Wendelin Exanalytics

2020 Big Data with MariaDB

2014-04-03 – Santa Clara updated 2014-06-16

www.wendelin.io

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Agenda

- **Our background: ERP5**
- **Our future: Wendelin Exanalytics**
- **Our challenge: out-of-core**

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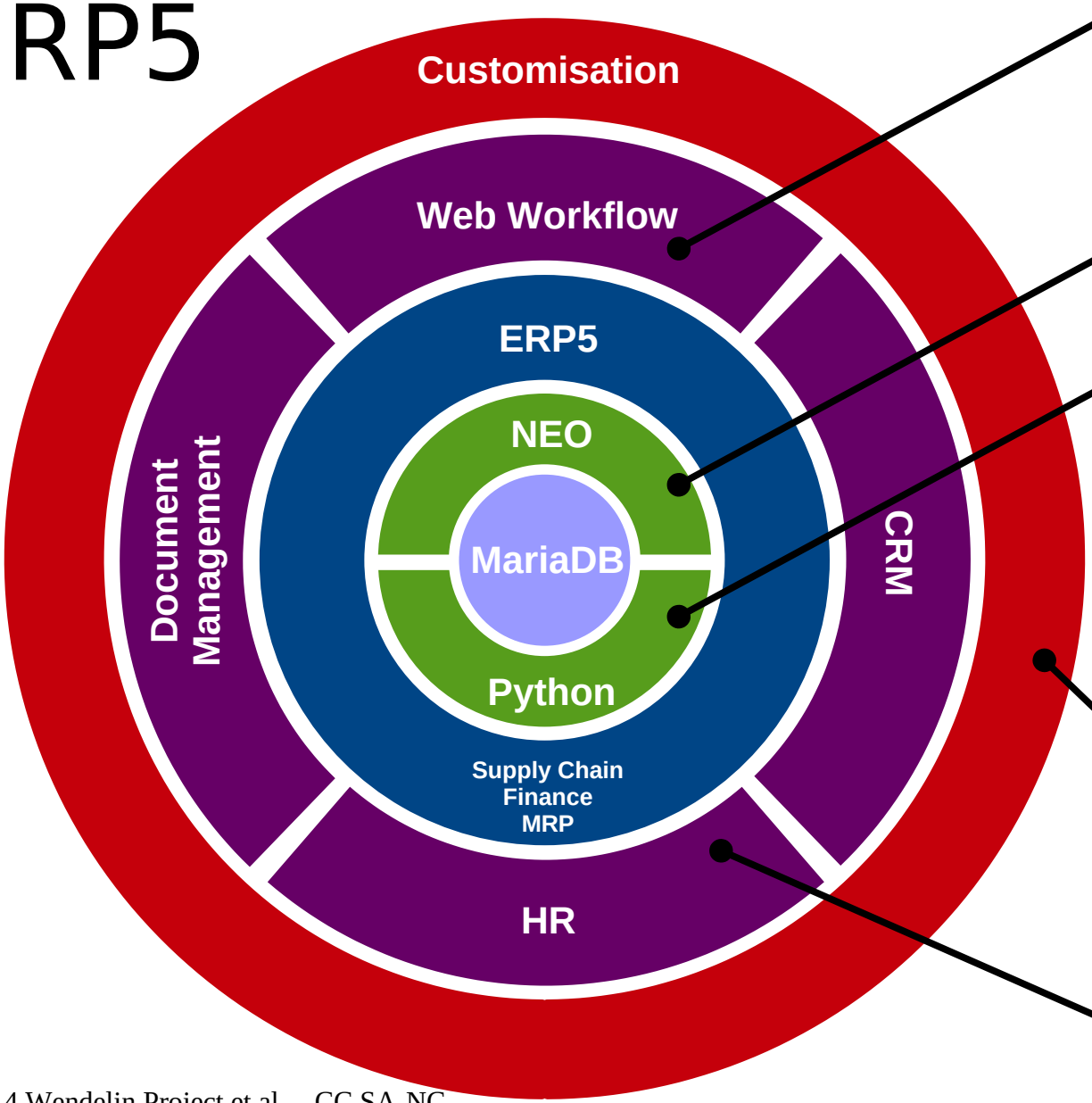
ERP5



Online contribution for 3rd parties
To-do lists
Notifications

Fine Grain Security
Full Traceability
Scalability

Flexibility
Rapid prototyping
Zope TTW on steroids

Banking
Aerospace
Health
Chemical
Government
NGO
Cloud Computing
Consulting
Mechanical

Careers and assignments
Payroll
Projects

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Terra-SAR X Satellite

MariaDB ERP5

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Open Source ERP/CRM for S&P 100

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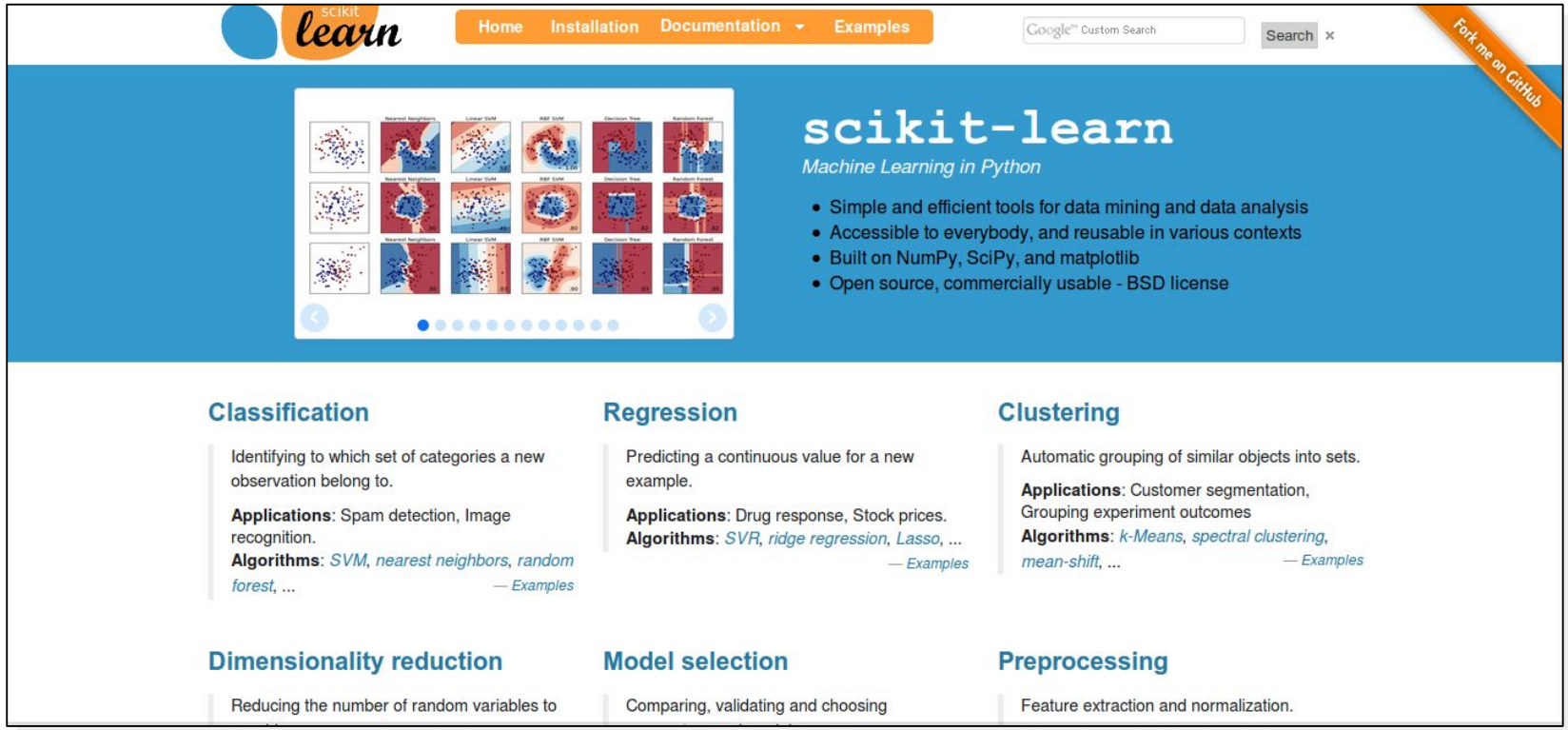
Take the Best Analytics scikit-learn.org



