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Nagios®

Introduction

- A key measurement tool for actively monitoring availability of devices and services.
- Possible the most used open source network monitoring software.
- Has a web interface.
 - Uses CGIs written in C for faster response and scalability.
- Can support up to thousands of devices and services.

Installation

In Debian/Ubuntu 9.04 and up

- `# apt-get install nagios3`
- Set web admin password during install
- Files are installed here:

`/etc/nagios3`

`/etc/nagios3/conf.d`

`/etc/nagios-plugins/conf`

`/usr/share/nagios3/htdocs/images/logos`

`/usr/sbin/nagios3`

`/usr/sbin/nagios3stats`

- Nagios web interface is here:

<http://localhost/nagios3/>

Installation

- Nagios will start with two hosts automatically set up for you: *localhost* and *gateway* (as found in route)

Some versions have broken Ubuntu packages – the install does not create the nagiosadmin user properly. Do:
`sudo htpasswd -c /etc/nagios3/htpasswd.users nagiosadmin`

Configuration

- From the Nagios Documentation:

**Relax -
it's going to take some
time. :)**

“Nagios can be **tricky** to configure **when you've got a good grasp** of what's going on, and **nearly impossible if you don't.**”

Configuration in easy steps

0. Think about directory and file structure

Nagios configurations can live in any file and directory you wish them to be in – so long as you announce these to Nagios (in the main config file, `/etc/nagios3/nagios.cfg`).

That gives you the freedom to structure in a nice hierarchic way, e.g.

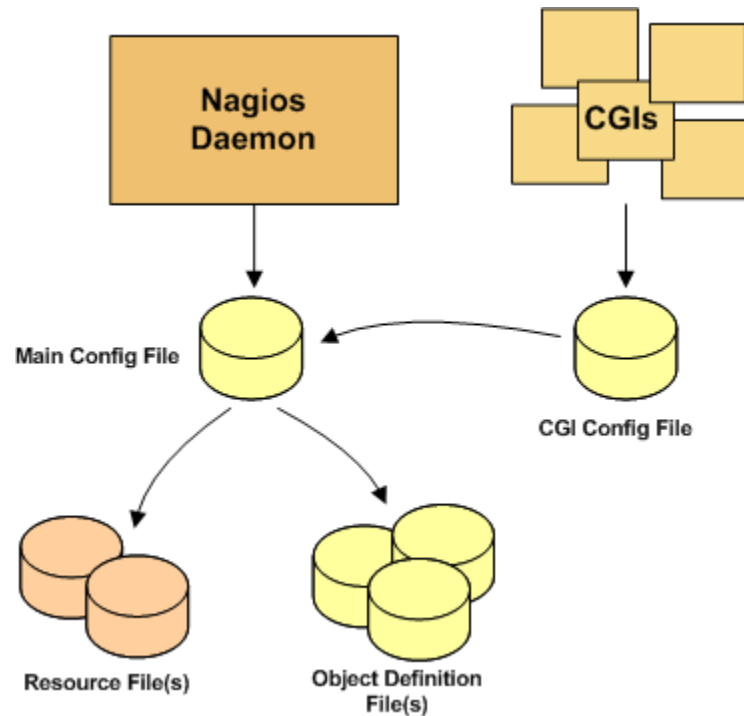
`/my_hosts`

`/my_hosts/mail`

`/my_hosts/web`

or such

Nagios Configuration



Nagios Configuration

In Nagios, essentially everything is **Objects** – with many relations between them.

Objects can be:

Hosts, services, contacts, plugins, dependencies (e.g. parent-child), escalations, time periods, ...

Configuration in easy steps

0. Always test your changes and restart

Keep backups of config files and run test:

```
#/usr/sbin/nagios3 -v /etc/nagios3/nagios.cfg
```

Remember to restart in order for changes to show:

```
# /etc/init.d/nagios3 reload
```

Configuration in easy steps

1. Create host definitions: e.g.

```
define host{  
    use          generic-host          ; Inherit default values from a template  
  
    host_name     remotehost           ; The name we're giving to this host  
  
    alias         Some Remote Host     ; A longer name associated with the host  
  
    address       192.168.1.50         ; IP address of the host  
  
    hostgroups    all                  ; Host groups this host is associated with  
}
```

Configuration in easy steps

2. Create service definitions: e.g.

```
# check that ssh services are running
```

```
define service {
```

```
    hostgroup_name          ssh-servers
```

```
    service_description     SSH
```

```
    check_command           check_ssh
```

```
    use                     generic-service
```

```
    notification_interval   0 ; set > 0 if you want to be renotified
```

```
}
```

Configuration in easy steps

3. Create contact definitions: e.g.

```
define contact{  
  
    contact_name            sebastian  
  
    alias                   sebastian buettrich  
  
    host_notifications_enabled    1  
  
    service_notifications_enabled    1  
  
    service_notification_period    24x7  
  
    host_notification_period    24x7  
  
    service_notification_options    w,u,c,r  
  
    host_notification_options    d,u,r  
  
    service_notification_commands    notify-service-by-email  
  
    host_notification_commands    notify-host-by-email  
  
    email                   sebastian@less.dk  
  
    pager                   -  
  
    address1                homehood 7  
  
    address2                2200 cph n  
  
    can_submit_commands 1  
  
}
```

Nagios: General View

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- Host Detail
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Tactical Monitoring Overview

Last Updated: Thu Sep 3 15:37:09 CDT 2009
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Monitoring Performance

Service Check Execution Time:	0.01 / 4.07 / 0.115 sec
Service Check Latency:	0.02 / 0.25 / 0.117 sec
Host Check Execution Time:	0.01 / 0.13 / 0.018 sec
Host Check Latency:	0.01 / 0.28 / 0.137 sec
# Active Host / Service Checks:	41 / 46
# Passive Host / Service Checks:	0 / 0

