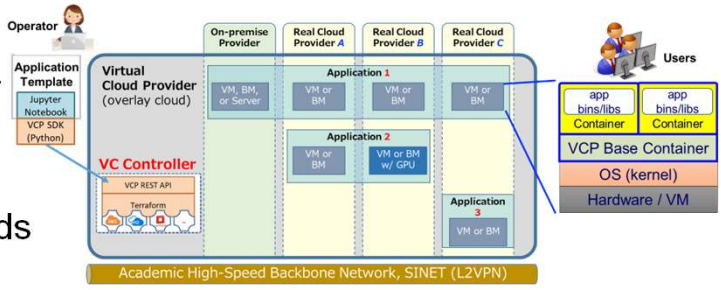
Development of a Hybrid Job Deployment Platform Using Open OnDemand

With the widespread adoption of Open OnDemand, users without sufficient knowledge of Linux systems can now submit jobs to HPC clusters. However, constructing HPC clusters remains difficult. We are developing Virtual Cloud Provider (VCP) middleware to support the construction of data analysis platforms, e.g., HPC clusters. VCP enables users to easily configure an HPC cluster and deploy software libraries required by applications, including GPU libraries, OpenHPC, and Open OnDemand, instead of HPC system administrators.

Virtual Cloud Provider (VCP)



Overview:

- VCP supports the operation of research and educational applications over one or more clouds and on-premise systems connected by VPN.
  - Virtual Cloud (VC) controller hides API differences among clouds.
  - VCP users can build and operate applications by using “Application Templates.”
    - Application Templates are written in the Jupyter Notebook format.

Released “Application Templates”:

- **HPC Template**: Supports constructing an HPC cluster system using the OpenHPC libraries.
- **Open OnDemand Template**: Builds and maintains Open OnDemand env.

The other templates are available at:

https://github.com/nii-gakunin-cloud/ocs-templates ***(in Japanese)***

Hybrid HPC environment using OpenOnDemand

Motivation:

- **HPC application users want to seamlessly submit jobs to both a local HPC environment and remote supercomputers, as needed.**
- **To address this, we are working on supporting the construction of a seamless job submission environment using OpenHPC and Open OnDemand built from VCP.**