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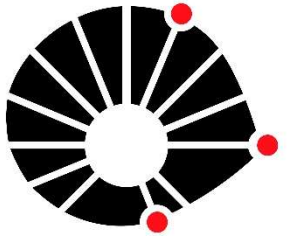
ROUNDTABLE ON CYBERSECURITY



UNICAMP

DEPARTMENT OF COMPUTER SCIENCE AND SCHOOL OF PROFESSIONAL STUDIES
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Cloud Strategy Perspectives @University of Campinas, Brazil

(disclaimer: personal view)

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Building an academic private Cloud

Drivers

IT convergence benefits

- cost / resource optimization
- scale
- improved availability

Cloud / Virtualization benefits

- new services e.g., IaaS
- support of education
  - e.g., VMs for labs, virtual desktops
- support of research
  - e.g., VMs for big data / HPC, large scale system experimentss

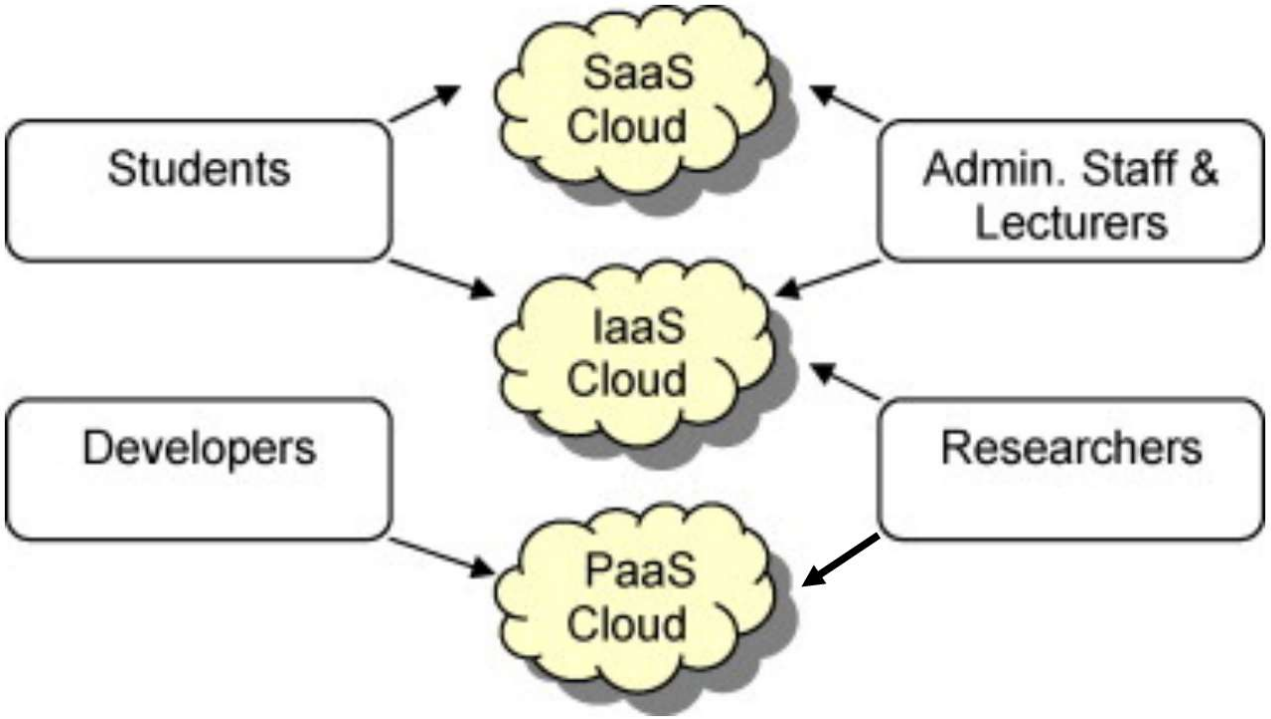


Figure source: Eurich - Business Models for Academic Compute Infrastructures 2013-04-29

Building an academic private Cloud

Constraints (Unicamp-specific?)

- Budget
  (current absolute + future allocation models)
- Long procurement times
  (org bureaucreacies + regulation)
- IT skills
  (slow / small margin for hiring)
- Central & Distributed IT
  (faculty autonomy)
- HW Heterogeneity
  (current + future)

Challenges: Private cloud strategy alternatives

Build your own Cloud

1. Buy HW (hyper-convergence)
2. Install open source Cloud stack
3. Customized SW development
4. Integration, integration, integration
5. Training (Buy + in-house)

One-stop shop

1. Buy (HW & SW) solution
2. Buy services / consultant hrs
3. Buy Training

- **Evaluation criteria:** BUDGET, in-house HR skills, available (in-market) skills, modularity, regional ecosystem considerations (e.g., federation of academic clouds), ...
- **Unknowns:** Long-term OPEX? (>>> initial CAPEX), Suitainability?
  (In-house SW development / engineering hours often forgotten)

Challenges: Break “server under the desk” mentality

Natural humans barriers

- Job security
- Loss of power / influence
- Fear to change

How? (update human firmware)

- right incentives?
- training?
- re-organizational actions?

