

# IBEX Storage

2019 – 02 – 21

# Ibex Storage

## Intro

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New scratch

Migration process

Advice

Backup and archiving

Useful links

Questions

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- Since October at KSL
- A bit of everything
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### Rafael Griman (Rafa)

- Previously with KAUST IT Storage Team
- Since December 1<sup>st</sup>, 2017 at KSL
- Mainly storage
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## Storage

- Somehow storage provokes a Diogenes Syndrome in users

## Sysadmins vs Users

- We don't hate YOU over any other user
- We are like parents ... we say/do things for your own good:
  - prevent data loss or corruption
  - improve YOUR performance
  - be respectful

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## Intro (HPC Storage)

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### \$HOME

- `/home/<login_name>` (`/home/dude`)
- Individual storage space
- NOT shared with other users
- 200 GB quota
- snapshots & backups
- `ls /home/dude/.snapshot`

### Scratch

- 3 systems in Ibex:
  - `/scratch/dragon/amd/<login_name>` (`/scratch/dragon/amd/dude`)
  - `/scratch/dragon/intel/<login_name>` (`/scratch/dragon/intel/dude`)
  - `/ibex/scratch/<login_name>` (`/ibex/scratch/dude`)
- Individual storage space
- NOT shared with other users
- 1.5 TB quota
- **NO snapshots, NO backup**

### Others

- Projects: data is shared with other users
- Reference: reference DB for Genomics
- Snapdragon: CBRC users