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http://en.wikipedia.org/wiki/Fields_Medal

Number of Fields Medallists by country [edit]

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United Kingdom	6
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Belgium	2
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Italy	1
Norway	1
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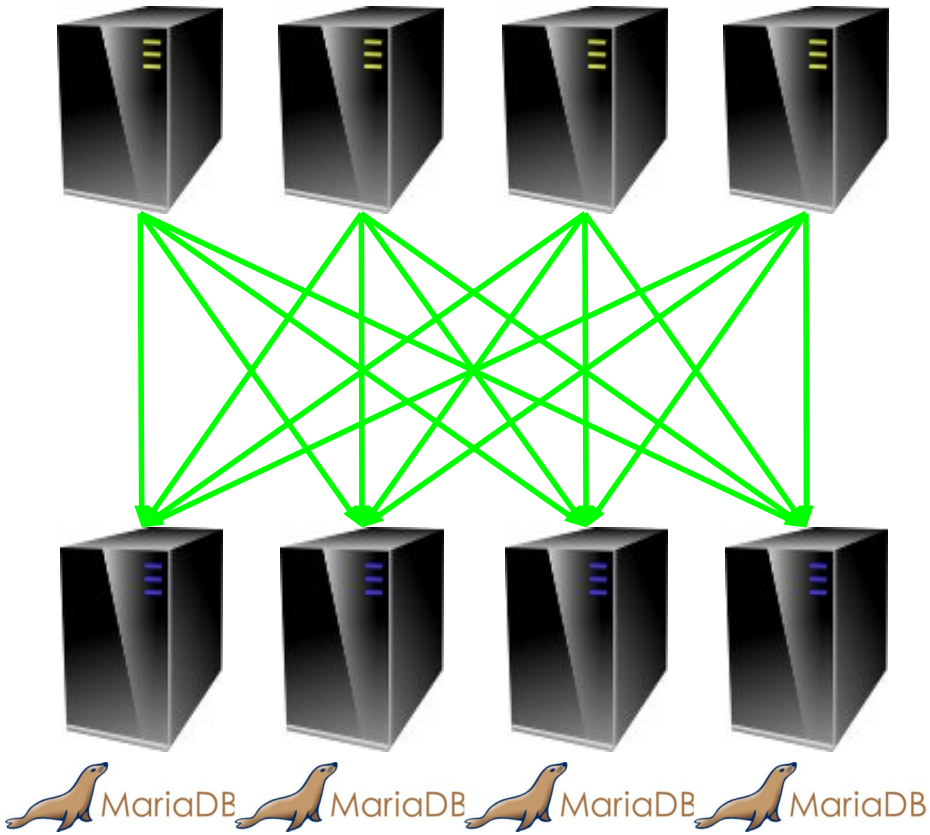
Add Distributed Storage neoppod.org

NEO



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Add Elastic PaaS erp5.com

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server_count = 1000
chunk_size = data_size / server_count
data = array(data_size)

# Process data in parallel on each server (Map Reduce, Batch, etc.)
for server in server_count:
  data.activate().process(server*chunk_size, chunk_size)
```

ERP5 PaaS

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And Multicloud Deployment slapos.org

Update software profile - helloworld (workspace/my_repository/software)

Profiles | Workspace | Run software | Software log | SR result | Run instance | Instance log | Inspect instance | Destroy instance

Edit software profile [More]:

```
[buildout]

extends =
# "slapos" stack describes basic things needed for 99.9% of SlapOS Software
# Releases
  ../../stack/slapos.cfg
# Extend here component profiles, like openssl, apache, mariadb, curl...
# Or/and extend a stack (lamp, tomcat) that does most of the work for you
# In this example we only need the dash binary to run a simple "hello world"
# shell script.
  ../../component/dash/buildout.cfg

parts =
# Call installation of slapos.cookbook egg defined in stack/slapos.cfg (neede
# in 99,9% of Slapos Software Releases)
  slapos-cookbook
# Call creation of instance.cfg file that will be called for deployment of
# instance
  template

