

UNEP Workshop on Knowledge Management and MEAs

22-24 September 2009

Chexbres, Switzerland

MEA Information Sharing Through Web 2.0 Services

*Olivier de Munck (olivier.demunck@cbd.int)
Programme Officer, Clearing-House Mechanism (CHM)
CBD Secretariat*



Convention on Biological Diversity (CBD)
United Nations Environment Programme (UNEP)

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Background
Provider Selection
Service Overview
Usage Strategy
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Implementation
Final Comments



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Information Sharing Needs with MEAs

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- Frequent Information Sharing Needs
 - Shared calendar of events (Rio, BLG, UNEP, IYB 2010)
 - Who's who & yellow pages (persons, organizations, roles)
 - Meeting outcomes
 - Decisions
 - Reports
 - MEA Parties
- Other Information Sharing Needs
 - Case studies
 - Projects & Initiatives (fact sheets)
 - Country profiles
 - References (documents, websites, databases, etc)
 - ...

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Initiative	Protocol	Format	Comments
Biosafety Clearing-House (BCH)	SOAP	Custom XML	<ul style="list-style-type: none"> - Single central server - 2 full-time IT experts - OK but few implementations
Rio Interoperability (NFP & Events)	SOAP	Custom XML	<ul style="list-style-type: none"> - Joint specs by Rio Conventions - Implementation issues - Multi-server issues - Operational but unused
European CHM Portal Toolkit (News)	RSS Feeds	RDF with extensions	<ul style="list-style-type: none"> - Custom software package - OK if same package
GFIS (News, events)	RSS Feeds	RSS with extensions	<ul style="list-style-type: none"> - Good specs at www.gfis.net - OK
Technology Transfer	Atom Feeds	Atom with extensions	<ul style="list-style-type: none"> - Draft specs by CBD - Not implemented by partners
Google Calendar (<i>ongoing</i>)	REST & Atom Feeds	Atom with extensions	<ul style="list-style-type: none"> - Public specs by Google - API & documentation available - Widely implemented - OK

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Comments on Interoperability

- Importance of well-designed comprehensive specifications
 - Communication protocol, Data formats & classifications
 - Special features (security, synchronization, errors, ...)
 - Sample data & scenarios to facilitate implementation
 - ➔ Difficult to achieve with limited expertise & resources
- Take advantage of existing Web 2.0 services (e.g. Google)
 - Designed by experts (reliable protocols with docs & samples)
 - Consistent API for various services (Calendar, Contacts, ...)
 - Custom formats & extensions can sometimes be defined
- Our focus
 - Evaluate web 2.0 providers & services ➔ select service(s)
 - Prepare specifications / guidelines for service customization
 - Focus on client-side implementation
 - ➔ Next slides

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- Selection Criteria
 - Reliable Provider
 - Range of services matching MEA needs
 - Security
 - Use of open standards
 - Implementation tools (API, Libraries for various platforms)
 - Flexibility & customization
 - Documentation
 - Cost effectiveness
- Many Web 2.0 Service Providers
 - Google <http://code.google.com/apis/gdata>
 - 37 Signals <http://37signals.com>
 - Zoho <http://www.zoho.com>
 - Many more...

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- Important Remarks
 - No time for comprehensive evaluation
 - Quick selection for pilot implementation
 - Same Web 2.0 concepts shared by most providers
- Google as Service Provider
 - + Strong provider of reliable & widely used services
 - + Wide range of services with consistent API & documentation
 - + Free for most services
 - Not the most specialized
 - Terms of use & restrictions to be checked
 - Too large to expect personalized support

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- Potential Google Web 2.0 Services for MEA
 - Google Calendar To share meetings and events
 - Google Blogger To share blog entries (news)
 - Google Contacts To share contact information
 - Google Base To share custom data (e.g. Decisions)
 - ...
 - Google Apps (Commercial version)
- Consistent API using Google Data Protocol
 - <http://code.google.com/apis/gdata> (with 12 min. Video)
 - Atom Feeds with Atom Publishing Protocol (REST-like)
 - JSON data exchange mirroring Atom representation
 - Simple syntax to query Atom Feeds using HTTP
 - OpenSearch extension for search results
 - Some convenient common elements (Google Kinds)
 - Client libraries for popular platforms (PHP, .NET, Java, Python)

