



OMS

Overview

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**2008
Sun Labs
Open House**



Topics

- Development of royalty free technologies
- OMC IPR development methodology
- Video codecs and OMS video

Development of Royalty Free technologies

- Take a proactive approach with parallel efforts for
 - > Patent analysis
 - > Technical specification development
 - > Reference implementation
- This methodology has been successfully applied to the DReaM project
 - > http://www.openmediacommons.org/collateral/DReaM-CAS_IPR_White_Paper_v1.0.pdf
- A similar approach is being applied to the OMS project

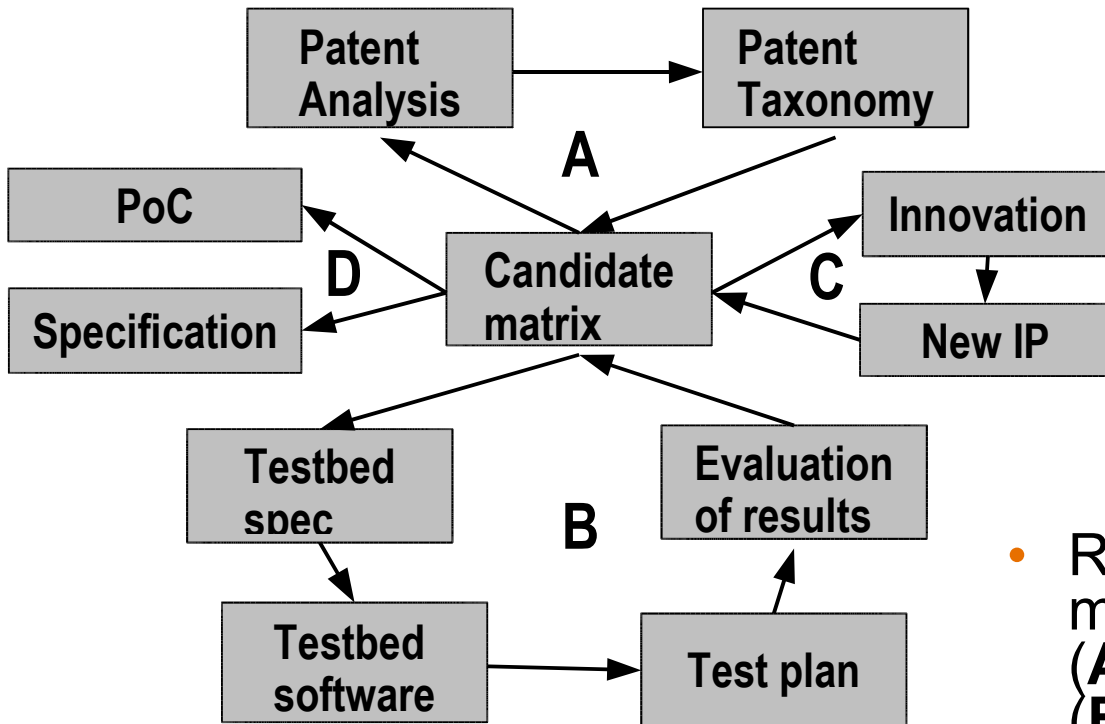
Open Media Stack

Video	Audio	Control
Transport		
Content security		

- An activity of Sun's Open Media Commons initiative to provide a **free** (open-source and royalty free) complete media solution
 - > Video, audio, transport, control, content security
 - > An “Open Media System”

	Apple	Microsoft	Adobe	MPEG	OMS
Codec	H.264/AAC +	WMV/WMA, VC-1 +	Flash V/A - On2/VP6, H.264	MPEG2/1 h.264	OMS Video OMS Audio (Vorbis)
Transport	RTP, HTTP	RTP, MMS	RTMP	MPEG TS	RTP+
Control	RTSP, SDP	RTSP, ActiveX ASF/WPL	ActionScript	DSM-CC	RTSP, SIP....
Content security	FairPlay, Qtaccess	Windows Media DRM	Adobe Flash Media Rights Management	Simulcrypt	DReaM DreaM-CAS DReaM-MMI

OMC IPR Development Methodology



- Royalty-free development methodology - based on
 - (A) IPR analysis,
 - (B) engineering development,
 - (C) innovation (new IP)
 - (D) Proof of concept / Spec development

What is a video codec

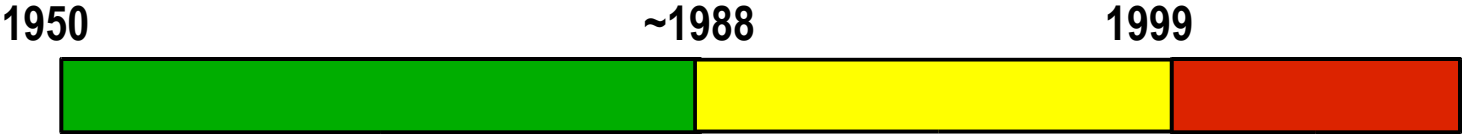
- A set of “tools” that are modular and independent
- Optimization of each of these tools
- Combination of tools to form the video codec
 - > Maintaining tool level flexibility useful to respond to changes in the IPR landscape

Tool = Discrete algorithm or function that performs a compression step

Video codecs

- Standards: H.261, MPEG-1, MPEG-2, H.264
 - > H.264 (from ITU-T) is the compression standard that gives the best performance. However, there's significant cost associated with the IP for the technology
- Open source projects aimed to be royalty-free :
 - > Theora (<http://www.theora.org/>)
 - > Dirac (<http://dirac.sourceforge.net/>)
- OMS Video – intends to develop a royalty-free codec

