www.icinga.org

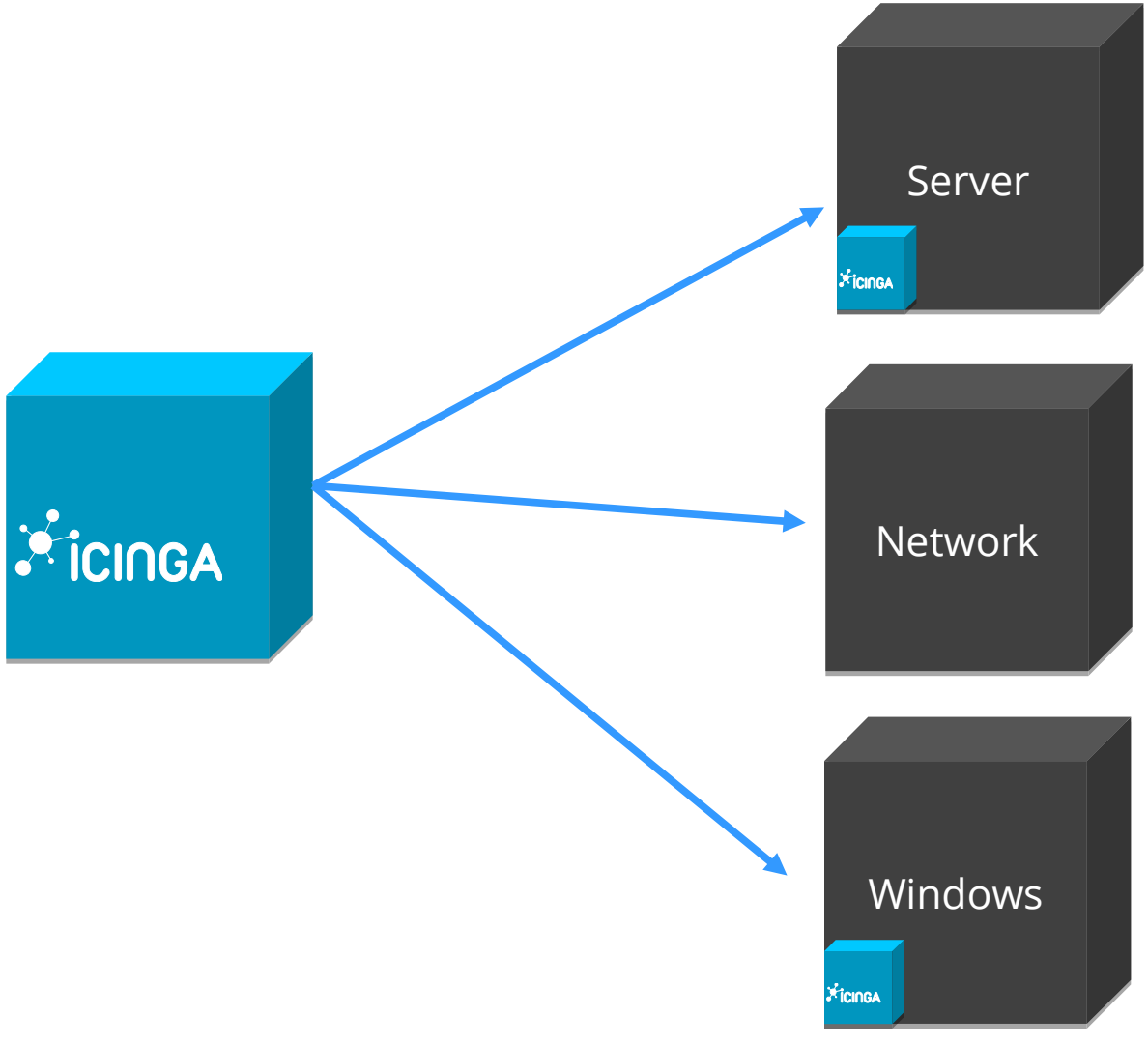
ICINGA2
OPEN SOURCE MONITORING

backspace
08.12.2015

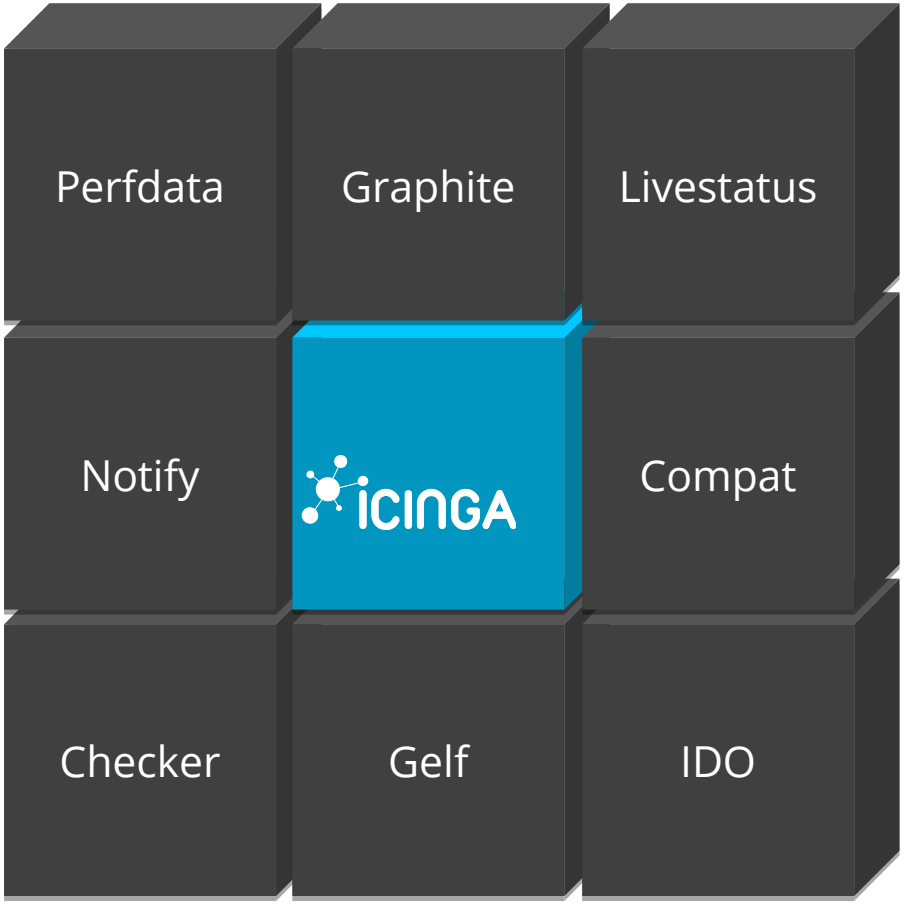
- Blerim Sheqa
  - Systems Engineer
  - Open Source
- **@bobapple**

