

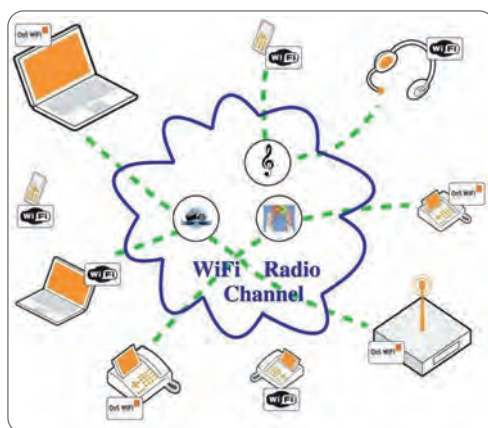


QoS garanties pour réseaux WiFi

QoS-WiFi consists in the design and implementation of an improved WiFi protocol fully interoperable with current 802.11n standards. The aim of the project is to allow reliable transmission of TV, voice, Hi-Fi and telephone communications over 802.11 networks with "cable" like performance. It will be possible to introduce the new WiFi cards in an existing 802.11 network without degrading the legacy equipment and transparently communicating with them. QoS-WiFi will guarantee a better throughput for streaming applications, reduced access times and network latency (both average and variance), reduced collision and it improves the goodput when many stations are using the resources. At the end of the project an evaluation of a SoC (System on Chip integrated circuit) will be performed in view of designing a low price QoS-WiFi card.

TECHNOLOGICAL OR SCIENTIFIC INNOVATIONS

- ▶ The legacy 802.11 or WiFi technology was designed for data applications, offering "Best Effort" quality of service but by no means guaranteed performances. The recent 802.11n standard has focused on improving transmission speeds. WiFi now offers the necessary throughput to carry streaming applications but still no performance guarantees. This is insufficient for certain services like TV over home ADSL (or cable or FTTH) accesses and other services. The 802.11e standard has addressed this problem by allowing voice and video services to be much more aggressive in their access to the radio medium. But as a consequence this can lead instability and to the breakdown of the WiFi network.
- ▶ This project addresses these problems by improving the WiFi MAC access protocol while guaranteeing interoperability with existing WiFi equipment. QoS-WiFi is based on a patented tournament mechanism which guarantees low collision rates, bounded access times and a distributed architecture. It presents several innovations compared to previous solutions: minimal possible collisions, possibility for strict priorities, round robin scheduling, avoiding hidden terminal problems. More generally, the technology allows for distributed coordination of competing stations over a WLAN.



STATUS - MAIN PROJECT OUTCOMES

The development of a WiFi prototype (based on a COMSIS platform), compatible with legacy 802.11 equipment, and allowing transporting TV, voice and data streams with guaranteed performance in a home or professional environment. The project will also provide the feasibility study of an integrated circuit (IC) allowing characterizing the performance and cost of an industrial production.

CONTACT

Patrick BROWN
FRANCE TELECOM
+33 (0)4 92 94 52 55
patrick.brown
@orange-ftgroup.com

PARTNERS

Large companies:
FRANCE TELECOM

SMEs:
COMSIS

Research institutes, universities:
LSS/SUPELEC, TELECOM
SUDPARIS

PROJECT DATA

Coordinator:
FRANCE TELECOM

Call:
FUI10

Start date:
October 2010

Duration:
24 months

Global budget (M€):
1.8

Funding (M€):
0.8