IV JAI
UNICENTRO
15 de agosto de 2011

HoneyNet PR.GOV.BR

Hermano Pereira
Oeslei Taborda Ribas

Agenda

- Rede PR.GOV.BR
- Conceito:
  - HoneyPot, DNS SinkHole, HoneyNet
- Aplicação:
  - HoneyPot Corporativo, HoneyPot Alliance
- Tratamento de Incidentes

96 slides em ~40 minutos

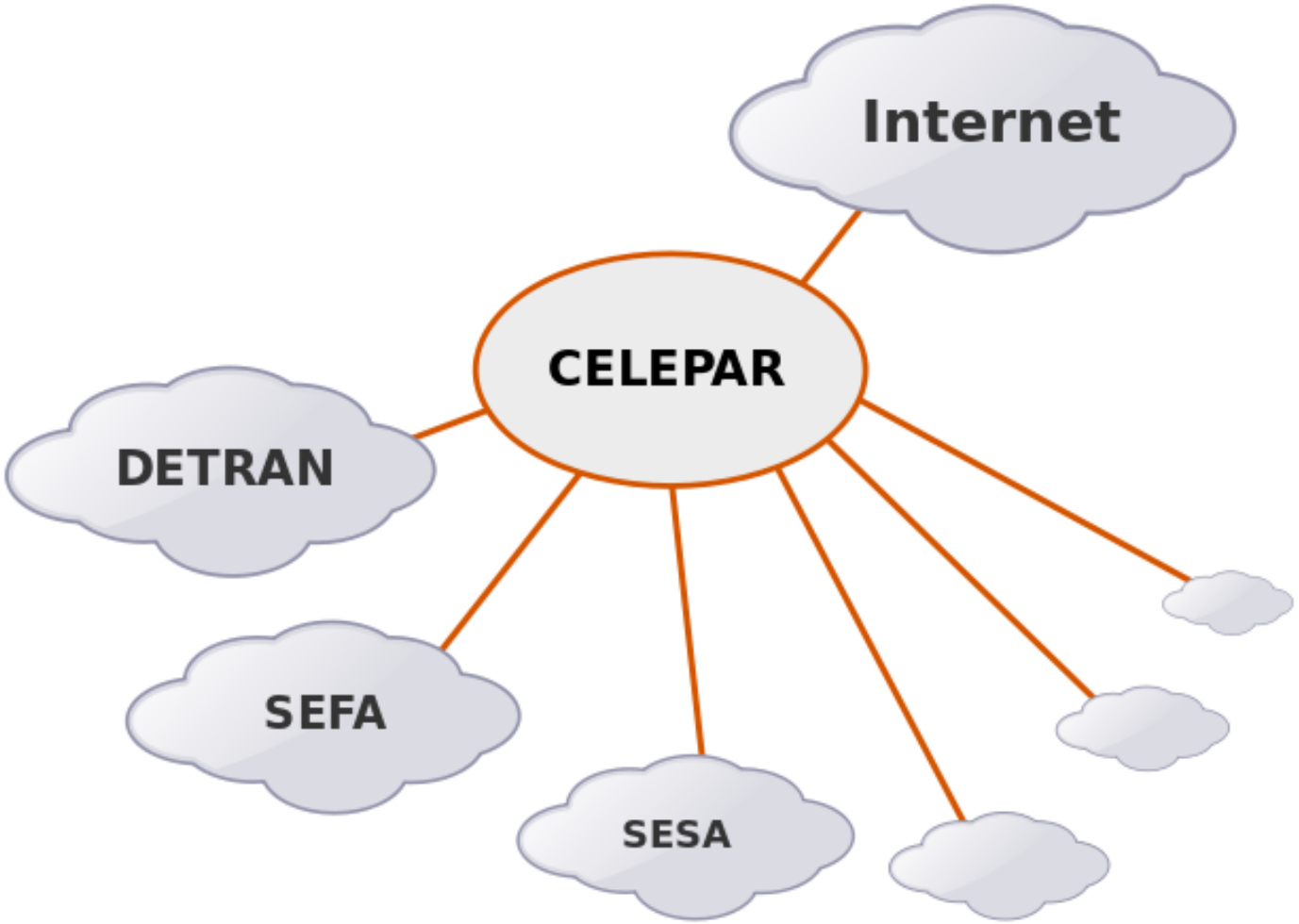
Rede PR.GOV.BR

- CELEPAR
  - Companhia de Informática do Paraná
  - Economia Mista (Governo do Paraná)
  - Clientes:

    DETRAN, SEFA, SESA, SEED, SESP...

www.celepar.pr.gov.br

Rede PR.GOV.BR



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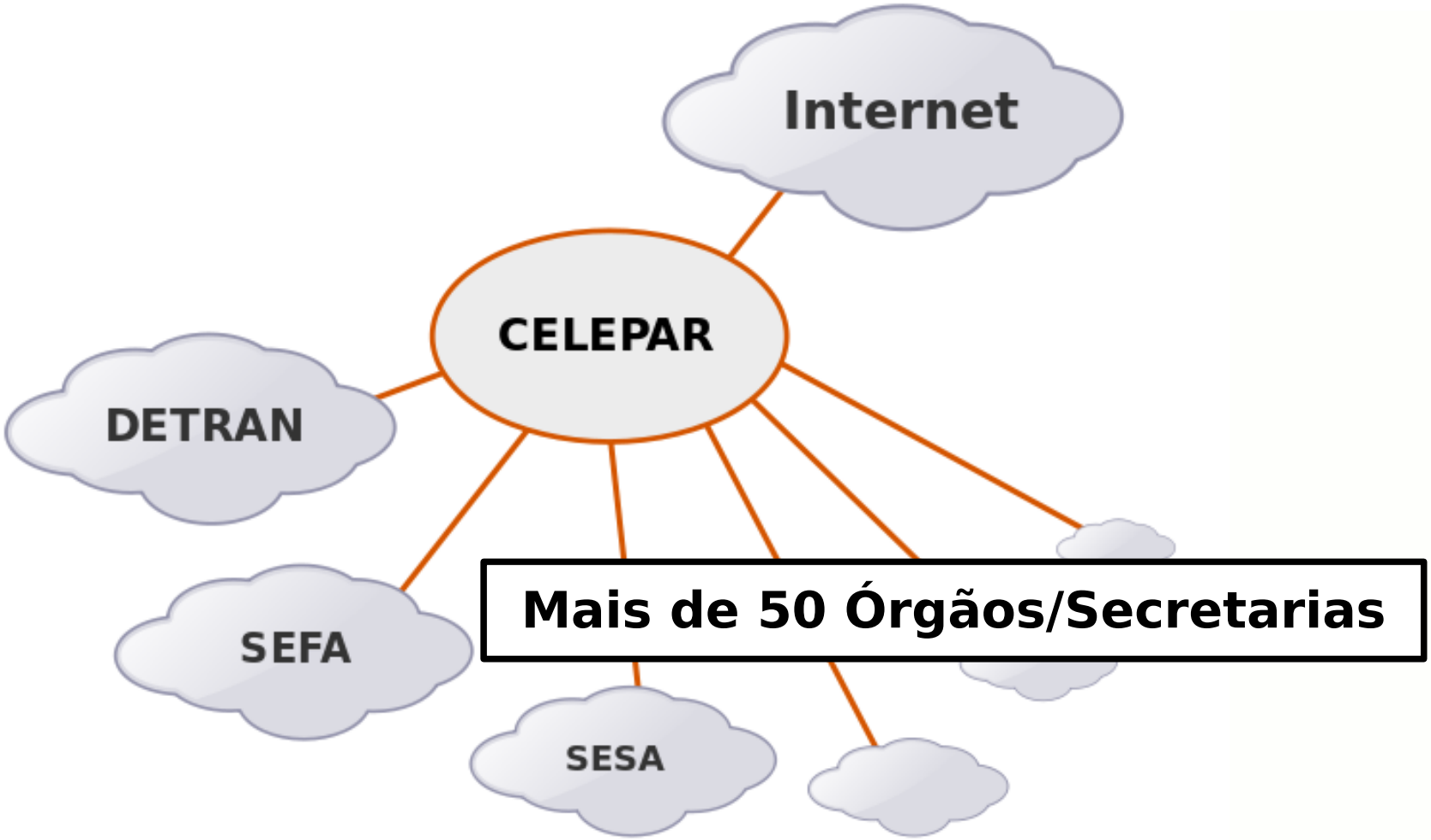

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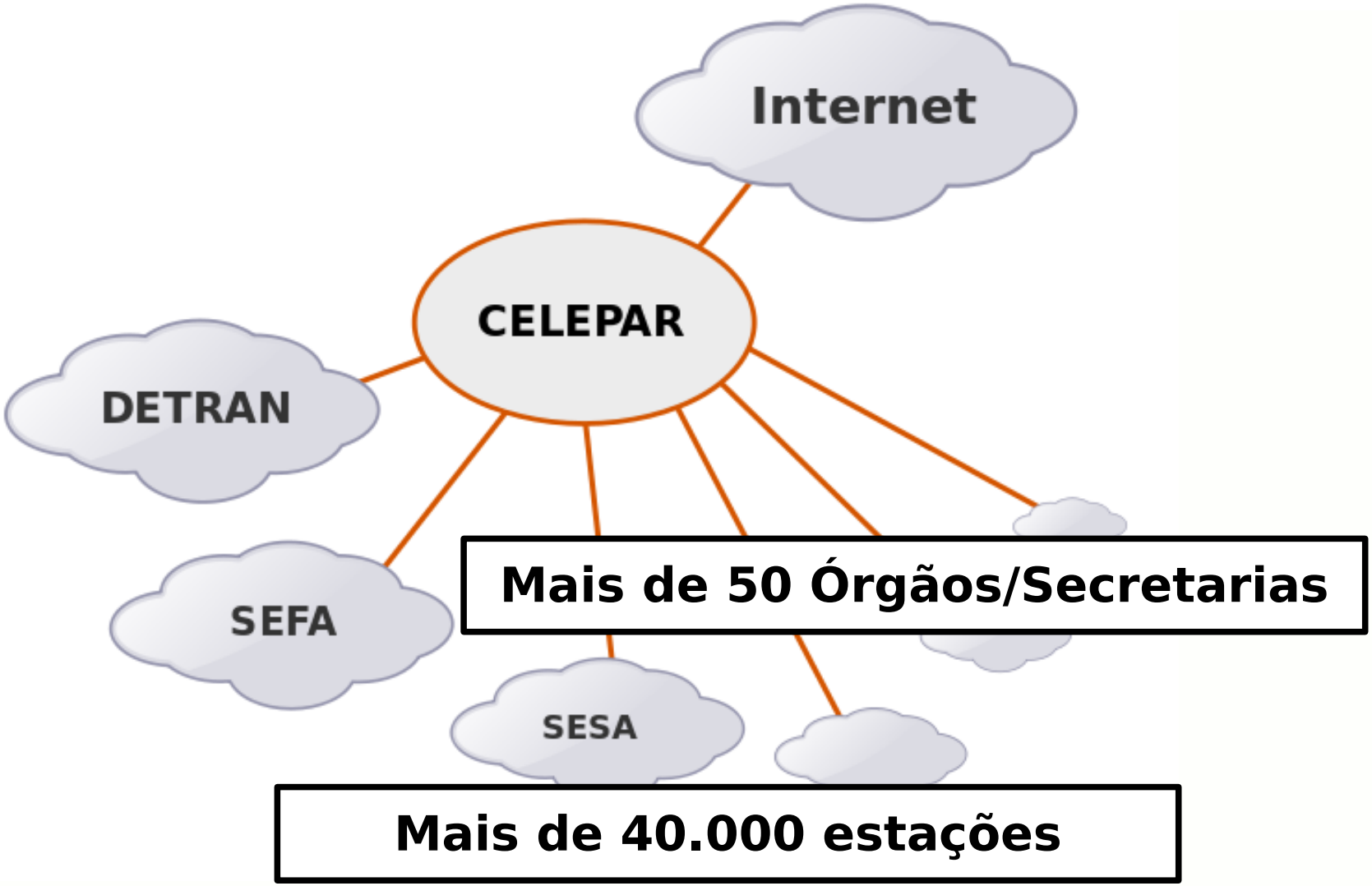

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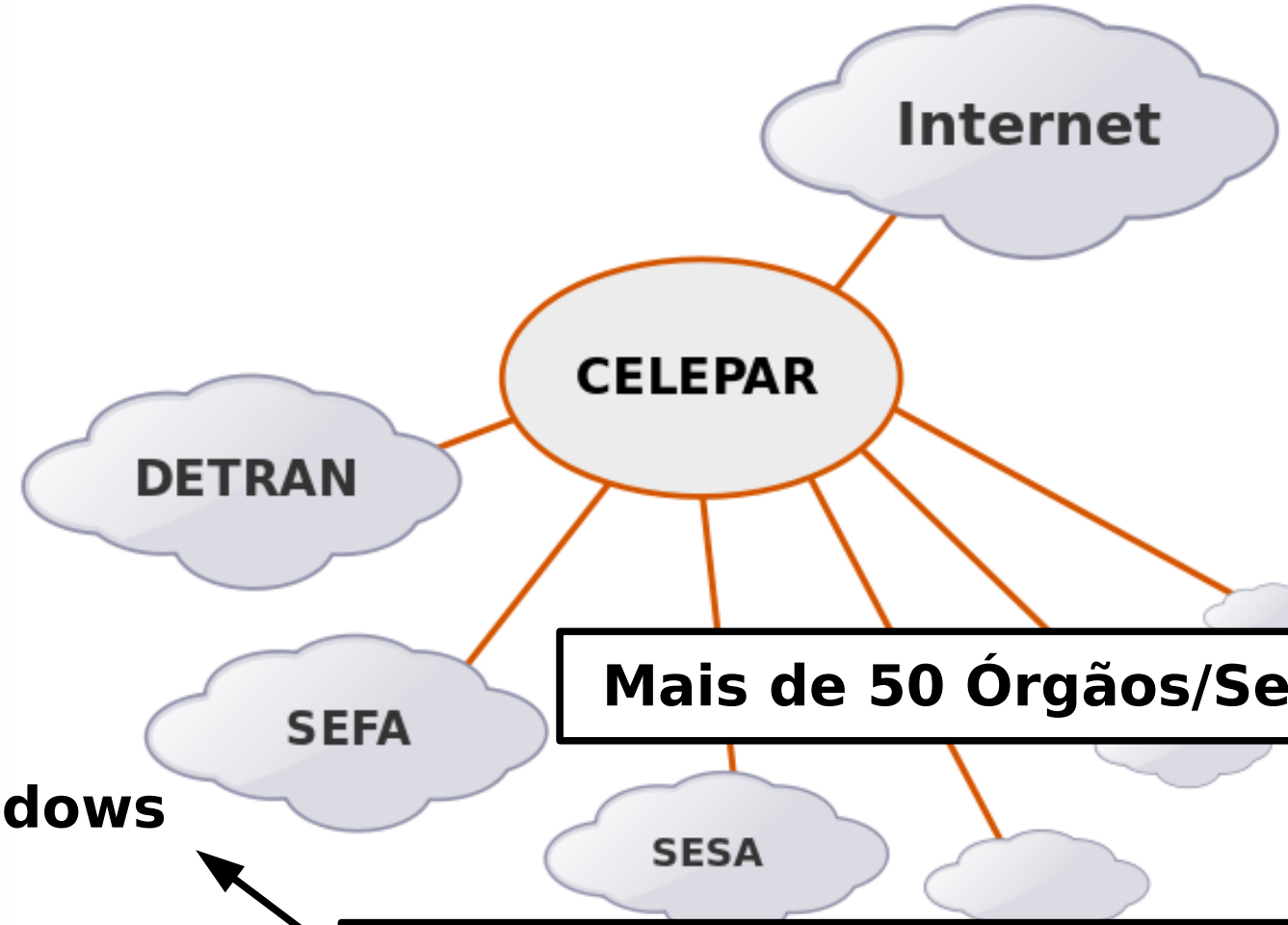

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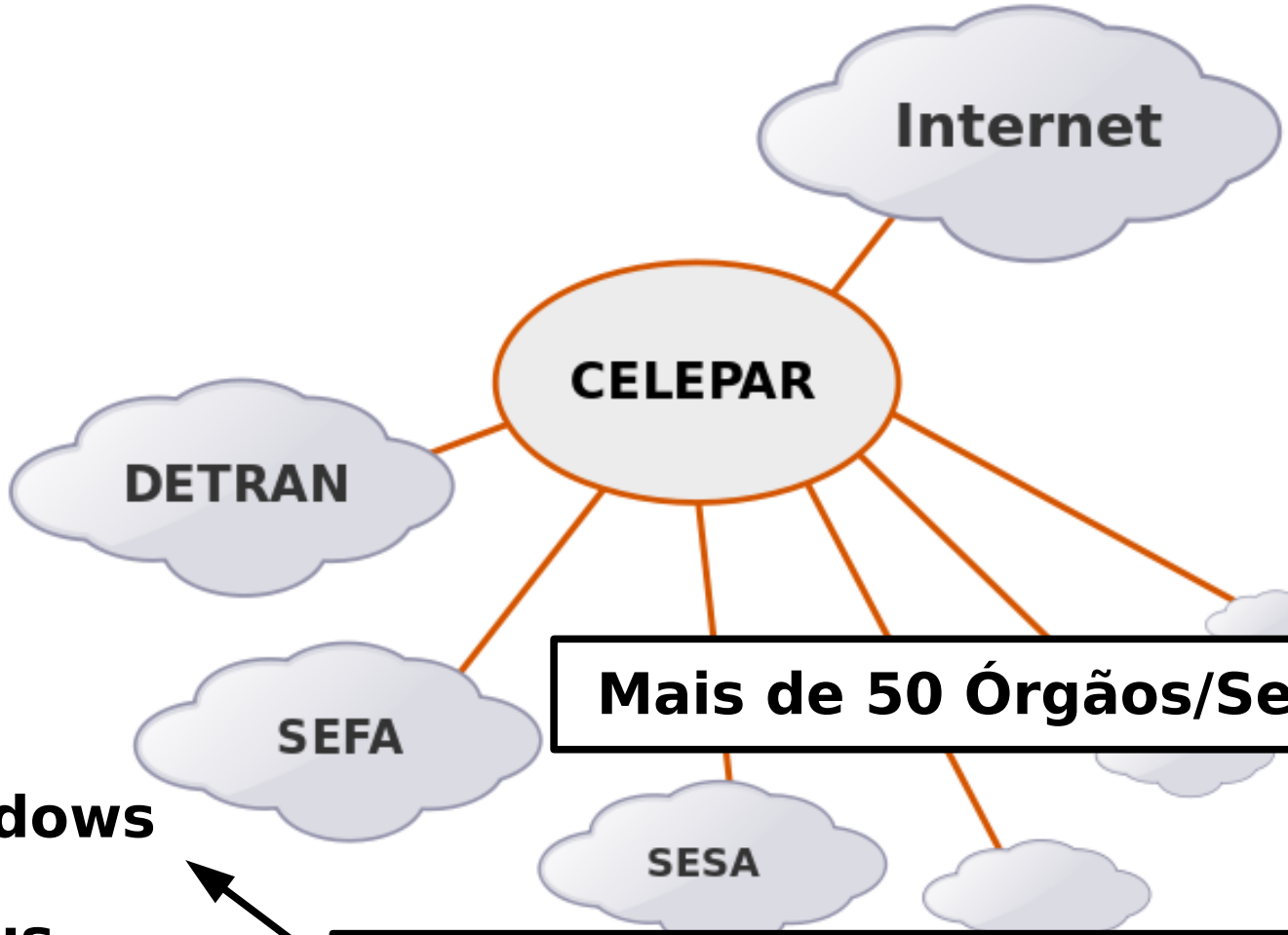
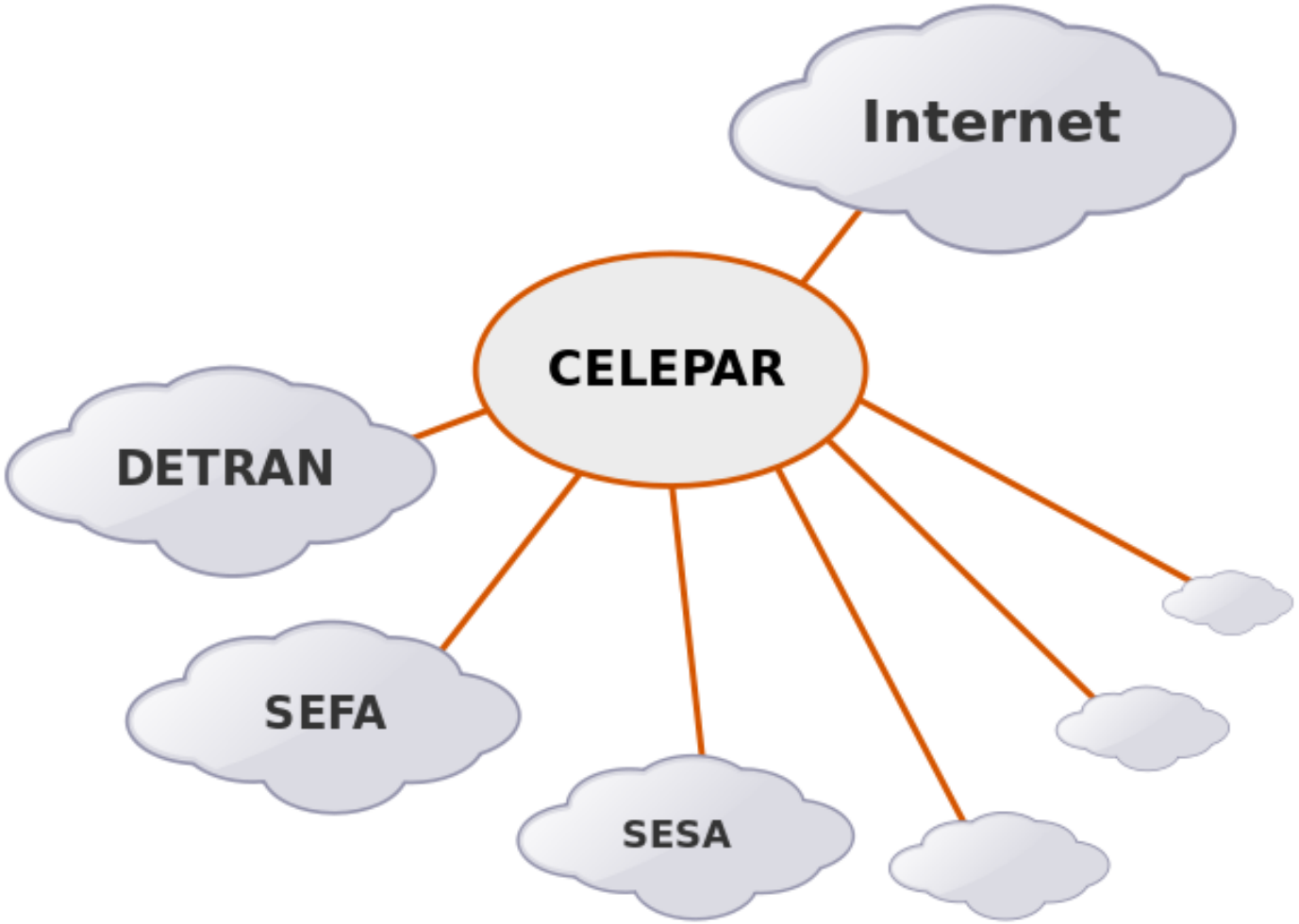


~45% Windows

Antivírus Corporativo

Rede PR.GOV.BR



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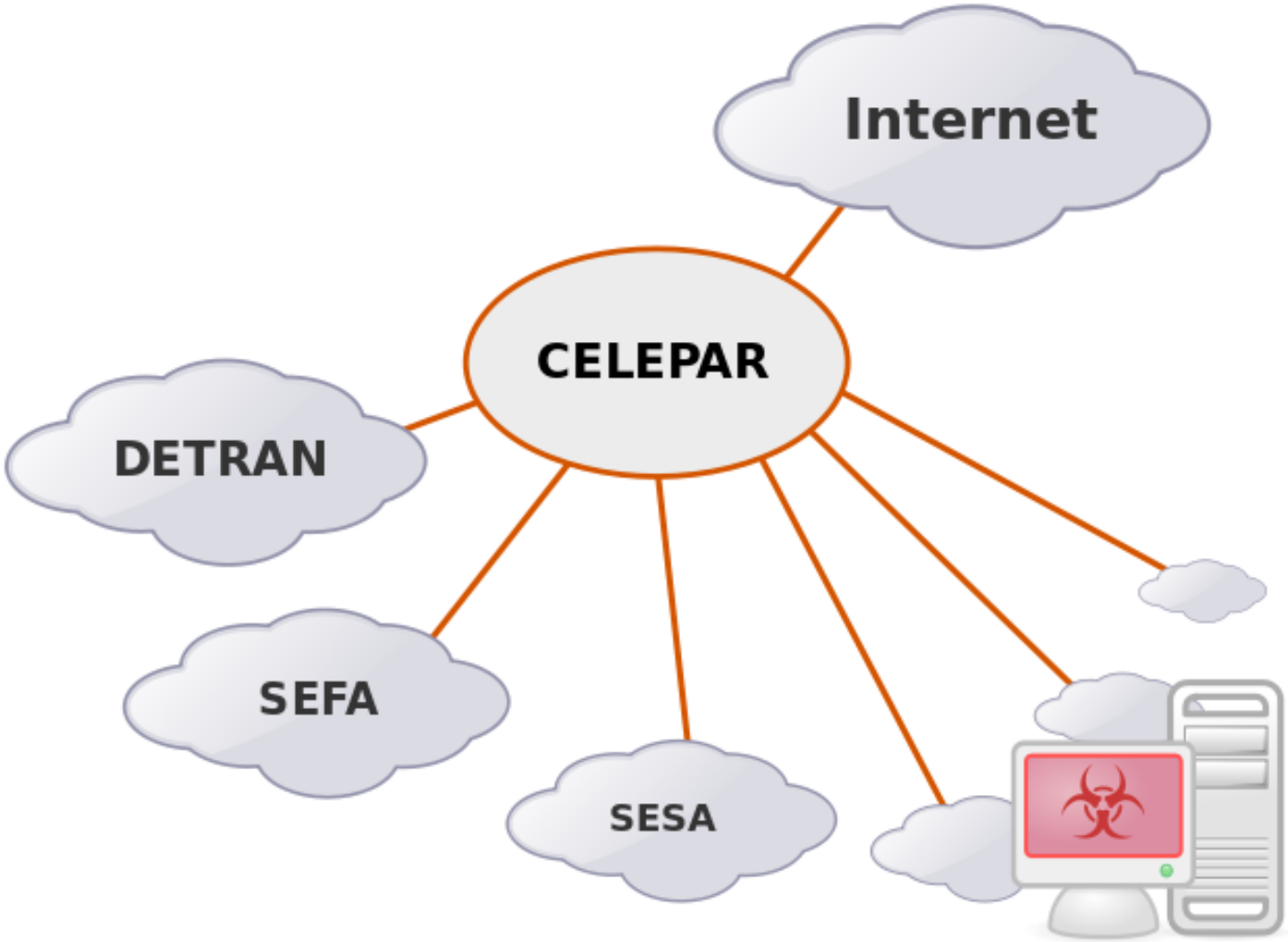

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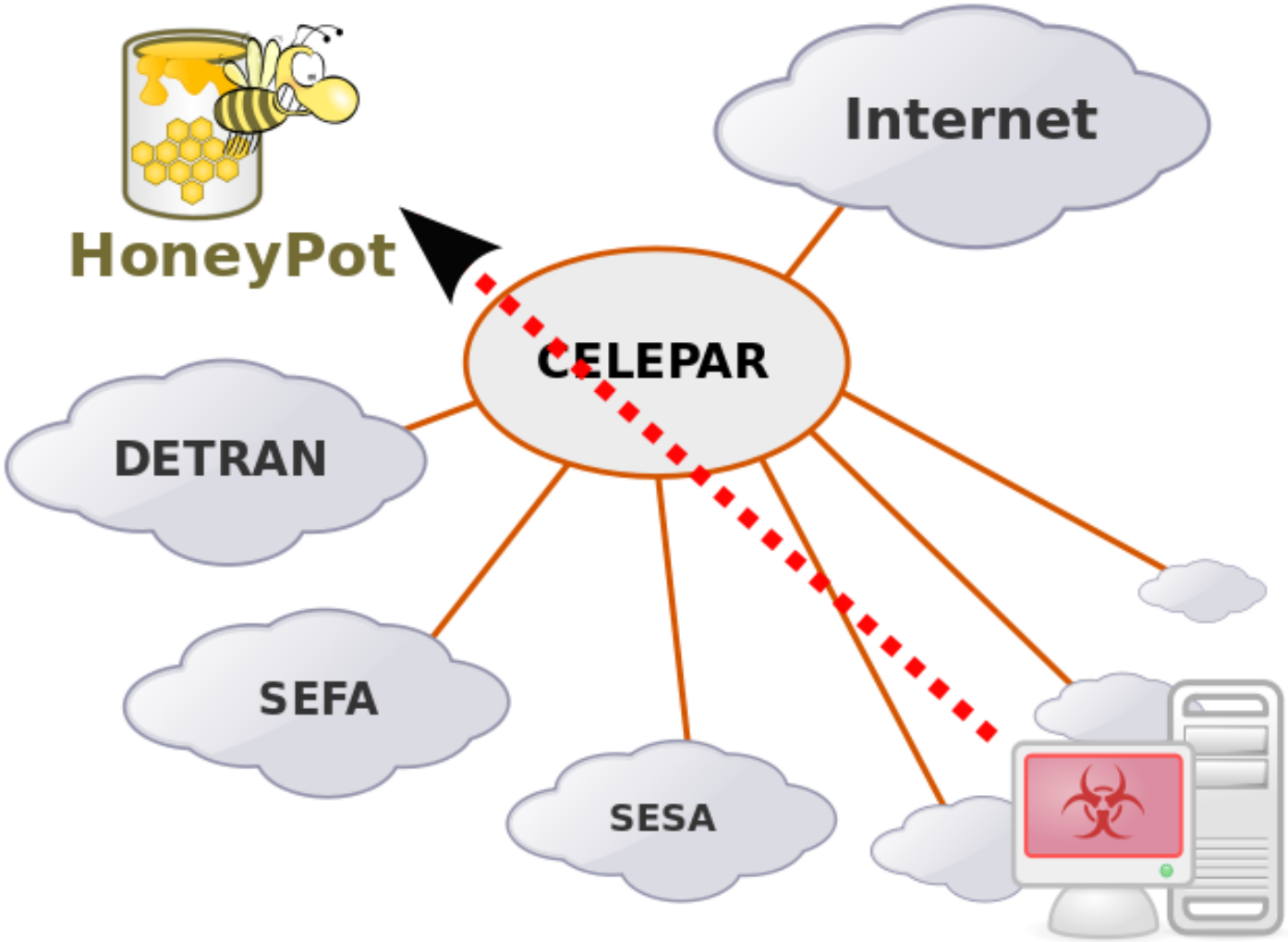