ICINGA2
INTRODUCTION

- **Icinga**
  - Nagios fork
- **Icinga2**
  - rewrite
  - **rethink**

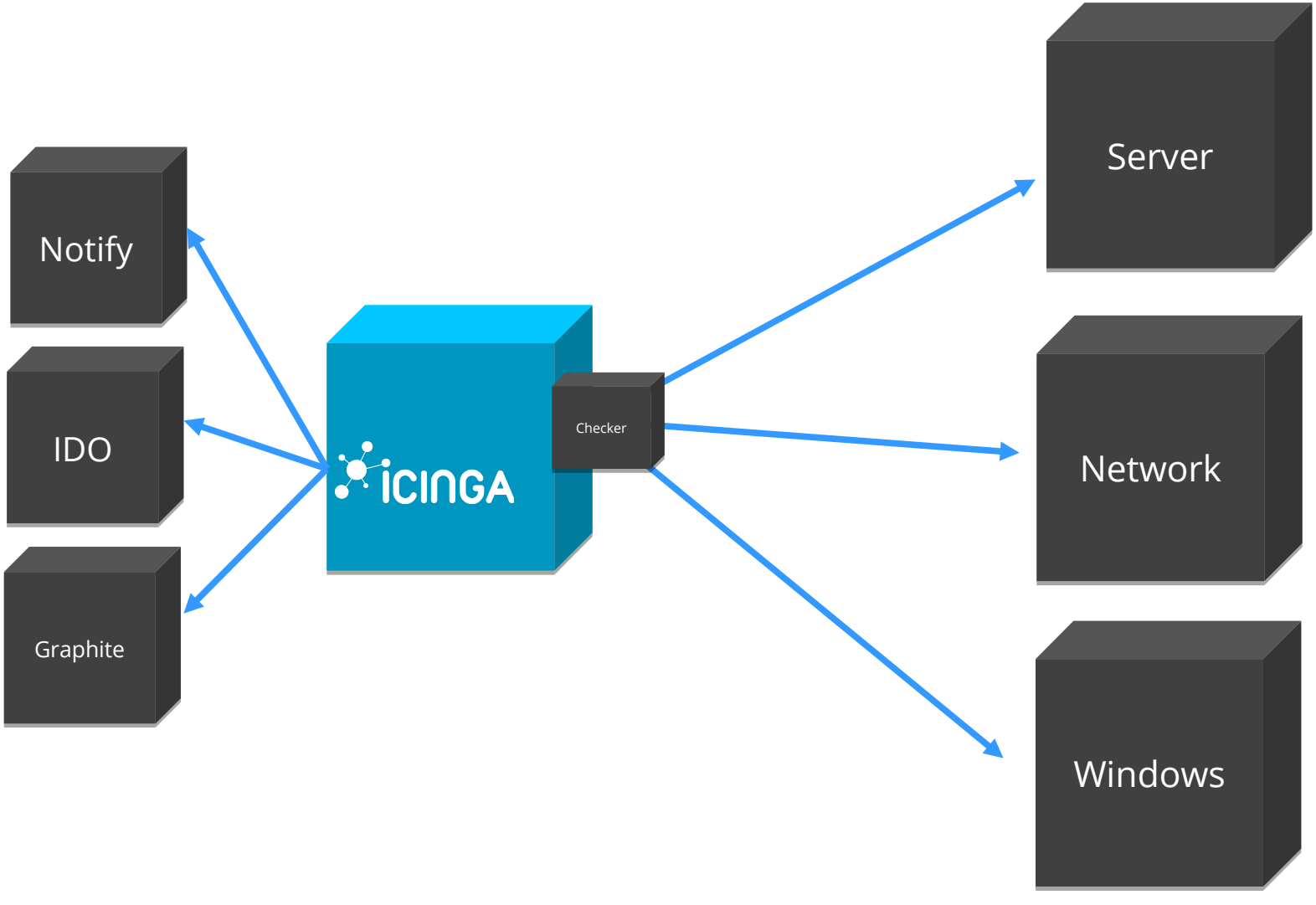

Server
ICINGA
ICINGA
Network
Windows
ICINGA

- Everything is a **feature**



- **Multithreaded**
- Modular **Features**
- **Zone** support
- Secure **Agent**

- Run **CheckCommands**
  - basically scripts
- **Retreive** result
- **React**


Notify
IDO
Graphite
ICINGA
Checker
Server
Network
Windows

ICINGA2
INSTALLATION

- **packages.icinga.org**
- **Repositories**
  - SUSE / openSUSE
  - Debian
  - Ubuntu
  - Raspbian
  - Fedora
  - Epel
- **Windows**
  - Chocolatey
  - icinga2.exe

ICINGA2
OBJECTS

- Everything is an **object**
  - Objects reference other objects

- **CheckCommands**
  - Tell Icinga how to use your plugin
  - Icinga Template Library (ITL)

```
object CheckCommand "check_http" {

  import "plugin-check-command"

  command = [ PluginDir + "/check_http" ]

  arguments = {
    "-H" = "$http_vhost$"
    "-S" = {
      set_if = "$http_ssl$"
    }
    "-a" = {
      value = "$http_auth_pair$"
      description = "Basic auth username and password"
    }
  }

}
```

- **Hosts**
  - No further explanation

```
object Host “webserver-1 {
  display_name = "Webserver 1"
  address = "127.12.3.87"
  address6 = "2001:db8:0:1"

  groups = [ "all-hosts" ]

  check_command = "hostalive"

  vars.os = “Linux”
  vars.oncall = true
}
```

