network
  - roaming takes care of next access
  - based on AAA infrastructure
- Mobility management:
  - session continuity between access network (SLM, Mobile IP)
  - session transfer between devices
  - simultaneous use of several access networks (performance and security reasons)
  - mobility integrated with single logon
- Content adaptation:
  - application content adapting to access network & device
  - make use of profile server & databases

ABC PAN, MANET & NEMO
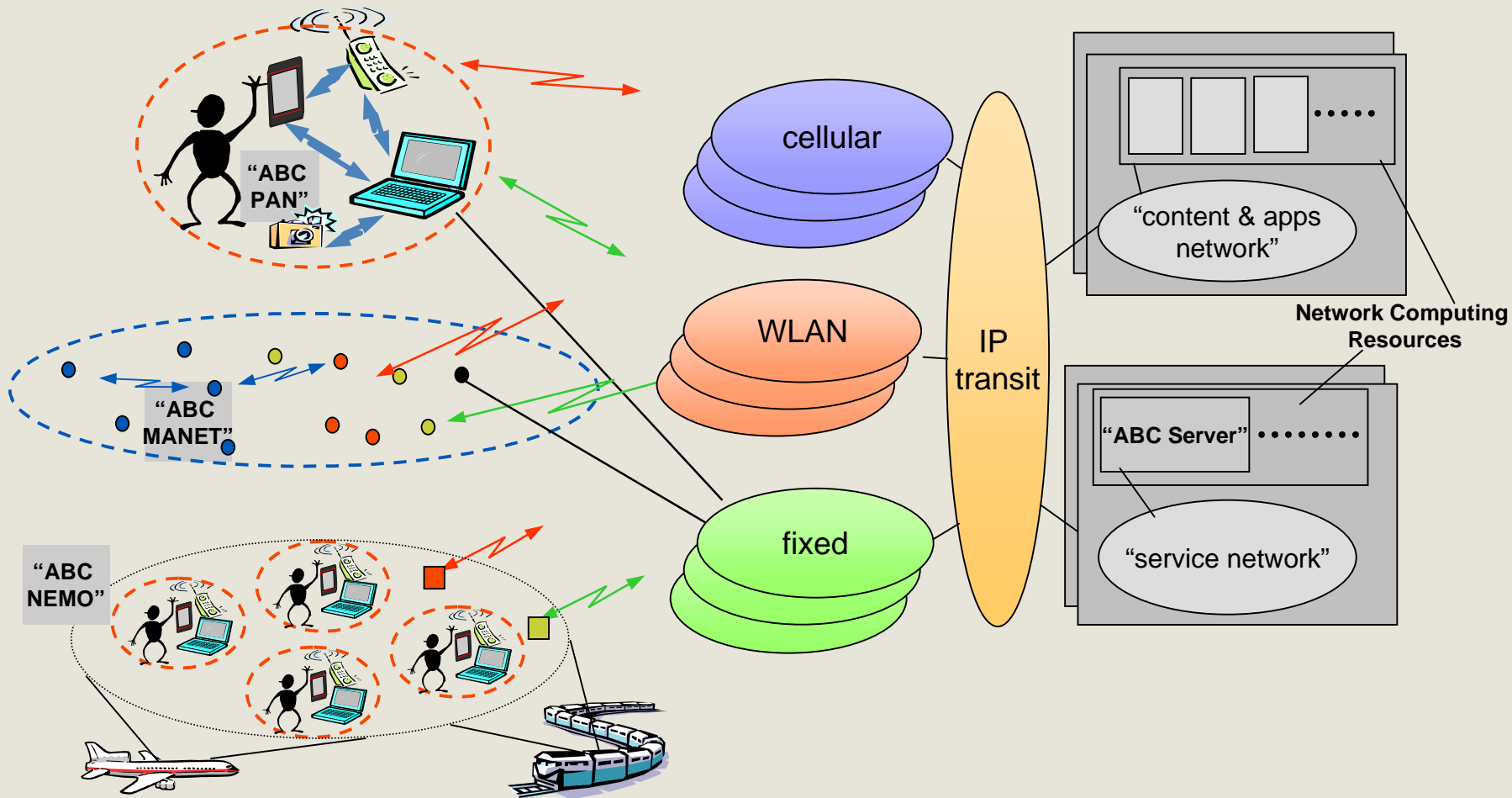
ABC Research Issues

- PAN:
  - any device in PAN uses the best access network
    - typical two-hops
    - PAN connectivity Bluetooth or 802.11b
  - mix of local and external PAN traffic
  - architecture & its impact on ABC functionality?
  - access discovery & selection one hop away?
  - single logon from PAN?
  - content adaptation?
- MANET:
  - low power networking (routing, applications etc.)
  - mix of mobile/static nodes

ABC Research Issues

- NEMO:
  - single users or PANs connect to mobile networks (train, airplane…)
    - WLAN for local & cellular for external connectivity
    - NEMO contains mobile router
    - hides mobility from NEMO users (e.g. through Mobile IP tunneling)
    - nested mobility for Mobile IP clients in NEMO (tunnel in tunnel)
  - impact on ABC functionality
    - ABC primarily used by NEMO provider?
    - access discovery & selection for mobile router
    - interaction with ABC users in NEMO?
    - peer-to-peer communication in NEMO?
    - mobility: maintain sessions for several users/PANs
    - security: each user part of separate VPNs