Perun

Identity and Access Management System for Virtual Organizations/Research Communities

EGI-GEANT Symposium
25.9.2014

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Motivation

- Single Sign-On for services within the project
- Reuse existing users' identities
  - Federated identity
  - Social identity
- Provide an identity for "homeless" users
- Support grouping of such identities
  - Use existing user’s groups
- Delegation of the rights to manage the entities
- Expose data to the federated services

Perun manages

- Virtual organizations
- Users
- Groups
- Resources
- Attributes

VO and Group Management

- Built-in support for virtual organizations
  - Configurable application form
  - Delegation of rights to manage VO to the end users
  - Access management for the VO resources

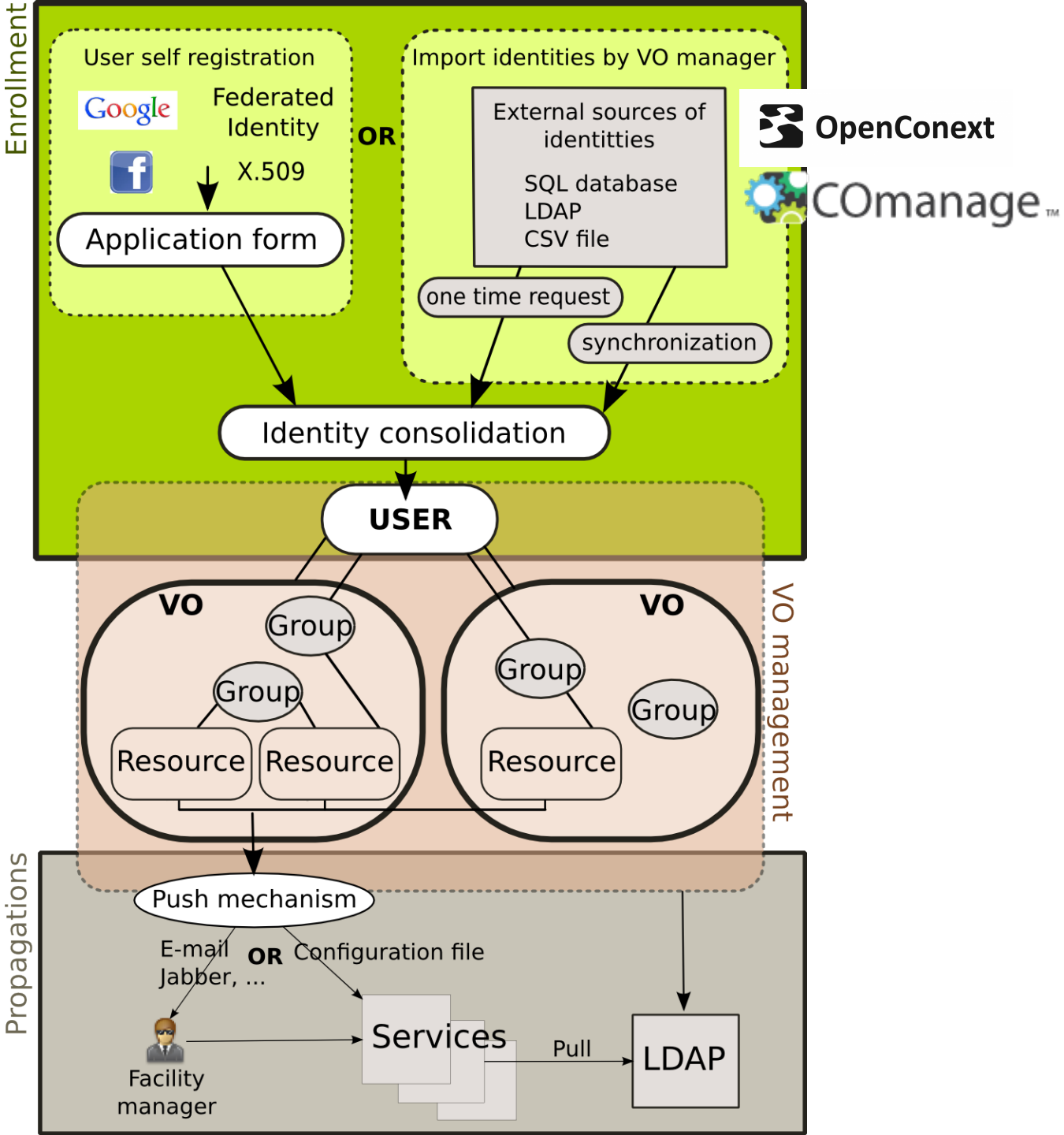
- Group management
  - Configurable application form
  - Group manager role
  - Automatic synchronization with external systems
  - Support for VOOT protocol