Service Overview - Atom Feeds & Entries

Feed = List of Entries (~ Database Table = List of Records)

```
<feed xmlns='http://www.w3.org/2005/Atom'  
  xmlns:gd='http://schemas.google.com/g/2005'  
  gd:etag='W/"S0wCTlpllip7ImA0X0QI"'>  
  <title>My Feed</title>  
  <updated>2006-01-23T16:26:03-08:00</updated>  
  <id>http://www.example.com/myFeed</id>  
  <author> <name>Jo March</name> </author>  
  <link href='/myFeed' rel='self'/>
```

Feed

Entry

```
<entry gd:etag="CUUEQX47eCp7ImA9WxRVEkQ.">  
  <id>http://www.example.com/id/1</id>  
  <link rel='edit' href='http://example.com/myFeed/1/'>  
  <updated>2006-01-23T16:26:03-08:00</updated>  
  <author>  
    <name>Elizabeth Bennet</name>  
    <email>liz@gmail.com</email>  
  </author>  
  <title type='text'>Entry 1</title>  
  <content type='text'>This is my first entry</content>  
</entry>
```

```
</feed>
```

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- Entry Elements
 - <id>
 - <published>, <updated>
 - <link>
 - <title>, <summary>, <content>
 - <category> (for all categories & controlled vocabularies)
 - ...
 - Extensions → from Google or other sources
- Atom Publishing Protocol to manipulate entries
 - HTTP POST + data Create → id & ETag (version)
 - HTTP GET Retrieve by id (single) or query (list)
 - HTTP PUT + data Update with id & ETag
 - HTTP DELETE Delete with id & ETag
- Documentation & Examples
<http://code.google.com/apis/gdata/docs/2.0/basics.html>

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- Querying Entries
 - Single Entry by ID = 123456
<http://www.google.com/my-feed/123456>
 - Text Query: contains "forest"
<http://www.google.com/my-feed?q=forest>
 - Updated after September 1, 2009
<http://www.google.com/my-feed?update-min=2009-09-01>
 - Category = "confirmed"
<http://www.google.com/my-feed/-/confirmed>
- Result Information (OpenSearch)

```
<feed ...>
...
<openSearch:totalResults>25</openSearch:totalResults>
<openSearch:startIndex>0</openSearch:startIndex>
<openSearch:itemsPerPage>10</openSearch:itemsPerPage>
<entry ...>...</entry>
...
</feed>
```

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- API = Application Programming Interface
 - Simple functions to execute instructions
 - Handles HTTP, XML and other protocol details
 - Popular languages supported (PHP, Java, .NET, ...)
- .NET Example

```
using Google.GData.Calendar;
using Google.GData.Client;
using Google.GData.Extensions;
...
CalendarService oCal = new CalendarService("UNEP-TestCal");
oCal.setUserCredentials("user1" , "password1");
Uri oFeedUri = new Uri("http://www.google.com/my-feed");
...
EventEntry oEventEntry = new EventEntry();
oEventEntry.Title.Text = "My Title";
oEventEntry.Times.Add( new When(StartDate, EndDate));
oAtomEntry = oCal.Insert(oFeedUri, oEventEntry)
```

