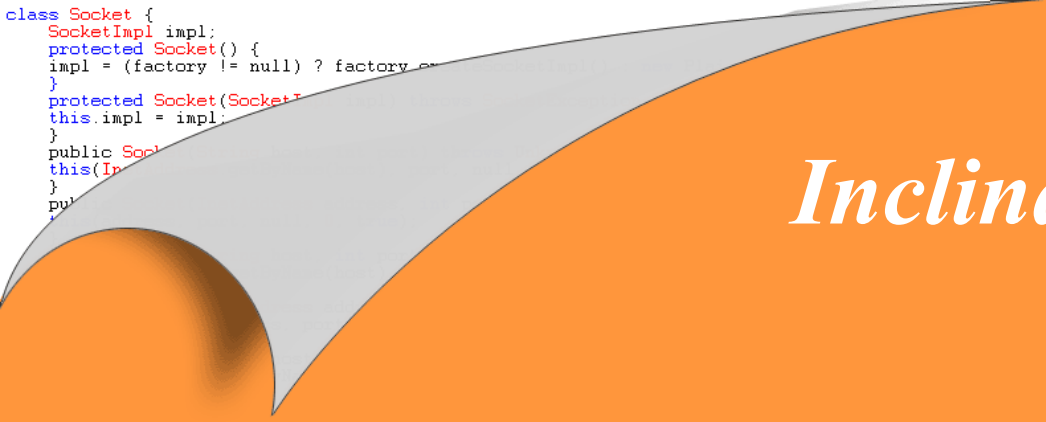

Inclinazione per la rete

isDRM SOA Compatible?
A quick start

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Agenda

- What isDRM does mean to me?
- Service Oriented Architecture (SOA) essential
- isDRM Architecture Compliant with SOA?
- Available Open Source Software (OSS) to prototype the vision

What isDRM does mean to me?

- "i" as in interoperable
  - Designed to enable Users to communicate Governed Content between different DRM implementations
    - lack of DRM interoperability impedes the take-off of services based on Governed Content
      - At Creator and Right Owners level
      - At Intermediaries level
      - At End-User level (Traditional Rights and Usages)
    - User experience of interoperability has to be based on technological level
      - Solutions
        - De facto proprietary standard (competition?)
        - Multiple proprietary DRMs and a "conversion box" (???)
        - Open Standard and multiple implementations (MPEG like)
          - isDRM with RAND (trade off - better than nothing)

What isDRM does mean to me?

- What Open Standard does mean to me?
  - Shared and stable set of interfaces
  - Multiple implementations of the same interfaces
    - Very low Total Account Ownership Index (TAO-Index [0-1])
      - Proprietary or open source solutions are easily replaceable
      - Very competitive market
      - Hopefully, open source will be the best one on the long run :-)
  - Looking for stability in DRM technology
    - DMP approaches the problem of DRM Interoperability by breaking down the way value-chain users do business between themselves into the performance of diverse functions. Typically these functions are a combination of "smaller" functions that DMP calls "Primitive Functions". While functions are changing as a consequence of the evolution of media business in the value-chain, **Primitive Functions are in general more stable**. Therefore DRM standardisation can be achieved by standardising the means to perform Primitive Functions (DMP – AD Foreword).

What isDRM does mean to me?

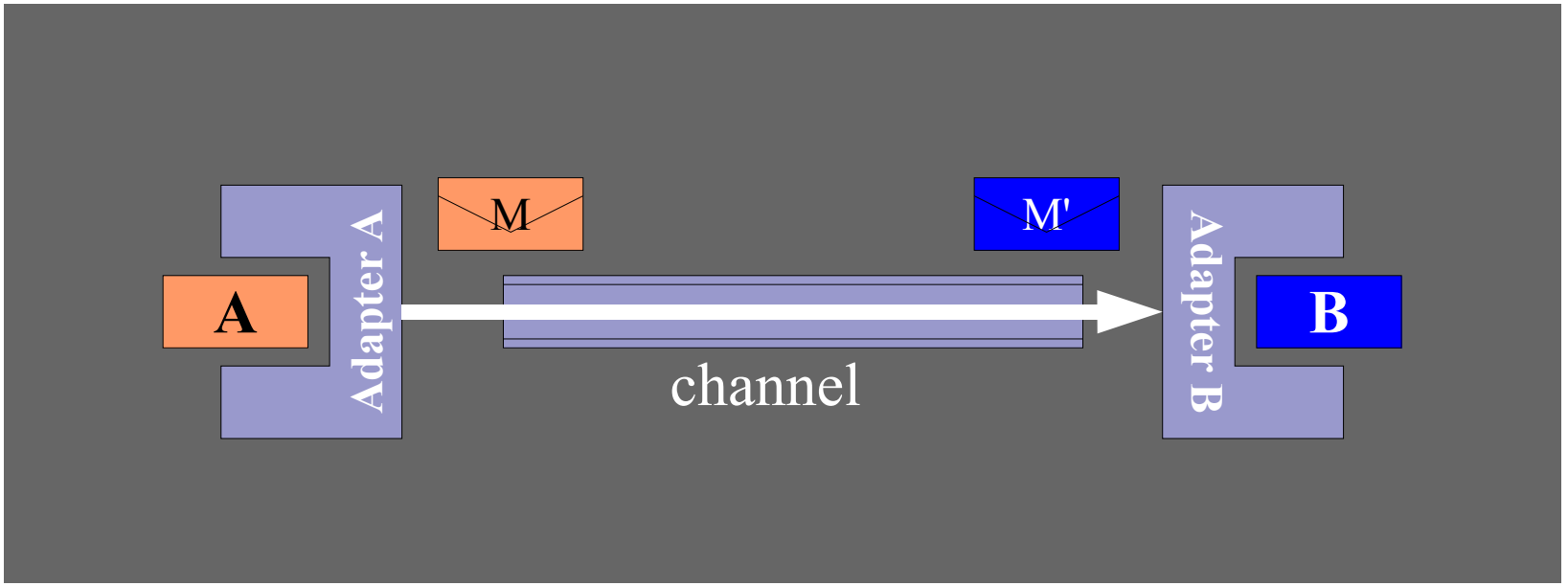
- "s" as in scalable
  - What scalable does mean in relation with isDRM context?
    - The ability to easily compose "Primitive Functions" into more complex business functions
    - The ability to easily follow the evolution of media business in the value-chain
  - isDRM really scales according to this meaning?
    - isDRM focused more on interoperability than on scalability
    - Bottom-Up approach used with isDRM established the capacity to scale, but currently is not easily reachable
  - We need something to leverage isDRM interoperability into isDRM scalability