- **Services**
  - Running your CheckCommands

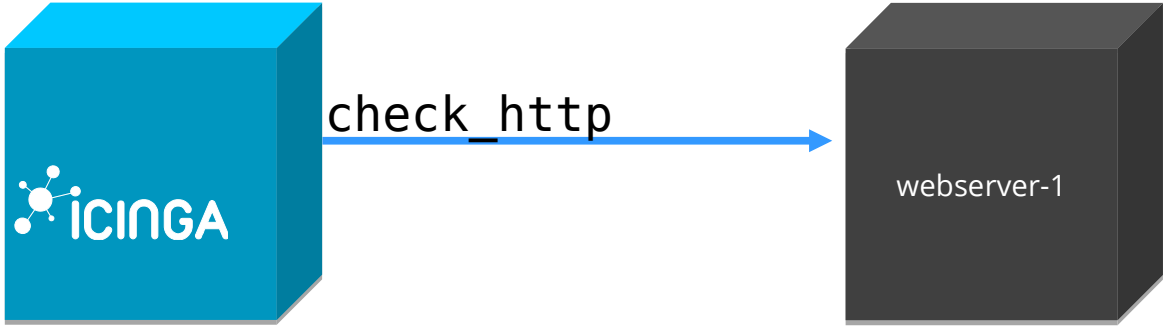
```
object Service "http" {

  host_name = "webserver-1"
  display_name = "HTTP"

  check_command = "check_http"
  check_interval = 60s

  vars.http_vhost = "hackerspace-bamberg.de"

}
```


ICINGA
check_http
webserver-1

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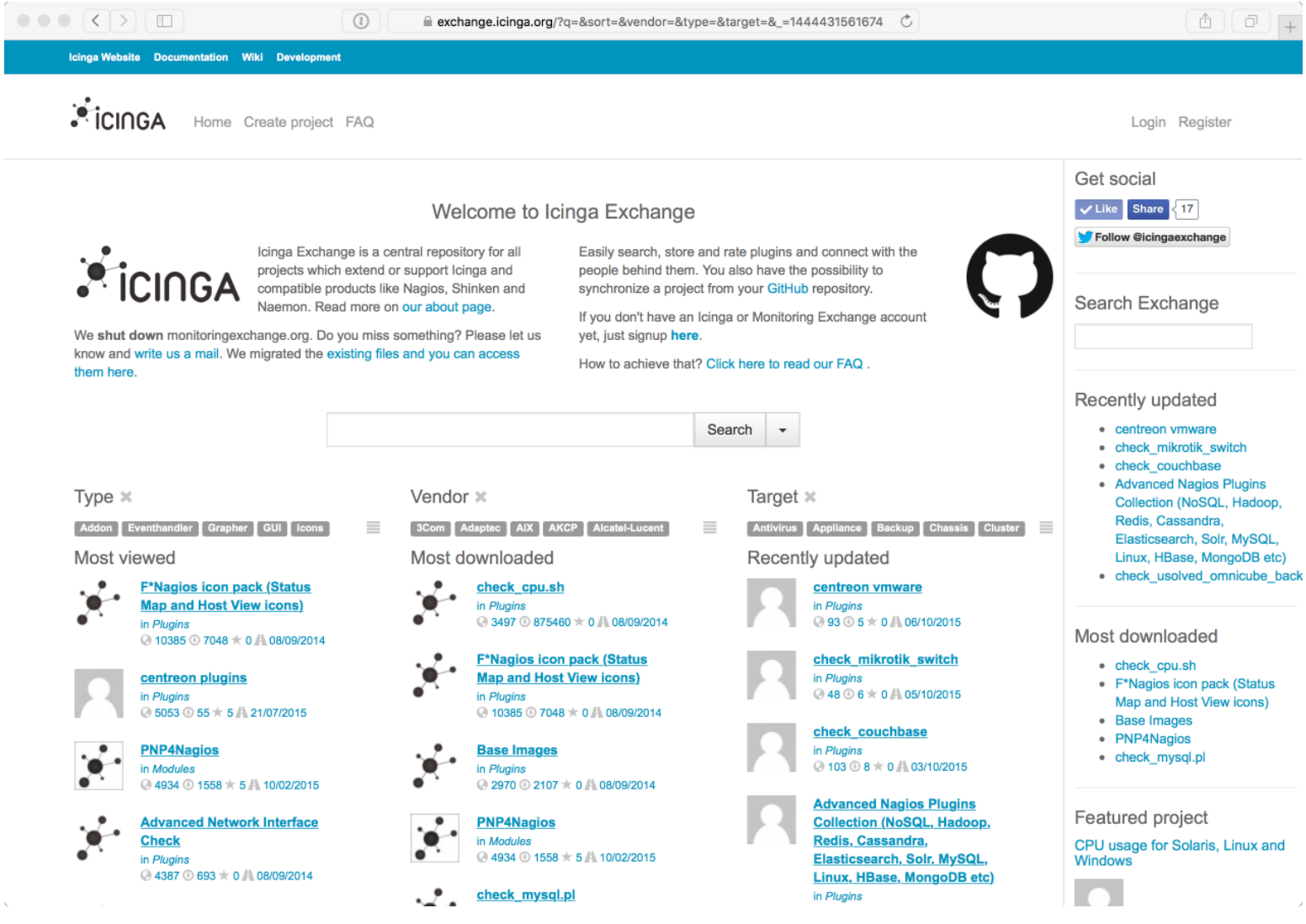
EXCHANGE


exchange.icinga.org/?q=&sort=&vendor=&type=&target=&_=1444431561674
Icinga Website Documentation Wiki Development
ICINGA Home Create project FAQ
Login Register
Welcome to Icinga Exchange
Icinga Exchange is a central repository for all projects which extend or support Icinga and compatible products like Nagios, Shinken and Naemon. Read more on our about page.
We shut down monitoringexchange.org. Do you miss something? Please let us know and write us a mail. We migrated the existing files and you can access them here.
Easily search, store and rate plugins and connect with the people behind them. You also have the possibility to synchronize a project from your GitHub repository.
If you don't have an Icinga or Monitoring Exchange account yet, just signup here.
How to achieve that? Click here to read our FAQ .
Search
Type
Addon Eventhandler Grapher GUI Icons
Most viewed
F*Nagios icon pack (Status Map and Host View icons)
in Plugins
10385 7048 0 08/09/2014
centreon plugins
in Plugins
5053 55 5 21/07/2015
PNP4Nagios
in Modules
4934 1558 5 10/02/2015
Advanced Network Interface Check
in Plugins
4387 693 0 08/09/2014
Vendor
3Com Adaptec AIX AKCP Alcatel-Lucent
Most downloaded
check_cpu.sh
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F*Nagios icon pack (Status Map and Host View icons)
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check_mikrotik_switch
in Plugins
48 6 0 05/10/2015
check_couchbase
in Plugins
103 8 0 03/10/2015
Advanced Nagios Plugins Collection (NoSQL, Hadoop, Redis, Cassandra, Elasticsearch, Solr, MySQL, Linux, HBase, MongoDB etc)
in Plugins
Get social
Like Share 17
Follow @icingaexchange
Search Exchange
Recently updated
centreon vmware
check_mikrotik_switch
check_couchbase
Advanced Nagios Plugins Collection (NoSQL, Hadoop, Redis, Cassandra, Elasticsearch, Solr, MySQL, Linux, HBase, MongoDB etc)
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Most downloaded
check_cpu.sh
F*Nagios icon pack (Status Map and Host View icons)
Base Images
PNP4Nagios
check_mysql.pl
Featured project
CPU usage for Solaris, Linux and Windows

