

Universal, mobile-centric and opportunistic communications architecture

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<http://www.umobile-project.eu>

Motivation

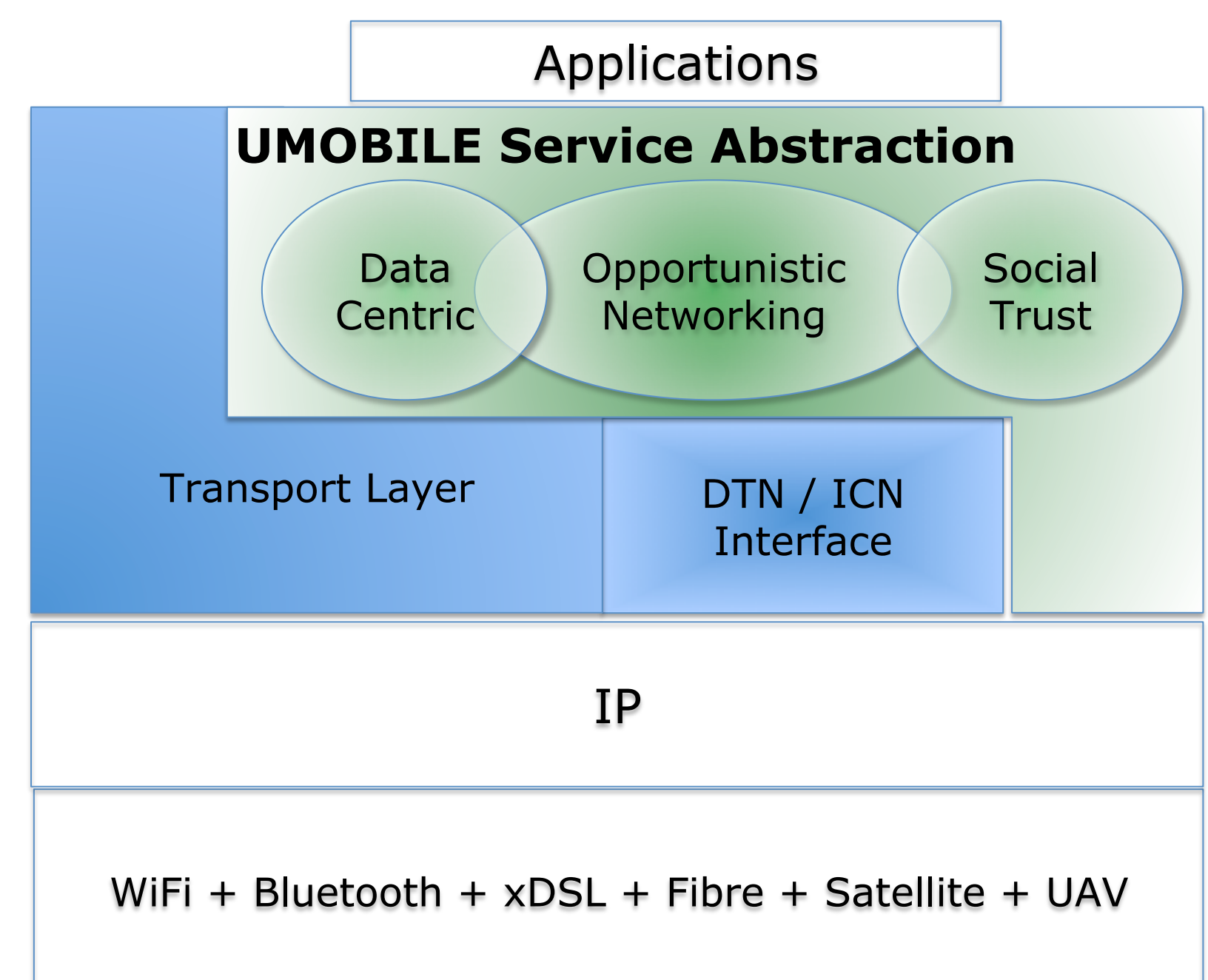
- Internet is expected to:
 - Support diverse set of new applications and services
 - Connect a vast numbers of heterogeneous devices
 - Support the ever-growing need of user mobility
- However universal coverage is not feasible:
 - Populations living in physically remote locations
 - Communications may incur in high deployment costs
 - Ubiquitous mobile broadband coverage is currently seen as not feasible by major operators

Objectives

- 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
- 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

Innovative aspects

- 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



Universal Internet Coverage

Applicability cases

