

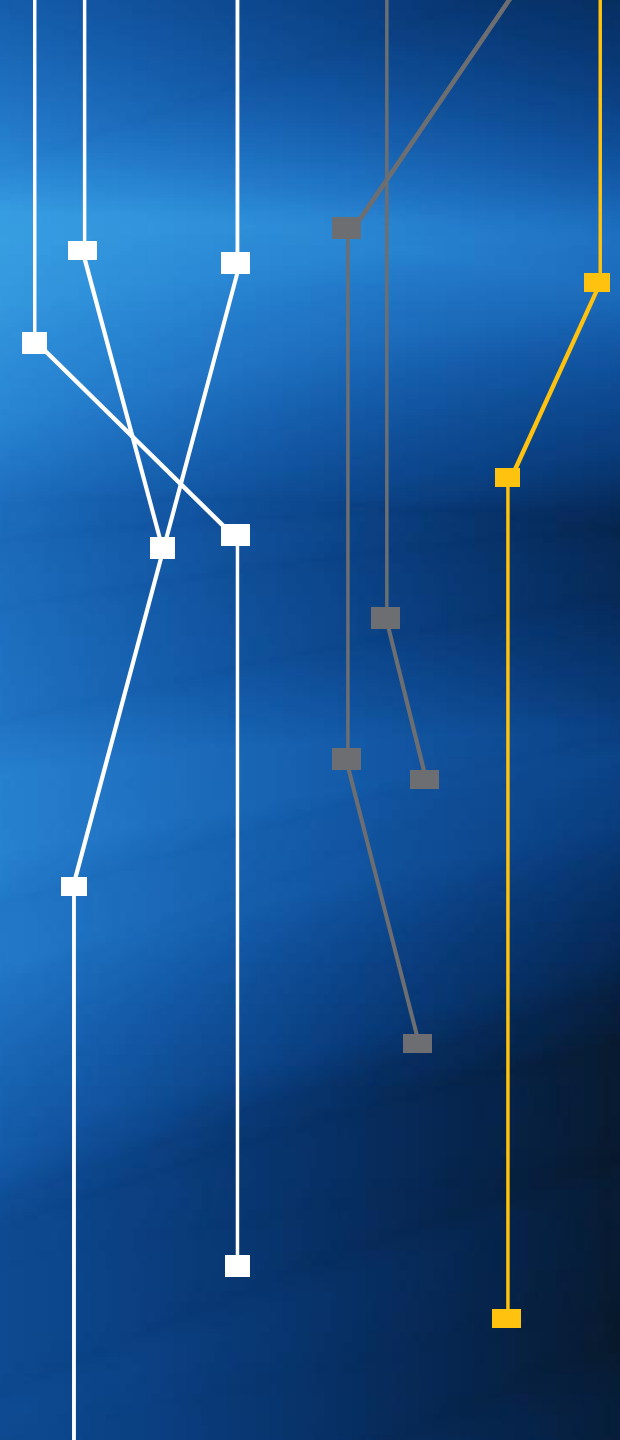


# Serviços para suporte à e-Ciência

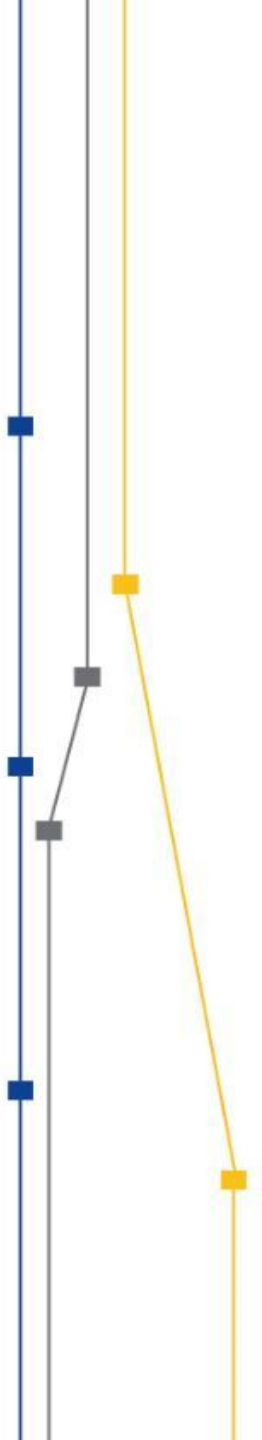
Leandro Ciuffo (RNP)



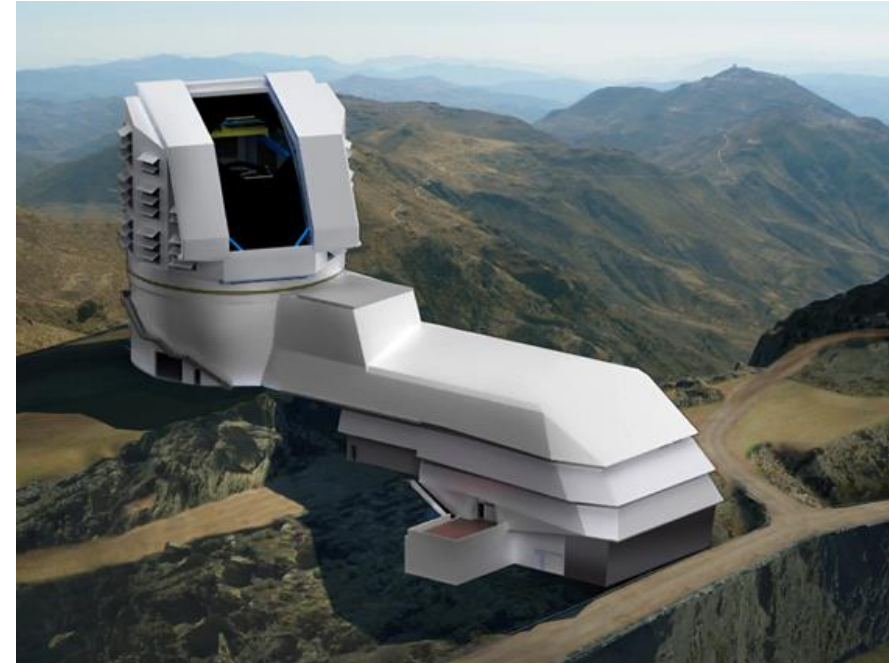
Workshop 10 anos RENAFEA  
31/07/2018



# Global cooperation for Education and Science



# Support to High demanding projects (w.r.t. data movement)



Synchrotron light source  
@Campinas

~500Km



Supercomputer  
@Petropolis

# Network Requirements and Expectations

100TB	13,333.3 Gbps	2,666.7 Gbps	666.7 Gbps	222.2 Gbps
10TB	1,333.3 Gbps	266.7 Gbps	66.7 Gbps	22.2 Gbps
1TB	133.3 Gbps	26.7 Gbps	6.7 Gbps	2.2 Gbps
100GB	13.3 Gbps	2.7 Gbps	666.7 Mbps	222.2 Mbps
10GB	1.3 Gbps	266.7 Mbps	66.7 Mbps	22.2 Mbps
1GB	133.3 Mbps	26.7 Mbps	6.7 Mbps	2.2 Mbps
100MB	13.3 Mbps	2.7 Mbps	666.7 Kbps	222.2 Kbps
10MB	1.3 Mbps	266.7 Kbps	66.7 Kbps	22.2 Kbps
1MB	133.3 Kbps	26.7 Kbps	6.7 Kbps	2.2 Kbps
	<b>1 Minute</b>	<b>5 Minutes</b>	<b>20 Minutes</b>	<b>1 Hour</b>

