Automation of organizational and technical arrangements for scientific researches

Alexander DEGTYAREV
Andrei IVASHCHENKO
Vladimir KORKHOV
Nikolai YUZHANIN
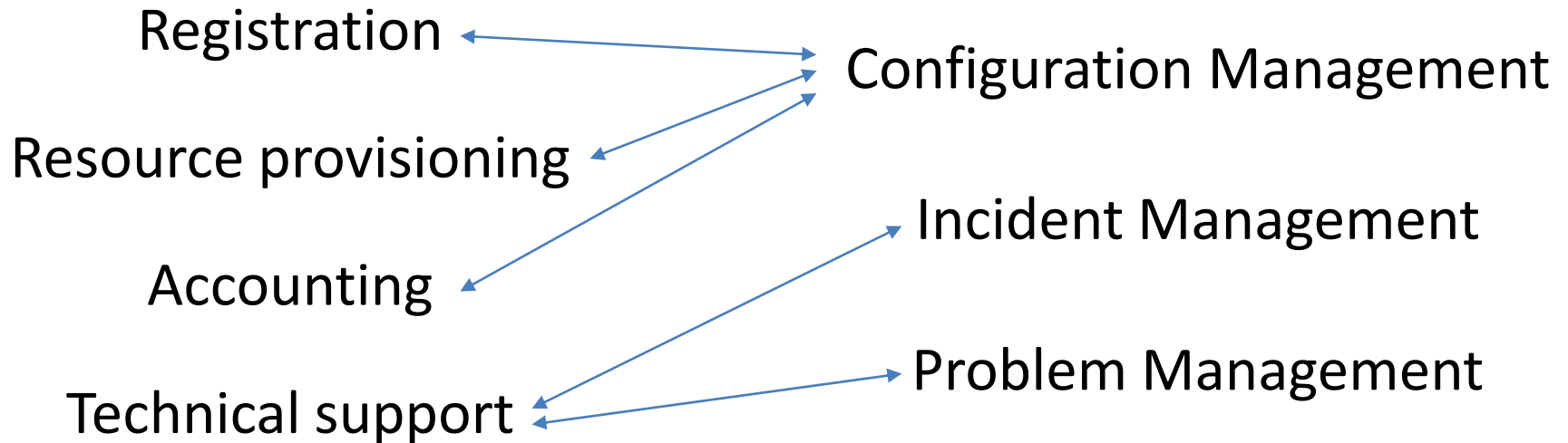
GRID'2016

Problems of scientific research support

- Large amount of human tasks;

- Relevance of data depends on human impact factor;

- Absense of unified accounting solution;

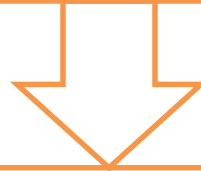# Support of scientific research: actions and processes
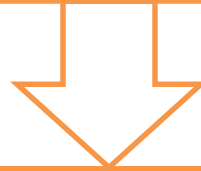
Support activities

Processes

Registration

Configuration Management

Resource provisioning

Incident Management

Accounting

Technical support
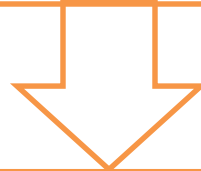
Problem Management

Organizational arrangements

Description of main procedures inside the basic activities for automation

Turning descriptions into rules and putting them to the knowledge base

Combining the rules into chains and development of the wizards on a base of them

Development of the interface between information systems for consolidation and unification

Service desk as a basic tool: pros and cons

+ Implements all required processes

+ Provides registration, part of resource accounting, and technical support

+ Includes necessary datastores (CMDB)