Conceitos

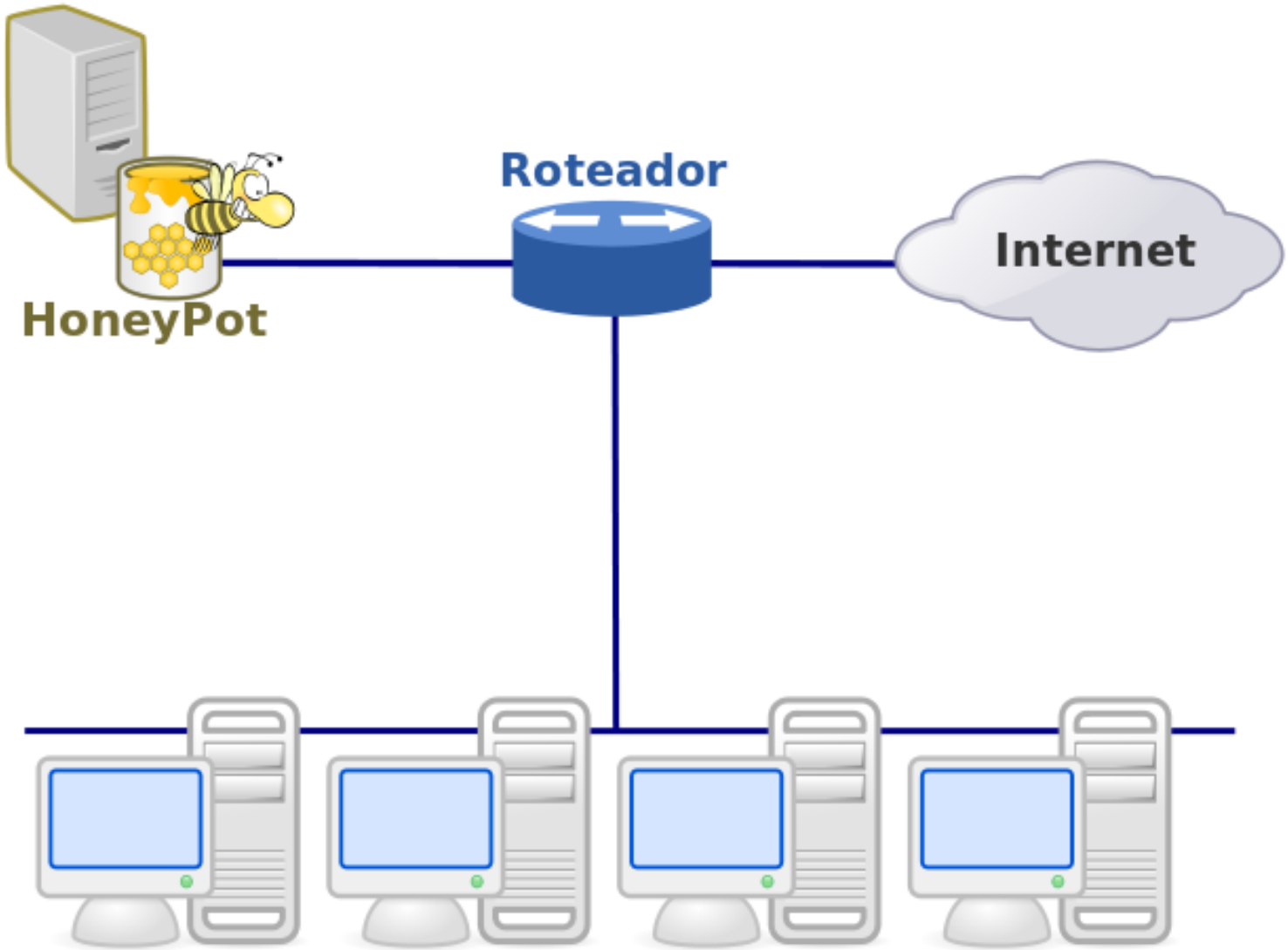
HoneyPot
DNS SinkHole
HoneyNet

CELEPAR
INFORMÁTICA
do PARANÁ

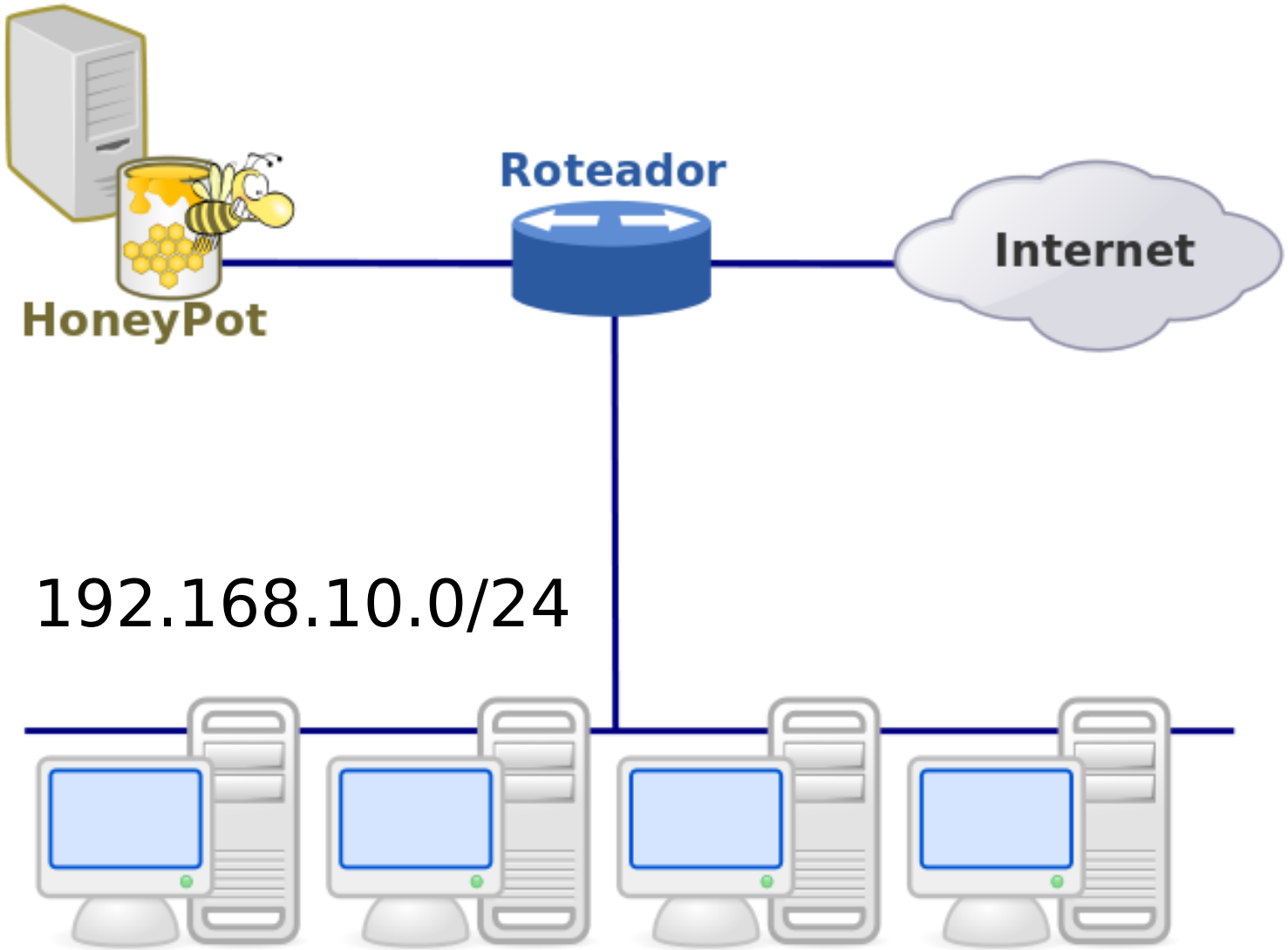
- **HoneyPot**

  Um honeypot é um recurso computacional de segurança dedicado a ser sondado, atacado ou comprometido.

HoneyPot



HoneyPot



HoneyPot

Roteador

Internet

Rotas para o HoneyPot:

HoneyPot

Roteador

Internet

Rotas para o HoneyPot:

RFC 1918
- 10.0.0.0/8
- 172.16.0.0/12
- 192.168.0.0/16

HoneyPot

Roteador

Internet

Rotas para o HoneyPot:

RFC 3927
- 169.254.0.0/16

RFC 1112
- 0.0.0.0/8
- 127.0.0.0/8

HoneyPot

Roteador

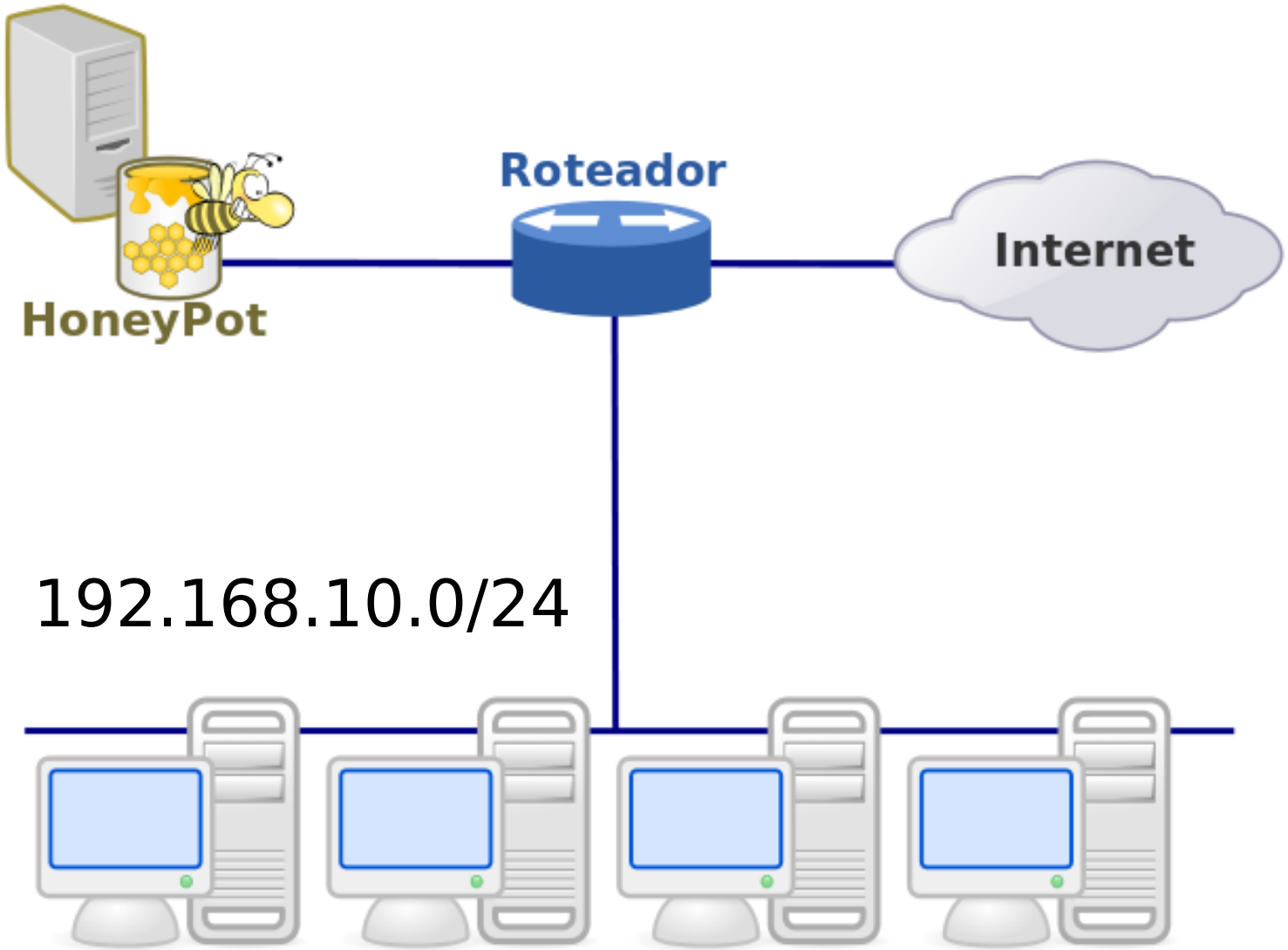
Internet

Rotas para o HoneyPot:

RFC 5737
- 192.0.2.0/24
- 198.51.100.0/24
- 203.0.113.0/24

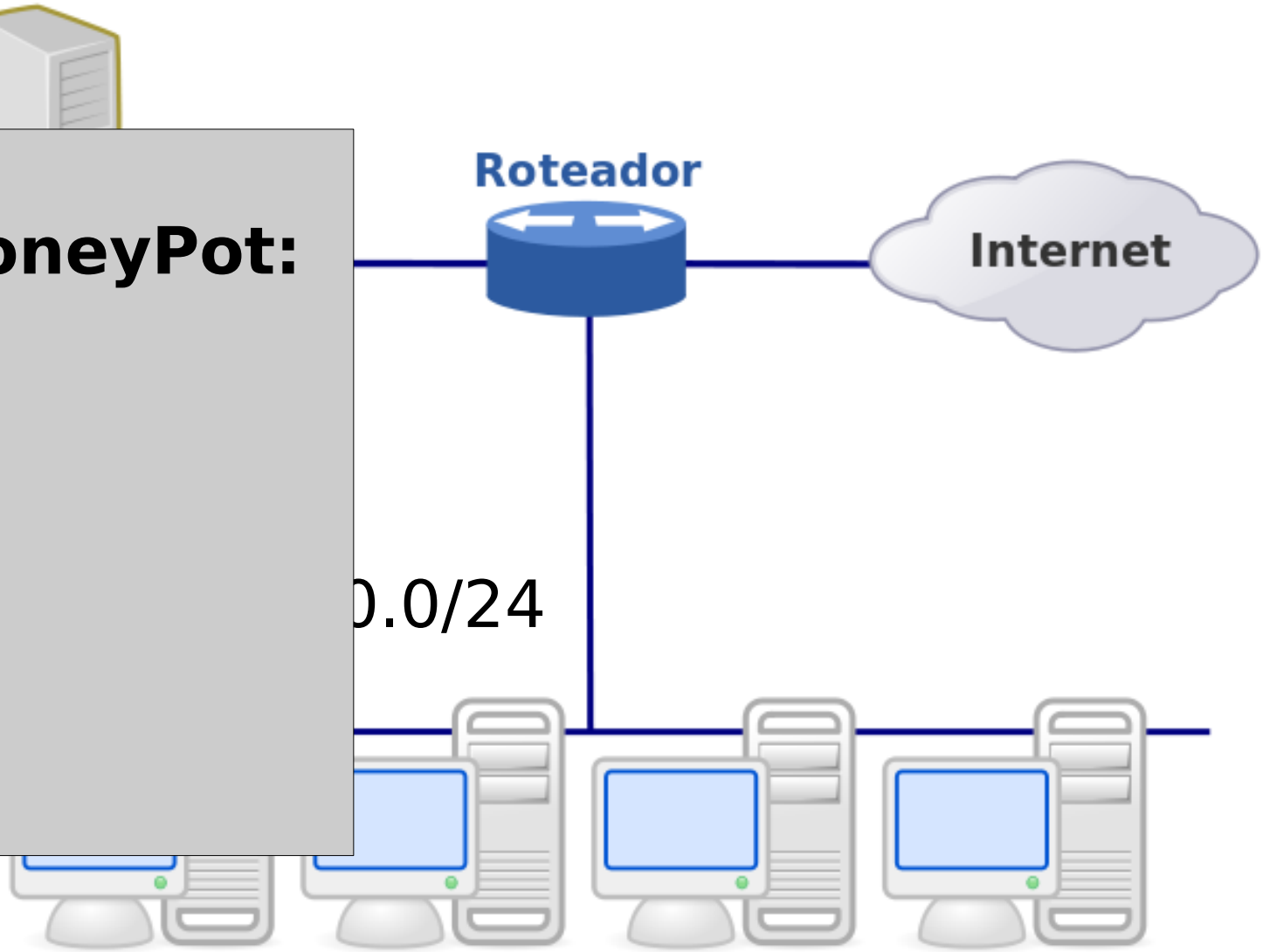
RFC 2544
- 198.18.0.0/15

HoneyPot



HoneyPot

Portas do HoneyPot:



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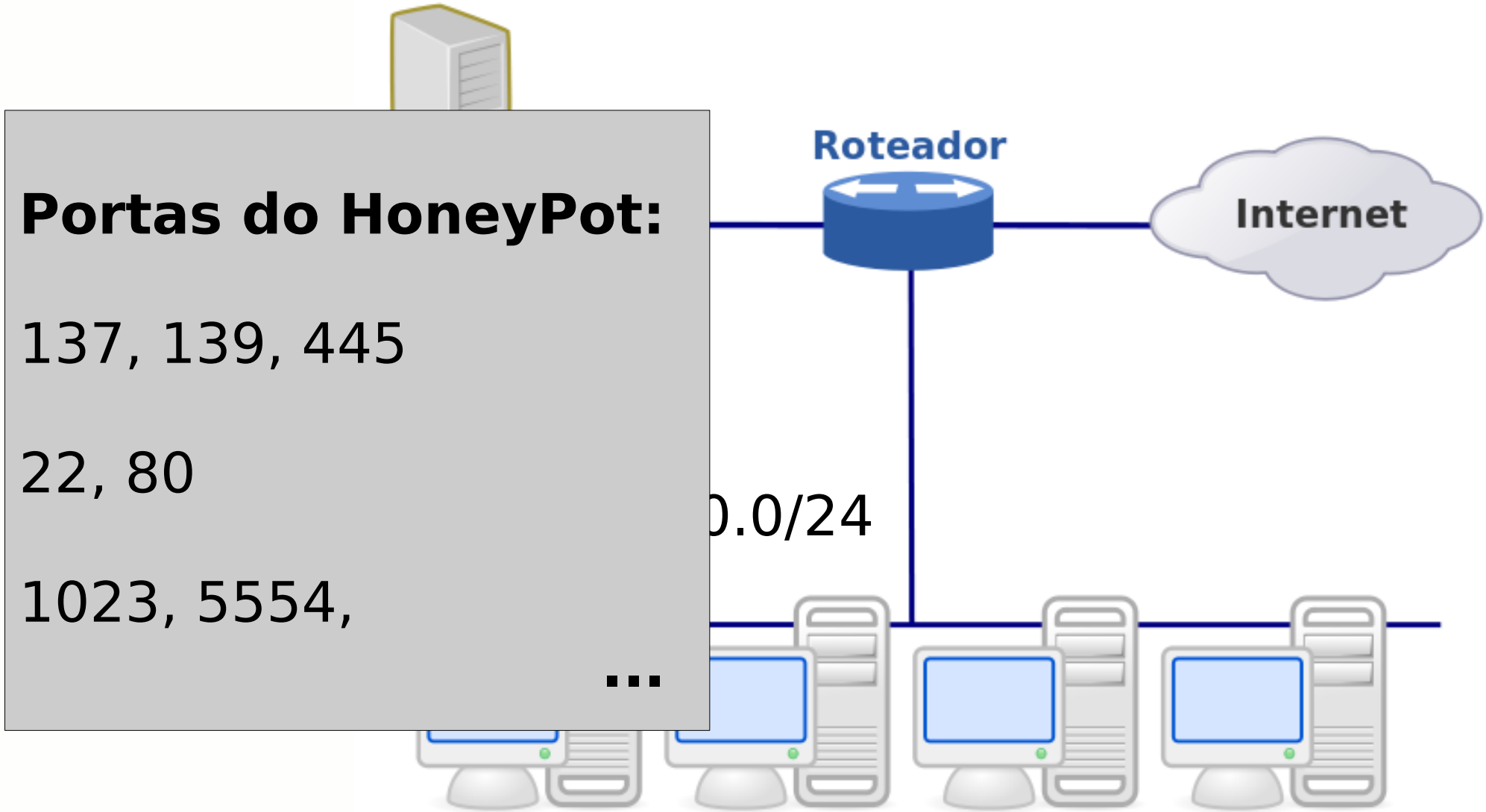


Portas do HoneyPot:

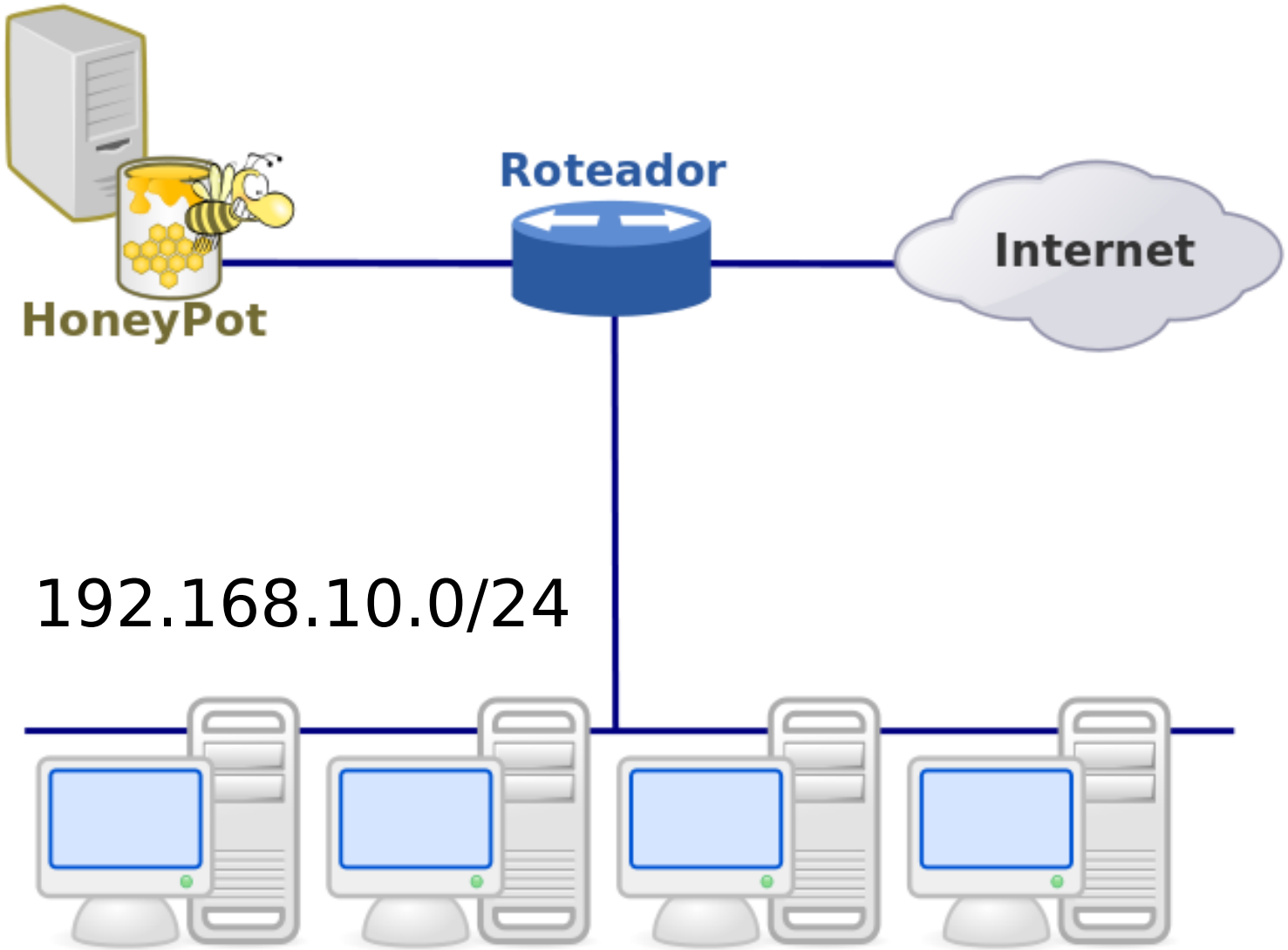
137, 139, 445

22, 80

1023, 5554,

...

HoneyPot



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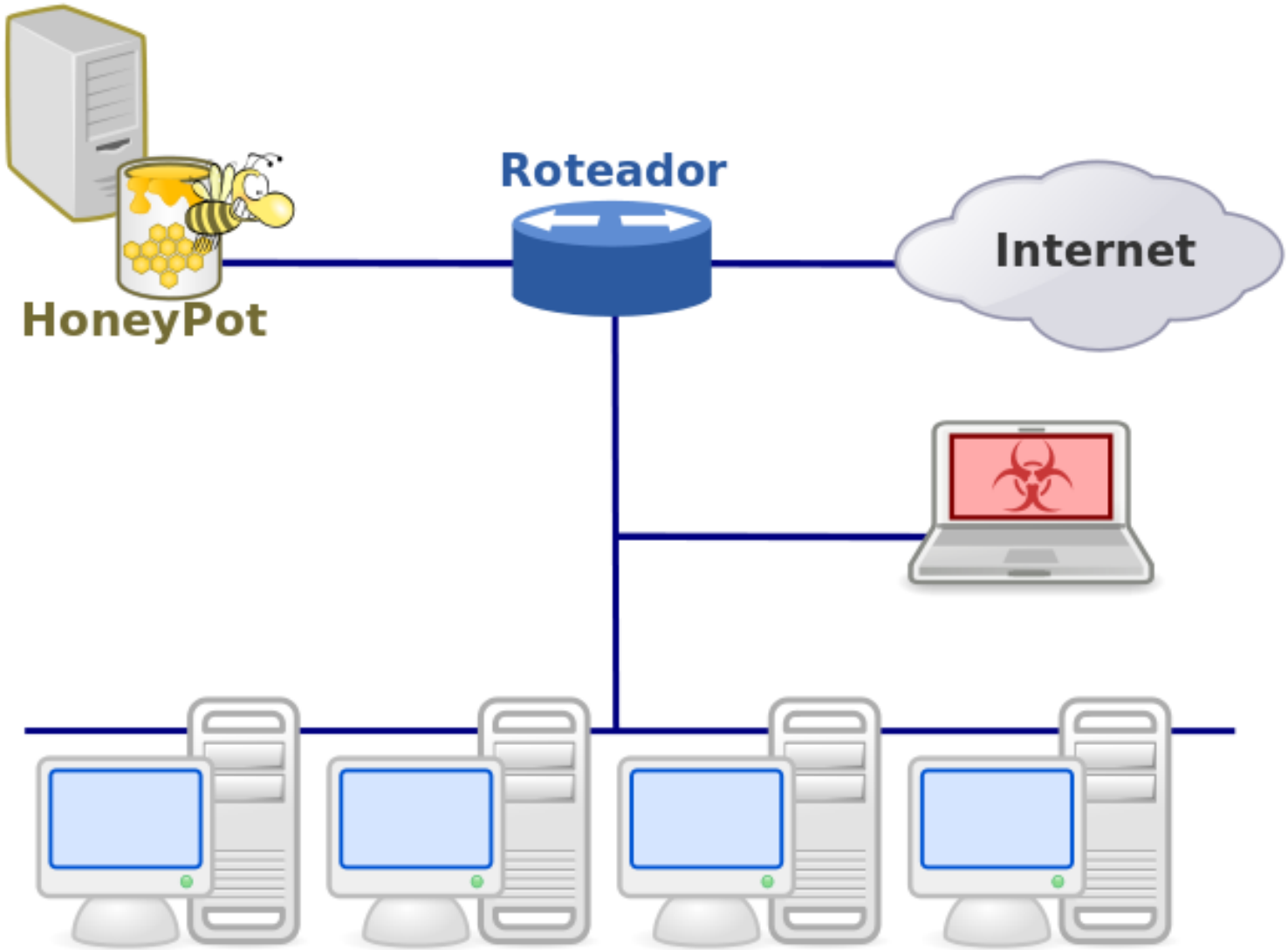

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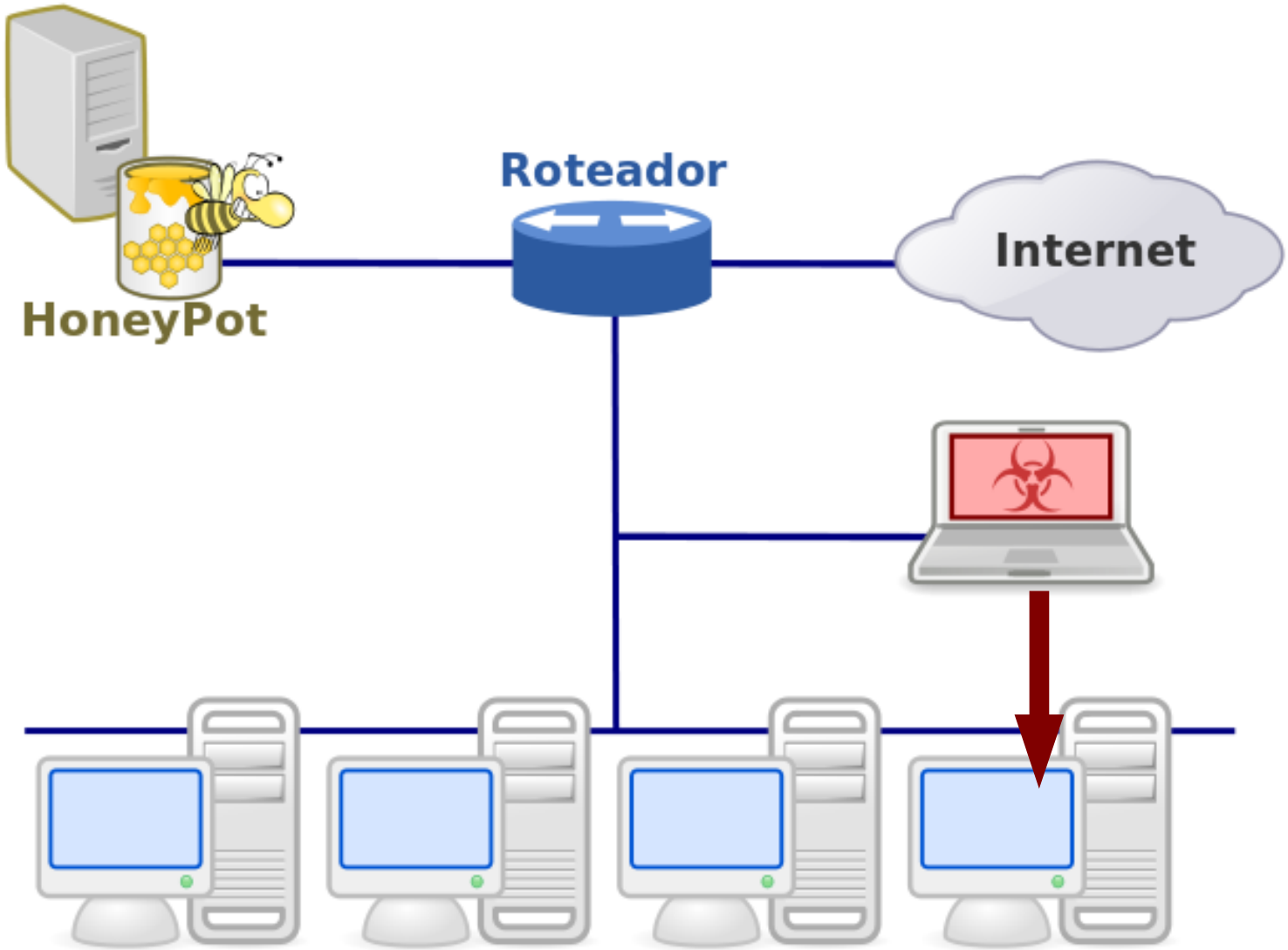

