Nürnberg, October 29th 2009
Angelo Gargiulo

NConf - Enterprise Nagios configurator
Agenda

• Introduction
• What is NConf
• The project
• Working with NConf
• Customizing NConf
• Distributed monitoring
• Application design
• Development roadmap
• Live demo NConf 1.2.6
• Q & A
Introduction
What is NConf

Main theme:
Designed for ease of use, aimed at large, distributed setups.

http://www.nconf.org
Introduction
What is NConf

http://www.nconf.org
Introduction

Why NConf

• NConf is meant for large, distributed monitoring setups
• It allows a very quick initial deployment of Nagios
• We have been using NConf in a production environment for 3 years
• NConf supports numerous authentication mechanisms and user roles
• The NConf data structure is easily expandable
• The target audience are sysadmins with Nagios know-how*

* Nagios know-how required for initial deployment of NConf, not required for later usage of the tool
Introduction
Main features

• effortlessly maintain a distributed Nagios topology
• user-friendly web-GUI
• define host templates for your hosts
• define dependencies between hosts
• browse dependencies graphically
• choose from multiple authentication modes
• import existing Nagios configuration files
• easily expandable and customizable data schema
• perl database API
• customizable appearance
• runs on Linux / Apache / PHP / MySQL

http://www.nconf.org
Introduction

History

• 2006
  Initial deployment of Nagios for ~400 systems, first version of NConf (originally called „NagiosConf“)

• 2007
  Continuous improvement of NConf, bugfixing, additional features

• 2008
  Start of project „Nagios II“, deployment of Nagios for ~1000 additional systems

• 2009
  Release of NConf under GPL license, implementation of additional features required for project „Nagios II“
Introduction
The development team

• Fabian Gander
  Development of web GUIs, install/update procedure;

• Angelo Gargiulo
  DB development, perl-API, backend functionality, quality assurance;

• Bernhard Waldvogel
  Specifications, testing, project management;
Introduction

License

• NConf is published under GPL (v2)
• Copyright holder is Sunrise Communications AG
• Development has so far been sponsored by Sunrise
• The goal is to give something back to the OS-community, as well as to profit from third party extensions some day
Introduction
Who is Sunrise

http://www.nconf.org
Working with NConf
Mode of operation

User

NConf

NConf DB

Generate CFG

Deployment

Generated CFG files

Existing CFG files

Import (initial load)
Working with NConf
Object definitions: Nagios vs. NConf

Nagios

```plaintext
define host {
    host_name
    alias
    address
}
define service {
    service_description
    host_name
    check_command
}
define command {
    command_name
    command_line
}
```

NConf

```
host
  + host_name
  + alias
  + address

service
  + service_description
  + host_name
  + check_command
  + (service params)

check command
  + command_name
  + command_line
  + (default params)
```

http://www.nconf.org
Working with NConf
Host-templates in NConf

Nagios collector server
(aka slave, satellite etc.)

host

host-template

host-alive check

default services to monitor

check command
- path to plugin script
- check parameters

http://www.nconf.org
Users may edit contacts, contactgroups, commands, timeperiods, host-templates, etc...

Commands can be any Perl / shell scripts or binaries, using SNMP, NRPE, etc...

http://www.nconf.org
Working with NConf
Distributed monitoring „a la NConf“

Nagios monitor server
- knows all devices
- only runs passive checks (check freshness)

NSCA etc.