- **Notifications**
  - Run a notification script

```
object Notification "webserver-http-notification" {

  host_name = "webserver-1"
  service_name = "http"

  command = "mail-notification"

  users = [ "herp", "derp" ]

  types = [ Problem, Recovery ]

}
```

ICINGA2
IDO

- **I**cinga **D**ata **O**utput
  - Export configuration and status information
  - Used by webinterfaces
  - MySQL / PostgreSQL

ICINGA2
APPLY RULES

- **Apply Rules**
  - Assign objects based on rule expressions

```
assign where host.vars.os == “Linux”

assign where service.vars.oncall == true

assign where match("webserver-*", host.name)


ignore where host.vars.test_server == true

ignore where match("*internal", host.name)
```

```
apply Service "ssh" {
  import "generic-service"
  check_command = "ssh"
  assign where host.vars.os == "Linux"
}
```

```
apply Notification "oncall-sms" to Service {
  import "sms-service-notification"
  user_groups = [ "noc" ]
  assign where service.vars.oncall
}
```

```
assign where match("*has gold support 24x7*", service.notes)
&& (host.vars.customer == "customer-xy" ||
host.vars.always_notify == true)



ignore where match("*internal", host.name) ||
(service.vars.priority < 2 && host.vars.is_clustered == true)
```

ICINGA2
INTERACT

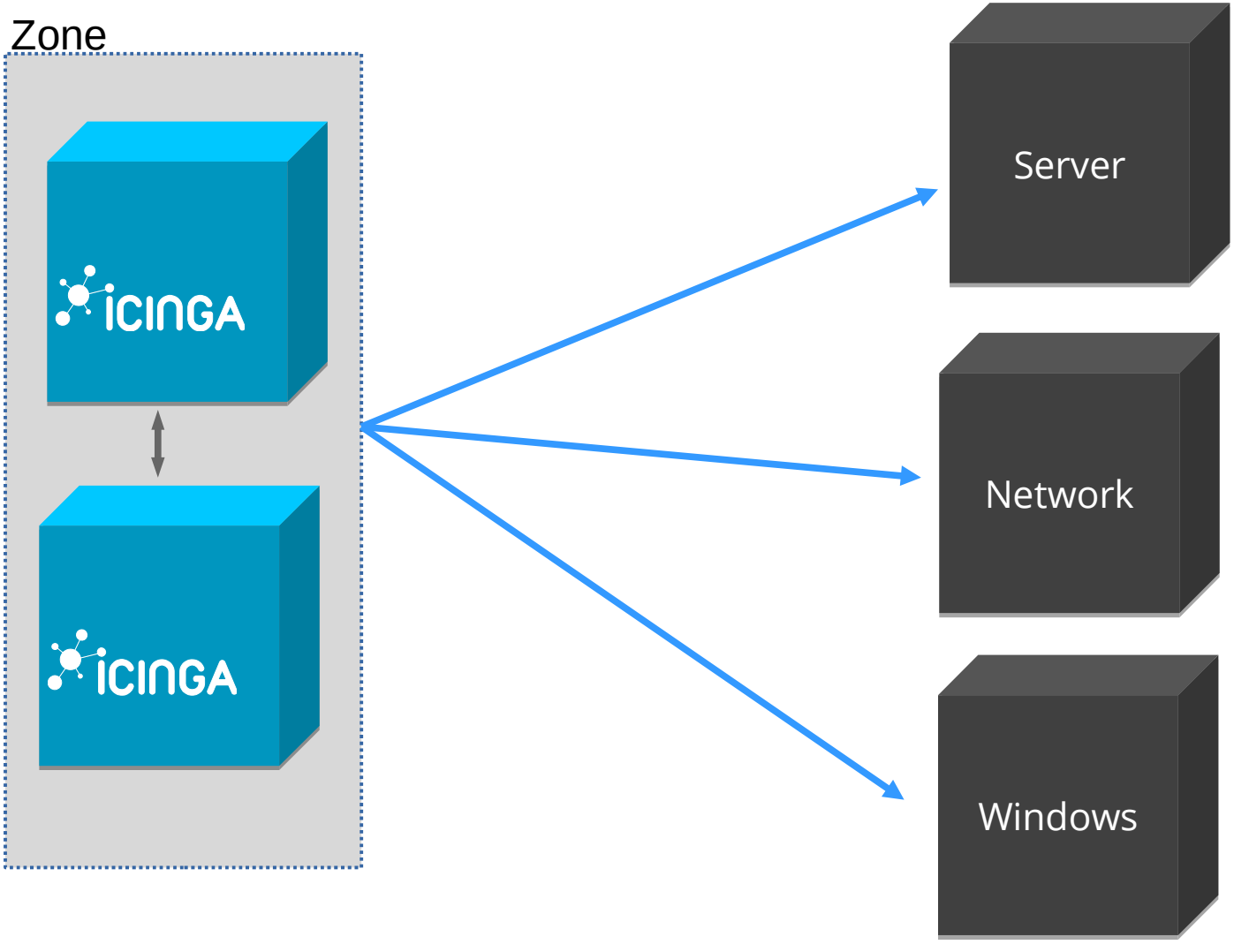
- **Downtimes**
  - Set services to maintanance mode
  - Suppress notifications
  - Don't show up on webinterface

- **Acknowledgement**
  - “I know it's broken, leave me alone”
  - “Ok …”
  - “But tell me if it breaks again”

- **Eventhandler**
  - Run a command when the state of a service changes

ICINGA2
ZONES

- **Zones**
  - High availability
  - Distributed setups
  - Load distribution
  - Remote clients


