OSS2007 workshop

TOWARD A NEW INDUSTRIAL ORGANIZATION? OPEN-SOURCE SOFTWARE IN ECONOMIC AND MANAGERIAL PERSPECTIVE

Enabling Environments
Internet, Web, GNU/Linux, Debian

Alberto Cammozzo
University of Padova - Department of Statistics

please, dont' shoot the pianist

or at least please procrastinate till the end of the slides

Inspirations

- Value chain, strategy
  - Corporate Philantropy (Porter, Kramer)
  - Open innovation (Chesbrough)
  - Transaction costs, peer-production (Benkler)
  - *Ba* (Von Krogh- Ichijo-Nonaka) and *Layered Ba* (Tuomi)
- History, path dependance (Benussi, Tuomi)
- Software development
  - Layering, Modularization (Messerschmitt-Sziperski, Narduzzo-Rossi)
  - Lifecycle (Senyard-Michlmayer)
- Knowledge management
  - Symbiotic cognitive system (Sowe-Karoulis-Stamelos)
  - Knowledge value chain (Lee-Yang)
- Motivations and identity (Rullani)

Internet, Web, GNU/Linux, Debian

(what the paper says analytically in 30 pages)
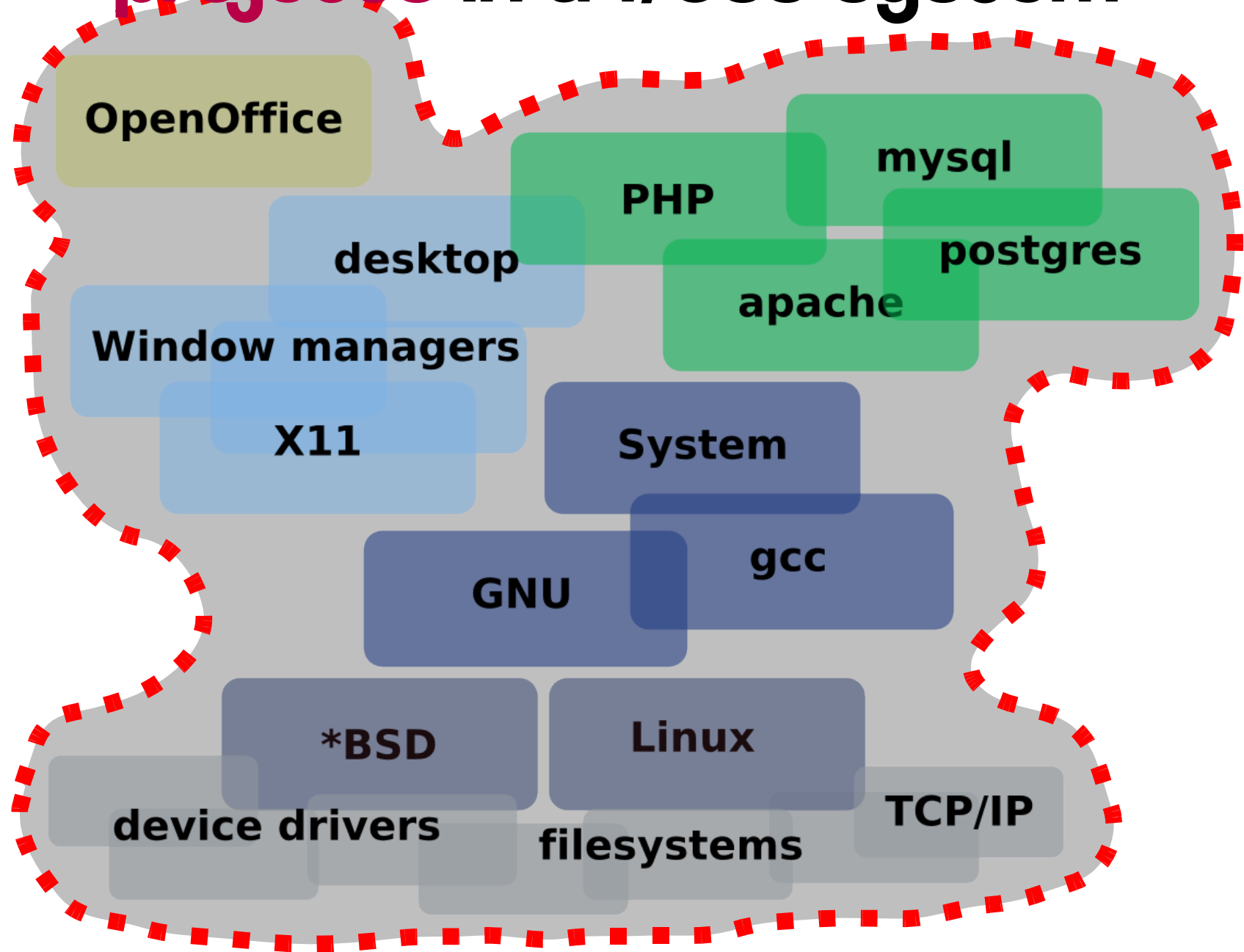
- I - common key aspects in each of the projects:

  1. layered & modular structure: components

  2. cooperation & competition

  3. principles of governance & clear strategy /vision: "*strategic intent*"

  4. overall openness:
     use & distribution, product architecture, governance

- II - Internet role in the software value chain

  - the evaporation of the physical media, self-signaling

- III - Knowledge embedding

  - product: standard interfaces, formats, etc

  - process: knowledge value chain

analytic dimensions
(what I'll try to say synthetically in 20 minutes)

1. **f/oss** **projects** evolve and layer in
2. **open, networked** **environments** in which
3. **knowledge** is embedded

projects in a f/oss system

OpenOffice

PHP

mysql

desktop

postgres

apache

Window managers

X11

System

gcc

GNU

*BSD

Linux

device drivers

filesystems

TCP/IP

explicit knowledge

- **embedded in the product**
  - code available for documentation and reuse
  - common, documented interfaces and formats

- **embedded in the process**
  - developing and supporting community:
    life support environment for the project
  - documentation all along the k-value chain
 - *symbiotic cognitive system* between project participants and community

why environment?

- **those successful projects**
  - are a *place* where other projects grow
    - internet ← web
    - internet + web ← linux kernel development
    - internet + web + linux + gnu ← free system (eg Debian)
  - provide *factors* for projects all along the value chain
    - web → f/oss projects, communities
    - Internet → distribution system
    - externalities: web → Internet