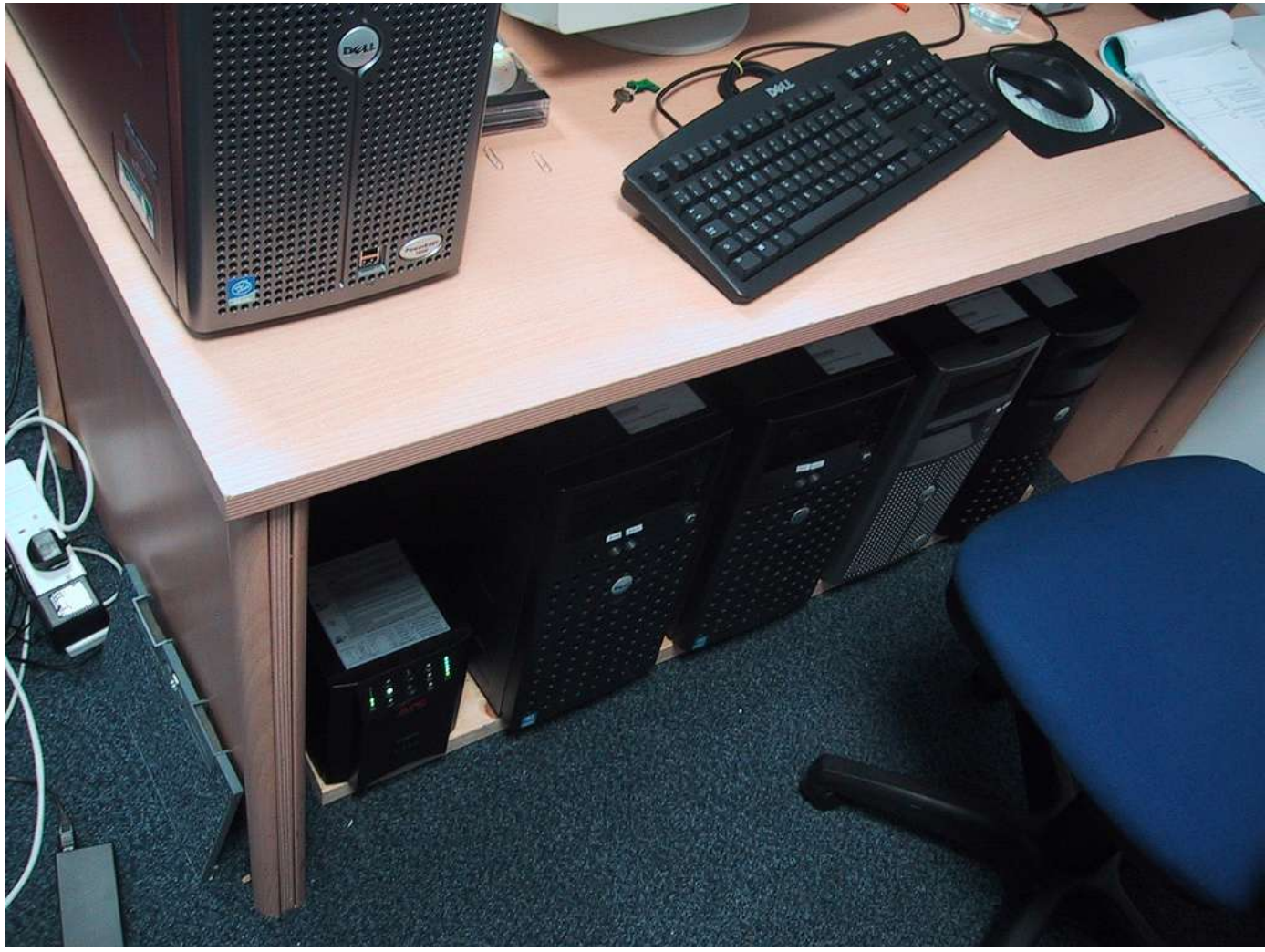