Zone
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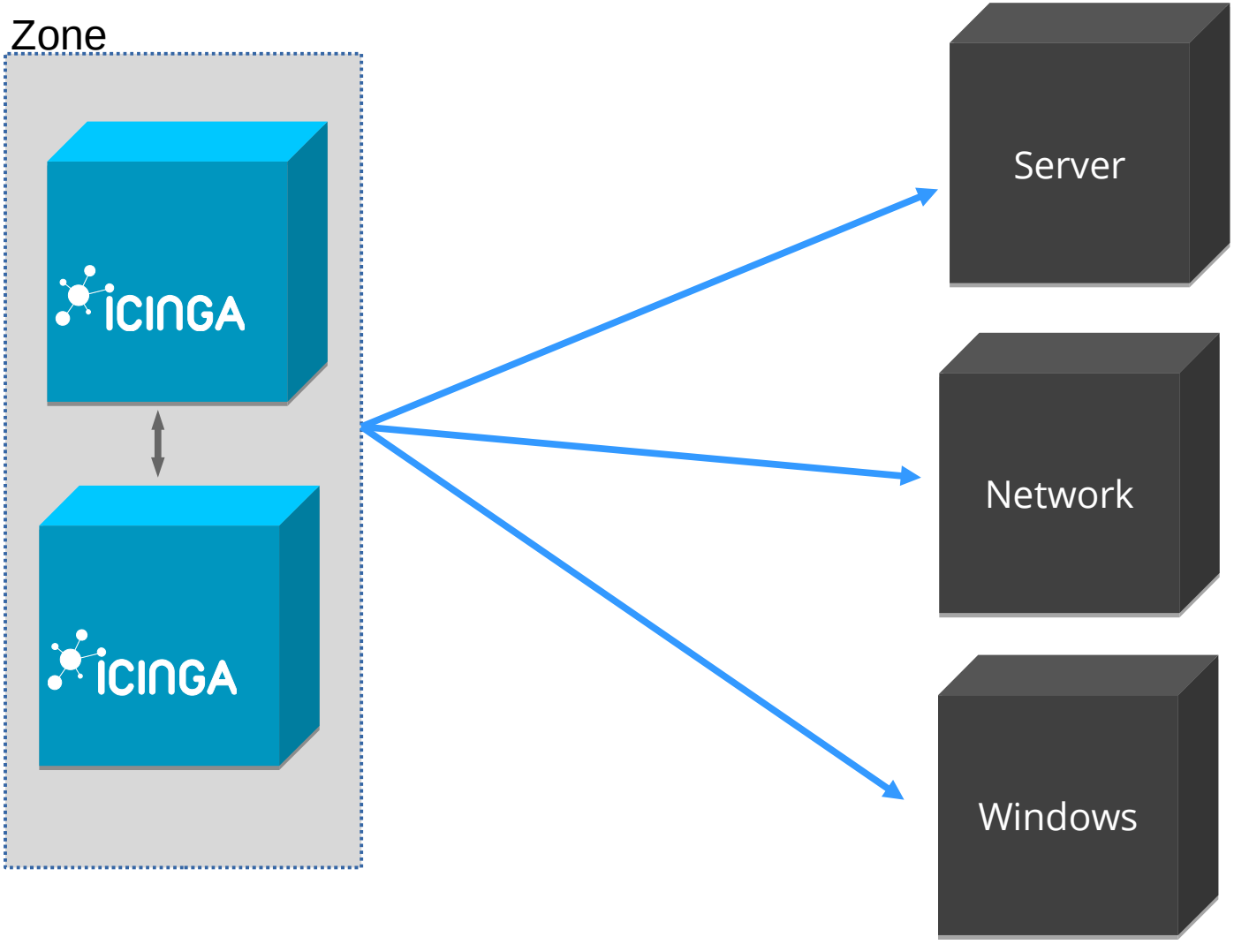
Server
Network
Windows

```
object Endpoint "icinga2a" {
  host = "icinga2a.icinga.org"
}


object Endpoint "icinga2b" {
  host = "icinga2b.icinga.org"
}




object Zone "config-ha-master" {
  endpoints = [ "icinga2a", "icinga2b" ]
}
```

- Zones **communication**
  - SSL
  - CLI tools for simplification
  - Config distribution
  - Accept config
  - Accept commands

```
/etc/icinga2
|- icinga2.conf
|- pki/
|- zones.d/
   |—- master/
     |-- services.conf
     |-- hosts.conf
```