Video coding tools and IPR risk



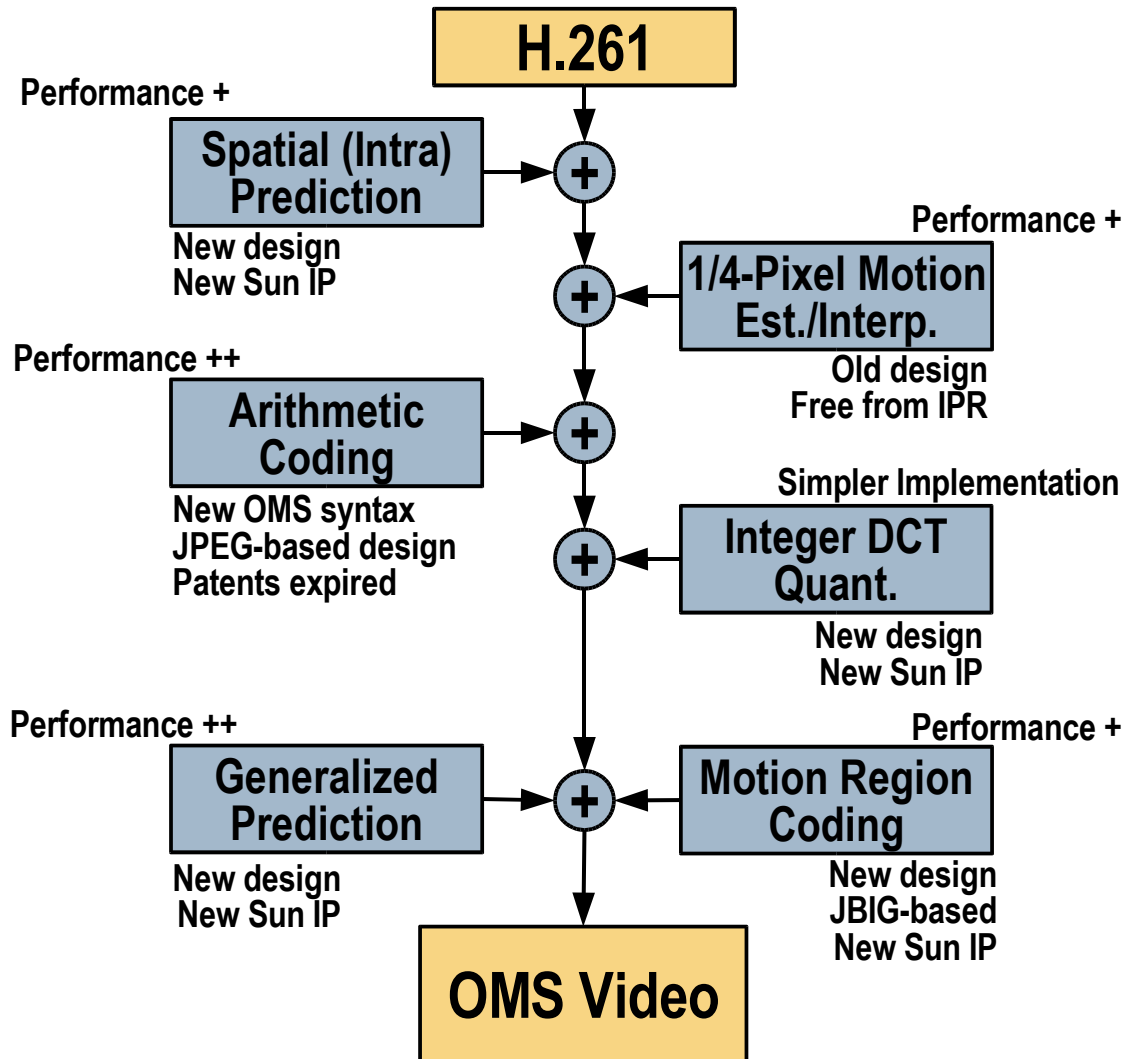
Development of OMS video codec

- Follow the “**OMC IPR Development Methodology**”
- IPR analysis
- Engineering development
 - > Identified the video coding architecture and standard to start development
 - > Developed a software testbed to perform quality comparisons at fine-grained tool-level
 - > Tracking and comparing to H.264 quality and capabilities
 - Use both objective and subjective measures in an ongoing basis to evaluate performance/picture quality
 - > Developed a video stream analysis tool to provide better understanding of how each tool behaves

Development of OMS video codec

- Engineering development
 - Continued:
 - > Identified set of tools to investigate. Use past technologies that are known to be “safe”
 - > Optimize/tune each tool
 - > Combining the tools to form the OMS video codec
- Innovation
 - > Where necessary and/or valuable
 - > Protect developed IP appropriately and defensively
- Develop specification and PoC

OMS Video



- A royalty-free codec loosely based on the h.26x codec family
 - > “h.261 + new tools & optimizations”
- Designed with Open Media Commons IPR methodology
- Element of the “Open Media Stack”

Preliminary results

- See the demonstrations of preliminary results

Summary

- We are offering a generalized methodology for developing a royalty-free codec.
 - > Provide flexibility to respond to changes in the IPR landscape
- IP considerations are the absolute requirement.



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