



# Financial and Political aspects of software

## **Layer 8 (Financial) and layer 9 (Political) of the OSI protocol stack**

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Russell McOrmond, FLORA Community  
Consulting <http://www.flora.ca/>

<http://www.flora.ca/russell/drafts/osw2004.html>

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OSI Stack: Physical, Data Link, Network, Transport,  
Session, Presentation, Application, Financial, Political, ...



# Warnings, Warranty, blah, blah, blah...

- IANAL, TINLA
- Make money as ISP, system administrator, but passion is public policy
- Ideas may be controversial, so don't be surprised if you disagree. Idea of presentation is to introduce some concepts and expand the possibilities of how to think of software...
- As with all software: NO WARRANTY ;-)



# Outline

- Intro (What is software, History)
- Other ways to think of software
- Peer Production and Peer Distribution
- Sample business models
- Intro to a "Software paralegal"
- Some policy issues... Open Discussion...



# What is software?

- "The programs, routines, and symbolic languages that control the functioning of the hardware and direct its operation"
  - Not physical nor easily defined
  - Copyright: "Work of the mind"
  - Branch of Math? Branch of natural or social sciences? Can be seen as all these things.
- Not same as container: CD, Disk, CPU, etc.



# Beginnings of software sector

- Prior to 1950's/60's
  - Software bundled with hardware
  - Practitioners commonly shared software/knowledge
- Software separated from hardware, two branches emerged.
  - Business models and other methodologies similar to hardware: "software manufacturing"
  - Methods using more unique features of software



# Ways of thinking of software

- "Software manufacturing". Uses methodologies and business models from the manufacturing sector. Most well known.
- Software as a service.
- Software as technical knowledge
- Software as a form of policy: "Code is law"
- etc...