ICINGA2
CLUSTER SCENARIOS


Zone
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Server
Network
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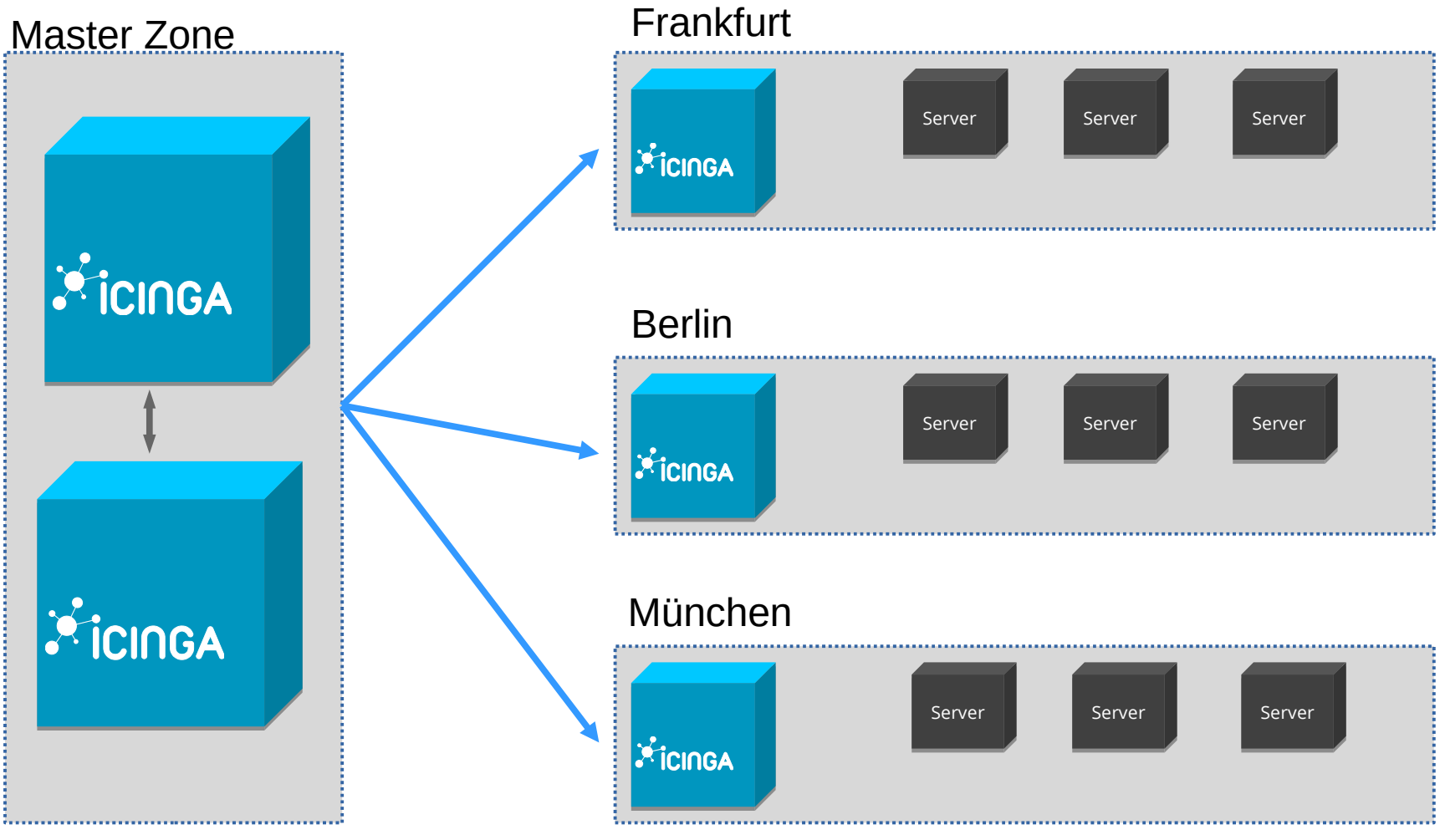
Master Zone
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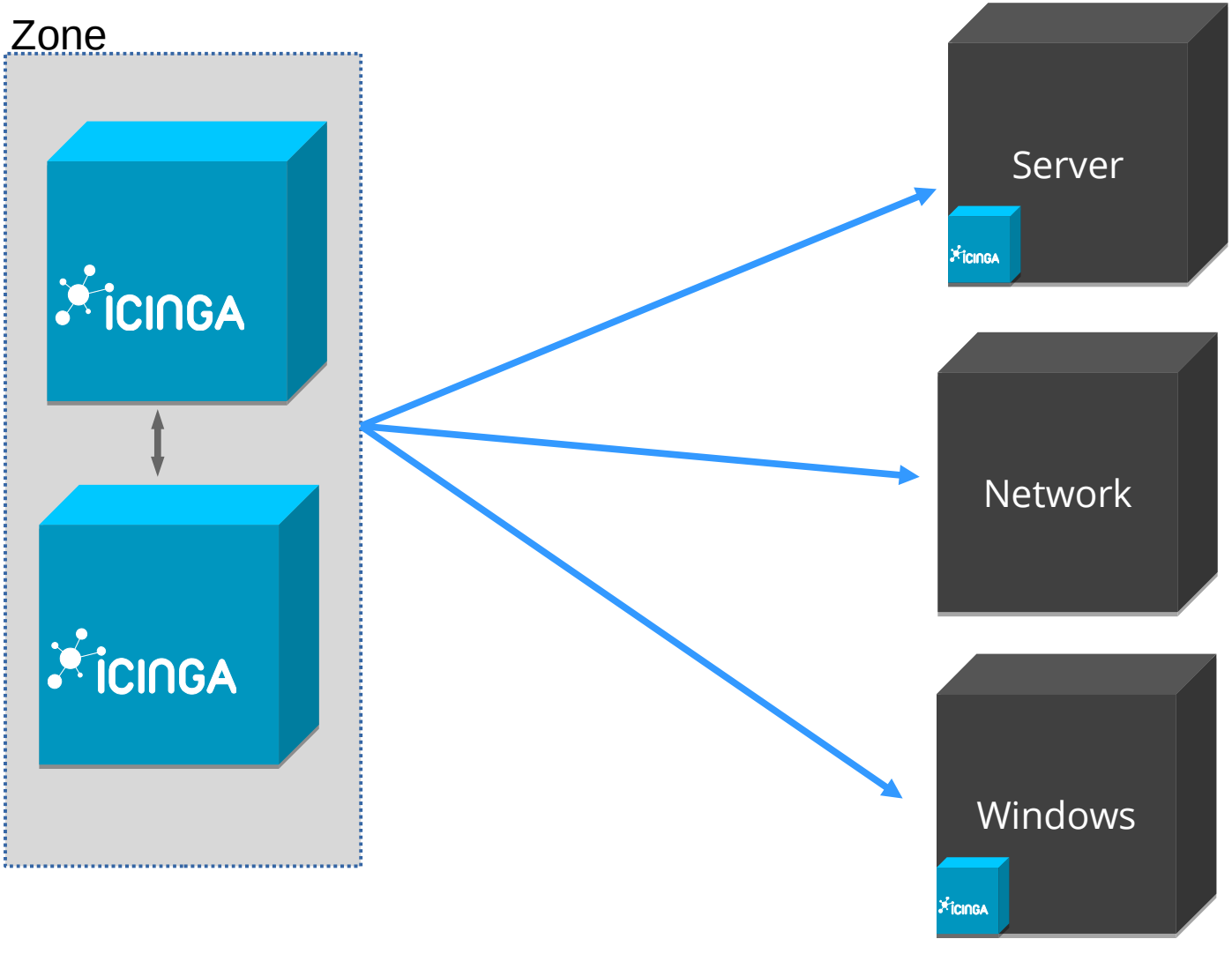
ICINGA
Frankfurt
ICINGA
Server
Server
Server
Berlin
ICINGA
Server
Server
Server
München
ICINGA
Server
Server
Server

```
object Zone "satellite-frankfurt" {

  endpoints = [ "icinga2c" ]
  parent = "config-ha-master"

}
```