SOA essential

- Leverage interoperability into scalability (1)
  - We need a distributed component model to compose small Primitive Functions into larger Business Functions without loosing interoperability at foundation level
    - Available Distributed component model technologies
      - CORBA (Common Object Request Broker Architecture – 1991)
        - Inspired all the others, but
          - There is too much object-orientation
            - Not so much components decoupling
      - DCOM (Distributed Component Object Model)
        - Same problems as CORBA plus
        - It's not technologically neutral (MS only - Interoperability?)
      - J2EE (Java 2 Platform Enterprise Edition)
        - Same problems as CORBA plus interoperability problems with DCOM

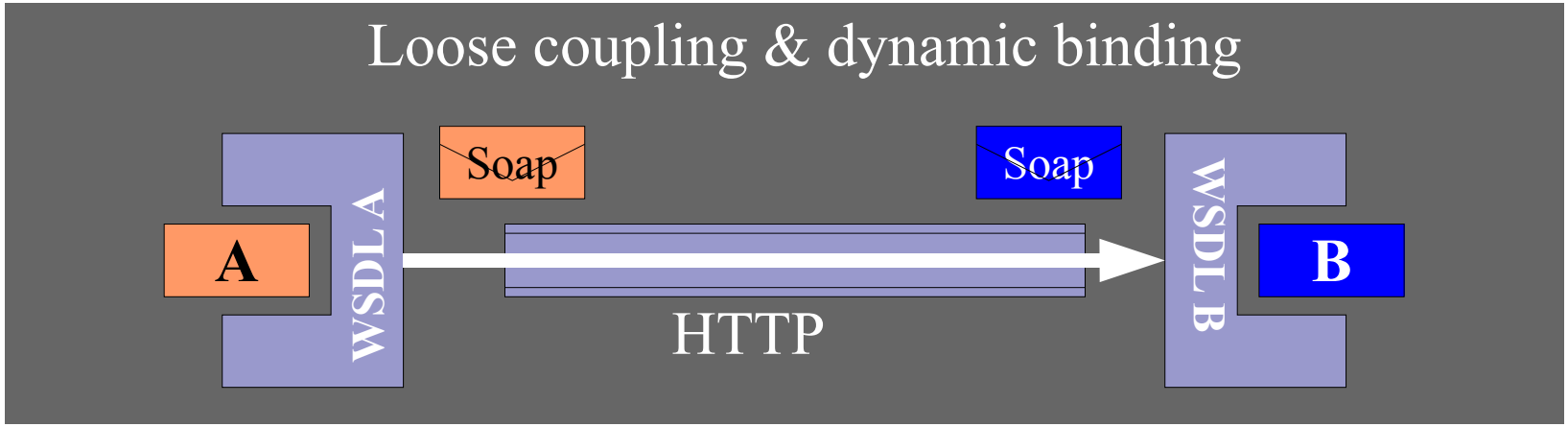
SOA essential

- Leverage interoperability into scalability (1)
  - Distributed Component Model
    - First, we need loose coupling WITH interoperability
      - MOM (Message Oriented Middleware)