Network Outages

0 Outages

Network Health

Host Health:

Service Health:

Hosts

0 Down	0 Unreachable	41 Up	0 Pending
--------	---------------	-------	-----------

Services

0 Critical	0 Warning	0 Unknown	46 Ok	0 Pending
------------	-----------	-----------	-------	-----------

Monitoring Features

Flap Detection	Notifications	Event Handlers	Active Checks	Passive Checks
<div>Enabled</div> <div>All Services Enabled No Services Flapping All Hosts Enabled No Hosts Flapping</div>	<div>Enabled</div> <div>All Services Enabled All Hosts Enabled</div>	<div>Enabled</div> <div>All Services Enabled All Hosts Enabled</div>	<div>Enabled</div> <div>All Services Enabled All Hosts Enabled</div>	<div>Enabled</div> <div>All Services Enabled All Hosts Enabled</div>

Nagios: Service Detail

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Current Network Status

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[View History For all hosts](#)
[View Notifications For All Hosts](#)
[View Host Status Detail For All Hosts](#)

Host Status Totals

Up	Down	Unreachable	Pending
41	0	0	0
All Problems		All Types	
0		41	

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
46	0	0	0	0
All Problems		All Types		
0		46		

Service Status Details For All Hosts

Host ↑↓	Service ↑↓	Status ↑↓	Last Check ↑↓	Duration ↑↓	Attempt ↑↓	Status Information
DNS-ROOT	SSH	OK	2009-09-03 14:43:51	43d 0h 55m 19s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
ISP-DNS	SSH	OK	2009-09-03 14:41:21	16d 3h 57m 24s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
ISP-RTR	SSH	OK	2009-09-03 14:43:57	43d 5h 35m 13s	1/4	SSH OK - Cisco-1.25 (protocol 2.0)
NOC-TLD1	SSH	OK	2009-09-03 14:41:27	1d 0h 1m 59s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
NOC-TLD2	SSH	OK	2009-09-03 14:44:04	1d 22h 44m 22s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
NOC-TLD3	SSH	OK	2009-09-03 14:41:34	1d 22h 40m 58s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
NOC-TLD4	SSH	OK	2009-09-03 14:44:10	1d 22h 44m 16s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
NOC-TLD5	SSH	OK	2009-09-03 14:41:40	1d 22h 41m 46s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
NOC-TLD6	SSH	OK	2009-09-03 14:44:17	1d 22h 44m 9s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
NOC-TLD7	SSH	OK	2009-09-03 14:41:47	1d 22h 41m 39s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
NOC-TLD8	SSH	OK	2009-09-03 14:44:23	1d 22h 44m 3s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
NS1-TLD1	SSH	OK	2009-09-03 14:41:53	1d 0h 1m 33s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
NS1-TLD2	SSH	OK	2009-09-03 14:44:30	1d 22h 43m 56s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
NS1-TLD3	SSH	OK	2009-09-03 14:42:00	1d 22h 41m 26s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
NS1-TLD4	SSH	OK	2009-09-03 14:44:36	1d 22h 43m 50s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
NS1-TLD5	SSH	OK	2009-09-03 14:42:06	1d 22h 41m 20s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)
NS1-TLD6	SSH	OK	2009-09-03 14:44:43	1d 22h 43m 43s	1/4	SSH OK - OpenSSH_5.1p1 Debian-3ubuntu1 (protocol 2.0)

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Current Network Status

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[View Status Overview For All Host Groups](#)
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Host Status Totals

Up	Down	Unreachable	Pending
41	0	0	0
All Problems		All Types	
0		41	

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
46	0	0	0	0
All Problems		All Types		
0		46		

Host Status Details For All Host Groups

Host ↑↓	Status ↑↓	Last Check ↑↓	Duration ↑↓	Status Information
DNS-ROOT	UP	2009-09-03 14:51:41	43d 1h 7m 0s	PING OK - Packet loss = 0%, RTA = 0.33 ms
ISP-ONS	UP	2009-09-03 14:51:41	16d 4h 11m 25s	PING OK - Packet loss = 0%, RTA = 0.29 ms
ISP-RTR	UP	2009-09-03 14:51:51	43d 5h 47m 40s	PING OK - Packet loss = 0%, RTA = 1.24 ms
NOC-TLD1	UP	2009-09-03 14:52:01	1d 0h 10m 56s	PING OK - Packet loss = 0%, RTA = 4.02 ms
NOC-TLD2	UP	2009-09-03 14:52:01	1d 22h 53m 46s	PING OK - Packet loss = 0%, RTA = 2.23 ms
NOC-TLD3	UP	2009-09-03 14:52:11	1d 22h 53m 36s	PING OK - Packet loss = 0%, RTA = 2.62 ms
NOC-TLD4	UP	2009-09-03 14:52:21	1d 22h 53m 36s	PING OK - Packet loss = 0%, RTA = 1.09 ms
NOC-TLD5	UP	2009-09-03 14:52:31	1d 22h 54m 6s	PING OK - Packet loss = 0%, RTA = 5.20 ms
NOC-TLD6	UP	2009-09-03 14:52:31	1d 22h 53m 56s	PING OK - Packet loss = 0%, RTA = 10.49 ms
NOC-TLD7	UP	2009-09-03 14:52:41	1d 22h 53m 56s	PING OK - Packet loss = 0%, RTA = 1.05 ms
NOC-TLD8	UP	2009-09-03 14:52:51	1d 22h 53m 56s	PING OK - Packet loss = 0%, RTA = 1.00 ms
NS1-TLD1	UP	2009-09-03 14:53:01	1d 0h 10m 26s	PING OK - Packet loss = 0%, RTA = 10.19 ms
NS1-TLD2	UP	2009-09-03 14:53:01	1d 22h 53m 56s	PING OK - Packet loss = 0%, RTA = 5.06 ms
NS1-TLD3	UP	2009-09-03 14:53:11	1d 22h 53m 36s	PING OK - Packet loss = 0%, RTA = 1.03 ms
NS1-TLD4	UP	2009-09-03 14:53:21	1d 22h 53m 36s	PING OK - Packet loss = 0%, RTA = 1.15 ms
NS1-TLD5	UP	2009-09-03 14:53:21	1d 22h 54m 6s	PING OK - Packet loss = 0%, RTA = 1.12 ms
NS1-TLD6	UP	2009-09-03 14:53:31	1d 22h 53m 36s	PING OK - Packet loss = 0%, RTA = 1.06 ms
NS1-TLD7	UP	2009-09-03 14:53:41	1d 22h 53m 46s	PING OK - Packet loss = 0%, RTA = 1.11 ms
NS1-TLD8	UP	2009-09-03 14:53:51	1d 22h 53m 36s	PING OK - Packet loss = 0%, RTA = 1.18 ms
TLD1-RTR	UP	2009-09-03 14:53:51	1d 22h 54m 6s	PING OK - Packet loss = 0%, RTA = 2.22 ms
TLD2-RTR	UP	2009-09-03 14:54:01	1d 22h 53m 46s	PING OK - Packet loss = 0%, RTA = 2.38 ms

