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Automatic tool for multi-configuration environment creation for database server and database proxy application testing

Timofey Turenko

MariaDB Corporation AB

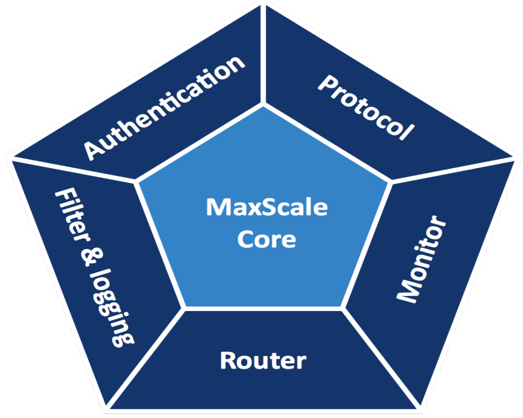
Kirill Krinkin

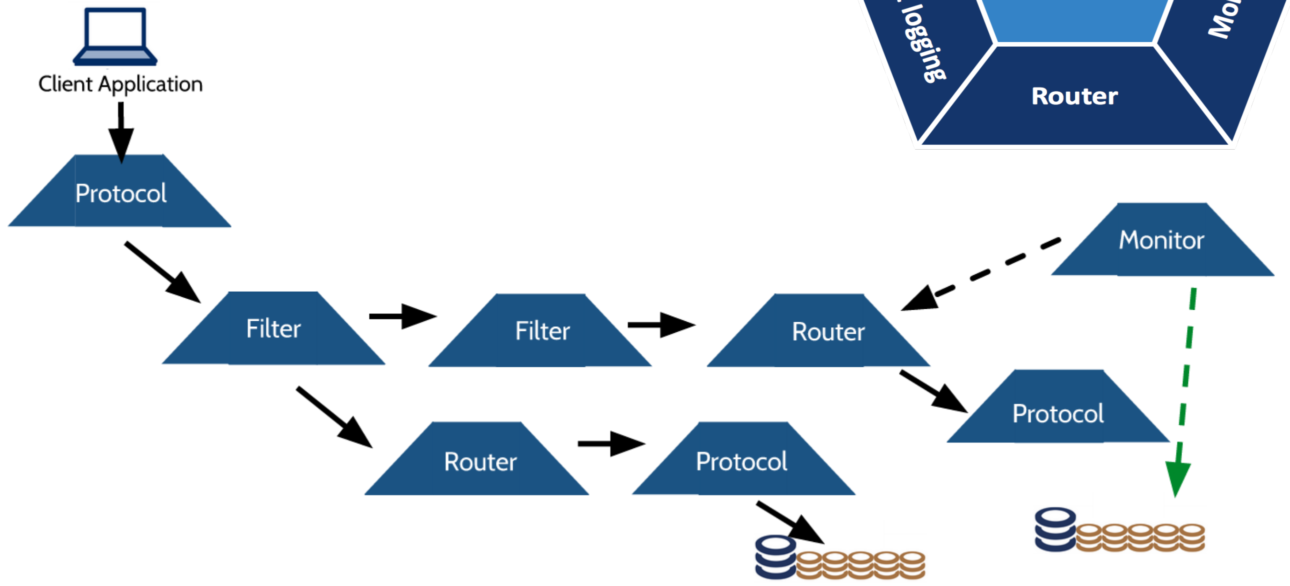
St-Petersburg Electrotechnical University

MariaDB

1886

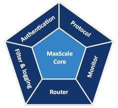
MariaDB & Maxscale





Test environment problem

- Server and proxy application testing:
  - backend is needed
  - lots of combination of machine configurations and version of backend servers
- Maxscale example:
  - 12 major linux distributions
  - MariaDB 5.5, 10.0, 10.1, 10.2
  - MySQL 5.1, 5.5, 5.6, 5.7
  - different topologies
  - Maxscale itself from CI