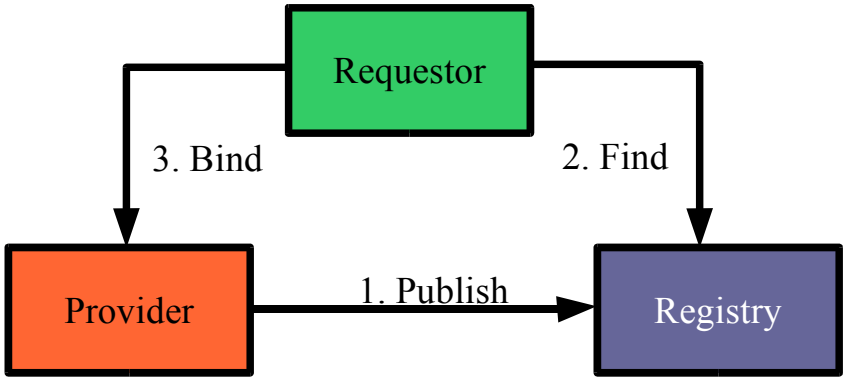
SOA essential

- Leverage interoperability into scalability (1)
  - Web Service as Distributed Component Model
    - W3C and OASIS standard bodies
    - What is a Web Service?
      - is any service that is available over [Inter|Intra|Extra]net
      - uses a standardised XML messaging system
      - is not tied to any operating system or programming language
      - is self-describing via a common XML-grammar
      - is discoverable via a find mechanism



SOA essential

- Leverage interoperability into scalability (1)
  - Two Web Service Architecture Views
    - Web Service Roles (SOA Triangle)
      - Service Provider
      - Service Requestor
      - Service Registry
    - Web Service Protocol Stack
      - Service Transport
        - HTTP/S, SMTP, FTP
      - XML Messaging
        - XML-RPC, SOAP
      - Service Description
        - Web Service Description Language (WSDL)
      - Service Discovery
        - Universal, Description, Discovery and Integration (UDDI)



isDRM SOA compliant?

- Leverage interoperability into scalability (1)
  - Web Service Composition Model
    - Thanks to WSDL, web services can be composed in larger aggregates which are themselves web services described with WSDL
      - WSDL describes a service interface that can have multiple implementations (as Primitive Function does)
    - Does this solve the first branch of leveraging interoperability into scalability? Compose small Primitive Functions into larger Business Functions
      - Yes, but we need to translate each Primitive Function in WSDL terms (I'm confident)
        - To be exercised together with transaction, security, reliable messaging and other QoS issues
        - very first step in prototyping isDRM scalability in its reference implementation

isDRM SOA compliant?

- Leverage interoperability into scalability (2)
  - We need a distributed component model to easily design and execute Value Chains
    - Already defined in DMP Approved Document N. 4 – Value Chains
    - New ones still to be defined by media business actors
  - But what is exactly a value-chain?
    - We have Actors
      - User (Creator, Intermediaries, End-User)
      - Service (Registration/Certification Authorities/Agency)
      - System (PAV, SAV)
    - We have Action and Activities
      - Primitive and Composed Functions performed by Actors
    - We have Entities which change state caused by Actions
      - Content (extensive meaning)

isDRM SOA compliant?

- Leverage interoperability into scalability (2)
  - Value Chains look a lot like workflows/processes
    - The logic/order of execution of Actions/Activities done by Actors on Entities is different for every Value Chain
    - Each Value Chain could be interpreted as a individual workflow/process template
    - Each example of a Value Chain is an instantiation of a individual workflow/process template
  - Have we standard languages in SOA to describe workflows/processes?
    - Yes, but too much of them (W3C - WS-CDL?)
    - How we choose the one that best fits Value Chains in Media Business?
      - In the most stupid way (like most IT managers do)
        - strongest backing (IBM, Microsoft, Oracle, BEA and others)
          - OASIS WS-BPEL (Business Process Execution Language)

isDRM SOA compliant?

- Leverage interoperability into scalability (2)
  - VERY IMPORTANT: in WS-BPEL a process is exposed has a WSDL
    - The process can call a WSDL or be called by a WSDL. In others words, a process can call another process or be called by another process (*value chains calling others value chains*)
  - What we expect from a workflow/process system BPEL compliant
    - GUI Designer (to generate a process description expressed in BPEL)
    - Runtime engine (to interpret and execute processes)
    - Administration and Monitor Tools

isDRM SOA compliant?

- Vision
  - SOA approach could be used to leverage iDRM interoperability into scalability
    - The second step in prototyping this vision is to design a medium sized Value Chain to generate the corresponding WS-BPEL description to be run on a runtime BPEL engine calling WSDL service interfacing IDP Toolkit used in that Value Chain
      - But
        - Current GUI process design tools are still too general or too difficult to be used by business people and oversimplified to be used by programmers (we still prefer hacking the code)
      - Optional step
        - Define and implement a GUI process designer specialized on Value Chain design for media business market

OSS convergence on SOA

- OSS offers everything we need to quick start prototyping the SOA vision of isDRM
  - J2EE Application Server
    - JBoss/Tomcat/Geronimo/JonAS
  - Web Service Container
    - Axis
  - WS-BPEL compliant Workflow Engine
    - JBoss jBPM, Agila, ActiveBPEL
  - WS-BPEL compliant GUI Designer
    - JBoss jBPM, IBM Eclipse plug-in
- How much time it takes
  - 3 people 3-4 month (9-12 mythical man months)

The Vision

- Leverage interoperability into scalability