Zone
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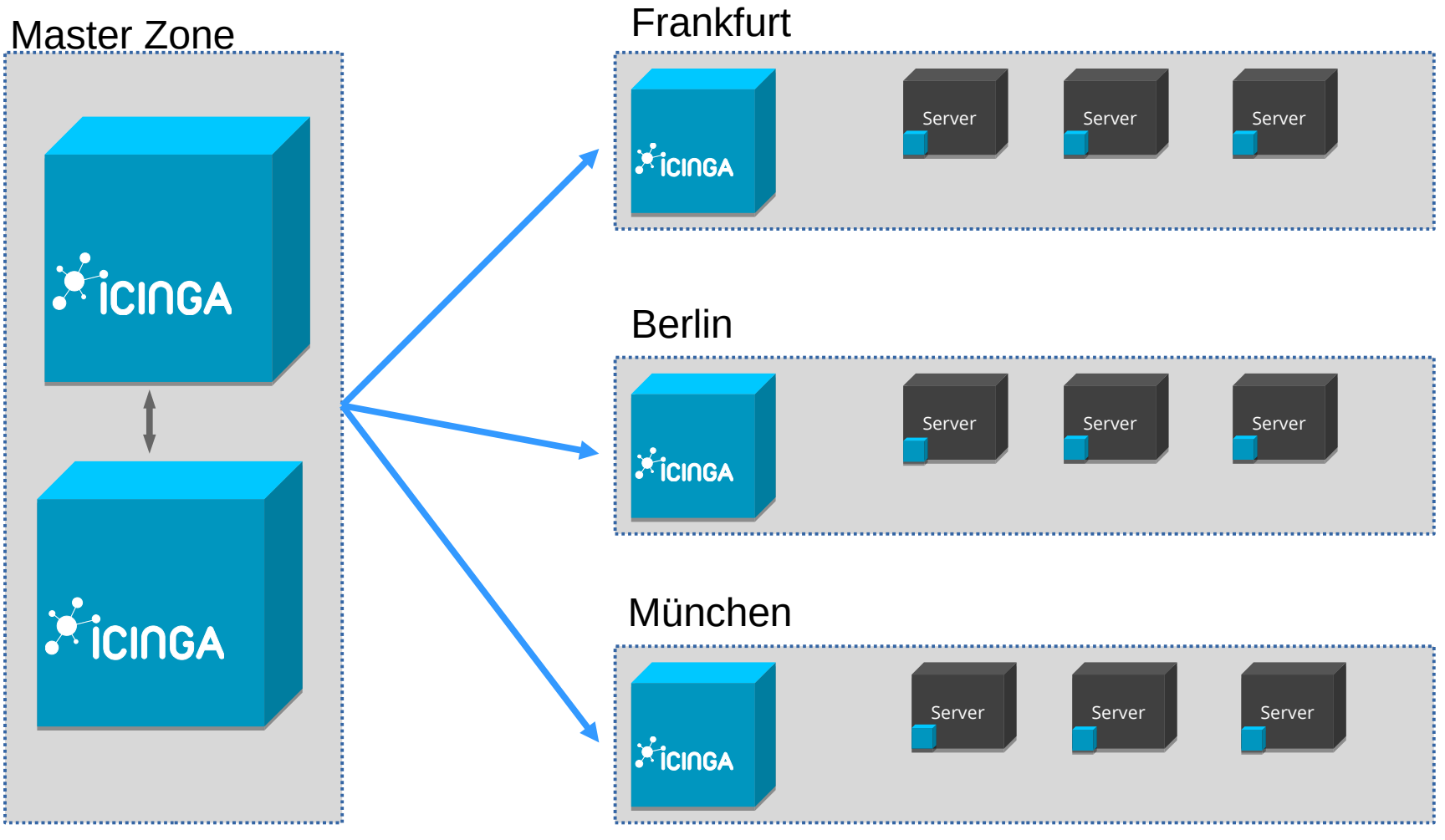
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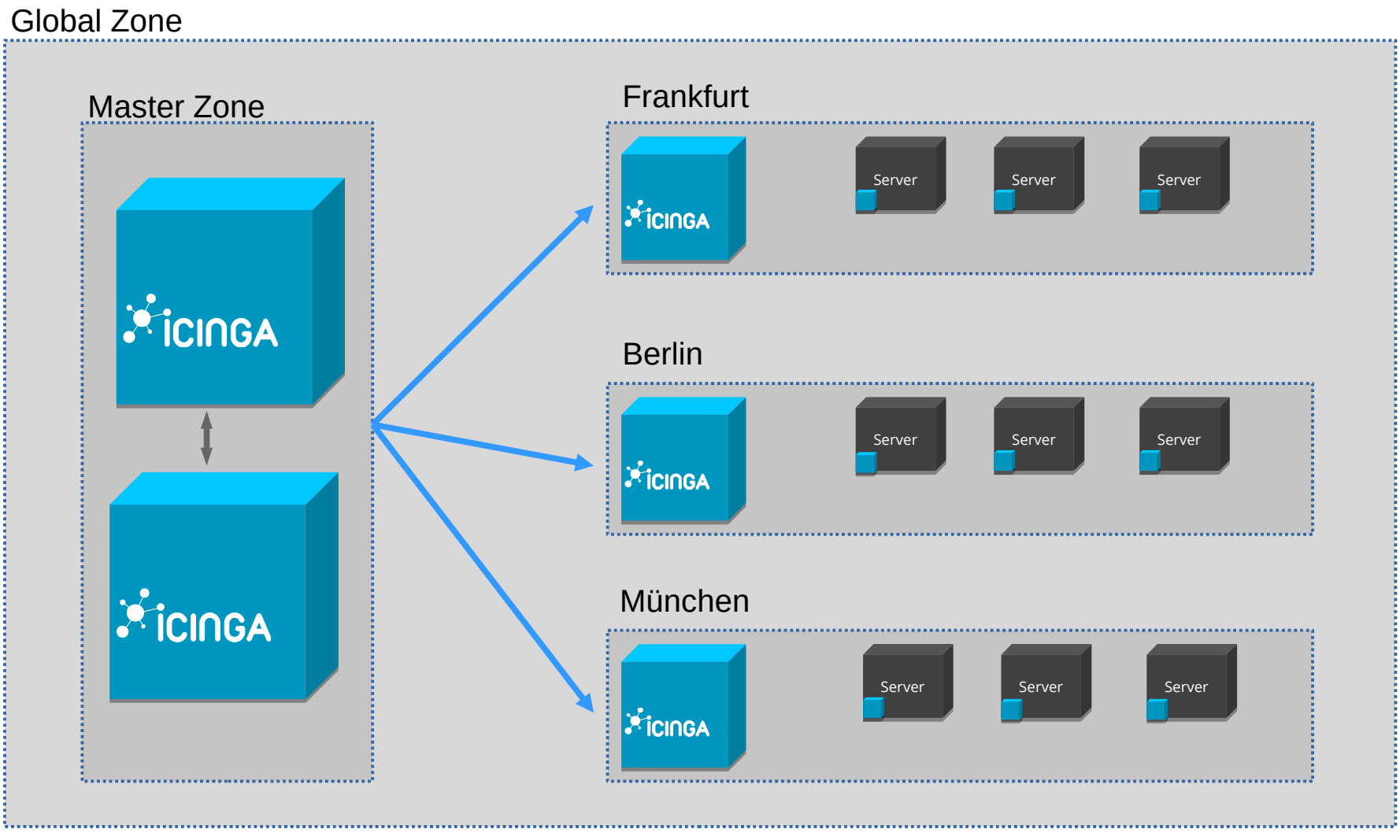
Global Zone
Master Zone
ICINGA
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Frankfurt
ICINGA
Server
Server
Server
Berlin
ICINGA
Server
Server
Server
München
ICINGA
Server
Server
Server

```
/etc/icinga2
|- icinga2.conf
|- pki/
|- zones.d/
   |-- global/
     |-- commands.conf
   |—- master/
     |-- services.conf
     |-- hosts.conf
   |-- frankfurt/
     |-- services.conf
     |-- hosts.conf
   |-- berlin/
     |-- services.conf
     |-- hosts.conf
   |-- muenchen/
     |-- services.conf
     |-- hosts.conf
```