Time to transfer

File size

10PB	2,777.8 Gbps	925.9 Gbps	132.3 Gbps	30.9 Gbps
1PB	277.8 Gbps	92.6 Gbps	13.2 Gbps	3.1 Gbps
100TB	27.8 Gbps	9.3 Gbps	1.3 Gbps	308.6 Mbps
10TB	2.8 Gbps	925.9 Mbps	132.3 Mbps	30.9 Mbps
1TB	277.8 Mbps	92.6 Mbps	13.2 Mbps	3.1 Mbps
100GB	27.8 Mbps	9.3 Mbps	1.3 Mbps	308.6 Kbps
10GB	2.8 Mbps	925.9 Kbps	132.3 Kbps	30.9 Kbps
1GB	277.8 Kbps	92.6 Kbps	13.2 Kbps	3.1 Kbps
100MB	27.8 Kbps	9.3 Kbps	1.3 Kbps	0.3 Kbps
	<b>8 Hours</b>	<b>24 Hours</b>	<b>7 Days</b>	<b>30 Days</b>

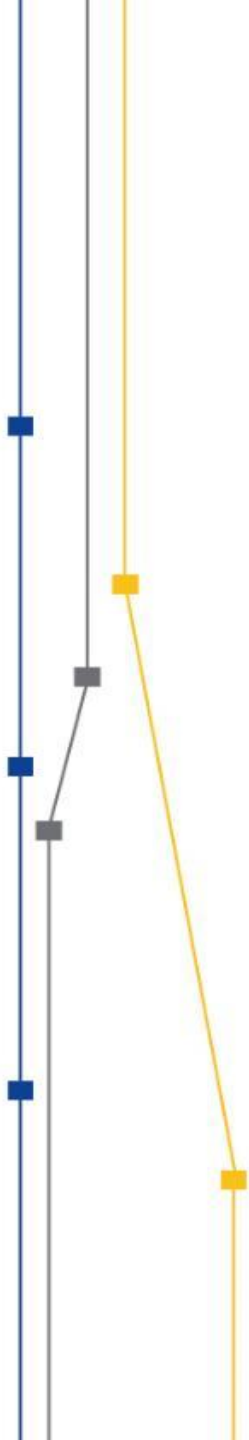
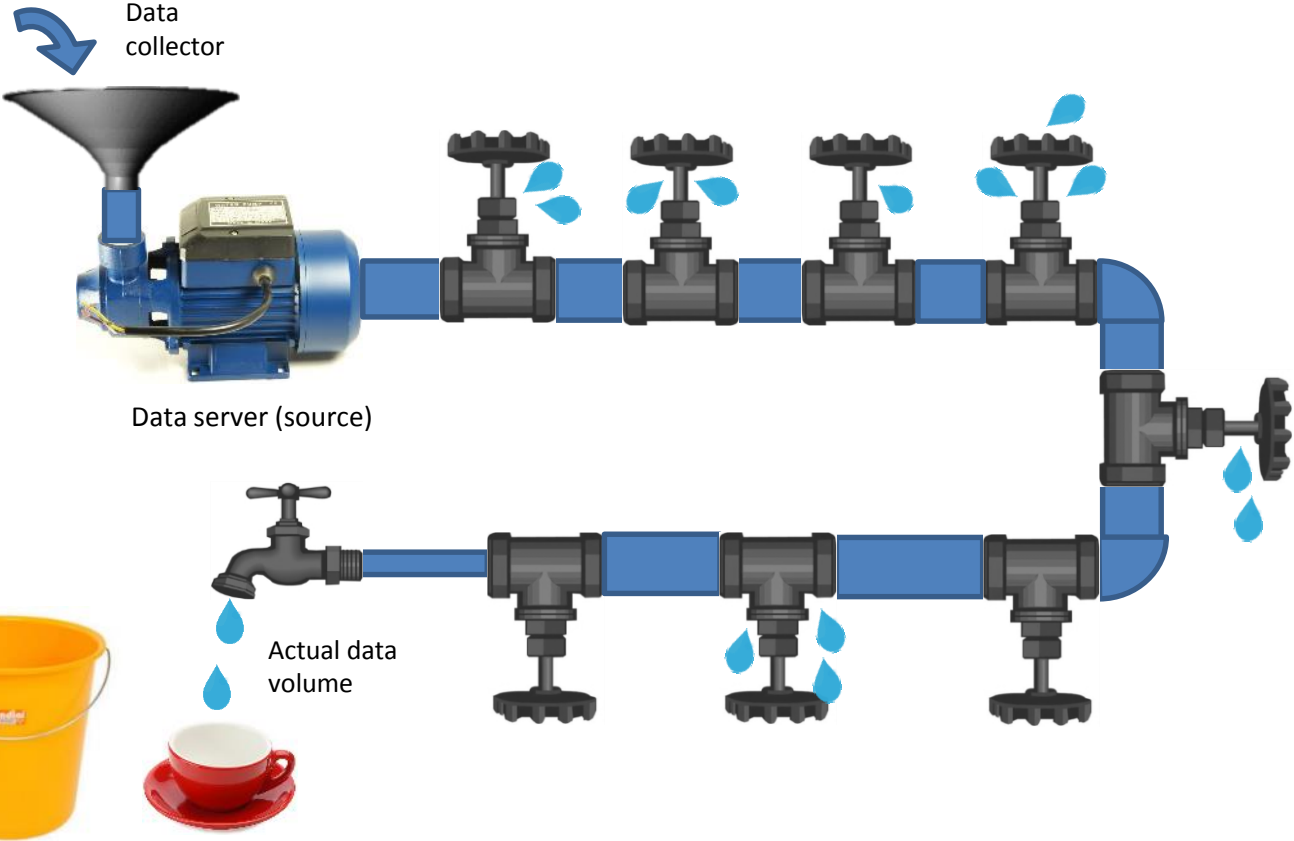