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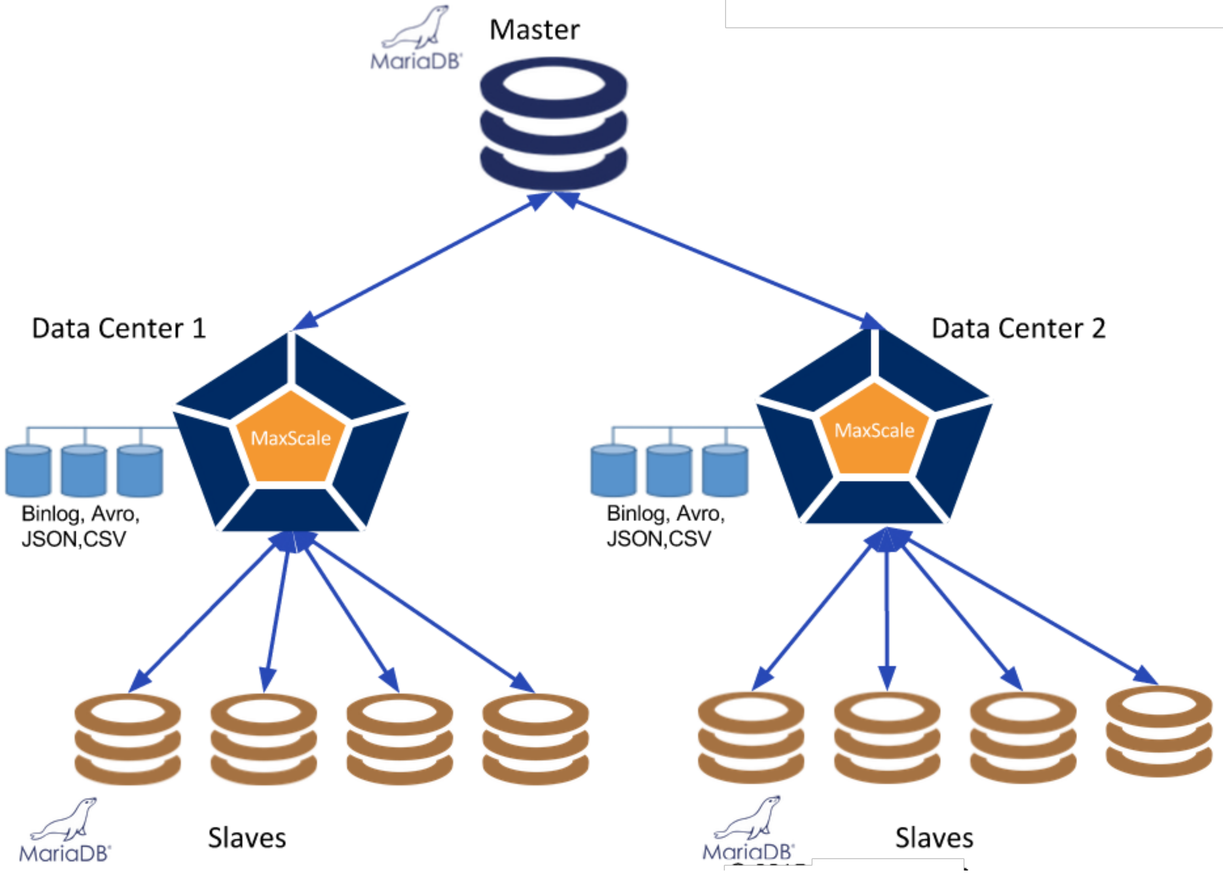
Requirements

- arbitrary number of backend servers;
- any version of server software can be installed on every backend server;
- different virtual machine providers have to be supported (Virtual Box, Qemu, different cloud providers);
- deployment of test environment have to be automated;
- several test round can be executed in parallel;
- test environment description have to be clear and human readable.