# Download instance.cfg.in (buildout profile used to deployment of instance),
# replace all ${foo:bar} parameters by real values, and change $${foo:bar} to
# ${foo:bar}
[template]
recipe = slapos.recipe.template
url = ${:_profile_base_location_}/instance.cfg.in
output = ${buildout:directory}/instance.cfg
# MD5 checksum can be skipped for development (easier to develop), but must be filled for production
md5sum = 1fc461c00e86485bee77a942f39e3c43
mode = 0644
```

Save

SLAPOS

MMC Rus

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sanef

AIRBUS DEFENCE & SPACE

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Wendelin Exanalytics Core 100% open source

100% Python

Scikit Learn — Data Analytics

NEO — Distributed Storage

MariaDB

ERP5 — Elastic PaaS

SlapOS — Multicloud Deployment

Multi Data Center

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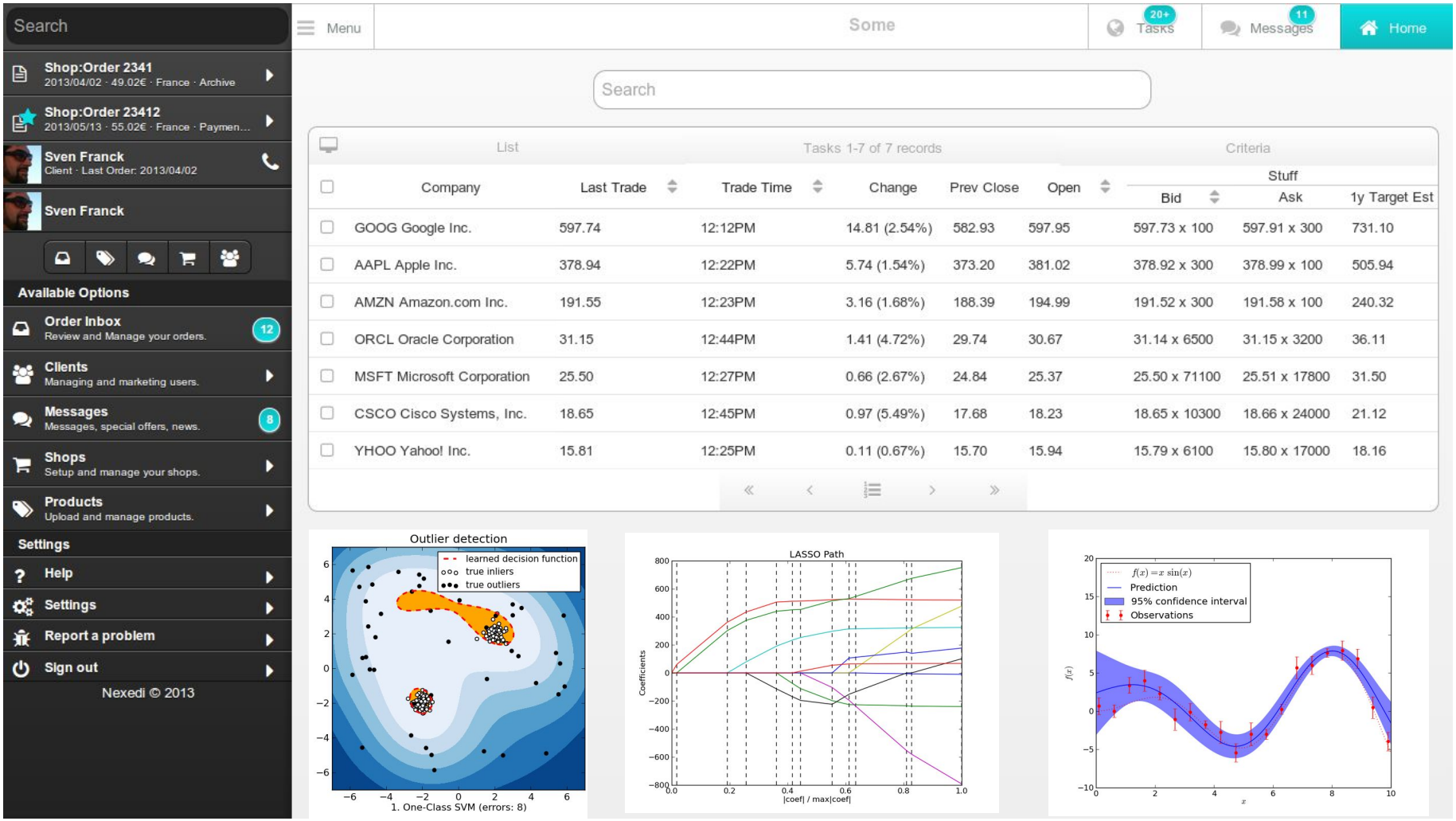
Wendelin User Interface renderjs.org



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Scikit Learn	
NEO	
Fluentd	**Reatime log collection** Treasure Data / Amazon

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Wendelin Applications

- **Intrusion detection**
- **Fraud detection**
- **Business and economic prevision**
- **Marketing**
- **Media analysis**
- **Public security**
- **Brain Computer Interface**
- **Internet Of Things**

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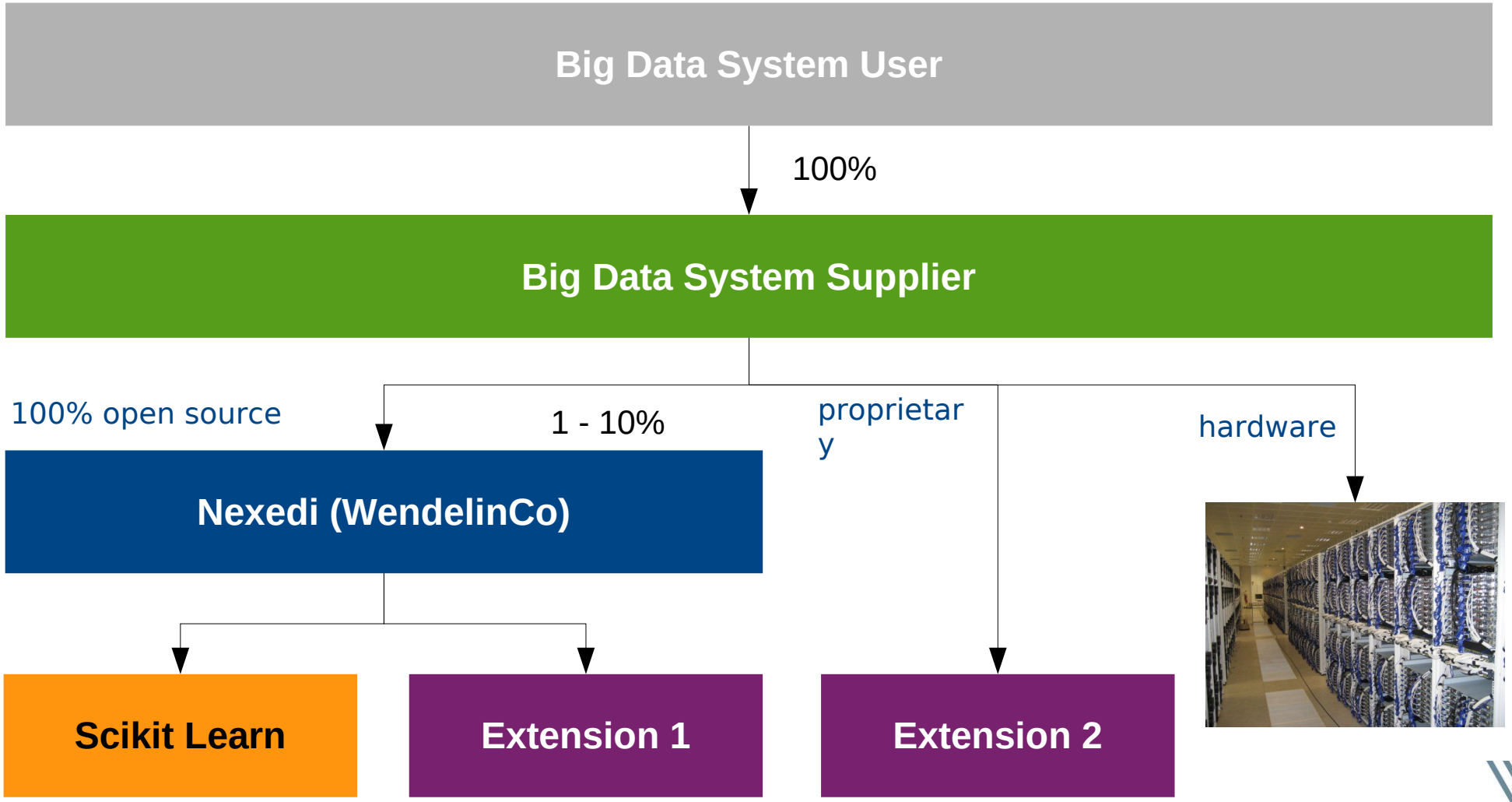
Business Model: German Style No VC



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- **Our future: Wendelin Exanalytics**
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Out-of-core arrays

```
# Numpy
np.ndarray(shape=(2,2), dtype=float, order='F')