# Ibex Storage

## Ibex History

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**Ibex history**

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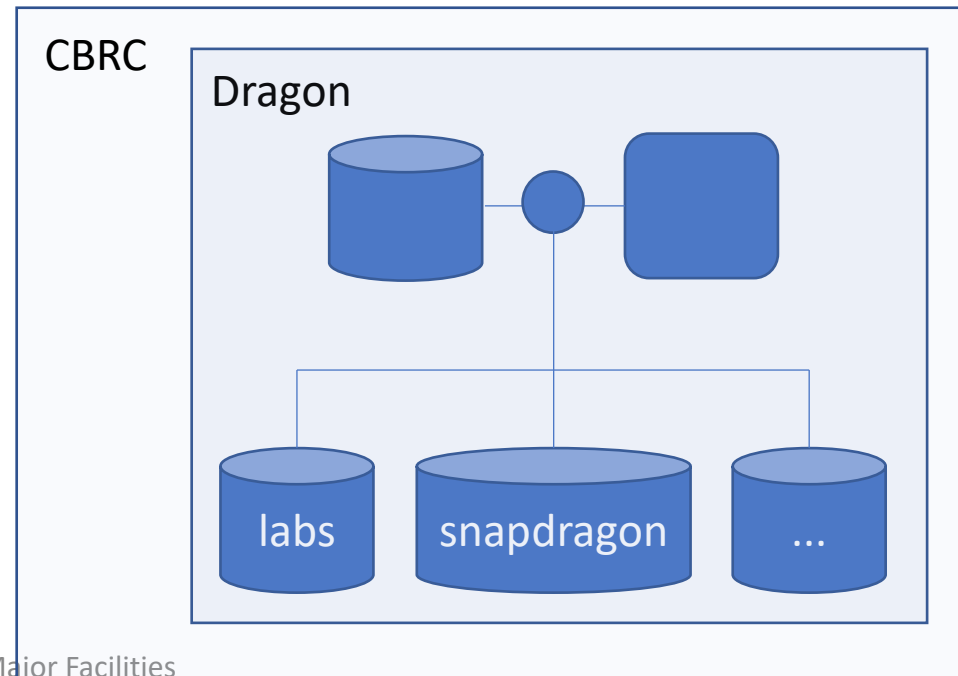
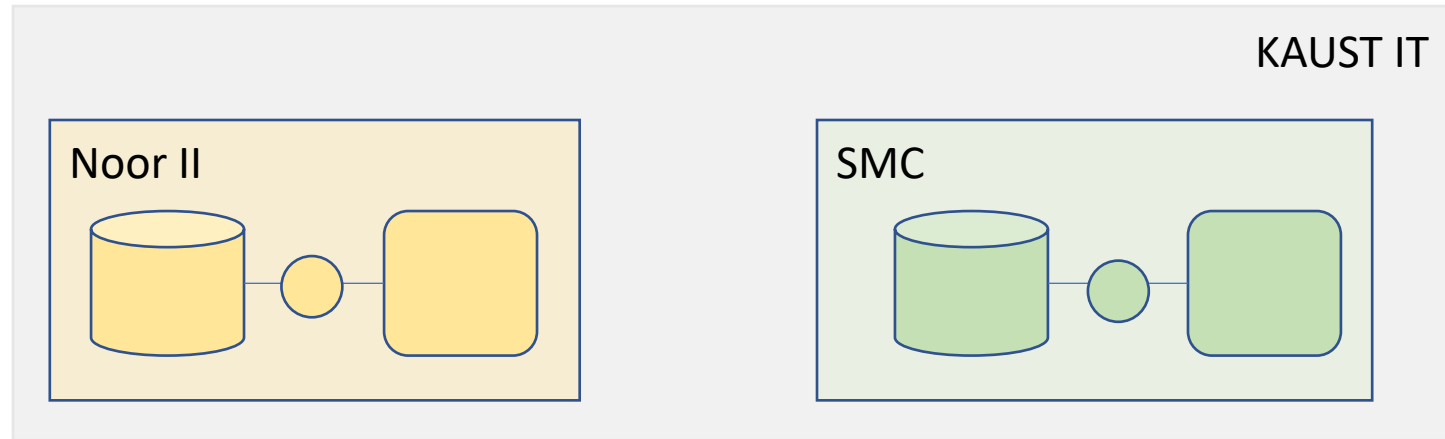
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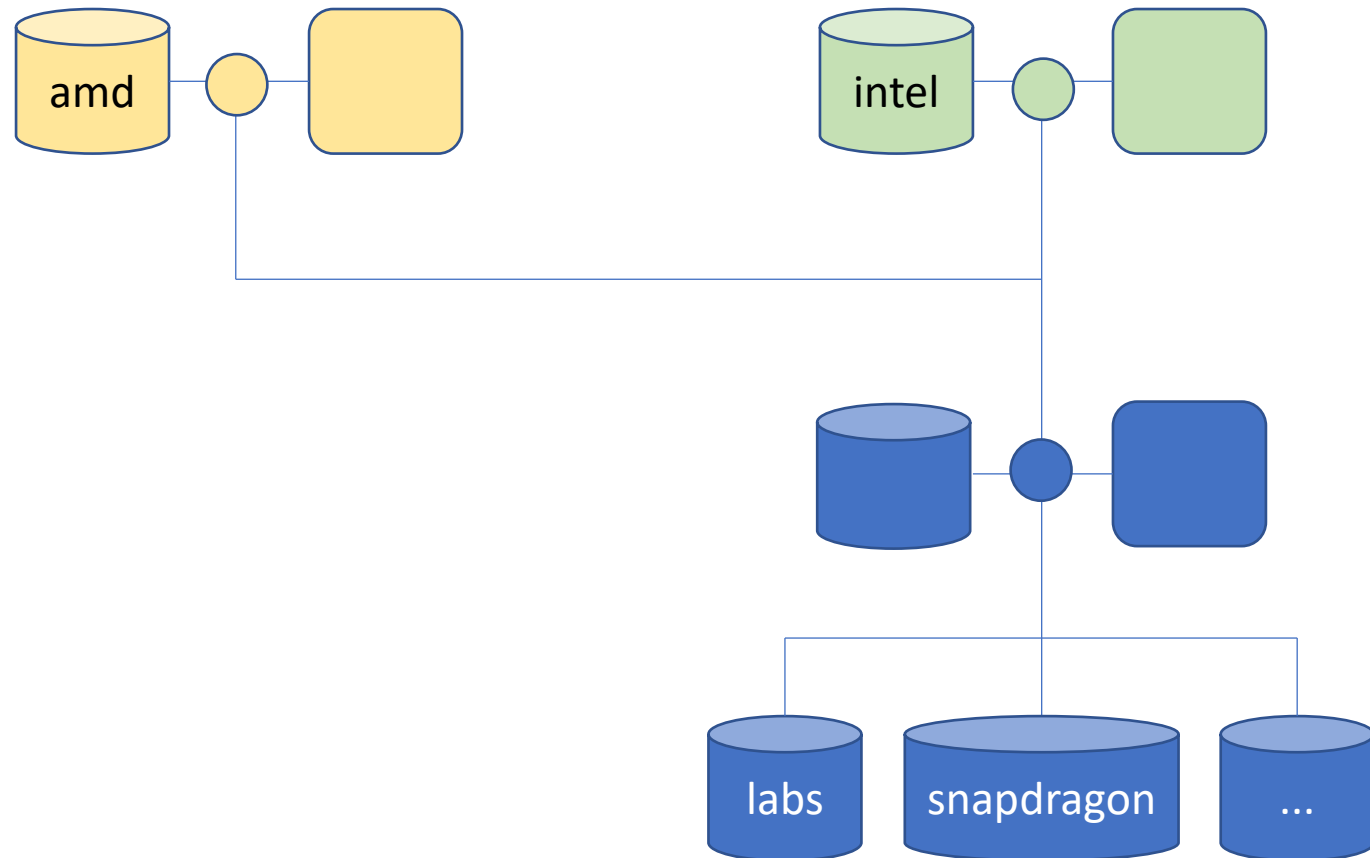
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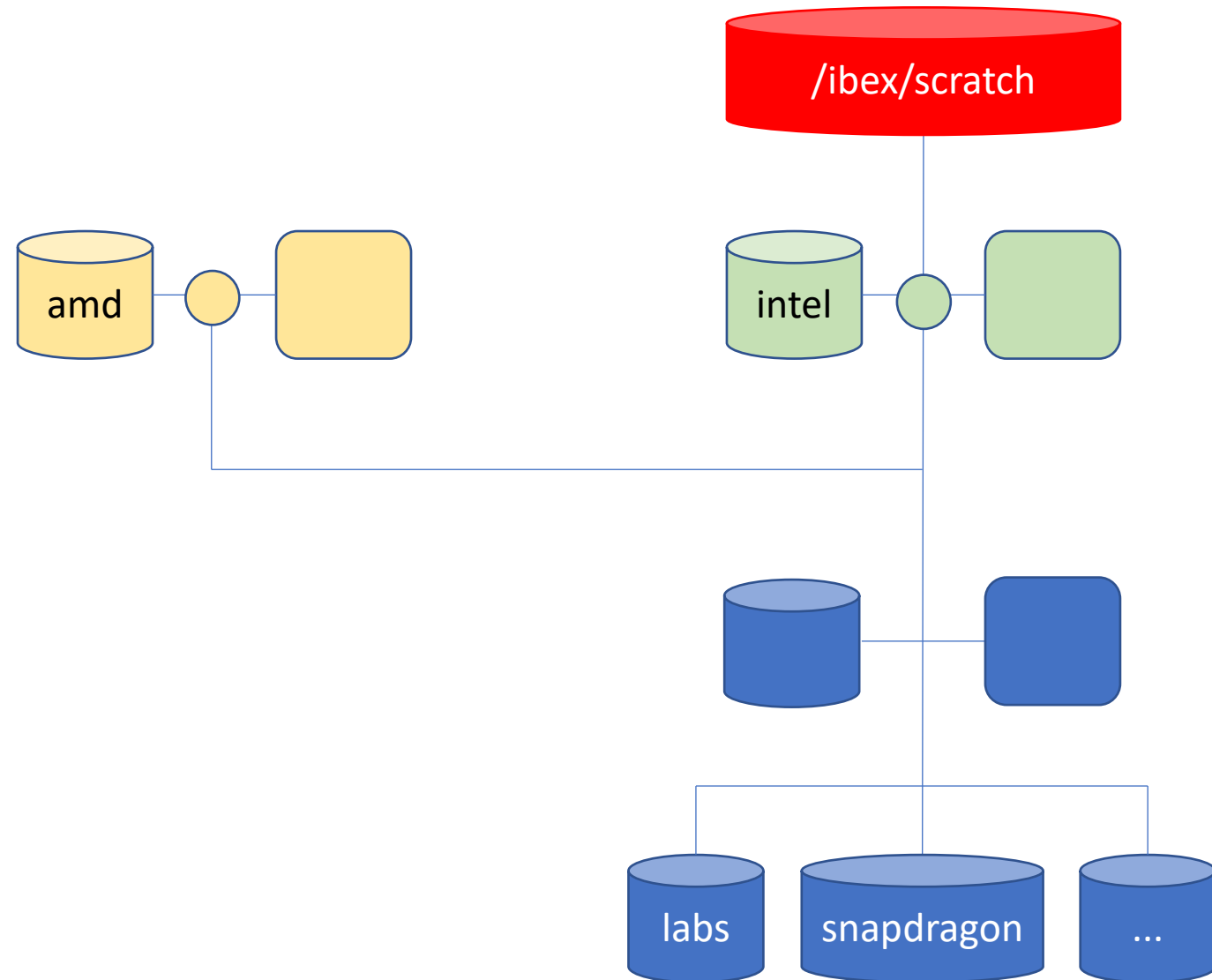
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## New scratch

