UMOBILE Project, Expo Emergenze 2016
June 3-5, 2016
Bastia Umbra (PG), Italy

UMOBILE

Improve Internet pervasive access by:

• Moving from the traditional host-centric access paradigm to a data-centric model

• Creating a communication model robust to intermittent connectivity

HOW?

Combine two emerging networking paradigms:

- Information Centric Networking (ICN)
- Delay Tolerant Networking (DTN)

Integrate:

- Social trust computation
- Cooperative incentive modeling
- Individual and collective behaviour inference
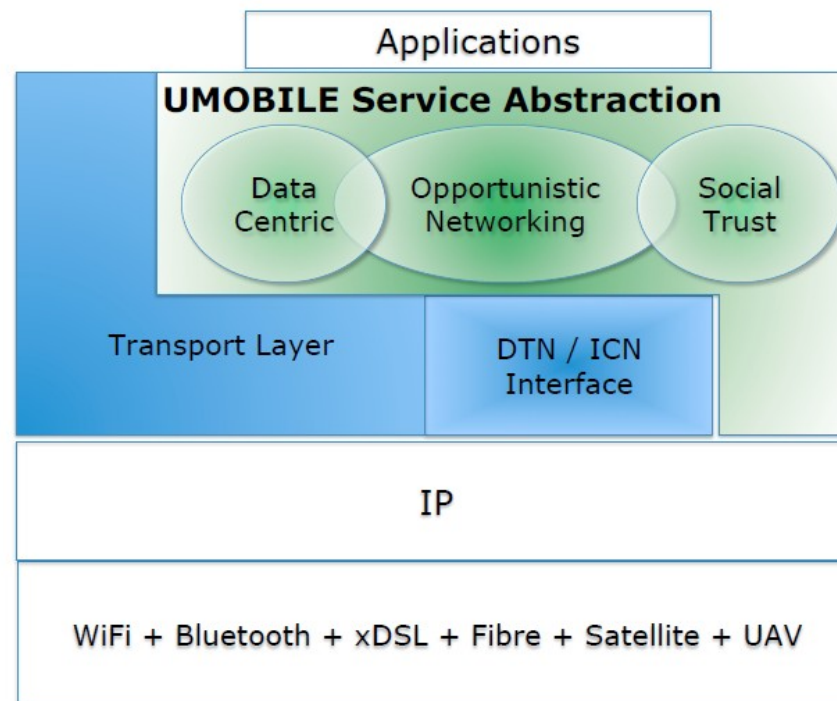
Information-centric communications

• Communications based on data interests expressed passively or actively by the user

• Uniform abstraction: simple API to request, capture, and make data available

• Pervasive caching policies

Intermittent connectivity support

• Flexible and resilient hybrid network that can work in both connected and disconnected environments

• A fine-grained quality-of-service abstraction for all applications, based on dynamic resource allocation

Trust-based networking

- Ensure adequate levels of motivation to engage in pervasive data sharing
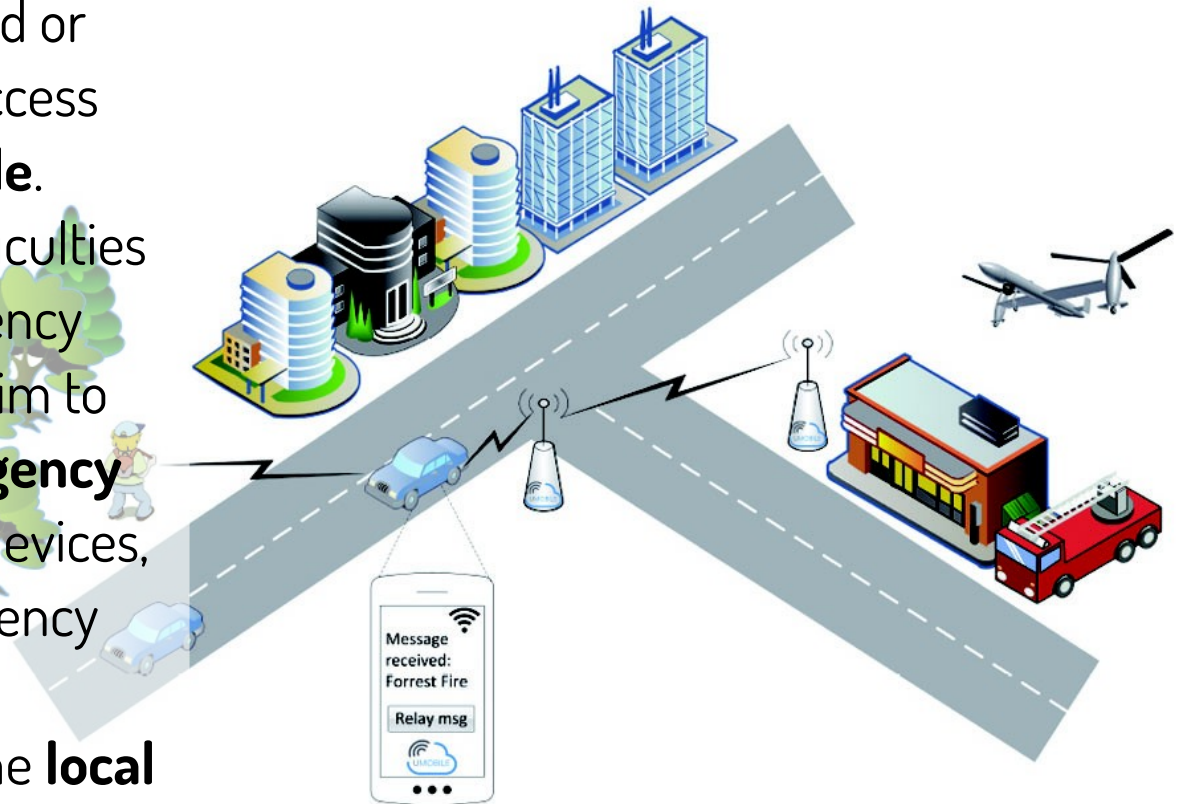- Aware of human behaviour

Civil Protection

UMOBILE provides mechanisms that assist **responsible authorities** in the case of challenged events. Local authorities rely on **urban dynamics and social event monitoring** to provide data for decision-making. Situational information as well as decisions taken are **available in real-time in areas that may be affected** (e.g. data dissemination may be configured based on the geographic spreading of the flood). Where Internet connection is intermittent, the UMOBILE architecture can **migrate services** from the authorities to be stored at the gateway of the target areas.

Satellite imaginary & Sensing data

Local authority

Sensing data
Human conditions
: Anxiety level

Sensing data
Environmental conditions
: Water level
: Temperature
: Humidity

Emergency Situation

In emergency situations, traditional communication services such as fixed or mobile network and local Internet access are **completely/partially inoperable**. People involved may experience difficulties in receiving and dealing with emergency information.The UMOBILE systems aim to assist users in **disseminating emergency information directly** via end-user devices, UMOBILE hotspots and UAVs. Emergency **information can be shared among UMOBILE users** and forwarded to the **local authorities** (e.g., fireman, rescue teams).

Message received: Forrest Fire

Relay msg

CERCHIAMO AMMINISTRAZIONI !

UMOBILE

UMOBILE Consortium sta esaminando <u>collaborazioni con Pubbliche Amministrazioni italiane</u> per l'attuazione di progetti pilota dimostrativi, <u>senza costi</u> per l'Ente.

Segnala la tua disponibilità al desk.

GRAZIE