# Out-of-core data
np.ndarray(shape=(1e18,2), dtype=float, order='F')        2 Exabyte

# Full out-of-core
np.ndarray(shape=(1e9,2e9), dtype=float, order='F')       2 Exabyte
```

Best out-of-core topology depends on the algorithm and array geometry

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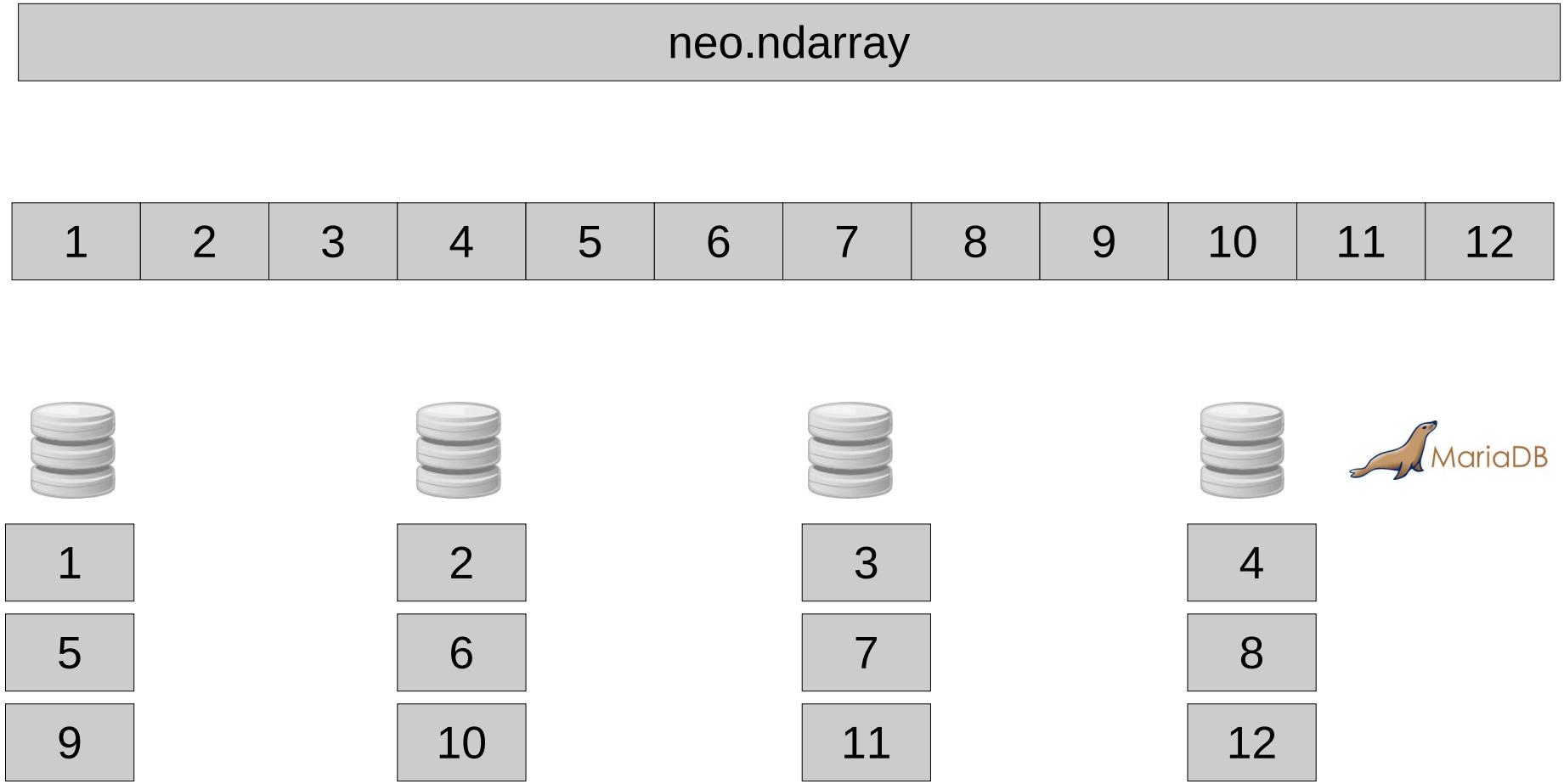
neo.ndarray out-of-core data



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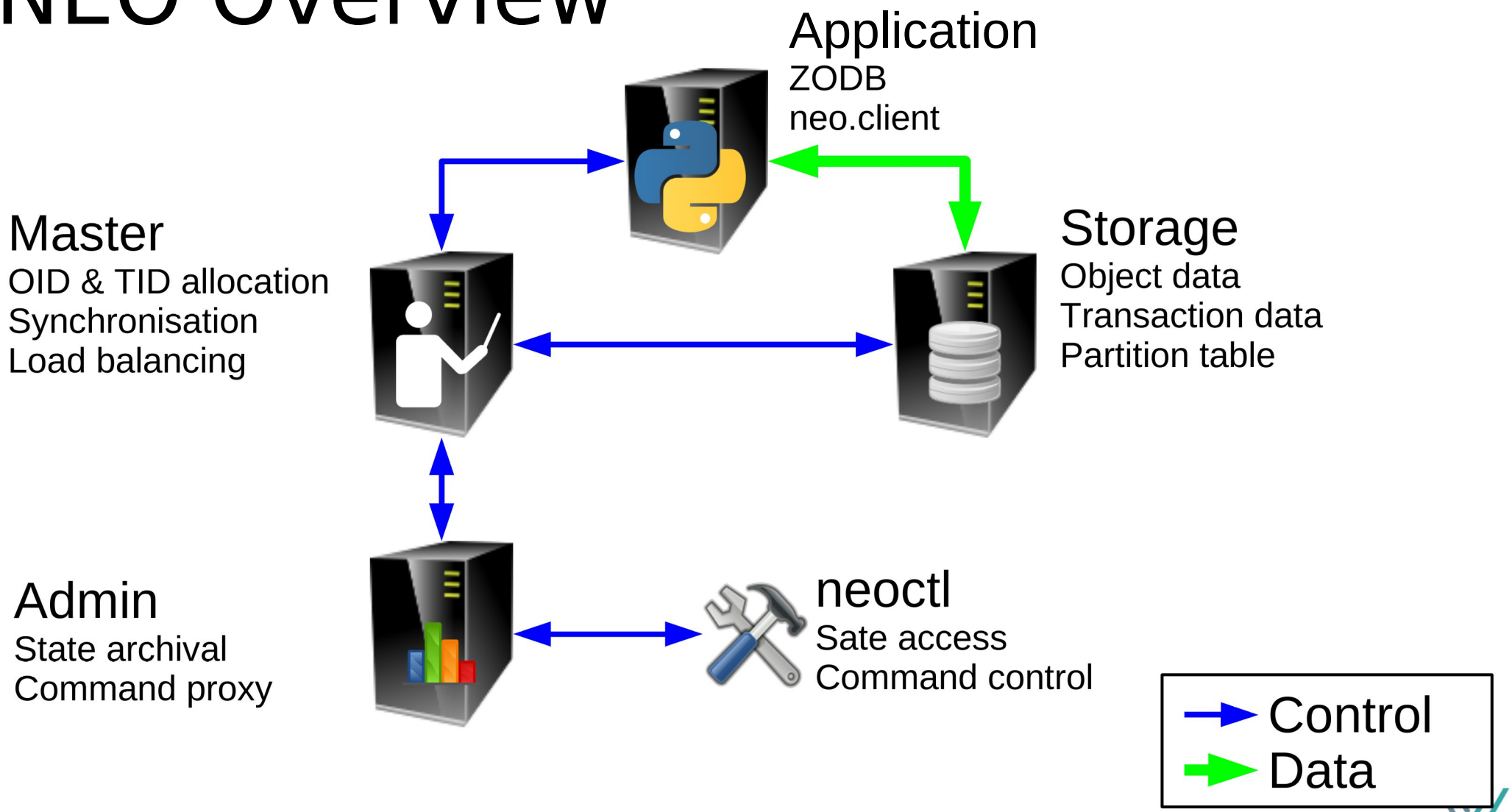
NEO Overview



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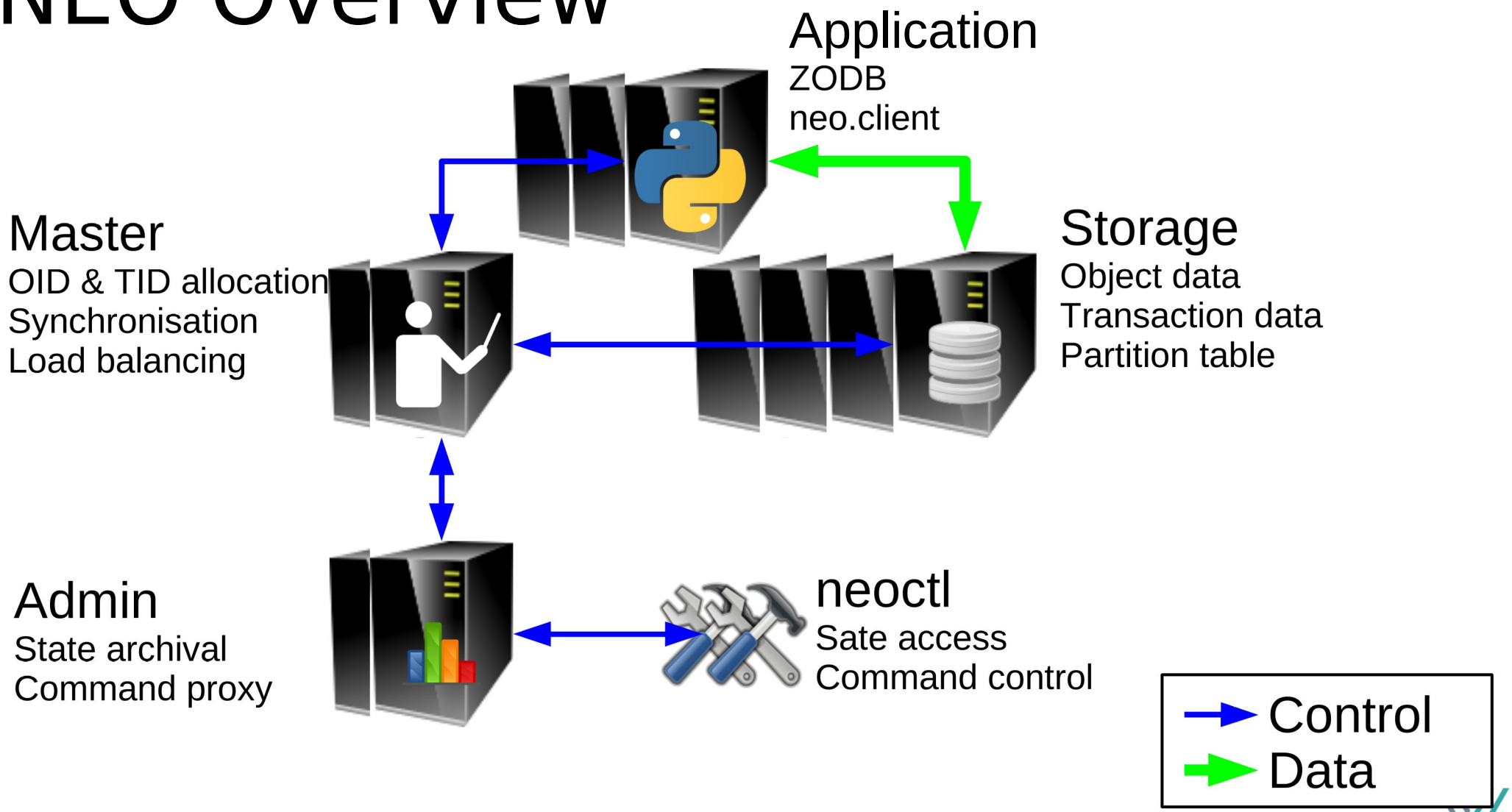
NEO Overview