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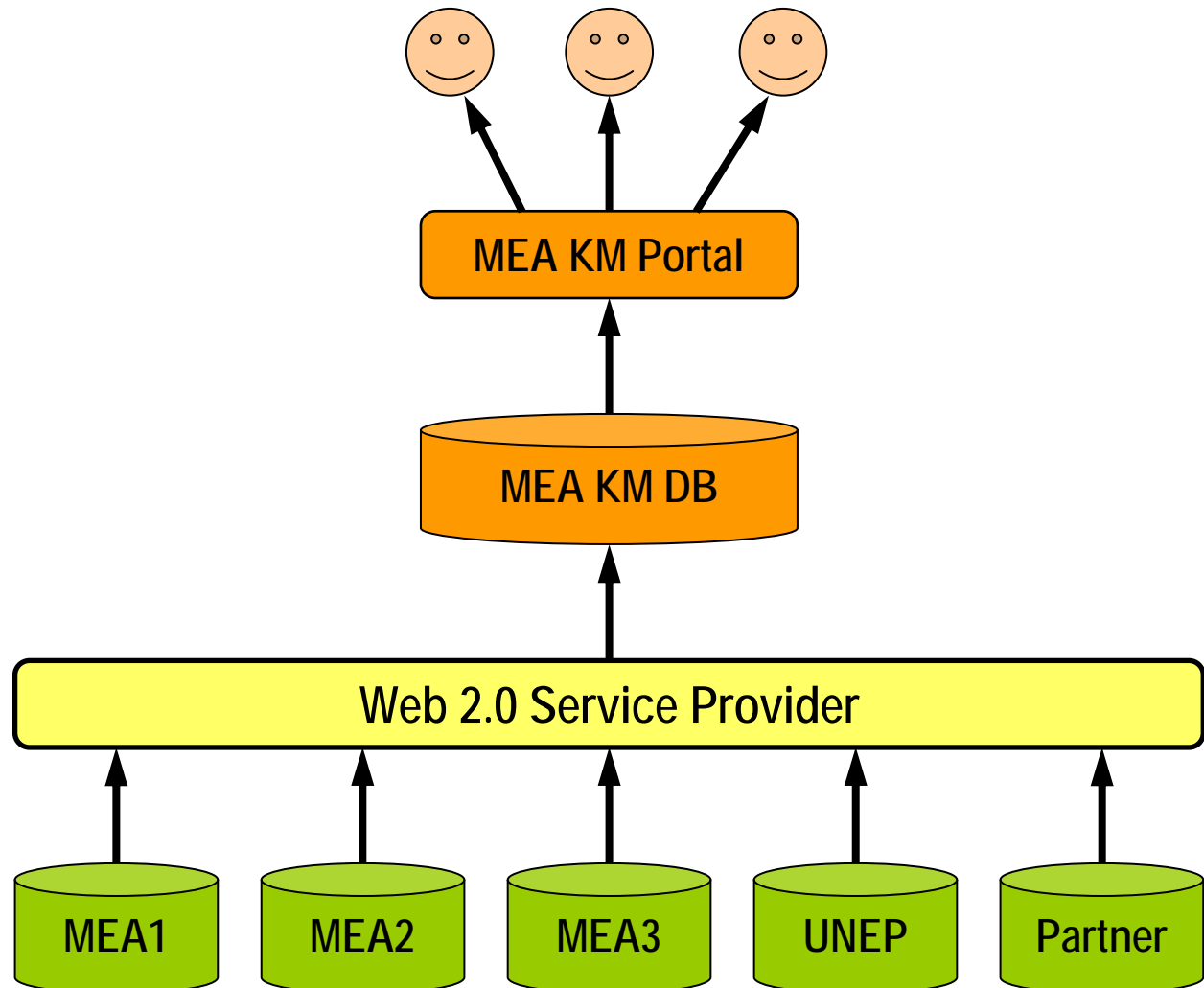
- <http://code.google.com/apis/gdata/docs/2.0/elements.html>
- Google Kinds
 - Contact Kind
 - Profile Kind
 - Event Kind
 - Message Kind
- Google Data Elements (extensible)
 - gd:country
 - gd:name (structured form)
 - gd:extendedProperty (can be anything)
 - gd:organization (of a contact)
 - gd:structuredPostalAddress
 - gd:when
 - gd:where
 - gd:who
 - ...

