

The background of the slide is a photograph of a bright blue sky filled with numerous white, fluffy clouds of varying sizes and shapes. The clouds are scattered across the frame, with some appearing more dense and others more wispy. The overall lighting is bright, suggesting a clear day.

# **Virtualized research architecture**

Arnstein Orten

# National strategy

- Cloud services should always be considered
- And chosen where they are cheapest and most expedient
- Information security must be catered for

**UNINETT**



# Cloud technology and services

- The Cloud Computing concept refers to physical components, software, services, business models and delivery models.
- It represents a paradigm shift for production, distribution and use of IT services



\* SaaS - Software as a Service, dvs. programvare som en tjeneste

- Example: Infrastructure as a Service (IaaS) - buy datacentre functionality over the Internet instead of investing locally.

# Why choose cloud services?

- Very fast to set up
- No cost to set up a small instance
- Easy scaling
- IaaS: Flexibility
- ...

You can  
***do it yourself !!!***

Now.

# Sector suppliers

UH-sky, <https://www.uninett.no/sky>

- Safespring
- UH-laaS



## Azure

IaaS / EU, Rammeavtale  
/ [Microsoft](#)



## Printix

IaaS / EU, Brukes i  
offentlig sektor /  
[Printix.net ApS](#)



## Safespring Compute

IaaS / EU,  
Databehandleravtale,  
Rammeavtale /  
[Safespring](#)



## UH-laaS

IaaS / Norge / [UiB](#)

# UH-sky: OpenStack IaaS

- Set up CLI
  - Install openstack command-line interface
  - Log in on web GUI to get the API password
  - Set up CLI
- Use CLI
  - Make a machine
  - Log in on the machine
  - Attach storage
  - Make a new machine and move the storage to that machine
- Play around
  - E.g. install a graphical software package
  - Or install a web server
  - Or install your workflow tools

My lesson notes are at

<https://arnsteio.github.io/UH-IaaS-mini-workshop/>

# Install command-line interface

- Windows:
  - Install Python.
  - Ensure that Python directory is defined in the PATH environment variable, then run (as admin):
  - C:\>pip install python-openstackclient
  - Docs at e.g. <https://github.com/naturalis/openstack-docs/wiki/Howto:-Installing-and-configuring-the-OpenStack-commandline-tools-on-Windows>
- Linux
  - apt-get install openstack-cli
  - or
  - apt install python3-openstackclient
  - or
  - apt install python-dev python-pip
  - pip install python-openstackclient



# Get API password

- Go to <https://access.uh-iaas.no/> and log in.  
*Write down the API password!*

**UNINETT** Dataporten

Trond Hasle Amundsen

UH-iaaS klargjort for Dataporten

## API-tilgang

Brukernavn er [redacted] og passord er [redacted]

NB! Husk å skrive dette ned til senere bruk.

 Fortsett til UH-iaaS

Du blir muligens sendt innom Dataporten igjen først.

***Important!***

# Set up client interface

```
arnsteio@☠:~$ cat keystone_rc.sh
export OS_USERNAME=arnstein.orten@geo.uio.no
export OS_PROJECT_NAME=DEMO-arnstein.orten.geo.uio.no
export OS_PASSWORD=<API-password-from-1st-login>
export OS_AUTH_URL=https://api.uh-iaas.no:5000/v3
export OS_IDENTITY_API_VERSION=3
export OS_USER_DOMAIN_NAME=dataporten
export OS_PROJECT_DOMAIN_NAME=dataporten
#export OS_REGION_NAME=bgo
export OS_REGION_NAME=osl
export OS_NO_CACHE=1
```

# Why not use cloud services?

- Compliance issues. Data protection
- Legacy systems
- SaaS / PaaS: inflexibility
- Uncertain costs
- Skill set