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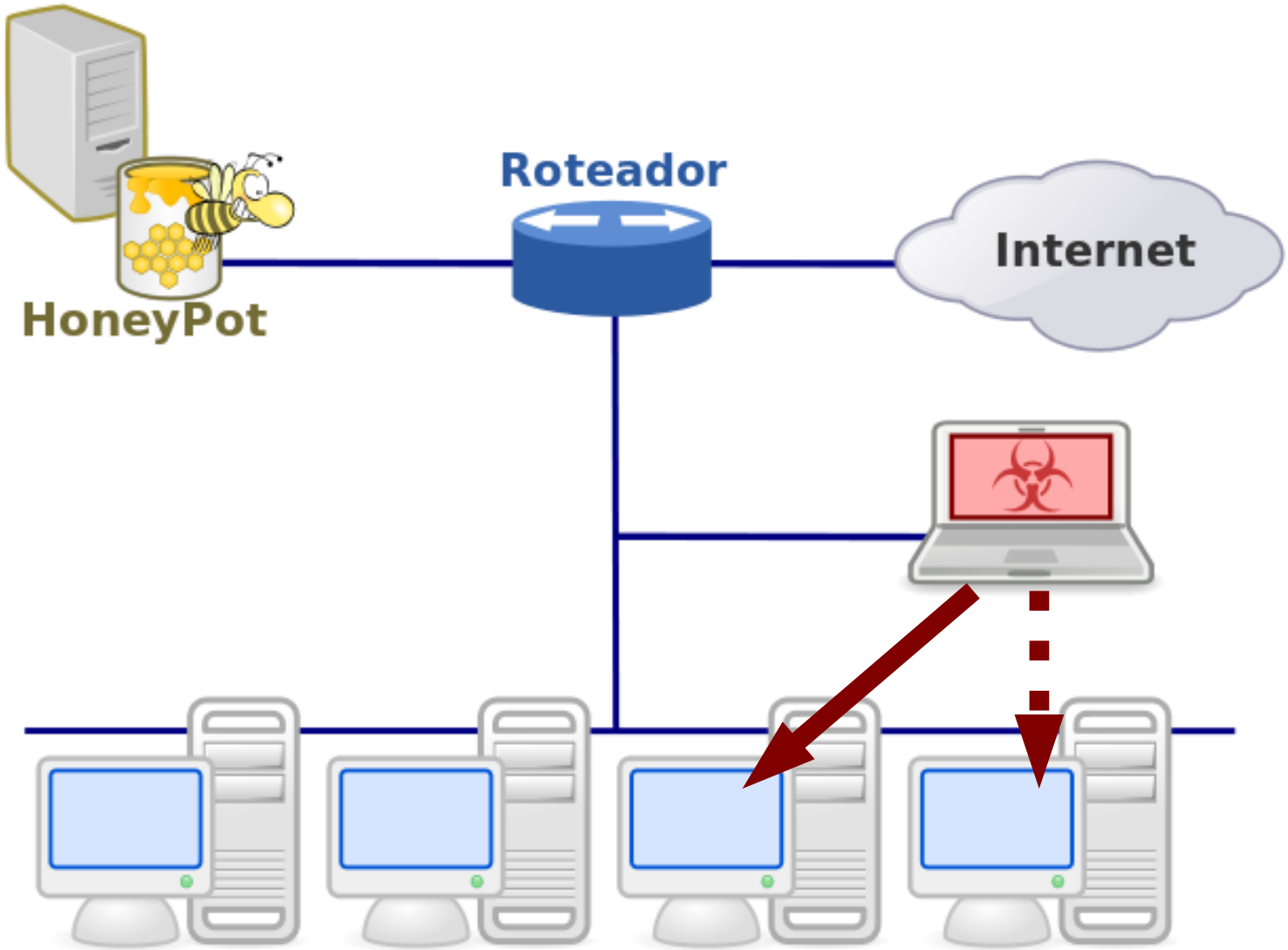

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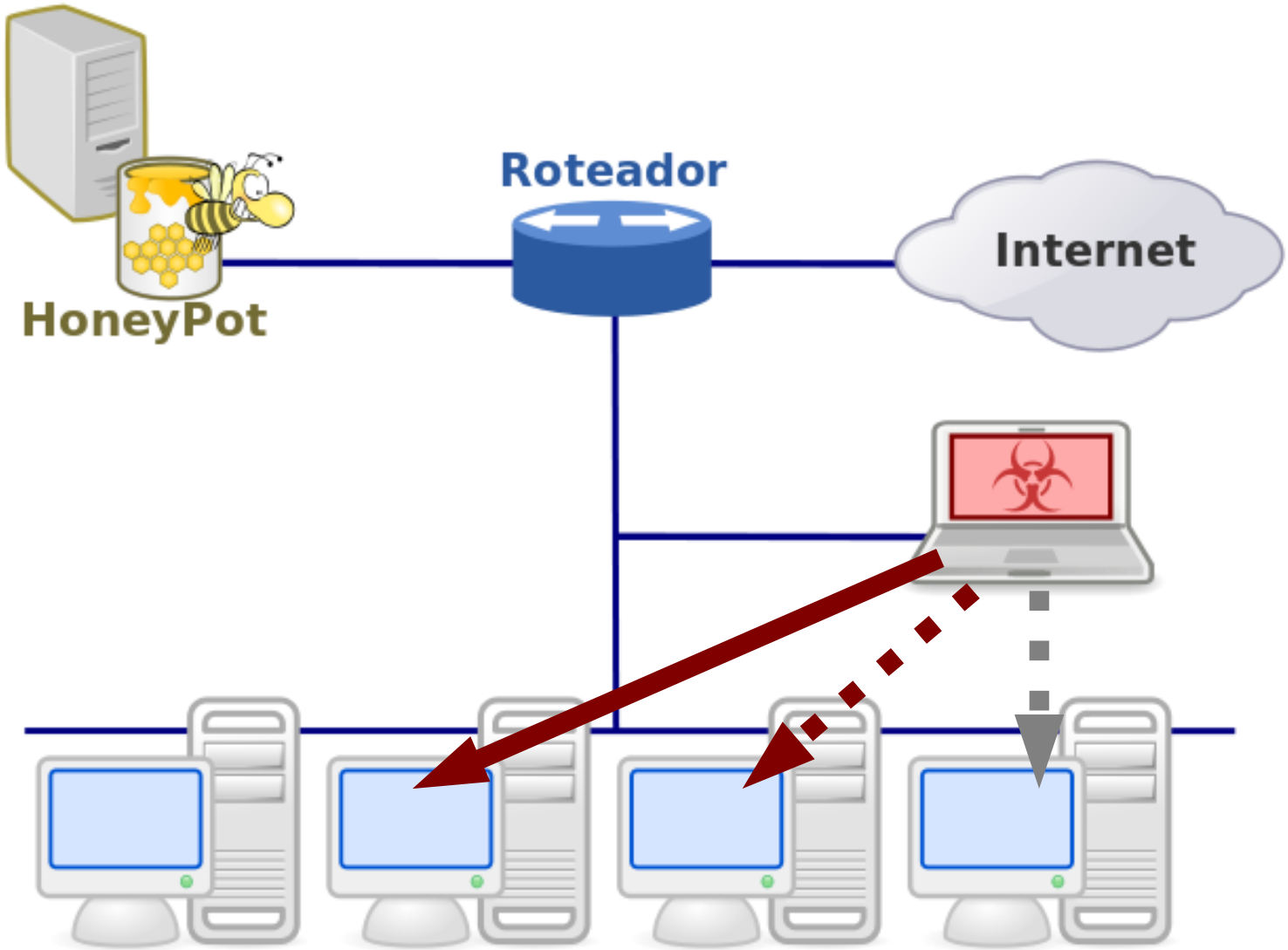

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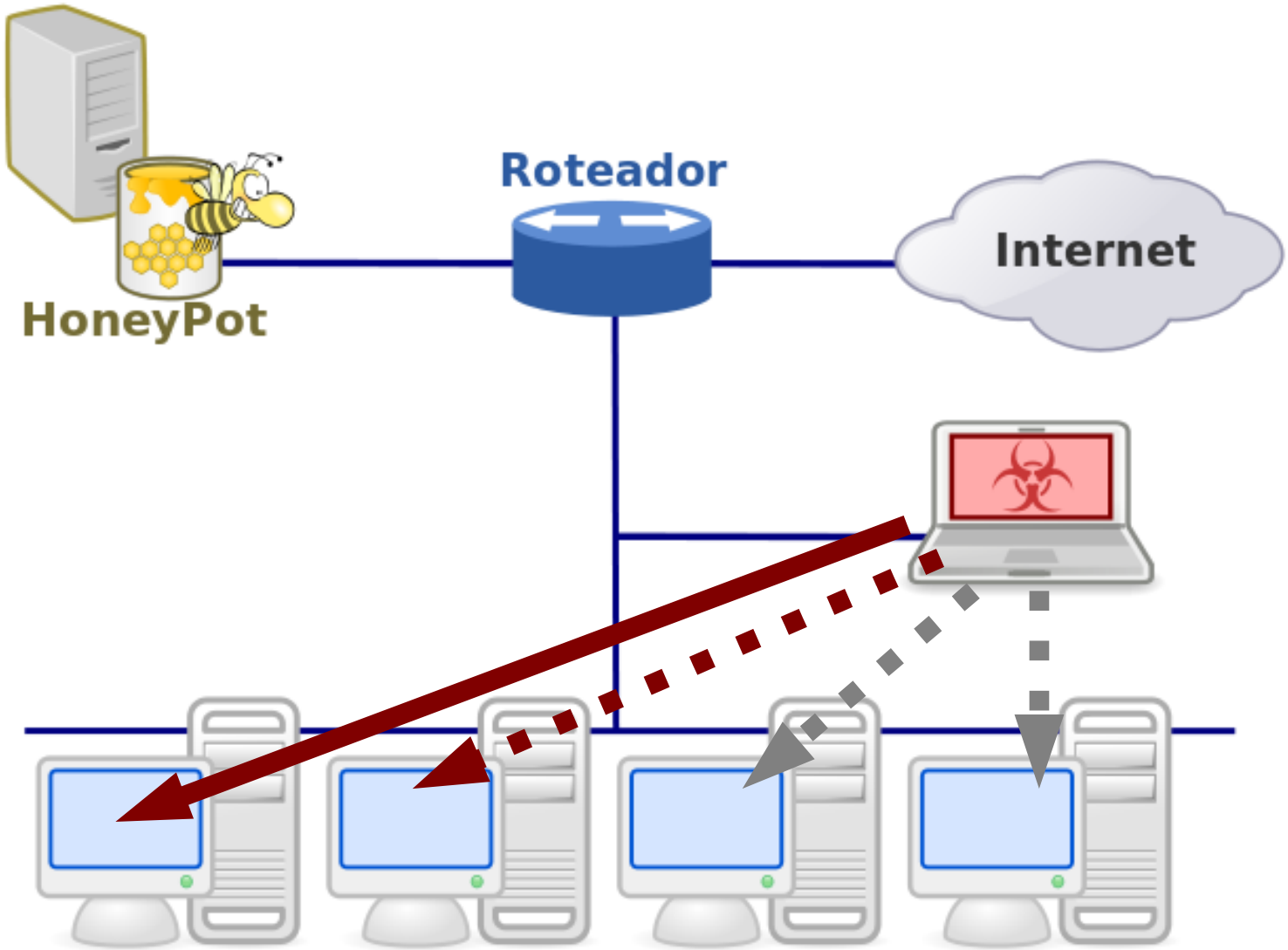

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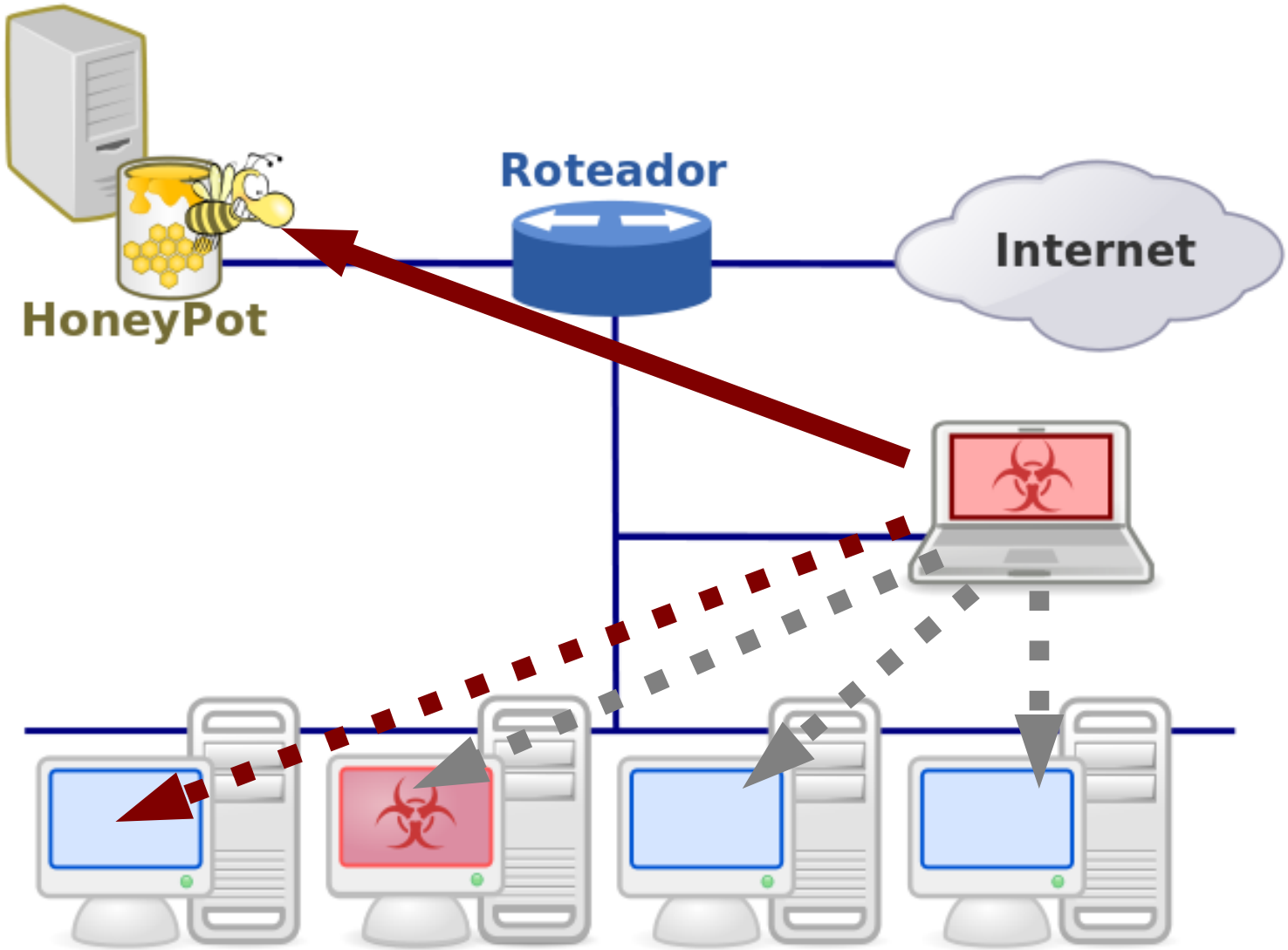

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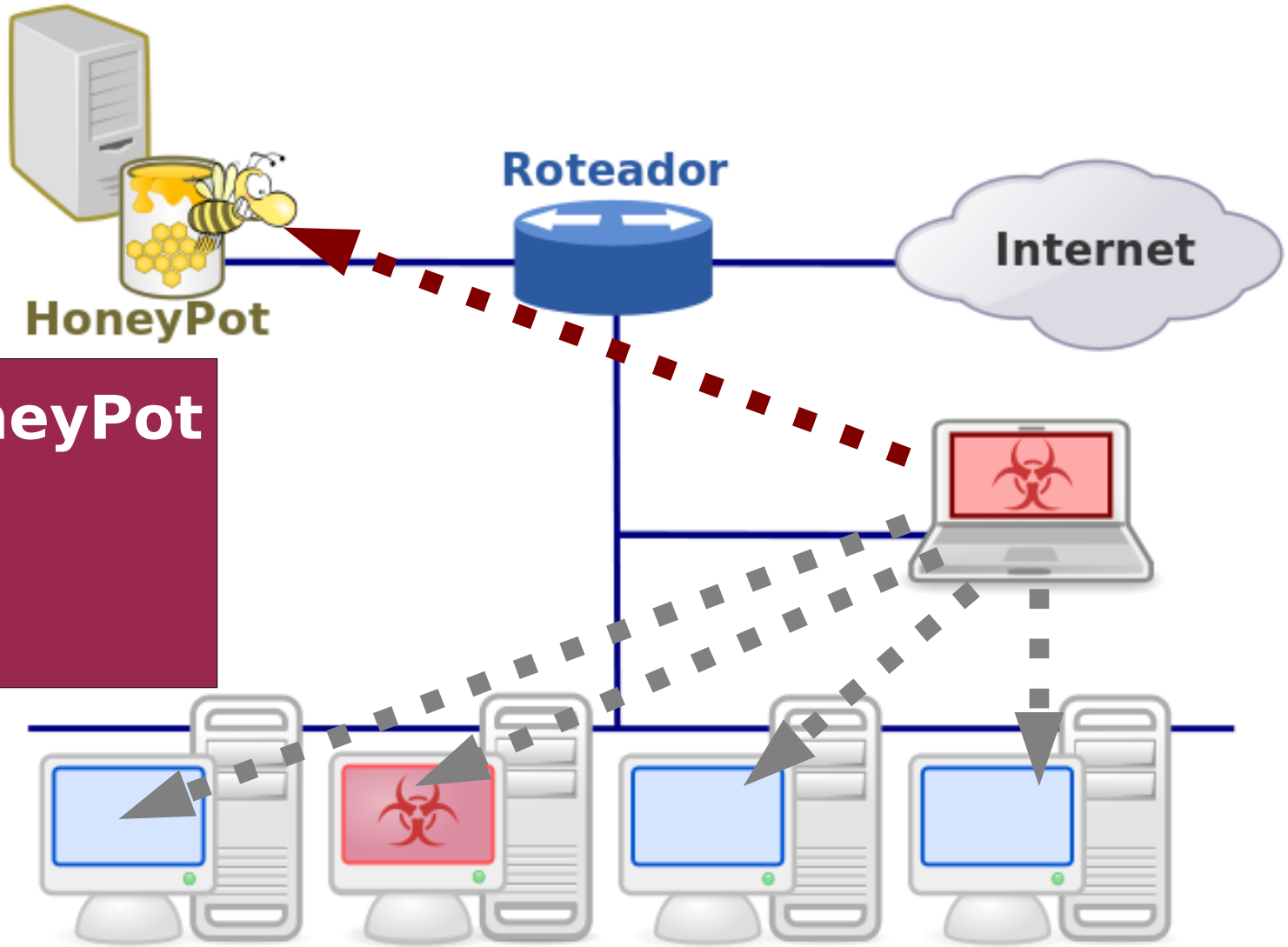
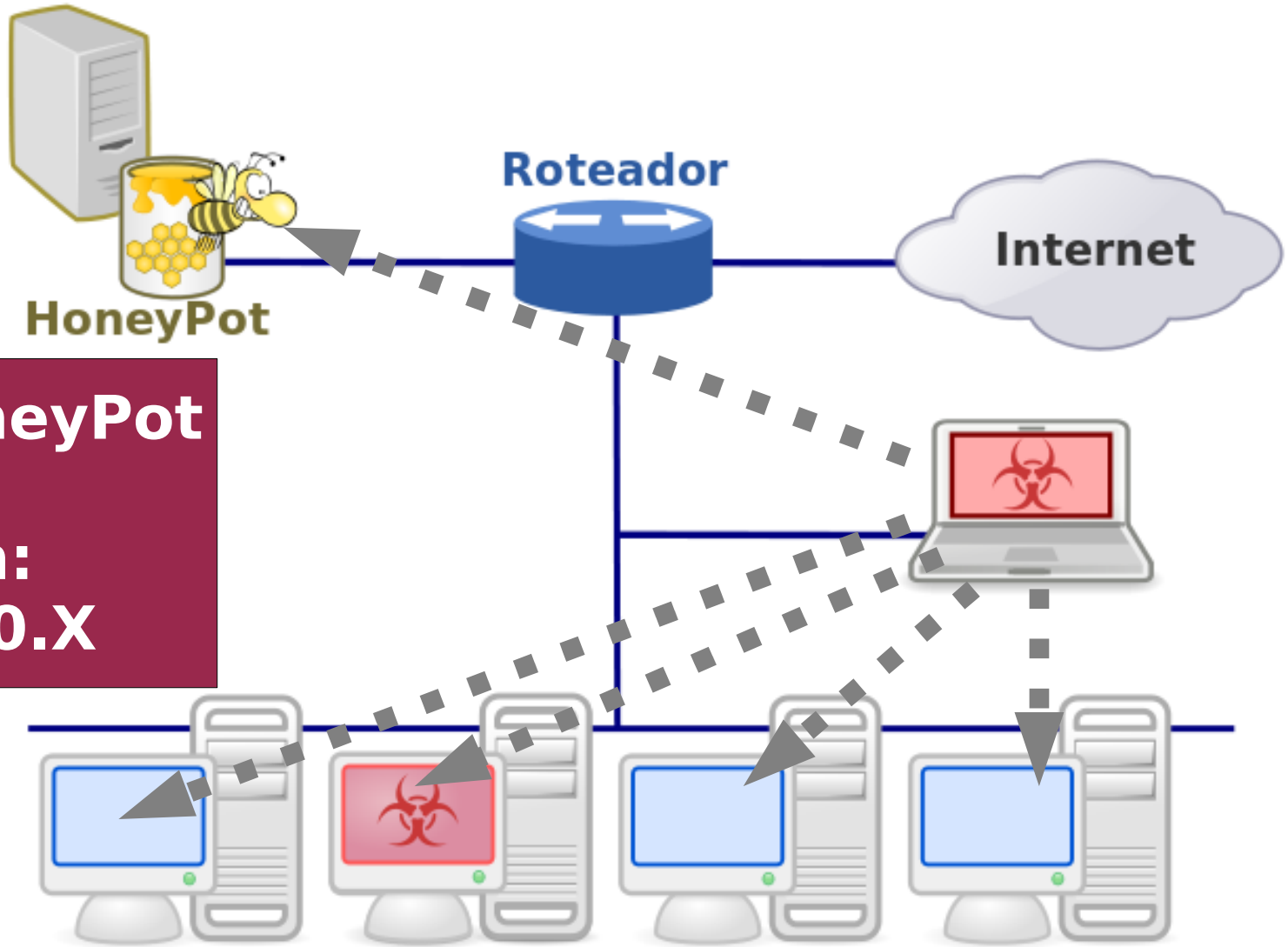


Alerta do HoneyPot

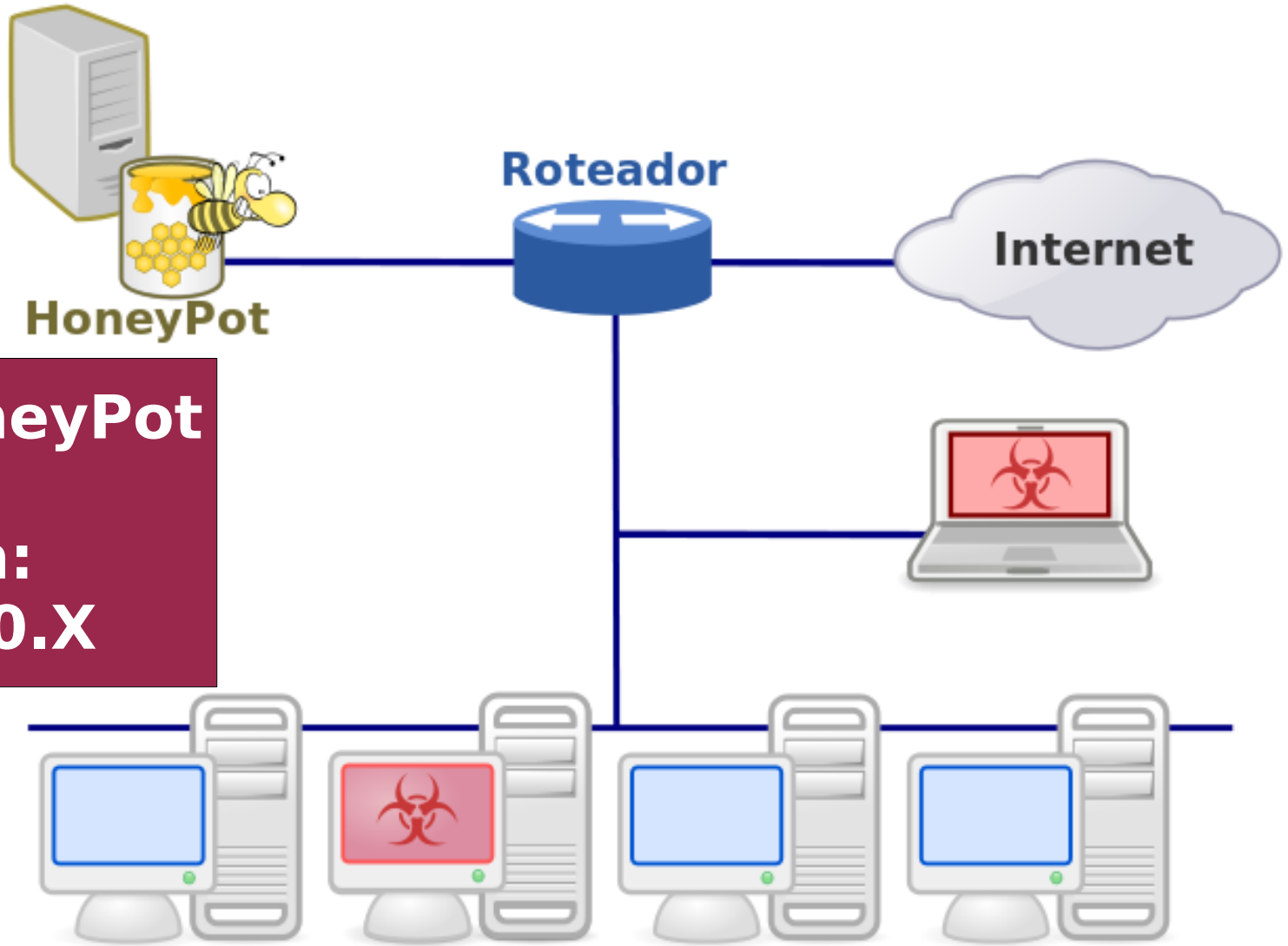
HoneyPot



Alerta do HoneyPot

Vírus em:
192.168.10.X

HoneyPot



Alerta do HoneyPot

Vírus em:
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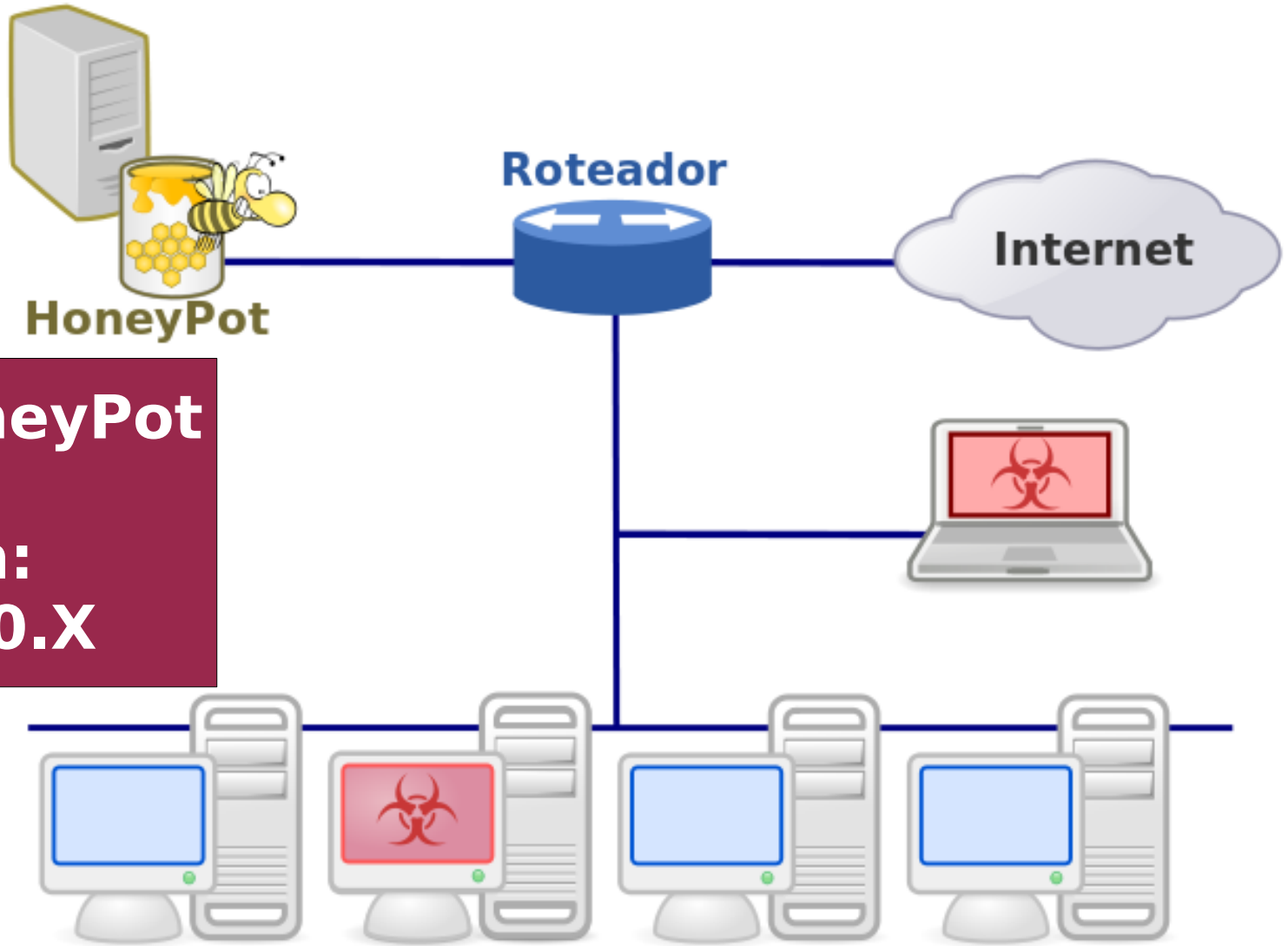
HoneyPot



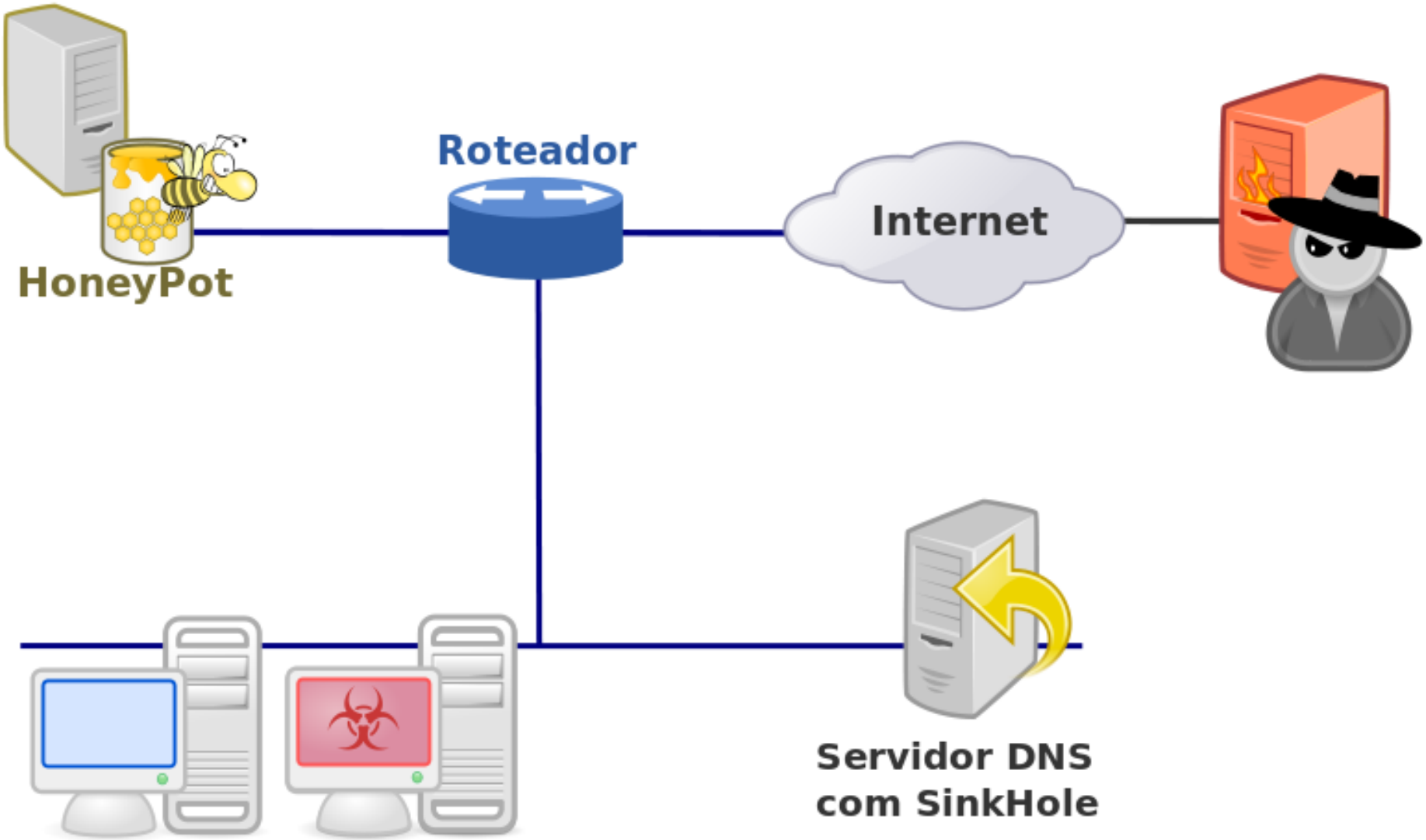
Alerta do HoneyPot

Vírus em:
192.168.10.X

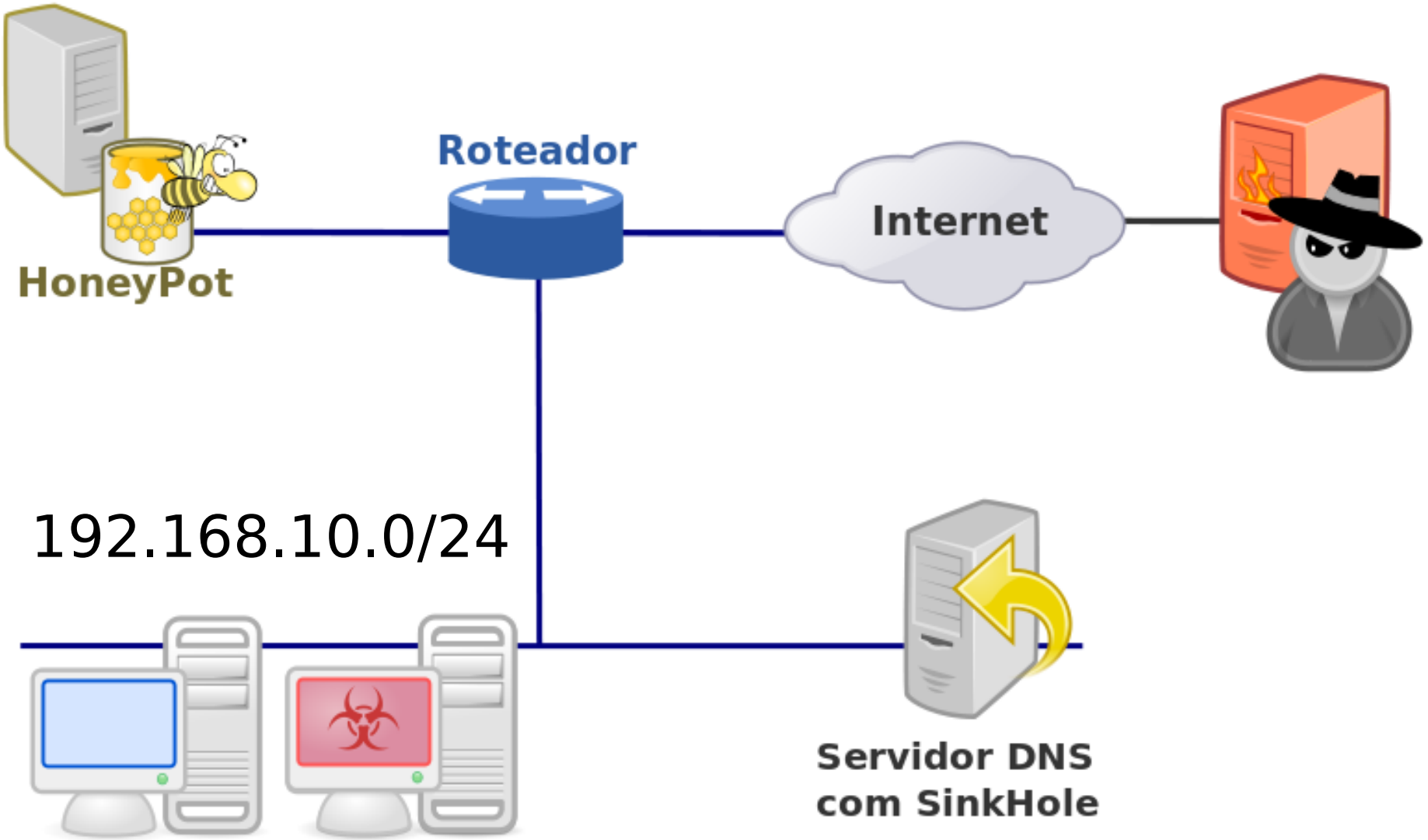
- **DNS SinkHole**

O DNS SinkHole é um recurso adicionado ao servidor de DNS para resolver domínios que são utilizados para fins maliciosos (vírus). Assim o domínio malicioso poderá ser resolvido para um endereço IP de um HoneyPot.