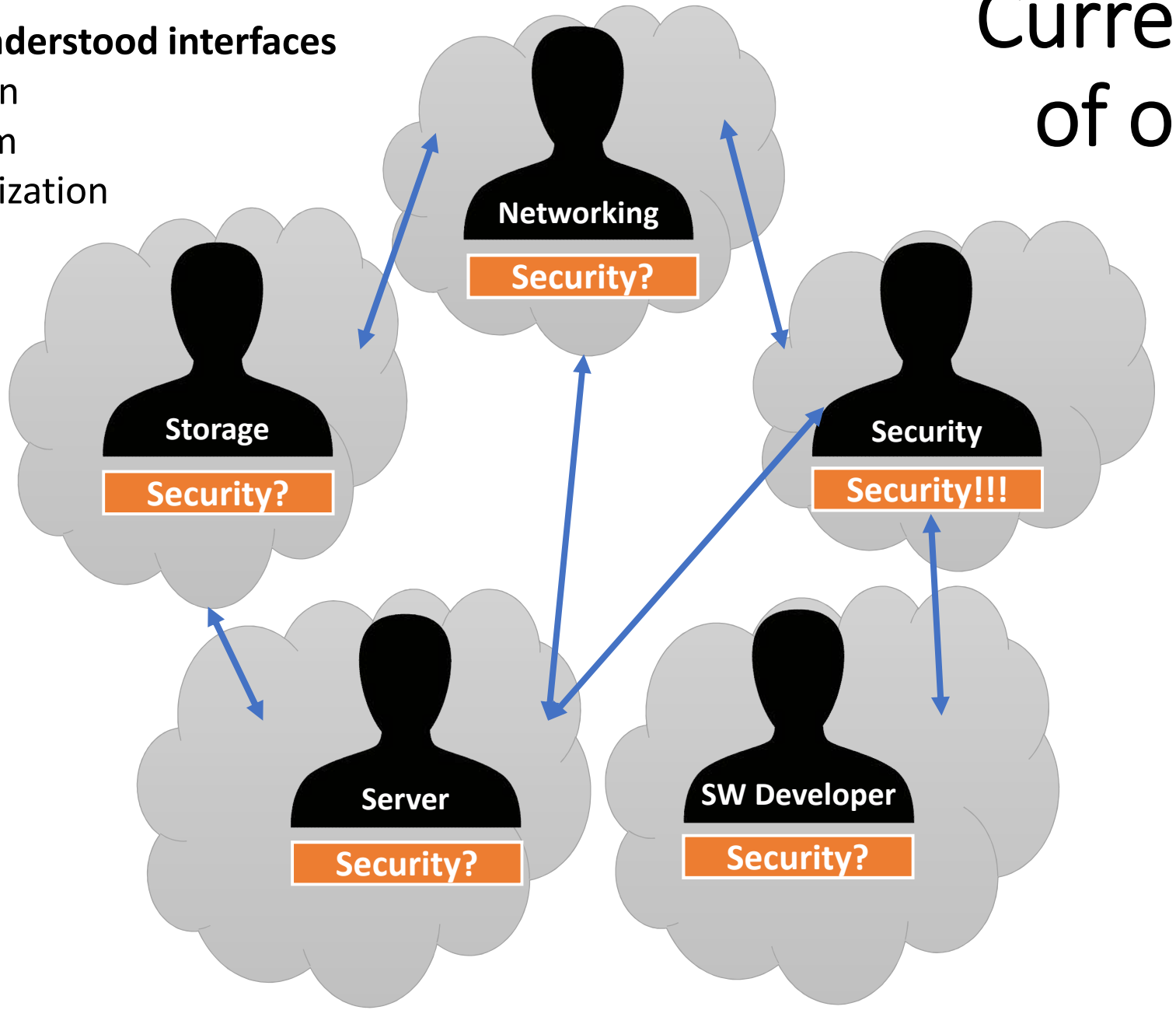