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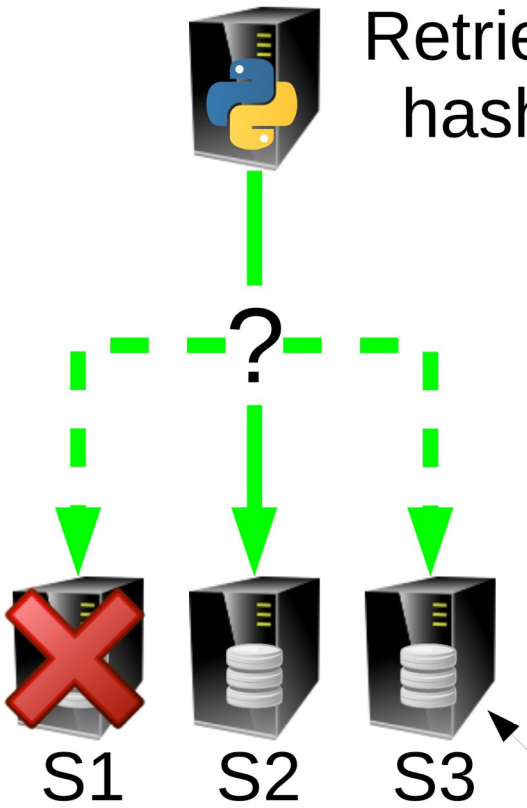
Object retrieval



Partition	Node	State
0	S1	
	S3	
1	S2	
	S3	
...	...	...

Variable

Parition	Node	State
S1	IP:PORT	?
S2	IP:PORT	Connected
S3	IP:PORT	?

Variable

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Roadmap

- **Q3 2014: neo.ndarray**
- **Q3 2014: developer release of Wendelin**
- **Q4 2014: neo.ndarray with simple optimizations**
- **Q1 2015: mariadb embedded**
- **Q2 2015: coloured caches**
- **Q3 2015: coloured caches with C client cache**
- **Q4 2015: GO storage**

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Challenges