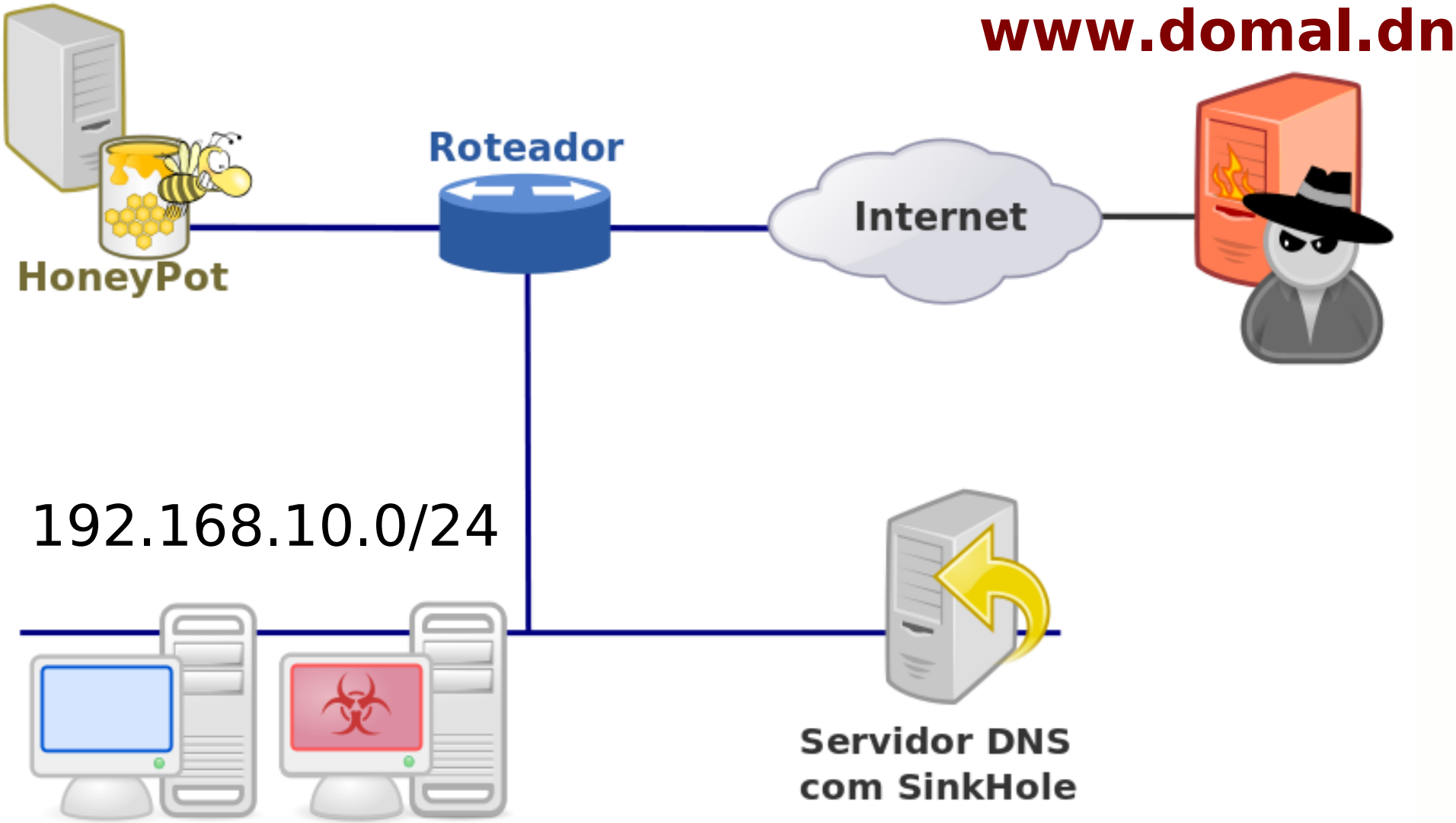
DNS SinkHole



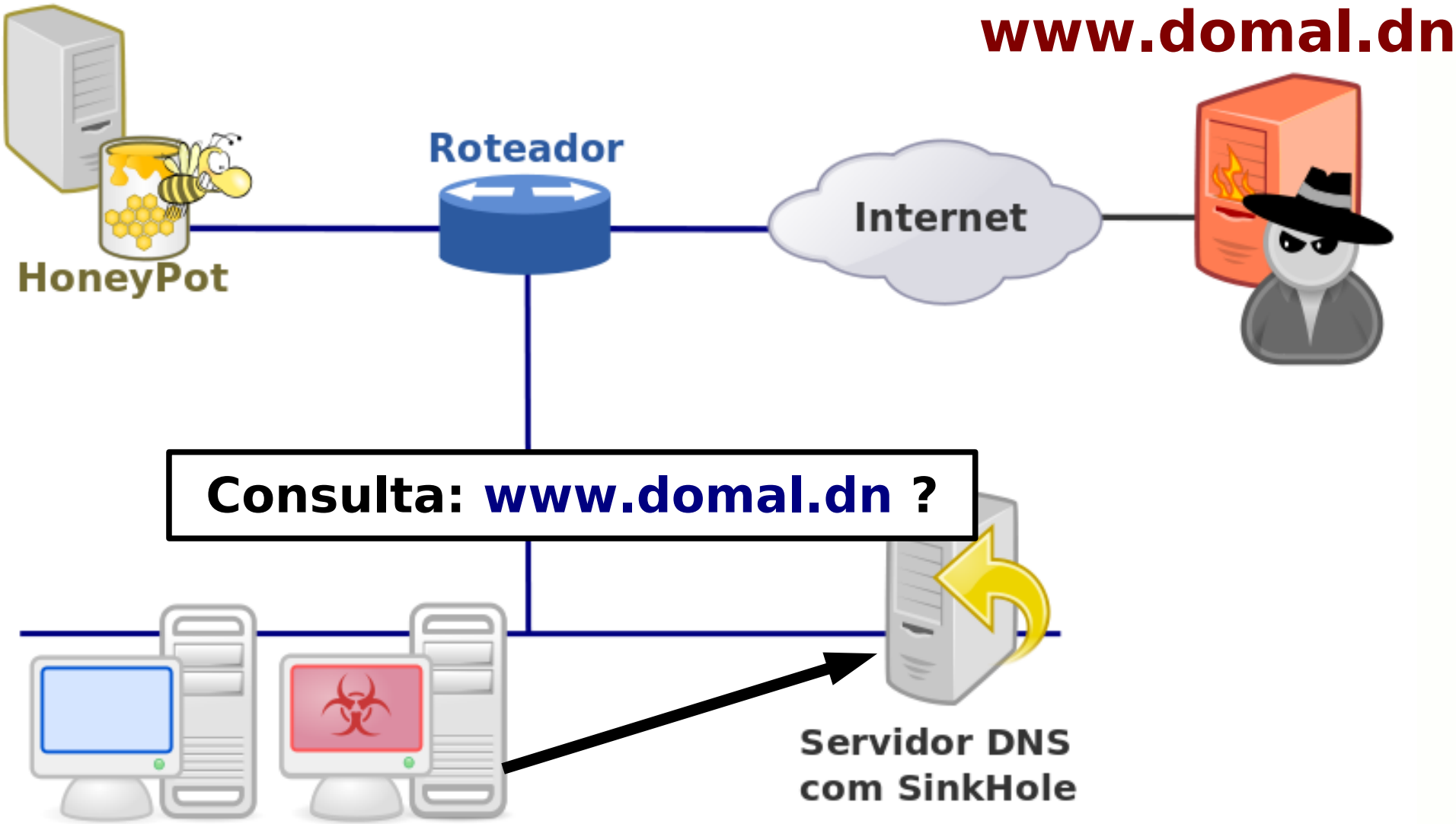
DNS SinkHole



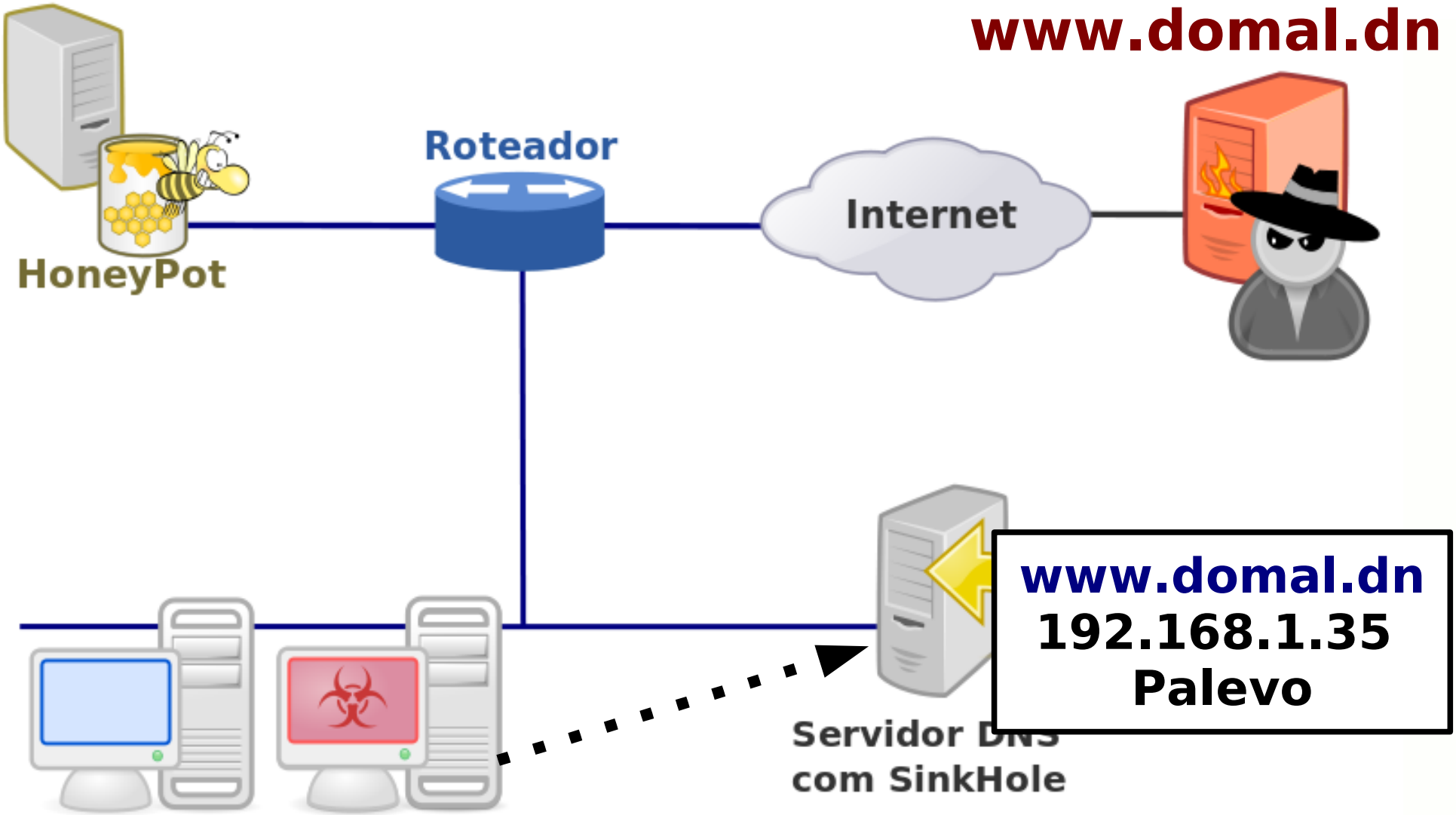
DNS SinkHole



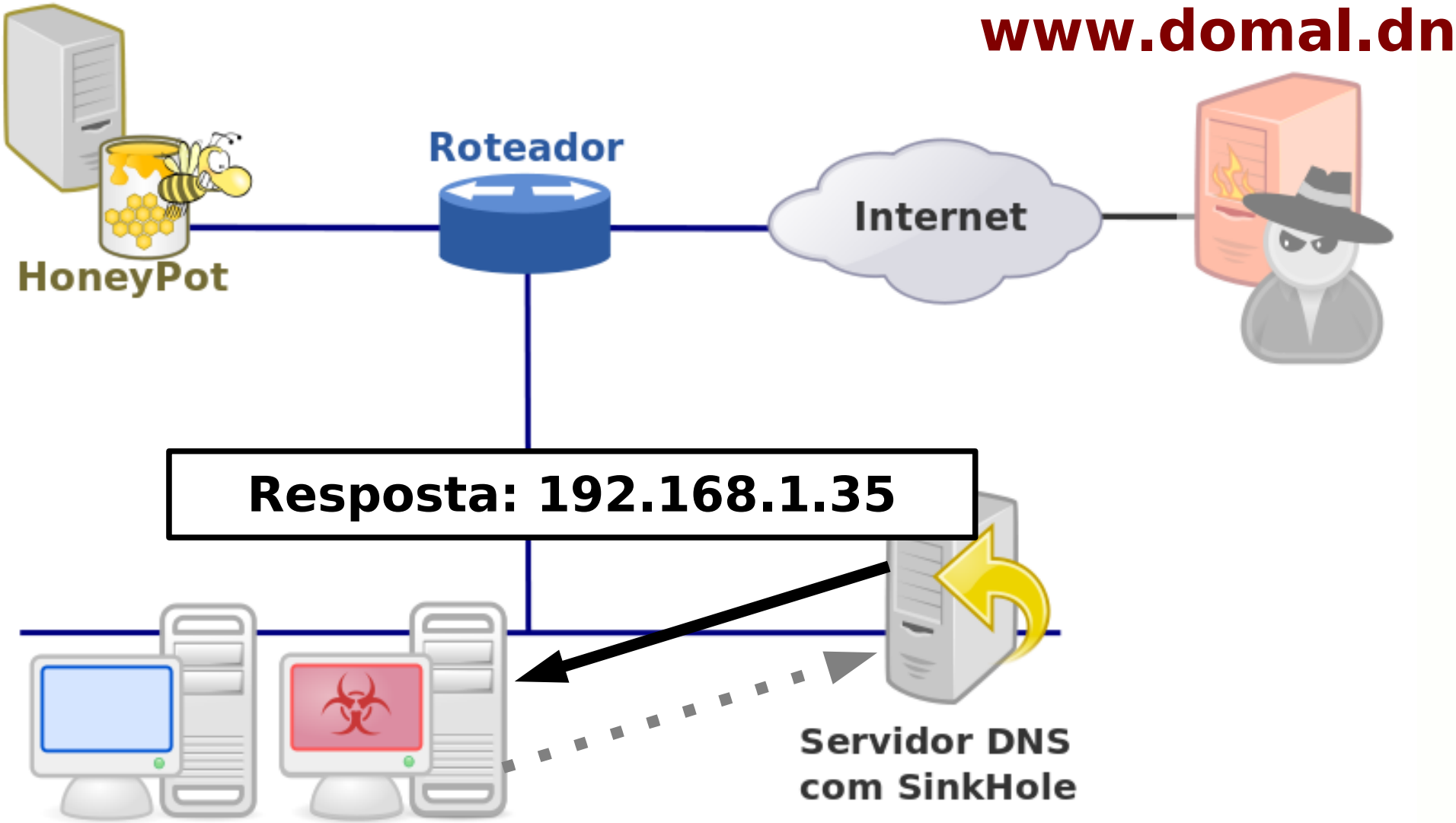
DNS SinkHole



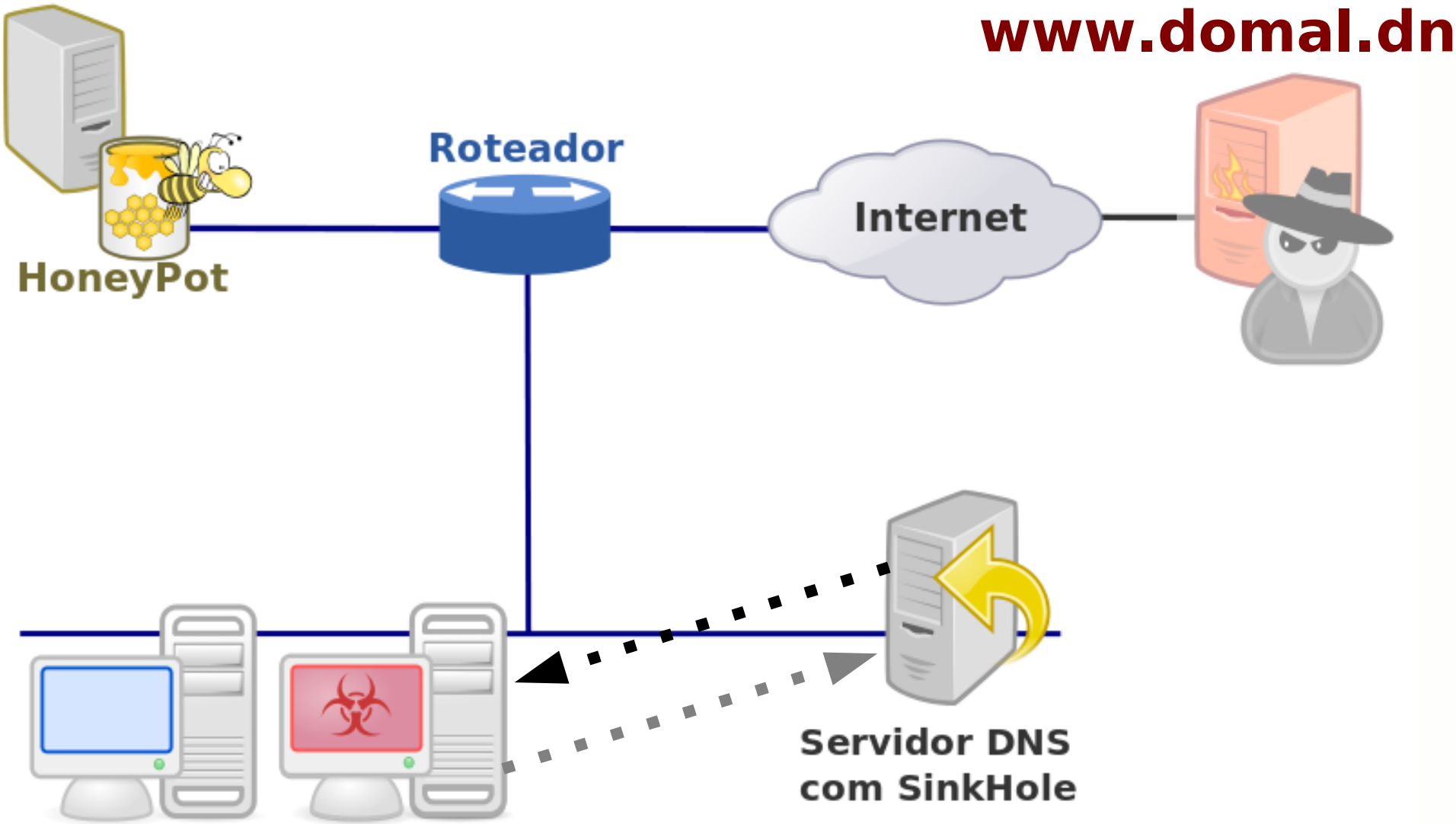
DNS SinkHole



DNS SinkHole



DNS SinkHole



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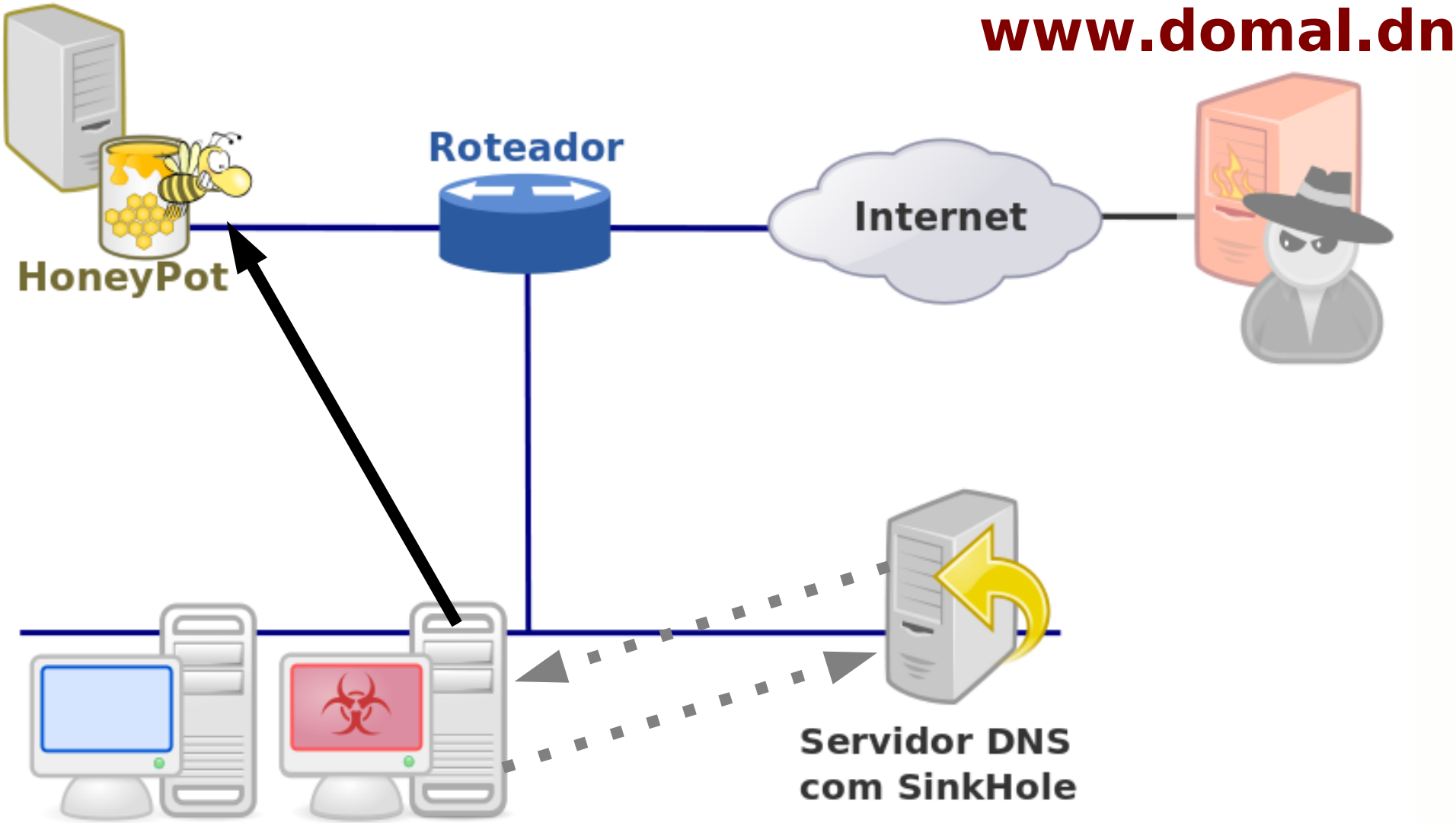

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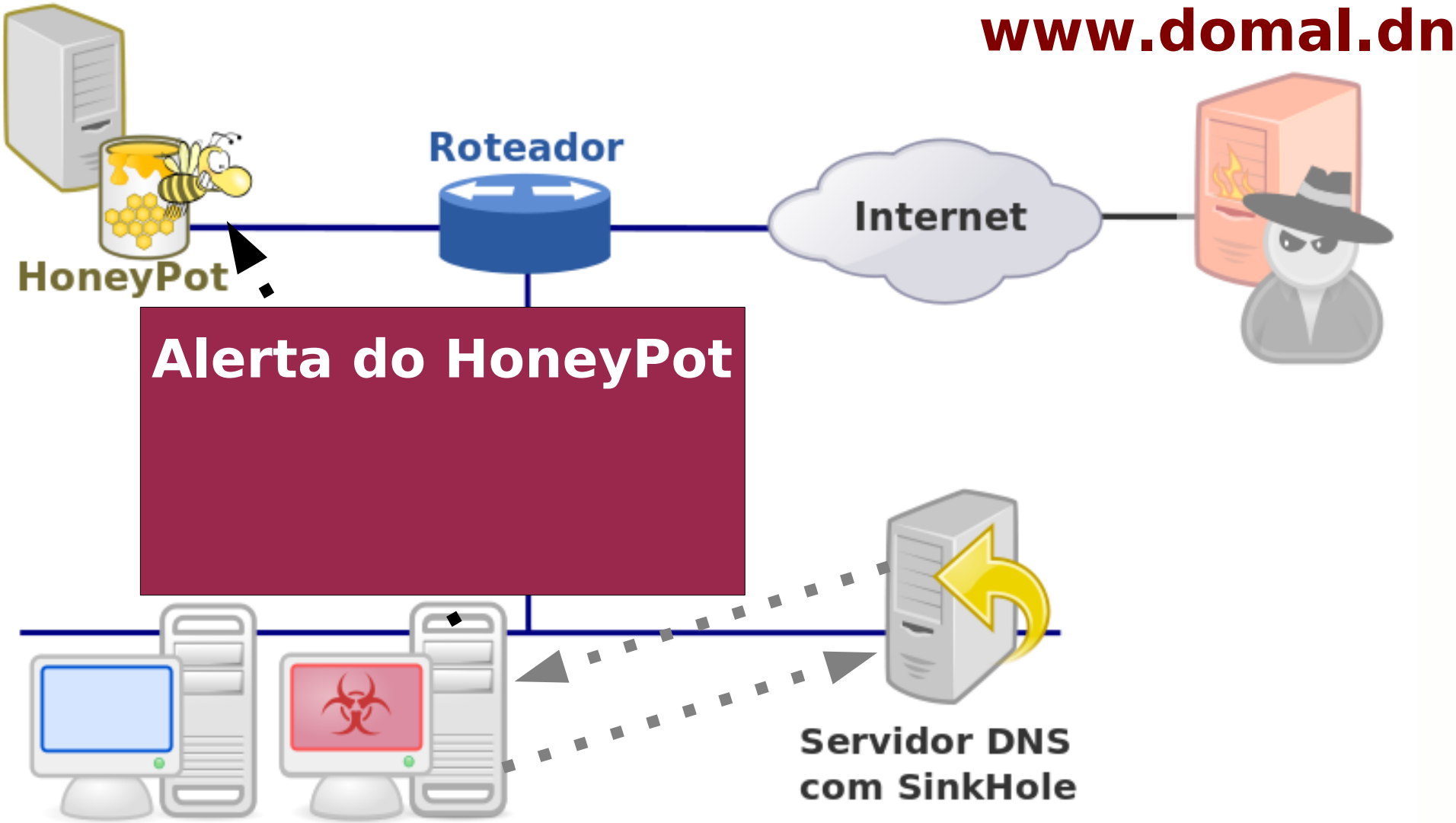
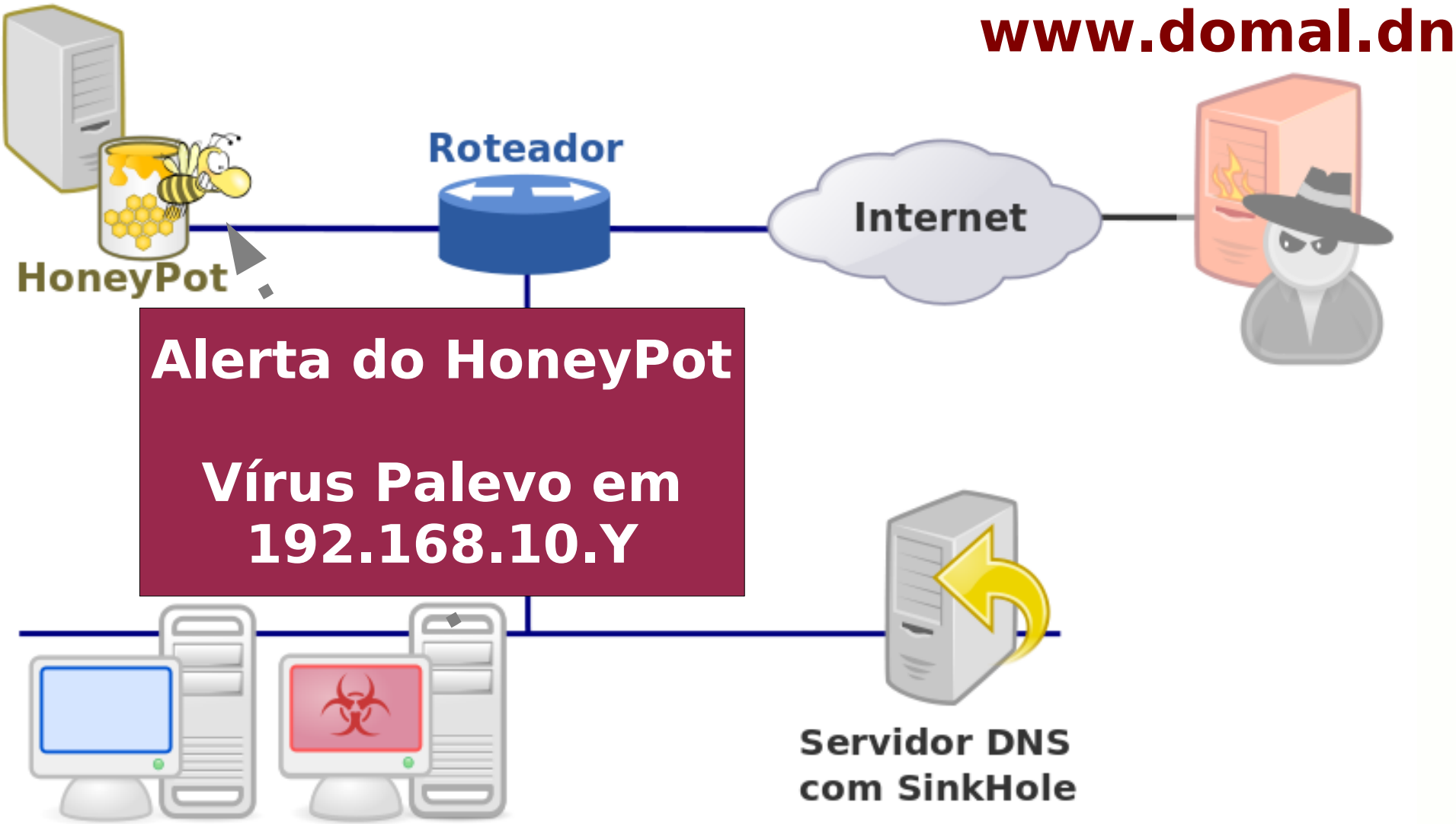


DNS SinkHole

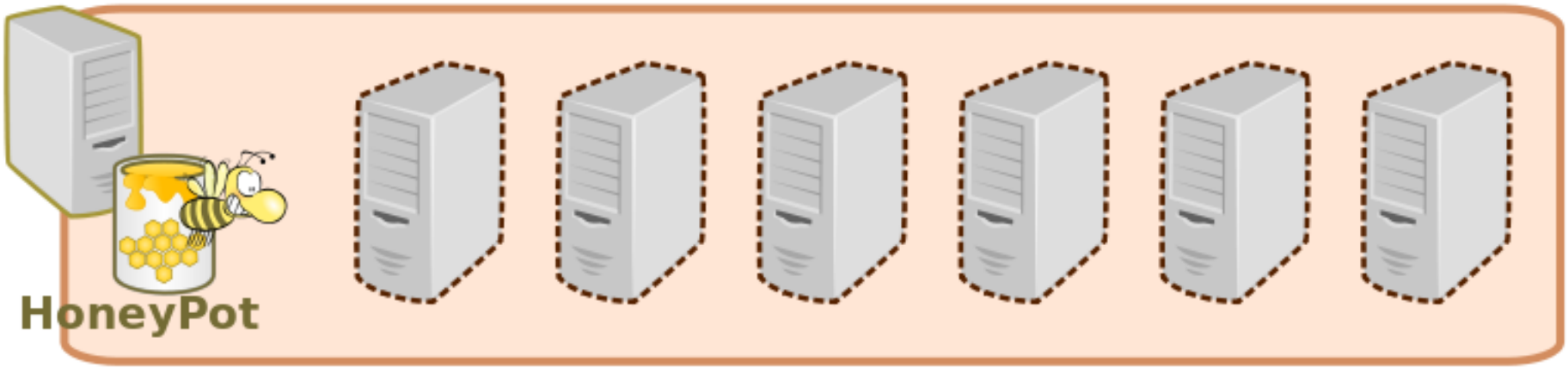


- **HoneyNet**

  Uma HoneyNet é uma ferramenta de pesquisa, que consiste de uma rede projetada especificamente para ser comprometida, e que contém mecanismos de controle para previnir que seja utilizada como base de ataques contra outras redes.