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Host Status Totals













Up	Down	Unreachable	Pending
41	0	0	0
All Problems		All Types	
0		41	

Service Status Totals











Ok	Warning	Unknown	Critical	Pending
46	0	0	0	0
All Problems		All Types		
0		46		

Service Overview For All Host Groups













TRTI TLD1 Servers, Virtual Machines, Routers (TLD1)

Host	Status	Services	Actions
NOC-TLD1	UP	1 OK	  
NS1-TLD1	UP	1 OK	  
TLD1-RTR	UP	1 OK	  
TRTI-TLD1	UP	1 OK	  













TRTI TLD2 Servers, Virtual Machines, Routers (TLD2)

Host	Status	Services	Actions
NOC-TLD2	UP	1 OK	  
NS1-TLD2	UP	1 OK	  
TLD2-RTR	UP	1 OK	  
TRTI-TLD2	UP	1 OK	  












TRTI TLD3 Servers, Virtual Machines, Routers (TLD3)

Host	Status	Services	Actions
NOC-TLD3	UP	1 OK	  
NS1-TLD3	UP	1 OK	  
TLD3-RTR	UP	1 OK	  
TRTI-TLD3	UP	1 OK	  










TRTI TLD4 Servers, Virtual Machines, Routers (TLD4)

Host	Status	Services	Actions
NOC-TLD4	UP	1 OK	  
NS1-TLD4	UP	1 OK	  
TLD4-RTR	UP	1 OK	  
TRTI-TLD4	UP	1 OK	  







TRTI TLD5 Servers, Virtual Machines, Routers (TLD5)

Host	Status	Services	Actions
NOC-TLD5	UP	1 OK	  
NS1-TLD5	UP	1 OK	  
TLD5-RTR	UP	1 OK	  
TRTI-TLD5	UP	1 OK	  






TRTI TLD6 Servers, Virtual Machines, Routers (TLD6)

Host	Status	Services	Actions
NOC-TLD6	UP	1 OK	  
NS1-TLD6	UP	1 OK	  
TLD6-RTR	UP	1 OK	  
TRTI-TLD6	UP	1 OK	  







TRTI TLD7 Servers, Virtual Machines, Routers (TLD7)

Host	Status	Services	Actions
NOC-TLD7	UP	1 OK	  
NS1-TLD7	UP	1 OK	  

TRTI TLD8 Servers, Virtual Machines, Routers (TLD8)

Host	Status	Services	Actions
NOC-TLD8	UP	1 OK	  
NS1-TLD8	UP	1 OK	  

TRTI Management Virtual Machines (VM-mgmt)