- **Reduce latency → embedded mariadb ?**
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- **Reduce copies → BLOB protocol ?**
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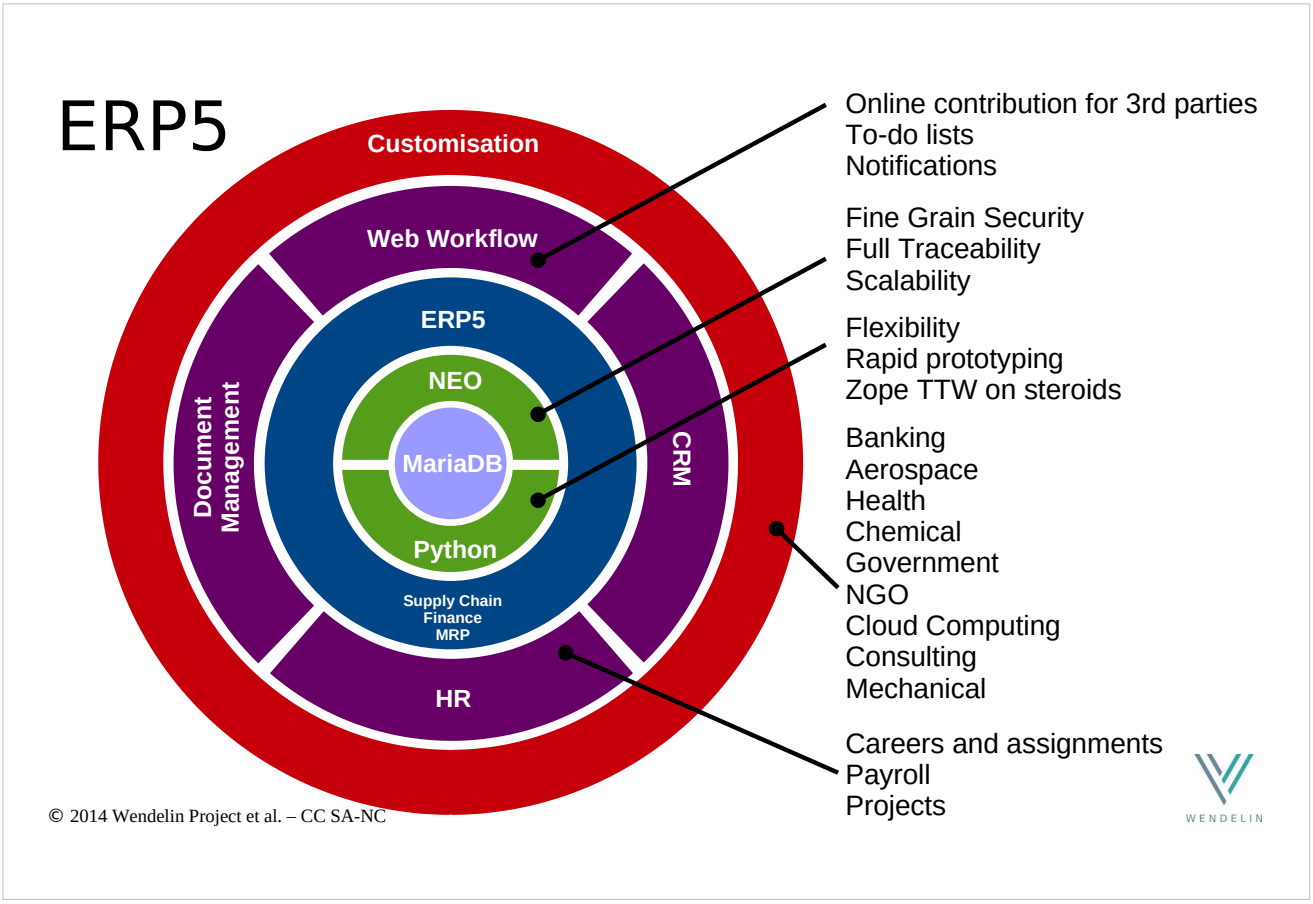
ERP5
Customisation
Web Workflow
ERP5
NEO
MariaDB
Python
Supply Chain
Finance
MRP
Document Management
CRM
HR
Online contribution for 3rd parties
To-do lists
Notifications
Fine Grain Security
Full Traceability
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Zope TTW on steroids
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Aerospace
Health
Chemical