HoneyNet

HoneyNet



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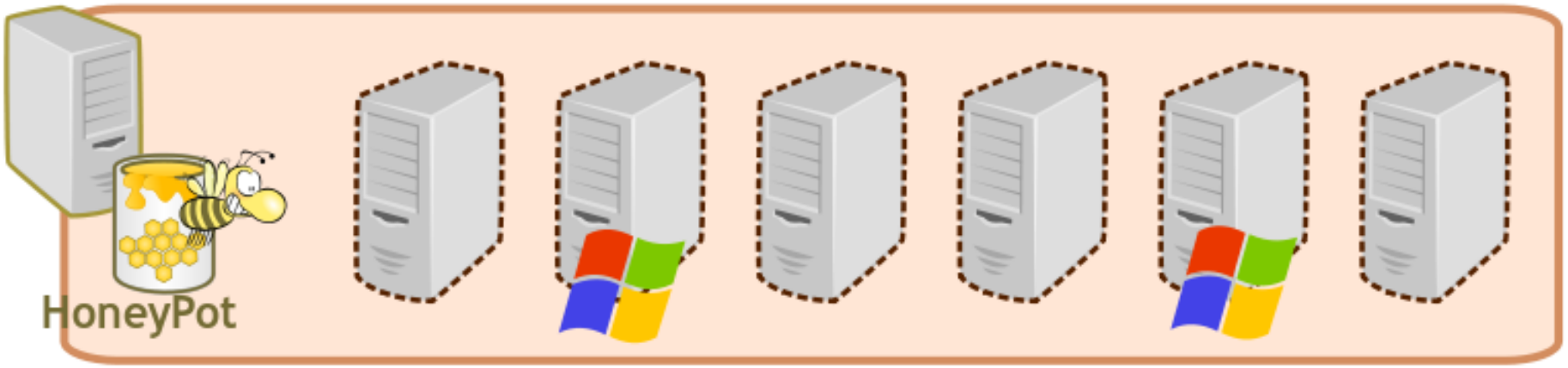

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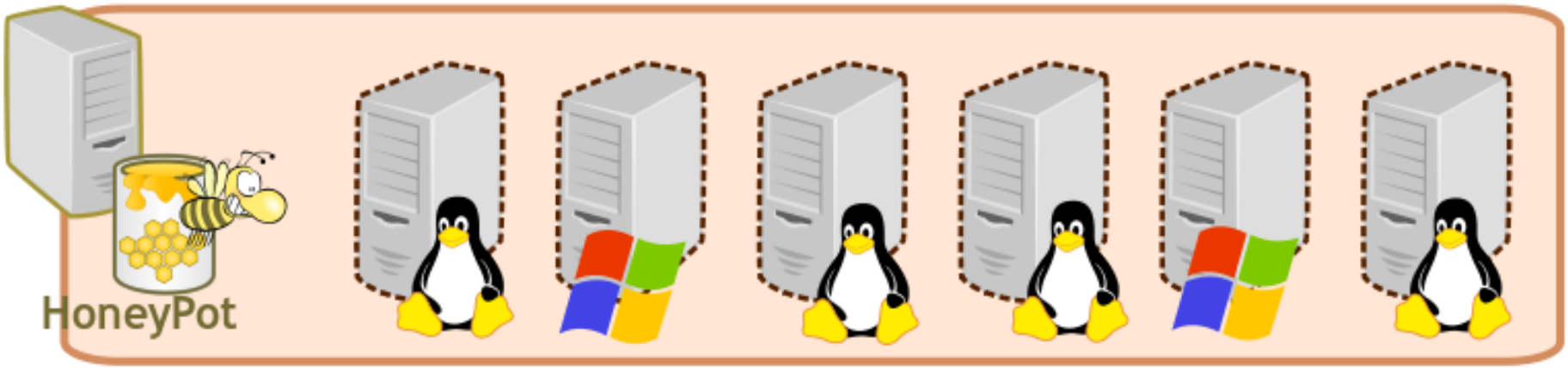

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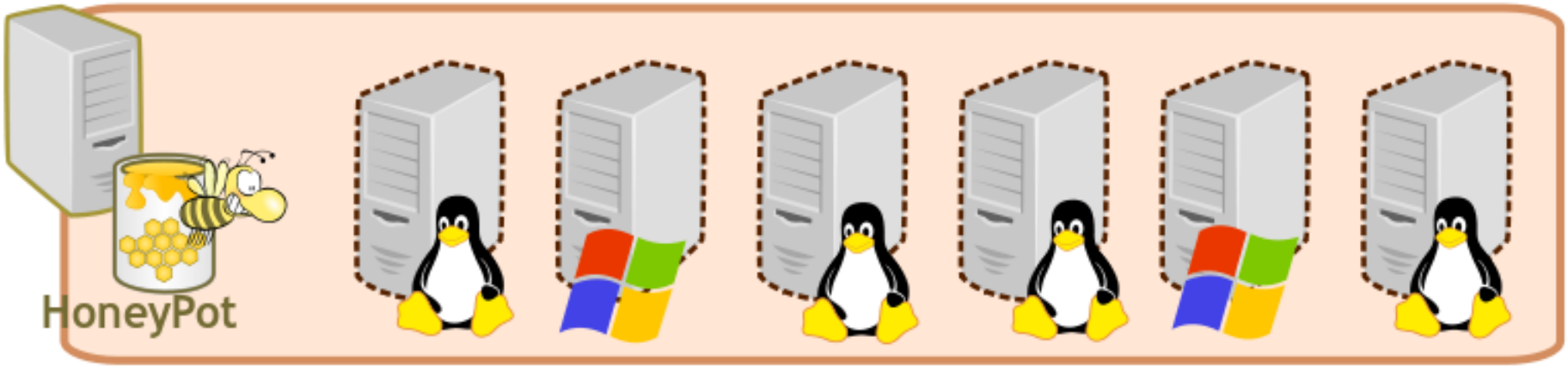

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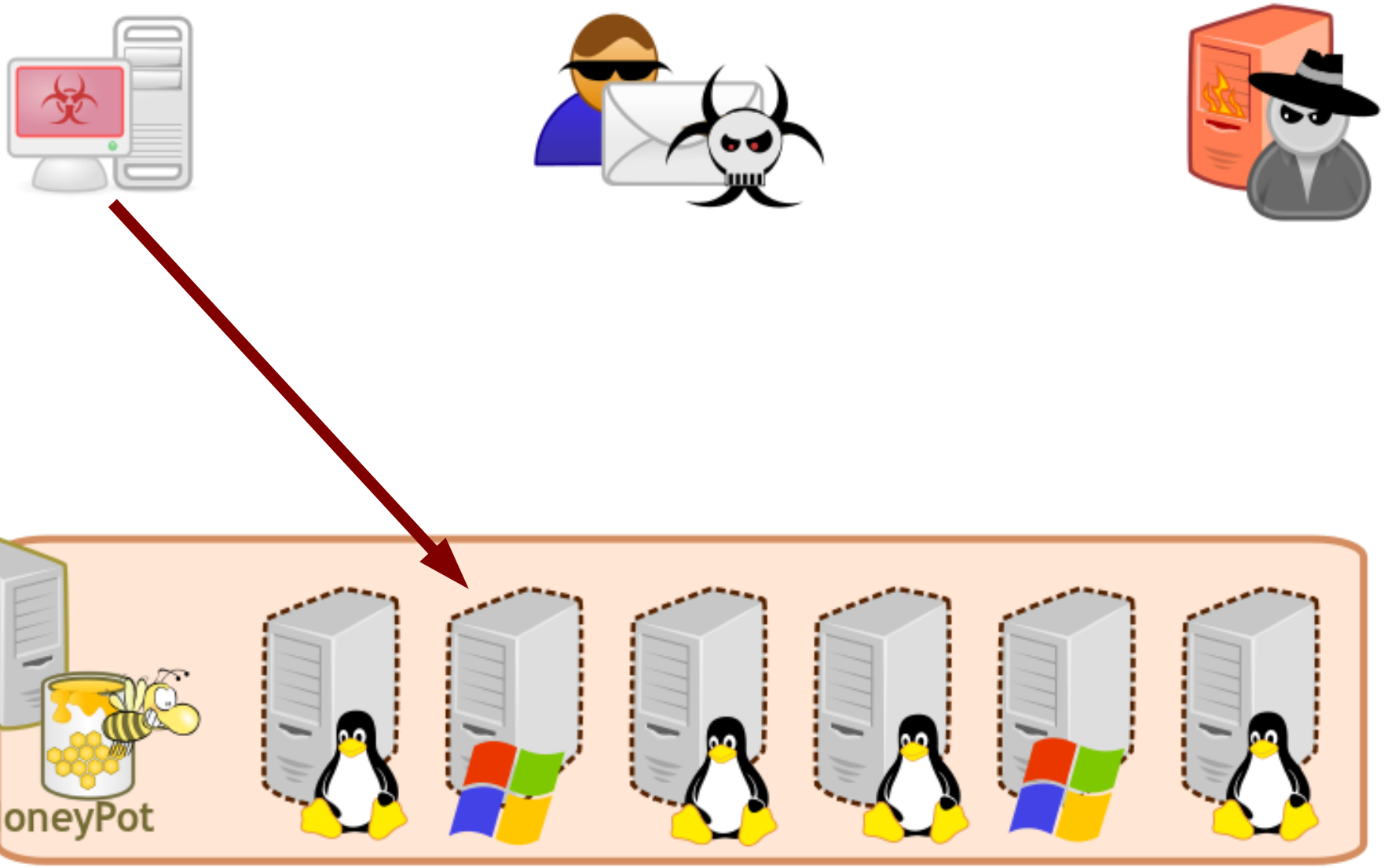

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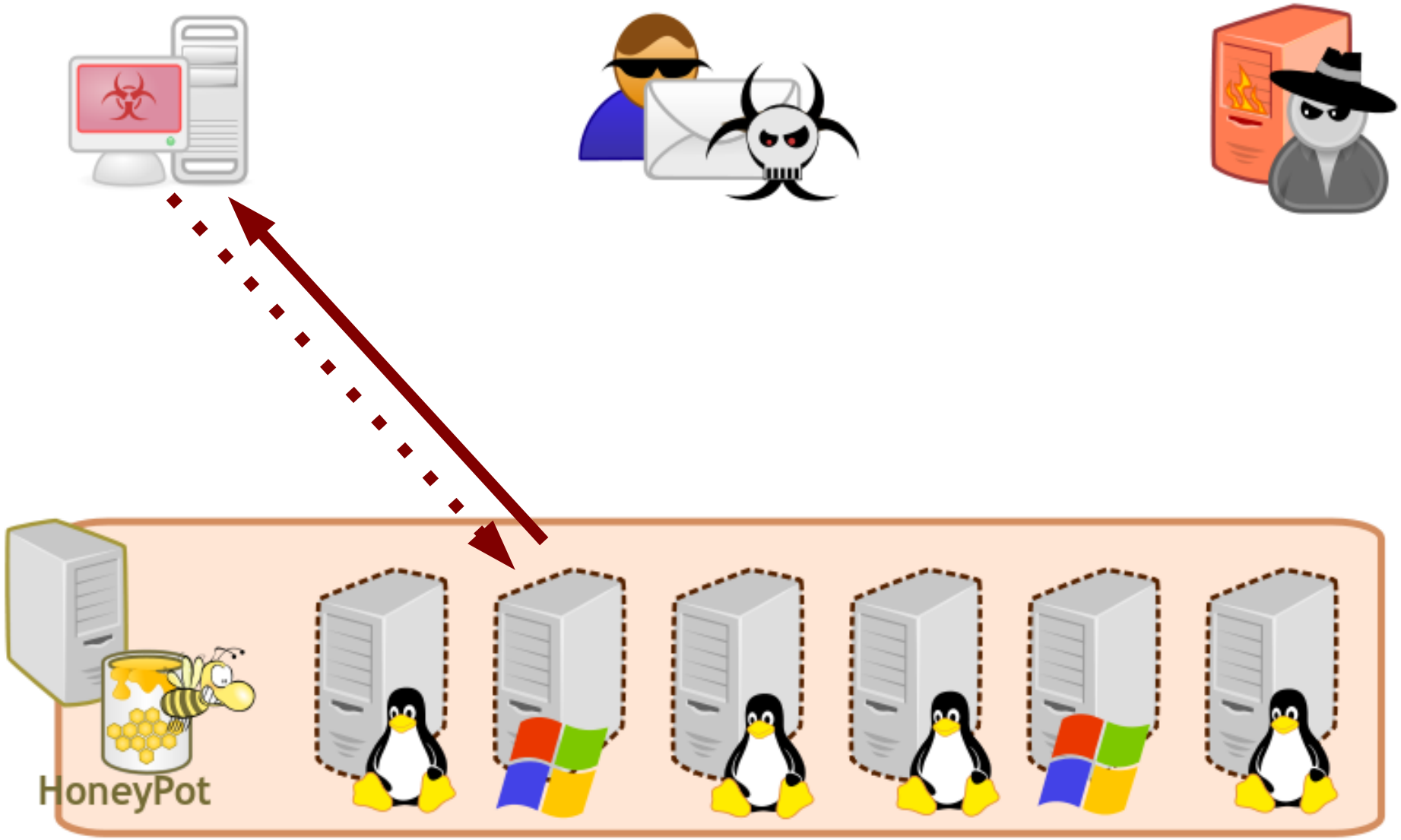

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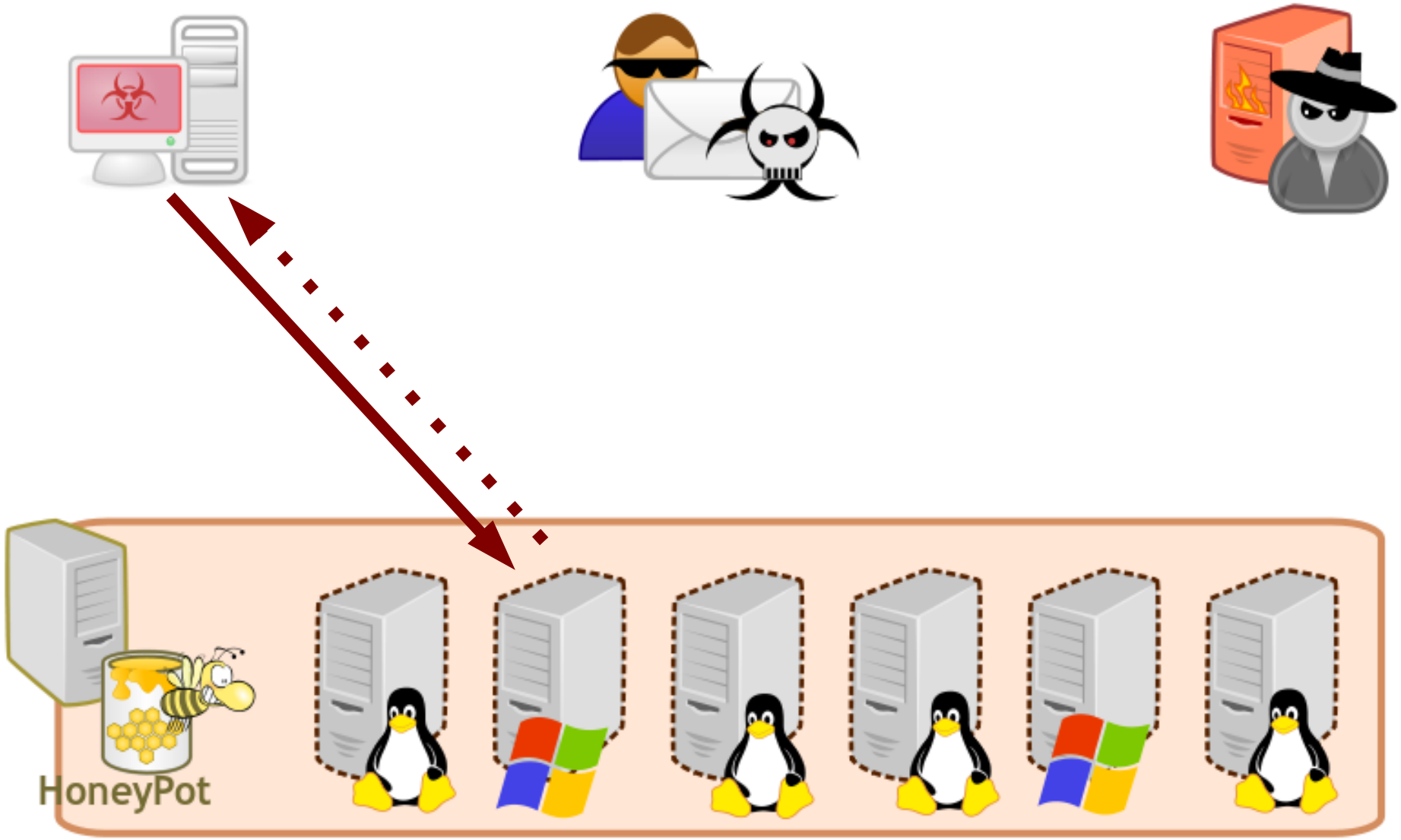
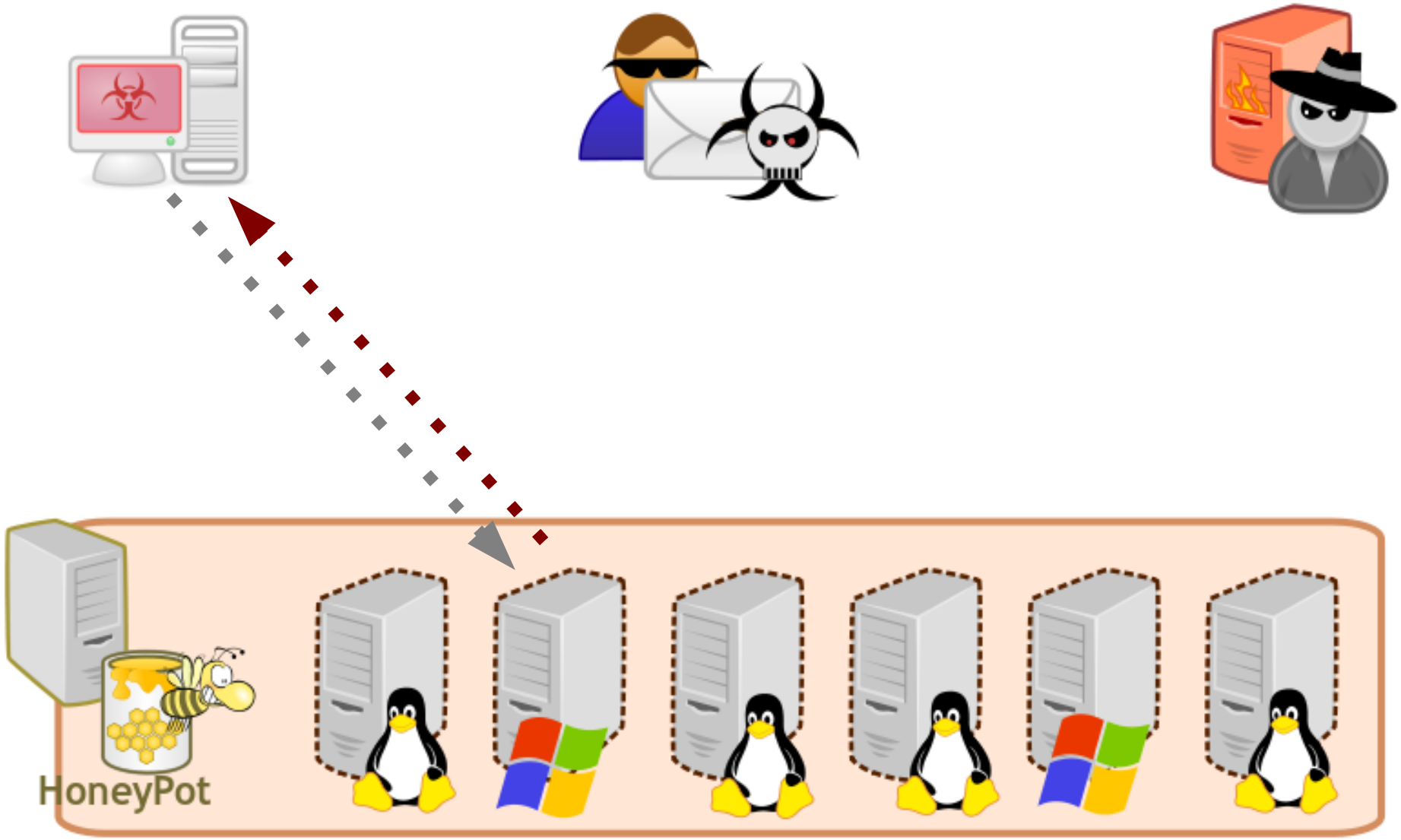


HoneyNet

HoneyNet

HoneyNet



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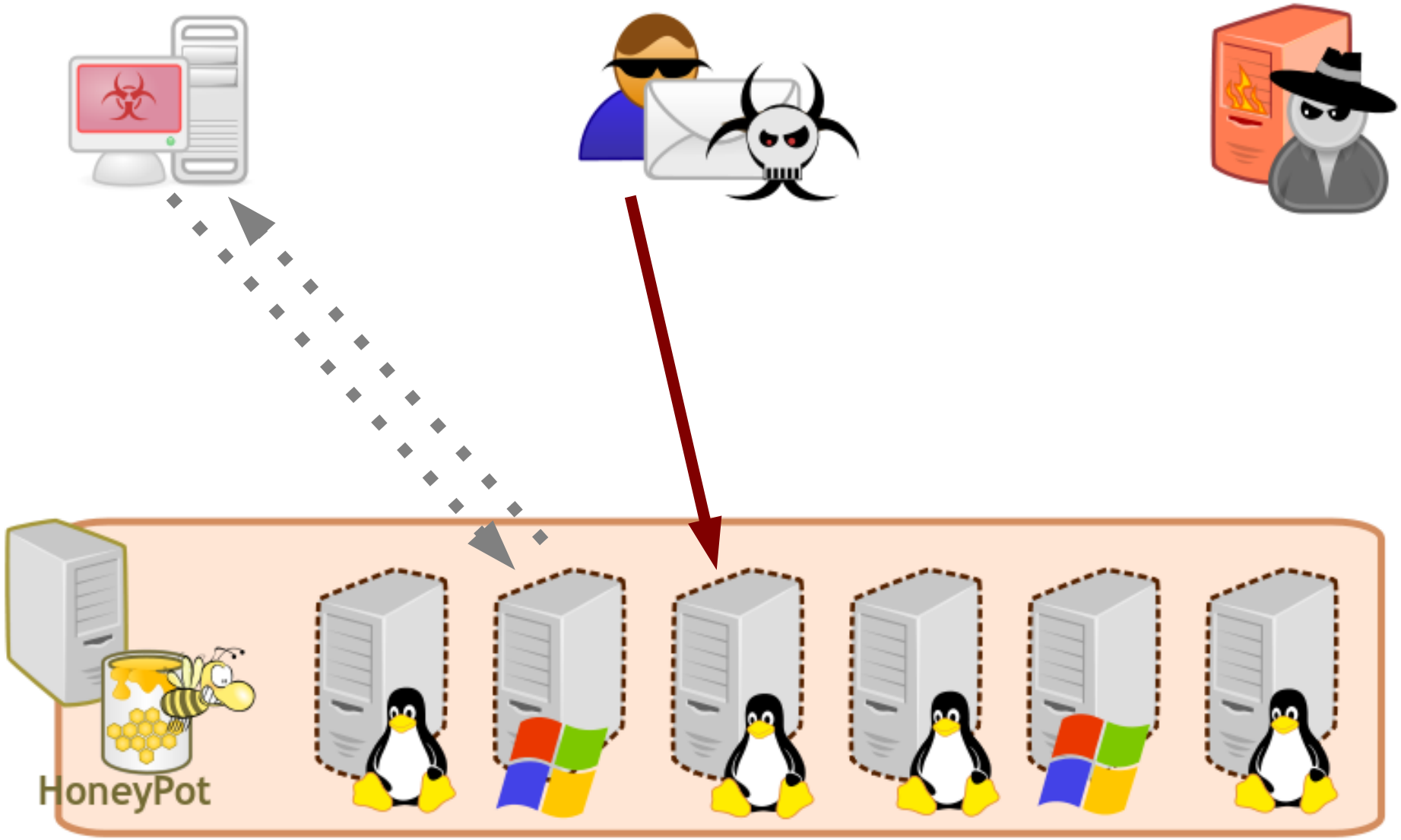

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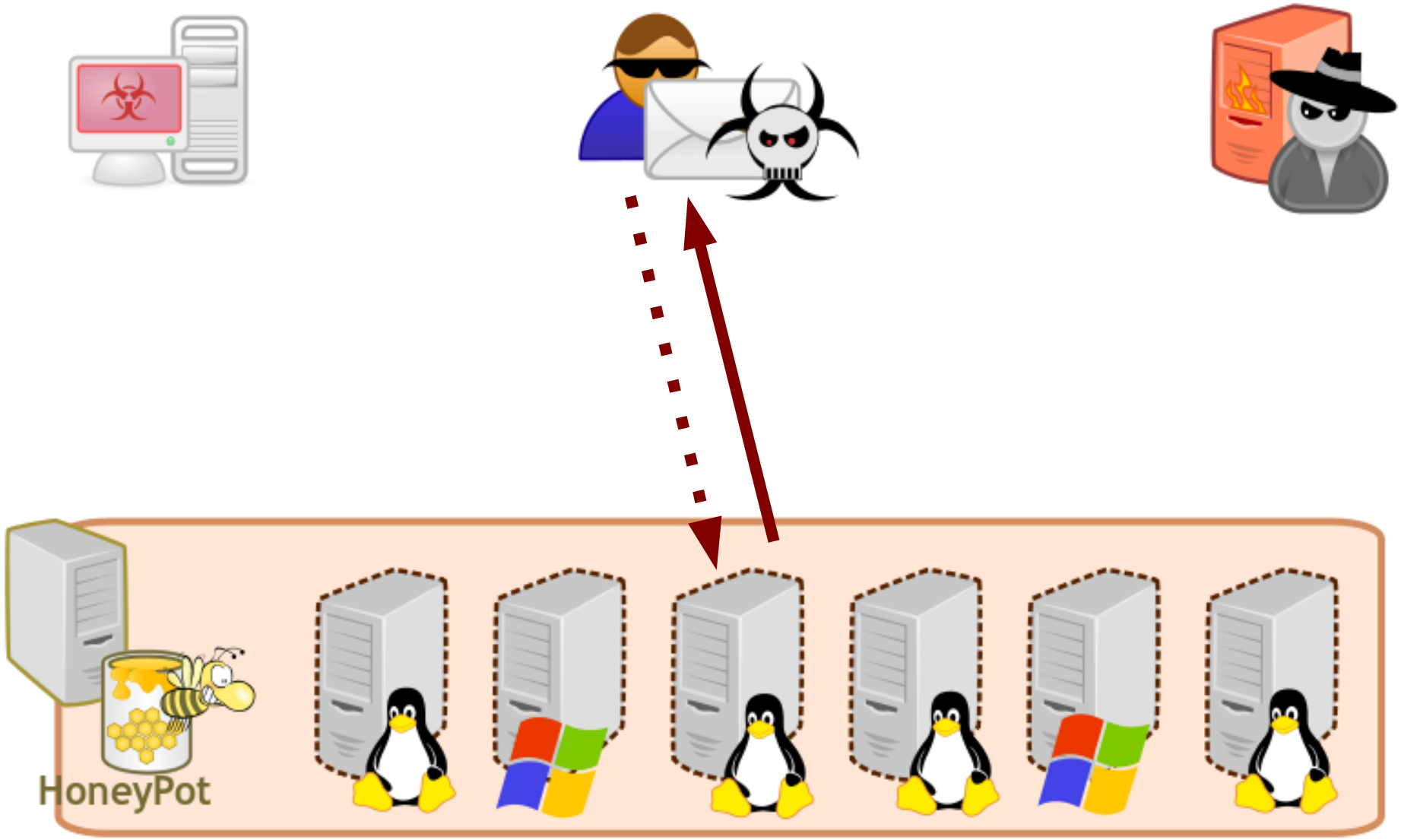