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- Create Google Accounts (1 per MEA or other provider)
 - cbd.unep@gmail.com for data from CBD
 - cites.unep@gmail.com for data from CITES
 - hq.unep@gmail.com for data from UNEP HQ
 - shared.unep@gmail.com if no sharing option
- Get Google API Key
- Setup development environment
 - Select programming language (PHP, .NET, Java)
 - Install client libraries and test samples
- Start mapping internal data to Google services
- Transfer and upload data

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- Unique ID & Permanent Link
 - Agree on Unique ID pattern:
Source-Type-Local ID (e.g. cbd-event-123456)
 - Corresponding permanent link to local resource
 - <http://www.cbd.int/data/event/123456>
 - <http://www.cbd.int/?event=123456>
- Information Types and Attributes
 - Meeting: Subset of Google Event kind
 - Contacts: Subset of Google Contact kind
 - Decisions: Define custom type in Google Base
- Controlled Vocabularies / Classification Schemes
 - Some existing ones: e.g. gd:country (ISO 3166-1 alpha-2)
 - Controlled vocabularies: Use Atom <category> element

Controlled Vocabulary Specifications

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- 3 XML attributes to Atom <category> element:
 - Scheme: classification scheme
 - Term: coded value for machine
 - Label: text value for human
- Example:

```
<entry >
  <id>http://www.google.com/my-feed/123456</id>
  <title>My Event 123456</title>
  <content type='text'>This is my event 123456</content>
  <category
    scheme='http://www.google.com/g/2005#kind'
    term='http://www.google.com/g/2005#event' />
  <category
    scheme='http://www.cbd.int/schemes/subjects'
    term='http://www.cbd.int/schemes/subjects#forest'
    label='Forest' />
</entry>
```

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- Google Extended Properties:
 - Name/Value Pair
 - Can contain Any XML data

- Example:

```
<entry >  
  <id>http://www.google.com/my-feed/123456</id>  
  <title>UNEP Event 123456</title>  
  <content type='text'>This is UNEP event 123456</content>  
  <gd:extendedProperty  
    name='http://km.unep.org/properties/uniqueId'  
    value='unep-event-123456' />  
  
  <gd:extendedProperty  
    name='http://km.unep.org/properties/funding'  
    <donor country='de'>Germany</donor>  
    <amount currency='EUR'>10000</amount>  
  </gd:extendedProperty>  
</entry>
```

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- Service: Google Calendar
 - Calendars & Events
 - <http://code.google.com/apis/calendar/>
 - <http://code.google.com/apis/calendar/docs/2.0/reference.html>
- Standard Attributes:
 - Title
 - Content Text or HTML Description
 - Author Atom Person → MEA
 - Times Google When (StartTime, EndTime)
 - Locations Google Where (Location text for Google Map)
 - Status Google EventStatus (Tentative, Confirmed, Canceled)
- Additional Features
 - <category>
 - <gd:extendedProperty>

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- Service: Google Contacts
 - <http://code.google.com/apis/contacts/docs/3.0/reference.html>
 - Contacts
 - Groups (e.g. for NFP Categories)
 - Warning: check sharing in free version
- (Many) Standard Attributes:
 - name: Structured Name
 - structuredPostalAddress
 - Organization fields
- Additional Features
 - <category>
 - <gd:extendedProperty> (For Organization ID)

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- Service: Google Base API
 - To define & manage any data items (e.g. Decisions)
 - <http://code.google.com/apis/base/>
 - <http://code.google.com/apis/base/starting-out.html>
 - Terms: Max. 10 Feeds & 100,000 records per user
- 3 Types of Attributes
 - Standard Atom Attributes (title, description, link, ...):
 - Google Recommended Attributes
<http://base.google.com/base/api/itemTypeDocs>
 - User-defined Custom Attributes
- Many Special Features
 - Reference between items (~ Foreign Key in Relational DB)
 - Draft mode
 - Multi-client accounts (for aggregators)
 - FTP upload

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- Keep track of data sent to Google → Local DB Table
 - ID
 - Type
 - Date
 - Google ID & Revision (Etag)
 - Entry XML (returned after POST or PUT)
- Data Workflow
 - Sent by each MEA
 - Read by KM Portal DB (when ready)
 - Search on KM Portal
- Simple Calendar Demo
 - Test transfer from CBD DB to Google calendar
 - <http://www.cbd.int/test/olivier/calendar/>

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- Pragmatic approach
 - Use existing services (not necessarily Google)
 - Reliable service designed and tested by experts
 - Ready to be used
 - Expertise available if needed
- Some pending work
 - Compare various providers (free & commercial versions)
 - Customize service to MEA needs
 - Plan implementation of KM Database & web portal



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Thank you

Any Question / Comment?

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