<http://fasterdata.es.net/fasterdata-home/requirements-and-expectations/>

# Data transfer expectation



Data deluge



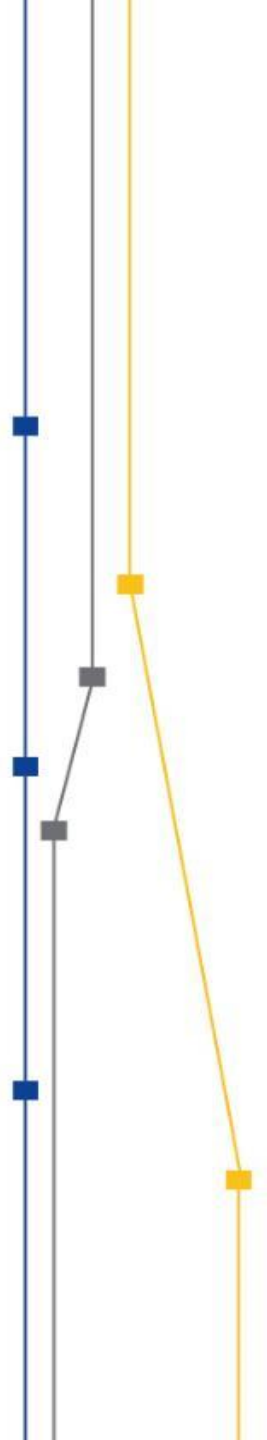


# ENLIGHTEN YOUR RESEARCH

Give your research a boost

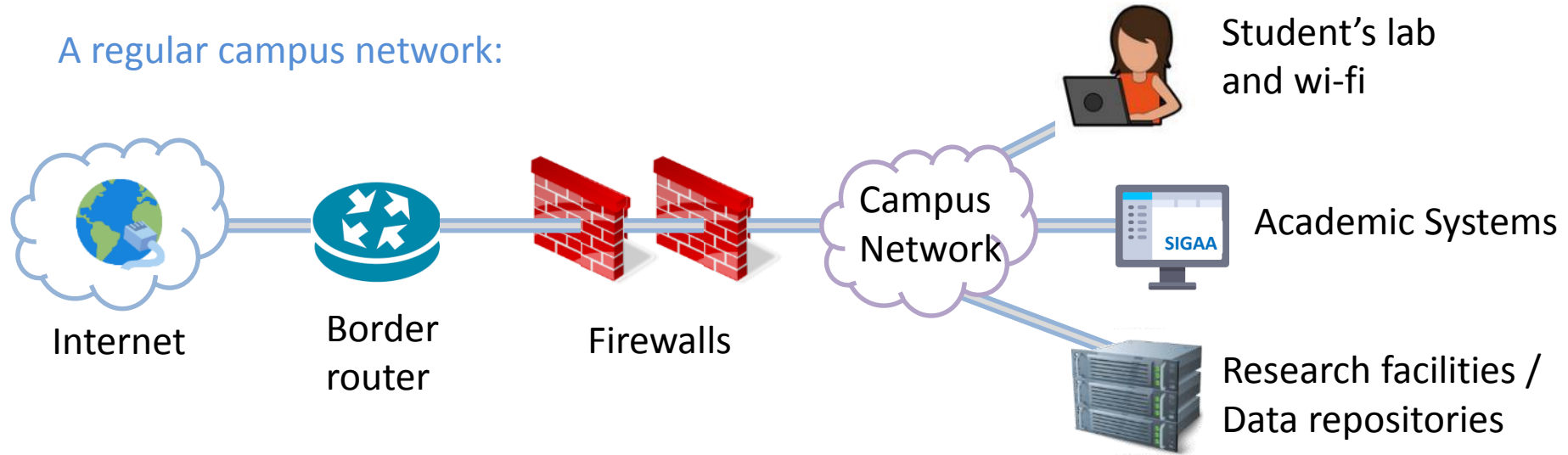


<https://www.enlightenyourresearch.net>



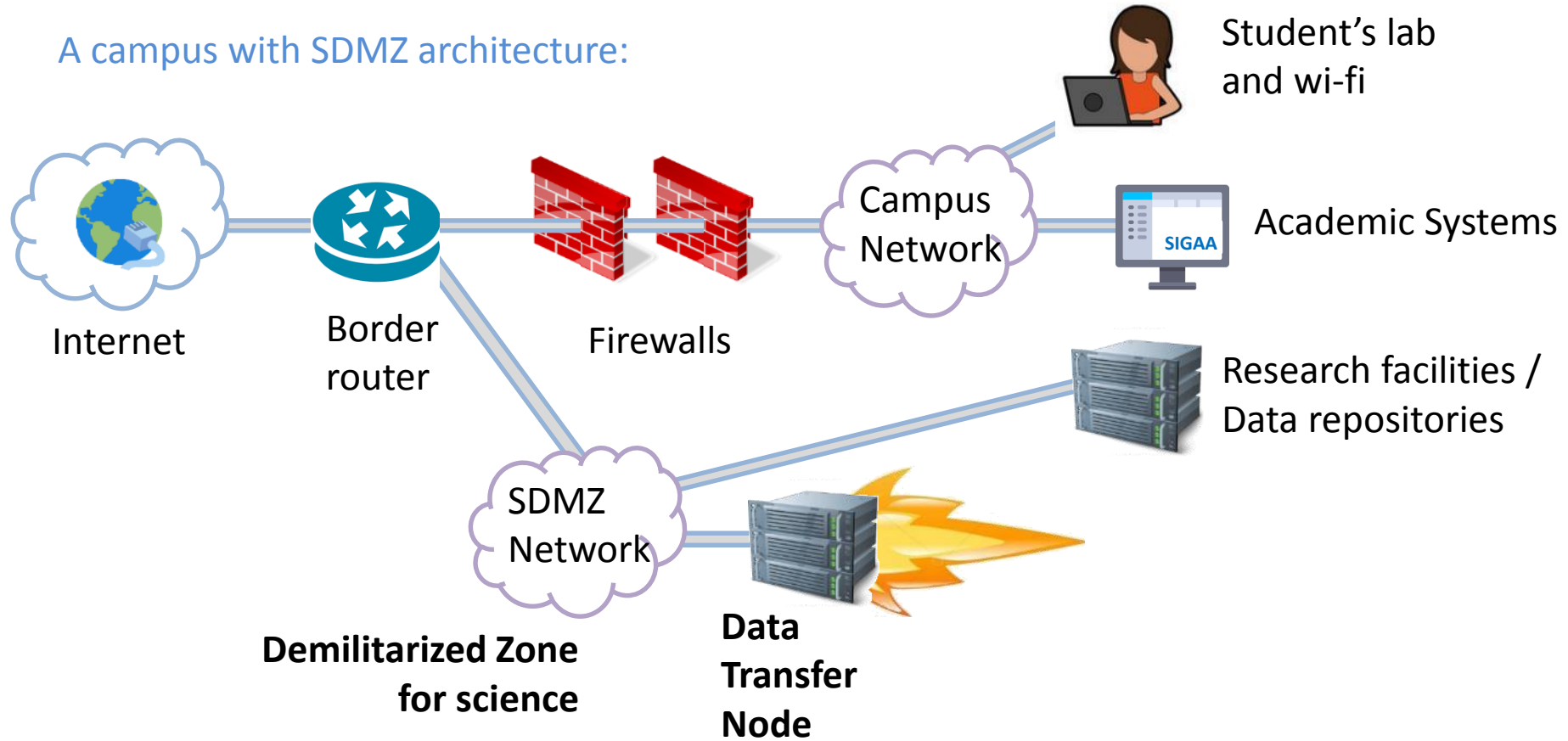
# Science DMZ

A regular campus network:



# Science DMZ

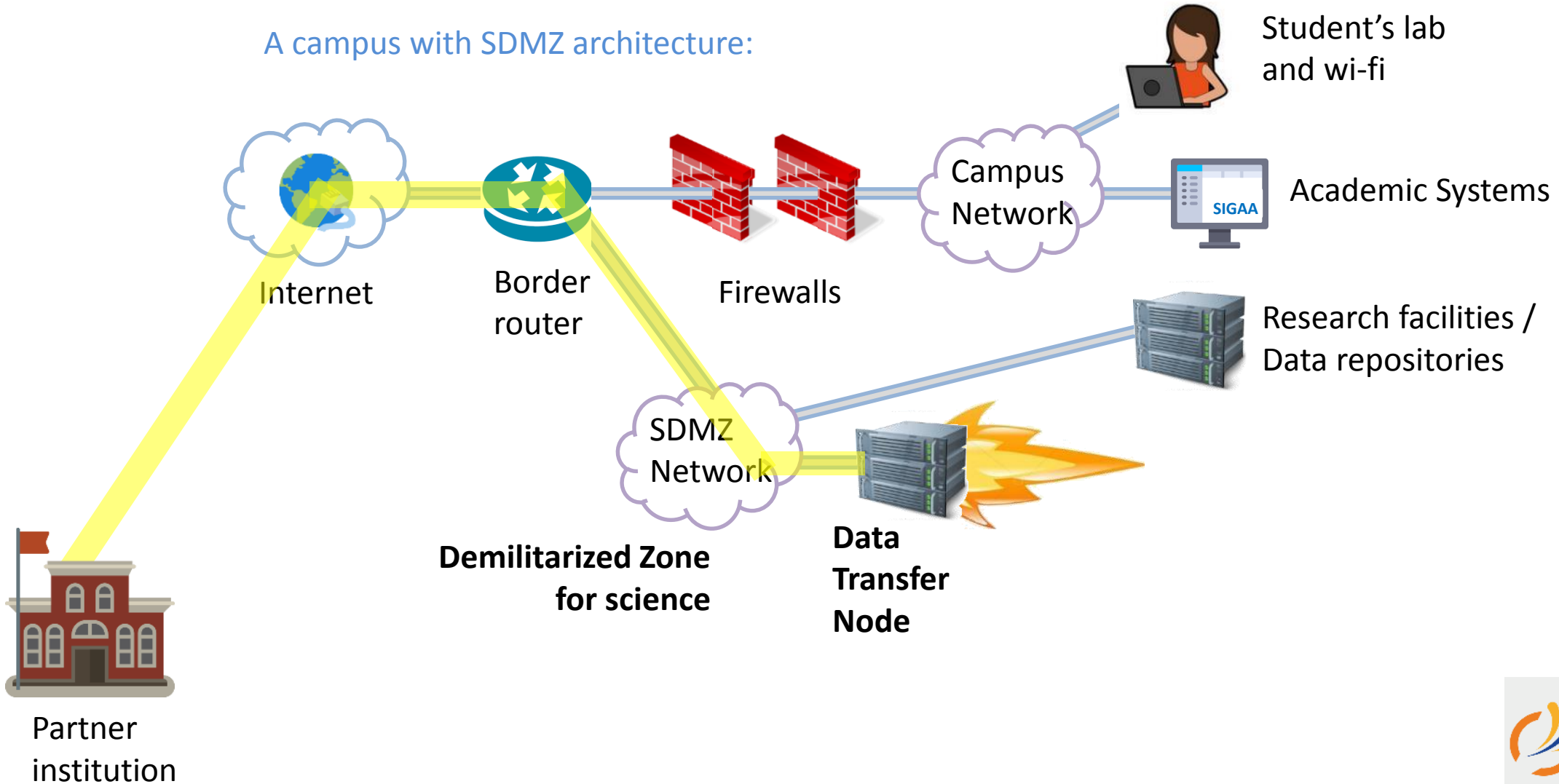
A campus with SDMZ architecture:



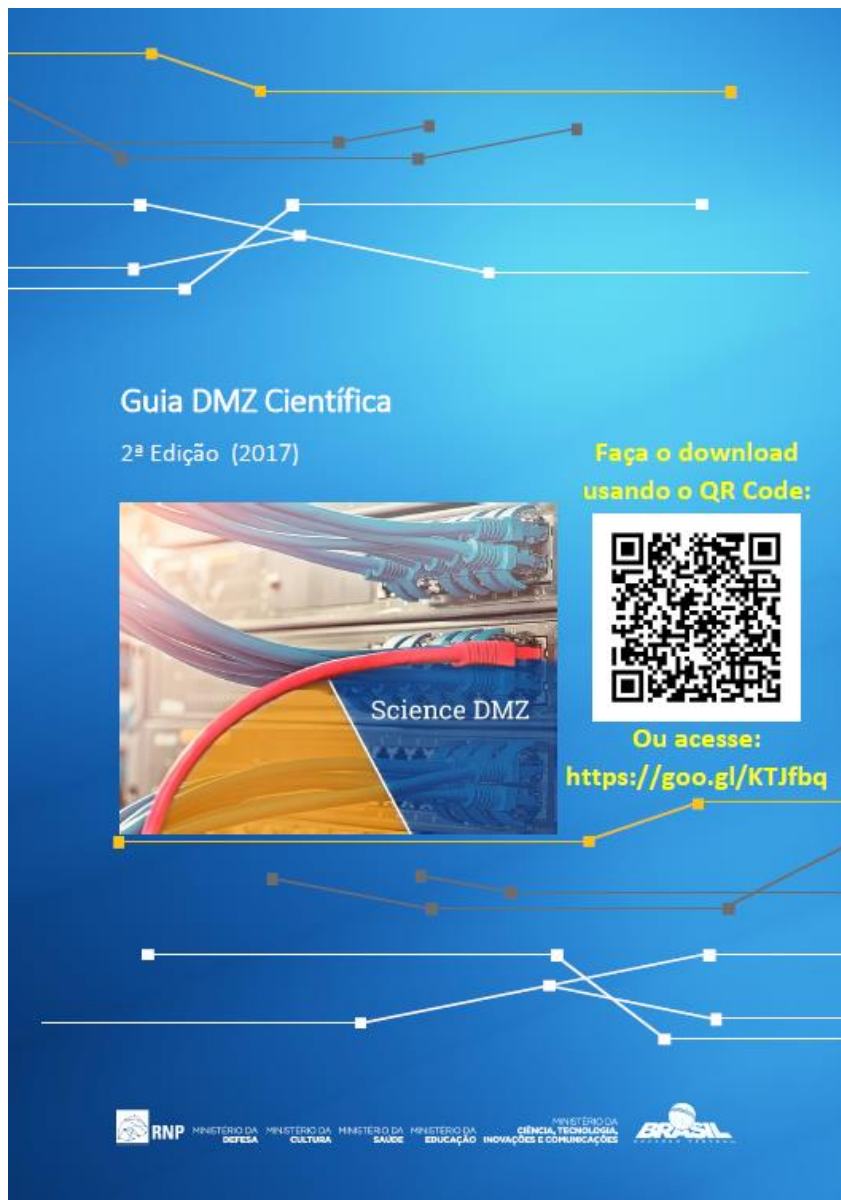


# Science DMZ + end-to-end circuit

A campus with SDMZ architecture:

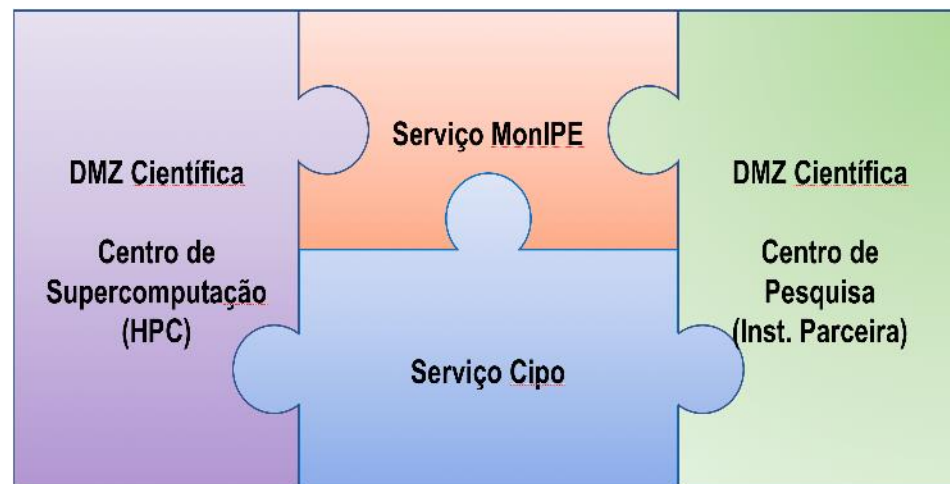


# Science DMZ cookbook (2017)



<https://goo.gl/KTJfbq>

# Serviços de suporte à e-Ciência disponíveis no Service Desk



[atendimento@rnp.br](mailto:atendimento@rnp.br)



0800 722 0216

# Plataforma para e-Ciência no novo ciclo do contrato de gestão 2018-2022



# Programa para ciberinfraestrutura 2020 (prioridades)

Componente 1:  
Infraestrutura  
Segura Nacional

- **Infraestrutura de comunicação: tornar escalável e segura**

- n x 100Gb/s: Fortaleza – Porto Alegre
- Maior capacidade em cabos submarinos

Componente 2:  
Nuvem  
Acadêmica  
Comunitária

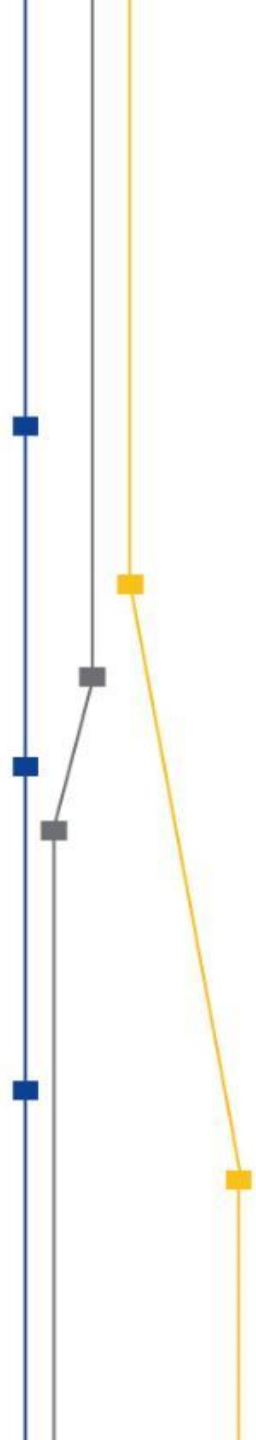
- **Armazenamento e computação: simplificar o uso para educação e pesquisa**

- Nuvem acadêmica comunitária, acordos com provedores globais e soluções locais customizadas - Marketplace

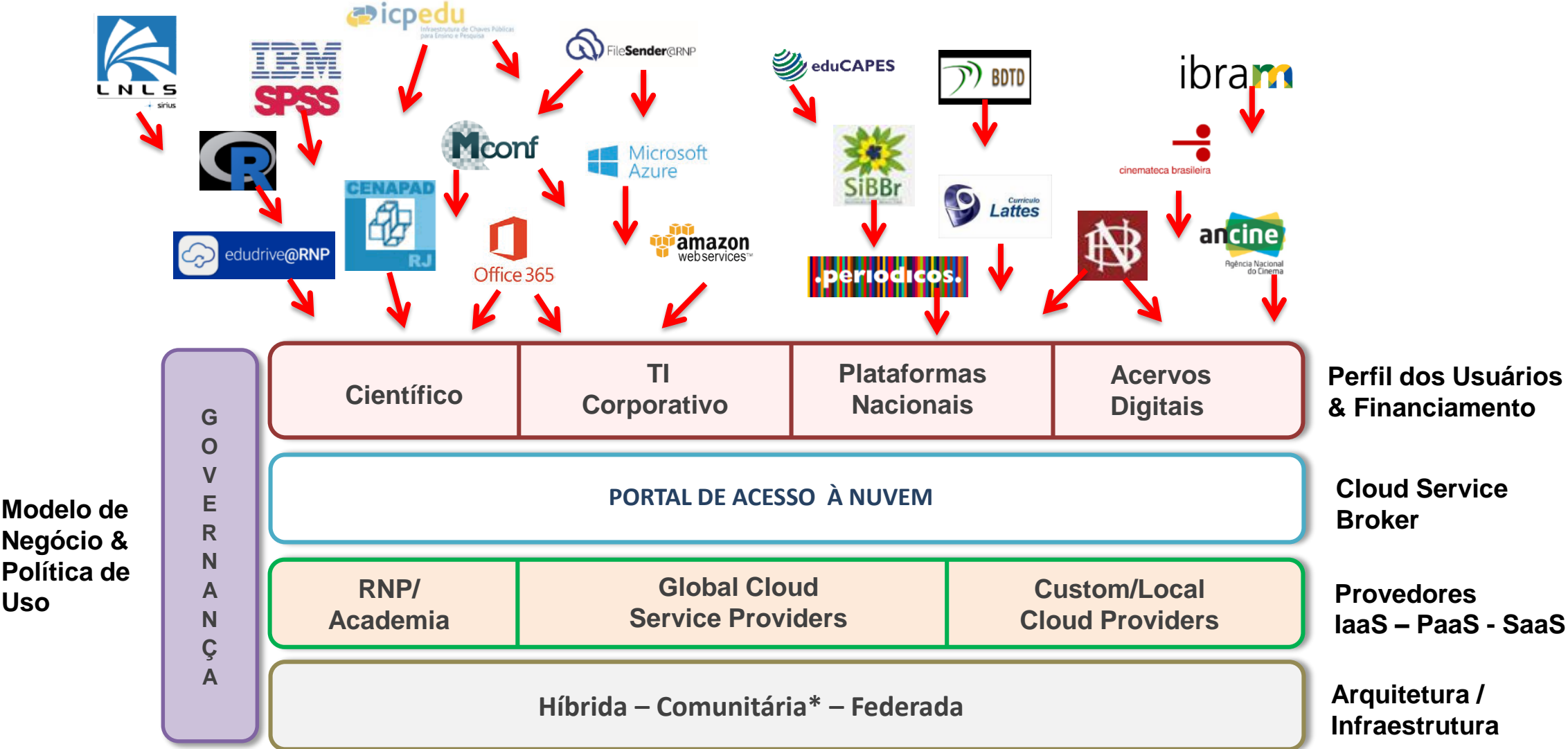
Componente 3:  
Serviços para  
grandes  
aplicações