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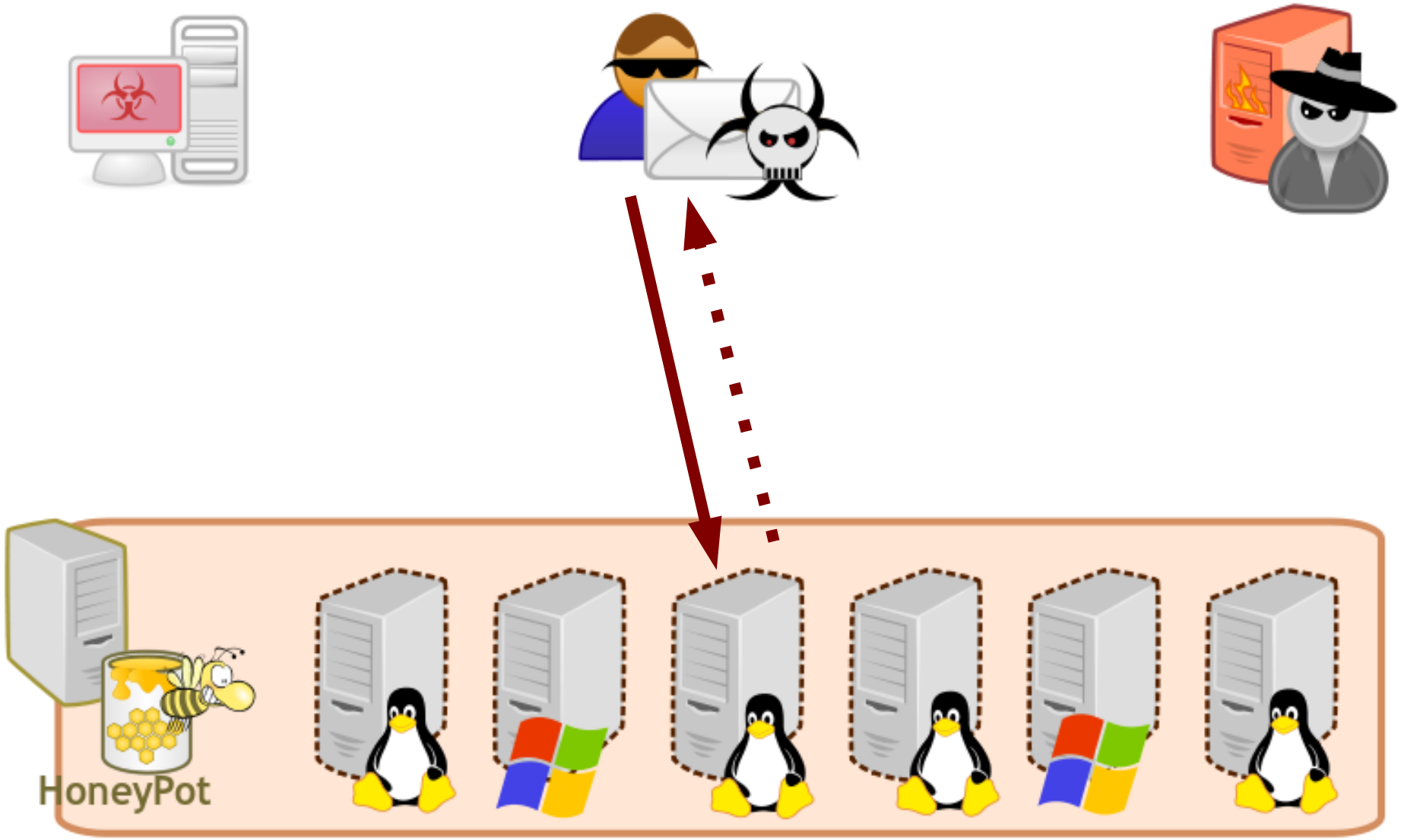

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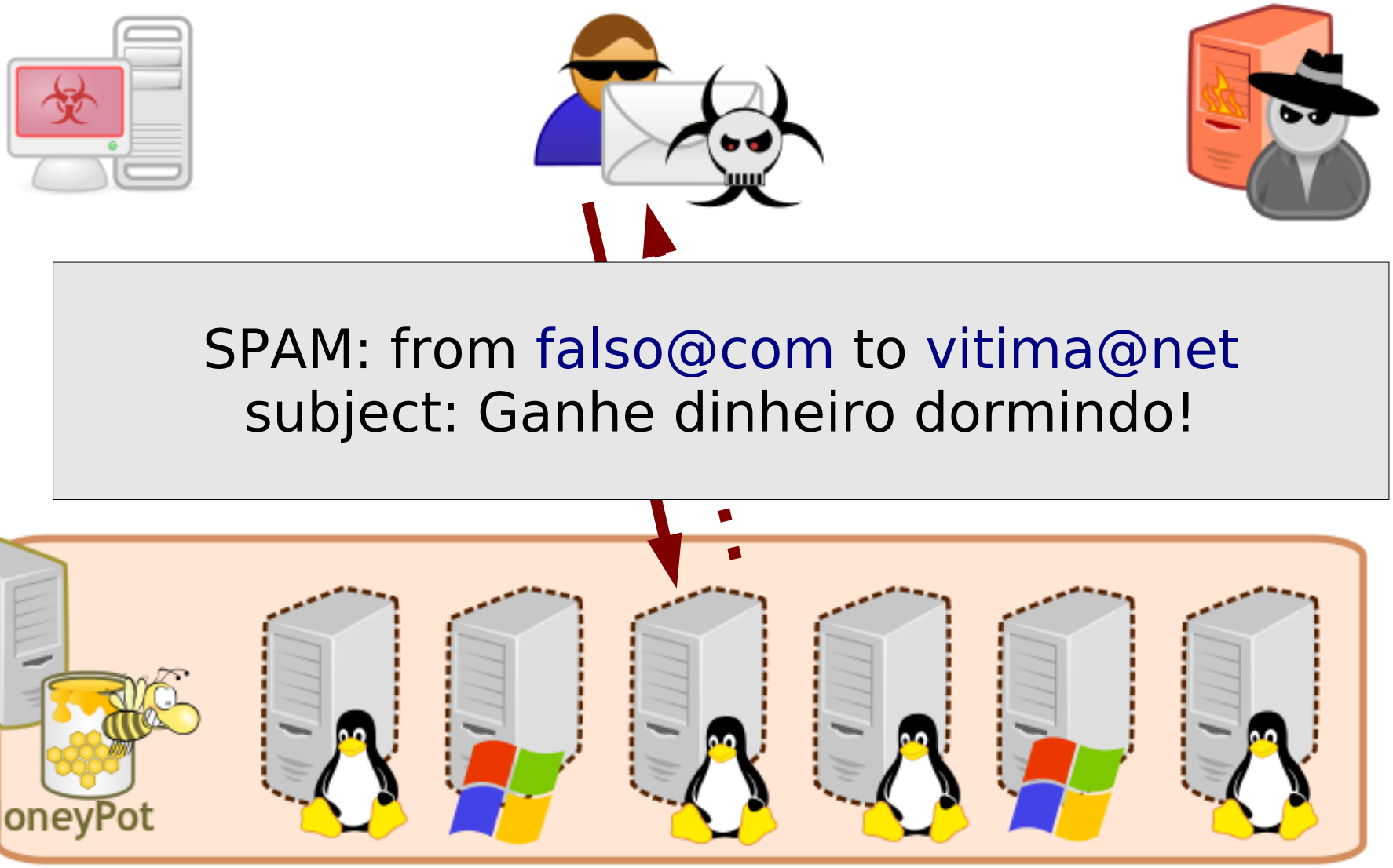
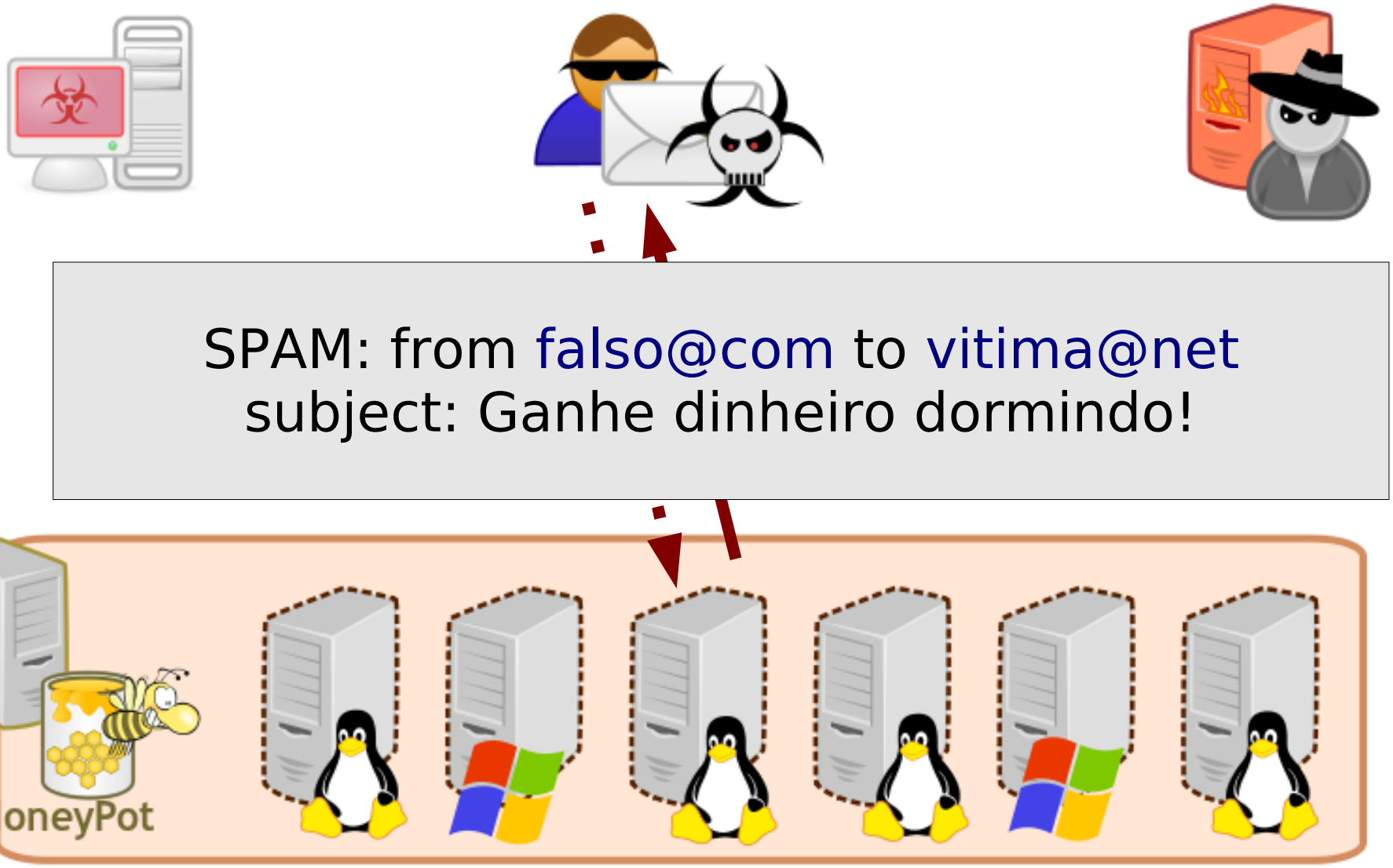

SPAM: from falso@com to vitima@net
subject: Ganhe dinheiro dormindo!
HoneyPot

HoneyNet


SPAM: from falso@com to vitima@net
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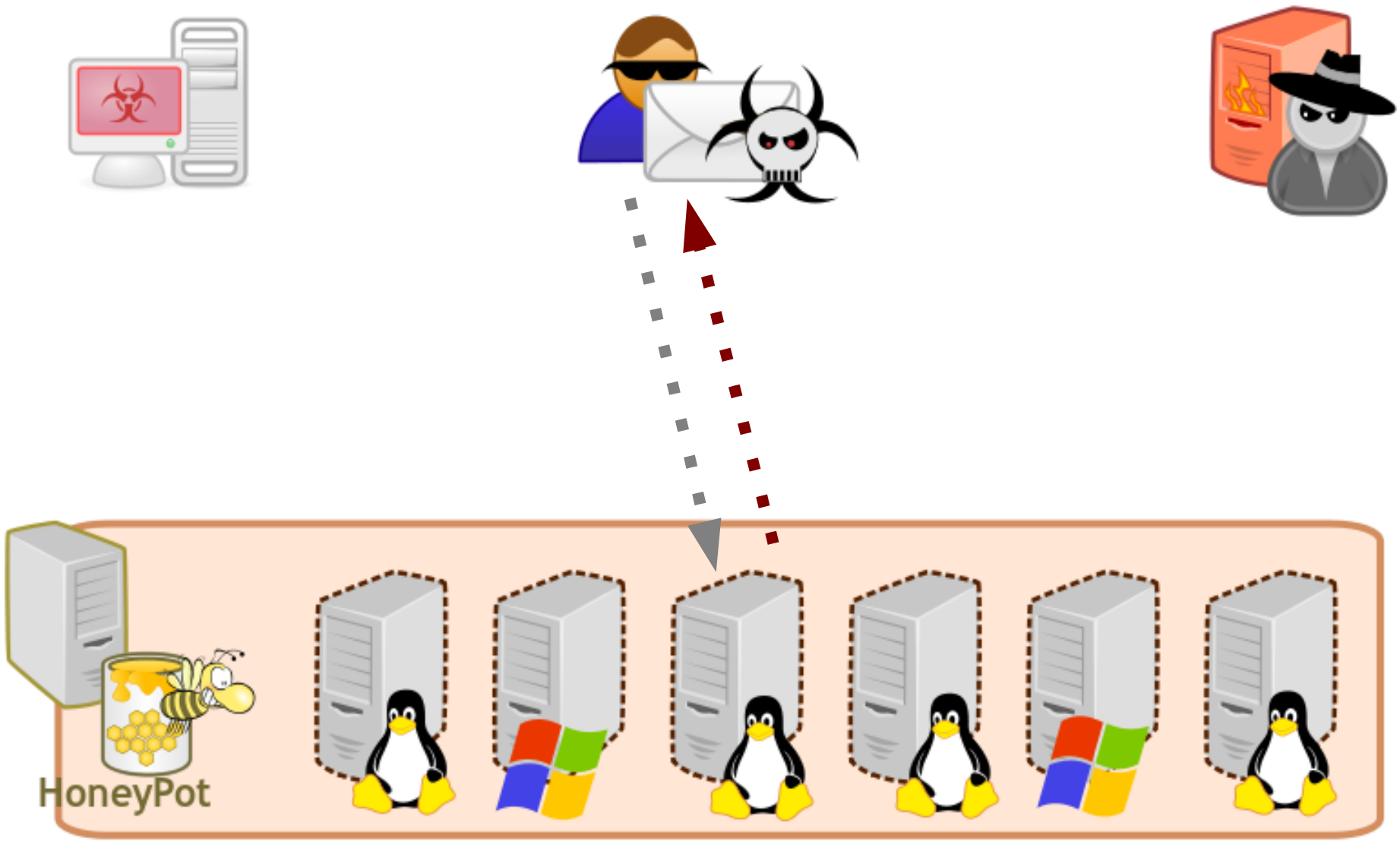
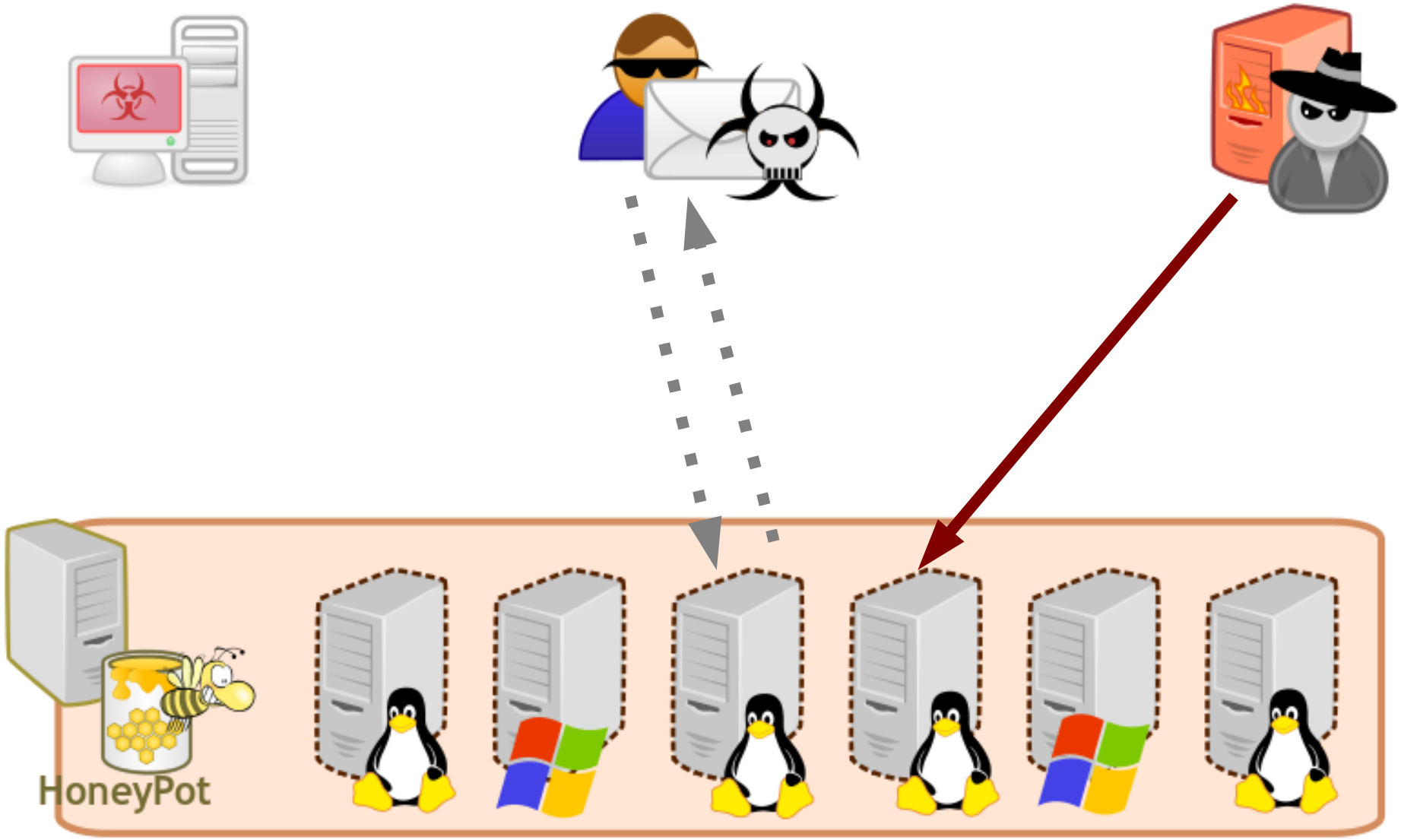
HoneyPot

HoneyNet



HoneyNet



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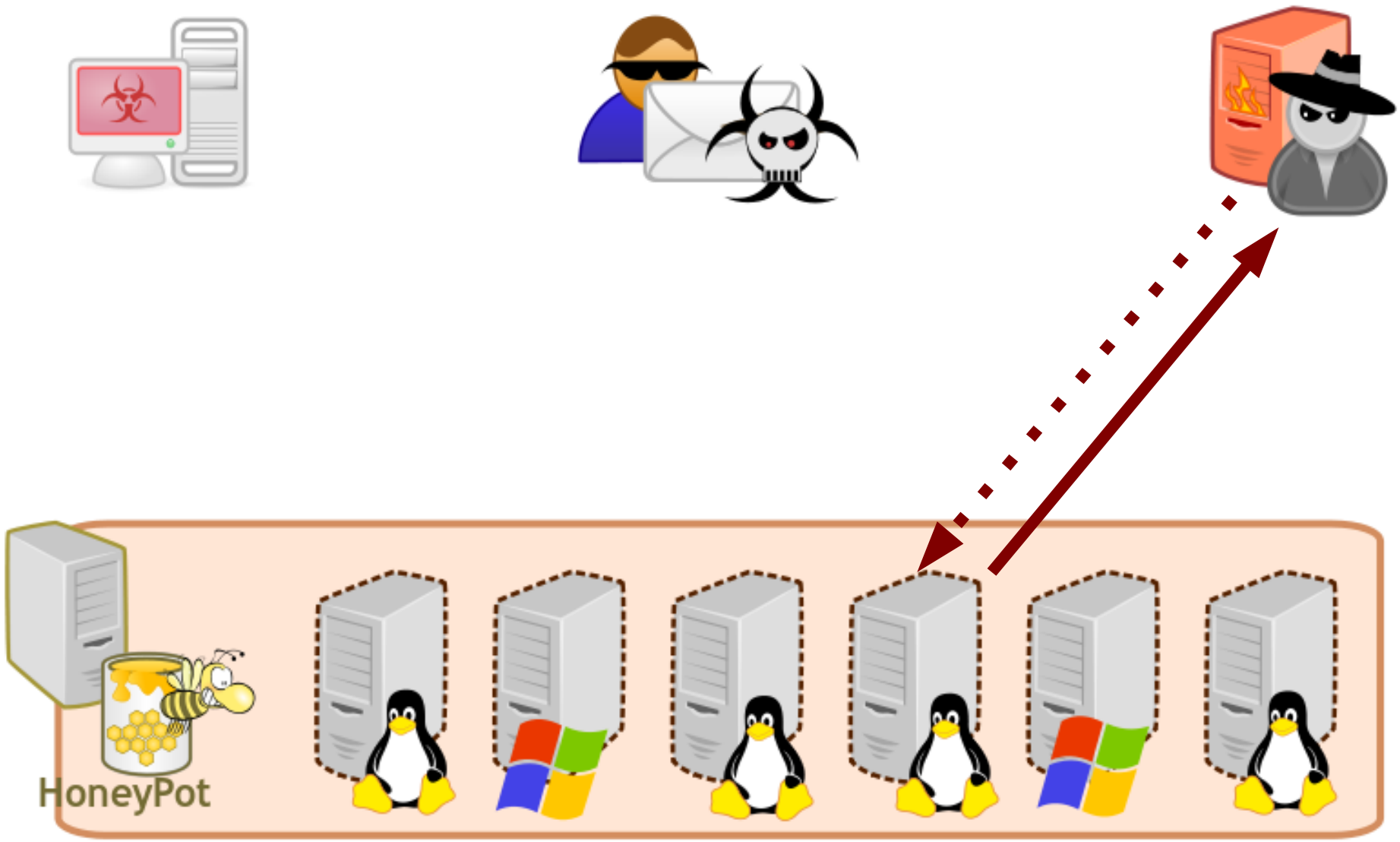

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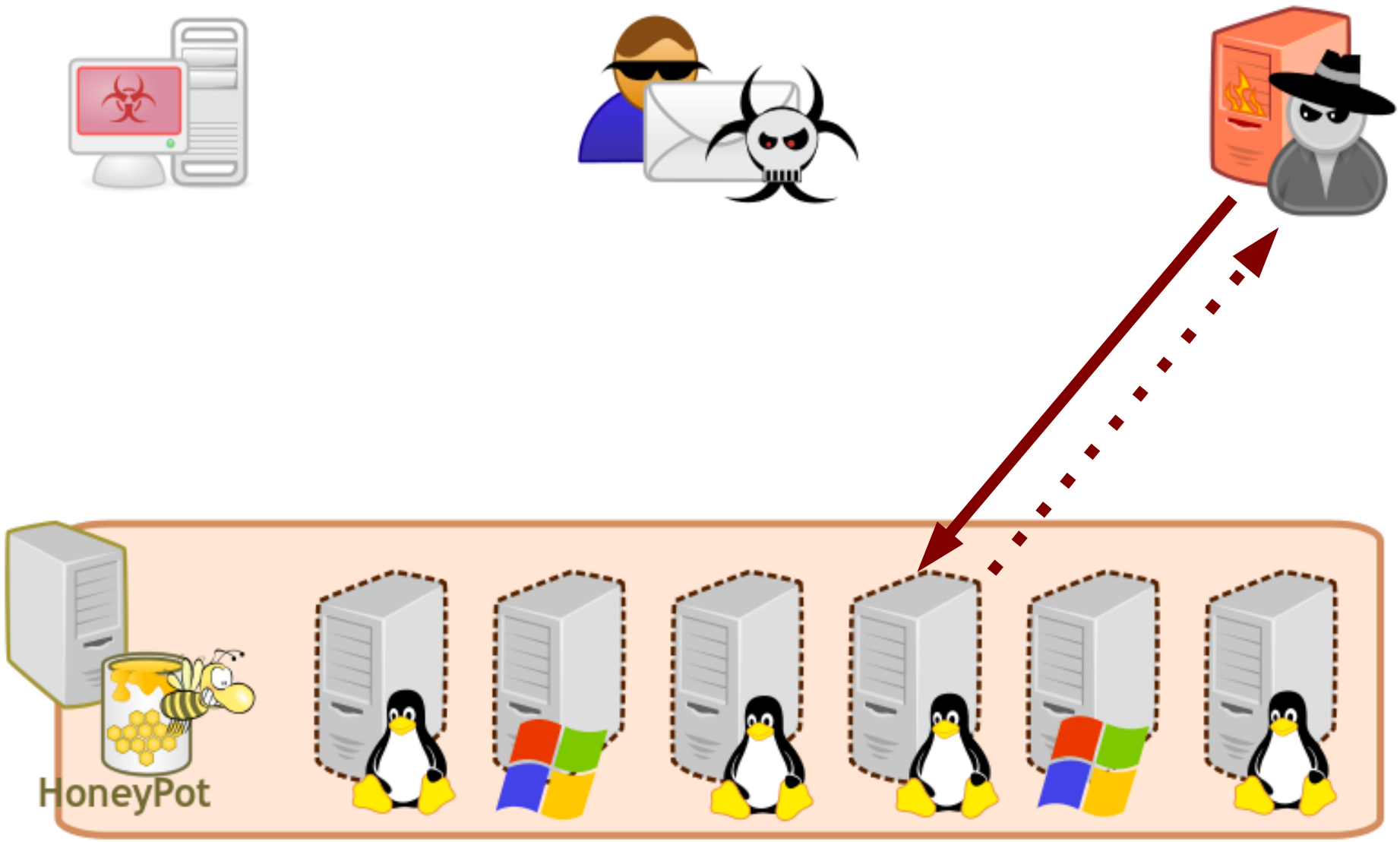
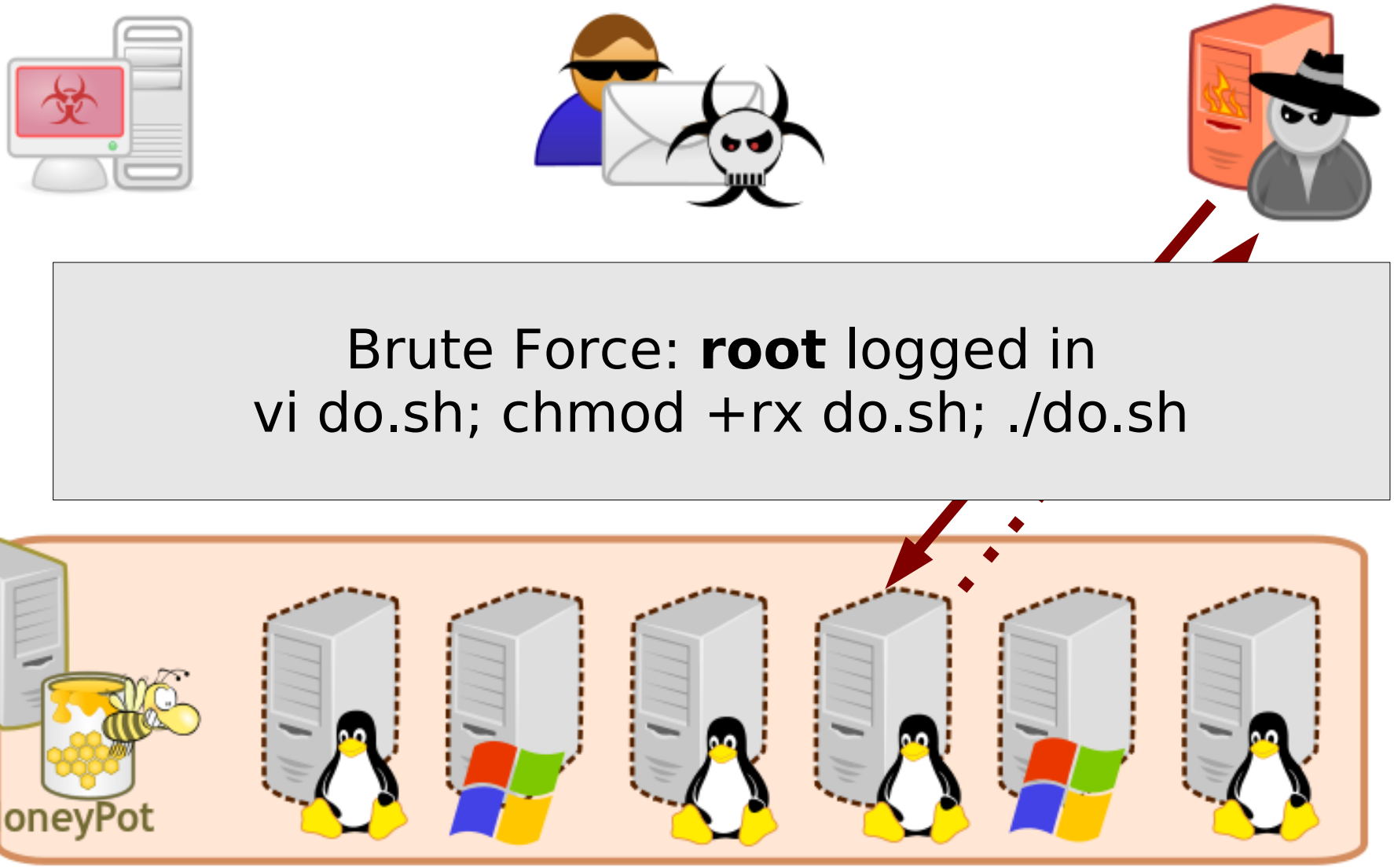
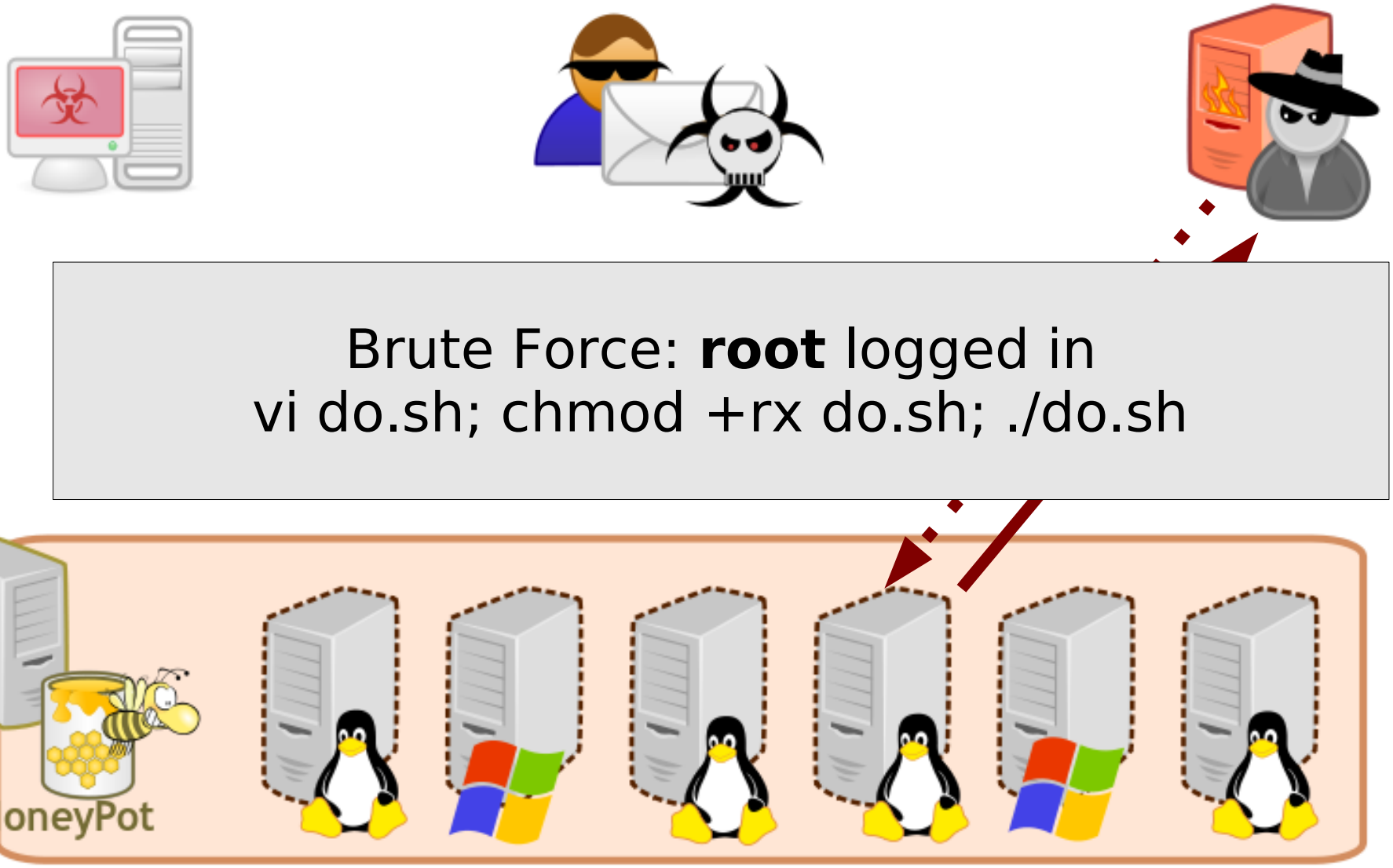


