



I often used the phrase "the commodification of software" to represent what I believe is the critical force behind the rise of open source software. Broadly used software is now defined primarily by its capacity for networked data exchange of standardized commodity datatypes such as a web page, an MP3 file, a UNIX executable, or a Word document, rather than its application model and user interface.

David Stutz



**8th Asia Open Source Software Symposium
Bali February 2007**

**Open Source Software & Protocols?
Interaction-Driven Economy!**

Implication on society, economy and education

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Who uses Linux?

- Let's not talk about "Open Source" in this presentation:
 - OS is settled
 - It is used in companies all over the world
 - It drives economy and the internet
 - It is used on the server and desktop
- O.k. let's talk a little bit about Open Source:
 - What can we learn from Open Source from the community and interaction point of view
 - What are the implications to modern business strategies?
 - What are the implications for developing countries?

Content

- Software as Commodity?
- Paradigm Shift in Software Development
- The User?
- How does OS fit in here?
 - Open Source as Interaction Process
 - Open Protocol as Enabling Technology
- Strategies



Software as Commodity?





Is there “Commodified” Software?

- Post-PC era (ubiquitous Software)
- Standard-based approach for data exchange
- Community driven processes/involvement
 - ✓ Very similar concepts to Open Source process
 - ✓ Communication driven Systems (Internet, mobile phones)
- Open Protocols are the enabling technologies for next-generation of software (as commodity)
- But: Software as commodity is also exchangeable (e.g., Firefox, IE),
 - **Hence real competition can appear!**
 - **New players have the chance to participate!**

First Steps in Paradigm Shift

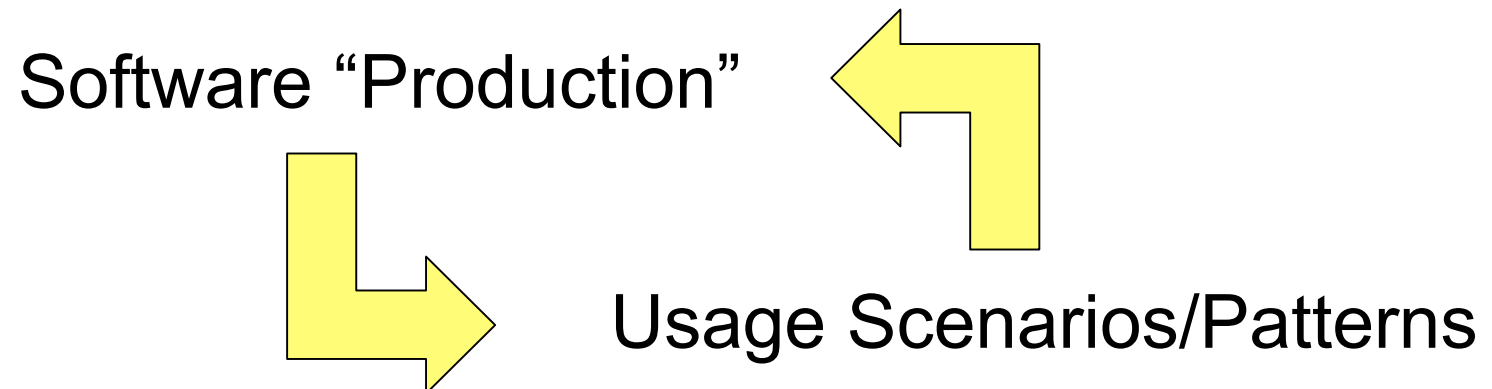
- Producer / Consumer
 - Replaced by Interaction Models
- Platforms and Processes instead of products!
 - Example?
 - EBay
 - Second Life
 - Video Game Platforms
- Example: “Web 2.0”
 - Data and
 - Interaction drive
 - Example?
 - Digg it, del.icio.us, NewsVine, reddit, Simpy, Spurl, myYahoo, ...