User Management

- User can have several existing identities
  - Federated identities, X.509 certificates, social identities, SSH keys, Kerberos principals, …
  - Identity consolidation
  - Perun doesn’t store user’s password, private keys, ...
- Users' enrollments
  - Pre-filled information from external authN system
- Service users
  - Represents services

Access Management

- Resources are assigned to the VOs
  - Generally non-web/SAML incompatible services
- Configuration of the access to the services
  - E.g. unix accounts, access to NFS, radius ACLs, mailing lists, ACLs for web applications, OpenNebula
- Push mechanism
  - omit online queries
  - push only on change (ideal for clouds)
- Alternatively publish data through the LDAP
- SAML based Attribute authority


Enrollment
User self registration
Google
Federated Identity
X.509
Application form
OR
Import identities by VO manager
External sources of identitties
SQL database
LDAP
CSV file
one time request
synchronization
OpenConext
COmanage
Identity consolidation
USER
VO
Group
Group
Resource
Resource
VO
Group
Group
Resource
VO management
Propagations
Push mechanism
E-mail
Jabber, ...
OR
Configuration file
Facility manager
Services
Pull
LDAP

Attributes Management

- Every entity and also relationship can have assigned the attributes
- Different value types: string, number, list, array
- Access rights on attribute values
- Attribute modules
  - check proper value of the attribute
  - fill default values
  - check value of dependant attributes

Attribute Authority

- Attribute Authority is just another resource from Perun's point of view
  - AA per VO
- Deployed at CESNET eInfrastructure
  - Provides information of vo/group membership within the Czech eInfrastructure

Cooperation projects

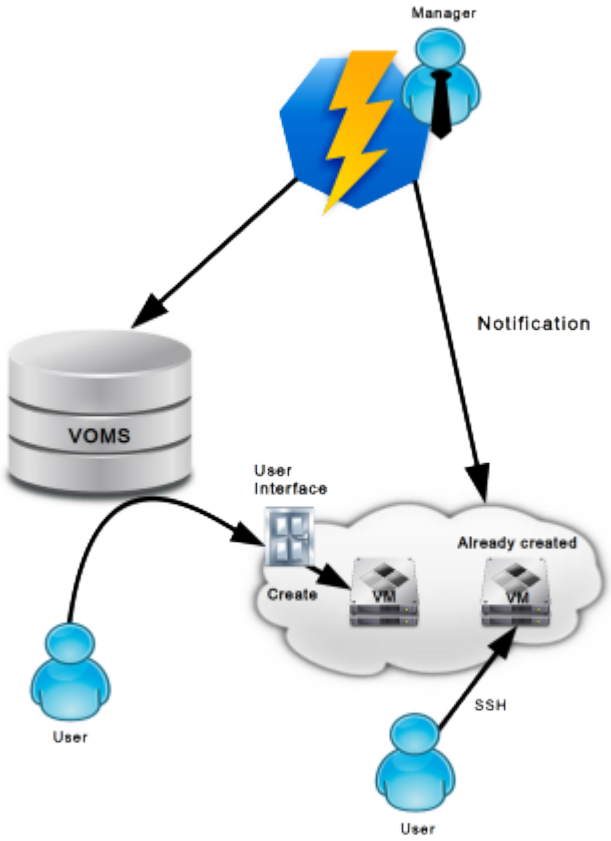
- Cooperation with HEXAA and Surfnet
  - Finding processes and protocols for AA interoperability
- Elixir project
  - Cooperation with REMS system
  - Providing user management for Elixir