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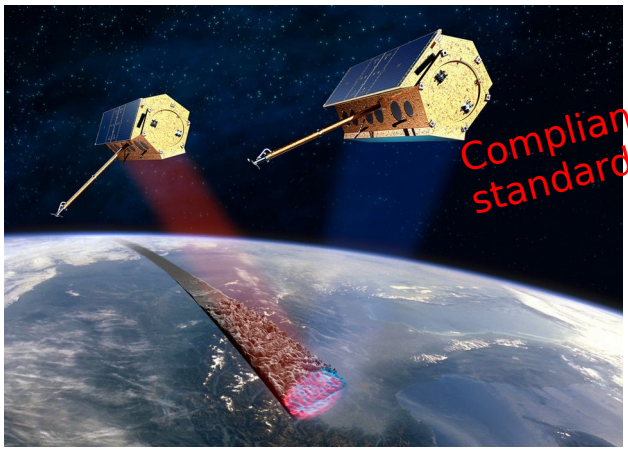

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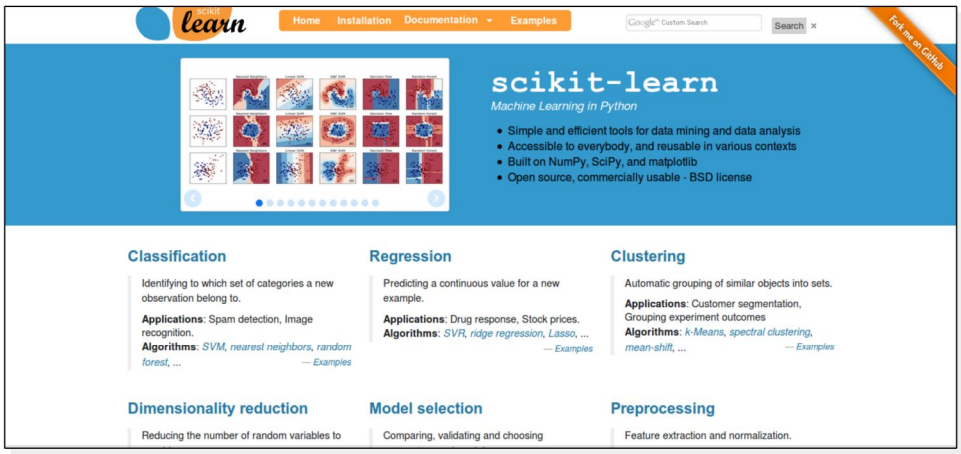

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Sweden	1
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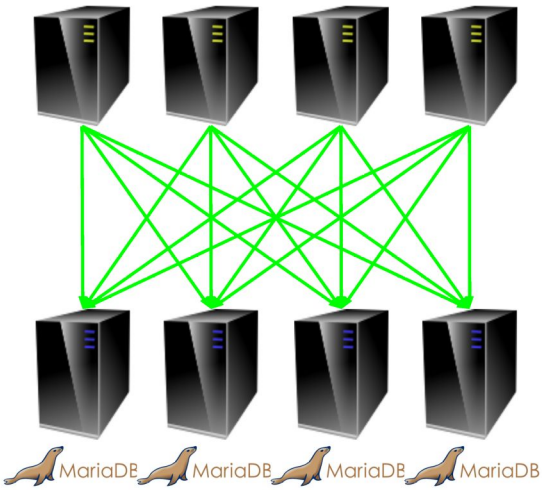
Add Distributed Storage neoppod.org

NEO



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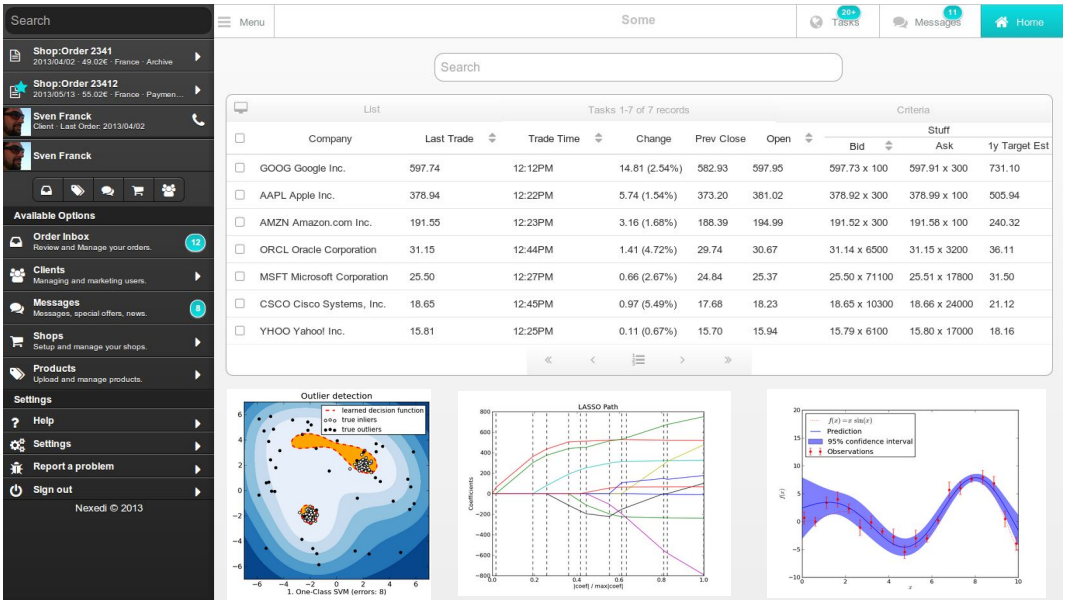

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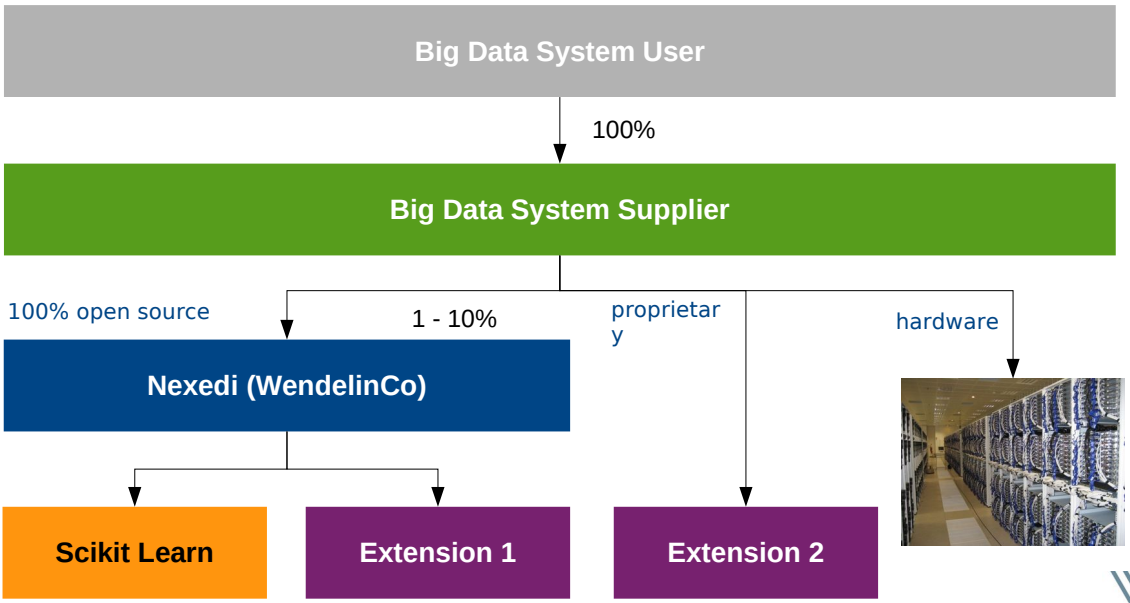

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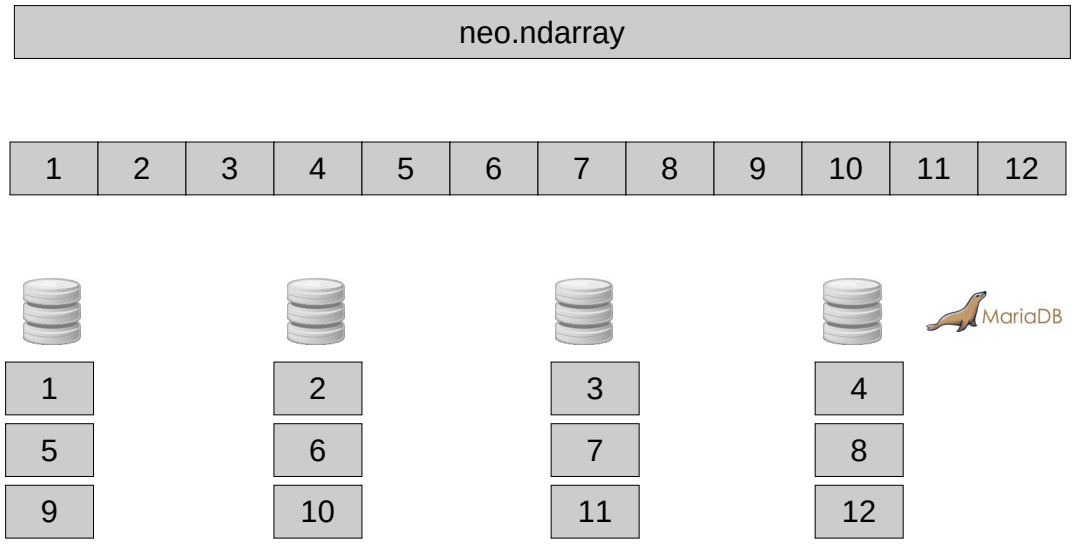