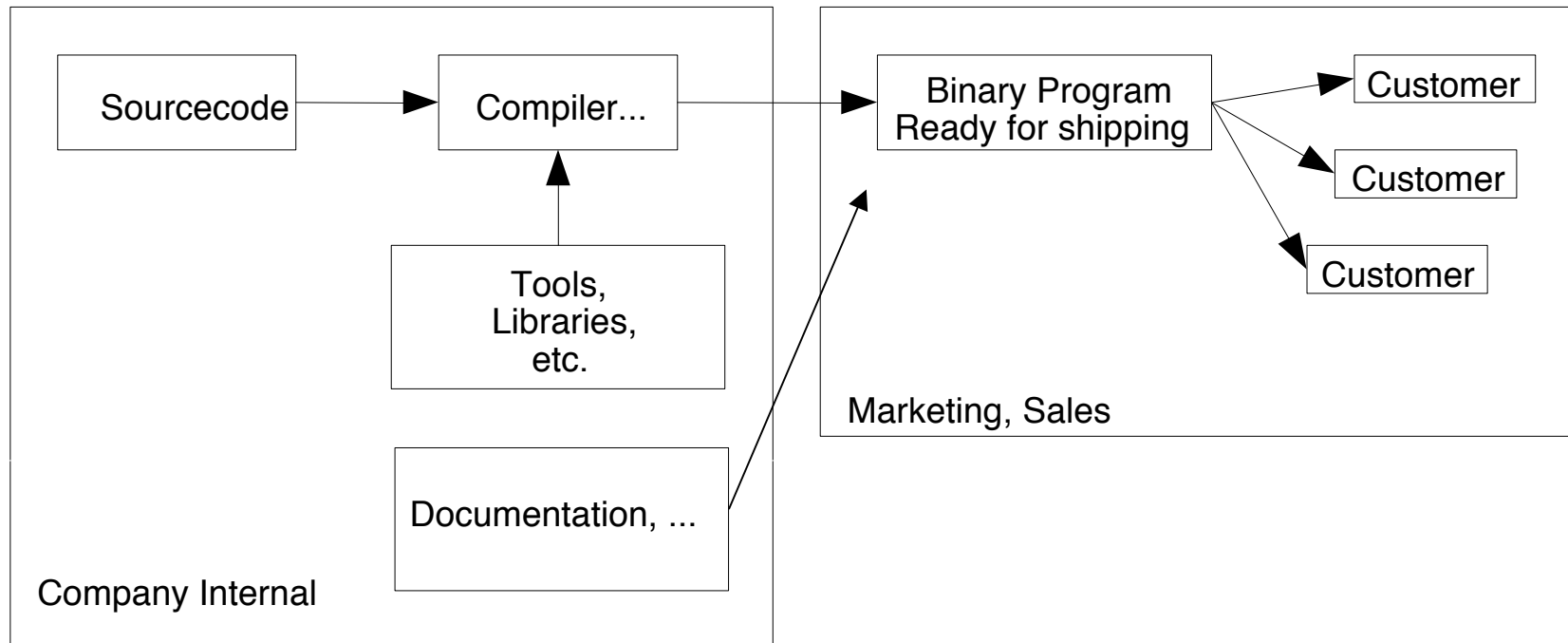
Interoperability becomes key!

- Interoperability occurs on various levels
- Technical
 - Webservices
 - REST
 - shared protocols
- Development/Management
 - Shared processes
 - Distributed programming
 - Best-practices
- Sociological
 - Globalisation
 - Community driven Applications (see “Web 2.0”)
 - Communication and “virtual worlds” (second life, ...)

