CONVERGENCE CAR-SMARTPHONE

Usages & subsequent impact on audio subsystem architecture

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They trust us

To date
- 50+ contracts with **car manufacturers**
- 54 contracts with **car radio** OEMs

Targeted Ecosystem
- 20+ **partnerships** with silicon vendors on 70+ chipsets versions
- Collaborations with **12+ cellphone** manufacturers

**IN 2012 HAVE ALREADY BEEN PERFORMED**
- 15+ **STUDIES**
- 35+ **TUNINGS**
Convergence Car-Smartphone: Usages & Subsequent Impact on Audio Subsystem Architecture
Current & Upcoming Usages

- Multi-sources for multi-users
- Personalization of listening profiles & conditions
- New applications
- Multi-sensorial: MMI Mixing

Telematics Update Japan Conference
Typical Thought when Designing Next Audio Architecture

Where do we waste money & effort in current H/U audio systems design?

- Which DSP / Host?
- What peripherals?
- How to split functions on Host / DSP?
- How to clock?
- What audio Hw routings?

- Specifications
- Devs on 2 or 3 different procs
- Local optimizations
- Audio flow sync validation
- Audio subsystem integration
- Dedicated tuning & calibration
- Systems validation

Re-done
Re-invented
Today Head Unit Audio Architecture

- Additional DSP
- DSP
- Host
Consequences

Two worlds: the ancient one is historical, embedded, closed, tediously optimized...

The new one is upcoming, connected, open, swift & adaptive

- No “straight” link between these two worlds
- No virtualization of audio functions in Android
- No acceleration of HTML5 audio instructions
- Specific adaptations required, always re-invented
- Open OS will be leading
  - DSP adaptations will be followers...
  - ... but today this is time & effort consuming
  - Effect on: Time-to-market, Features & Price
Possible “Winning” Platform Scenario

• Android Java effect class interpreter
• Plugins of HTML5 javascript interpreter
• Framework and scheduling engine
• Driver to remote processing resources
Arkamys in this context

Arkamys offers

- Audio Virtual DSP technology: available Q2-2013
- Audio subsystem architecture consulting
- Personalized audio content provider
- Audio applications provider
- Audio processing effects provider
Arkamys in this context

Arkamys helps you make money

Car makers & H/U manufacturers
- Speed up audio developments, integration, validation
- Lower EBOM through mobile platform prices leverage

Silicon vendors
- Higher added value on Automotive APE: higher product margins
- Use of SMP OS/ Multi-core: A regular architecture, well known, well debugged and robust, easily scalable
A big change in H/U audio systems is underway, still, most activities & systems remain unchanged...

Embedded & Connected worlds will soon meet, still, they remain largely unconnected

Convergence with mobile: Big benefits in Hw/Sw system convergence

And you, where are you going to be?

Arkamys is ready to help you win in this revolutionary context
THANKS FOR YOUR ATTENTION

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