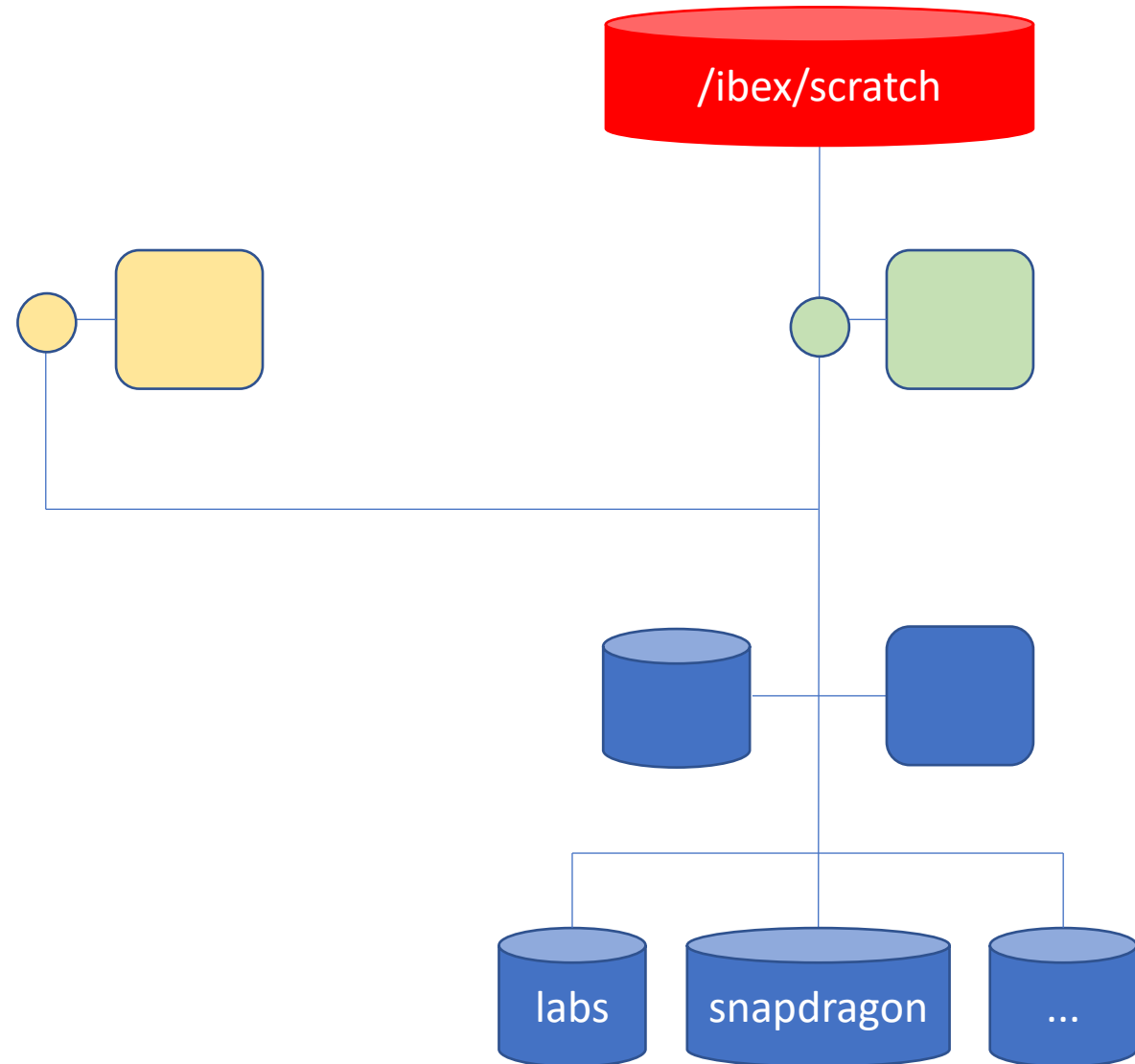
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## New scratch (Target)