Image source: https://www.flickr.com/photos/kingzog/103061262

Current mode of operation

(well?)- defined/understood interfaces

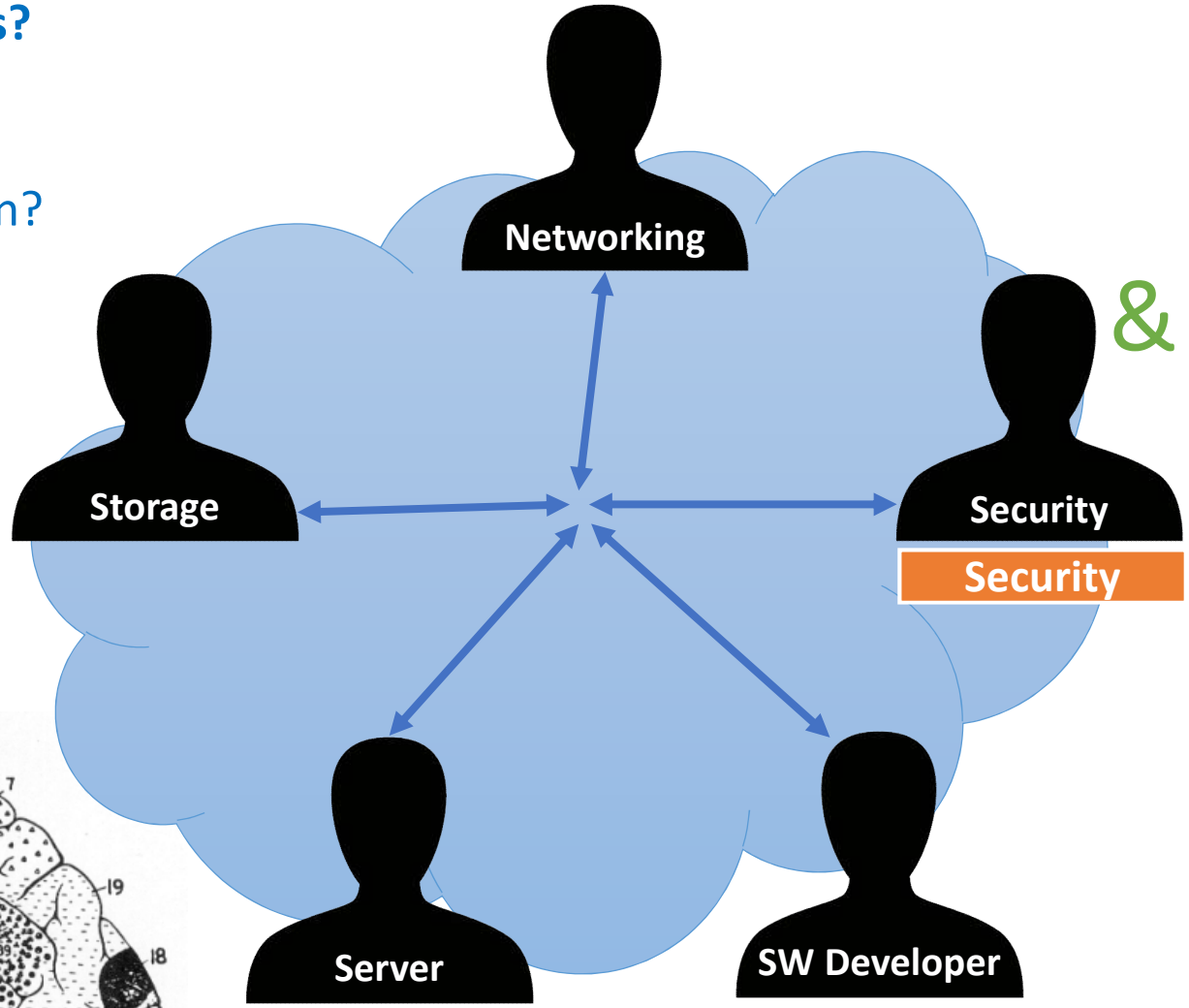
- Human-to-human
- Human-to-system
- Human-to-organization
- APIs



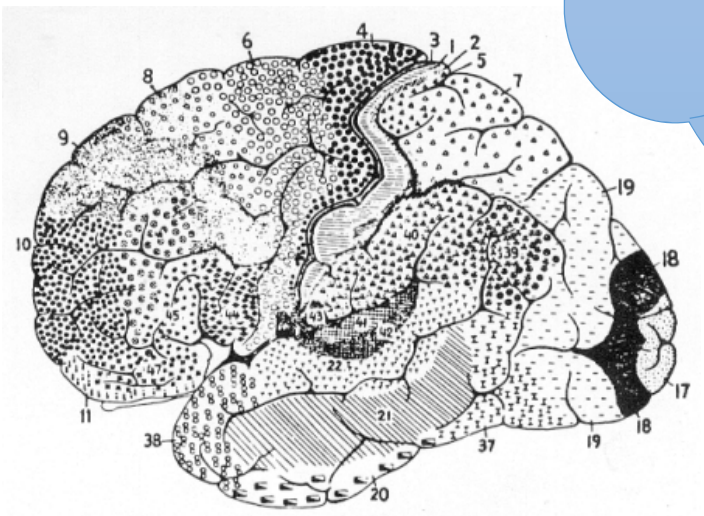
Future mode of operation w/ cloud & virtualization

Newly defined interfaces?

- Human-to-human?
- Human-to-system?
- Human-to-organization?
- APIs?



Requires
"Updates to human brain firmware"



- **Security concerns**
- **Data privacy?**
  Governance?
  Policies?
- **Etc.**

+ Integration w/ Public Cloud
+ Federation w/
Academic Clouds in Brazil

School of Electrical and Computer Engineering Unicamp