- **Operar um Centro Nacional de e-Ciência**

- Suporte a iniciativas nacionais e internacionais altamente demandantes de TIC
- Articular uma iniciativa nacional de dados abertos para pesquisa



# Nas Nuvens



(\*) Oportunística Balanceada ou Distribuída



MEU WORKPLACE





G SUITE FOR EDUCATION

**POUPA TEMPO E  
FIQUE CONECTADO**

Google for Education

**ASSINE AGORA**



Search



- Any -

SaaS

IaaS

- Any -



G-Suite

Communication & Collaboration



Microsoft Office 365

Communication & Collaboration



CentOS 7.1 in Azure

Stack



CentOS 6.5 and 7 in  
AWS  
Stack



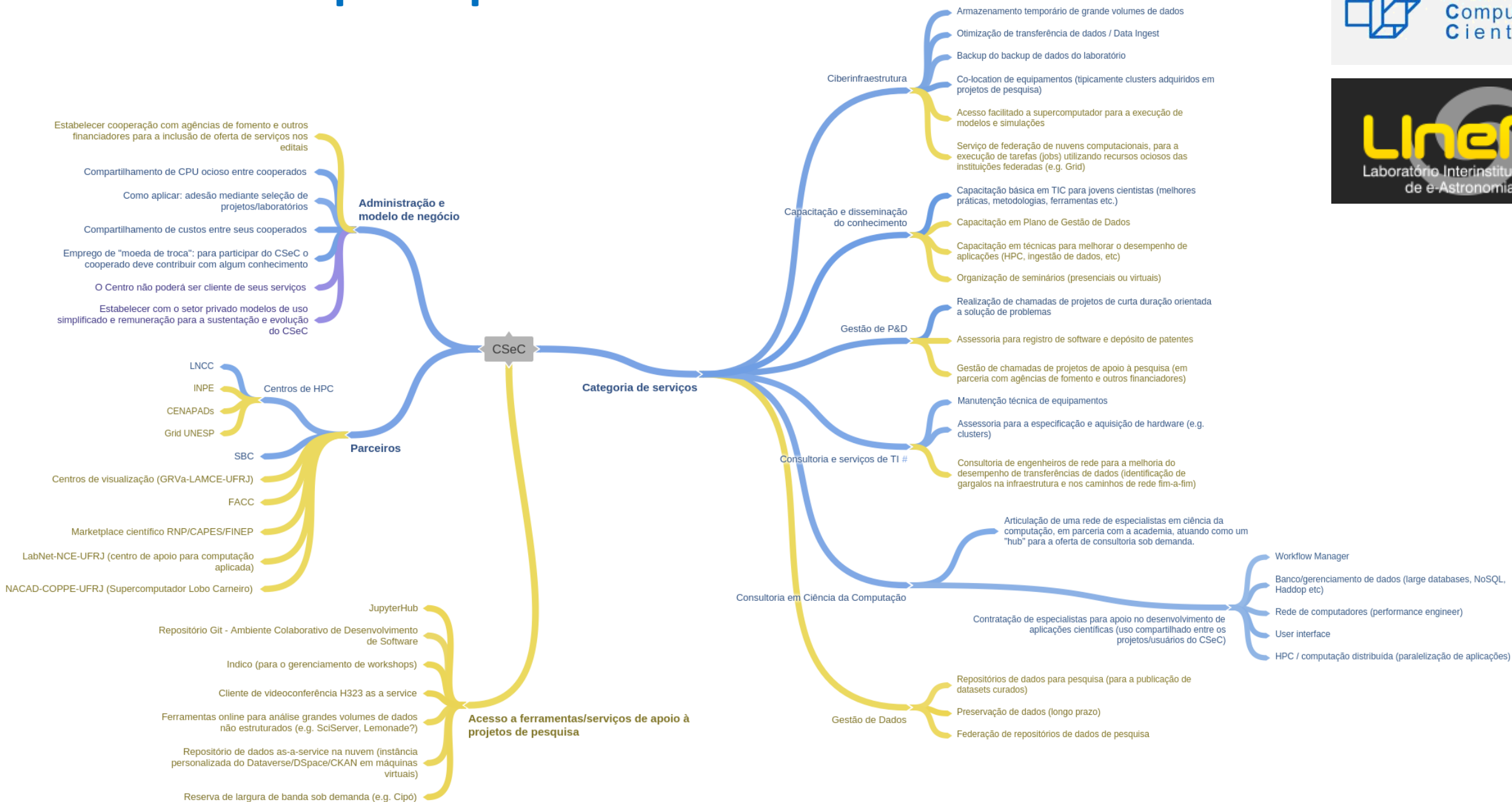
CentOS 7 and Ubuntu  
14.04 in IBM BI...  
Stack