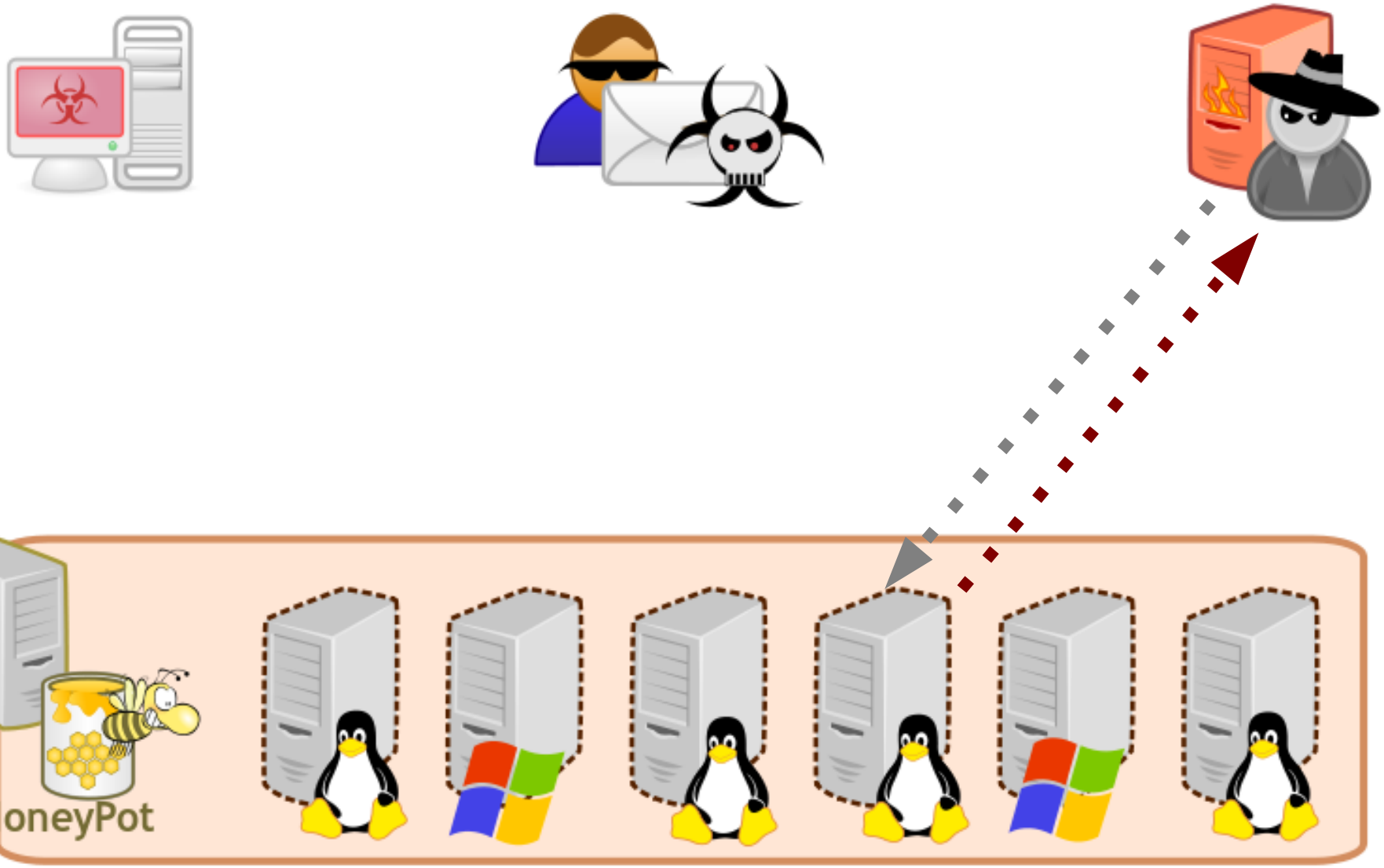
HoneyNet


Brute Force: **root** logged in
vi do.sh; chmod +rx do.sh; ./do.sh
HoneyPot

HoneyNet


Brute Force: **root** logged in
vi do.sh; chmod +rx do.sh; ./do.sh
HoneyPot

HoneyNet



Aplicação

HoneyPot Corporativo
HoneyPot Alliance

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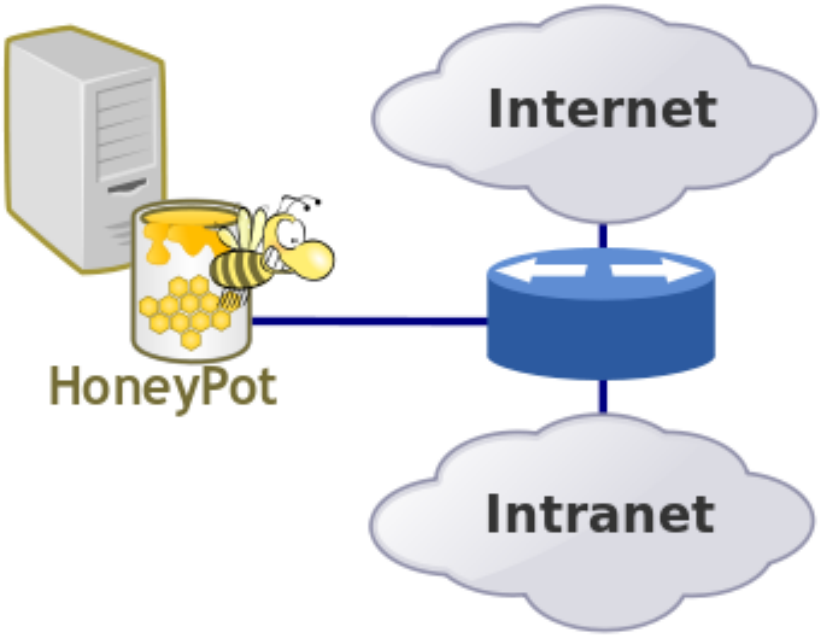
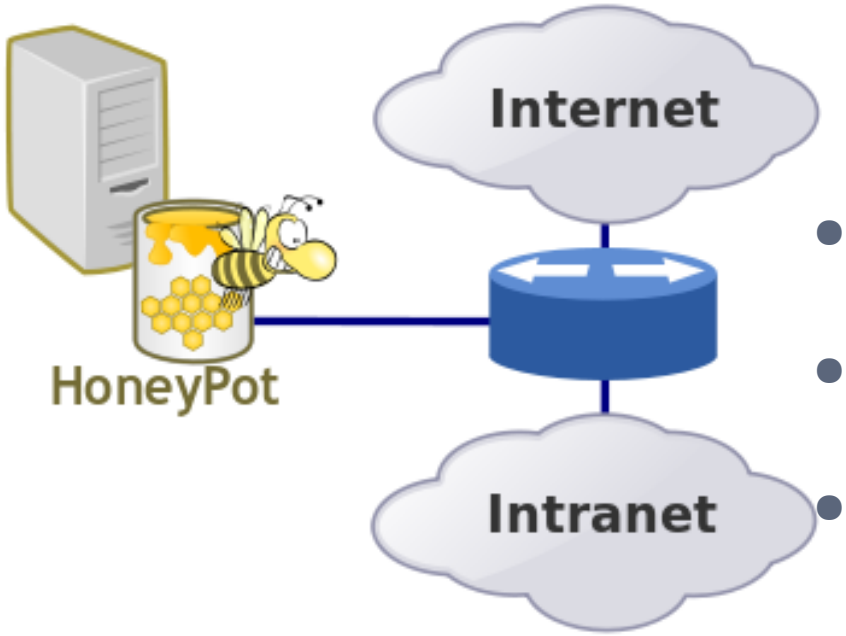
HoneyPot Corporativo



HoneyPot Corporativo



Hoje:

- 1 Servidor HoneyPot
- Roteamento Switch Core
- Nepenthes, Snort e IPTables

Próximo passo:

- Honeyd/Dionaea
- HoneyPot nos Clientes

HoneyPot Corporativo

Hoje:

- Servidor HoneyPot em 3 DMZs
- Sem roteamento

Próximo passo:

- Em todas as redes hospedadas

HoneyPot Corporativo

Hoje:

- 1 Servidor DNS em Teste

  (~2000 hosts)
- SinkHole → ISC Bind
- AMADA e Malware Domain List

Próximo passo:

- DNS Corporativo
- DNS Clientes

HoneyPot Corporativo

Alguns dados:

- ~ 35% dos alertas de segurança
- ~ 23% das estações infectadas
- Diversos ataques (Portscan)
- Erros de configuração
- Novos vírus/malwares
- Erros em WebSites

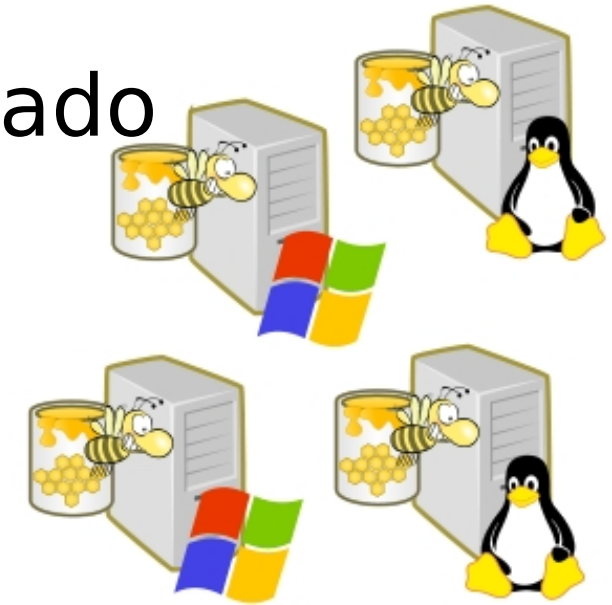
HoneyPot Alliance

Consórcio Brasileiro de HoneyPots

- Coordenado pelo CERT
- Termo de Confidencialidade

Servidor HoneyPot:

- Rede secreta – Servidor dedicado
- Honeyd → Criação de perfis
- Relatórios diários
  - E-mails criptografados



INCIDENTES

Tratamento de Incidentes e Notificações

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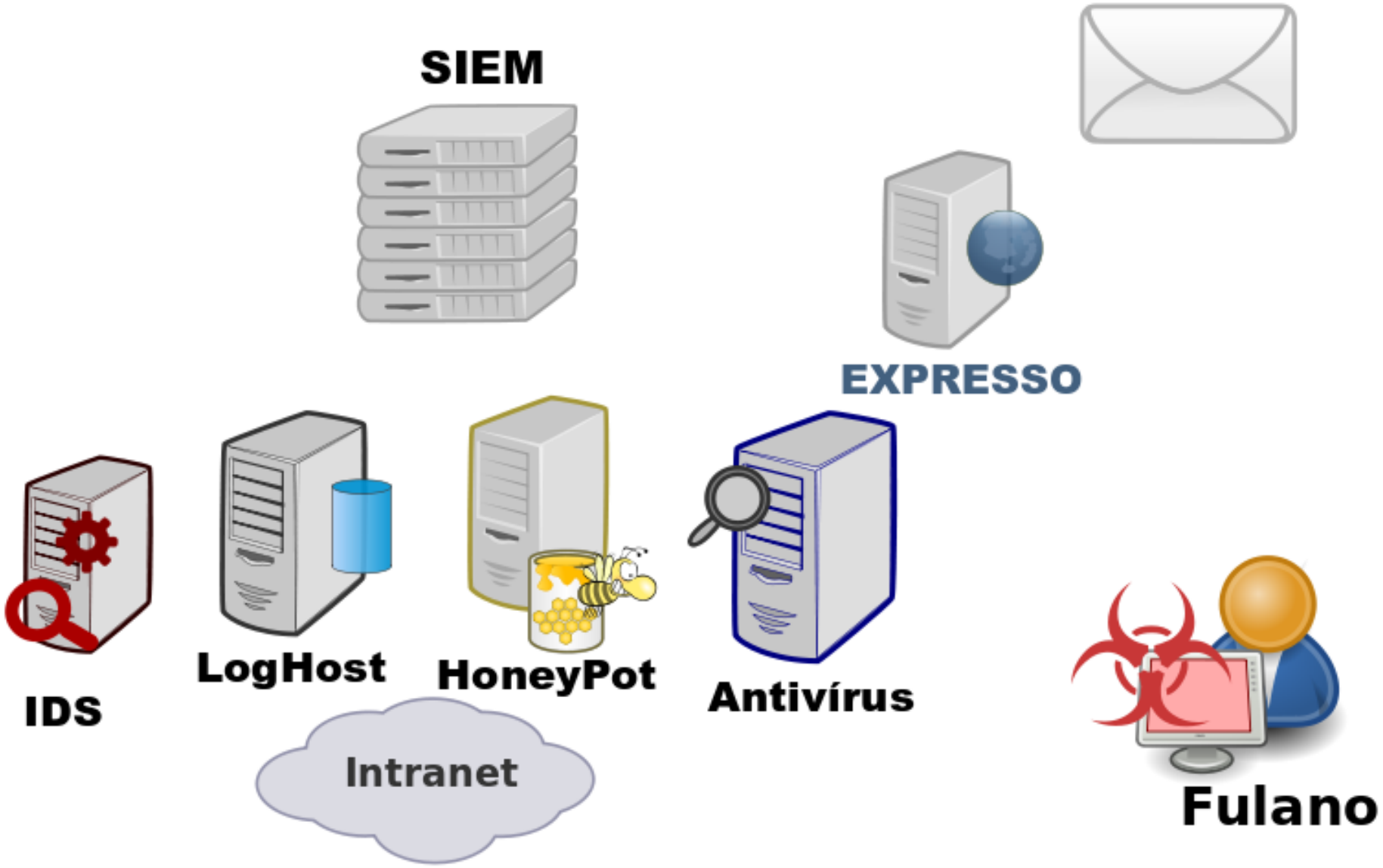
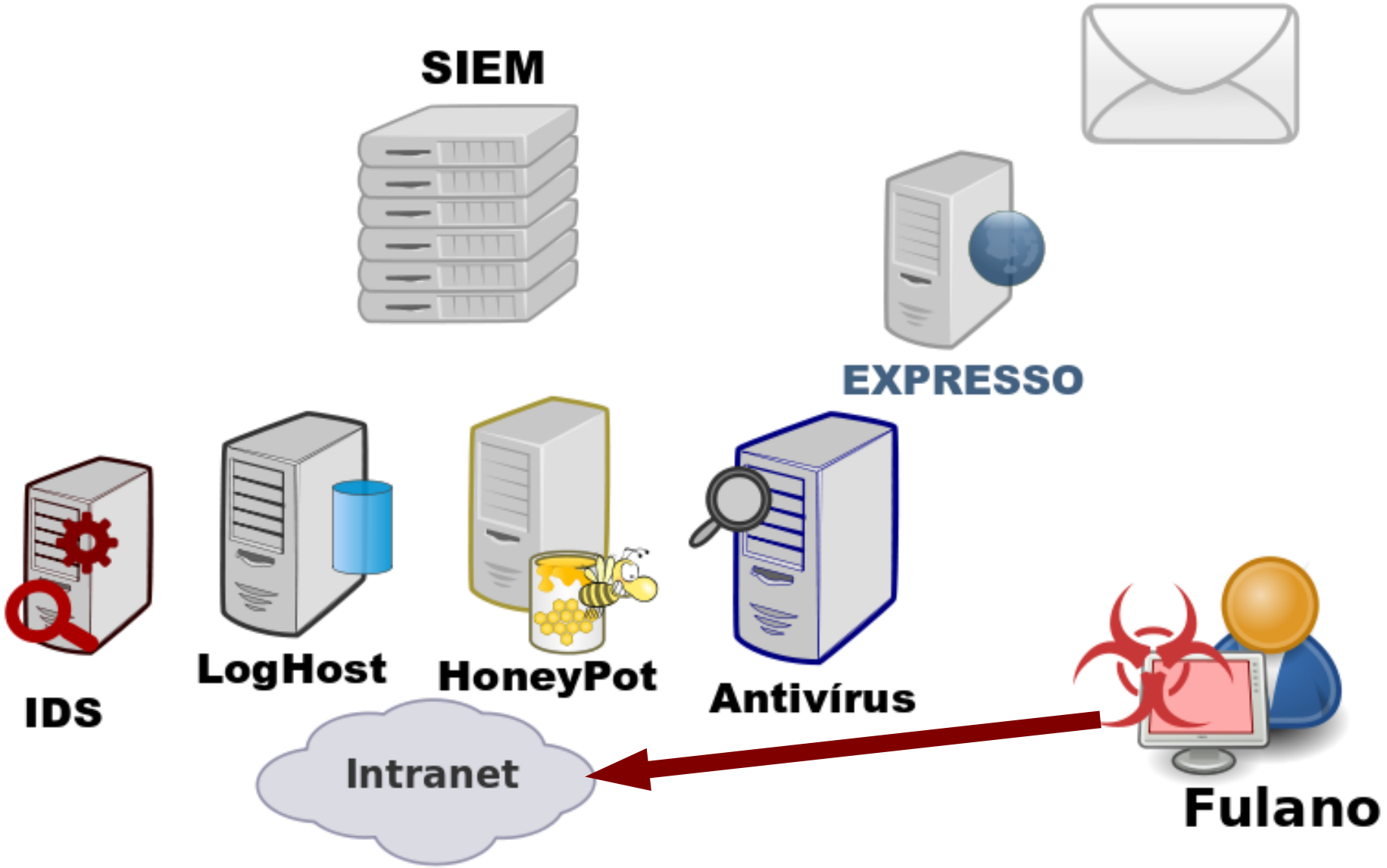
Tratamento de Incidentes



Tratamento de Incidentes



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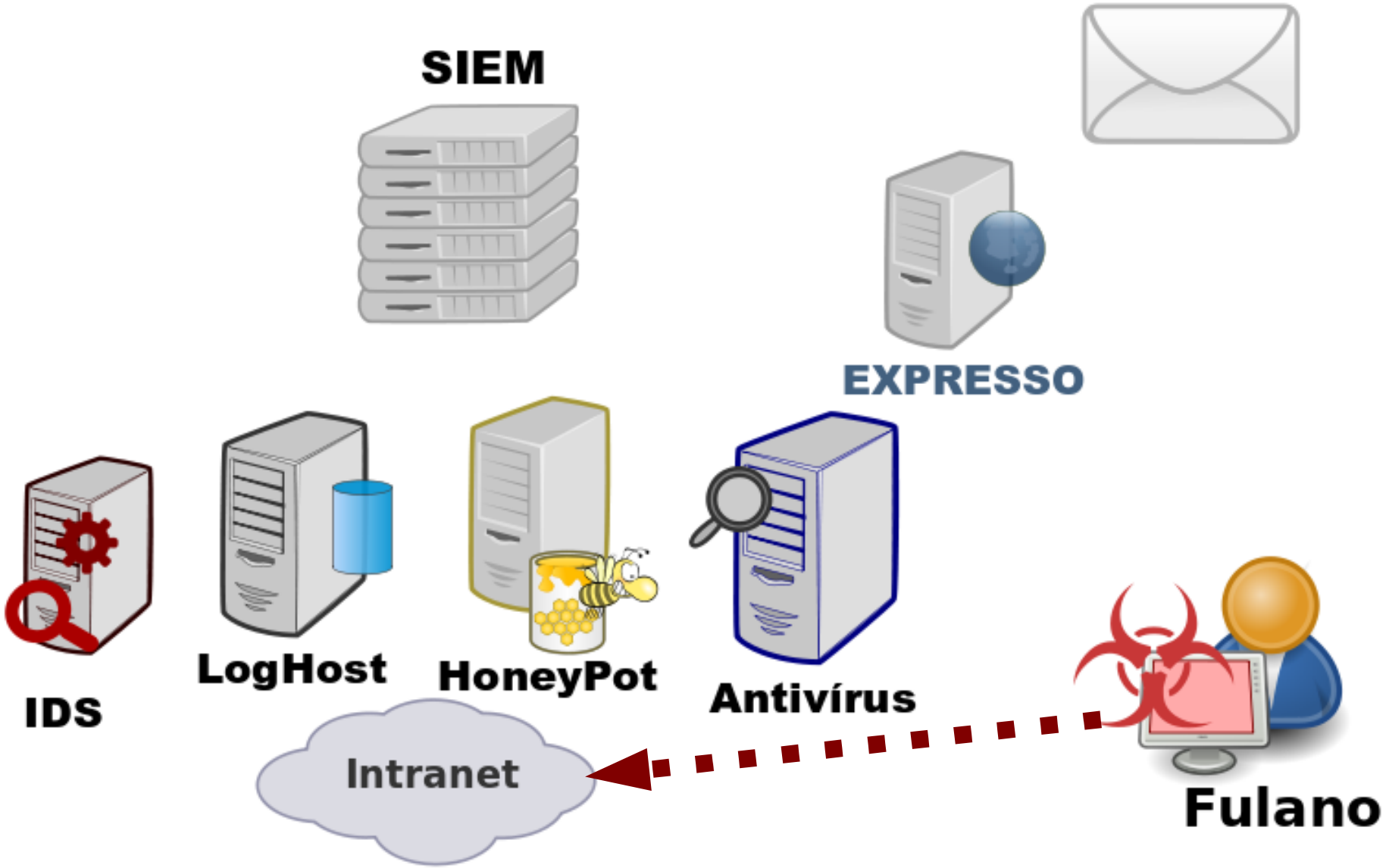

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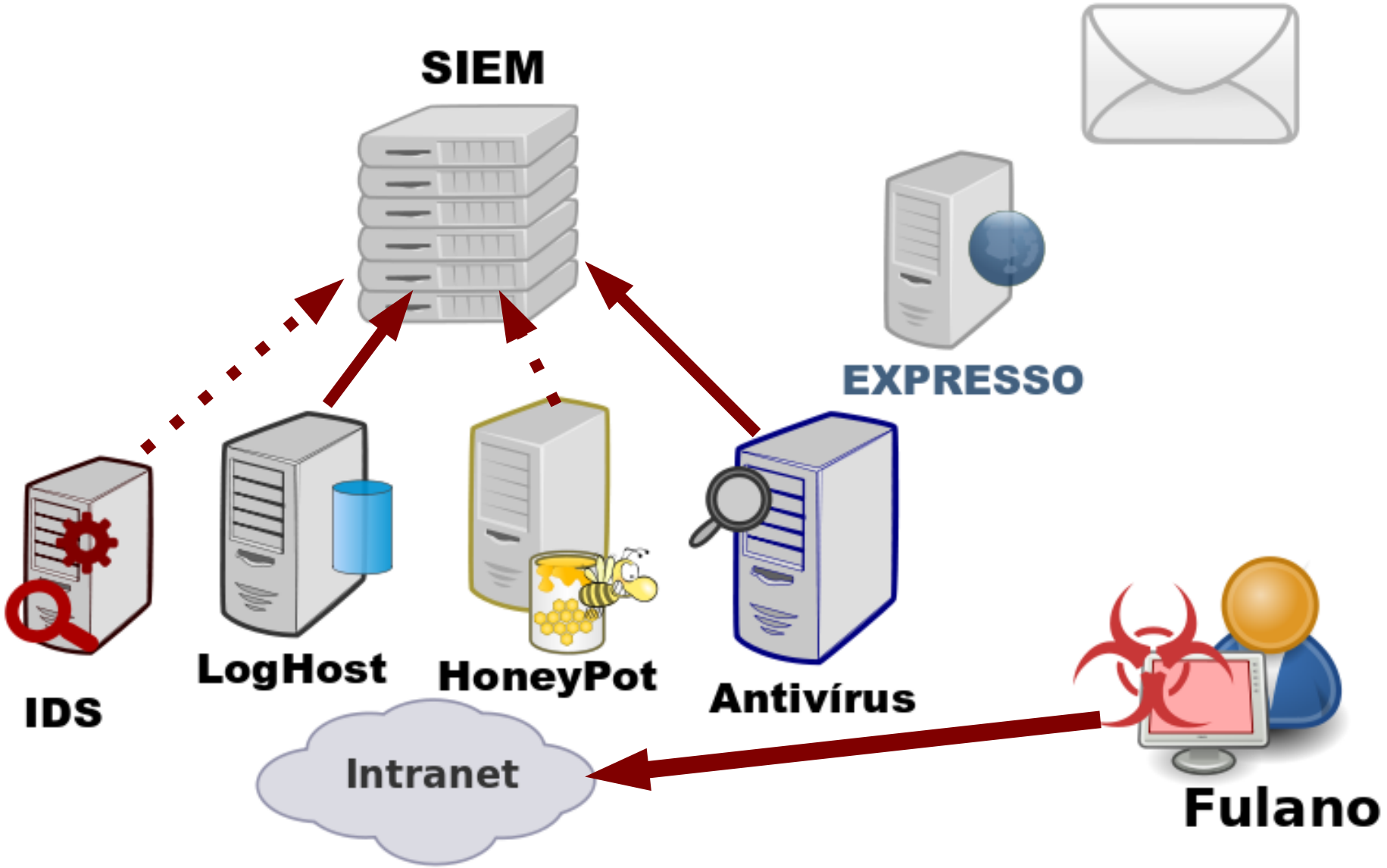
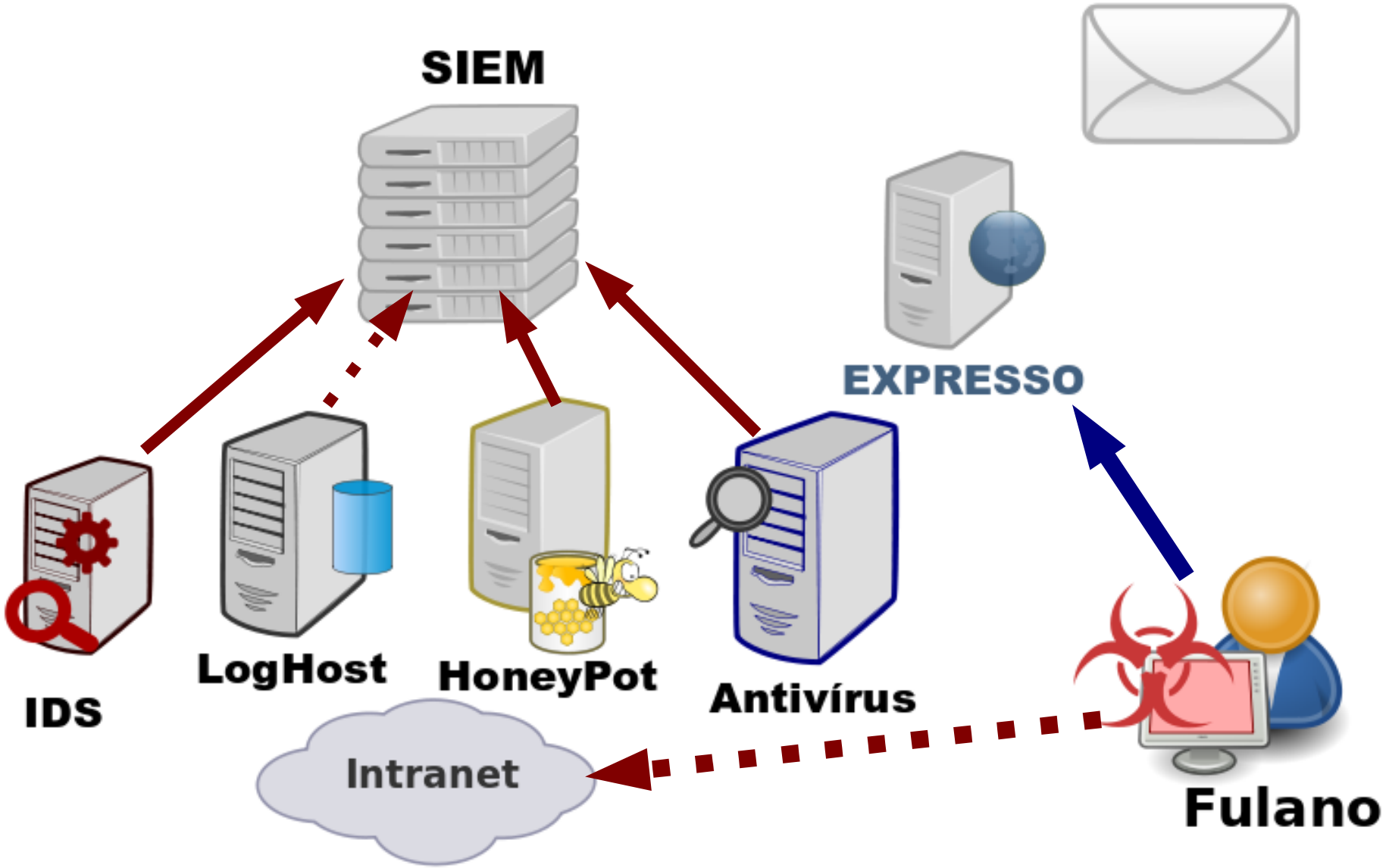


