



# nefu

## (network fidelity utility)

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nefu

nefu is a UNIX daemon that monitors network services

“Lights out” user perspective

Native tests for ping, DNS, HTTP, POP, NTP,  
IMAP, STCP, and TCP

Built in shell test for external tests

TDK for new test integration

## Reporting Overview

Mail

Syslog

Finger

HTTP

nefu & email

Status changes sent to email groups.

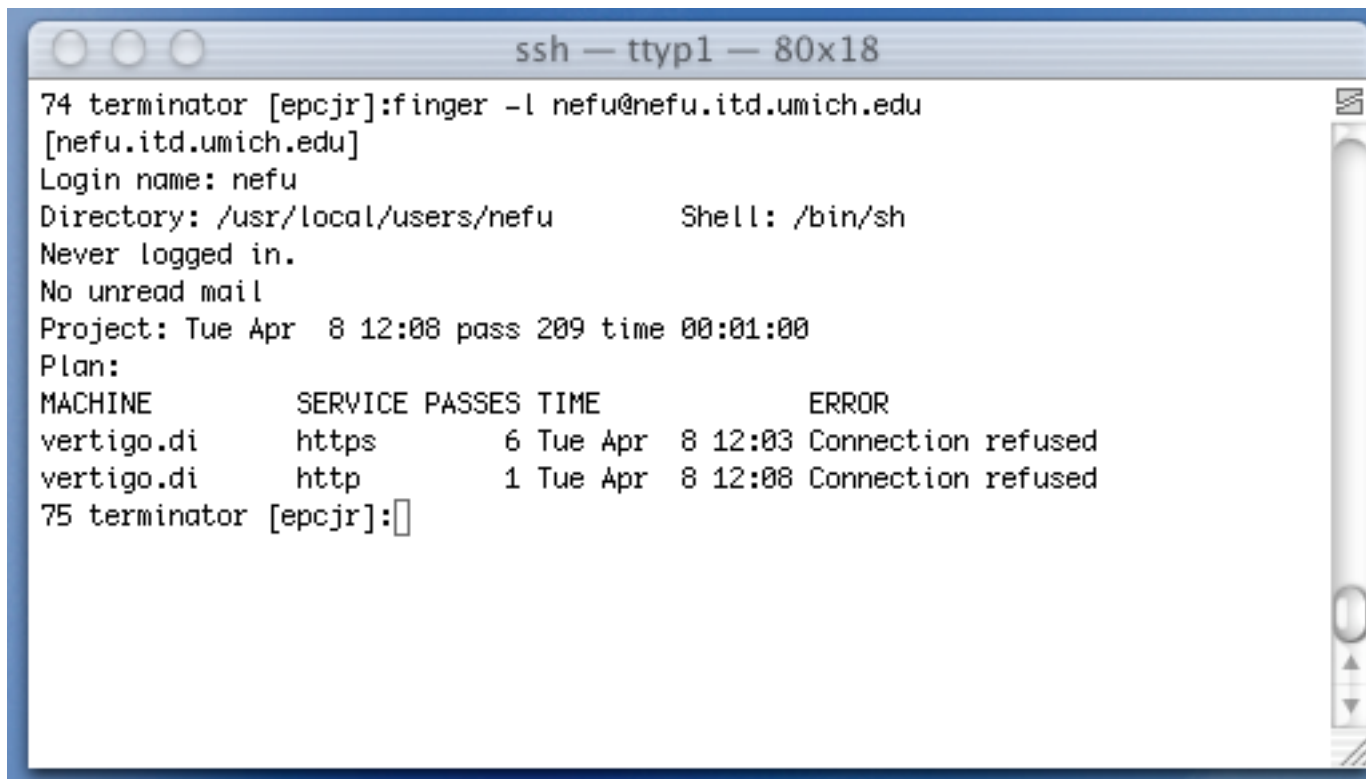
Individual services on a machine can be assigned to one or more responsibility groups.

Pages via local Beepage gateway.

nefu & finger

finger [-l] nefu@nefu.itd.umich.edu

Current status published in .plan and .project



```
ssh — ttyp1 — 80x18
74 terminator [epcjr]:finger -l nefu@nefu.itd.umich.edu
[nefu.itd.umich.edu]
Login name: nefu
Directory: /usr/local/users/nefu      Shell: /bin/sh
Never logged in.
No unread mail
Project: Tue Apr  8 12:08 pass 209 time 00:01:00
Plan:
MACHINE      SERVICE PASSES TIME          ERROR
vertigo.di   https    6 Tue Apr  8 12:03 Connection refused
vertigo.di   http     1 Tue Apr  8 12:08 Connection refused
75 terminator [epcjr]:
```