- Requires external systems for full coverage of accounting

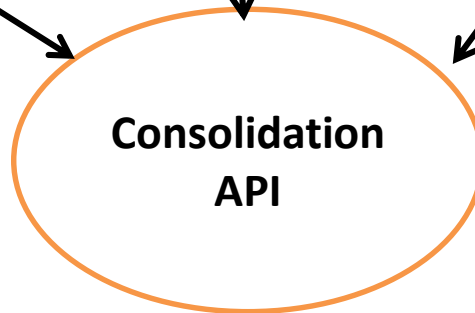- Relevance of data still depends on human impact factor
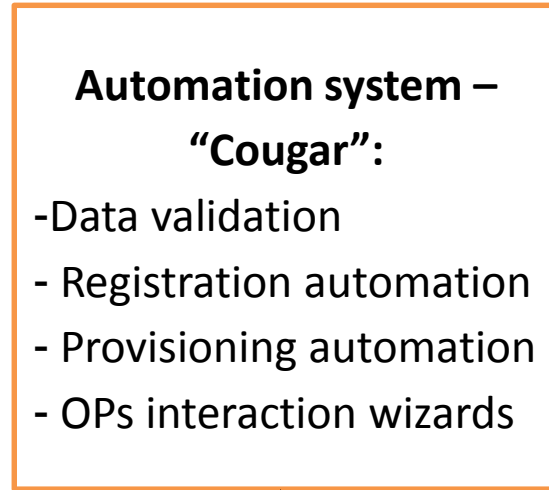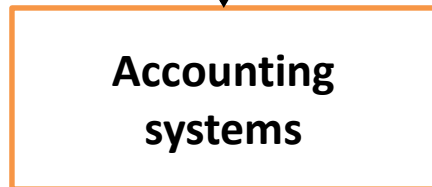
OTRS::ITSM service desk

- Non-commercial and open-source;
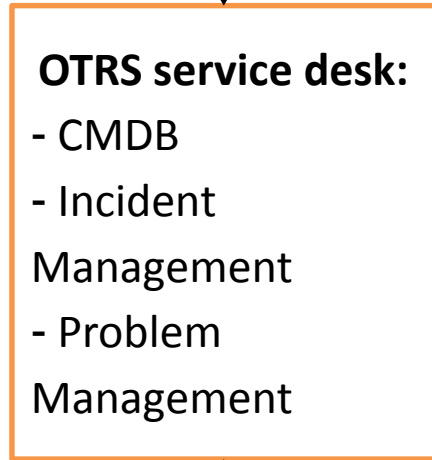
- ITIL v.3 certified;

- Includes required objects and CMDB;

- Supports all required processes;

- Provides automatic report generation;