Layered environments
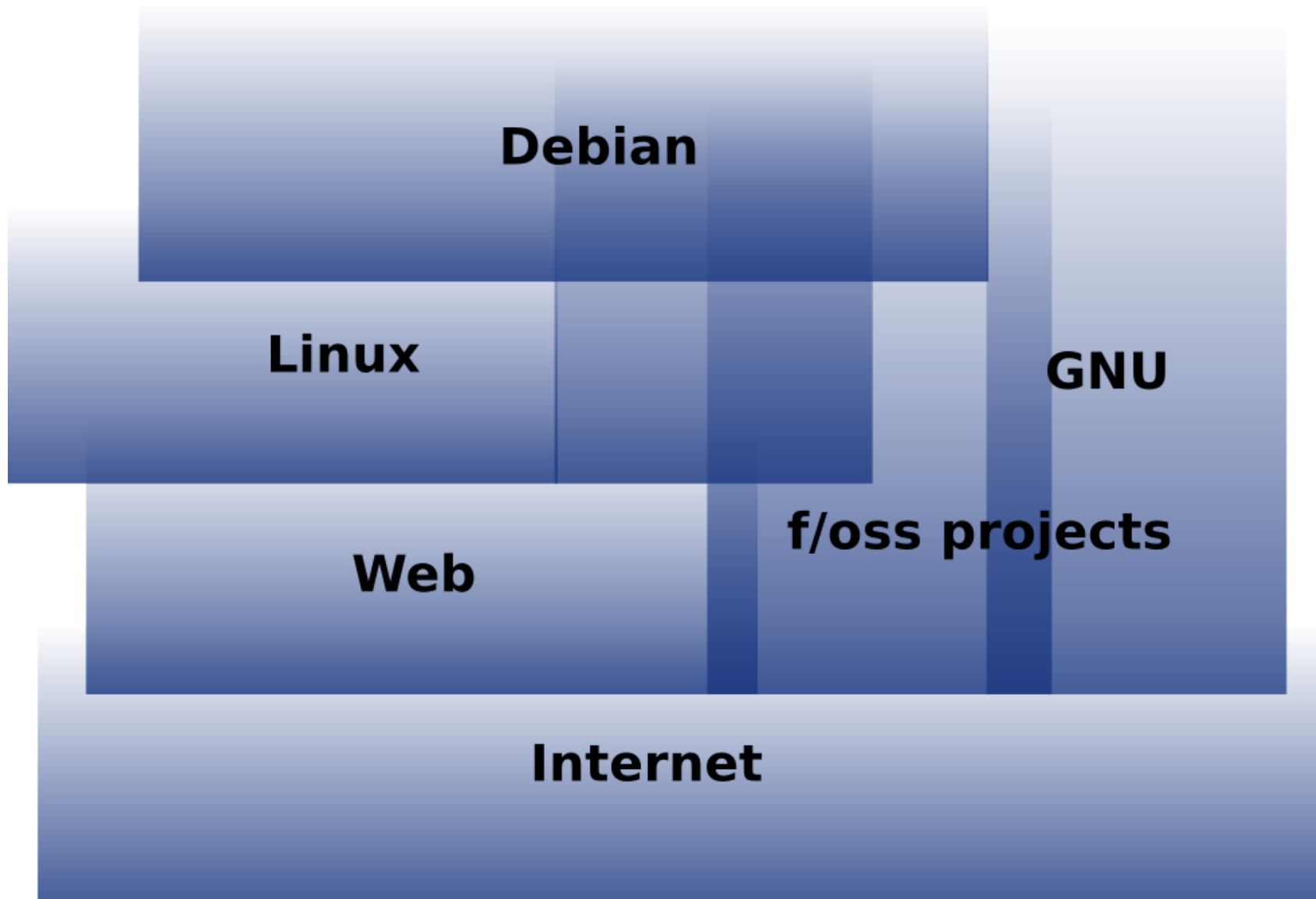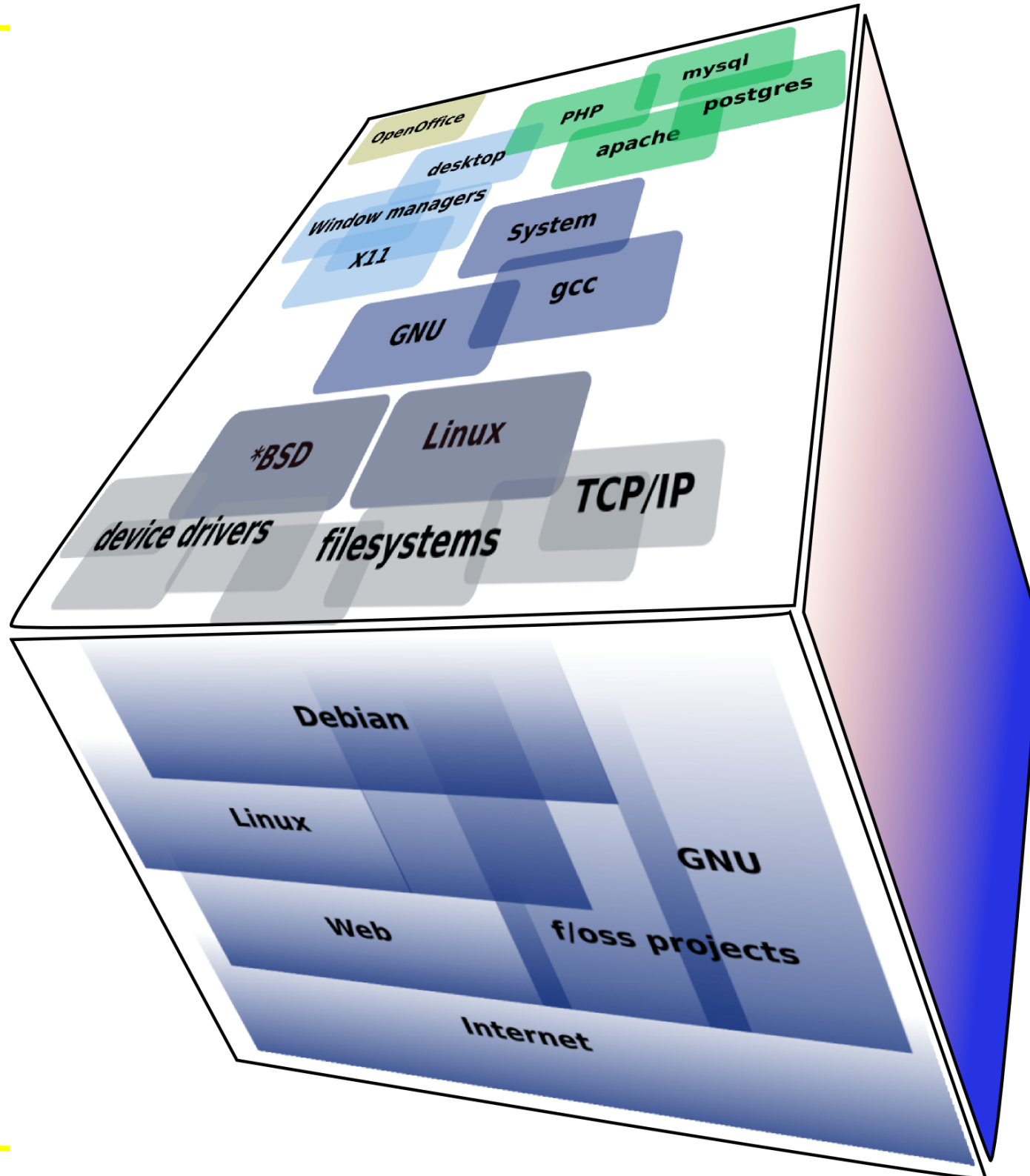
Distribution *knowledge* value chain