nefu & syslog

Events & performance statistics logged

Uptime scripts

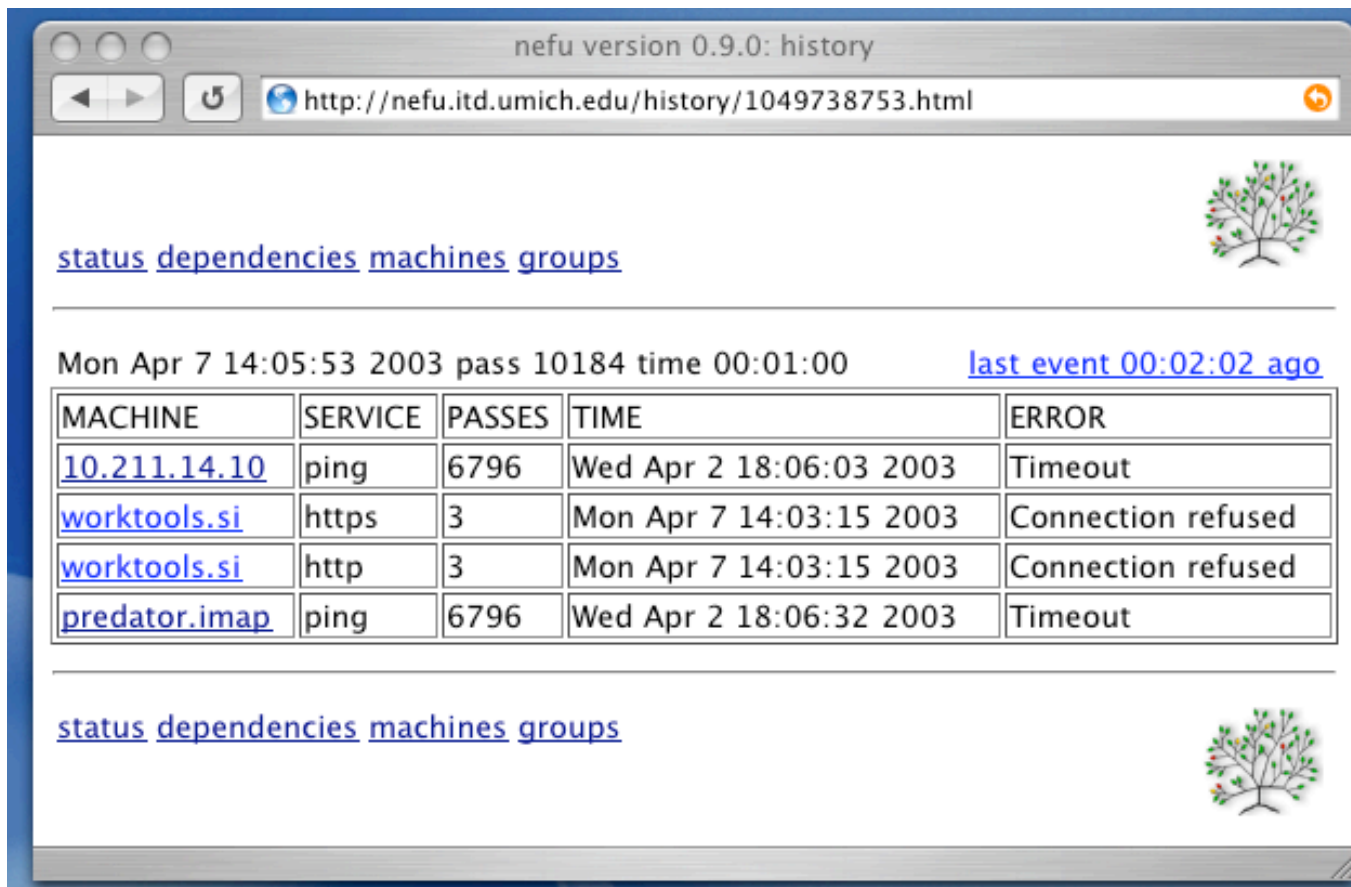
Availability tracking = better performance

```
ssh — ttyp1 — 128x22
Apr 8 12:13:58 thunderball.nefu.itd.umich.edu nefu: [ID 490116 local0.info] win2ktest dc2.adsroot.itd ping 1 0.000684
Apr 8 12:13:58 thunderball.nefu.itd.umich.edu nefu: [ID 490116 local0.info] win2ktest ex1.adsroot.itd ping 1 0.000656
Apr 8 12:13:58 thunderball.nefu.itd.umich.edu nefu: [ID 490116 local0.info] phanadel phanadel.lngs ping 1 0.000655
Apr 8 12:13:58 thunderball.nefu.itd.umich.edu nefu: [ID 490116 local0.info] lngs netware2.lngs ping 1 0.001586
Apr 8 12:13:58 thunderball.nefu.itd.umich.edu nefu: [ID 490116 local0.info] lngs netware3.lngs ping 1 0.000930
Apr 8 12:13:58 thunderball.nefu.itd.umich.edu nefu: [ID 490116 local0.info] lngs netware4.lngs ping 1 0.001046
Apr 8 12:13:58 thunderball.nefu.itd.umich.edu nefu: [ID 490116 local0.info] sites champagne.di ping 1 0.000658
Apr 8 12:13:58 thunderball.nefu.itd.umich.edu nefu: [ID 523401 local0.info] lom rope.di ntp 1 0.001060 0
Apr 8 12:13:58 thunderball.nefu.itd.umich.edu nefu: [ID 490116 local0.info] sites vertigo.di dns 1 0.002003
Apr 8 12:13:58 thunderball.nefu.itd.umich.edu nefu: [ID 422671 local0.notice] sites vertigo.di https DOWN->UP 00:10:01 11
Apr 8 12:13:58 thunderball.nefu.itd.umich.edu nefu: [ID 696019 local0.info] sendmail confirmation to sites
Apr 8 12:13:59 thunderball.nefu.itd.umich.edu nefu: [ID 892747 local0.info] sendmail 23691 done
Apr 8 12:13:59 thunderball.nefu.itd.umich.edu nefu: [ID 422671 local0.notice] sites vertigo.di http DOWN->UP 00:05:12 6
Apr 8 12:13:59 thunderball.nefu.itd.umich.edu nefu: [ID 696019 local0.info] sendmail confirmation to sites
Apr 8 12:13:59 thunderball.nefu.itd.umich.edu nefu: [ID 892747 local0.info] sendmail 23694 done
Apr 8 12:14:00 thunderball.nefu.itd.umich.edu nefu: [ID 490116 local0.info] sites manxman.di dns 1 0.001898
Apr 8 12:14:00 thunderball.nefu.itd.umich.edu nefu: [ID 523401 local0.info] sites-oncall,sites cainemutiny.me ntp 1 0.001032 0
Apr 8 12:14:00 thunderball.nefu.itd.umich.edu nefu: [ID 490116 local0.info] staff terminator.rsug dns 1 0.001703
Apr 8 12:14:00 thunderball.nefu.itd.umich.edu nefu: [ID 523401 local0.info] staff terminator.rsug ntp 1 0.000746 0
Apr 8 12:14:00 thunderball.nefu.itd.umich.edu nefu: [ID 490116 local0.info] sites suspicion.di dns 1 0.004360
Apr 8 12:14:00 thunderball.nefu.itd.umich.edu nefu: [ID 490116 local0.info] sites lifeboat.di dns 1 0.008310
```

## nefu & HTTP

<http://nefu.itd.umich.edu/>

View current status and configuration via. the Web  
Web history can be logged



nefu version 0.9.0: history

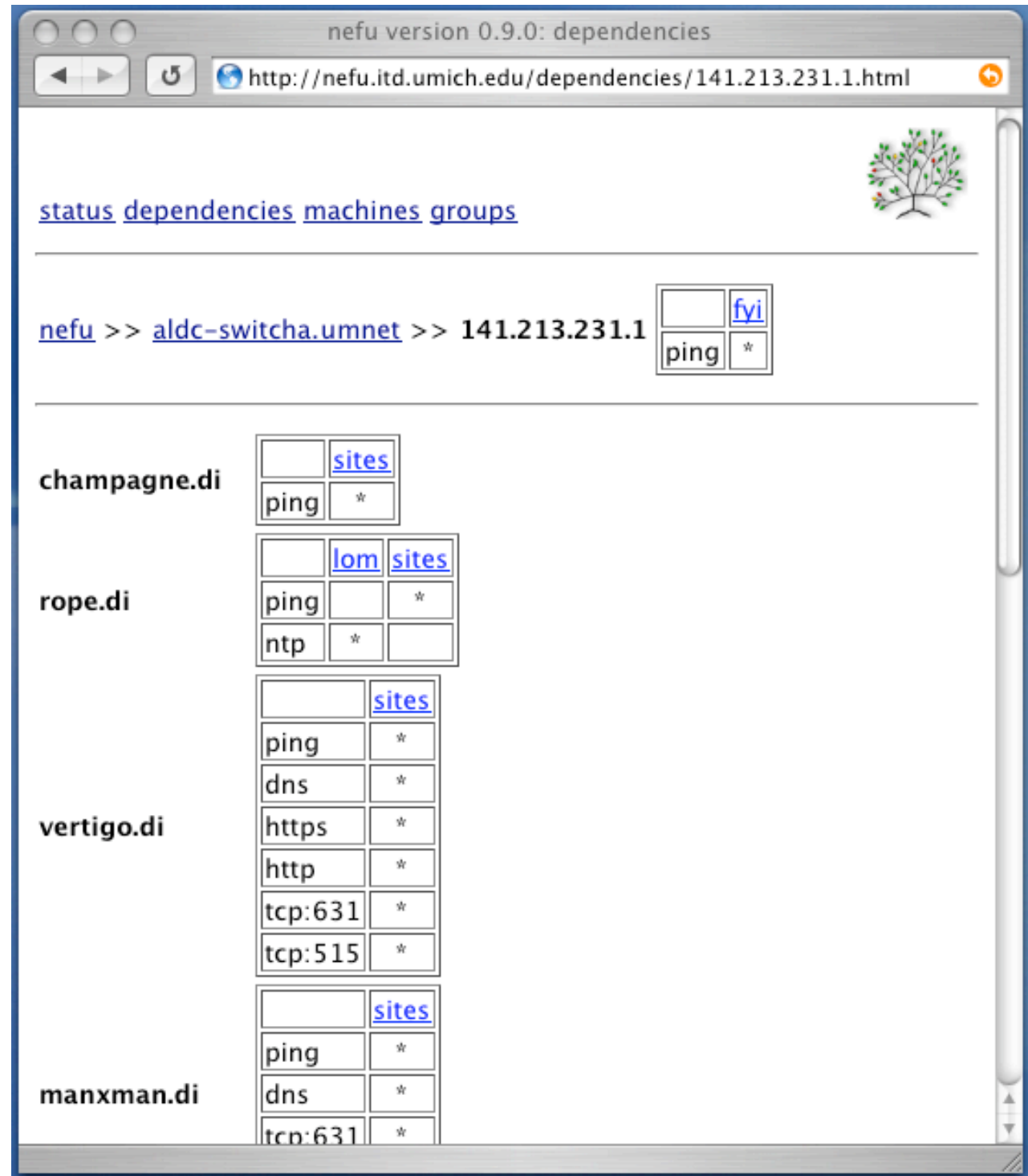
[status](#) [dependencies](#) [machines](#) [groups](#)