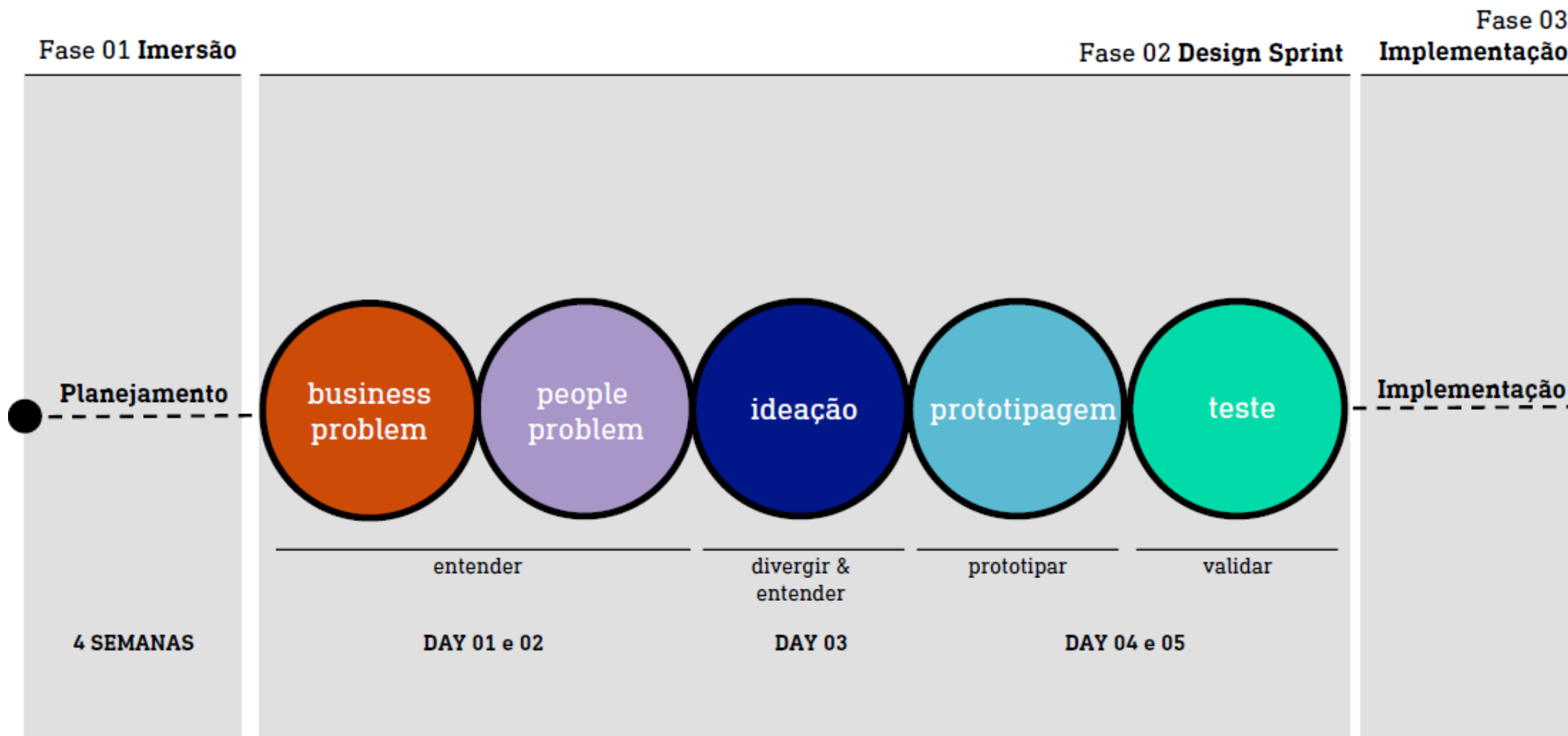
CentOS7 and Ubuntu  
14.04 in GCP  
Stack



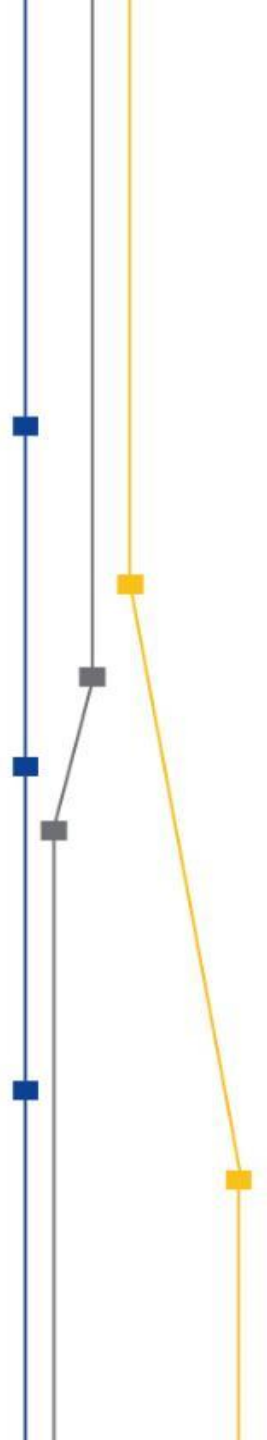
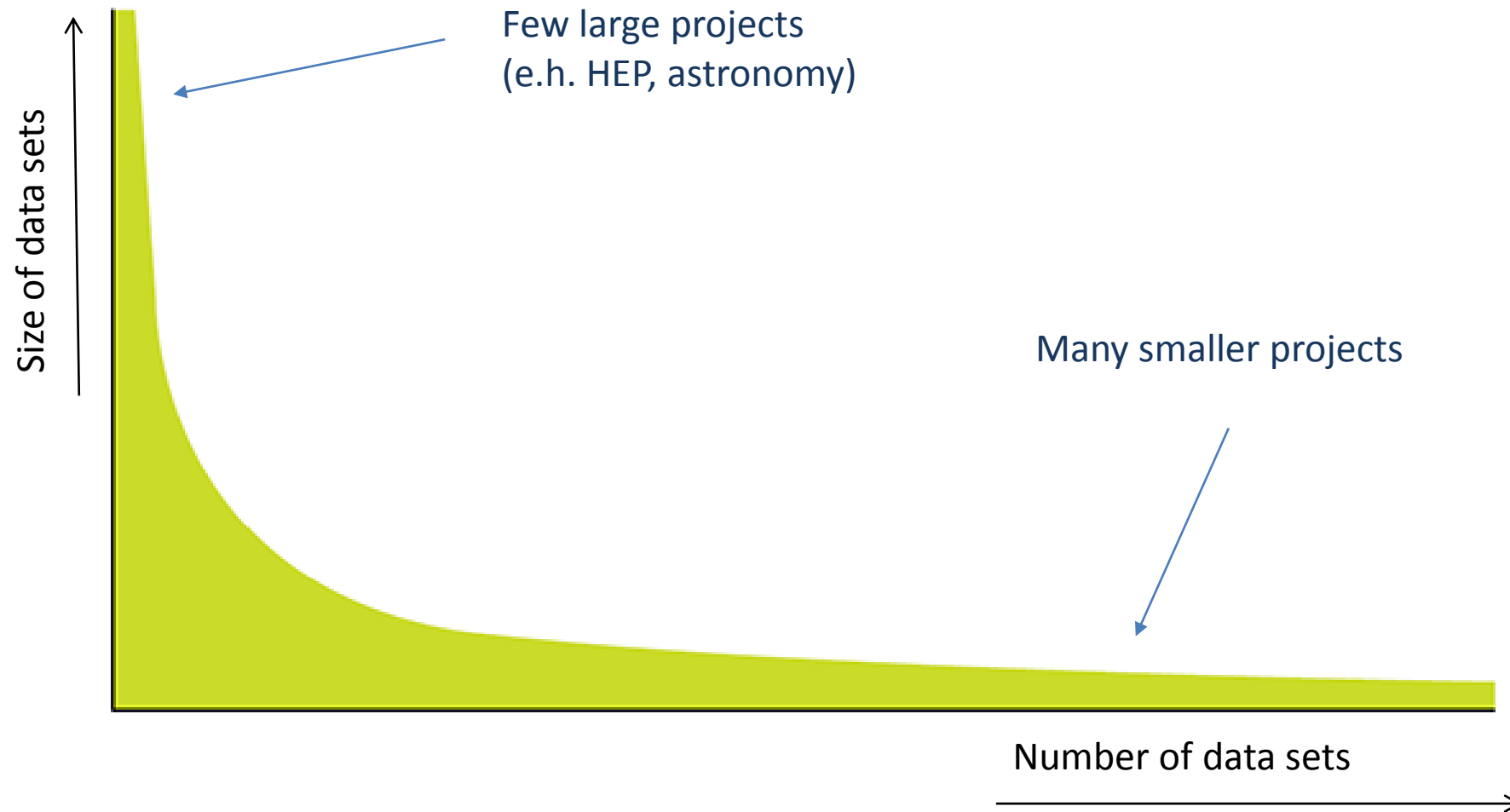
# Centro de Suporte para e-Ciência



