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## The Mobile Network Operator in the Future Internet

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# The Company NTT DOCOMO

- Japanese **mobile phone operator** with 51.5% market share (August 31, 2008)
  - We provide **voice communication** and **mobile multimedia services** (85% 3G customers; 90% i-mode subscribers, the world's most popular mobile internet service; August 31, 2008)
  - NTT DOCOMO is expanding into e-wallet and e-credit card services
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- **DOCOMO Euro-Labs** is located in Munich and contributes to the R&D activities of NTT DOCOMO



# The Internet Evolution

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- ➔ **Past**            The internet is available on **fixed devices**
  
- ➔ **Today**            The internet is available on **mobile devices**
  
- ➔ **Future**            **The mobile device is becoming part of the internet**
  - New services and applications
  - New network concepts

# Mobility as Part of the Future Internet

Key success factors for **mobility** in the future internet are:

1. Quality of service (QoS) with respect to **throughput, delay** and **reliability**

➤ Evolution from W-CDMA to **LTE** and **LTE-Advanced**

2. Attractive **tariffs**

➤ **Flat rate** subscription (Pake-Hodai)

# Future Internet Applications and Services

- The **mobile device** with broadband access and integrated video camera, positioning and navigation capability, high resolution display, and various types of sensors will become an **integral part of future services**
- The device can **gather** and **provide** broadband **information**, not yet available for internet services
- The broadband access enables to **shift computation** and **storing** capabilities **to the core network**
- With the mobile device as part of future services, the **user** gets empowered towards an **active role in future service** and **content** creation and provisioning
- This new services span the whole spectrum from **emergency scenarios, education, business** up to **private life**

➤ Prototype service:



[www.iyouit.eu](http://www.iyouit.eu)

# Future Network Concepts

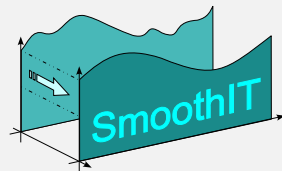
- 60 % to 80 % of today's internet traffic is from **peer-to-peer traffic**
- The peer-to-peer traffic is created by **overlay networks**
- Overlay networks can operate on top of **heterogeneous transport networks** (underlay networks)
- The **wireless network** is expected to play an increasing role in the heterogeneous transport network

➤ Challenge: **Optimize** the network by improved **interaction between overlay and underlay network**, building on the power of network virtualization

# Overlays with Economic Traffic Management

- ➔ Enable and optimize interaction between the overlay and underlay network **for the benefit of** the
  - **User**
  - **Operator**
  - **Overlay service provider**
- ➔ **Optimized routing** taking into account physical location, available bandwidth, actual traffic, costs, etc.
- ➔ **Motivation by incentives** for user, operator, and overlay service provider

- ➔ DOCOMO Euro-Labs is partner in the European FP7 project **SmoothIT**, which addresses **economic traffic management** in overly networks



[www.SmoothIT.org](http://www.SmoothIT.org)

Mobile Adventure

**Thank you**

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