Mon Apr 7 14:05:53 2003 pass 10184 time 00:01:00 [last event 00:02:02 ago](#)

MACHINE	SERVICE	PASSES	TIME	ERROR
<a href="#">10.211.14.10</a>	ping	6796	Wed Apr 2 18:06:03 2003	Timeout
<a href="#">worktools.si</a>	https	3	Mon Apr 7 14:03:15 2003	Connection refused
<a href="#">worktools.si</a>	http	3	Mon Apr 7 14:03:15 2003	Connection refused
<a href="#">predator.imap</a>	ping	6796	Wed Apr 2 18:06:32 2003	Timeout

[status](#) [dependencies](#) [machines](#) [groups](#)

## Dependency Example



nefu version 0.9.0: dependencies

[status](#) [dependencies](#) [machines](#) [groups](#)

[nefu](#) >> [aldc-switcha.umnet](#) >> 141.213.231.1

	<a href="#">fyi</a>
ping	*

	<a href="#">sites</a>
ping	*

	<a href="#">lom</a>	<a href="#">sites</a>
ping		*
ntp	*	

	<a href="#">sites</a>
ping	*
dns	*
https	*
http	*
tcp:631	*
tcp:515	*

	<a href="#">sites</a>
ping	*
dns	*
tcp:631	*



Monitoring overview

Closest Leaf First scheduling

Tri-State logic monitor

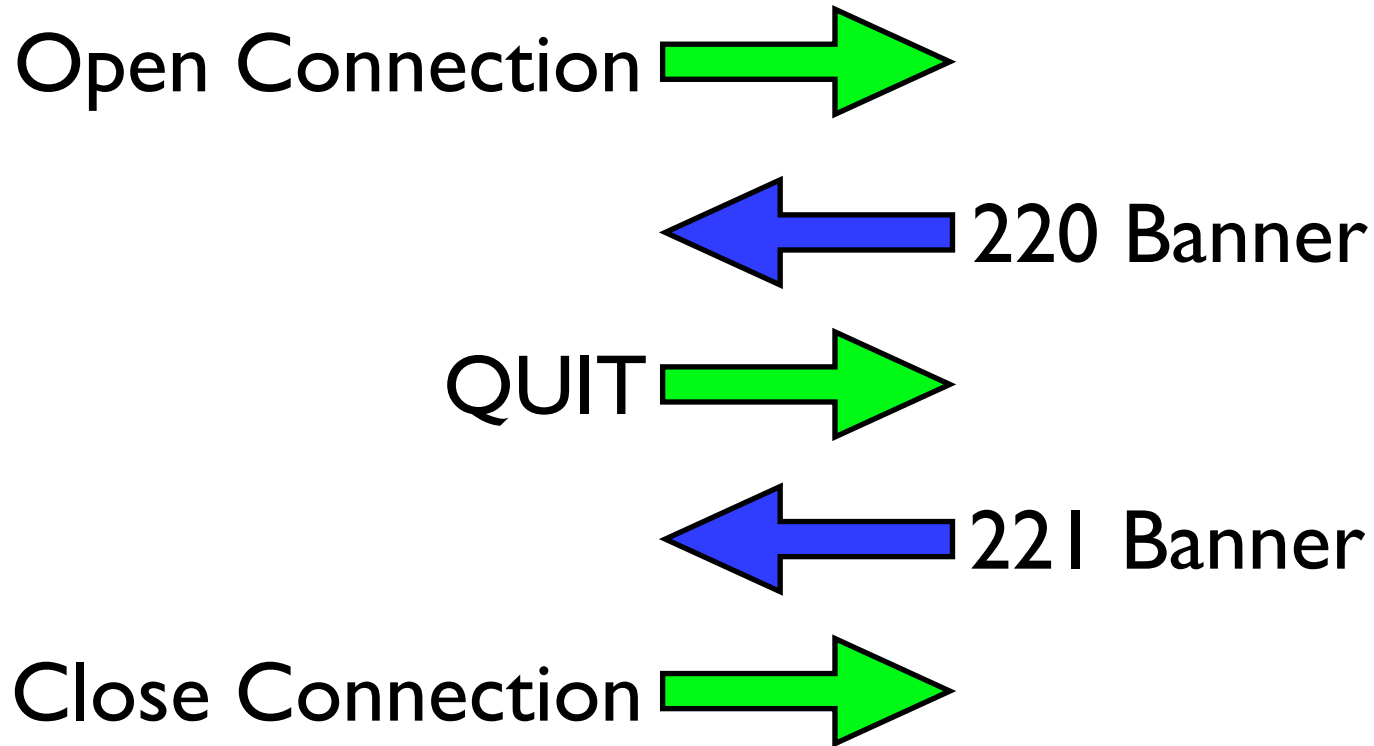
Route Verification

Exercise Protocols

SMTP Transaction UP

nefu

SMTP server

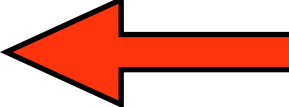


SMTP Transaction DOWN

nefu

SMTP server

Open Connection 

 554 Banner

Close Connection 

Or:

Open Connection 

 Connection Refused

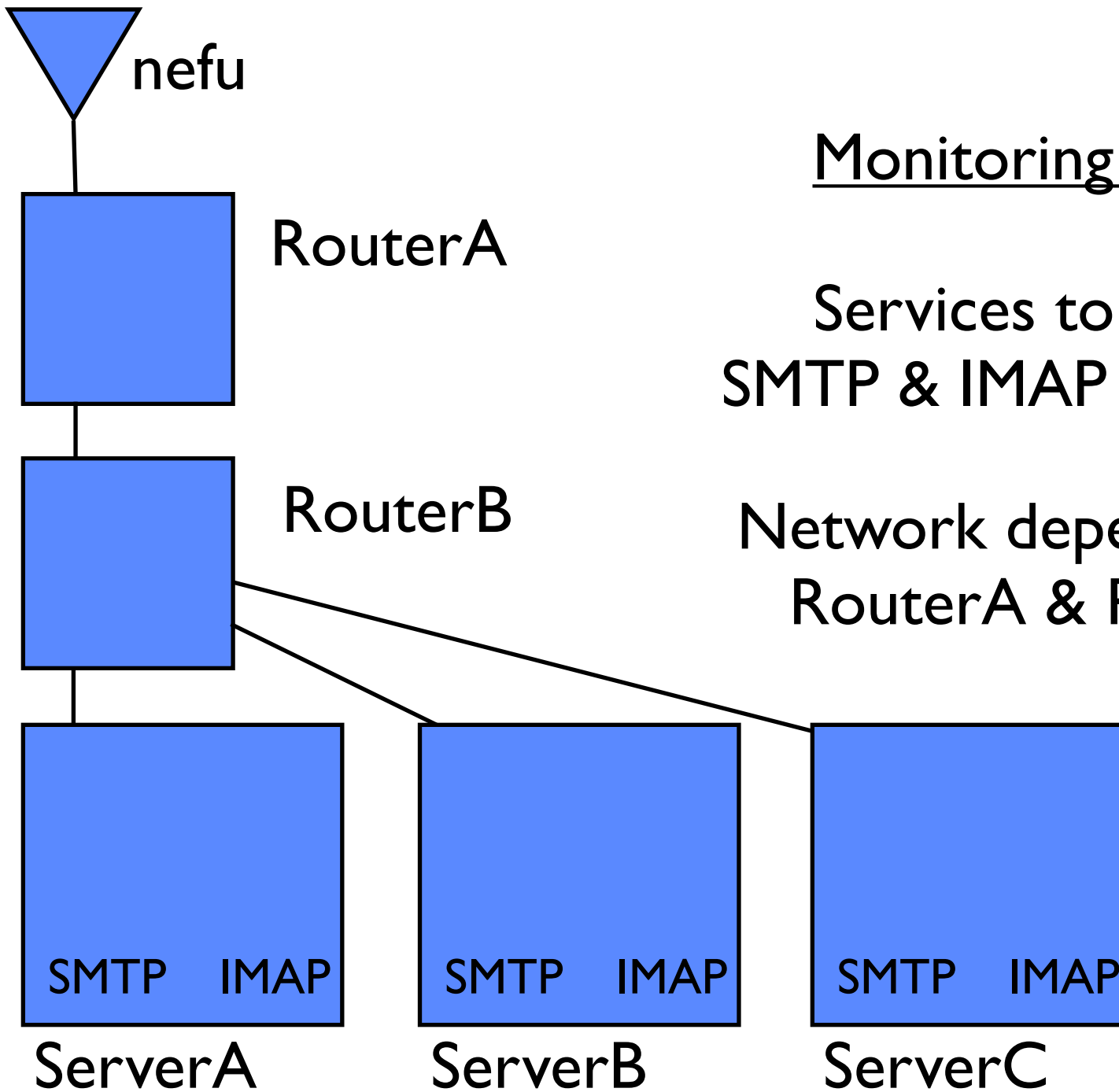
SMTP Transaction MAYBE-DOWN

nefu

SMTP server

Open Connection 

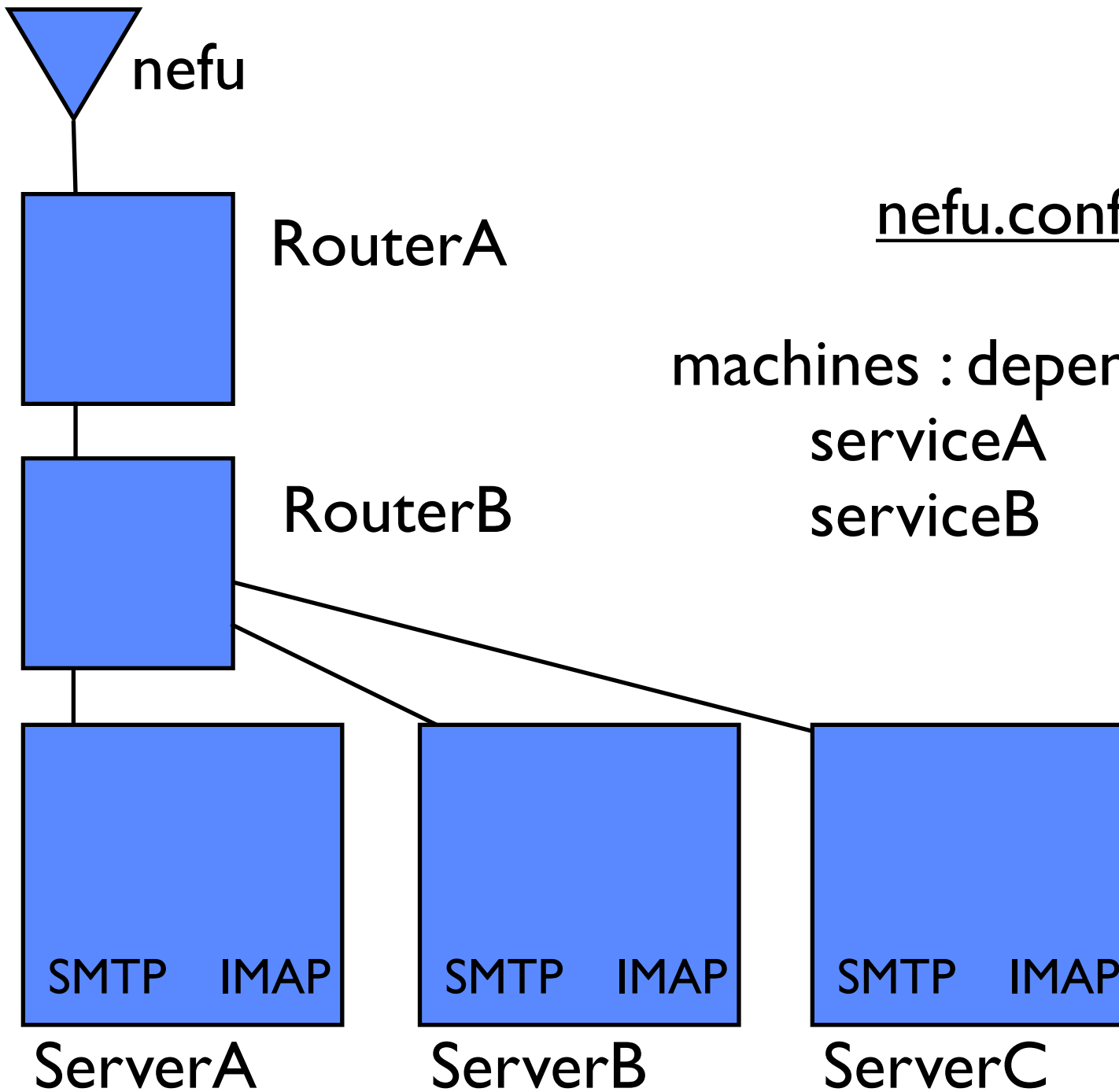
Timeout



Monitoring Example:

Services to Monitor:  
SMTP & IMAP on 3 servers

Network dependencies:  
RouterA & RouterB



nefu.conf syntax

machines : dependency : groups  
serviceA  
serviceB

SMTP IMAP

SMTP IMAP

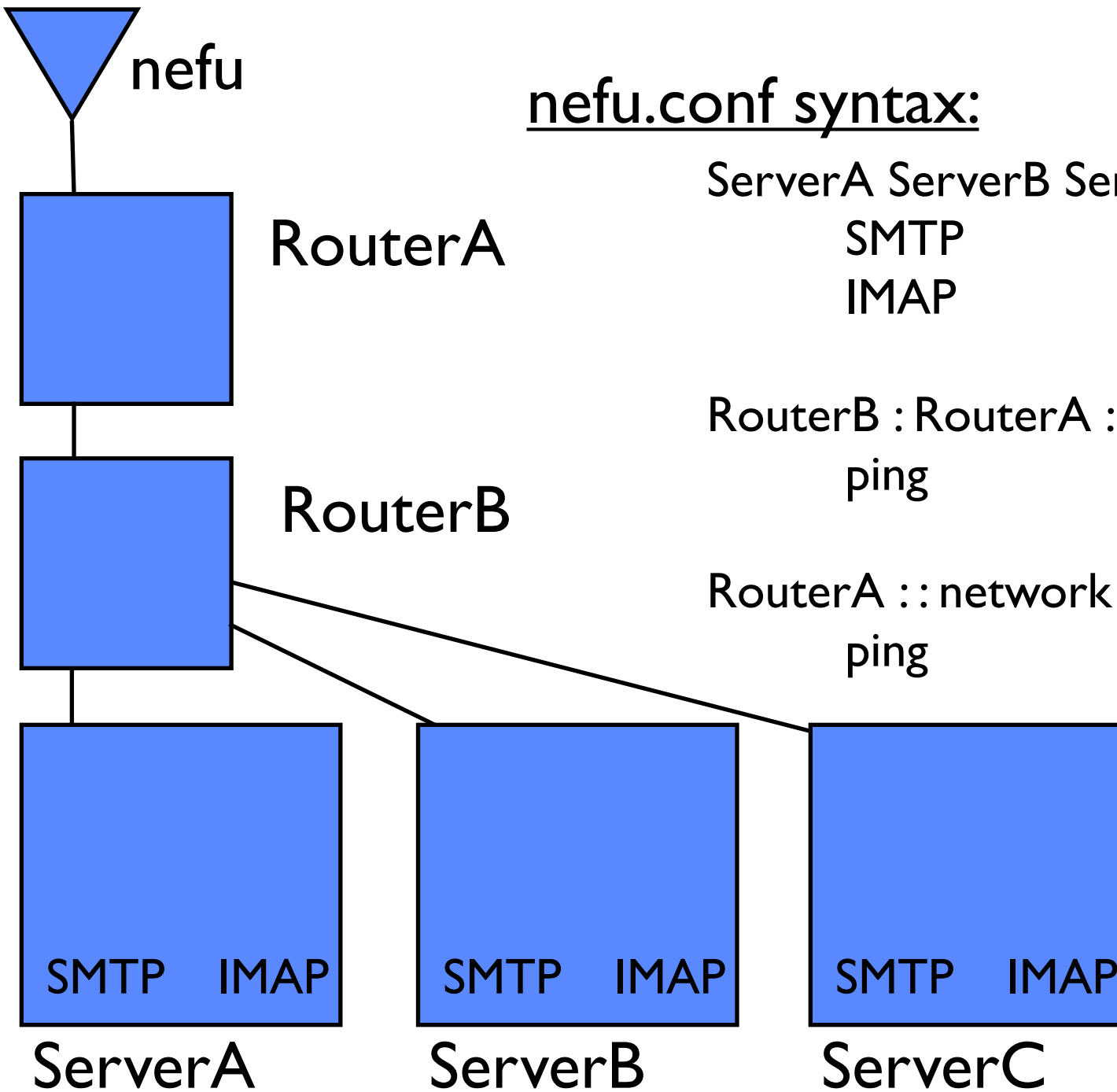
SMTP IMAP

ServerA

ServerB

ServerC

nefu.conf syntax:



```
ServerA ServerB ServerC : RouterB : imap  
SMTP  
IMAP
```

```
RouterB : RouterA : network fyi  
ping
```

```
RouterA :: network fyi  
ping
```