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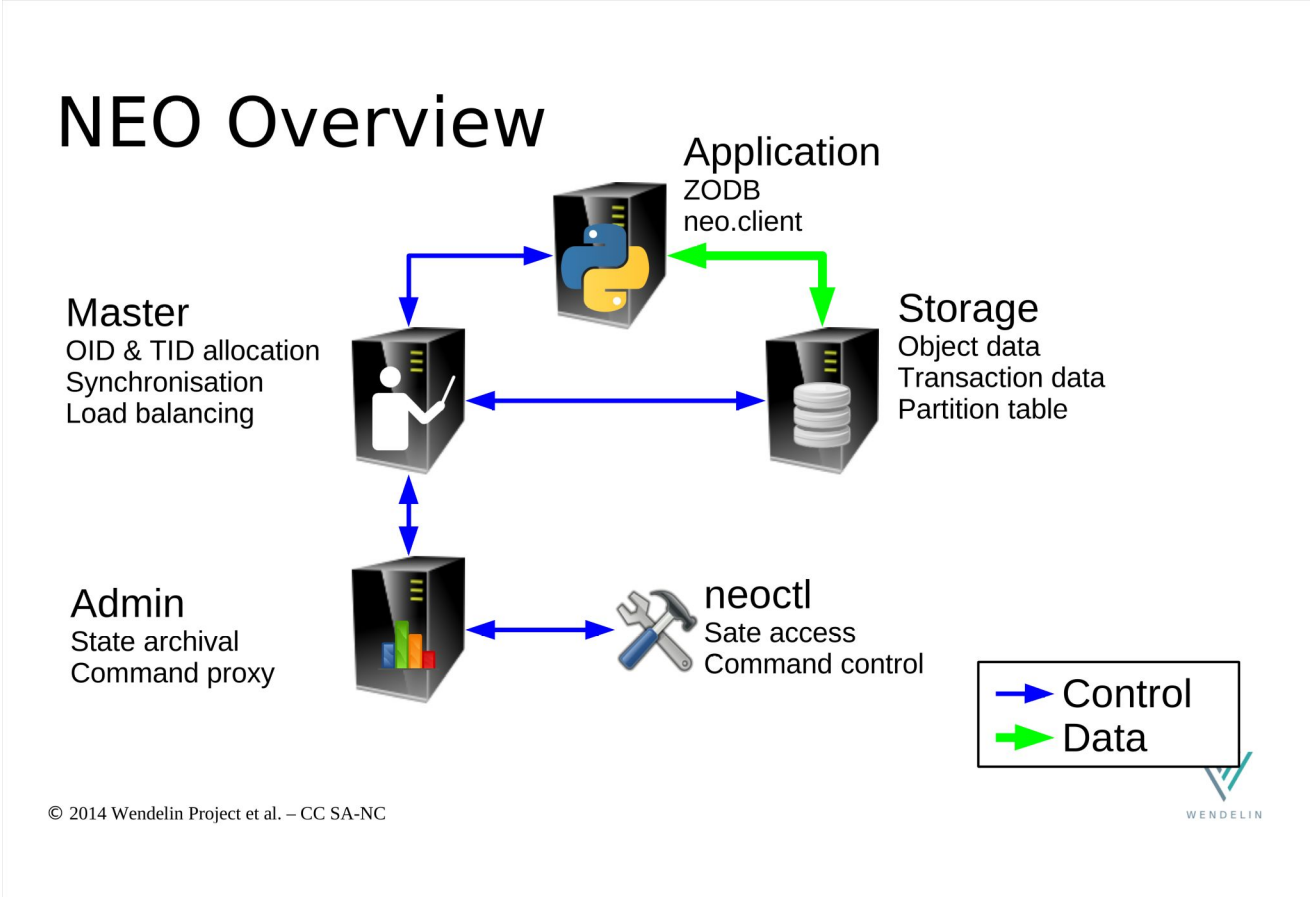
NEO Overview
Application
ZODB
neo.client
Master
OID & TID allocation
Synchronisation
Load balancing
Storage
Object data
Transaction data
Partition table
Admin
State archival
Command proxy
neoctl
Sate access
Command control
Control
Data
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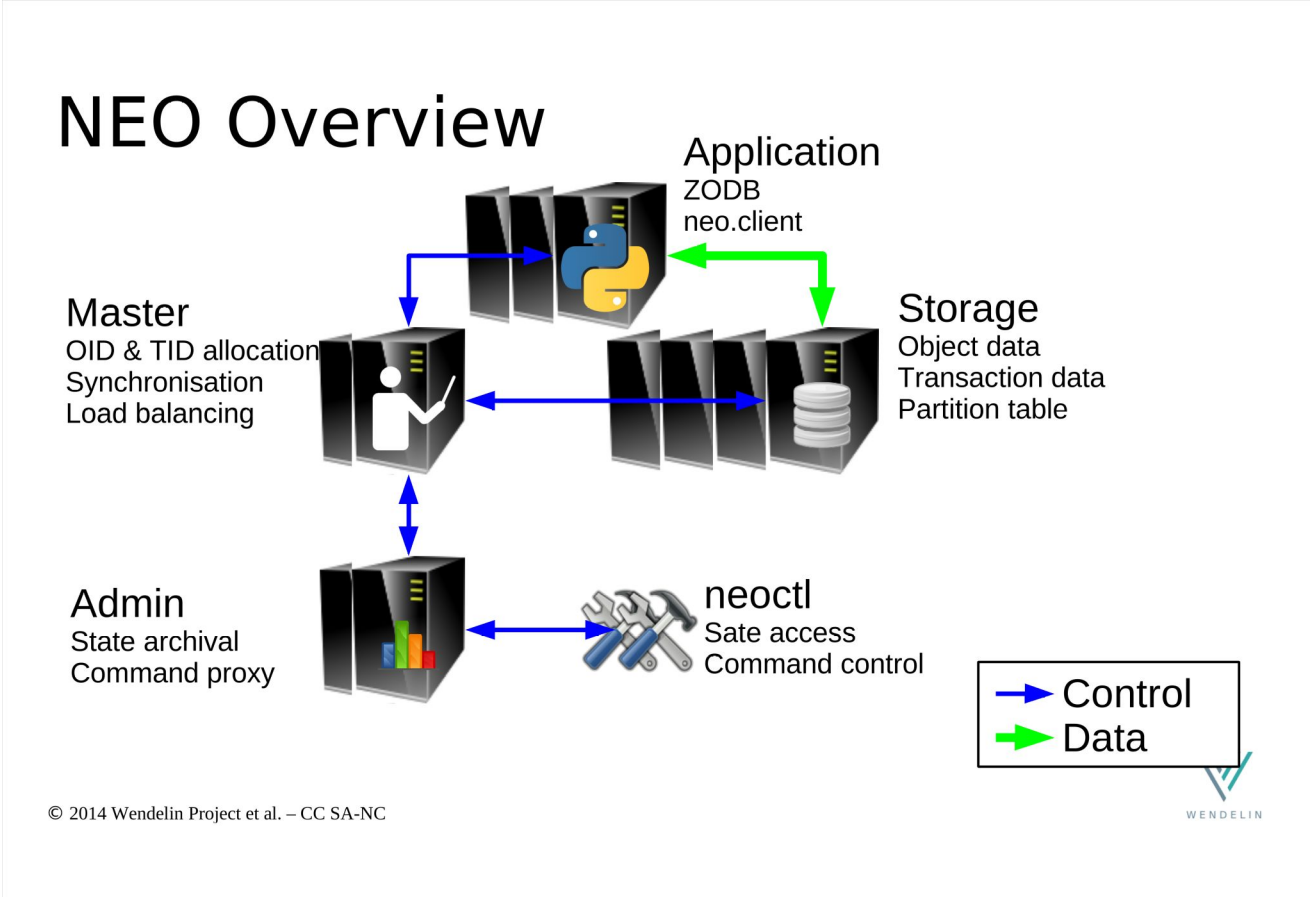
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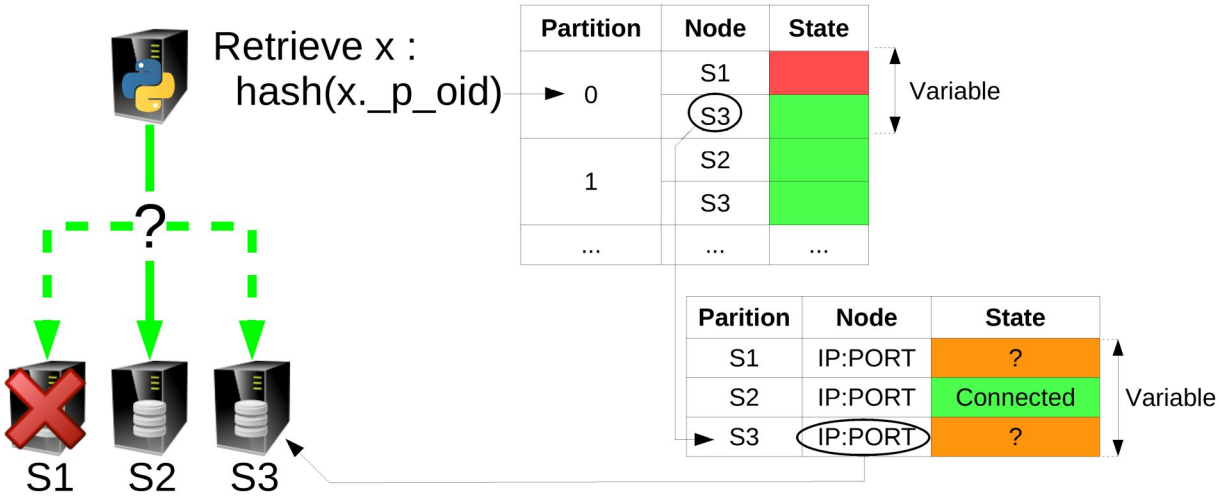

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