ICINGA2
API

- **HTTP** with **RESTful** Url Schema
- **ApiUser** config object
- **X.509** and/or **Basic Auth**

```
object ApiUser "root" {

  password = "icinga”
  permissions = [ "*" ]

}
```

```
permissions = [
  {
    permission = "objects/query/Host"
    filter = {{ regex("^Linux", host.vars.os) }}
  },
  {
    permission = "objects/query/Service"
    filter = {{ regex("^Linux", service.vars.os) }}
  }
]
```

- create, modify and delete **objects**
- **retrieve** information and **run actions**
- **subscribe** to events
- **manage configuration** packages

- **Configuration management**
  - New standard **config** API
  - Support for **Packages** and **Stages**
  - Support for **Zones**

- **Event Streams**
  - Based on **Types** and **Filters**

CheckResult, StateChange, Notification, AcknowledgementSet, AcknowledgementCleared, CommentAdded, CommentRemoved, DowntimeAdded, DowntimeRemoved, DowntimeTriggered

  - **Example**

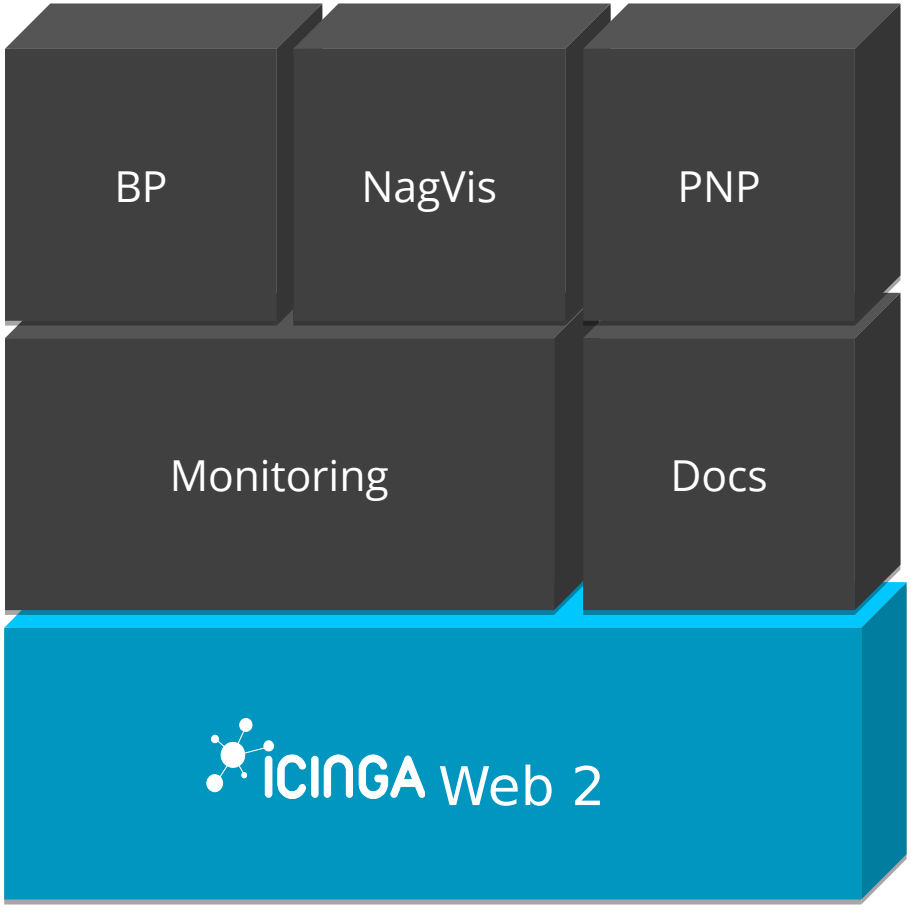
```
/v1/events?queue=backspace&types=CheckResult
```

- **Status**, **Objects**, **Actions** and **Events**
  - Simple **filter**
    - `services?service=localhost!ping6`
  - Advanced **filter**
    - `type=Service&filter=service.name==%22ping6%22`

ICINGA WEB 2

- Developed in **PHP** 5.3
- **Multiple** authentication methods
  - Active Directory, LDAP and DB
  - Via Webserver, e.g. Kerberos
  - May be **chained**

- **Easy** to extend and embed
- **JSON** and **CSV** export
- Support for **MySQL** and **PostgreSQL**
- **Responsive** layout


BP
NagVis
PNP
Monitoring
Docs
ICINGA Web 2

ICINGA ROADMAP – **WHAT'S NEXT?**

Improving the product **based** on your **feedback**

We are thinking about a new **historical datastore** for Icinga 2 (not in 2.5)

We plan to release **more modules** for **Icinga Web 2** in the next months

We'll release a **web based configuration module** for Icinga Web 2

- **Icinga 2.5** is planned for Q1 2016
- **Icinga Web 2.2** is planned for Q1 2016

OUR **VISION**

OpenTSDB
Grafana
logstash
graphite
InfluxDB
ICINGA
graylog
CHEF
OTRS
puppet labs
ANSIBLE

CONCLUSION

- Download **Icinga 2** and **Icinga Web 2**
- Or play with the **Vagrant boxes**
- **Rethink** your configuration
- Give us **feedback**

THANK YOU!

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dev.icinga.org

git.icinga.org

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