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## New scratch (Target)

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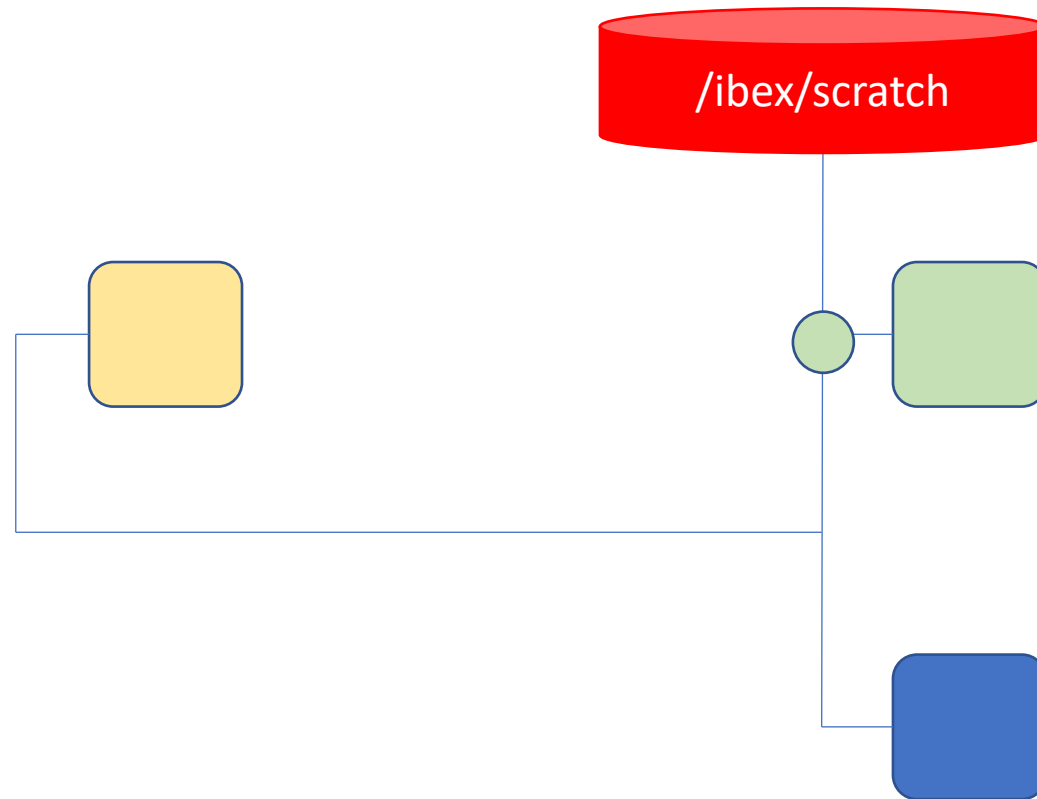
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## New scratch