Host	Status	Services	Actions
DNS-ROOT	UP	1 OK	  
ISP-DNS	UP	1 OK	  

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Host Status Totals

Up	Down	Unreachable	Pending
41	0	0	0

All Problems	All Types
0	41
















Service Status Totals

Ok	Warning	Unknown	Critical	Pending
53	0	0	1	0

All Problems	All Types
1	54

Service Overview For All Service Groups

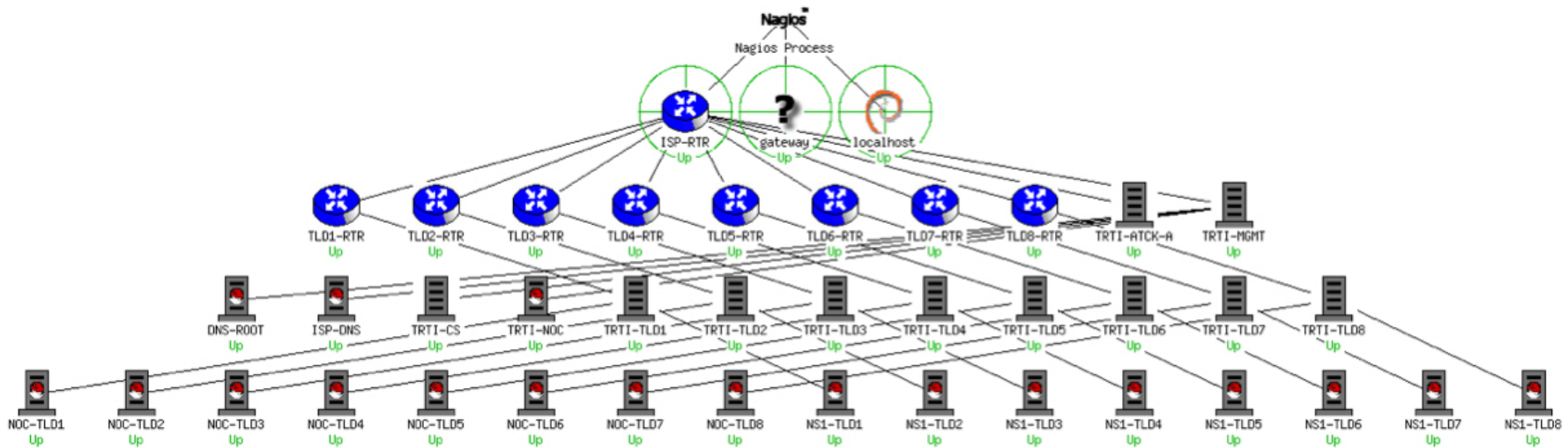
TLD Servers running Nagios (NAGIOS)

Host	Status	Services	Actions
NS1-TLD1	UP	1 OK	  
NS1-TLD2	UP	1 OK	  
NS1-TLD3	UP	1 OK	  
NS1-TLD4	UP	1 OK	  
NS1-TLD5	UP	1 OK	  
NS1-TLD6	UP	1 OK	  
NS1-TLD7	UP	1 OK	  
NS1-TLD8	UP	1 OK	  

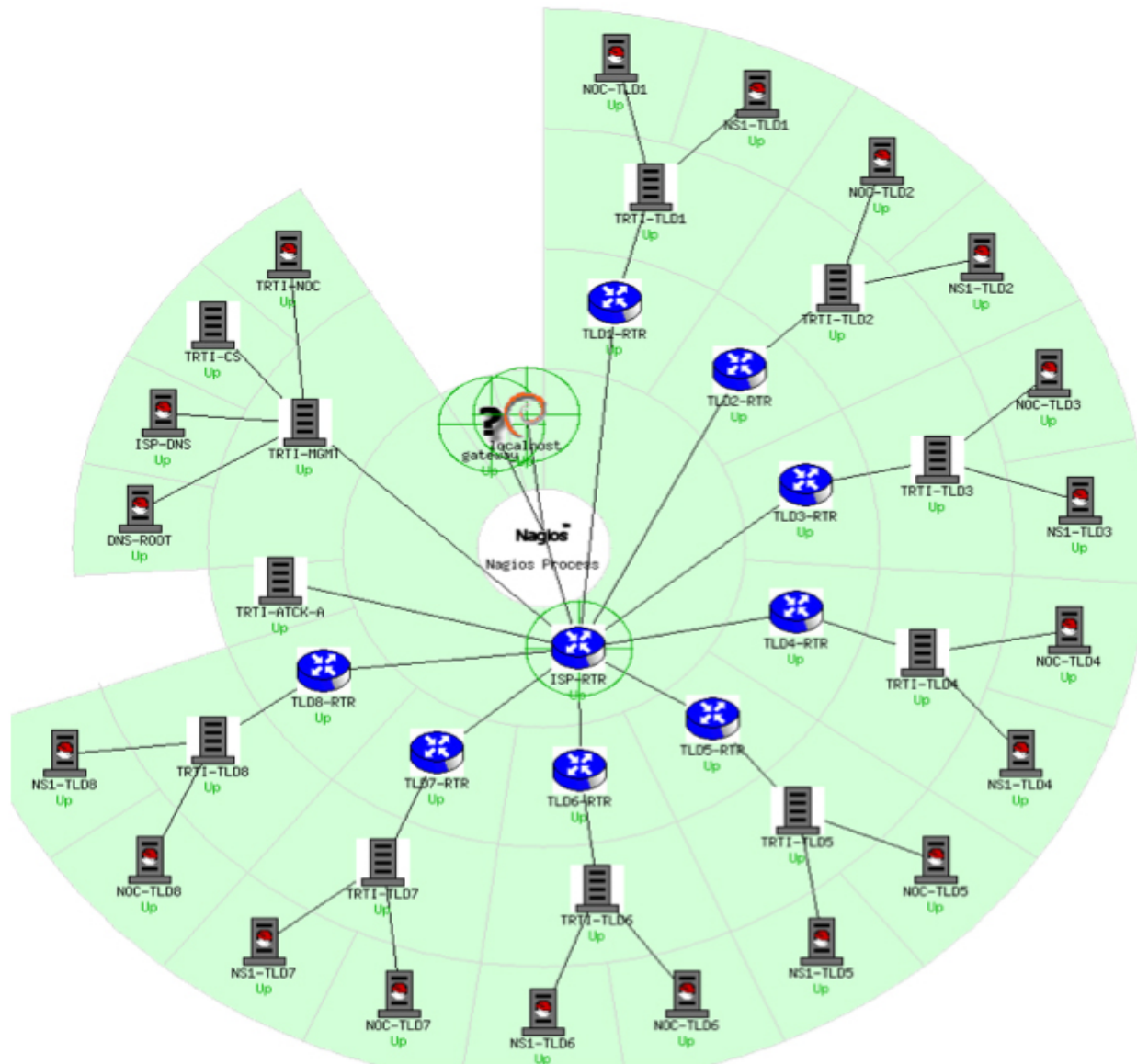
TLD Servers running SSH (SSH)

Host	Status	Services	Actions
NS1-TLD1	UP	1 OK	  
NS1-TLD2	UP	1 CRITICAL	  
NS1-TLD3	UP	1 OK	  
NS1-TLD4	UP	1 OK	  
NS1-TLD5	UP	1 OK	  
NS1-TLD6	UP	1 OK	  
NS1-TLD7	UP	1 OK	  
NS1-TLD8	UP	1 OK	  

Nagios: Collapsed Tree Status Map



Nagios: Marked-up Circular Status Map



Features

- Verification of availability is delegated to plugins:
 - The product's architecture is simple enough that writing new plugins is fairly easy in the language of your choice.
 - There are many, many plugins available.
- *Nagios uses parallel checking and forking.*
 - *Version 3 of Nagios does this better.*

Features cont.

