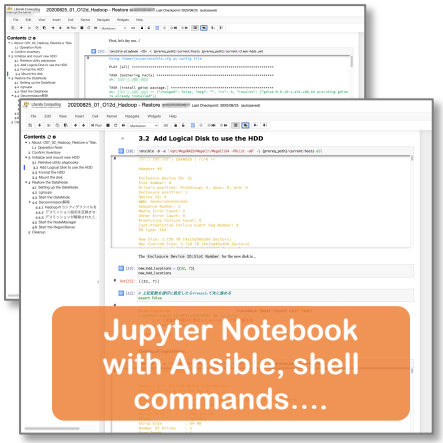
Sharing Notebook within Small Team

Background

The cloud operation team at National Institute of Informatics (NII) in Japan

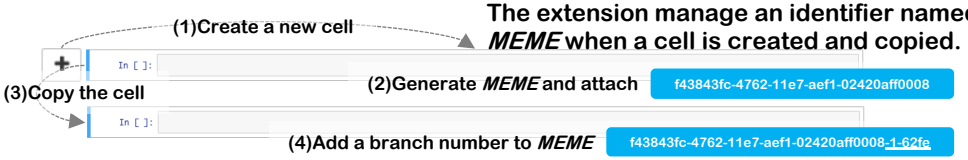
- Consists of 4-5 engineers
- Managing the private cloud of NII using Jupyter Notebook
- For about 4 years, over 10,000 notebooks have been created and recorded as the result of our operations



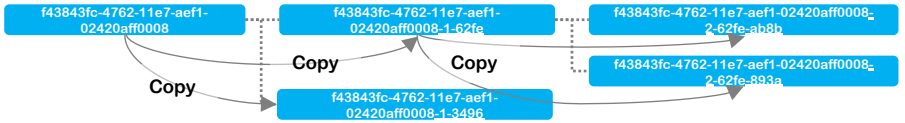
We have developed extensions for Jupyter Notebook to address the problems associated with sharing know-how.

Track cell's origin

"nblineage" extension - To keep track of how they reuse cells



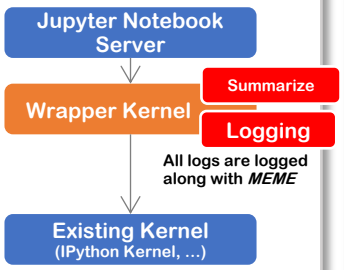
We can know the origin of the copy (*lineage*) from *MEME*.



https://github.com/NII-cloud-operation/Jupyter-LC_nblineage

Enhanced Logging

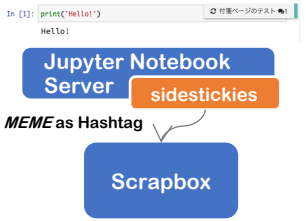
"wrapper" kernel - To store all logs separately from the notebook



https://github.com/NII-cloud-operation/Jupyter-LC_wrapper

Add Annotations

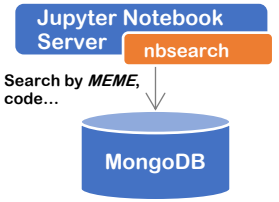
"sidestickies" extension - sticky notes to each cell utilizing Scrapbox https://scrapbox.io



https://github.com/NII-cloud-operation/sidestickies

Search Notebooks

"nbsearch" extension – To search notebooks by MEME, keywords and modified times

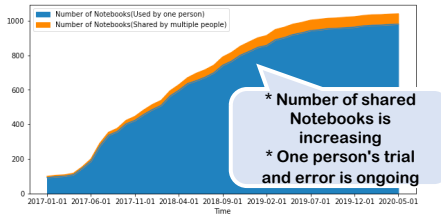


https://github.com/NII-cloud-operation/nbsearch

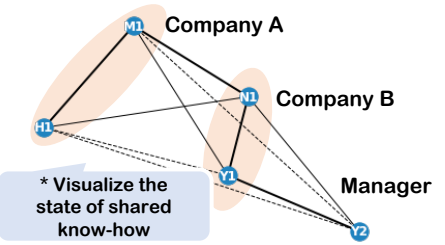
Tools & Extensions

Current Progress

MEME reveals trends in Notebook reuse among team members…



Change in the number of notebooks (cumulative):
notebooks used by one person and notebooks shared by multiple people



Number of notebooks shared among team members
* Node: a member
* Edge: Levels of Notebook sharing (dotted: <4 Notebooks, thin solid: <8, thick line: ≧8 Notebooks)

Our tools provide visualization of the state of the team and helps to improve team collaboration.

DEMO Notebook at BinderHub!

https://mybinder.org/v2/gh/NII-cloud-operation/Jupyter-LC_docker/jupytercon2020-demo

Literate Computing for Reproducible Infrastructure

Satoshi Yazawa - Voice Research, Inc.
Yoshinobu Masatani – National Institute of Informatics, Japan