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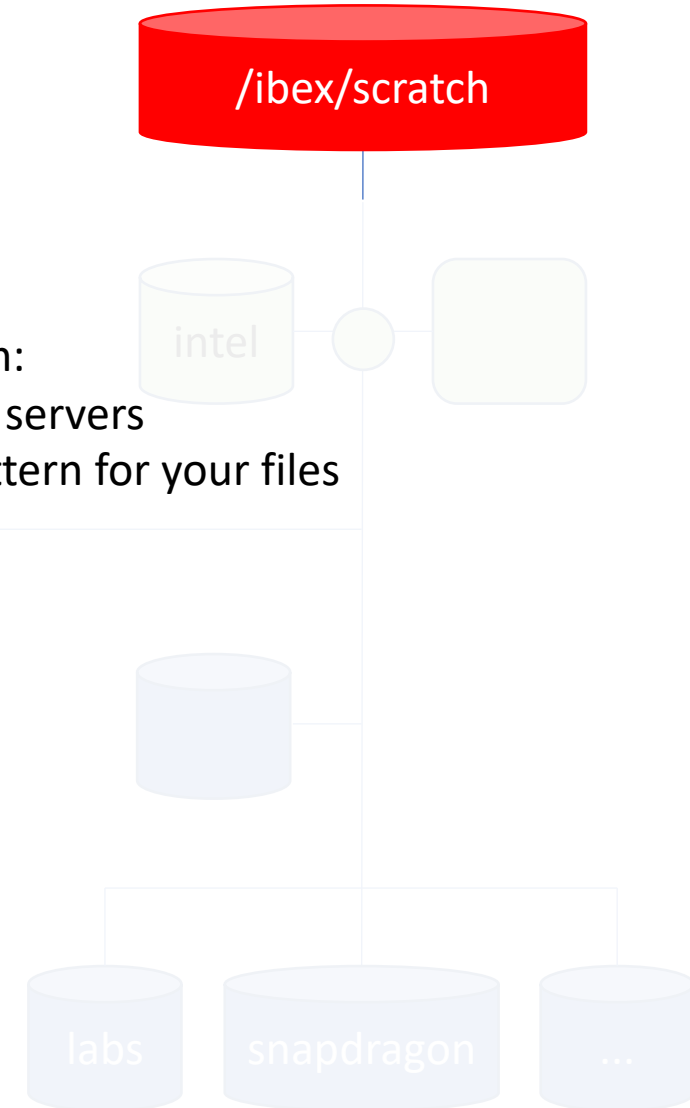
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- BeeGFS:
  - Parallel and distributed filesystem:
    - Data striped across multiple servers
    - We can define the stripe pattern for your files
    - Scale out
  - Better bandwidth
  - Better IOPs
- 3.5 PB of space
- Quotas: 1.5 TB
- Users will have to migrate



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## Migration process (Steps)

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**Migration process**

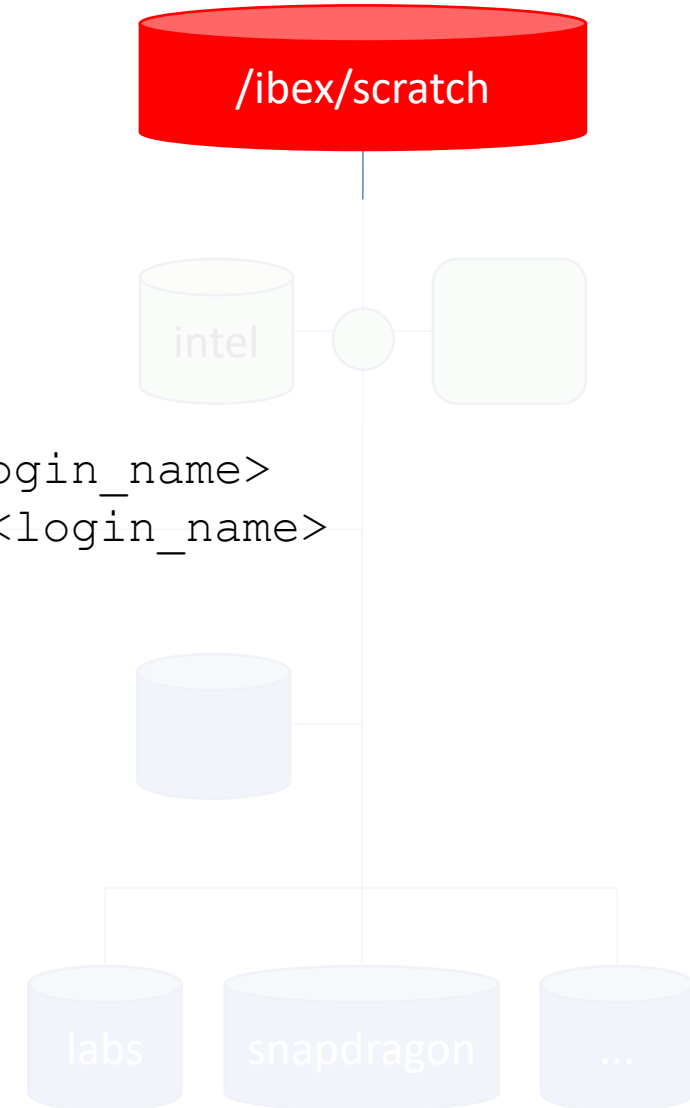
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- Check if you have a directory under:
  - `/ibex/scratch/`
- If you don't have it:
  - `/scratch/dragon/amd/<login_name>`
  - `/scratch/dragon/intel/<login_name>`
  - you have to migrate