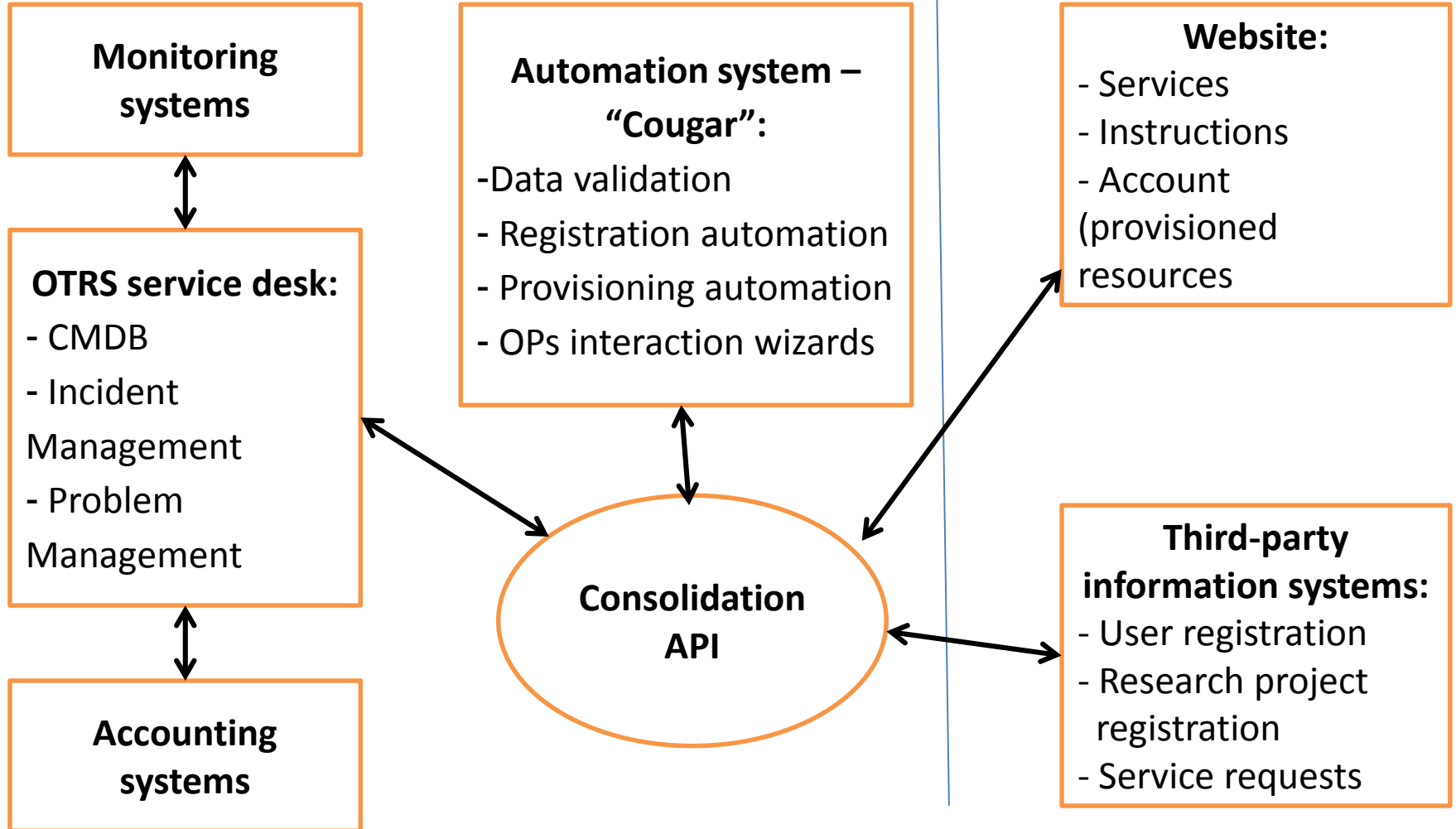- Provides a web service API;

Web services: pros and cons

+ Integration component of support information system;

+ Ease of use;

+ API available for all of our systems;

- Varying message formats: SOAP/REST, XML/JSON;

- Data structures varies a lot;

Structure of support system

Staff interaction systems

User interaction systems

Monitoring systems

Automation system – "Cougar":
- Data validation
- Registration automation
- Provisioning automation
- OPs interaction wizards

Website:
- Services
- Instructions
- Account (provisioned resources

OTRS service desk:
- CMDB
- Incident Management
- Problem Management

Consolidation API

Accounting systems

Third-party information systems:
- User registration
- Research project registration
- Service requests