Selected deployments

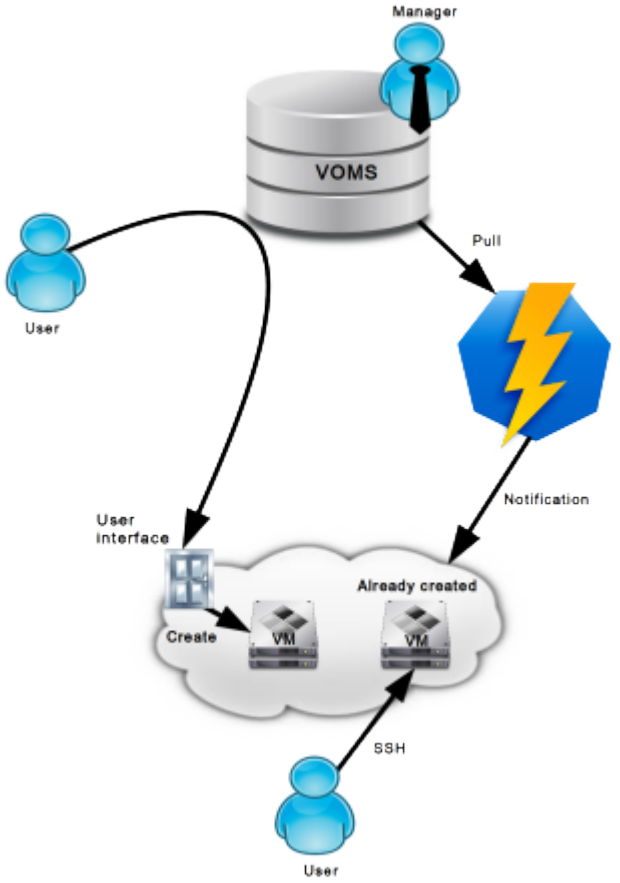
- EGI core service
  - Manages user access to the EGI federated cloud infrastructure
  - Connected with VOMS service
- EBI
  - Manages access to the AppDB applications
  - Pilot installation
- Czech Elixir node
  - Manages access to the whole back office and computational/storage resources
- SAGRID
  - production installation for the NGI management