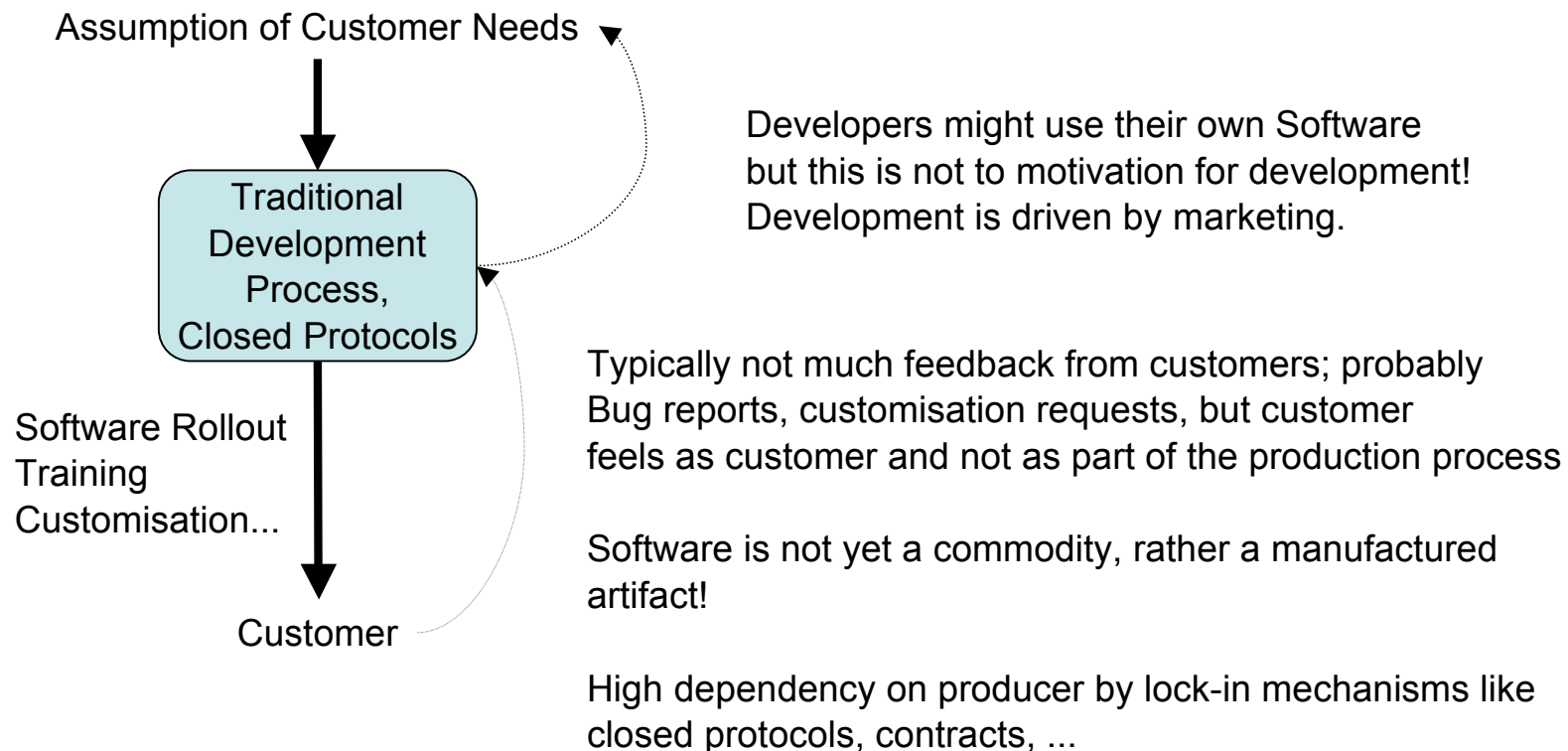
**Paradigm Shift has (at least)
two aspects
that re-inforce each other:**



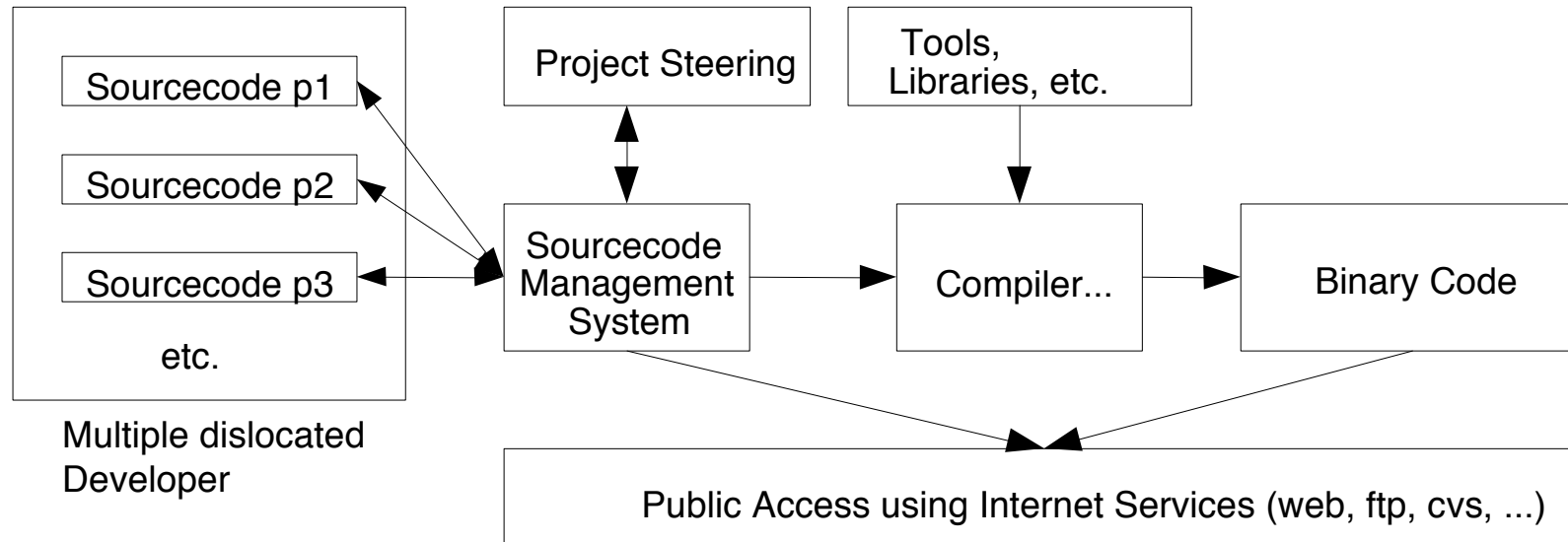
Conventional Software-Development Process



