

Planning for Systems Interoperability: Another « Mission Impossible » for Public Servants?

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Sides of a Multi-Faceted Coin

- ◆ When I say interoperability, I also mean:
 - ◆ Interchangeability
 - ◆ Access
 - ◆ Control

Points To Think About....

- ♦ The role of interfaces in interoperability
- ♦ Interoperability “Hot Spots”!
- ♦ Policy implications

IT Interoperability *is* a Public Policy Issue

- ♦ Government as a user
 - ♦ Intra- and Inter-agency collaboration
- ♦ Government as a creator
 - ♦ Collaboration with the Public
 - ♦ Services: E-gov't, healthcare, emergency
- ♦ Government as a steward
 - ♦ Documents and data
- ♦ Government as stimulant
 - ♦ Industrial, economic, social policies

The Crisis for Public Policy

- ◆ Lack of “off-the-shelf” interoperability
- ◆ The rate of our global standard setting system hasn't kept pace
- ◆ The gap is easily exploited
 - ◆ Land grabs for interface control points
 - ◆ Proliferation of IPR in “open” standards
 - ◆ Standards organization increasingly troubled
- ◆ “Convergence” exacerbates the situation
 - ◆ End-users suffer limitation of choice, increased cost, complexity and confusion
 - ◆ Innovation suffers, economy suffers
 - ◆ Loss of the “network effect”

How We Got Here

- ♦ Basis of IT standardization is in industrialization and its requirement for interoperable systems
 - ♦ Railroads needed standardized time & rail gauges
 - ♦ Commerce needed ways to transfer goods
 - ♦ Users needed reliability
- ♦ ICT Standardization system built for large, industrial users
 - ♦ Slow and expensive
 - ♦ Allows exchange of IPR through complex cross-licensing
 - ♦ The Golden Age of RAND licensing

What Has Changed

- ♦ The Internet and World Wide Web
 - ♦ Increased pace of innovation and change
 - ♦ Participating companies differ wildly in size, composition and background
 - ♦ The ability to broadcast code and information is hugely expanded
 - ♦ More and more “eyes” are available and participating
- ♦ Ease of use and necessity of using the Web and Internet increases the value of interdependence (the “network” effect)

Unraveling Concepts

- ◆ Interfaces (API's, Protocols, Schema)
 - ◆ Specified ingredients and methods for a particular function (recipe)
 - ◆ Restricted vs. Open Specifications
- ◆ Implementations (Code)
 - ◆ The *implementation* of a function
 - ◆ Does the work
 - ◆ Proprietary (Restricted) vs. Open Source
- ◆ There are (typically) many possible implementations that support the same interface

Implementations vs. Interfaces



Would you rather own a patent on...?



**If you control an interface,
you can exclude
ALL possible implementations!**

Internet Interfaces: A Radical Proposal to Improve Interoperability

- ♦ If your protocol is designed to be carried over the Internet...
 - ♦ ...it can be freely reverse-engineered
 - ♦ ...it can't be protected by patents
 - ♦ ...and this includes data formats and their encoding

Interoperability Is ...

.... the ability of a computer program to communicate and exchange information with other computer programs and mutually to use the information which has been exchanged. This includes the ability to use, convert, or exchange file formats, protocols, schemas, interface information or conventions, so as to permit the computer program to work with other computer programs and users ***in all the ways in which they are intended to function.***

Interoperability Hot Spots

- ◆ EInvoicing
- ◆ Egovernment
- ◆ Digital Rights Management
- ◆ Data formats
 - ◆ Medical imaging, business data
- ◆ Document formats