Configuration example



VM managers, SW manager

- Vagrant, Terraform, Ansible
- Chef, Puppet

works? try to write/read it:

```
### Import AWS Provider access config ###
require 'yaml'
aws_config = YAML.load_file("../aws-config.yml")['aws']
## of import AWS Provider access config

### Vagrant configuration block  ###
########################################
Vagrant.configure(2) do |config|

  ###          AWS Provider config block                ###
  ##############################################
  config.vm.box = "dummy"

  config.vm.provider :aws do |aws, override|
    aws.access_key_id = aws_config["access_key_id"]
    aws.secret_access_key = aws_config["secret_access_key"]
    aws.keypair_name = aws_config["keypair_name"]
    aws.region = aws_config["region"]
    aws.security_groups = aws_config["security_groups"]
    aws.user_data = aws_config["user_data"]
    override.ssh.private_key_path = aws_config["pemfile"]
    override.nfs.functional = false
  end ## of AWS Provider config block
```

```
config.vm.synced_folder "/home/vagrant/build-scripts/test-setup-...

config.vm.define :node0 do |node0|
        node0.vm.provider :aws do |aws,override|
                aws.ami = "ami-1c2e8b6b"
                aws.instance_type = "t1.micro"
                override.ssh.username = "ec2-user"
        end
##--- Chef binding ---
        node0.vm.provision "chef_solo" do |chef|
                chef.cookbooks_path = "../recipes/cookbooks/"
                chef.roles_path = "."
                chef.add_role "node0"
                chef.synced_folder_type = "rsync"
        end #<-- end of chef binding

end #  -> End definition for machine: node0

config.vm.synced_folder "/home/vagrant/build-scripts/test-setup-...

#  -> Begin definition for machine:
config.vm.define :node1 do |node
        node1.vm.provider :aws do |
                aws.ami = "ami-1c2e8b
                aws.instance_type = "t1
                override.ssh.username
        end
##--- Chef binding ---
```

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Make it readable

```
"node0" :
 {
        "hostname" : "node0",
        "box" : "centos7",
        "product" : {
                "name": "mariadb",
                "version": "10.0",
                "cnf_template" : "server1.cnf",
                "cnf_template_path": "/home/vagrant/cnf"
        }
 },
 "node1" :
 {
        "hostname" : "node1",
        "box" : "rhel7",
        "product" : {
                "name": "mysql",
                "version": "5.6",
                "cnf_template" : "server2.cnf",
                "cnf_template_path": "/home/vagrant//cnf"
        }
 }
```

```
"node2" :
{
      "hostname" : "node2",
      "box" : "centos7",
      "product" : {
              "name": "galera",
              "version": "5.5",
              "cnf_template" : "server-galera3.cnf",
              "cnf_template_path": "/home/vagrant//cnf"
      }
}
```

boxes.json

```
{
"ubuntu_precise": {
    "provider": "virtualbox",
    "box": "chef/ubuntu-12.04",
    "platform": "ubuntu",
    "platform_version": "precise"
  },
  "centos7" : {
    "provider": "aws",
    "ami": "ami-1c2e8b6b",
    "user": "ec2-user",
    "default_instance_type": "t1.micro",
    "platform": "centos",
    "platform_version": "7"
  }
}
```

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Repository description

```
{  "product":          "mariadb",
   "version":          "10.0",
   "repo":             "http://yum.mariadb.org/10.0/centos5-amd64",
   "repo_key":         "https://yum.mariadb.org/RPM-GPG-KEY-MariaDB",
   "platform":         "centos",
   "platform_version":        5}

{  "product":          "mariadb",
   "version":          "10.0.17",
   "repo":             "http://yum.mariadb.org/10.0.17/centos5-amd64",
   "repo_key":         "https://yum.mariadb.org/RPM-GPG-KEY-MariaDB",
   "platform":         "centos",
   "platform_version":        5}


{  "product":          "mysql",
   "version":          "5.6",
   "repo":             "http://repo.mysql.com/yum/mysql-5.6-community/sles/12/x86_64",
   "repo_key":         "http://repo.mysql.com/RPM-GPG-KEY-mysql",
   "platform":         "sles",
   "platform_version":        12}
```

We have a generator for
MariaDB, MariaDB enterprise, MariaDB Galera, Maxscale, MySQL

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Workflow

- write template
- './mdbc generate <name>'
- './mdbc up <name>'
- Get all needed info: './mdbc show ...'
- Access machines: './mdbc ssh' or directly via 'ssh'
- './mdbc destory <name>'

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Does it work?

- 9 and 25 machines configurations
- 40 test runs every day
- MariaDB, Maxscale, MariaDB enterprise, MariaDB-Galera
- VirtualBox, Amazon EC2, QEMU (plans: Docker, DigitalOcean)
- Developers like it: “use ./mdbci ssh and see all log, states, core dumps, use my env for debugging”

Source

- https://github.com/OSLL/mdbci
- https://github.com:mariadb-corporation/mdbci-repository-config

MariaDB

Maxscale

https://github.com/mariadb-corporation/MaxScale
https://mariadb.com/products/mariadb-maxscale