Traditional Development Process, the Interaction View



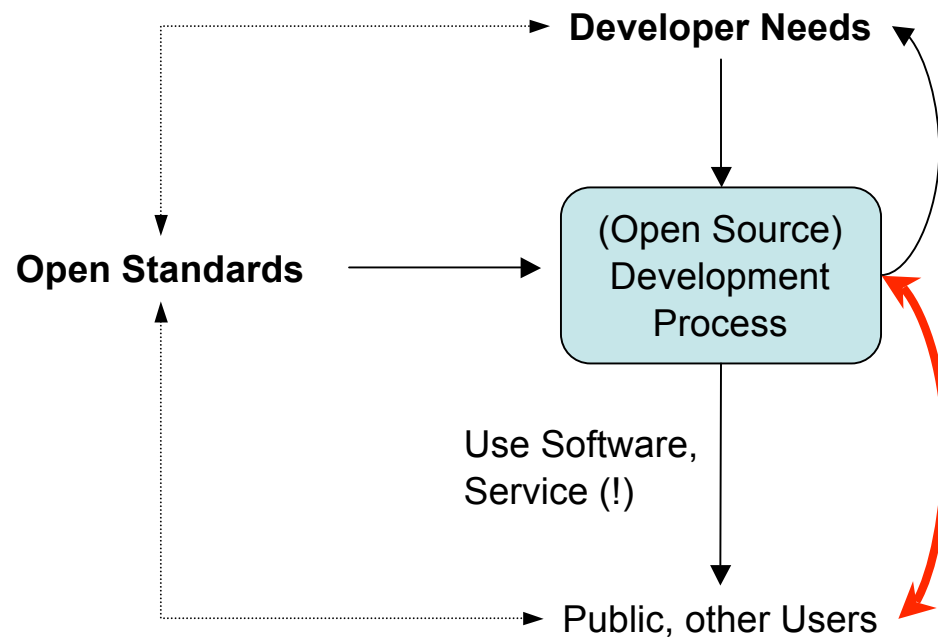
Development Process – Open Source Project



**First obvious observation: complete process is public
(including all artefacts like protocols)**

But this is still Producer/Consumer Driven perspective

Development Process, the Interaction View



Developers use their Software and their own feedback drives the **initial** development phase. (first order feedback)

“Second order” feedback by other users of the system: not “only” usage: Interaction drives development, support, add-ons, plug-ins, data...

Users feel connected to the project and more and more also as part of the development process

Assets?

- Conventional Process
 - Software Artefact
 - Closed Protocol
 - Lock-in contracts and customer bindings
- New Process
 - Process itself
 - Knowledge
 - Data
 - User Interaction



The “new” Software Development Process

- No Rollouts, no shrink-wrapped Software packages
- Software was "artefact"
- now it becomes a **”Process” using similar strategies like OS processes, even in commercial setup**
- *perpetual beta* (Tim O’Reilly)
- becomes commodity
- Finally, abstraction from Software
 - Services
 - Ontologies and Service Level Agreements
 - *Towards self-organising Systems?*
 - Multiple devices
 - Multiple access strategies
- Who is inside and who is outside of value-chain?



The User?