ServerA

ServerB

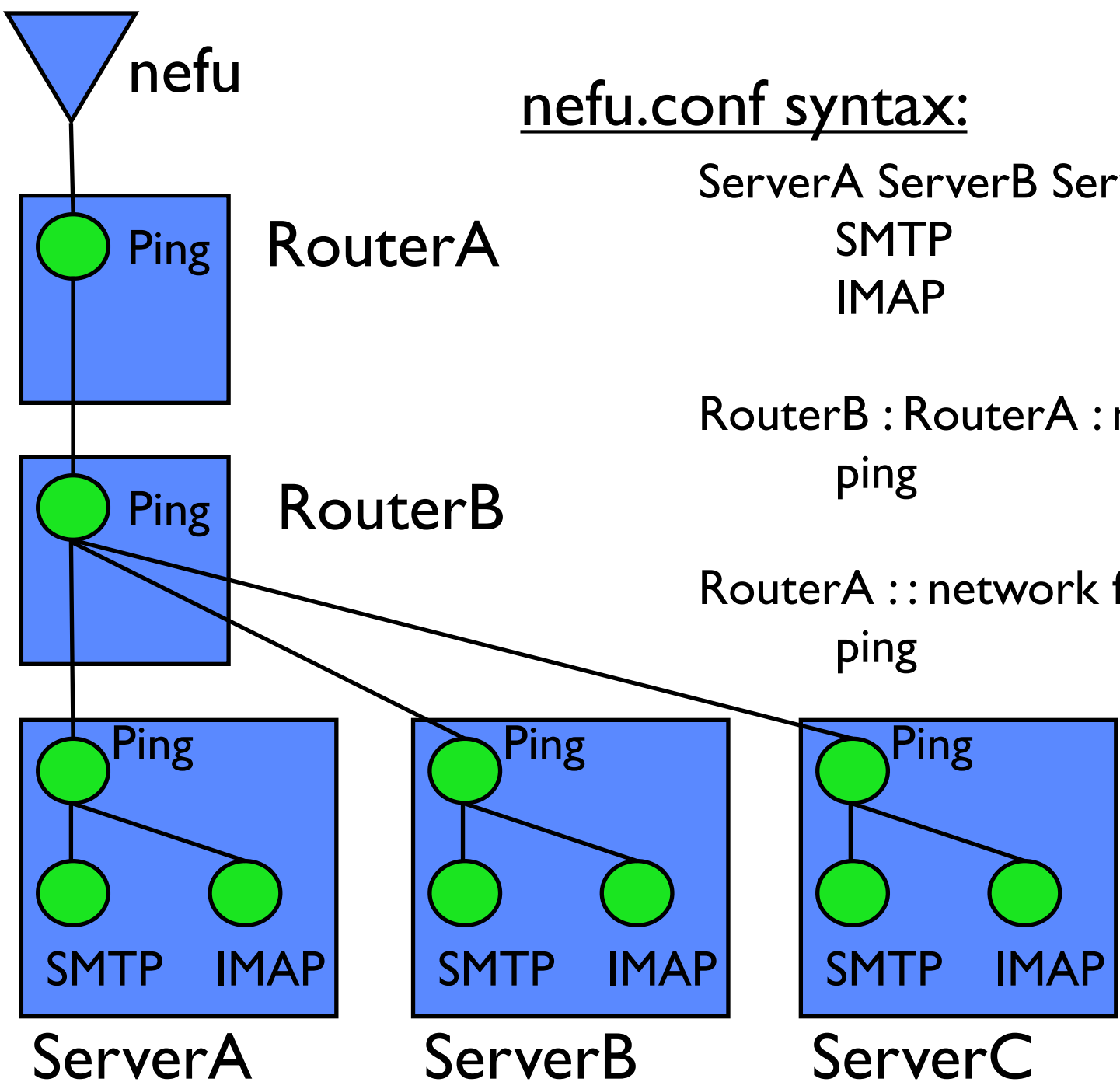
ServerC

nefu.conf syntax:

```
ServerA ServerB ServerC : RouterB : imap  
SMTP  
IMAP
```

```
RouterB : RouterA : network fyi  
ping
```

```
RouterA :: network fyi  
ping
```