Cougar:
automation system interaction
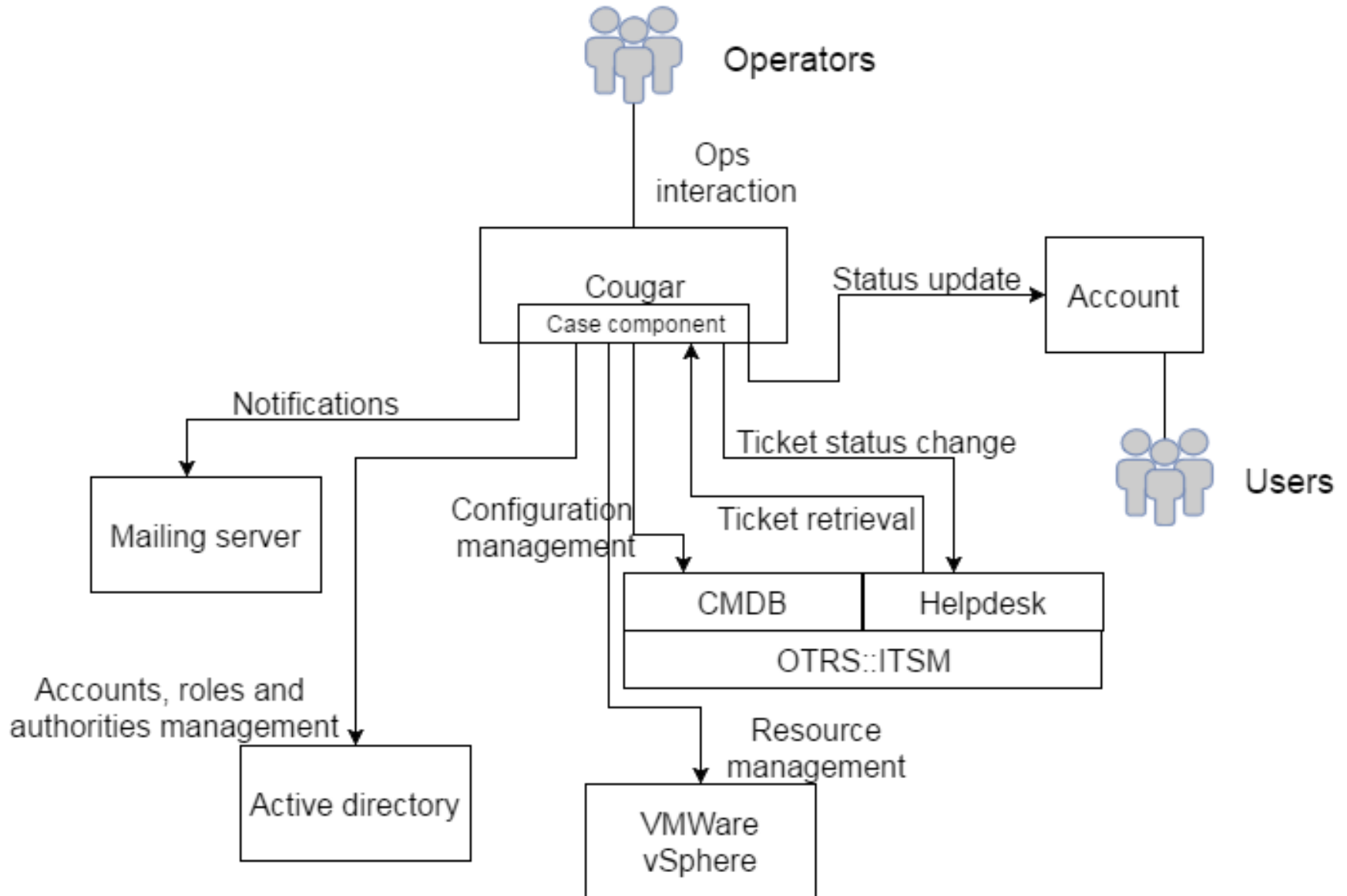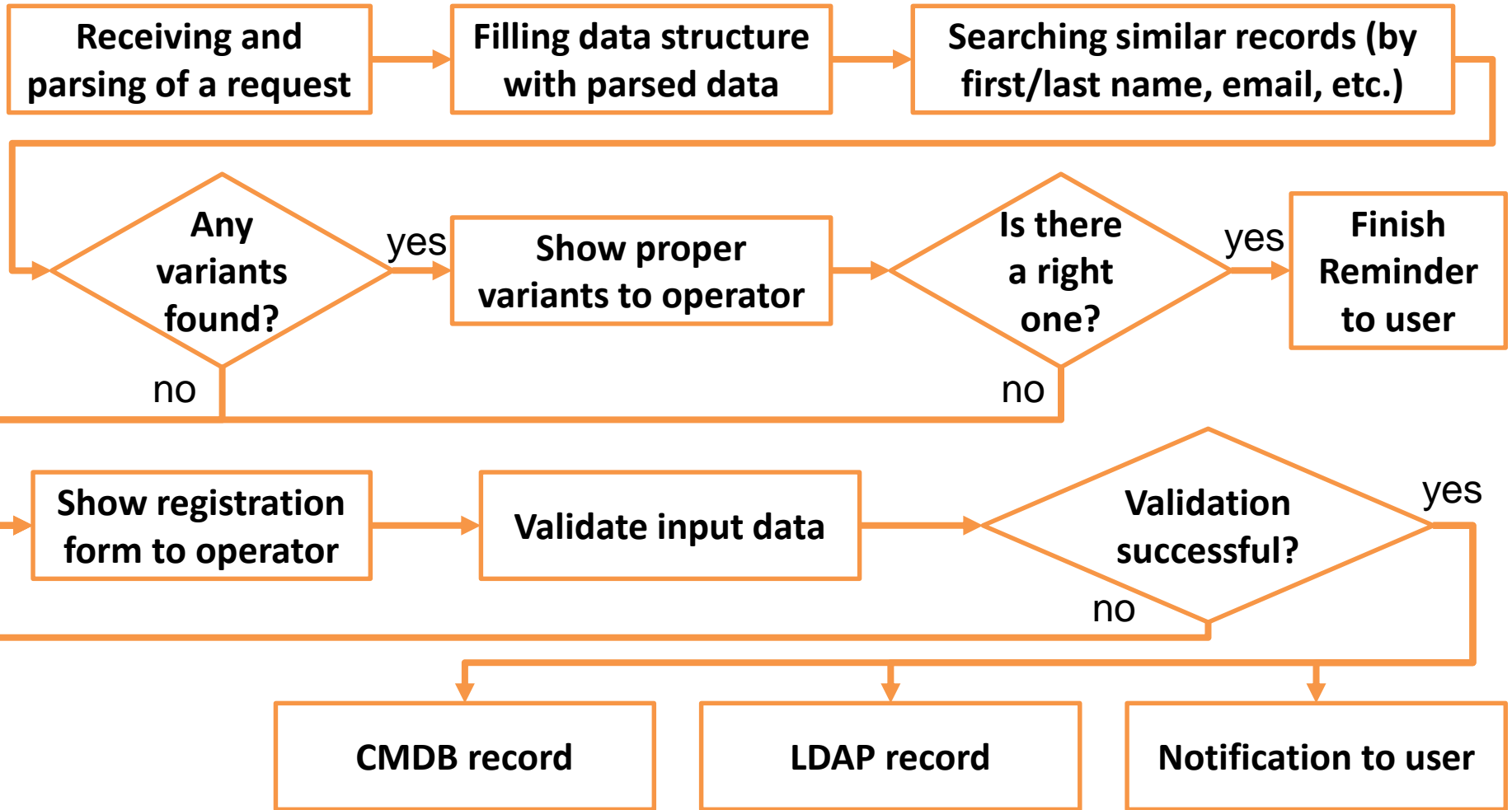
Cougar:
automation system key features

- Consolidation API;

- Wizards for basic support procedures;

- Data validation;

- Control of the datastores filling (CMDB, LDAP);

- Web-based UI with mobile device support;

Workflow example:
user registration

| Receiving and parsing of a request | → | Filling data structure with parsed data | → | Searching similar records (by first/last name, email, etc.) |

Any variants found? — yes → **Show proper variants to operator** → **Is there a right one?** — yes → **Finish Reminder to user**

no

Show registration form to operator → **Validate input data** → **Validation successful?** — yes

no

CMDB record

LDAP record

Notification to user

Conclusions

- Research lifecycle support with automated advisory was developed

- Simplified decision-making for Ops

- Reduced human impact factor

- Improved data relevance in CMDB

- Simplified report generation

Perspectives

- Automated provision of recommendations about usage of services from the analysis of:
  - project objectives data,
  - service requests data,
  - QA surveys data;

- Web service transport between monitoring, accounting, and service desk;

Acknowledgement

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http://researchpark.spbu.ru/
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Thanks for attention