- Has intelligent checking capabilities. Attempts to distribute the server load of running Nagios (for larger sites) and the load placed on devices being checked.
- Configuration is done in simple, plain text files. These can contain much detail and are based on templates.
- Nagios reads its configuration from an entire directory. You decide how to define individual files.

Features cont.

- Utilizes topology to determine dependencies.
 - *Nagios differentiates between what is down vs. what is not available. This way it avoids running unnecessary checks.*
- *Nagios allows you to define how you send notifications based on combinations of:*
 - *Contacts and lists of contacts*
 - *Devices and groups of devices*
 - *Services and groups of services*
 - *Defined hours by persons or groups.*
 - *The state of a service.*

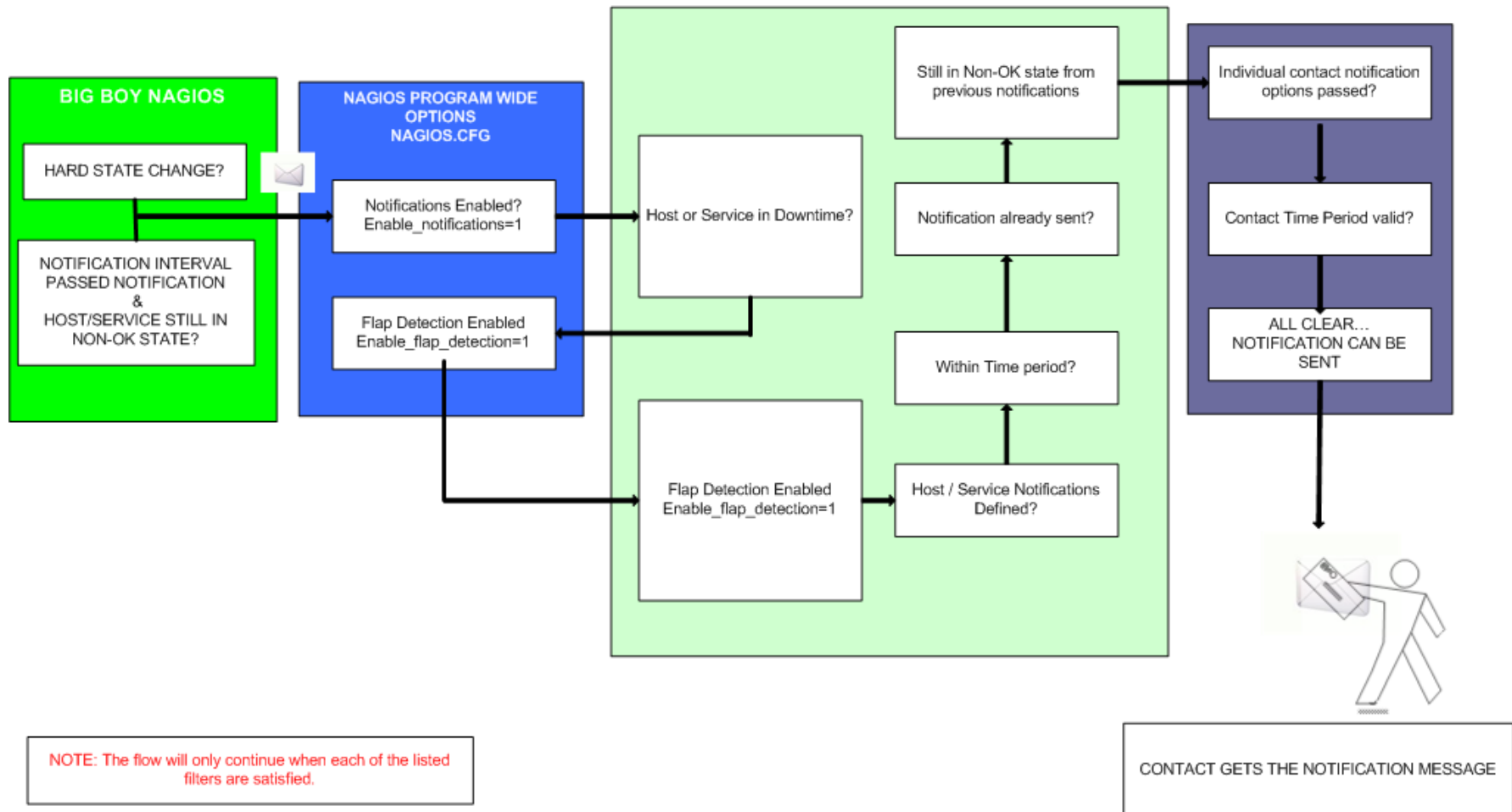
And, even more...

Service state:

When configuring a service, you have the following notification options:

- **d:** DOWN: The service is down (not available)
- **u:** UNREACHABLE: When the host is not visible
- **r:** RECOVERY: (OK) Host is coming back up
- **f:** FLAPPING: When a host first starts or stops or it's state is undetermined.
- **n:** NONE: Don't send any notifications

NAGIOS - NOTIFICATION FLOW DIAGRAM



Features, features, features...