Nagios collector server(s)
- knows and checks only a part of the devices
- runs active checks

alerting

site 1

site 2

http://www.nconf.org
Working with NConf
Distributed monitoring „a la NConf“

- checkcommands.cfg
- contactgroups.cfg
- contacts.cfg
- misccommands.cfg
- timeperiods.cfg
- (.htpasswd_nagios)
- (custom objects)

- hosts.cfg
- extended_host_info.cfg
- hostgroups.cfg
- services.cfg
- extended_service_info.cfg
- servicegroups.cfg

Deployment of files must be set up individually

http://www.nconf.org
Application design
Components of the application

- existing user database (LDAP, SQL etc.)
- auth modules
- misc modules
- database
- Perl-API
- PHP webinterface
- CSS
- NConf cfg
- Nagios cfg

http://www.nconf.org
Application design
Domain model
## Application design

### Extending the data structure

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Friendly Name</th>
<th>Datatype</th>
<th>Mandatory</th>
<th>Ordering</th>
<th>Naming Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>host_name</td>
<td>hostname</td>
<td>text</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>alias</td>
<td>alias</td>
<td>text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>address</td>
<td>IP-address</td>
<td>text</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>os</td>
<td>OS</td>
<td>assign_one</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>check_period</td>
<td>check period</td>
<td>assign_one</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notification_period</td>
<td>notification period</td>
<td>assign_one</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>contact_groups</td>
<td>contact groups</td>
<td>assign_many</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>parents</td>
<td>parent hosts</td>
<td>assign_many</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notes</td>
<td>notes</td>
<td>text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notes_url</td>
<td>notes URL</td>
<td>text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>action_url</td>
<td>action URL</td>
<td>select</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>host-template</td>
<td>host template</td>
<td>assign_one</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>monitored_by</td>
<td>monitored by</td>
<td>assign_one</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>host_is_collector</td>
<td>host is collector</td>
<td>select</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Application design
Data model

Item „18“ is of class „host“

Class „host“ possesses an attribute named „host_name“

The attribute „host_name“ carries the value „localhost“

The value „localhost“ is assigned to item „18“
Application design
Data model

Links
<table>
<thead>
<tr>
<th>ID_item_FK</th>
<th>ID_item_linked2</th>
<th>ID_attr_FK</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4</td>
<td>14</td>
</tr>
</tbody>
</table>

Items
<table>
<thead>
<tr>
<th>ID</th>
<th>ID_class_FK</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

Classes
<table>
<thead>
<tr>
<th>ID</th>
<th>class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Host</td>
</tr>
<tr>
<td>2</td>
<td>Service</td>
</tr>
</tbody>
</table>

Values
<table>
<thead>
<tr>
<th>ID_item_FK</th>
<th>ID_attr_FK</th>
<th>attr_value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>7</td>
<td>localhost</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>127.0.0.1</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>webserver</td>
</tr>
<tr>
<td>4</td>
<td>13</td>
<td>7x24</td>
</tr>
</tbody>
</table>

Attributes
<table>
<thead>
<tr>
<th>ID</th>
<th>attr</th>
<th>datatype</th>
<th>must</th>
<th>ID_class_FK</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>hostname</td>
<td>text</td>
<td>X</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>ip_address</td>
<td>text</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>service_desc</td>
<td>text</td>
<td>X</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>service_level</td>
<td>select</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>14</td>
<td>srv_to_host</td>
<td>assign_n</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

http://www.nconf.org
Development roadmap
Upcoming version

- Current stable version is NConf 1.2.5
- Version 1.2.6 is planned to be released within the next 2 weeks

New features in NConf 1.2.6:
- CSV importer
- GUI improvement
- New deployment features
- Lots of bugfixing
- New nconf.org portal (will be launched with NConf 1.2.6)
Development roadmap
What’s ahead

**Near future:**
- simplified deployment
- service dependencies
- service-templates (Nagios-like)
- host-templates (Nagios-like)
- several Nagios 3.x related features

**Far future:**
- reporting functionality
- move NConf access control and config to database
- additional export interfaces (e.g. LDAP)
- allow proprietary add-on's

• **Contributions of any kind to the project are welcome!**
Live demo NConf 1.2.6

Start NConf demo
Contact
How to stay in touch

• **www.nconf.org**

• **NConf forum**
  http://sourceforge.net/apps/phpbb/nconf/

• **XING**
  https://www.xing.com/net/nconf/

• **Facebook**
  http://www.facebook.com/group.php?gid=53666978172