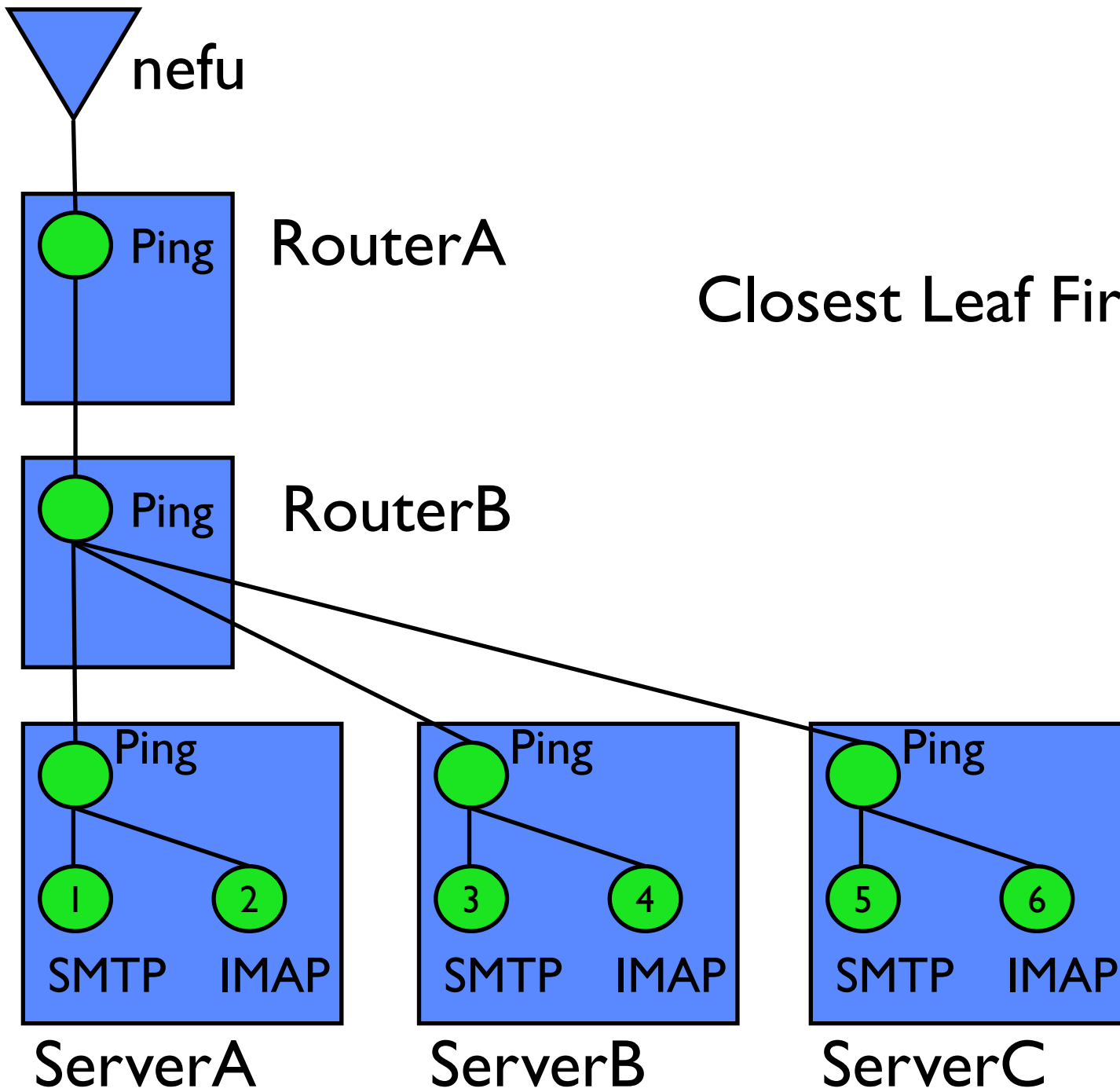


ServerA

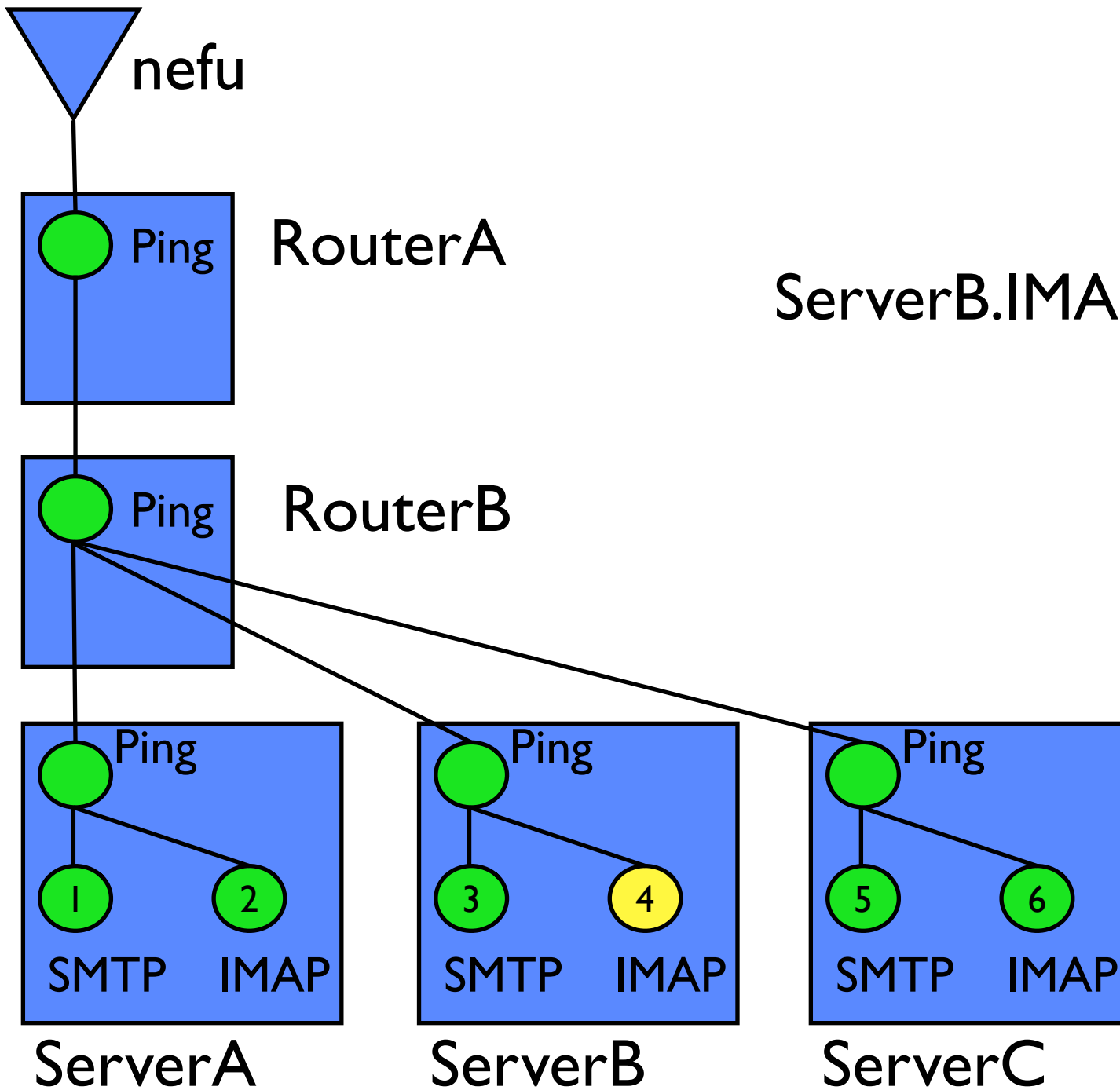
ServerB

ServerC

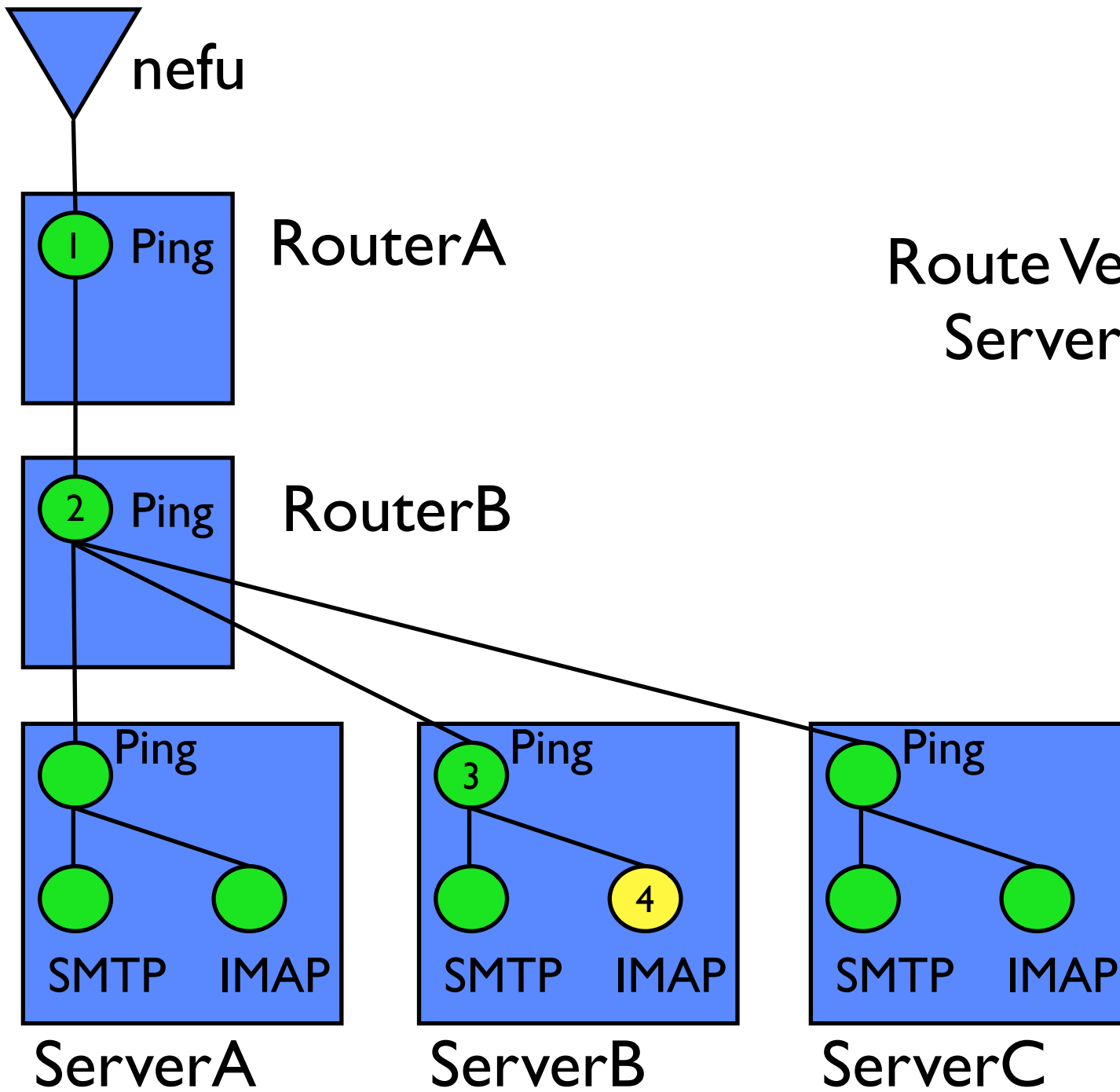




Closest Leaf First scheduling.



ServerB.IMAP times out.