- Allows you to acknowledge an event.
 - A user can add comments via the GUI
- You can define maintenance periods
 - By device or a group of devices
- Maintains availability statistics.
- Can detect *flapping* and suppress additional notifications.
- Allows for multiple notification methods such as: e-mail, pager, SMS, winpopup, audio, etc...
- *Allows you to define notification levels. Critical feature.*

How Checks Work

A node/host/device consists of one or more service checks (PING, HTTP, MYSQL, SSH, etc)

Periodically Nagios checks each service for each node and determines if state has changed. State changes are:

CRITICAL

WARNING

UNKNOWN

For each state change you can assign:

Notification options (as mentioned before)

Event handlers

How Checks Work

- Parameters
 - Normal checking interval
 - Re-check interval
 - Maximum number of checks.
 - Period for each check
- Node checks only happen when on services respond (assuming you've configured this).
 - A node can be:
 - DOWN
 - UNREACHABLE

How Checks Work

Therefore it can take some time before a host changes its state to “down” as Nagios first does a service check and then a node check.

By default Nagios does a node check 3 times before it will change the nodes state to down.

You can, of course, change all this.

The Concept of “Parents”

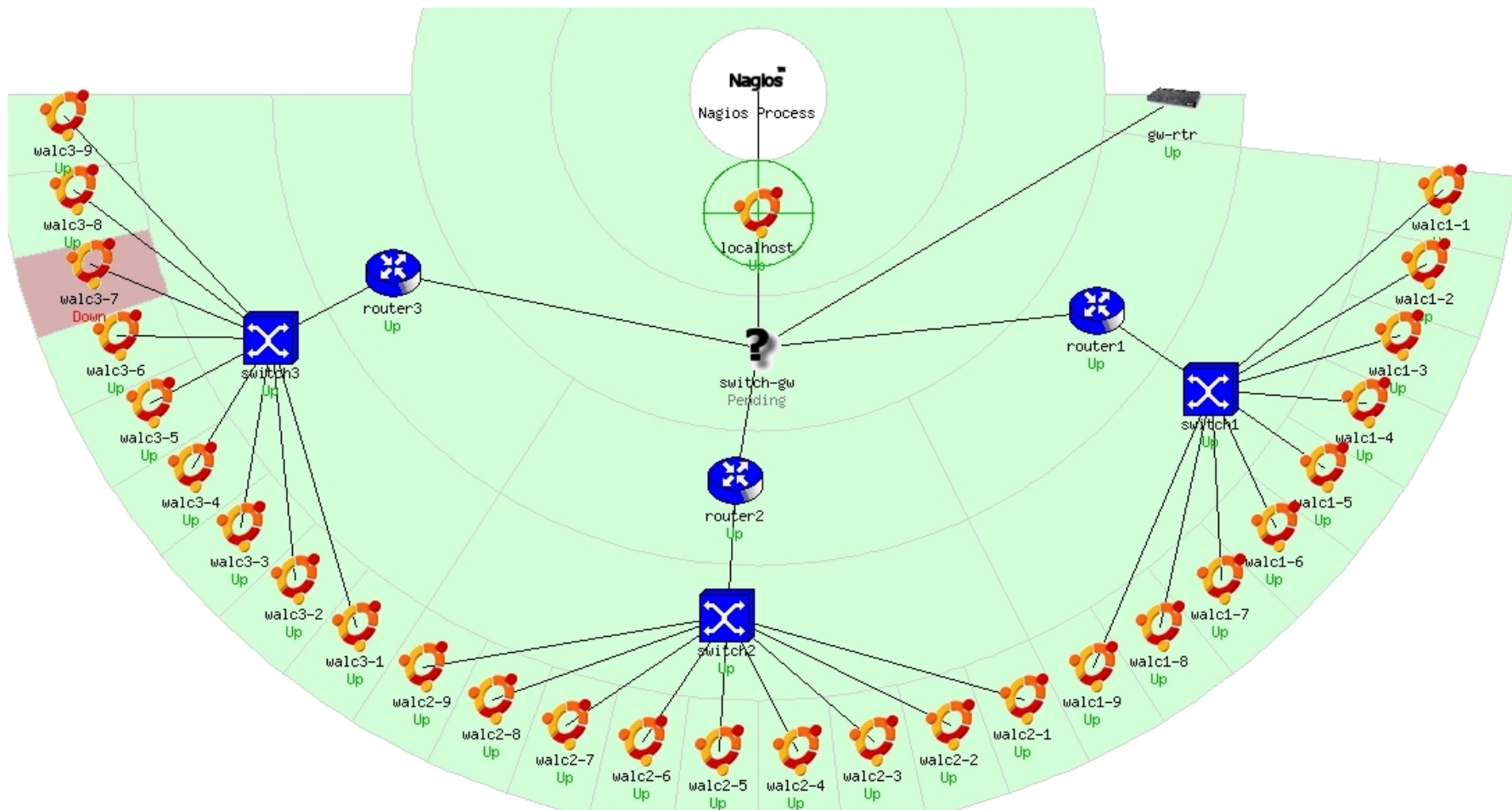
Nodes can have parents:

- For example, the parent of a PC connected to a switch would be the switch.
- This allows us to specify the network dependencies that exist between machines, switches, routers, etc.
- This avoids having Nagios send alarms when a parent does not respond.
- A node can have multiple parents.