	phase	who	what	scope	adds
1	*creativity*	programmer(s)	code	project developers	analysis, talent
2	*life support*	users	program	community	debugging, documentation, websites, mailing lists, repository
3	*stability*	package developers	package	distribution users	compilation, configuration, dependencies, documentation, tools
4	*completeness*	distribution developers	distribution	generic users	repository, tools, support, documentation, security
5	*functionality*	system manager	system	local users	local configuration, documentation

Actors

- **individuals**
  - **creativity, peer-production**
- **communities**
  - **life support, documentation, improvement, values**
- **firms**
  - **service, promotion, *strategic intent*, capital**

strategy

- **Coase's Penguin, wealth of networks (Benkler)**
  - transaction costs reduction
  - information gains of self-identification
  - empowerment of the individual: peer-production
- **Corporate Philantropy (Porter, Kramer)**
  - *improve competitive context*
  - OSDL
- **Open innovation (Chesbrough)**
  - *leverage distributed landscape of knowledge*

strategy - II

- **participating means *Influencing* f/oss projects:**

    - getting ahead of the competition in defining the tools *they*'ll end up using

    - it costs less to participate in development than to backport

    - acquiring knowledge now of what will be the business environment of tomorrow

industrial organization

- **centered on the project-product as a component**

- **open process & free software: explicit knowledge**

- **firms strategically influencing the environment**

- **innovation & competition**

- **shortening the supply chain:**
  "in proprietary software, it can be too late to back up when you make a mistake"

- public goods against monopoly

Analysis example

1. **competitive factors: Web**
   - Nelson's Xanadu, Gopher
2. **layered & modular structure: internet**
   - protocol layers, independent networks as modules
3. **cooperation, coordination & governance: Linux**
   - community + OSDL's strategic role
4. **& strategy / vision: Debian**
   - quality and user's needs

Open issues

- business model

- unusual interactions

  – firms with non-market agents...