EGI fedcloud case

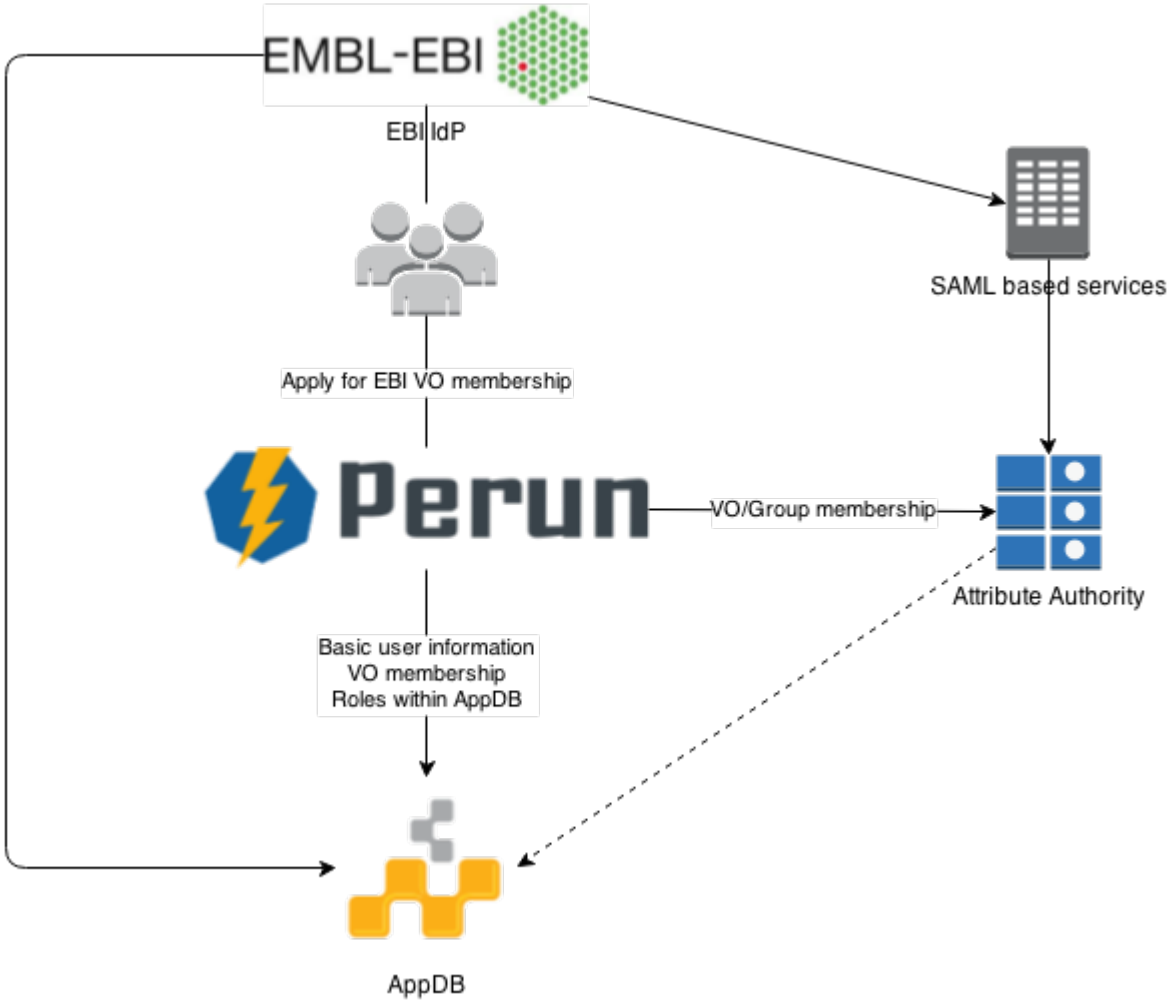
Management using Perun



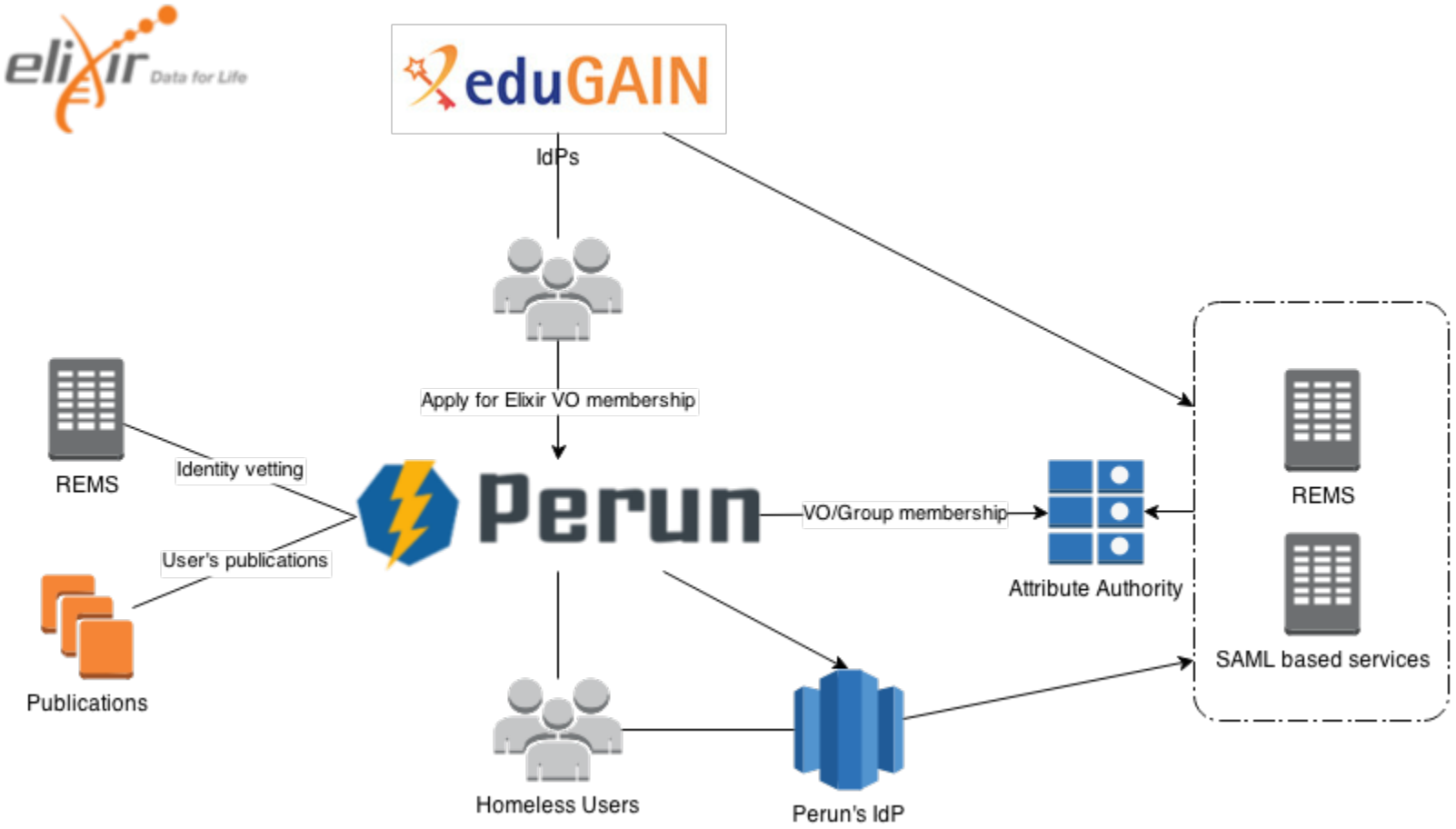
Management using VOMS utilizing Perun



EBI case


EMBL-EBI
EBI IdP
SAML based services
Apply for EBI VO membership
Perun
VO/Group membership
Attribute Authority
Basic user information
VO membership
Roles within AppDB
AppDB

Elixir case


elixir Data for Life
eduGAIN
IdPs
Apply for Elixir VO membership
REMS
Identity vetting
User's publications
Publications
Perun
VO/Group membership
Attribute Authority
REMS
SAML based services
Homeless Users
Perun's IdP