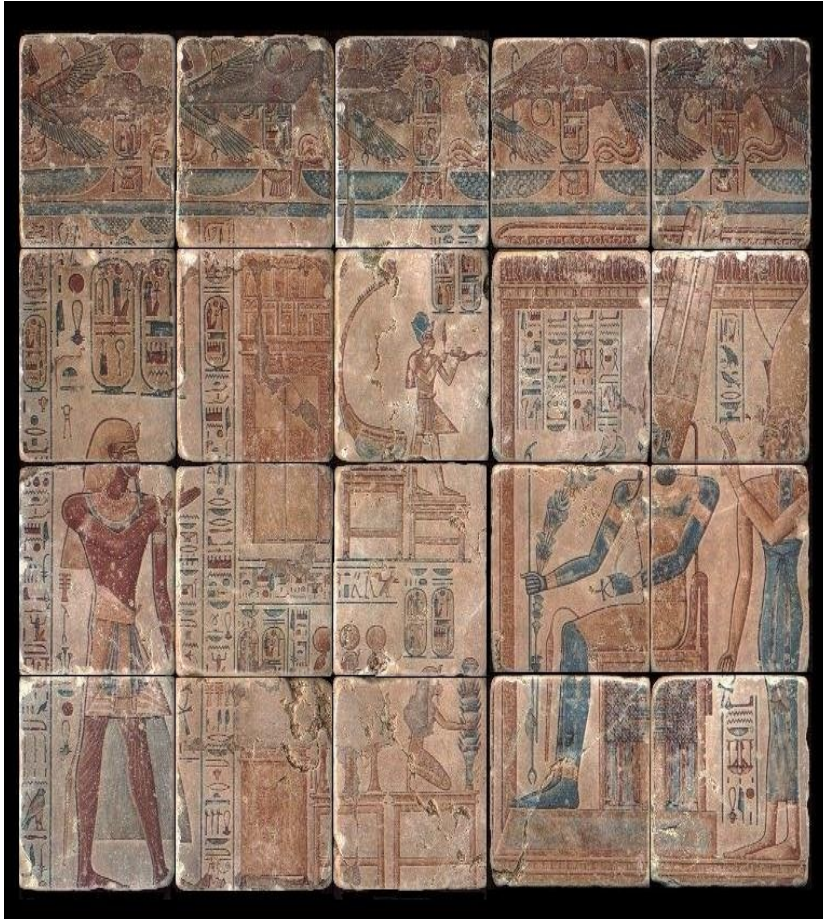
OpenDocument Format

Two Views: A Well Preserved Record



Archiving at its best, with graphics and text, magnificent in its beauty

Two Views: A Well Preserved Record



Archiving at its worst, with graphics and text that could not be read and understood for centuries because the key to its content was irretrievable

Problem is the interface, not the implementation....

To Consider

It is impossible to predict the future.

Empires crumble, cults merge and disassemble, economies collapse or emerge, companies die.

In just a few years, applications have disappeared (remember WordStar?!) with no trace and with no hope of recovering the documents written with them.

The content is there, but the keys are lost...

So What is « Open »?

- Characteristics of the standard itself
 - Permissions about its use
 - Without proprietary extensions
 - Without application or platform dependencies
 - Multiple competing implementations under different implementation licensing models

So What is « Open »?

- Characteristics of its creation and management
 - Developed by an open community
 - Fully documented and publicly available
 - Affirmed and maintained by a “participatory” standards body

«Open» in Policy and Procurement*

1. Open standards should be defined in terms of a desired economic effect: supporting full competition in the market for suppliers of a technology and related products and services, even when a natural monopoly arises in the technology itself.
2. Open standards for software markets should be defined in order to be compatible with open source licenses, to achieve this economic effect

* “An Economic Basis for Open Standards” Rishab A. Ghosh, December 2005. Published by the Sixth Framework Programme of the European Union, managed by the eGovernment Unit of the European Commission's DG Information Society.

«Open» in Policy and Procurement*

3. Compatibility with proprietary technologies should be explicitly excluded from public procurement criteria and replaced by interoperability with products from multiple vendors;
4. Open standards should be mandatory for eGovernment services and preferred for all other public procurement of software and software services.

* “An Economic Basis for Open Standards” Rishab A. Ghosh, December 2005. Published by the Sixth Framework Programme of the European Union, managed by the eGovernment Unit of the European Commission's DG Information Society.

In Closing

- ♦ How can/should a massively connected world work with efficiency and stability?
 - ♦ Systems interoperability is not “Mission Impossible”
 - ♦ Public policymakers have a duty to address this issue
- ♦ Suggest a combination of:
 - ♦ Being clear about what constitutes open and interoperable
 - ♦ Methodically address interoperability “Hot Spots”
 - ♦ Tie to programs and procurement
 - ♦ Protect interoperability



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