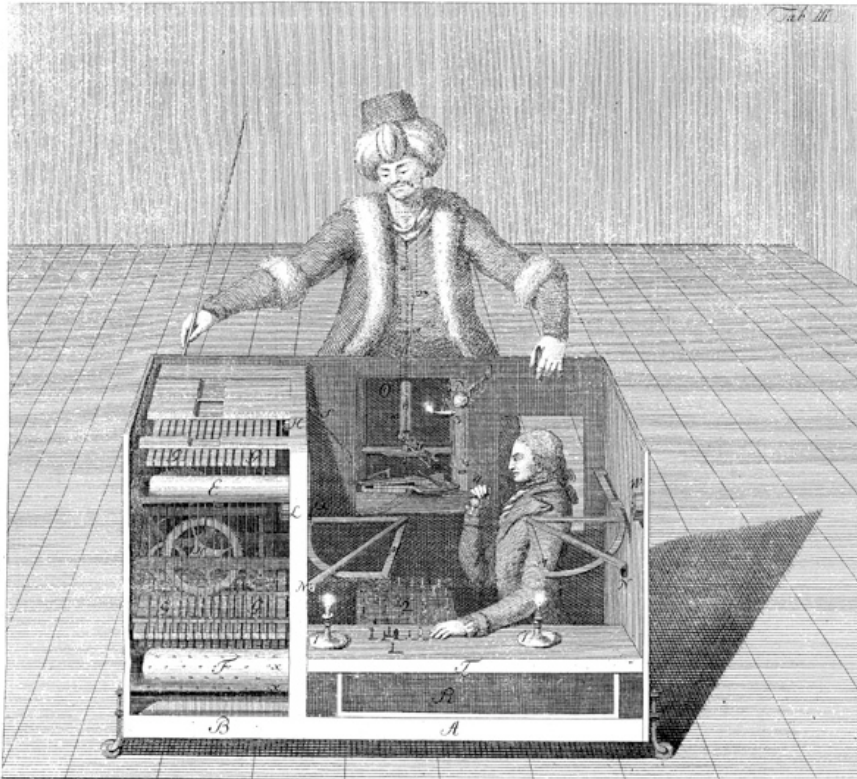


The “User” Revisited

- User integration on all levels is key
 - example: mechanical Turk
- For example:
 - Amazon
 - Ebay
 - Flickr
- As described in good Open source Projects
 - quality of community is indicator for OSS quality!

The “new User”: Software or Human Computation?

2006 ESP & Peekaboom



1770 Mechanical Turk by
Wolfgang von Kempelen





Summary: The Role of Open Source and Open Protocols





What Role does Open Source play in that context?

- Well known are issues like:
 - Avoid (Unnecessary) Economic Dependencies
 - Freedom of Speech
 - Freedom of Selection
 - Right to use the information produced in an arbitrary way
 - “Web 2.0” style applications are heavy OS users
- Connected Economy encourages the OS model!
 - Open Source interaction mechanisms are best-practice for modern distributed development efforts
 - Software as a process **IS** the OS idea
 - Openness is key for modern economies and innovative products
 - Open Source teaches patterns for modern economic interaction

The Open Source Idea

- *Consume Closed-Source Software Products?*
 - Do not understand the technology behind
 - Get dependent (economically, intellectually, conceptually)
 - Forced to need closed protocols
- **Take the Open Source Idea for modern IT-Driven Business:**
 - Take available OS Systems and open standards
 - Analyse them
 - Learn the Concepts (**Knowledge Transfer!**)
 - Change, Fit it to your own culture
 - Customise
 - Localise
 - Communicate
 - **Build your own, innovative solutions!**

- IT Infrastructur is the digital bloodstream of contemporary societies:
 - Patents (Software)
 - Copyright – Abuse (Lobbies)
 - Currently special Status of Developing Countries like Indonesia (Software, DVDs, ...) will change soon!!!
 - Pressure from USA (DMCA, TCPA, ...)
- User and Interaction Driven Economies demand
 - Open Protocols
 - Open Systems
 - Commodified Applications



Open Protocol / Format

- What is a Protocol?
- Protocol \leftrightarrow Dataformat ?
- Commodification of Software bases on open protocols!
 - http
 - XML
 - mp3
- Additionally open Protocols make Longevity of Digital Information more certain
- Connection to OS Software
- Creative Commons

Conclusion

- We observe a paradigm shift from
 - Closed Source/proprietary/shrink wrapped Software
 - Towards Service-Oriented applications with
 - Strong inclusion of the community (the user)
- We move from *Software as Artefact* to *Software as Process*
- This new paradigm often follows Open Source (interaction) mechanisms
- Open Protocols are the foundation for Software as commodity and for a working market
- Developing countries have the opportunity to build up an open and robust infrastructure based on
 - Open Systems
 - Open Protocols
 - And transferring the knowledge available in the OS community



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