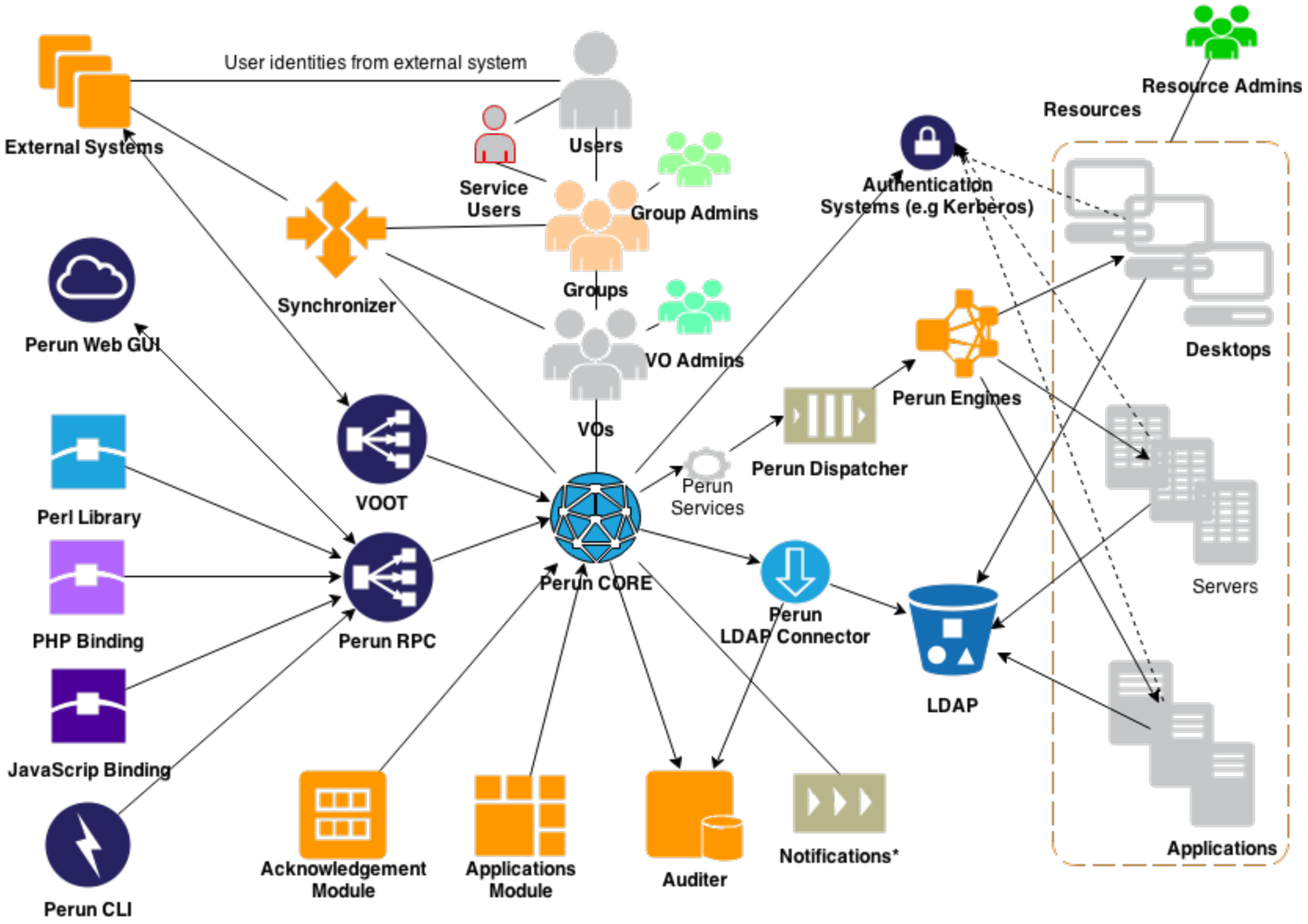
Statistics

- CESNET's Perun instance
- In production since autumn 2012
- 152 VOs national/international
- >3900 users
- Manages access to services on ~1800 machines

Thank you for your attention

http://perun.cesnet.cz

http://github.com/CESNET/perun


User identities from external system
External Systems
Users
Service Users
Group Admins
Groups
VO Admins
VOs
Synchronizer
Perun Web GUI
Perl Library
PHP Binding
JavaScrip Binding
Perun CLI
VOOT
Perun RPC
Perun CORE
Perun Services
Perun Dispatcher
Perun LDAP Connector
Authentication Systems (e.g Kerberos)
Perun Engines
LDAP
Resource Admins
Resources
Desktops
Servers
Applications
Acknowledgement Module
Applications Module
Auditer
Notifications*
* Not yet deployed in production