



# UNICORE Puppet Module

2018-09-21 | Björn Hagemeyer, Rajveer Saini, Sander Apweiler, Bernd Schuller | Juelich Supercomputing Centre

# Outline

- Motivation
- Approach
- Supported Services
- Landscape at JSC
- Future Work

# Motivation

- Large number of parameters in any UNICORE configuration
- Several interacting services
- Simple write-down of infrastructure
- Automated installation and service deployment
- Certificate setup

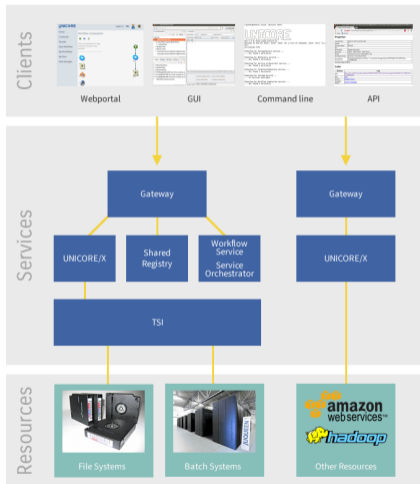
# Approach

## Puppet

- Automate as much of the infrastructure as possible
- Achieve  $> 90\%$  of configuration in little to no time and focus on real issues

# Supported Services

- Gateway
- Registry
- UNICORE/X
- XUADB
- Service Orchestrator
- Workflow Engine
- Portal
- UFTP AuthServer
- [Unity]



# General Approach

- 1 Download .tar.gz from SF.net
- 2 Ensure presence of required packages, e. g. Java or Grid certificates
- 3 Unpack in /opt/unicore-source
- 4 Create version and machine specific directory, e. g. /opt/unicore/ ↵ unicorex-7.10.2-fzj\_jureca
- 5 “Static” files via symbolic links to unpacked “sources”
- 6 Configuration files created from templates in Puppet module
- 7 Certificates created acc. to template
- 8 Service configuration

```
/opt/unicore/unicorex-7.11.0-fzj_jureca
|-- bin -> /opt/unicore-source/...
|-- certs
|-- conf
|   |-- unicore-idb
|   |   |-- deep
|   |   |   |-- simpleidb
|   |   |-- idb
|   |   |   |-- Bash::4.3.30.idb
|   |   |   |-- ...
|   |-- wsrflite.xml
|   |-- xacml2.config -> /opt/unicore-source/...
|   |-- xacml2Policies -> /opt/unicore-source/...
|   |-- xnjs_legacy.xml
|-- data
|-- LAST_PID
|-- lib -> /opt/unicore-source/...
'-- logs
    |-- startup.log
    |-- unicorex.log
```

# Configuration File Templates

- Templates support lists
- Useful if you have several
  - registries
  - authenticators
  - attribute sources
  - storages

```
# Registry URL:
container.externalregistry.url=<%= @registry_url %>

<% if @registry_urls -%>
<% urlNo = 2 -%>
# additional URL(s):
<% @registry_urls.each do |regUrl| -%>
container.externalregistry.url<%= urlNo -%>=<%= regUrl %>
<% urlNo +=1 -%>
<% end -%>
<% end -%>
```

```
<% if @storages -%>
<% storageCount = 0 -%>
<% @storages.each do |storageName, storageParams| -%>
# <%= storageName -%> Storage
coreServices.targetsystem.storage.<%= storageCount -%>.name=<%= storageName %>
<% storageParams.each do |param, value| -%>
coreServices.targetsystem.storage.<%= storageCount -%>.<%= param -%>=<%= value %>
<% end -%>
<% storageCount +=1 -%>
<% end -%>
<% end -%>
```

# UNICORE/X

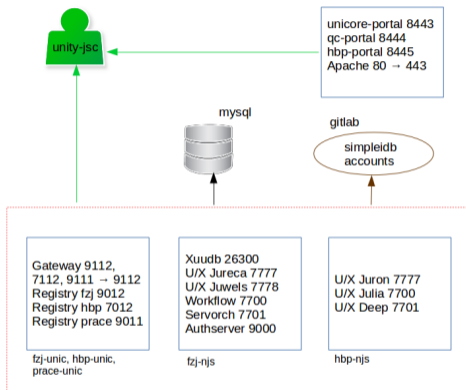
## An Example

- Infrastructure written as YAML files
- An (incomplete) example

```
unicore::unicorex::instances:  
  jureca:  
    version: '7.11.0'  
    listen_address: 'unic-integration.fz-juelich.de'  
    port: 7777  
    java_heap_size: '512'  
    sitename: 'JURECA'  
    registry_url: 'https://unic-integration.fz-ju...'  
    attribute_sources:  
      XUADB:  
        class: 'eu.unicore.uas.security.xuadb.XUADBAuthoriser'  
        xuadbHost: 'https://unic-integration.fz-juelich.de'  
    use_mysql_persistence: true  
    persistence_database: 'data_demo_site'  
    persistence_password: '*****'  
    use_default_simpleidb: true  
    trusted_assertion_issuers: ['/opt/unicore/certs/trusted-unity-cert/*.pem']
```



# Landscape at JSC



- Central persistence DB
- Single U/X per HPC machine
- Multiple U/X per UNICORE host
- Dedicated Gateway and Registry host
- Single Gateway for multiple infrastructures

# Future Work

- Publish Puppet module
  - requires removing dependency on internal module
- Create decent documentation to get administrators started