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## Migration process (Steps)

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**Migration process**

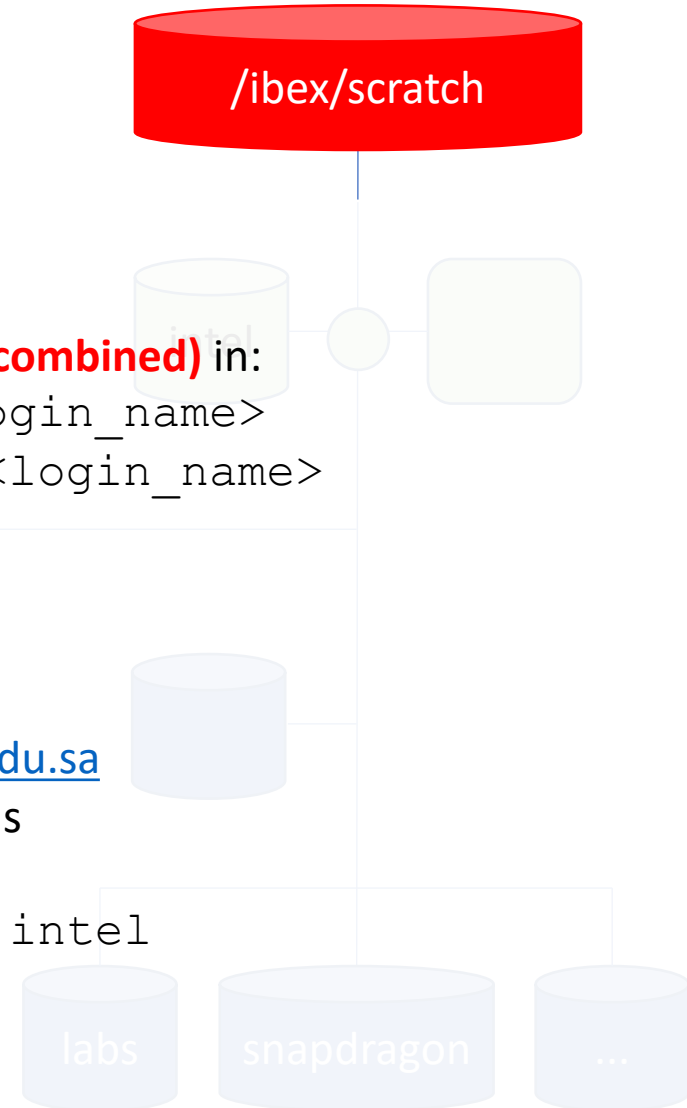
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- Make sure you have **less than 1.5 TB (combined)** in:
  - `/scratch/dragon/amd/<login_name>`
  - `/scratch/dragon/intel/<login_name>`
- What if you have more than 1.5 TB?
  - e-mail:
    - [ramy.ghattas@kaust.edu.sa](mailto:ramy.ghattas@kaust.edu.sa)
    - [rafael.grimancanto@kaust.edu.sa](mailto:rafael.grimancanto@kaust.edu.sa)
  - We'll give some recommendations
- Copy everything over to either amd or intel



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## Migration process (Steps)

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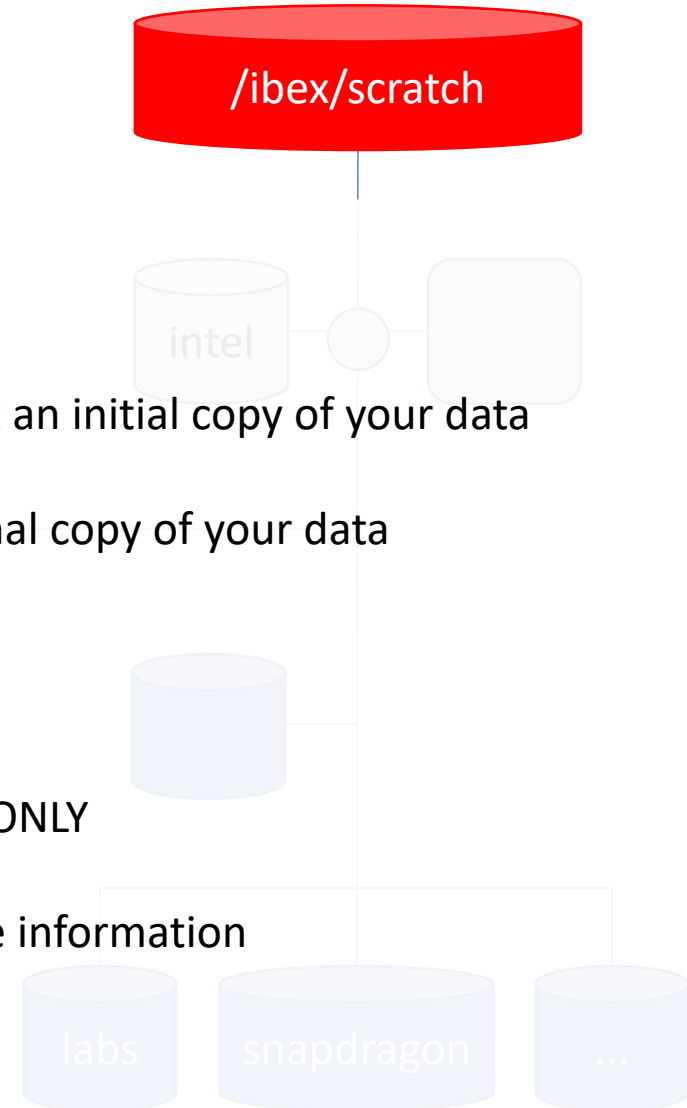
Questions