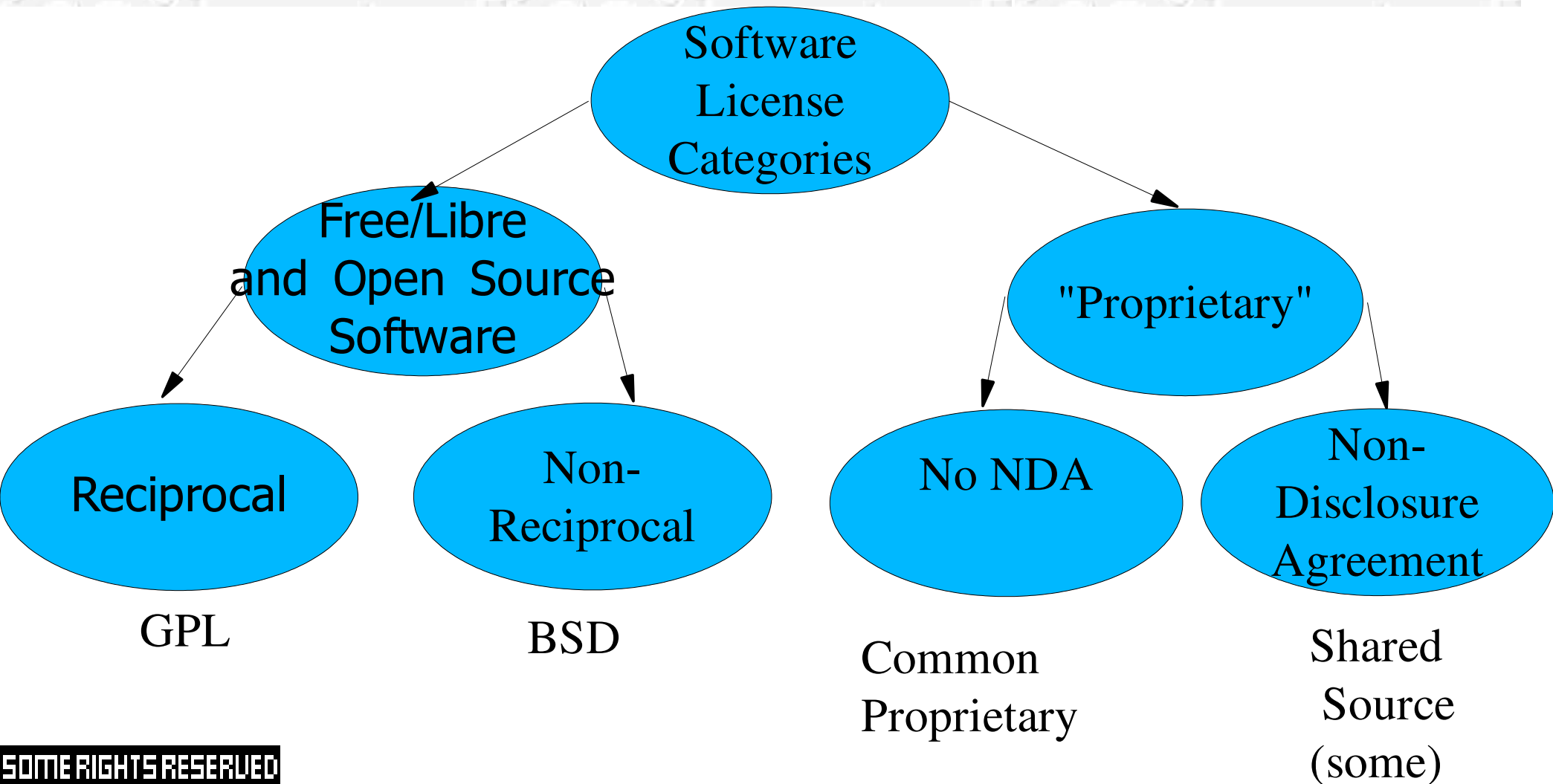


# Peer production, Peer distribution

- "Commons-based peer production"
  - "Coase's Penguin, or Linux and the Nature of the Firm", by Yochai Benkler
  - Includes Free/Libre and Open Source Software (FLOSS), Creative Commons, ...
- Peer Distribution
  - "And they tell two friends, and so on, and so on"
  - Peer-to-peer file distribution



# Full Spectrum?



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# Example business: "software manufacturing"

- Inputs: existing licensed software (non-copyleft FLOSS, software manufacturing)
- Value-add software - speculative
- Bundled, packaged (CD, box), distribution to retail
- Marginal costs: software=0, packaging>0, distribution>0, retail>0
- Cost of software spread over many copies



# Example business: Peer production/distribution

- Inputs: public pool of existing software (FLOSS: copyleft and non-copyleft)
- Value add software – paid by customer/self
- Possible to make marginal price=0, focus on funding fixed development costs
  - software=0, packaging=0 , peer distribution=0, retail=0
  - Resource multiplication
  - "demand side supplying itself" – Doc Searls



# "Software Paralegal"

- Treat software as a form of policy
- Technology neutral, software project neutral, but not methodology neutral (peer based)
- Extends to how I analyze software
  - Citizen input, transparency and accountability for publicly distributed software --> public policy
  - Charge for time and whether development/results are peer based/public, not whether work is software or analysis

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# Public Policy

## Questions/Quotations

- Governance software that controls Information and Communications Technology (ICT), automates government policy, or electronically counts votes, should not be thought of as something that should be bought any more than politicians should be thought of something that should be bought
- "any 'hardware assist' for communications, whether it be eye-glasses, VCR's, or personal computers, must be under the control of the citizen and not a third party



# Software Environmentalist?

- Hardware:
  - Reduce energy consumption – Energy Star
  - Reuse old hardware by using FLOSS – minimal distribution, lightweight applications, terminals, ...
- Software:
  - Royalty-based businesses rely on artificial scarcity
- Bad measurements: UNDP TAI uses royalties, patents, electricity consumption



# Software patents?

- "invention" means any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter;
- Statutory, Useful, Novel, Unobvious
- Physical characteristic of thought? Social sciences are branch of physics?