  – communities with firms... What about reciprocity?

- k-workers' identity in the k-value chain?
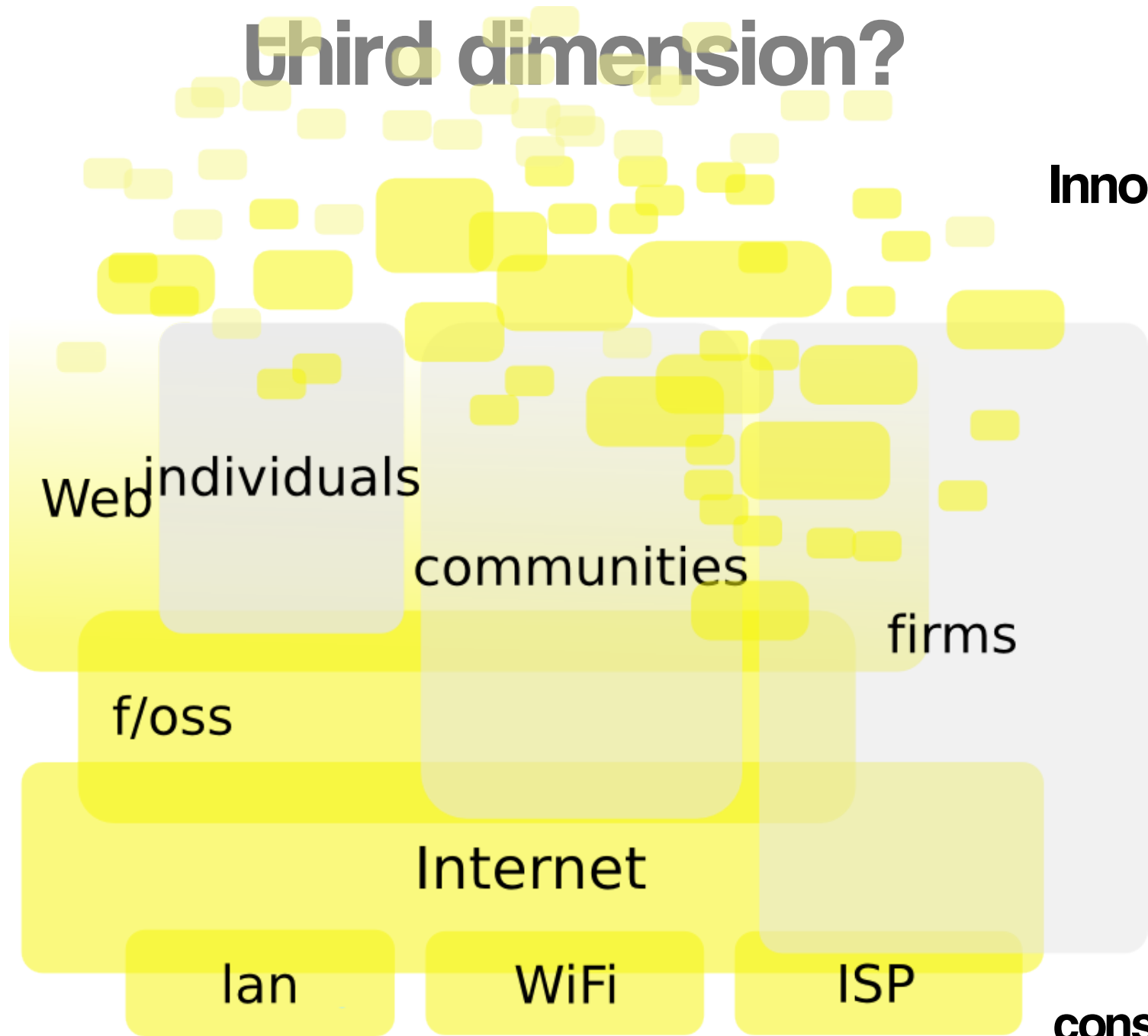
Thank you

mmzz@stat.unipd.it
Any questions?

Paper: http://tinyurl.com/2g62k4