- e-mail us
- We will create your directory and start an initial copy of your data

- We will need to make a second and final copy of your data
  - around 10 – 20 minutes
  - NO jobs running
  - NO access to your data

- Your original data will be set to READ-ONLY

- We will send you an e-mail with all the information



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- Keep your room storage clean and tidy:
  - Delete source code (you can download it later if needed)
  - Delete log files and error files when the job has finished
  - Delete intermediate files created during your simulation
  - Delete files created during failed runs
  - Delete all those `test` files and directories
- Ask IT to backup and/or archive your data
  - Do NOT use Ibex to backup your laptop, PC or workstation
  - Data not accessed in over 6 months ... will NEVER be accessed
- Compress data ONLY if you are going to archive (check Ibex Wiki)
  - If you have to compress a lot of data, use a SLURM job
  - Do NOT create a huge tar ball and then compress



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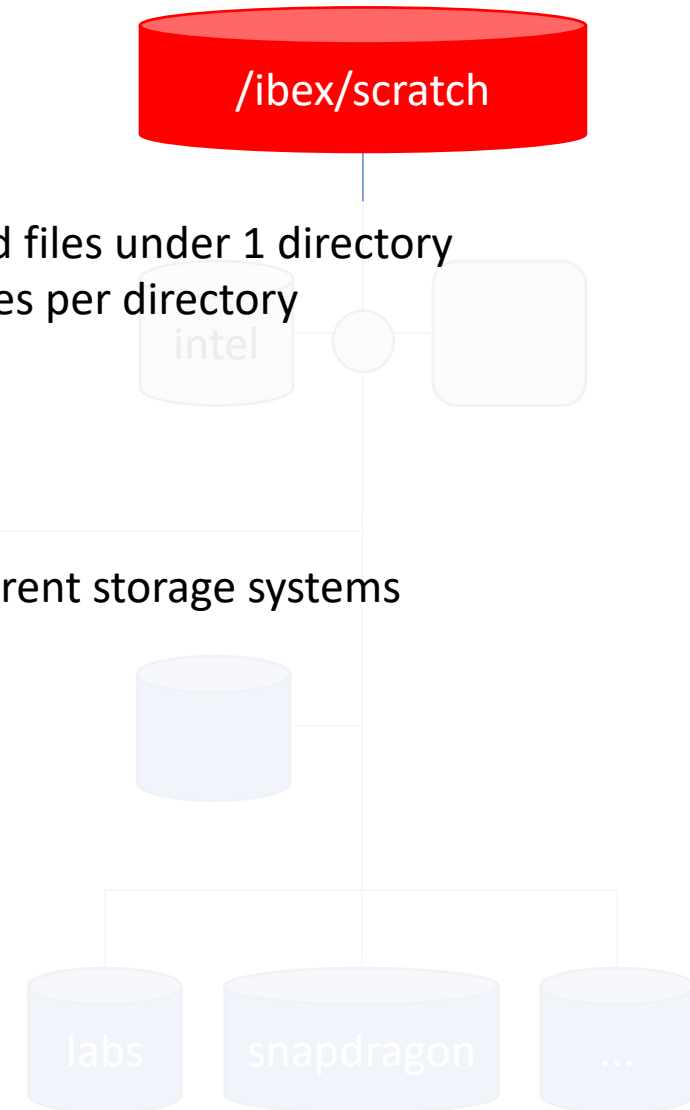
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- Do NOT create more than 10 thousand files under 1 directory
  - If possible, stick to 5 thousand files per directory
- Do NOT move files
  - Copy and then remove
- Do NOT create symlinks between different storage systems
  - \$HOME
  - scratch
  - projects
  - reference
  - snapdragon



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- Naming files:

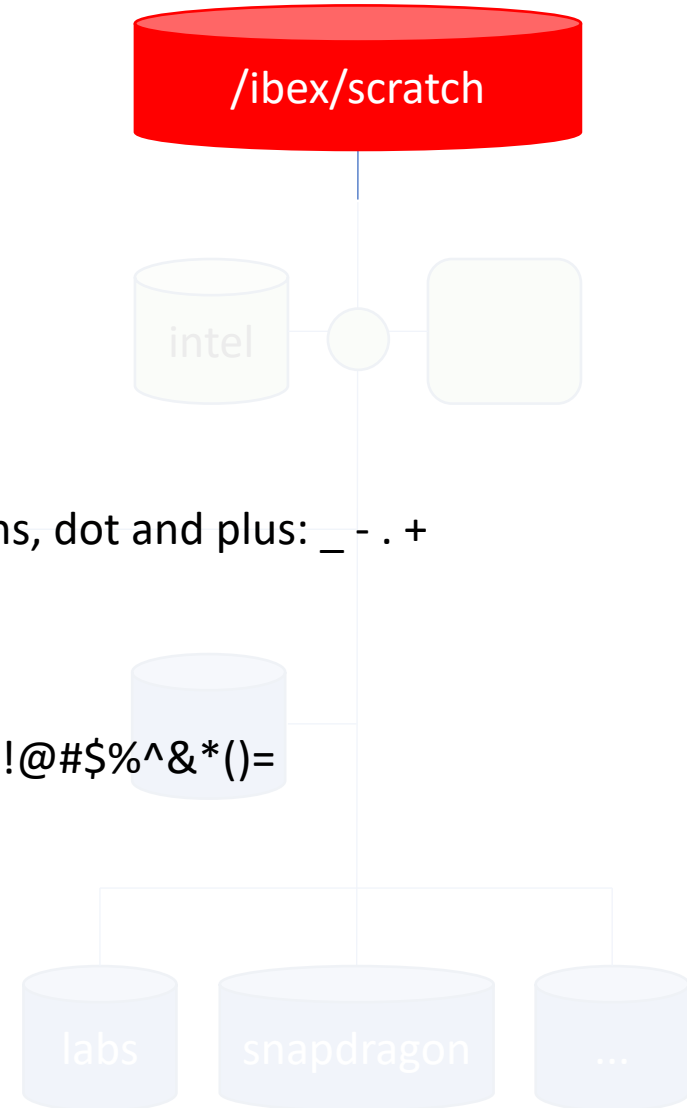
- Stick to:

- Letters: a-z A-Z
    - Numbers: 0-9
    - Underscores, dashes/hyphens, dot and plus: `_ - . +`

- Do NOT:

- use spaces
    - use special characters: `:/?!"#$%^&*()=`
    - start with a dash/hyphen: `-`

- e-mail us if in doubt







# Ibex Storage

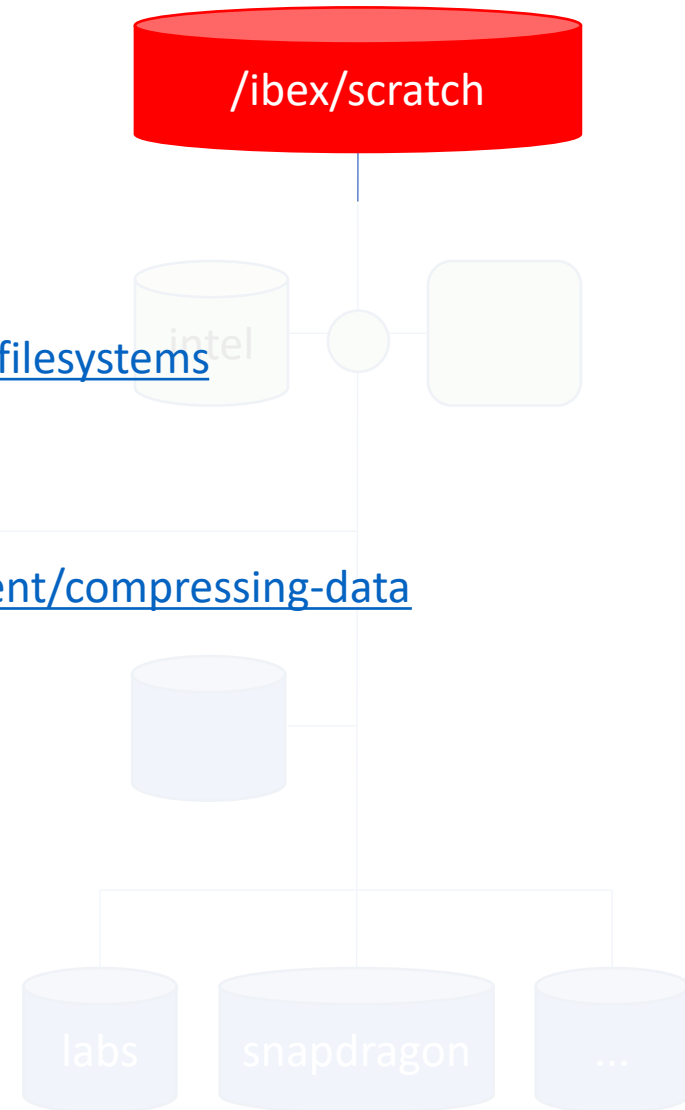
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Questions

- Filesystems
- Compressing Data

<https://www.hpc.kaust.edu.sa/ibex/filesystems>

<https://www.hpc.kaust.edu.sa/content/compressing-data>



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