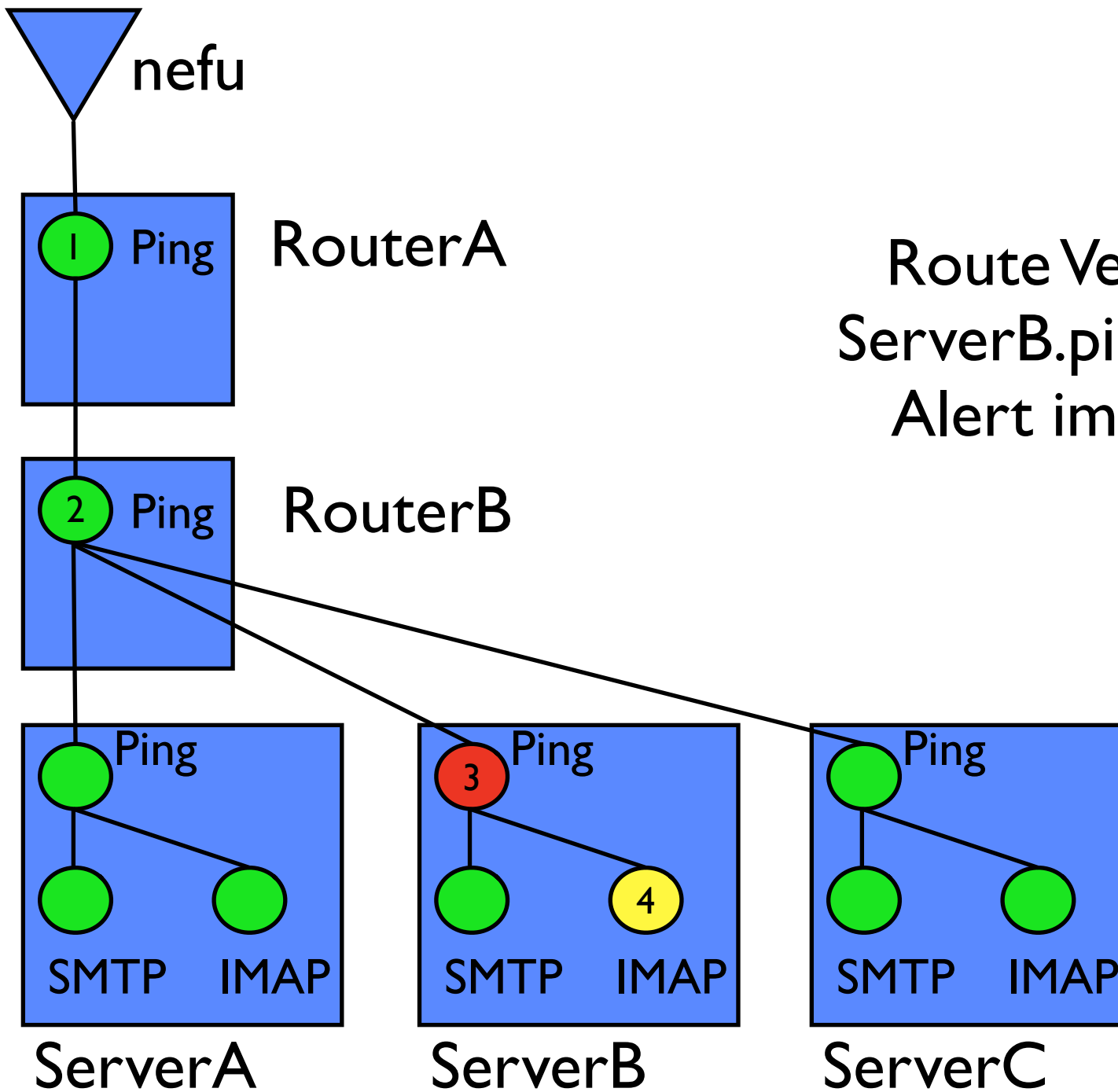


Route Verification:  
ServerB.IMAP

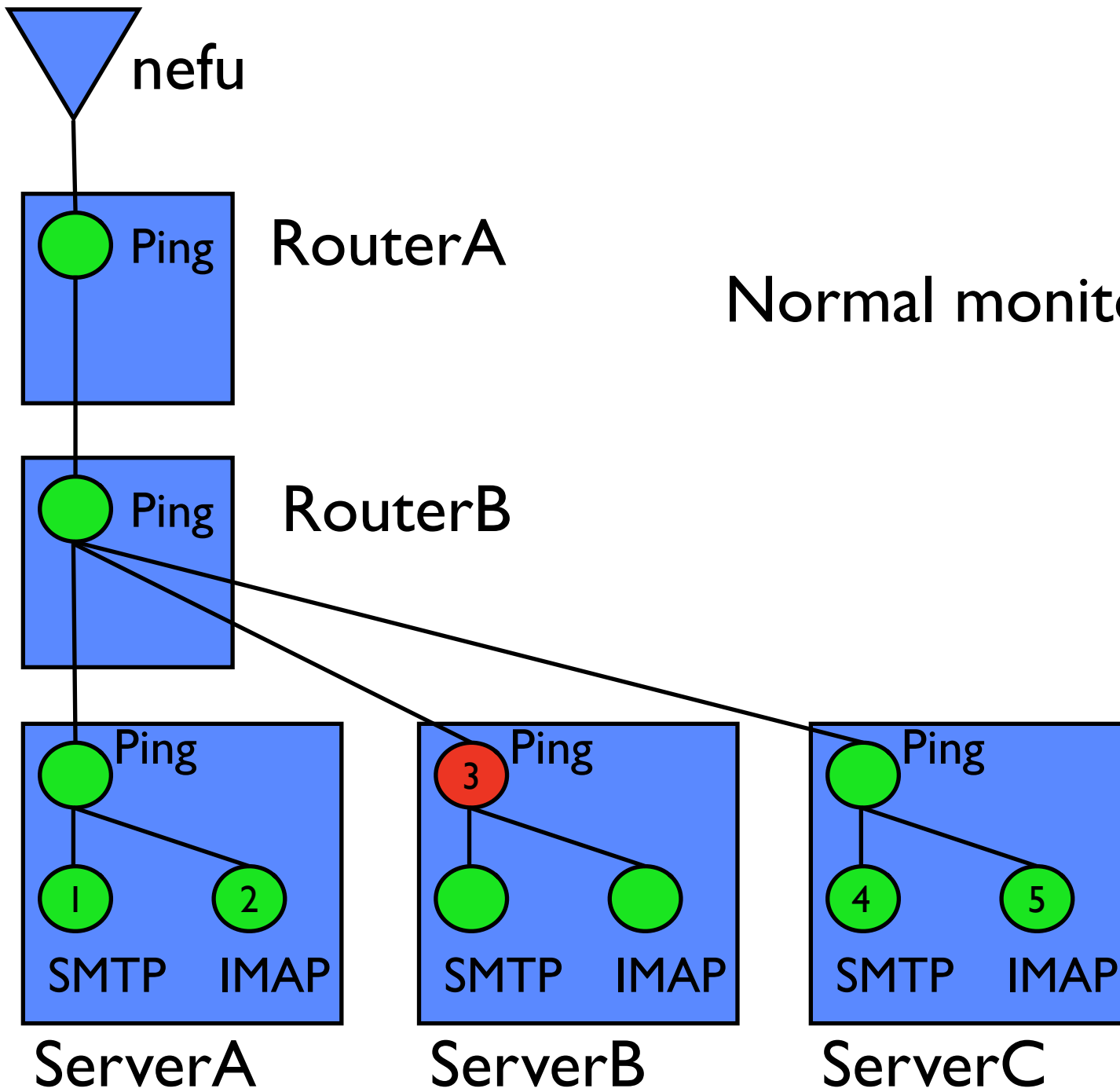
ServerA

ServerB

ServerC



Route Verification:  
ServerB.ping is down.  
Alert imap group.



Normal monitoring resumed.

Operational Use in the UMCE

Developed originally for IMAP

nefu.itd.umich.edu monitors over 400 services on  
almost 300 machines

Dual monitors



[nefu.org](http://nefu.org)