Chair of Network Architectures and Services
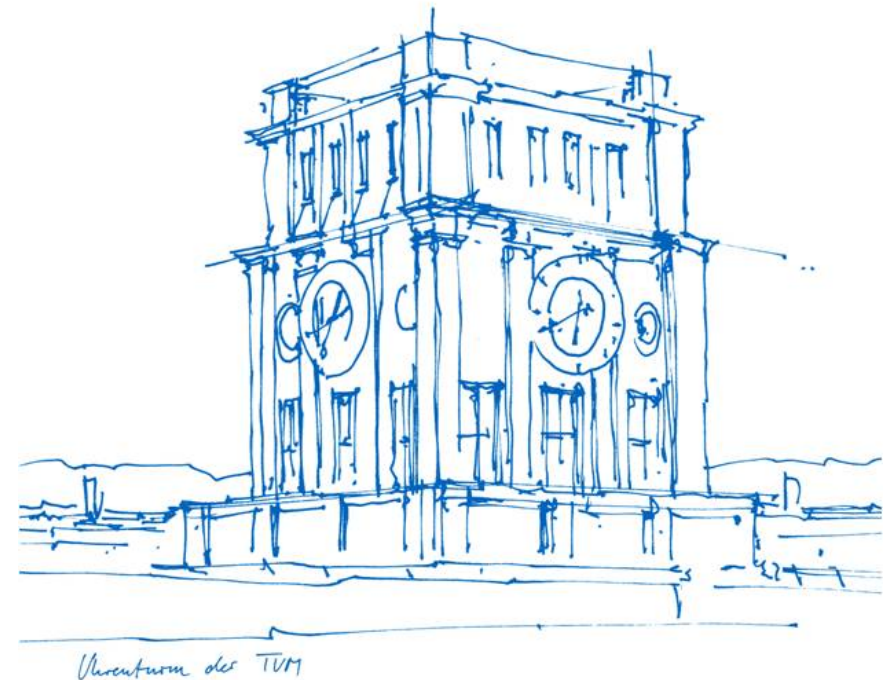Department of Computer Engineering
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Testbeds for Reproducible Research

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Key Takeaways

Learn from history

- Planetlab

- PEERING

- IoTlab

Wish list – scientists

- Democratization of testbeds

  - Every scientist in the field will obtain access to relevant technology

- Low access barrier (convenience)

- Flexibility to quickly realize new ideas

Wish list – community

- Ressource sharing/pooling helps to address limited funding

- Learning from ability of physicist community how to tap large funding

Challenges

- Sustainability

- Tension between long-term planning vs. scientifc creativity

PAWR — emulation/simulation (colosseum @neu.edu)
possible use case: O-RAN

standards for (inexpensive)
local reproduction /
benchmarking

when/how to "jump from the testbed
to the Real Thing?"

(timely)} access to resources
(+ equitable)}

share/pool resources
for wider access

learn from history
e.g. PlanetLab

IoTLab (INRIA et al.)

PEERING

"self-sustained growth"

signs of success: — % papers use it
— reviewer asks "why no eval on (testbed)??"
— 100% utilization at INFOCOMM deadline
— eventually given up due to exhaustion

Sustainability ??
— incentives for researchers to run it
— incentive for agencies to fund (competition)
— tit-for-tat

What to put in the testbed ?
topics / capabilities with/
critical mass of research groups
(citations ...)

Tension between

1) long - term planning / efficiency / reliability
2) scientific freedom / new crazy ideas

... tricky governance issue

wishlist time !

get access to all the GPUs for 5 days ✗

w/o high barrier to entry

✗ just before the deadline :)

Questions?