Literate Computing for Reproducible Infrastructure

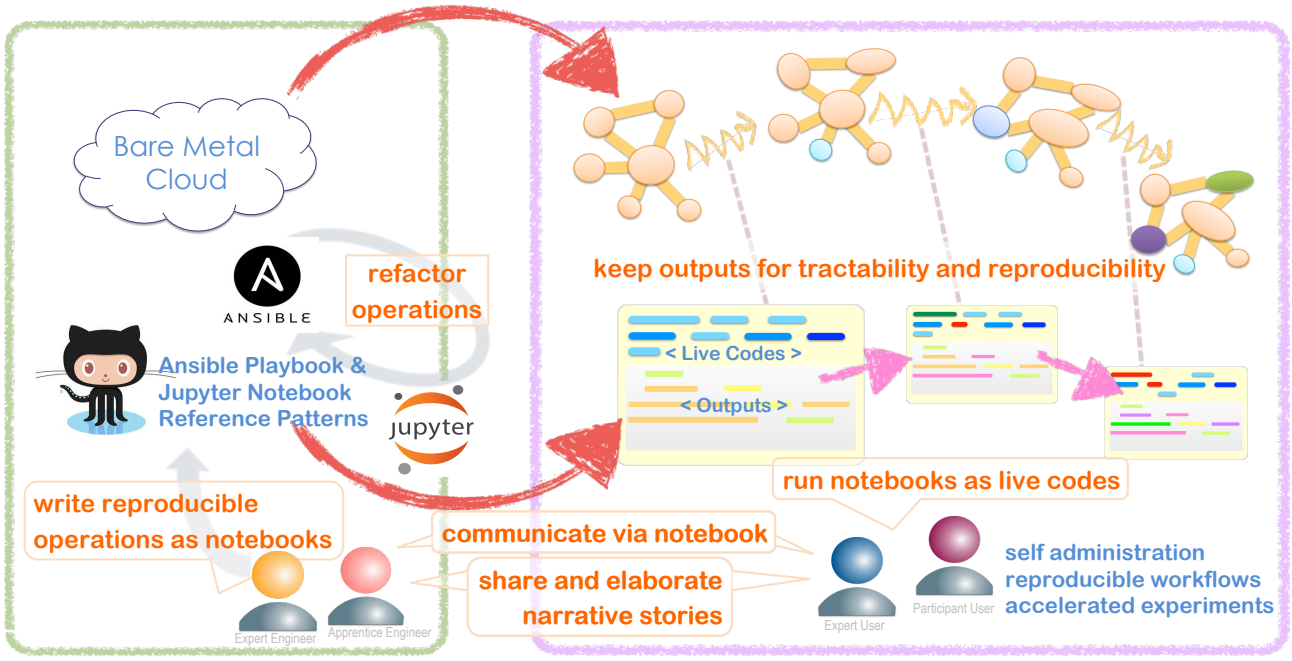
Beyond Infrastructure as Code: The cloud has produced pressure to rapidly build systems and to more frequently re-configure services. That's where ***Infrastructure as Code*** has come across as the simple automation. The approach treats the configuration of systems the same way that the software source code is treated. Infrastructure is validated and processed ***"as Code"*** with management tools. However, *as Code* should not be limited only for the automation, but also for the *communication based on code* for reviewing, reproducing, customizing, standardizing, and reusing.

Communication is Matter: It is as important to be able to share information and to collaborate with others as to actually automate complex operations. ***Jupyter*** is a useful online notebook both to describe automated operations as live code with configuration data and to share predicted and reproducible outcomes with others. Information is shared among technical and non-technical people in a similar manner under a consistent representation. It is so-called ***"literate computing"*** *[Perez 2013]*.

Narrative Stories for Infrastructure: We have been practicing *literate computing* around our cloud engineering team. Both ad-hoc and recurring operations are conducted under ***Jupyter*** combined with ***Ansible***. We share infrastructure design and elaborated workflows in the form of narrative stories using Jupyter, and standardize and automate cloud operations using Ansible.

Narrative stories with live codes and their outputs are efficient in both ad-hoc and recurring operations for assuring tractability, i.e., {"Who" did "When" in "What" operation with "Why" intention, then "Consequences" happened}. Narrative stories are also helpful to communicate with users about delivered services and customized conditions.

Architecture of *Literate Computing for Reproducible Infrastructure:* Provide ***Your Cluster*** based on requirement with tailored ***Your Notebook*** for further customization and exploration with guaranteed reproducibility



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