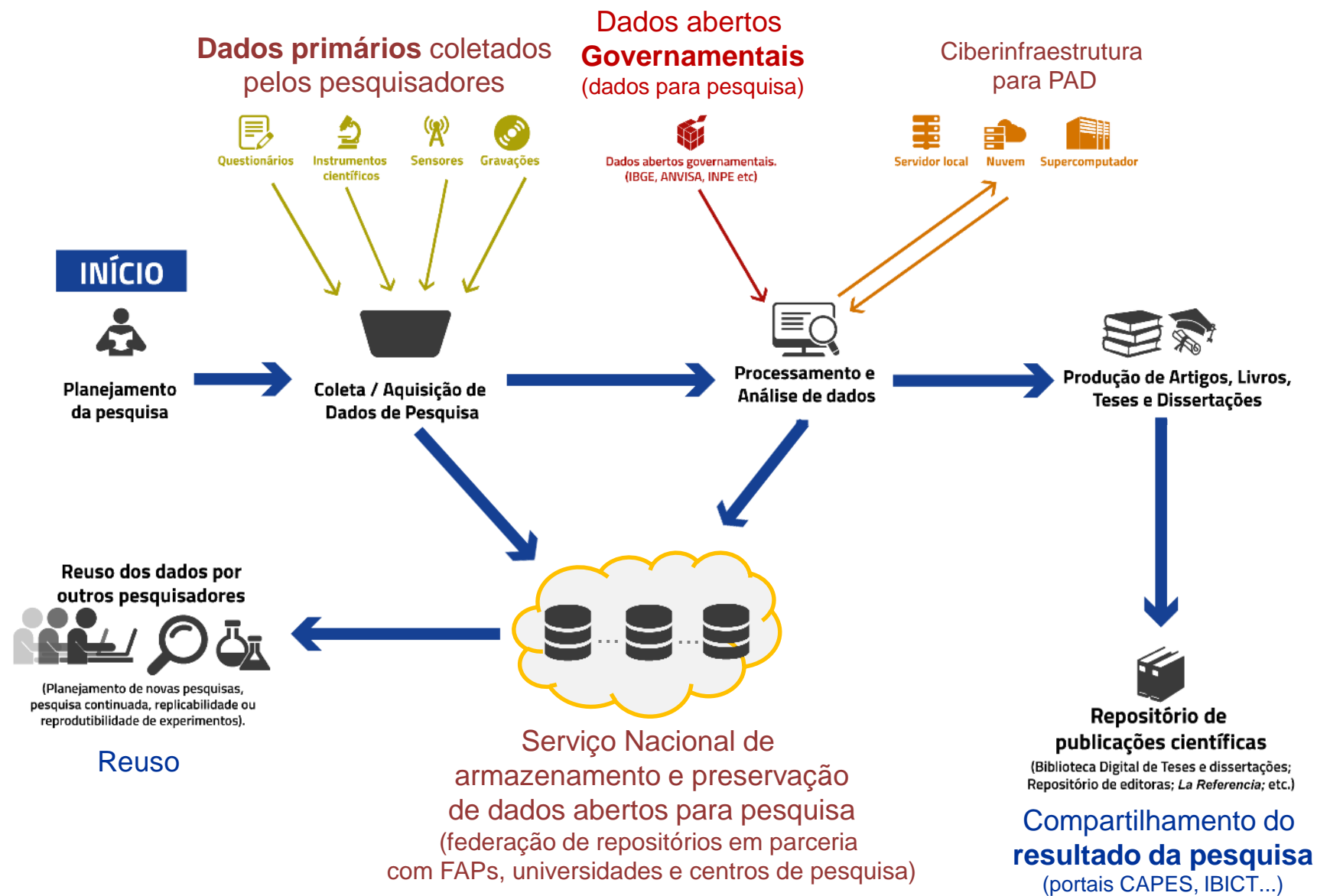
# Metodologia - Design Sprints



# Serviços para “elefantes” e “cauda-longa”



# Novo ciclo de vida dos dados



# Concluindo...

- **Serviços para e-Ciência**

- Conjunto de serviços já disponíveis com suporte via Service Desk
- Em elaboração: arquitetura Science DMZ para 100G
  - Grupo de discussão aberto para interessados

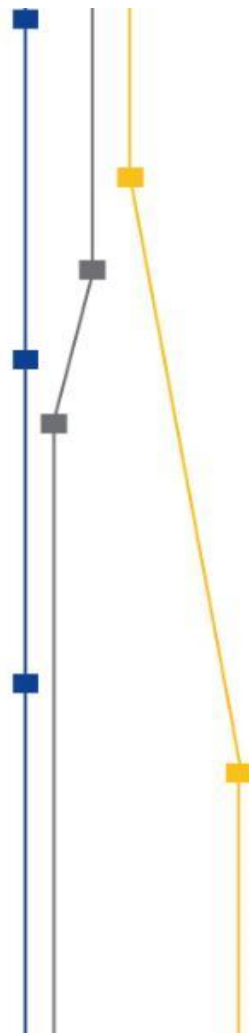
- **Marketplace**

- Previsto: compartilhamento de recursos para pesquisa / instrumentação remota
  - Interessados em participar de uma prova de conceito?

- **Centro de Suporte a e-Ciência**

- Modelagem em andamento. Design Sprint previsto para início de outubro. Convite aos interessados.

Para não esquecer



Muito obrigado!  
Perguntas?

**Leandro Ciuffo**

Diretor Adjunto de P&D  
[leandro.ciuffo@rnp.br](mailto:leandro.ciuffo@rnp.br)