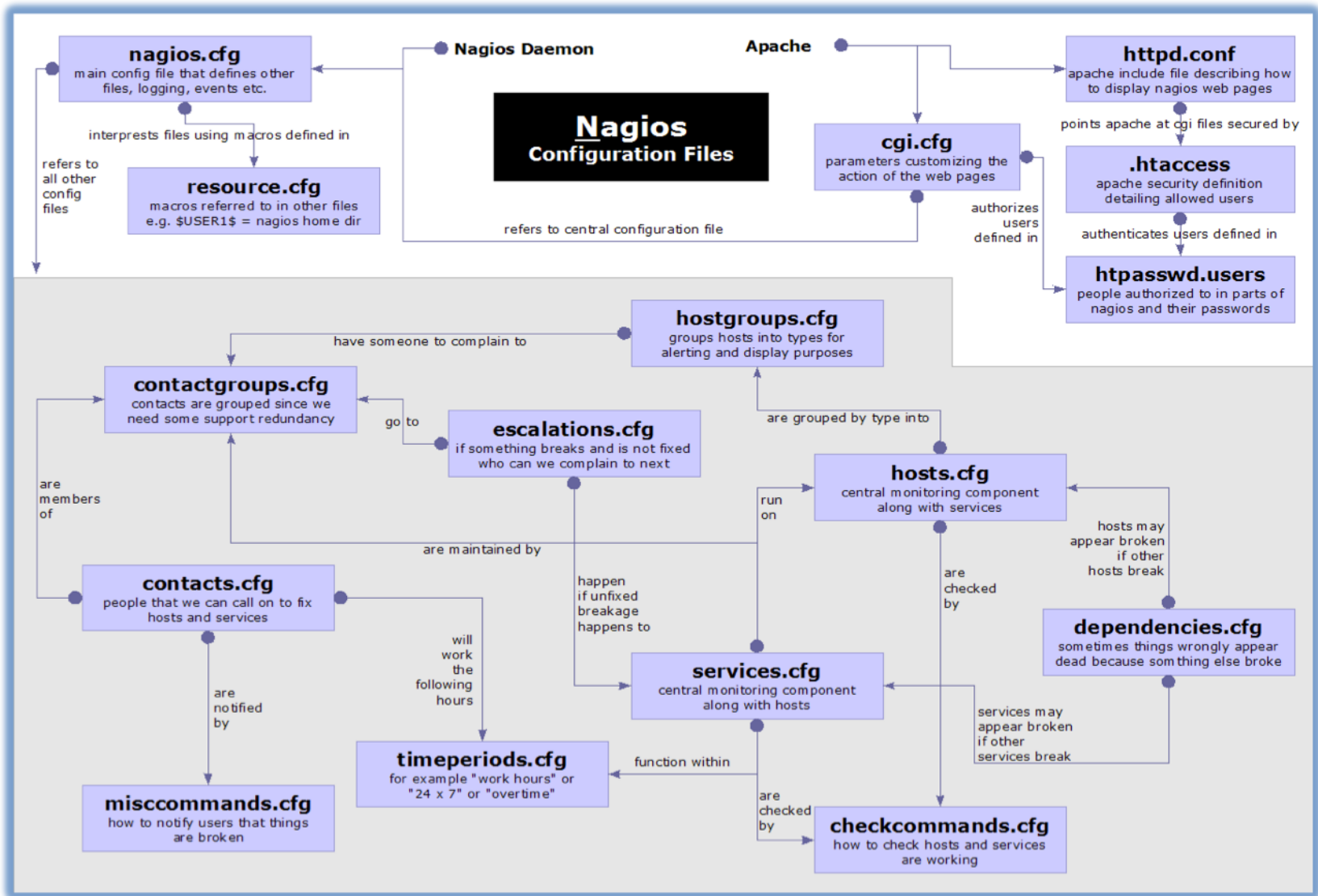
The Idea of Network Viewpoint

- Where you locate your Nagios server will determine your point of view of the network.
- Nagios allows for parallel Nagios boxes that run at other locations on a network.
- Often it makes sense to place your Nagios server nearer the border of your network vs. in the core.

Network Viewpoint



Nagios Configuration Files



Configuration Files

Located in /etc/nagios3/

Important files include:

- **cgi.cfg** Controls the web interface and security options.
- **commands.cfg** The commands that Nagios uses for notifications.
- **nagios.cfg** Main configuration file.
- **conf.d/*** All other configuration goes here!

Configuration Files

Under conf.d/* (*sample only*)

- `contacts_nagios3.cfg` users and groups
- `generic-host_nagios2.cfg`
default host template
- `generic-service_nagios2.cfg`
default service template
- `hostgroups_nagios2.cfg`
groups of nodes
- `services_nagios2.cfg`
what services to check
- `timeperiods_nagios2.cfg`
when to check and who to notify

Configuration Files

Under conf.d some other possible configfiles:

- [host-gateway.cfg](#) Default route definition
- [extinfo.cfg](#) Additional node information
- [servicegroups.cfg](#) Groups of nodes and services
- [localhost.cfg](#) Define the Nagios server itself
- [pcs.cfg](#) Sample definition of PCs (hosts)
- [switches.cfg](#) Definitions of switches (hosts)
- [routers.cfg](#) Definitions of routers (hosts)

Plugins Configuration

The Nagios package in Ubuntu comes with a bunch of pre-installed plugins:

apt.cfg	breeze.cfg	dhcp.cfg	disk-smb.cfg
disk.cfg	dns.cfg	dummy.cfg	flexlm.cfg
fping.cfg	ftp.cfg	games.cfg	hppjd.cfg http.cfg
ifstatus.cfg	ldap.cfg	load.cfg	mail.cfg
mrtg.cfg	mysql.cfg	netware.cfg	news.cfg
nt.cfg	ntp.cfg	pgsql.cfg	ping.cfg
procs.cfg	radius.cfg	real.cfg	
rpc-nfs.cfg	snmp.cfg	ssh.cfg	tcp_udp.cfg
telnet.cfg	users.cfg	vsz.cfg	