Tratamento de Incidentes



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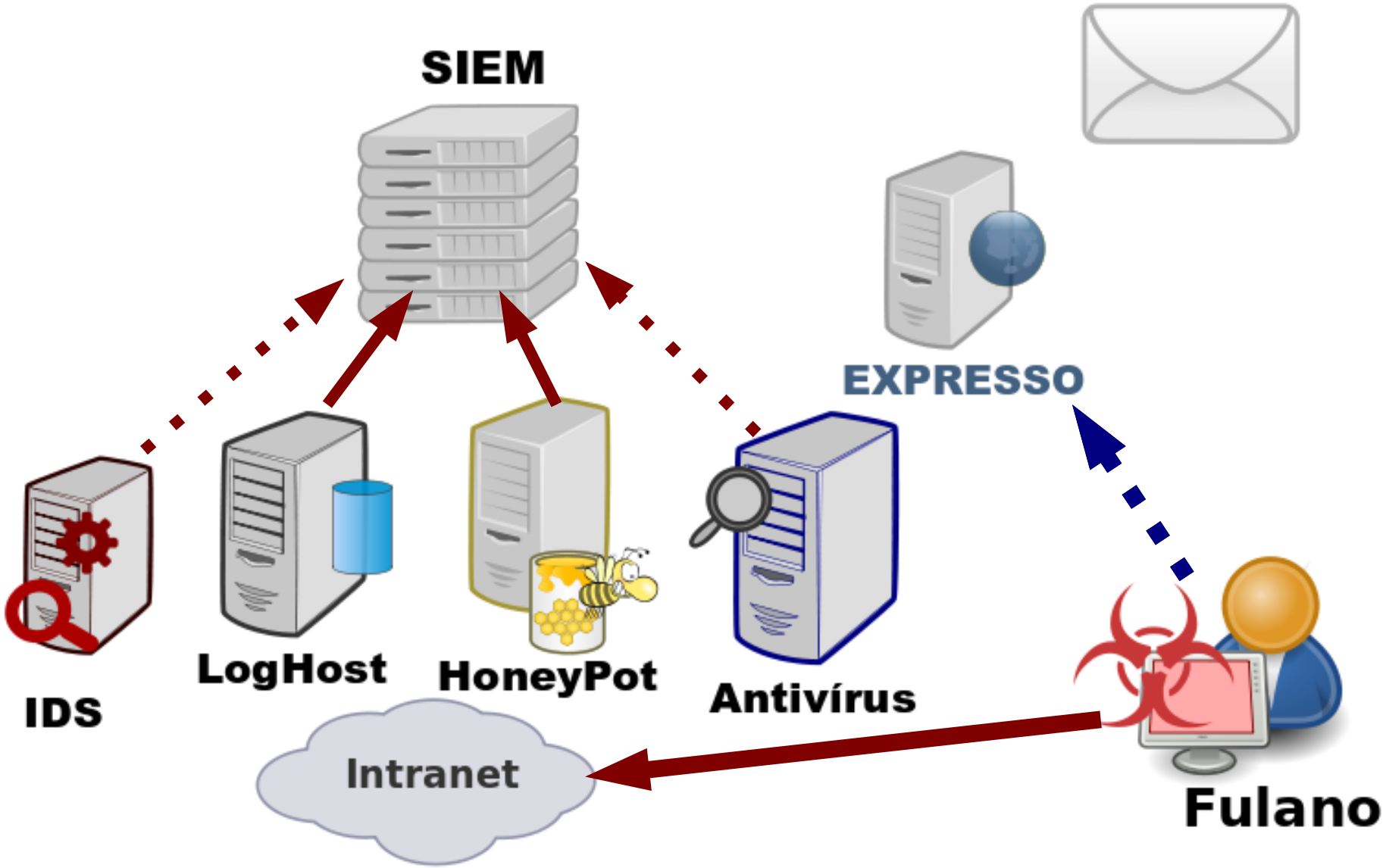

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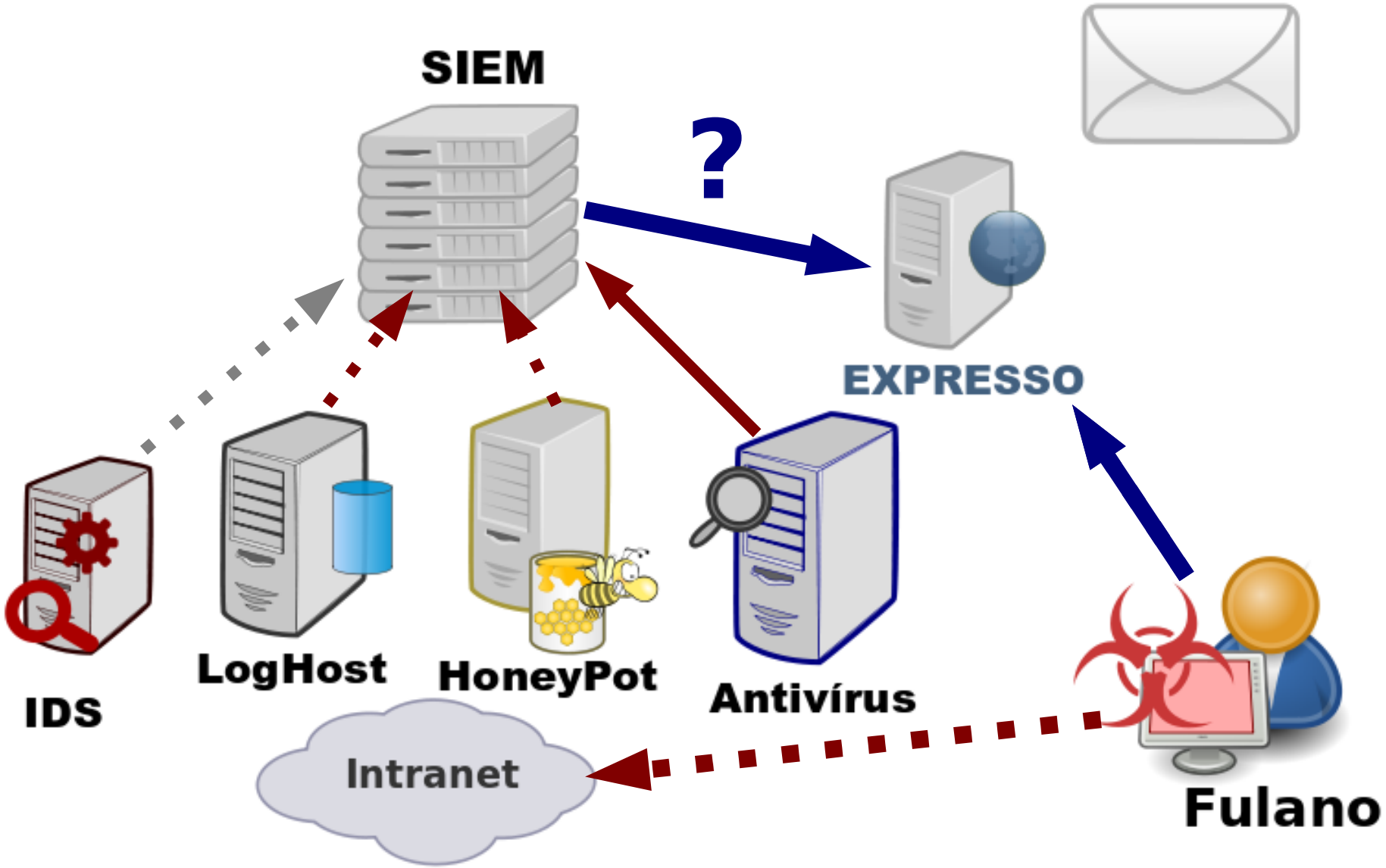
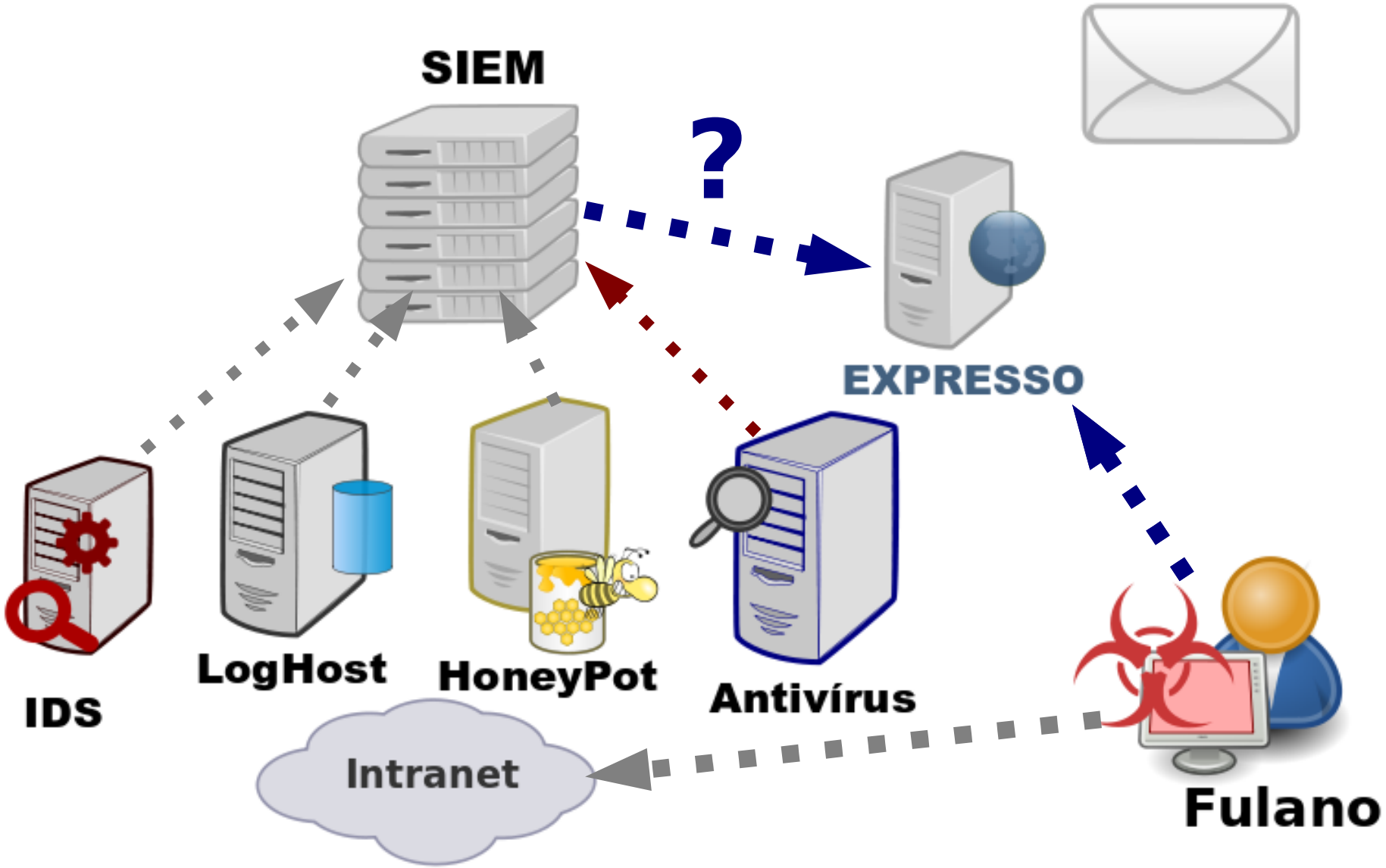
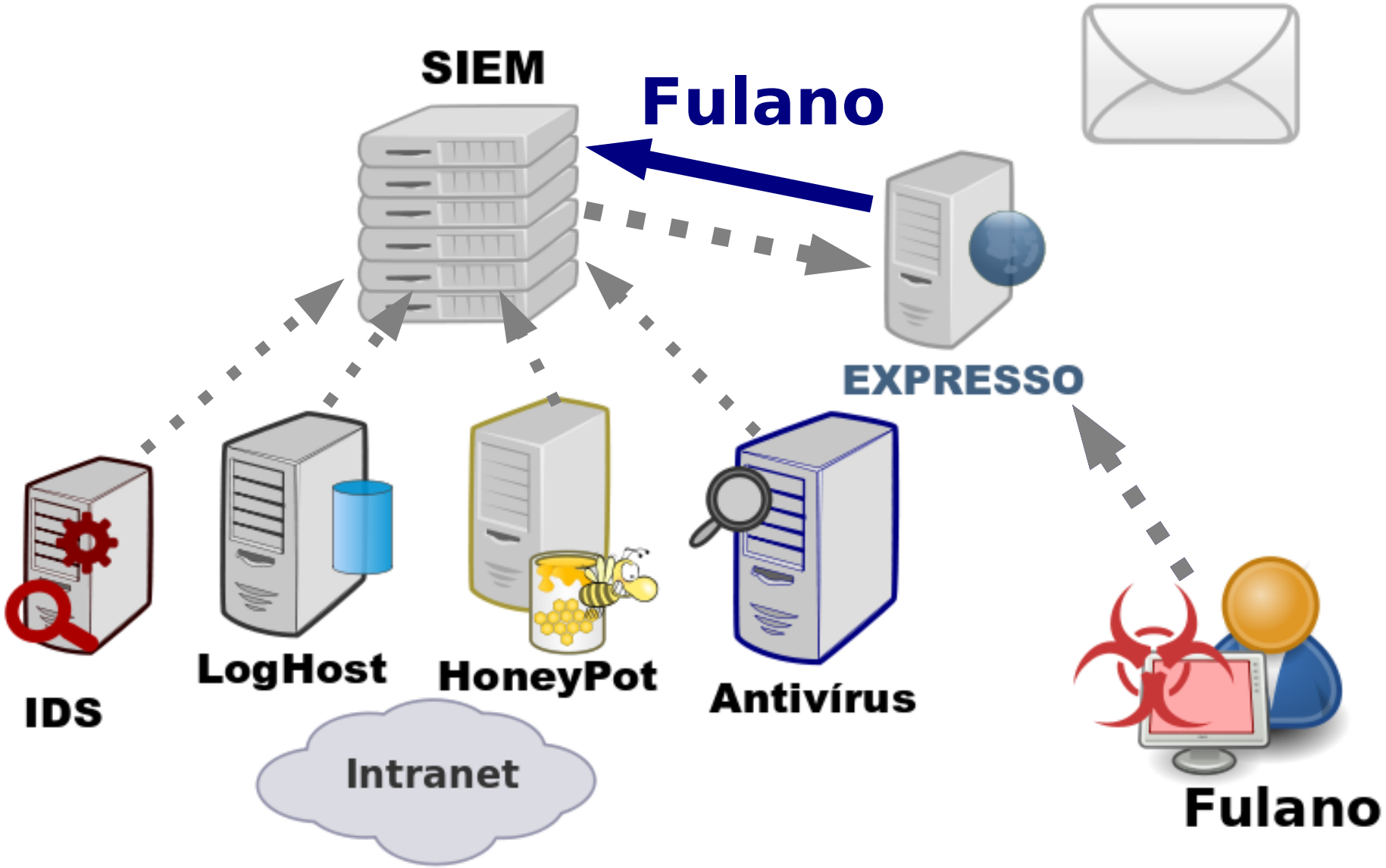


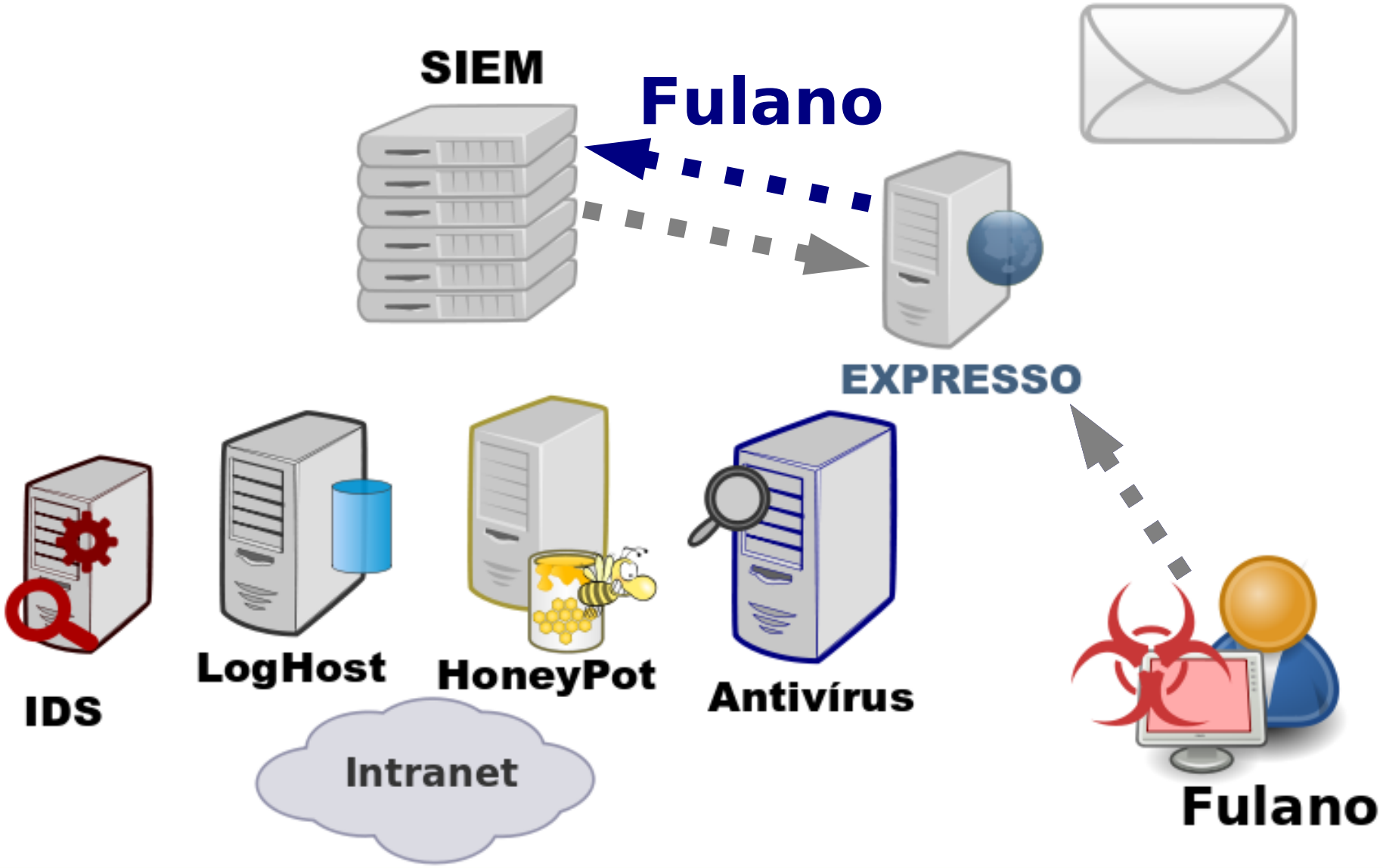
Tratamento de Incidentes



Tratamento de Incidentes



Tratamento de Incidentes



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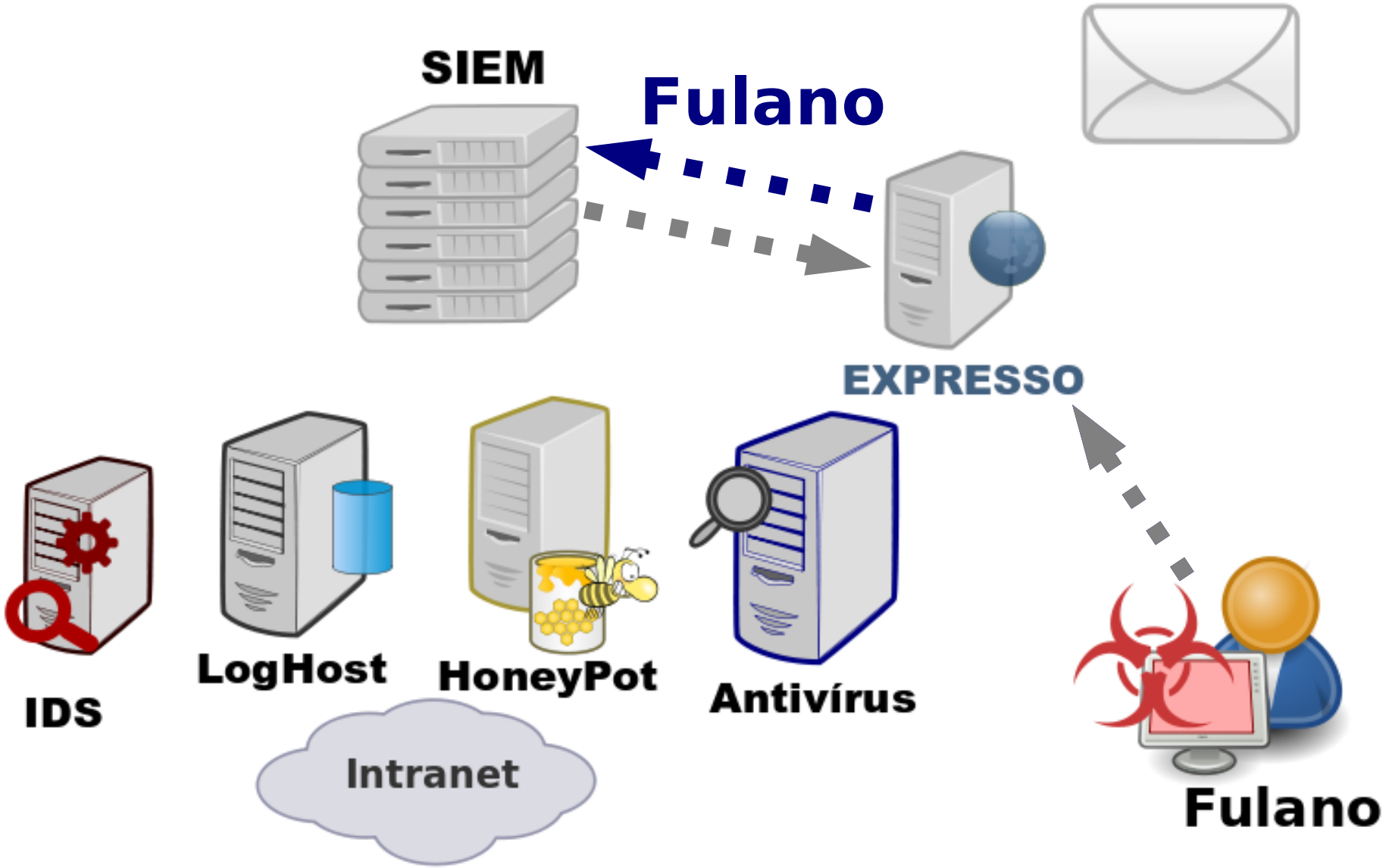
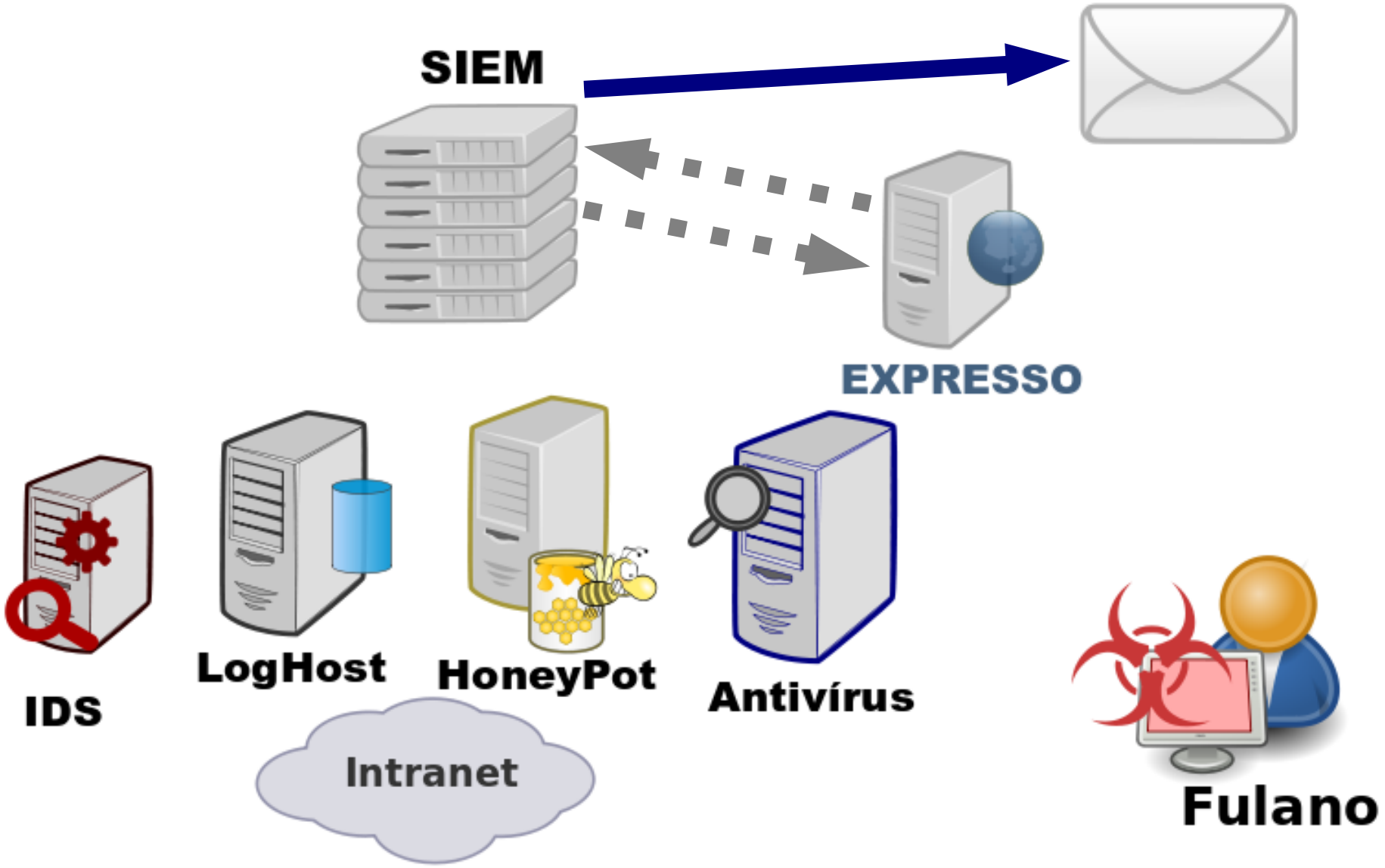
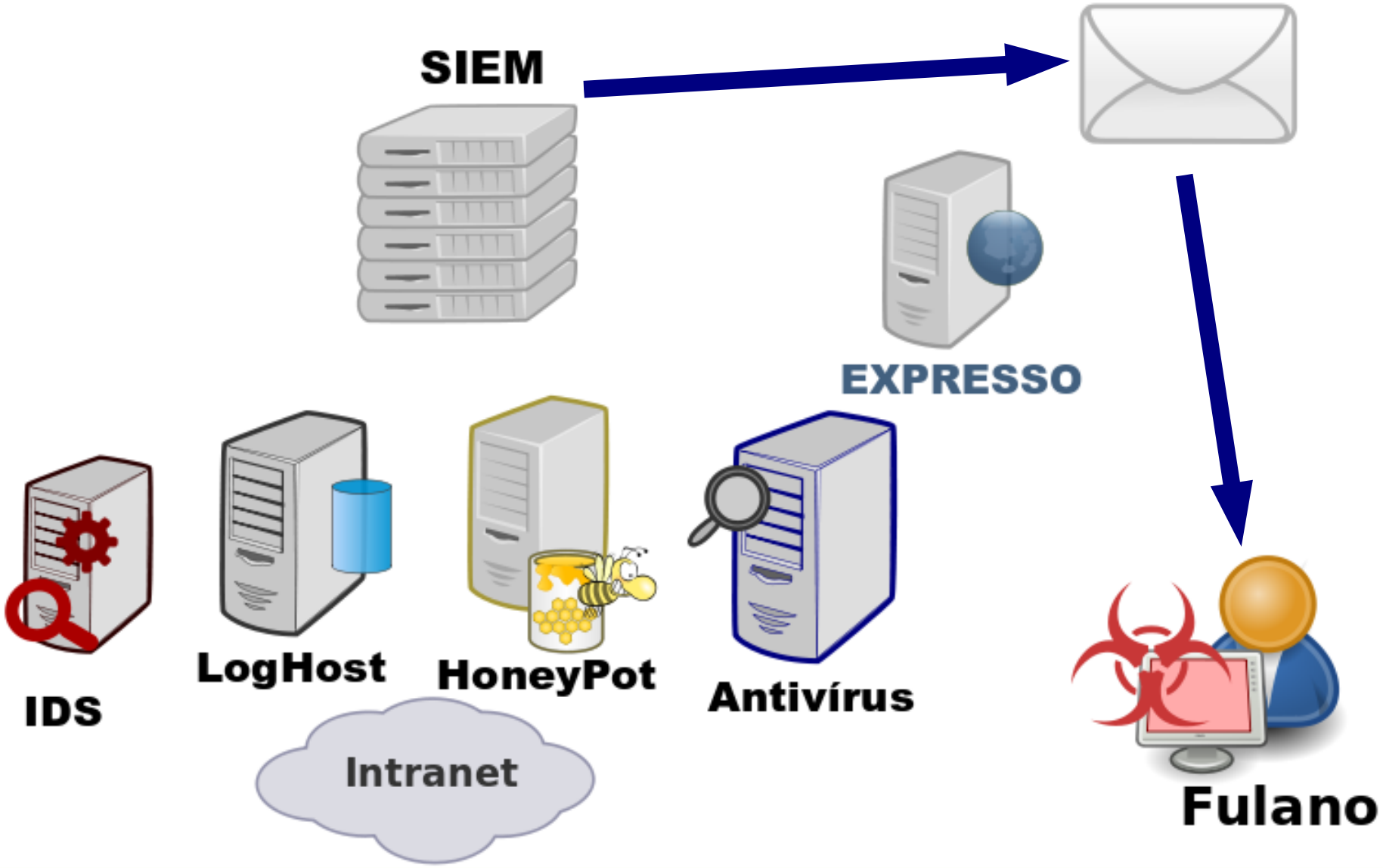


Tratamento de Incidentes



Tratamento de Incidentes



Tratamento de Incidentes

From: Equipe de Segurança

To: Fulano

Subject: [Mensagem Automática]

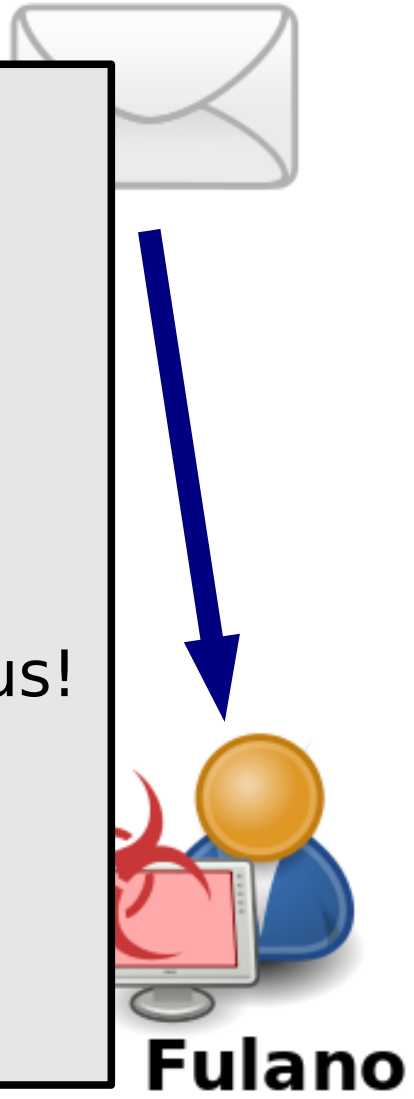
Caro(a) Fulano,

Identificamos que sua estação está com vírus!

Alertas: XYZ

Procedimentos: ABC

Gratos pela sua colaboração!



Notificações Externas

- CAIS
- Shadow Servers
- Google
- Outros...

Finalizando

Próximos Projetos
Conclusão

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Próximos Projetos

Em estudo:

- HoneyPot de alta interatividade:
  - SSH Kojoney, PHP, BotHunter

Futuramente:

- HoneyPot para VoIP
- HoneyPot em redes IPv6

Conclusão

HoneyPot/SinkHole/HoneyNet

- Monitorar estações que estão sem o antivírus corporativo
- Detecção de novos vírus e ameaças
- Baixo custo, efetivo, escalável e fácil de manter

Referências

- amada.abuse.ch
- [dionaea|nepenthes].carnivore.it
- www.honeyd.org
- www.honeypots-alliance.org.br
- http://isc.sans.edu/diary.html?storyid=7930
- www.malwaredomainlist.com
- www.rfc-editor.org
- www.shadowserver.org

OBRIGADO!

Perguntas?

seginfo@celepar.pr.gov.br

Produzido com:

debian GNOME

OpenOffice.org

INKSCAPE

GIMP