Main Configuration Details

Global settings

File: /etc/nagios3/nagios.cfg

- Says where other configuration files are.
- General Nagios behavior:
 - For large installations you should tune the installation via this file.
 - See: *Tunning Nagios for Maximum Performance*
http://nagios.sourceforge.net/docs/2_0/tuning.html

CGI Configuration

Archivo: /etc/nagios3/cgi.cfg

- You can change the CGI directory if you wish
- Authentication and authorization for Nagios use.
 - Activate authentication via Apache's .htpasswd mechanism, or using RADIUS or LDAP.
 - Users can be assigned rights via the following variables:
 - authorized_for_system_information
 - authorized_for_configuration_information
 - authorized_for_system_commands
 - authorized_for_all_services
 - authorized_for_all_hosts
 - authorized_for_all_service_commands
 - authorized_for_all_host_commands

Time Periods

This defines the base periods that control checks, notifications, etc.

- Defaults: 24 x 7
- Could adjust as needed, such as work week only.
- Could adjust a new time period for “outside of regular hours”, etc.

```
# '24x7'
define timeperiod{
    timeperiod_name 24x7
    alias            24 Hours A Day, 7 Days A Week
    sunday           00:00-24:00
    monday           00:00-24:00
    tuesday          00:00-24:00
    wednesday        00:00-24:00
    thursday         00:00-24:00
    friday           00:00-24:00
    saturday         00:00-24:00
}
```

Configuring Service/Host Checks

Define how you are going to test a service.

```
# 'check-host-alive' command definition
define command{
    command_name    check-host-alive
    command_line    $USER1$/check_ping -H $HOSTADDRESS$ -w 2000.0,60% -c
5000.0,100% -p 1 -t 5
}
```

Located in /etc/nagios-plugins/config, then adjust in
/etc/nagios3/conf.d/services_nagios2.cfg

Notification Commands

Allows you to utilize any command you wish. We'll do this for generating tickets in RT.

```
# 'notify-by-email' command definition
define command{
    command_name      notify-by-email
    command_line       /usr/bin/printf "%b" "Service: $SERVICEDESC$\nHost:
$HOSTNAME$\nIn: $HOSTALIAS$\nAddress: $HOSTADDRESS$\nState:
$SERVICESTATE$\nInfo: $SERVICEOUTPUT$\nDate: $SHORTDATETIME$" | /bin/mail
-s '$NOTIFICATIONTYPE$: $HOSTNAME$/$SERVICEDESC$ is $SERVICESTATE$'
$CONTACTEMAIL$
}
```

```
From: nagios@nms.localdomain
To: grupo-redes@localdomain
Subject: Host DOWN alert for switch1!
Date: Thu, 29 Jun 2006 15:13:30 -0700
```

```
Host: switch1
In: Core_Switches
State: DOWN
Address: 111.222.333.444
Date/Time: 06-29-2006 15:13:30
Info: CRITICAL - Plugin timed out after 6 seconds
```

Nodes and Services Configuration

Based on templates

- This saves lots of time avoiding repetition
- *Similar to Object Oriented programming*

Create default templates with default parameters for a:

- generic node
- generic service
- generic contact

Generic Node Template

```
define host{
    name                generic-host
    notifications_enabled 1
    event_handler_enabled 1
    flap_detection_enabled 1
    process_perf_data    1
    retain_status_information 1
    retain_nonstatus_information 1
    check_command         check-host-alive
    max_check_attempts    5
    notification_interval 60
    notification_period    24x7
    notification_options   d,r
    contact_groups         nobody
    register               0
}
```

Individual Node Configuration

```
define host{  
    use                generic-host  
    host_name          switch1  
    alias              Core_switches  
    address            192.168.1.2  
    parents            router1  
    contact_groups     switch_group  
}
```

Generic Service Configuration

```
define service{
    name                                generic-service
    active_checks_enabled                1
    passive_checks_enabled              1
    parallelize_check                   1
    obsess_over_service                 1
    check_freshness                     0
    notifications_enabled               1
    event_handler_enabled               1
    flap_detection_enabled              1
    process_perf_data                  1
    retain_status_information            1
    retain_nonstatus_information        1
    is_volatile                         0
    check_period                        24x7
    max_check_attempts                  5
    normal_check_interval                5
    retry_check_interval                 1
    notification_interval                60
    notification_period                 24x7
    notification_options                 c,r
    register                            0
}
```

Individual Service Configuration

```
define service{
    host_name          switch1
    use                 generic-service
    service_description PING
    check_command       check-host-alive
    max_check_attempts 5
    normal_check_interval 5
    notification_options c,r,f
    contact_groups      switch-group
}
```

Mensajes a Beepers/SMS

- It's important to integrate Nagios with something available outside of work
 - Problems occur after hours... (unfair, but true)
- A critical item to remember: an SMS or message system should be independent from your network.
 - You can utilize a modem and a telephone line
 - Packages like sendpage, qpage or gnokii can help.

A Few References

- <http://www.nagios.org>
Nagios web site
- <http://sourceforge.net/projects/nagiosplug>
Nagios plugins site
- *Nagios. System and Network Monitoring by Wolfgang Barth. Good book about Nagios*
- <http://www.nagiosexchange.org>
Unofficial Nagios plugin site
- <http://www.debianhelp.co.uk/nagios.htm>
A Debian tutorial on Nagios
- <http://www.nagios.com/>
Commercial Nagios support